

DORSET  
NATURAL HISTORY AND  
ARCHAEOLOGICAL  
SOCIETY  
PROCEEDINGS  
Volume 113 for 1991

*Issued June 1992*



Editor Jo Draper

Subject Editors

D. F. Beamish (*Local History*) Sue Davies & Jo Draper (*Archaeology*)

Michael House (*Geology*) N. R. Webb (*Biology*)

Claire Pinder (*Index*)

© Dorset Natural History and Archaeological Society, 1992.  
Printed by The Friary Press Ltd., Bridport Road, Dorchester, Dorset.

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

Leaflets giving advice on presentation and layout, and on citing references, for articles intended for the *Proceedings* are available from the Editor, Dorset County Museum, High West Street, Dorchester, Dorset DT1 1XA. The Editor is happy to discuss drafts. If you have not written for publication before, or are intending to write a very long article, please get in touch with the Editor at an early stage.

Articles for the *Proceedings* should normally be sent to the Editor at the Dorset County Museum before 31st October for publication in June the following year.

The Editor regrets that in the paper by Bristow & Cox on the Kimmeridge Clay of the Darknoll Brook, published in the previous volume of these *Proceedings* (Vol 112, pp. 99-103) Figures 1 and 2 were transposed relative to their respective captions.

#### COVER

Study of two apostle heads for 'The Last Supper', the altarpiece in St. Mary's church Weymouth, by Sir James Thornhill, 1721. Pen and brown ink, 170 by 280 mm. Purchased for the Dorset County Museum at Christies in April 1991 with the generous help of one of the Society's members.

# CONTENTS

Thomas Hardy and the German Hussars	GEORGE LANNING	1
Education in Swanage 1787 - 1902	MARGARET EMMS	5
Brickmaking at Gillingham and Motcombe, Dorset	M.S. ROSS	17
Anglo-Saxon Abbey Shaftesbury - Bectun's Base or Alfred's Foundation?	ELINOR MURPHY	23
Field Survey and Excavation on Worgret Heath, 1990	D. COE & J.W. HAWKES	33
Observations at Merchant's Garage, High West Street, Dorchester, 1983	PETER S. BELLAMY	41
A Late Iron Age Settlement and Black-Burnished Ware (BB1) Production Site at Worgret, near Wareham, Dorset (1986-7)	CARRIE M. HEARNE & ROLAND J.C. SMITH	55
The Excavation of Fordington Farm Round Barrow	PETER S. BELLAMY	107
The Halstock Mosaic found in 1817	R.N. LUCAS	133
The geology of the A303 trunk road between Wincanton, Somerset and Mere, Wiltshire	C.R. BRISTOW, B.M. COX, M.A. WOODS, H.C. PRUDDEN, D. SOLE, M. EDMUNDS & J.H. CALLOMON	139
A geological map of Purbeck Beds in the northern part of Durlston Bay	J.F. NUNN	145
Dorset Dolines: Part 2, Bronkham Hill	MICHAEL R. HOUSE	149
Chesil Beach: landward recession 1965-1991	ALAN P. CARR & DENNIS R. SEAWARD	157
Unimproved neutral grassland in Dorset: survey and conservation	R.D. PORLEY & P.F. ULF-HANSEN	161
Dorset Archaeology in 1991		167
Shorter Contributions		
Two Bronze Figurines of Iron Age date from Dorset	MARTIN HENIG	186
Worth Matravers	DAVID A. HINTON & D.P.S. PEACOCK	187
Recent Archaeological Work at Chantry Fields, Gillingham	MICHAEL J. HEATON	190
Sir William Martyn	AMANDA COLBOURNE	192
Natural History Reports		
Geology	MICHAEL HOUSE	195
Halite Pseudomorphs from the Cherty Freshwater Member (Purbeck Limestone Formation) of Lulworth Cove, Dorset	J.D. RADLEY	195
The Occurrence of Megalosaurs in the Portlandian of Dorset	J.B. DELAIR	196
A Further examination of the Subfurcatum Zone (Middle Jurassic; Upper Bajocian) of North Dorset	JOHN HUXTABLE	196
A sphenontid jaw (Reptilia: Lepidosauria) from the Upper Jurassic of Dorset	SUSANE. EVANS & NICK C. FRASER	199
Small Reptiles and Amphibians from the Forest Marble (Middle Jurassic) of Dorset	SUSANE. EVANS	201
Predation amongst Jurassic Marine Reptiles	JANE CLARKE & STEVE ETCHES	202
Botany	D.A. PEARMAN	206
A Second Extant Dorset Locality for <i>Gastroidium ventricosum</i>	C.D. PRESTON & D.A. PEARMAN	207
Land Arthropods	N.R. WEBB	210
Lepidoptera	ALAN T. BROMBY	211
Hoverflies	E.T. & D.A. LEVY	212
Amphibians and Reptiles	ROBERT V. SKINNER	212
Mammals	E.M. KEATS	213
Bird Report	P.M. HARRIS	216
Rainfall	D.J. PAXMAN	216
A Downward Trend in Rainfall	D.J. PAXMAN	218
Obituary		
Ronald Norman Lucas		221
Index		223



HEADQUARTERS: DORSET COUNTY MUSEUM, HIGH WEST STREET, DORCHESTER, DORSET  
(telephone: Dorchester 262735)

### COUNCIL AND OFFICERS

- President:* The Hon. Mrs. Mary Anna Marten OBE DL
- Vice-Presidents:* Miss H.A.J. Brotherton CBE  
J. Stevens Cox Esq FSA  
R. A .H. Farrar Esq MA FSA  
A. T. Swindall Esq DipTP FRTPE ARICS  
A.B. Warrick Esq
- Trustees:* Major General H.M.G. Bond DL  
M.C. Matthews Esq TD BSc  
G.D. Squibb Esq MVO QC BCL MA FSA  
Sir Philip Williams Bt.
- Past Presidents:* C.J. Bailey Esq FSA  
J.R. Bradshaw Esq MA  
N.H. Field Esq BA BSc FSA
- Council:* Four members retire by rotation annually, but are eligible for re-election.  
The dates placed in brackets give the year of the original election to the Council.  
*To retire 1992:*  
A.T. Bromby Esq (1971)  
J.B. Hawthorne Esq MSc CBiol FIBiol FZS (1963)  
Mrs. E.M. Keats BSc FGS AMA (1978)  
Mrs. M.S. Ross (1988)  
*To retire 1993:*  
Miss P.M. Cunnington RIBA (1986)  
A. Jaggard Esq FRSA (1971)  
Mrs. P. Bowyer (1973)  
Mrs. J.M. FitzPatrick MA BSc MIBiol (1981)  
*To retire 1994:*  
G.B. Clarke Esq MA FSA (1986)  
Mrs. T. Hall (1988)  
M.G. Morris Esq PhD MA FRES (1985)  
D. Pearman Esq (1988)
- Co-opted:* J.F. James Esq BA (1988)  
Miss P. Sturdy (1989)  
A.J.H. du Boulay Esq (1991)
- Officers:*  
*Curator and Secretary:* R.N.R. Peers Esq MA FSA FMA MIFA  
*Deputy Curator:* Miss C.M. Hebditch BSc  
*Assistant Curator:* P.J. Woodward Esq BSc BArch MIFA  
*Hon. Treasurer:* R.F. Benoy Esq  
*Hon. Editor:* Jo Draper FSA  
*Hon. Field Secretary:* Miss E. Watkins
- Staff:*  
*Secretary:* Mrs. M. Bennett  
*Assistant Treasurer:* Mrs. C. Hart  
*Schools Organiser:* Miss L. Poulsen MA BEd Cert.Ed.  
*Caretaker:* T. Machen Esq  
*Assistant Caretaker:* Mrs. H. Machen  
*Cleaner:* Mrs. C. Cooke



# Thomas Hardy and the German Hussars

GEORGE LANNING

There were thousands of troops stationed in Dorset at the beginning of the nineteenth century. In the summer of 1805, for instance, there were 9,000 encamped around Weymouth alone. These troops were stationed in Dorset for two reasons: to protect the life of King George III during his holidays in Weymouth and to oppose the French invasion which many people in Britain thought was imminent and which many people in Dorset expected to take place in either Poole Harbour or Weymouth Bay. Among the thousands of troops, there were at any one time approximately 500 German Hussars who belonged to two regiments of German Hussars. The first of these arrived in Weymouth in August 1800 and left, to be disbanded, at the end of June 1802. These were known as the York Hussars. The other regiment arrived in Weymouth in December 1803 and spent the next two years in Dorset, sometimes in Weymouth and sometimes in Dorchester, before setting off in the autumn of 1805 to take part in an expedition to north-west Germany. These were the Hussars of the King's German Legion.

The German Hussars seem to have fascinated Thomas Hardy. They provide the background to his short story *The Melancholy Hussar*, they are mentioned in *The Dynasts* and make numerous appearances in *The Trumpet Major*. They are also referred to in three poems, 'Valenciennes', 'Leipsig' and 'Budmouth Dears'. In his *The Making of The Trumpet Major* M.E. Edwards suggests that:

Hardy was always strangely attracted by the thrilling York Hussars whom he saw as some sort of beautiful blighted beings, lost and homesick in a foreign land.<sup>1</sup>

The way in which this attraction is revealed in Hardy's prose is exemplified in *The Melancholy Hussar*. Hardy describes how lonely and boring life had been in an isolated village like Bincombe - in spite of being only a few miles from Weymouth with all its bustle and gaiety - when suddenly everything changed. Hardy explains that:

At this point of time a golden radiance flashed in upon the lives of people here, and charged all youthful thought with emotional interest. This radiance was the aforesaid York Hussars.<sup>2</sup>

Another quotation, illustrating Hardy's admiration for these Hussars, is to be found in *The Trumpet Major* when the village girls are described as walking out on 'the gorgeous arms of the thrilling York Hussars'.<sup>3</sup>

In spite of his admiration for the York Hussars, however, Hardy did not seem to realise that they were an entirely different regiment from the Hussars of the King's German Legion. He did wonder about it though. In his 'Trumpet Major Notebook', he asked himself the question - the York Hussars, 'Are they the same as the German Legion?'<sup>4</sup> Unfortunately, he did not answer the question. From his later writings, however, it would appear that the answer would have been in the affirmative.

Evidence of Hardy's confusion on this point is revealed in the short story *The Melancholy Hussar*. This is the story which concerns the execution of two corporals of the Hussars for desertion. It is based on facts which Hardy gleaned from a report in *The Morning Chronicle* of July 4, 1801.<sup>5</sup> In the light of that date he is quite correct to refer to his hero throughout the story as a member of the York Hussars. He confuses the issue, however, by entitling the story, *The Melancholy Hussar of the German Legion* and explaining in the text that, 'The celebrated York

Hussars of ninety years ago ..... were one of the regiments of the King's German Legion.'<sup>6</sup>

Further to this story, there is an incident in *The Dynasts* when a spectator at the grand review explains to a visitor that the German troops present are:

The York Hussars - foreigners to a man, except the officers - the same regiment the two young Germans belonged to who were shot here four years ago.<sup>7</sup>

The action in *The Dynasts* however, takes place in the year 1805, three years after the York Hussars had been disbanded.

In *The Trumpet Major*, where the military play an important part in the unfolding of the plot, Hardy changes the name of the German troops from scene to scene. As the action is deemed to have taken place in the years 1804 and 1805, any German troops in the vicinity of Weymouth would have been members of the King's German Legion. In the story, however, when the first troops arrive in Overcombe, Simon Burdon explains that, 'Tis the York Hussars, foreigners to a man.' Furthermore, on the same page, there is a description of the Hussars' uniform. If the troops present really had been York Hussars, they would have been wearing scarlet jackets with green trousers and green pelisses. As it is, Hardy describes perfectly the uniform of the Hussars of the King's German Legion with 'those richly ornamented blue jackets mantled with the historic pelisse.'<sup>8</sup>

In the next scene the troops come to water their horses whilst Anne Garland is sitting at her window. It is then the 'troops of the German Legion' who salute her with 'devoted foreign civility.' Yet, when she goes downstairs some time later, she is still recovering from 'the ardent gaze of the gallant York Hussars.'<sup>9</sup>

Of course, the fact that Hardy did not distinguish between the two regiments of German Hussars does not affect the plots of his stories or, presumably, the pleasure people have from reading them. Nevertheless, it should be pointed out that, whilst both regiments were Hussar regiments, they differed considerably in their composition and that this, in turn, affected the impact which they each made on Dorset life and society.

The York Hussars were one of the many German regiments which were hired for service with the British Army at the beginning of the Revolutionary War with France. It was necessary to hire foreign regiments because it had been the practice of the British Government throughout the eighteenth century to reduce as rapidly as possible the size of the British Army at the end of each war. Consequently, at the beginning of the next war Britain was completely unprepared to undertake a land campaign. At the beginning of 1793, for instance, the British Army consisted solely of three battalions of infantry and 20 squadrons of cavalry. When a British force of 34,000 men was sent to the Continent that year, it included 18,000 men from Hanover, 12,000 from Hesse Cassel, 3,000 from Hesse Darmstadt and 750 from Baden. It was, presumably, these Germans whom Hardy refers to as the German Legion in the poem, 'Valenciennes,' the second verse of which reads:

'Twas in the June o' Ninety-dree  
(The Duke o' York our then Commander beën)  
The German Legion, Guards and we  
Laid siege to Valenciëen

The York Hussars were raised in Hanover in 1794 when a Baron de Wydenbruck agreed with the Duke of York who was the then Commander-in-Chief of the British Army, to 'levy in

1 M.E. Edwards: *The Making of Hardy's The Trumpet Major* (M.A. Thesis, University of Birmingham, 1967) p.116. (Copy in Dorset County Library).

2 'The Melancholy Hussar of the King's German Legion,' *Life's Little Ironies* (London, 1894) p.156.

3 *The Trumpet Major* (New Wessex Edition) p.106.

4 p.65 (The notebook is in the Dorset County Museum)

5 *ibid.*, p.13

6 *ibid.*, p.156

7 *The Dynasts* (New Wessex Edition) p.79

8 *The Trumpet Major*, p.44

9 *ibid.*, p.56

Germany for the service of Great Britain 800 men of Light Hussars.<sup>10</sup> They were engaged in the 1795 campaign in Germany and the Low Countries before being sent, along with a number of other foreign regiments, to the West Indies where they took part in the continuing struggle to seize the French-controlled sugar islands. When they arrived in the West Indies the York Hussars consisted of 42 officers and 646 men. Eighteen months later their numbers were down to 18 officers and 219 men. Most of the losses were due not to enemy action but to fevers and diseases such as malaria, yellow fever and dysentery. Other regiments suffered just as badly. (During this campaign the British casualties numbered 80,000, of whom 40,000 died). The York Hussars were kept in existence only by accepting the remnants of other foreign regiments as they were disbanded. The result of this was that by the time the York Hussars returned to Europe in 1799 they were no longer an homogenous body of Hanoverians. Hardy may well be correct when he states that they included 'Hanoverians, Saxons, Prussians, Swedes, Hungarians and other foreigners.'<sup>11</sup> Certainly, after February 1800, they included a number of Dutchmen who were drafted into the York Hussars following the disbandment of their own Dutch Emigrant Brigade.

The York Hussars' first posting on their return to Europe was to the Isle of Wight. They were sent to Weymouth in August 1800 and made an immediate impression, being described in the *Sherborne and Yeovil Mercury* as 'a very warlike, martial-looking body of men.'<sup>12</sup> They had arrived in the resort too late for that year's grand review but within a fortnight they were being inspected by the King. There was nothing significant in this visit. George III inspected every regiment on its arrival. In fact, throughout their stay in Weymouth, the York Hussars were treated just like any other regiment.

One unusual aspect of the King's first visit to the York Hussars, however, was its length. After the formal inspection of the regiment, the royal party 'remained in the camp some time, highly amused with their singing, which was executed in the best German style.'<sup>13</sup> Both regiments of German Hussars appear to have been fond of singing and at least one visitor to Weymouth commented upon 'the Hanoverian cavalry careering on the sands, and singing their fine musical choruses as they passed along the road.'<sup>14</sup> This fondness for singing is reflected in Hardy's poem, 'Budmouth Dears', in which one of the Hussars remembers the fair damsels of Weymouth,

With their tall and tossing figures and their eyes of blue and brown!  
And our hearts would ache with longing  
As we paced from our sing-singing,  
With a smart Clink, Clink, up the Esplanade and down.

The King left Weymouth that year on October 8 and the York Hussars moved into barracks for the winter. In the early summer of 1801 they were encamped again on the hills behind Weymouth. It was not long before they were in the news. This was occasioned by the desertion of six men, two corporals and four privates - not just two corporals as recounted by Hardy in *The Melancholy Hussar*. These deserters stole a boat from Weymouth harbour and sailed across the Channel. When they landed they found to their dismay that they were not in France as they had expected but on the island of Jersey. There they were apprehended and returned to England where they were court-martialled and sentenced; the privates to be flogged, the corporals to be executed by firing party. The execution took place on 30 June in front of the whole garrison, numbering about 4,000 troops that year, and some civilian spectators. *The Sherborne and Yeovil Mercury* described the execution as 'one of the most martial as well as awful scenes ever witnessed in this county.'<sup>15</sup> The Commanding Officer of the York Hussars referred to it in a speech after the parade as a 'melancholic and

afflicting spectacle.'<sup>16</sup> Undoubtedly, it stamped the name of the York Hussars indelibly upon the military history of Dorset.

It is intriguing to wonder why six men should want to desert from what was acknowledged to be a very efficient regiment. Hardy suggests that the reason was homesickness. He explains that:

The regiment was pervaded by a dreadful melancholy, a chronic homesickness which depressed many of the men to such an extent that they could hardly attend to their drill.<sup>17</sup>

Homesickness may have been one reason. Another may well have been the lack of rapport which existed between the men and certain of the officers. The men were predominantly German. The officers were of various nationalities. Half of them, including the Commanding Officer, were British whilst some of the others were Irishmen who had served in the pre-Revolutionary French Army. The difference in the nationalities of officers and men may not of itself have posed a problem. What did pose a problem was the fact that, whilst German was the men's native tongue, certain of the officers neither spoke nor seemed inclined to learn it. When Colonel Robert Long, who was himself fluent in both German and French, took over the command of the York Hussars in May 1800, he was appalled at the ignorance of the German language of some of his officers. He complained to the War Office that Captain O'Toole, who had been in the Regiment since 1796, 'knows little or nothing of the German language and is consequently incapable of instructing the men under his command'; that Captain Howard, who had been in the Regiment since 1795, 'knows little or nothing of the German language and can scarcely pronounce the words of command'; and that Lieutenant Burgess, who had also been with the Regiment since 1795, 'is perfectly ignorant of the language and is unfit for his situation.'<sup>18</sup>

Nevertheless, neither the executions nor the linguistic inability of some of the officers seem to have affected the overall efficiency of the Regiment. By August 14, 1801, when they were next inspected by the King, they were being judged as 'a fine regiment, well mounted.'<sup>19</sup> Later, on September 12, they impressed the Royal Family when, taking part in an exercise on Chickereil Common,

They went through their evolutions with great ability, particularly in repulsing the opposite party, stationed for the defence of Portland Island.<sup>20</sup>

The executions did not seem to affect the popularity of the Hussars with the local population either. The local young women, in particular, found them fascinating. The features which they admired most were, according to Hardy, 'their brilliant uniform, their splendid horses, and above all, their foreign air and mustachios.'<sup>21</sup> They were also amused by the soldiers' guttural accents as they tried to speak English. They also appreciated the polished manners of the foreigners who, on the whole, were socially superior to their British counterparts. As Hardy pointed out, referring to the hero of *The Melancholy Hussar*:

No such refined or well-educated young man could have been found in the ranks of the purely English regiments, some of these foreign soldiers having rather the graceful manner and presence of our native officers than of our rank and file.<sup>22</sup>

It was not long before local young women were walking out with German soldiers. Four actually married them. One of the weddings was rather hurried. The banns of marriage between Elizabeth Page of Melcombe Regis and David Haultaufferheyden of the York Hussars were read in St. Mary's

<sup>10</sup> General Robert Long's *Private Papers* Vol. 9 p.9 (Manuscript, National Army Museum)

<sup>11</sup> *The Trumpet Major*, p.110

<sup>12</sup> *Sherborne and Yeovil Mercury*, 18 August 1800

<sup>13</sup> R. Huish: *Public and Private Life of George III* (London, 1821) p.633

<sup>14</sup> Amelia Murray: *Recollections from 1803 to 1807* (London, 1868)

<sup>15</sup> *Sherborne and Yeovil Mercury*, 6 July 1801

<sup>16</sup> Long, Vol. 9 p.339

<sup>17</sup> *The Melancholy Hussar*, p.158

<sup>18</sup> Long, Vol. 9 p.235

<sup>19</sup> Unidentified newspaper, 17 August 1801, in Bowles Barrett Collection (Weymouth Library)

<sup>20</sup> *ibid.*, 12 September 1801

<sup>21</sup> *The Melancholy Hussar*, p.156

<sup>22</sup> *ibid.*, p.158

church. Melcombe Regis, on November 8, 15 and 22, 1801. The wedding took place on November 25<sup>23</sup> and a daughter, Mary Ann, was born on January 10, 1802.<sup>24</sup>

When the King left Weymouth on October 1, 1801, the York Hussars returned to barracks for the winter. Whilst they were there, a truce was arranged between Britain and France and in March 1802 the Peace of Amiens was signed. Immediately the British Government began to demobilise the various foreign regiments. The York Hussars were one of the first to go. They set sail from Weymouth on June 30 and 'the breeze, being favourable, wafted these brave, (once) foreigners to Cowes, their destination.'<sup>25</sup> At Cowes, on July 24, the York Hussars were disbanded. The officers were placed on half-pay. The men were given the choice of a transfer to a British regiment or a free passage home. Of the 331 men remaining in the regiment, 272 chose the passage home.

The disbandment of the York Hussars proved to be premature because on May 16, 1803, war was renewed. Almost immediately the French Army marched on the German state of Hanover. Although they had a standing army of 15,000 competent troops, the Hanoverian Government decided to capitulate without fighting. One of the terms of the subsequent armistice was that the Hanoverian Army should be disbanded. George III, who was the titular head of Hanover, decided to try to persuade the members of this disbanded army to come to Britain to serve with the British Army. On August 10, he issued a Royal Proclamation in which he invited *Alle Ausländer vorzüglich aber alle braven Deutschen* ('All foreigners and especially good Germans')<sup>26</sup> to join a light infantry battalion which was being raised to serve under the King's colours and which would be known as the King's German Regiment. At first, the response to this proclamation was lukewarm - men were doubtful of the wisdom of leaving their homes and loved ones for an uncertain future in a foreign land - but as the treatment of the Hanoverian population by the occupying French grew increasingly harsh, so the numbers of volunteers grew. Groups of officers decided to accompany each other to England. Furthermore, they encouraged the soldiers who had served under them to volunteer too. Soon the number of volunteers was more than enough for a single regiment. It was then decided to expand the new organisation into a corps of all arms. This was to be known officially as the King's German Legion, although it was generally referred to as the German Legion or even the Hanoverian Legion. The corps was officially established on December 19, 1803. By that date it contained 2,397 recruits of whom 400 were cavalrymen quartered in Weymouth.<sup>27</sup>

The Infantry and the Foot Artillery of the new corps were stationed in Hampshire; the Cavalry and Horse Artillery in Dorset. The Cavalry was organised into two regiments. Firstly, there was a heavy cavalry regiment in Dorchester. This was known as the 1st Dragoons. Then there was a light cavalry regiment in Weymouth. This regiment was officially known as the 1st Light Dragoons but it was always referred to by the Germans themselves as the 1st Hussars - indeed, they wore the uniform of hussars and many contemporary records refer to them as Hussars. Incidentally, the roles of Light Dragoons and Hussars were similar - mainly reconnaissance before battle and pursuit afterwards - but Hussars wore more glamorous uniforms and were considered to be altogether more dashing. (There were, in fact, no Hussar regiments in the British Army before 1806 and the German light cavalry regiments were not officially designated 'Hussars' until 1813).<sup>28</sup> By February 1804, each German cavalry regiment contained 500 men.

There were obviously a number of fundamental differences between the Hussars of the German Legion and the York Hussars. The former were fighting for a heartfelt cause; their ultimate aim was to return to Hanover to drive the hated French from their homeland. The York Hussars were fighting the French as their professional enemies. Secondly, the Hussars of

the German Legion were a far more homogenous group of men than the York Hussars. There were some non-Hanoverians, even non-Germans, in the Legion as a whole but these were mainly in the Infantry. Initially, at least, there were none in the Cavalry. Then, again, officers and men in the German Legion had served together previously and there was the right kind of rapport between them. There were certainly no language barriers as there were in the York Hussars. Finally, there was the favouritism which the King bestowed upon the Hussars of the German Legion. Whilst he treated the York Hussars like any other regiment in the British Army, he regarded the members of the German Legion as his Household troops, similar in status to the British Guards. It is significant that when the King visited Dorset in 1804 and 1805 it was, on both occasions, the Hussars who welcomed him. In 1804 they met him in Dorchester and escorted him to Weymouth. Hardy makes use of this fact when, in *The Trumpet Major*, he describes the royal journey across the ridge-way:

Then there arose a huzza from the few knots of watchers gathered there, and they cried, 'Long live King Jarge!' The cortege passed abreast. It consisted of three travelling carriages, escorted by a detachment of the German Legion.<sup>29</sup>

The officers of the King's German Legion were mainly from the nobility and the landed gentry of Hanover. Many of their families were well known to the Royal Family. Consequently they received a number of invitations to royal functions such as theatre-visits, balls and private parties. Normally such invitations were restricted to the Commanding Officers of regiments; Colonel Long of the York Hussars, for instance, had attended the theatre regularly with the royal party. In the case of the King's German Legion, however, the invitations were extended to other officers. On August 27, 1804, for instance, only two days after the Royal Family's arrival in Weymouth, they were all presented to the Royal Family at the King's Lodge.<sup>30</sup> Again, in August 1805, they were all invited to the birthday party of H.R.H. Princess Amelia at the Royal Hotel in Weymouth.<sup>31</sup>

The fact that the Hanoverian officers were popular with the Royal Family ensured their popularity with the local gentry. The Germans had expected to be met with traditional English aloofness but, as one officer explained, once the English people realised that they really were gentlemen, they were invited to 'breakfasts, luncheons, dinners, suppers, balls, garden parties, walks, driving and riding, shooting, hunting and fishing.'<sup>32</sup>

One thing the German officers found strange at English parties was that guests were expected to sing or to play a musical instrument. Fortunately the Germans were very musical and so could meet this expectation. This made them very popular with hostesses. They could also dance well and this made them very popular with the young ladies. A dance which had recently become popular on the Continent was the waltz. This had not yet found favour in England, where, indeed it was still considered to be somewhat daring. Consequently, the German officers found some difficulty in finding partners for that particular dance. Elizabeth Ham, who was in her early twenties and living in Weymouth at that time, recalled in her journal that

The officers of the German Legion used to amuse us greatly with their broken English and their vain efforts to try and induce us to try a waltz. This was the first we had ever seen of this kind of dance.<sup>33</sup>

The German soldiers too found that they were not as unpopular as they had feared they might be. They were probably reaping the benefit of the popularity which the York Hussars had enjoyed towards the end of their stay in Weymouth. The young ladies who had been attracted to the men of the York Hussars, for instance, were apparently delighted at the arrival of yet more German soldiers. It was not long before they were walking out

23 DCROPE/MCR/RE3/4

24 DCROPE/MCR/RE1/8

25 *Sherborne and Yeovil Mercury*, 5 July 1802

26 B. Scherff: *Geschichte der Königlich Deutschen Legion, 1803-1816* (Hanover 1917) p.19

27 N.L. Beamish *History of the King's German Legion* (1832) Vol. 2 p.673

28 *London Gazette*, 28 December 1813

29 *The Trumpet Major*, p.121

30 *Trumpet Major Notebook*, p.41

31 *Sherborne and Yeovil Mercury*, 12 August 1805

32 B. von Posen: *Des Königs Deutsche Legion, 1803-1816*, 'Militär Wochenblatt', 1905, p.446

33 E. Gillett: Ed. *Elizabeth Ham By Herself, 1783-1820* (London, 1945) p.55

with them. Discussing this situation from the soldiers' point-of-view, Hardy suggests in *The Trumpet Major*, that:

Being gentlemen of a gallant and most affectionate nature, they naturally turned their heads and smiled if a pretty girl passed by, which was rather disconcerting to the latter if she were unused to society. Every belle in the village soon had a lover, and when the belles were all allotted those who scarcely deserved that title had their turn, many of the soldiers being not at all particular about half-an-inch of nose more or less, a trifling deficiency of teeth, or a larger crop of freckles than is customary in the Saxon race. Thus, with one and another, courtship began to be practised.....<sup>34</sup>

As with the York Hussars, courtship sometimes led to marriage. No less than 14 local women married German soldiers during the years 1804 and 1805, either in St. Ann's, Radipole, or St. Mary's, Melcombe Regis.<sup>35</sup>

The German troops were popular not only with the fair sex but with the community as a whole. Again, this was due largely to their musical ability. Each regiment had its band. These bands were far superior to any of the local bands and soon they were playing not only at military functions, which often drew large civilian audiences anyway, but at dances and other civil functions. In February 1804, for instance, only a few weeks after the regiment had been formed, the band of the Hussars met the Mayor of Weymouth at the turnpike, on his return from London where he had been engaged in a successful lawsuit on behalf of the town, and led a procession of local dignitaries back to the town. Again, during the summer of that year the Hussars' band played on the esplanade every evening for 'the amusement of the Royal Family and the local population.'<sup>36</sup>

Off duty, then, the Hussars of the King's German Legion soon came to play a prominent part in the social life of the county. On duty, of course, they were busily engaged in the military activities of the area. During the summer of 1805, for instance, they took part in a very large exercise on Lodmoor, near Weymouth. Although this was the first time they had been brigaded with the British cavalry, using English words of command, they were particularly praised for their performance. Shortly after this they were sent, with the rest of the King's German Legion, on what proved to be a short-lived expedition to North Germany.<sup>37</sup> From there the Hussars were sent to Ireland. They returned to Dorset for twelve months at the end of 1807 spending six months each in Weymouth and Wareham and were then posted to the Iberian Peninsula where they were soon acknowledged to be the most efficient cavalry regiment on either side. They took part in the Battle of Waterloo and were then sent to Hanover where, in 1816, the King's German Legion was disbanded.

In conclusion, the fundamental question needs to be asked. How was it that Hardy, who was generally so meticulous in his researches into matters military, came to confuse these disparate regiments of German Hussars? The answer - and this is, of course, merely a personal view - is that he placed more

reliance on his oral sources than his written ones. In the Preface to *The Trumpet Major* he explains that many of the external incidents which guide the plot of the novel are based on 'an unexaggerated reproduction of the recollections of old persons well known to the author in childhood, but now long dead, who were eye-witnesses to those scenes.'<sup>38</sup> Supposing those 'old persons' had been aged, say, 20 in the year 1800, then they would already have been 60 by the time Hardy was born and, consequently, by the time they came to relate their experiences to him their memories could have been becoming increasingly blurred. The dangers of reminiscing are exemplified in the work of Elizabeth Ham, who has been mentioned previously. She wrote up her Journal in 1849, when she was 66 and Hardy 9. In it she recounts the events of the day in May 1804 when rumour was rife in Weymouth that French forces had landed on Portland. She describes vividly how the royal carriages were drawn up outside Gloucester Lodge, ready to drive the King away at a moment's notice.<sup>39</sup> Her memory must have played her false, however, because the King was not even in Weymouth at that particular time.

There is no doubt that Hardy's elderly friends and relatives would have remembered the name, 'King's German Legion,' partly because it included the word 'German' and partly because the men of that corps had become so involved in the social life of Dorset. Many of them would have remembered also the name, 'York Hussars,' especially in connection with the execution of the two corporals. Whether, at that distance in time, they could remember which hussars were which is more problematical. They probably remembered them all simply as 'German Hussars.' It was on their oral evidence, nevertheless, that Hardy came to believe that the York Hussars were part of the King's German Legion. What he failed to notice when he came to make use of his written evidence was that all the references to the York Hussars, in the newspapers which he studied in the British Museum, predated the year 1803 whilst all the references to the King's German Legion postdated that year. Presumably, if as a result of his oral evidence he believed that there was only one regiment of German Hussars, he would not have been looking for this significant point. Anyway, why should he have been? After all, he was a poet and a writer of fiction, not an academic historian. Furthermore, unlike modern researchers, he did not have access to the archives in the Dorset County Record Office. If he had, he might have discovered a paper listing the dispositions of the troops around Weymouth in 1804. This contains the instruction that:

The Hanoverian Legion to be all Encamped at Radipole where the York Hussars were in 1801.<sup>40</sup>

This is supposedly in the King's own handwriting. It certainly answers the question which Hardy asked himself in the 'Trumpet Major Notebook.'

34 *The Trumpet Major*, p.106

35 DCRO PE/RAD/RE2/1 & DCRO PE/MCR/RE3/5

36 *Sherborne and Yeovil Mercury*, 3 September 1804

37 *Sherborne & Yeovil Mercury* 28 Sept 1805

38 *The Trumpet Major*, p.37

39 Gillett, *op.cit.* p.64

40 DCRO Ph.28 A scheme drawn up in the handwriting of George III for the concentration of troops, between Dorchester and Weymouth (1804).

# Education In Swanage 1787 - 1902

MARGARET EMMS

## SUMMARY

*Aspects of the provision of education in the Parish of Swanage in Dorset from the founding of the first Sunday Schools at the end of the eighteenth century to the advent of County Council control at the beginning of the twentieth century are considered, in particular the educational role of the Anglican Church and its clergy.*

## INTRODUCTION

*I don't know Ma'am, why they make all this fuss about education, none of the Pagets can read or write and they get on well enough.*

(To Queen Victoria) (Attributed to Lord Melbourne)

In 1801 the population of the town and parish of Swanage, including Herston, a small quarrying community a mile to the west, was 1,382 (VCH 1908,267). At the beginning of the nineteenth century the majority of the dwellings in the parish were strung out along the High Street with concentrations in the areas of the parish church and in Herston, at what is now known as Bell Street. The stone trade, farming, fishing and small retail trading were the principal occupations in the parish.

Ten miles from Wareham along very poor roads Swanage, at the extremity of the Isle of Purbeck, was then more easily accessible from the sea. The parish was a poor one and anciently divided into numerous small manors with no predominant Lord of the Manor who might perhaps have endowed a charity school. There was no such school in Swanage.

In 1787 two Sunday schools, supported by subscription, were established, which in the light of later evidence appear to have been separate schools for boys and girls. By 1792 there were 81 pupils in the schools which had two teachers and cost £9.4.0. per annum (Hutchins 1861,549). The schools were established by William Morton Pitt of Encombe House and Mr. T. Everett, Secretary to the Purbeck District Committee of the Sunday School Society. William Morton Pitt, philanthropist and Member of Parliament, was a distant cousin of the Prime Minister William Pitt. When Dr. Andrew Bell arrived in Swanage as Rector in 1801, the number of subscribers to the Sunday schools had fallen and John Stickland's salary as master was a pittance. It was said that it was entirely due to this man's dedication, even to the extent of buying the necessary books himself, that the schools were still functioning (Southey 1844,86/7). A few years later the Sunday schools came to be staffed by voluntary teachers drawn from the church congregation. Although such early Sunday schools were often undenominational, it appears that Dr. Bell on his arrival immediately took over control.

The first Congregational Church had been built in Swanage in 1705 and that of the Methodists was to come in 1807, six years after Dr. Bell's induction as Rector. In 1804 in a rough draft containing his answer to a questionnaire from the Bishop of Bristol in whose diocese Swanage then lay, Dr. Bell stated that there were in the parish three Roman Catholics and about 20 Methodists who usually attended Church (Southey 1844, 79). Perhaps at that stage of the draft Dr. Bell had not attempted to count the probably more significant numbers of the long-established Congregationalists.

All over the country in the early nineteenth century the children of the poor, as soon as they were able, had to earn their few pennies a week to augment the family budget. Sunday was their one free day. As the eighteenth century had advanced, especially in the expanding and overcrowded factory towns, Sunday became the occasion of much wild behaviour as the pent up children were released. Partly to combat this, but also because there were some who felt that a limited amount of education, 'even for the poor', was desirable, the Sunday schools came into being. Robert Raikes of Gloucester, who

opened a school in 1780, was not the first to do so but his name is generally associated with the movement which became nationwide. This movement grew very quickly and by 1803 there were 7,125 Sunday schools with 88,860 teachers and 844,728 pupils throughout the country (Curtis 1967,199).

The desirability of education for the poor continued to be vigorously debated. With revolution in France ever in mind, fear of 'the Mob' was slow to die. Was an educated or an uneducated labouring class more to be feared? Those against the education of the poor were afraid that they would become discontented with their lot and be influenced by reading seditious pamphlets. Others, including Malthus, believed that while charity was debilitating education would promote independence and self-respect. Later in the nineteenth century the expediency of an educated labour force became apparent with increasing industrialisation. Nevertheless the major extension of the franchise, in 1867, took place before a national system of education had been devised.

Although initially the Sunday school movement was undenominational this generally soon ceased to be the case. Then on Sundays the children were required to attend the church or chapel with which the school was associated and in addition they received some secular education. In some cases instruction was restricted to learning to read the Bible but in most schools, as time went on, writing and arithmetic were also included. At first at Swanage only reading was taught but later John Stickland also instructed some pupils in sacred music 'this being a relaxation and amusement to them' (Southey 1844,87). An important function of these schools was deemed to be the inculcation of proper attitudes of deference. The children must be taught to 'know their place'.

As Swanage was a poor parish it contained very few well-to-do people. Those there would have employed tutors or governesses or sent their children away to school. It was common practice for some Anglican clergy, for example, to accept a few boys into their homes for tuition.

Those who could afford to pay a few pennies a week might send their children to one of the numerous but very tiny dame schools, carried on in the home of the 'dame'. Such schools came and went very rapidly and by their nature left no records, but the general opinion of such schools is that they were little better than child-minding establishments. Anyone could open a school in a room of their house, however small or unsuitable that house might be. When all else failed many people apparently did so.

Some schoolmasters also carried on a trade; in Swanage Henry Lance Cleall who in 1844 was classified as a schoolmaster (Pigot 1844,29) by 1851 had apparently remustered as a plumber and glazier (Hunt 1851,194) and the following year was described as a painter (Slaters 1852/3,35).

## THE REV. DR. ANDREW BELL RECTOR OF SWANAGE 1801 - 1809

Immediately prior to his induction to the living of Swanage in 1801, Dr. Bell had been serving as an Anglican chaplain with the Indian Army and also as superintendent of the Madras Male Orphan Asylum founded by the East India Company for the education of the sons, many of whom were half-caste, of military men (DNB 1917,149). The Asylum was supported by voluntary contributions and the fines imposed on soldiers for drunkenness. With inefficient teachers and little money, results

were understandably poor. It is said that it was watching some native children using their fingers to make marks in the smooth sand of the seashore that gave Dr. Bell the thrifty idea of using sand-trays in the schoolroom. This idea, which he later introduced into England, was employed there for many years with the younger children (Graham 1952/3,100). It was indeed in India that Dr. Bell's so-called 'Madras System', that of using brighter children as 'monitors' to teach small groups of pupils, was born. Within its limited objectives it appeared for a time to be successful. (Despite later arguments as to the authorship of the nineteenth century monitorial systems, Graham maintained that they had a far older history and attributed it to John Brinsley, in 1612, in his *Ludus Literarius* (1952/3,103)).

In 1796, when his health broke down, Dr. Bell left for England, and in 1797 published his Madras experience in *An Experiment in Education*, a pamphlet which he circulated amongst the influential in both Church and Government. Nevertheless, he was most anxious that the poor of England should not be educated to the extent of making them discontented with their lot.

In 1798 his Madras system was introduced into St. Botolph's Aldgate, a protestant charity school, and the following year into the industrial schools in Kendal. In 1802, one year after his arrival in Swanage, Dr. Bell, with the agreement of his Sunday school superintendents (John Stickland and Thomas Manwell) gradually reorganized the Swanage Sunday schools along monitorial lines. He was adamant that the rules of the system be strictly adhered to and Stickland used to say 'He hammered it into them like a blacksmith on an anvil' (Southey 1844,88/9). Dr. Bell's system was highly disciplined but it depended upon encouragement of the child; detention was the only punishment.

Although the monitorial systems were later judged to have serious shortcomings, it was very largely their economy by reducing the number of adult teachers required, which later inspired the pupil teacher system.

Dr. Bell continued his Madras experiment in Swanage, training a series of Swanage youths to be teachers. Several of these young men, some mere boys, later left Swanage in order to introduce the system into other schools. In 1806, Lewis Warren, then aged 13, was sent to Whitechapel for this purpose (Southey 1844,169). Later Warren served at several schools in the Midlands for short periods in the same capacity. In 1808, still only 15 years of age, he was on a boat bound for the West Indies. A Dr. Holder, with estates in Barbados had appealed to the Bishop of London for help with a scheme for the introduction of education for negro slaves (Southey 1844,241/4).

Henry Manwell, son of George Manwell and brother of Susannah who married John Mowlem of Swanage renown, was also a much esteemed protégé of Dr. Bell. His many assignments were in the London area and Southey considered him to have been of great importance in the diffusion of the system. Warren received further instruction from Henry Manwell before leaving for the West Indies (Southey 1844,244). Other Swanage men to leave the town for this purpose were James Wilmot and a Mr. Gover, both of whom went to London. So, in the very early days, in true monitorial fashion, did teachers but recently instructed pass their knowledge of the system on to others. Many of these young men, of course, did not come from Swanage, but the presence of Dr. Bell in the town at this particular time put Swanage men in the vanguard.

The school monitors could be as young as 7 years of age but were more likely to be 11 or 12. They received their instruction from the master outside school hours, usually either before morning school or during the mid-day break. The subject matter was divided into its smallest components and instilled by rote, resulting inevitably in a mechanical process with little relation to meaning. A monitor, after instructing for about an hour, would be relieved by a colleague and would return to his own lessons (Curtis and Boulwood 1966,11).

In 1808 there were 193 scholars in three Swanage Sunday

schools. John Stickland by this time was running his own school (Southey 1844,91). There is no indication as to where this large number of children were taught. There was, as yet, no purpose-built school in the town. Since, at first, nothing but Bible reading and sacred music were taught, perhaps it was considered appropriate to use the church building for the purpose outside the hours of church services. In 1807 in addition to these three Sunday schools it was also said that there were 13 day schools in the Parish. One of these schools containing about 45 pupils was run by Mr. Gover who was persuaded by Dr. Bell to introduce his system into this day school. Dr. Bell was apparently delighted with the results in what had been before a very disorderly school. In a letter to a friend in December 1806 he declared, 'It is like magic; order and regularity started up all at once. In half an hour more was learned, and far better, than had been done the whole day before' (Southey 1844,92/3).

An opportunity occurred during the Doctor's early days in Swanage for the introduction of the manufacture of straw plait into the town. He considered the 'industrial school', where a child might learn to understand the doctrines of the Church, how to read the Bible and to acquire a useful skill, eminently appropriate for the children of the poor. Two young ladies, the daughters of Mr. Cole, a stone merchant, were found to have been experimenting with making straw bonnets for themselves. They proved agreeable to Dr. Bell's suggestion that they should take instruction in the skill and then open a school in Swanage. This school, organized by Dr. Bell on monitorial lines, was opened in Mr. Cole's house for 12 pupils. It is said that the number of pupils at one stage grew to nearly 90.

There had been 'knitting schools' in the town before this where pupils learnt how to knit stockings, but the manufacture of straw plait as a cottage industry proved more profitable. Some years later it was estimated that 4,000/5,000 bonnets a year were being sold, many of them being exported to the colonies. However, since it was customary for the wholesalers to pay not in cash but in goods, clothing etc., even this industry was perhaps not quite so beneficial to the town as it might have been (Southey 1844,108/11).

The industry persisted and in 1833, many years after Dr. Bell had left Swanage, the young Princess Victoria, soon to become Queen, was presented, while on a short visit to the town, with a straw plait bonnet, a gift from the town. The town's bonnet makers were up all night to complete the task, supervised by a Mrs. Anne Shorey (T.O.B. 1833). Straw plaiting survived in the town for many years, particularly in the form of straw basket making. A straw basket and fancy goods shop run by Mr. T. Hixson near the Victoria Hotel remained until the First World War, while that opened by Mrs. Colleau in Station Road did not close until the Second World War.

Nationally Dr. Bell was not alone in trying to popularize the monitorial system. Working along similar lines was Joseph Lancaster, a Quaker. Important ways in which his ideas differed from those of Dr. Bell were, of course, primarily in the omission of instruction in the catechism, but also in a complex system of medals and prizes and in a bizarre system of punishments aimed at inviting the ridicule of the culprit's peers. A much quoted example was the stringing up of an offender in a basket suspended from the schoolroom ceiling. But it was the omission of the catechism that in 1805 most disturbed Mrs. Sarah Trimmer, an Anglican pamphleteer, who was subsequently successful in encouraging Dr. Bell to look outside his own Parish to the dissemination of his system to London and beyond (Southey 1844,138/157). The monitorial systems were gradually superseded after 1846 by the pupil teacher system introduced by the recently formed Council of Committee on Education. Bright pupils from about the age of 13 were then apprenticed for five years and paid a small stipend.

In 1808 the British and Foreign Schools Society, based on Lancastrian principles, was formed. This was followed in 1811 by the foundation of the National Society for Promoting the Education of the Poor in the Principles of the Established

Church. Both Societies opened many schools. It was partly this cleavage which delayed, for many years, the adoption of a state system of education. The National Society, as it came to be known, was described as 'The Society for the Education of the Children of the Poor, according to the System invented by Dr. Bell and Under the superintendence of the Parochial Clergy' (Southey 1844,290).

Two years after the inception of the Society Dr. Bell was, somewhat belatedly, elected an honorary member of the general committee of the Society, a distinction which he enjoyed for the rest of his life (Southey 1844,396). By 1814, the National Society, incorporating many parochial and charity schools, had 40,484 pupils in 230 schools (Armitage 1970,91). A Dorset branch of the National Society was opened in 1812, and the first National School in the county was established at Buckland Newton in 1816. Swanage, the cradle of the monitorial system in England, had to wait many years for its first National School. Later, British Schools also functioned for short periods in the town.

Dr. Bell left Swanage in 1809 to become master of Sherburn Hospital in Durham. As residence was not required he was able to devote his time to the work of the National Society. This he continued to do until his death in 1832 (DNB 1917,151).

#### THE REV. THOMAS OLDFELD BARTLETT RECTOR OF SWANAGE 1817 - 1841

Thomas Oldfeld Bartlett was inducted to the living on 20th March 1817. A *Digest of Parochial Returns* (H.C.1819,223) sets the scene soon after his arrival. There was said to be 'A Sunday school supported by voluntary contributions consisting of 74 girls and 50 boys. Four day schools, in one of which 8 children are instructed, and in the other three, 8 girls and 38 boys'. It



1. The Rev. Thomas Oldfeld Bartlett. Rector of Swanage. 1817-1841.

further stated that 'the poorer classes are without sufficient means of educating their children and are desirous of having them'. The population was stated to have been 1,483 in 1811 and the number of poor in 1815 to have been 215 (H.C.1819,231). Mr. Bartlett's diaries contain many references to poverty. In 1820 only 14 of the 28 boys expected at the annual catechism appeared because it was said that they 'could not lose their day's work'.

School provision in the town had changed in the eight years since the departure of Dr. Bell. The number in the Sunday schools had fallen. At the celebration of the Sunday School Anniversary in 1808 there had been 193 children assembled before Dr. Bell's house (Southey 1844,92).

Mr Bartlett continued the custom of entertaining the Sunday school children once a year. Entries in his diaries describe the festivities which were held round the Rectory as in Dr. Bell's day. Always there were cakes, tea and apples. On 15th September 1828 he relates 'they amused themselves for two hours, sang two psalms and the evening hymn - the Bas viol - serpent - clarinet and flute accompanying them'. No doubt these would have been the musicians who accompanied the singing in church. On 6th October 1829 the entry runs 'The children had their tea and cake in the barn and afterwards amused themselves in my field by the stable'. The barn referred to would probably have been the tithe barn behind the Rectory, now a museum, and the stable the near-by building now called 'The Rectory Classroom'. This stable was converted into a 'useful room for classes and meetings', in the late 1880's (S.P.M. Nov 1897).

A year of special celebration occurred in 1831 being the Sunday School Union Jubilee year. The Union was Protestant but interdenominational and Anglicans, Congregationalists and Methodists all joined in the celebration. Those present, including children, teachers and others, numbered 370. The celebrations continued the whole day, with a mid-day break, from ten o'clock in the morning until seven o'clock at night. There was a church service, numerous parades round the Rectory area and out to the 'fort' at Peveril Point, accompanied by much hymn singing and later, tea for the children. A highlight of the day was the naming of a square in the High Street, 'Jubilee Square' in honour of the occasion. Jubilee Square no longer exists but was situated around the area now occupied by the forecourt of the Methodist Church. Mr. Bartlett concluded his entry for the day with the words 'The day was beautiful and everything passed off delightfully'. Unfortunately no idea can be gained from the diary entries as to the work of the Sunday schools, but the day of the Sunday School Jubilee surely witnessed to its efficiency as an instrument of seemingly benign social control.

The schooling of Mr. Bartlett's own family was conducted along lines usual for one of his social position. In 1830 when his daughter Mary was 9 years old and sons Leftwich and Robert, 5 and 4 years old respectively, a local schoolmaster William Hamilton Bridle was employed for what was probably a very short time each week, to instruct Mary in figures and the boys in writing at a cost of ninepence per week. Two years later all the children started at the recently opened 'Mrs. Craft's School' (T.O.B. 1830). This school seems to have been the only private school in the town at that time that existed for very long. Assuming that 'Mary Craft' and 'Fanny Craft' refer to the same establishment, the school was in being from before 1832 until at least 1853 (Slaters 1852/3,35).

When Mary Bartlett was 14 years of age and her brother Leftwich 10 they commenced their education away from home. 'Mary to go on Saturday to School and Leftwich to go for the first time to his uncle Tucker for instruction' (T.O.B. 1835). Both boys later went away to school (T.O.B. 1836,1839,1840).

The debate on the education of the poor continued and in 1833 the first Parliamentary funds, £20,000 were voted and paid to the two voluntary societies of the National and British Schools for assistance in the building of new schools. The maximum grant payable was equal to the amount raised locally.

Two years later a *Return of Schools Throughout the Country* was published with the following entry for Swanage:-

Swanage Parish (Pop 1,734). Ten daily schools, one of which (commenced 1832) contains 50 males and 10 females, and is partly supported by subscription, and partly by payments from the parents of the children; in seven others are 57 males and 81 females; in another (commenced 1825) are 14 males; and in the other (commenced 1830) are 4 males and 6 females; in all the above schools, with the exception of the first mentioned, the children are instructed wholly at the expense of their parents. Four Sunday Schools (two of which have lending libraries attached) wherein 212 males and 203 females are instructed gratuitously (H.C.1835,238).

The first of the schools mentioned was referred to by Mr. Bartlett, in a communication to the National Society in May 1837, as a daily British School. Many townspeople, particularly quarriers, were Congregationalist. Unfortunately, owing to the destruction of many of the British School records in the Second World War, further information is not available. On pure supposition, the last named day school may have been Mrs. Craft's school.

The reference to lending libraries is the earliest relating to such provision in the town which has been found. Later, in 1863, John Mowlem presented Swanage with 'The Mowlem Institute' which included a library and lecture room. At Herston the next year a Reading Room was built in Bell Street.

#### THE NEW SCHOOLROOM

For the first time Swanage was to have a schoolroom for the Sunday school children which it was hoped would also serve as an Infant school on weekdays 'if sufficient funds can be obtained' (NSSF 1837). In 1835, Mr. Bartlett planned a grand bazaar to help raise the money for the building. It must have been quite an occasion in a community which then had very limited opportunities for diversion. The bazaar was held for three days in August and the sale of 'fancy and useful goods' took place in the 'Great Room of the Hotel'. This was the manor house which had been converted into a hotel by William Morton Pitt and in which the Princess Victoria had stayed on her short visit to Swanage. (Originally known as the 'Manor Hotel' it was later renamed with royal permission, 'The Royal Victoria Hotel'). The diary entry describes the impressive display of goods laid out on tables covered with white cloths with green baize surrounds to the ground. Mr. Bartlett continued:- 'The goods produced are valued at £100 most of which we and our relations produced, little was done in Swanage and the Dissenters were very cool and distant'. The sale of goods realized over £86 and including all subscriptions, church collections and donations of cartage labour etc., very nearly £200 was raised (NSSF 1837). Mr. Bartlett was justifiably pleased and recorded 'All passed off admirably well' (T.O.B.1835).

The 'coolness' of the Dissenters may perhaps partly be accounted for by the fact that at this time they apparently had their British school, though not yet a proper schoolroom. There had been a very good relationship between Mr. Bartlett and Mr. Collins the previous Congregational minister, a local quarrier who had been ordained and served his church in Swanage for many years. He became ill in 1832 and died the following year. The possible influence on Anglican/Dissenting attitudes of this relationship may not have survived Mr. Collins' death.

No time was lost in building the schoolroom. Six weeks after the bazaar, Mr. Calcraft of Rempstone was laying the foundation stone (T.O.B.1835). It is believed that this was the building situated in the High Street near the west side of its junction with Hopabout Lane (now Queens Road) which was used and later rebuilt as an Infant classroom. Over 20 years later another building to accommodate older children was constructed to the rear. Both buildings survived, having fulfilled numerous functions, until the mid 1970s when they were demolished to make way for shops and houses.

The new schoolroom was built on the glebe and the value of

the land, given by the Rector, was about £25. The building was of stone with a slate roof, and a single schoolroom 28ft long by 22ft wide. It was intended to accommodate the 204 children of the Sunday school and their 24 'gratuitous' teachers - surely cramped by any standards (NSSF 1837). When eventually used during the week as an Infant school there would then of course have been far fewer pupils.

Mr. Bartlett records the opening of the schoolroom which officially took place on 29th December 1836, although it had already been in use for some time for Sunday school and meetings. In May of the following year the carpenter was still owed £45 and the mason £28. Pointing, painting and the construction of a perimeter wall still remained to be done at an estimated cost of £48. It was at this point that Mr. Bartlett decided to apply to the National Society for a building grant. He had hoped that Dr. Bell, who had been a relatively wealthy man and had died in 1832 would have left something to Swanage for this purpose, but in this he was disappointed. Nor was he any more fortunate in his application to the National Society which was eventually turned down on the grounds that the building had already been constructed. When this application was made in May 1837 it is clear that the building was not yet being used as a daily Infant school and also that Mr. Bartlett did not intend at this stage applying for union with the National Society. He added 'We partly adopt the National system and use the books recommended by the Society. Watt's historical catechism is also used'. However, Gibbs found evidence to suggest that the school did in fact become a National School the following year. (1960, 262).

Mr. Bartlett died a few years later in 1841 and until the arrival in 1854 of the Rev. Robert Duncan Travers, no records have been discovered to throw light on the intervening years.

#### THE REV. ROBERT DUNCAN TRAVERS RECTOR OF SWANAGE 1854 - 1887

##### School Buildings

With good reason did William Masters Hardy call Mr. Travers 'the building Rector' (1908,105). He came to Swanage soon after the religious census of 1851 had stimulated Anglican activity, one result of which was the church building and renovation boom. Later Mr. Travers played his part in this movement in Swanage instigating the building of a church at Herston in the west of the parish and rebuilding the parish church. In the first place, however, he turned his attention to school buildings, and during his 33 years in Swanage continued to pursue a programme of extension and alteration. Not only did demand for education increase and attendance become obligatory during this time, but also the population increased, although not spectacularly, from 2,139 in 1851 to 2,674 in 1891 (VCH 1908,267).

Throughout the period lack of funds remained a problem and local efforts were occasionally augmented by building grants both from Government and the National Society. It was always a struggle. Mr Travers embarked upon the school building programme the year after his arrival. Herston was his first concern where there was yet no school at all with the exception of 'one or two very poor dame schools' (NSHF 1855). A building fund was launched. It was reported that a site in Bell Street had been given for the school by S. Serrell, Esq., of Dunford House, Langton Matravers, that many quarriers had promised stone and also that farmers would arrange its transport (DCC 19.7.1855).

The relevant plan shows a simple schoolroom measuring 32ft. long by 18ft. wide with benches for the children at the west end, and a small entrance porch to the north (DCRO D209/57). The building was to have walls of stone 20 ins. thick, a slate roof and a wooden floor.

The population of Herston at this time was said to be about 300 and the school was to accommodate 72 infant children. It was envisaged at that time that the older children should continue to walk to the Swanage school a mile away. It has not

proved possible to establish when this practice was discontinued but the extension to the building in 1865 and the appointment of a master in place of a mistress suggests that by this time it was functioning as a mixed school.

The total cost of the building was very nearly £300, of which £175 was raised locally, £112 received in Government grant and £12 in grant from the National Society (NSHF 1855). In order that schools might qualify for Government grant they had to be built in accordance with official requirements. The Herston school plan bears the signature of Edward Monney, Architect of Dorchester. Despite much extension and alteration since that time the eastern elevation to Bell Street today has only changed in so far as the end window has been considerably enlarged. The Trust Deed was dated 13th October, 1855 and contained a clause placing the school in union with the National Society (NSHF 1855).

In 1865 with the aid of a Government grant of £22.10.0. the schoolroom was extended westwards another 10ft. to accommodate a further 22 pupils at a cost of £60 (PRO Ed 21/4261, DCRO D 209/57). Extending still further to the west a classroom 18ft. by 18ft. was added in 1871 (DCRO D209/57) for 41 more pupils at a cost of £85 towards which the Government grant was £35 (PRO Ed 21/4261). The last nineteenth century extension was added in 1888, being another classroom 23ft. by 18ft. which had been demanded for three successive years in the Government Report. No plan has been traced but this was undoubtedly a further extension to the west thus filling the remainder of the east/west length of the original site. Although this project was probably initiated by Mr. Travers it was completed after his departure from Swanage. The classroom was estimated to cost £150 towards which the National Society gave £20. In the following year there still remained a deficit of £21 for which Mr. Travers' successor the Rev. Alfred Gurney offered to make himself personally liable (NSHF 1888).

The history of the National School buildings in the town is more complex. A plan, undated but said to be 1857 shows the proposed new National schoolroom behind the existing infant schoolroom on a site about 180ft. long stretching south from the High Street to the footpath which now leads through Dunford Place. The site on glebeland was given by the Rector. It was nowhere more than 35ft. wide and occupied an area of 24 square perch. The new building was to be positioned near the southern boundary with the footpath, and the tiny intervening space between the two school buildings was for the playground (DCRO D209/56). This is the only plan for the Swanage National School which has come to light. The average number of children in attendance in the mixed School in 1855 prior to the rebuilding was 120 boys and girls (PRO Ed 7/24).



2. Swanage St. Mark's First School 1991. Eastern gable-end, steps and porch as built in 1855 with later enlarged window. Twentieth century additions to the building at the rear to the right.

The Trust Deed was dated 6th May 1858 and stated:-

Trustees. Rector, Churchwardens and Overseers. Managers. Principal Officiating Minister to have superintendence of religious and moral instruction and sole control of Sunday School (if any). For other purposes a Committee consisting of:- Principal Officiating Minister, his curates (if appointed) the Churchwardens and Overseers and three other persons contributors of 20/- annually members of the Church of England and qualified by estate or residence. Vacancies filled by election. Electors. Contributors of 10/- in year current otherwise qualified as person to be elected. Six votes limit. Declaration of church membership. Principal Officiating Minister Chairman when present and to have casting vote. Appeal to Bishop. Arbitration clause (NSSF 1858).

The sum of £16.4.6., was granted by the Government in 1858 for fittings etc. (PRO Ed 21/4260). Throughout the incumbency of Mr. Travers there was a continuing programme of additions and improvements to the school in an attempt to accommodate the rising numbers of pupils but ever restricted by limited funds and very small site with little prospect of enlargement.

A new porch was finished in 1865 (SSLB 1863/86,61). A porch not only added to the warmth of the building but also provided accommodation for the essential 'caps and bonnets' of the day. In 1868 very soon after gas had arrived in Swanage a gas pipe from the main to the schoolroom was laid, although how much longer they had to wait for a supply of gas is not recorded (SSLB 1863/86,114).

In July 1872 a Dr. Home was directed by the Local Government Board to inspect the Parish of Swanage owing to grave sanitary defects which had been reported by the Wareham Guardians as giving rise annually to cases of typhoid fever. The conditions fostering disease were said to include an impure water supply and the need for public sewerage. As a result of the Report the Swanage Local Board of Health was formed in 1873, becoming the local authority in place of the Parish Vestry. In reporting on the condition of privies in the town an alarming situation was revealed at the National School.

The very worst seen by me were those attached to the National School, used by about 200 children. I was told that these privies were connected with a road drain, but I doubt this. Jammed into an unventilated corner, and close to the school building, their position is the worst which could be chosen, and their neglected state is evidenced by an inconceivably sickening stench (Home 1872,3).

Assuming the 1857 plan to have been implemented, the fact that such a lamentably inadequate drain did indeed exist does nothing to excuse its condition even at a time when the relationship between dirt and disease was only just coming to be understood (DCRO D209/56).

In 1873 a new classroom was erected to raise the pupil provision from 275 to 375, towards which a grant of £20 was received from the National Society (NSSF 1873). The rise in school numbers probably partly resulted from the Education Act of 1870, which, subject to local bye-laws, sought to make full-time school attendance compulsory for at least five years. Again assuming that the 1857 plan was implemented, the boundary walls to the east and west were only 5ft. away from the building and a space of only about 10ft. existed to the south. It would therefore appear that any new classroom must encroach to the north of the schoolroom over the already very small playground. Furthermore, a newspaper report of 1894 did suggest that part of the glebeland had been used as a playground for some years (BG 14.4.91).

In 1882 a concert in aid of a further new classroom was announced in the press (DCC 9.2.82). Next came the turn of the infant school and in the autumn of 1885 it was considerably enlarged, probably by building across the High Street entrance to the playground (SSLB 1863/86,346). According to a note in the log book in 1886 the school buildings then comprised a schoolroom 56'0" x 22'0", classroom 1. 20'0" x 10'9", classroom 2. 14'0" x 10'0" and an infants' school 31'0" x  $\frac{28'6}{24'6}$ .

The following year Mr. Travers left Swanage and the future was to prove all his continual endeavours to have been yet insufficient in a changing situation.

In addition to these National Schools at Swanage and Herston, there was again for a time a Congregational/British School in the town. The present Congregational Church now stands on the site of the old British School (Hardy 1908,90). The school therefore was next to the old Congregational Chapel. The schoolroom was built and 'mostly paid for' between 1854 and 1857 and an effort to establish day and evening schools was made in 1858 when Thomas Seavill became pastor. The house and garden next to the schoolroom was purchased for a master's residence in 1862, something neither of the National Schools aspired to, at a cost of £130 (Densham & Ogle 1899,312). It was said that the school was conducted on religious principles but was free from all sectarian influences (P & SWH 10.1.1861). Tatchell states that 'in 1867 the schoolroom was let to the British Schools Committee' (1951,10). This suggests that prior to this it was a Congregational School and that on the collapse of the Congregational School Union in 1867 it was transferred to the British School Society. Unfortunately it was not to survive for long. In the early seventies the fortunes of the Congregational Church in Swanage were in a poor way and no reference has been found to the school later than 1871 (HC 1871,420).

### Log Books

Log books were introduced nationally in 1863 from which it is possible to get a picture of the school life of the period. They exist for the Swanage School since the beginning and for the Herston school since 1887, the year that Mr. Travers left the parish. Unattributed details of the life of the schools have been obtained from these sources.

### Fees

To what extent poor parents wanted education for their children is difficult to establish. Nevertheless a considerable number of children did attend school, and on 5th November, 1863 at Swanage there was a 'full school' of 183 children. For parents to send a child of employable age, usually about 10 or 11 years, to school meant not only finding the weekly 'school pence' but also, of course, foregoing the child's meagre, but often essential, wages. At Swanage in 1866 the fees were 3d a week or 3/-d quarterly (SSLB 1863/86.86), whilst in 1873 they had fallen to 2d each or 3d for two (NSSF 1873). At Herston in 1855 the fees were threehalfpence a week for one child and one penny each when more than one from the same family (NSHF 1855). The Revised Code of 1862 stipulated an upper limit of 9d a week, but few schools created to educate the labouring poor could have attempted to charge such a fee. Sometimes fees were assessed according to age. Higher fees in the upper classes tended of course to force cheap labour onto the market. There is some evidence in the log books that during the eighties a very small number of children had their fees paid by the parish. Most public elementary schools became free in 1899 but fees were not entirely abolished until 1918. The log books abound with reports of children being refused admittance without fees, being sent home for them, and cases of being 'backward in paying fees'.

### Absenteeism

School attendance before the end of the century tended to be rather a haphazard affair. Some children absented themselves for long periods. A few rebellious truants also spent their school pence! Some of the reasons given for absence by the boys were potato planting and picking up, haymaking, blackberry picking, gardening, serving as errand boys and, at Swanage, 'out with donkeys'. Girls were engaged as servants to visitors and to help in the house. Either sex might help with the harvest or quite frequently be prevented by very bad weather from attending. Even after the 1870 Elementary Education Act, children in agricultural districts were permitted up to six weeks leave of

absence a year at busy times. It was often October, when the summer farmwork was over and the visitors had left, before attendance got back to normal with the teachers bewailing the backwardness of the returned absentees. Unexpectedly for the area there was, at Herston, only reference to one boy who was 'working in the stone quarries' without attending school at all. He was eight years old on the first recorded occasion in 1891, by which time such employment was quite illegal. Even the pupil teachers could on occasion cause problems. One of them at the town school in 1863 made quite a habit of searching for his father's lost cow.

The head teachers waged a constant battle against absenteeism and children were continually being 'sent for', often giving 'silly excuses'. Frequently they were in despair of getting some of the children to attend for the 250 attendances, then necessary for grant purposes, out of the more than 400 possible. 'What is to be done in such cases?' it was lamented at Swanage in 1868. During 1874 at the town school only 57% of the children made sufficient attendances to qualify for grant. As late as 1892 a number of children aged between seven and nine who had never previously attended school were being admitted, although there is no evidence to show whether they had come into Swanage from elsewhere.

With limited opportunities for diversion many children made the most of what was available and absented themselves for numerous reasons; bands playing in the town; chapel teas; the Volunteer Rifle Shooting Match; going to see a steam engine or even funerals. In 1864 'several children went to Corfe to see one of the Lady Scotts married to the Rev. N. Bond's son'.

Coughs, colds and the usual infectious diseases, measles scarlet fever and mumps being the most prevalent, added to the toll of absentees. There were also several cases over the years of small pox and typhoid fever.

As a result of the Elementary Education Act of 1876 Swanage, as yet having no School Board, was required to form a School Attendance Committee as a committee of the Swanage Local Board of Health. This committee had the same compulsory powers as a School Board which in many places had come into being as a result of the 1870 Elementary Education Act. By 1878 an attendance officer had therefore been appointed. Nevertheless 11 years later the head teacher of the town school was still bewailing in the log book 'The Law worked by the Attendance Committee seems of little power'. There is some evidence that a very few parents were indeed summonsed.

### School Leaving Age

The Elementary Education Act of 1880 stipulated that all children must attend school until at least 10 years of age when they were permitted either to leave or provided they had obtained a certain standard of education to attend half-time. Half-timers were not a new idea; a number of quarry boys were already attending school on a part time basis. The school leaving age was raised to 11 in 1893 and to 12 in 1899.

### The Curriculum

Having got to school what did children learn? As specified in the Trust Deeds, religious instruction was given at both National Schools by the rector or his curate. The schools were usually visited by the clergy several times a week when in addition to religious instruction they might take examinations or hear children read, sing or recite. Mrs. Travers and her daughters, Minna, Lucy and Kitty also regularly helped in the town infants' school, teaching and testing.

As well as reading, writing and arithmetic the girls also did a tremendous amount of needlework. In 1876 at Swanage even the 'bigger girls' in the infant school were beginning to hem and some of the younger ones starting to learn to sew. The little boys in the infant school learnt to knit. In the mixed school in 1863/4 there are references at Swanage to map drawing; 'printing' with a press features until 1870 and book-keeping with the elder boys in 1872. From 1876 other subjects apart from the basic

ones could be taken in examination in the higher standards and references to history and geography appear in the log books.

The Swanage infants in 1888 had a varied programme of handwork and were learning about 'form and colour, objects, animals, common employment, familiar scenes and natural phenomena'. 'Object lessons' had been introduced nationally with the idea of familiarizing the children with the properties of objects many of which were strange to them. However, since these objects were usually illustrated on the blackboard, the usefulness of the exercise was probably limited.

Later in the century some details of the curriculum were entered in the Herston log books. The entry for 1887/8 is a typical example and gives details of the object lessons and passages for recitation:-

#### Objects

Time. Lead. Clock. Coal. Stone. Fire. Apple. Orange. Bricks. Money. Water. Cotton. Sea-weeds. Ship. Bird's nest. A book. The rose. Ink. Glass and Form and Colour.

#### Simple Phenomena

Rain. Hail. Clouds. Day and Night.

#### Common Life

The Butcher's shop. Shoemaker. Blacksmith's shop. Paper-making. The Post Office. The sea shore.

#### Animals

Lion. Pig. Horse. Spider. Bees. Crocodile. Cow. Dog. Tortoise. Elephant. Mouse.

#### List of passages selected for Recitation

First Standard	Snow
Second Standard	The Mother's book
Third Standard	The Wreck of the Hesperus
Fourth and Fifth Standards	The Prisoner of Chillon

The infant class syllabus at Herston in 1894 throws some light on teaching methods. From this it is clear that in both reading and writing a grasp of individual letters was required before embarking on a word building programme.

By this time 'physical exercises' had been added to the syllabus but appear to have consisted of marching or 'drill', although at the town school in 1896 the older girls were learning to play rounders in a field near the school. Drill of various kinds played a large part in school life, even needlework and knitting for the infants involved 'needle drill', 'thimble drill' and 'knitting drill'. Perhaps this was found to be the only way of maintaining any degree of discipline when dealing with large numbers of children in a relatively small space. Even leaving the classroom could be a severely regimented procedure.

#### Examinations, Inspectors' Reports, Prizes

The worst ordeal of all for both teachers and pupils was undoubtedly the annual government inspector's examination on which, after 1863 when the 'payment by results' system was brought in, so much depended financially for both school and teachers. Grants were paid to schools in accordance with the number of passes achieved. In addition no grant was paid for a child who had made less than the minimum number of attendances. On examination day it was necessary to get every child possible to school and many ailing ones attended who ought to have been at home. Until 1897 the inspector's visit had no element of surprise but was a carefully prepared event which played on everyone's nerves.

At first this examination was restricted to the '3 Rs' for grant earning purposes causing other subjects to be neglected. This was rectified later in the century. It was the custom at the town school on examination day, at one time, to 'hang pretty bunches of flower around', no doubt to try and soften the inspector's heart. Joy, however, followed the ordeal of the examination in the form of a half-day holiday in the afternoon.

A brief summary of the inspector's report is given each year

in the log books. At Herston from the start of the first available log book in 1887 to the end of the century examination results were generally quite good. Discipline was always commended.

Each year prizes were given for attendance, good conduct and scholastic achievement.

In addition to the government inspection, the Diocese sent an inspector, usually the incumbent of a nearby parish, to examine the children in religious knowledge. Results at both schools ranged from good to excellent.

During the 1860s the Swanage National School was entering candidates for the Salisbury Diocesan Prize Scheme. Examinations were held only at centres where a minimum of 20 candidates could be assembled (DCC 4.12.1862). In 1861 the examination consisted of papers on holy scripture, arithmetic, prayerbook catechism, grammar and geography. Each paper contained about 12 or 14 questions to be answered on paper. Girls had needlework instead of the two latter subjects (P & SWH 16.5.1861).

The results obtained by the Swanage school both in this scheme and in the government and diocesan examinations reflects the career of the master of the school, James Thomas Hillier, who served from 1859 (Kelly's 1859,665) until 1890 as recorded in the log book. In 1862 it was reported that 'Five years ago this school was at a very low ebb owing to it having several masters during one twelve months; and received very bad reports from the government inspector' (P & SWH 23.10.1862). Mr. Hillier reversed this trend in a most spectacular way. In the first three years of the Diocesan Prize Scheme Swanage had obtained the highest proportion of successes in the diocese and Mr. Hillier qualified for the prize offered annually to the schoolmaster whose pupils obtained most successes (DCC 21.8.62). Additionally in 1862 the two silver medals for the best boy and the best girl, among all the candidates throughout the diocese, were gained by Frederick Mitchell and Mary Ann Stainer from the school (P & SWH 28.8.62).

For very many years under Mr. Hillier's headmastership the government inspector's reports were also excellent. A common comment of the inspector was 'This is a very good school taught with much care and intelligence'. There are references to Mr. Hillier as being a most 'skilful and painstaking master' and to the instruction taking 'a wider range than is usually found in schools of this character'. In 1885 the inspector reported 'It has been a real pleasure to find Mr. Hillier working with as much energy and enthusiasm as he did a quarter of a century ago'. After such a record it is sad to relate that during his last five years at the school it deteriorated rapidly. The school was seriously overcrowded. Epidemics in 1886 and 1887 appeared in the inspector's reports as mitigating circumstances, but the decline continued. Perhaps it is not unreasonable to assume, in the absence of further evidence, that Mr. Hillier's continual hard work and advancing years had taken their toll. He left the school in 1890.

After the move to new buildings in 1897 the reports of the government inspectors were once again speaking well of both standards of work and of discipline.

#### Punishment

The variety of misdemeanours committed by pupils was not unique and ranged through violence, insolence, disobedience, trespass, lateness, stone-throwing, untruthfulness, truancy, swearing, talking and inattention. Although in some cases 'caning' is mentioned and even 'flogging' in some early entries, it is suspected that later the frequently recurring phrase 'severely punished' is a convenient euphemism. Be that as it may, 'punished' or 'severely punished' are the most usual descriptions. Detention was also resorted to. In 1891 there was a spate of thefts and one boy was expelled from the town school. From the first punishments were required to be recorded in log books and it is noteworthy that during the whole of Mr. Hillier's 30 year service only a very few punishments feature. However, towards the end of his service the inspector found that discipline

had deteriorated. Probably as a result of this for the remaining 10 years of the century punishments became a regular occurrence under the new headmaster.

### Recreation

For no child can school life have been all drudgery for there were compensations such as the school entertainment or the school treat. There were the holidays too, although these were not quite as long as they are today. Sometimes too there was the joy of the unexpected, but relatively frequent, half-day closure of the school. All kinds of events in the town from the arrival of a circus to the launching of the new lifeboat, the *Charlotte Mary* in 1875 and the opening of the railway in 1885, were occasions for such a holiday. It was no doubt a more sensible procedure than having to close the school because so few attended. Anglican, Methodist and Congregational Sunday Schools each held their annual treats when the day schools were again closed in the afternoon. There was always a half-holiday on Ascension Day. After attendance at church Herston School had a half-day's holiday on St. Mark's Day, the patron saint of their church. However, after 1890 half-holidays became far less frequent.

### Teachers

The master at Swanage in 1854/5 was an untrained, uncertificated teacher named Japhet Hood who had come to the school from a previous post at a school in Rotherham, Yorkshire (PRO Ed 7/24). Mr. Hood was followed by a succession of masters, one of whom was a Mr. Roberts in 1857 (P & SWH 23.10.1862). Mr. Hillier who arrived in 1859 was succeeded in 1890 by Mr. Henry P. Padmore, another certificated teacher.

In 1863 the master at Swanage was assisted by only two pupil teachers. After 1875 the infant school came under its own mistress, and during the next 25 years there were no fewer than 10 such mistresses. In 1875 Miss Collins was assisted by one monitor. At the end of the century in the new Board School Miss Willett had three assistant teachers. Despite all these constant staff changes, the government inspectors' reports were on the whole good. The staff of the mixed school continued to grow until by 1900 the master, Mr. Padmore, had four assistants, one of whom was certificated, and two pupil teachers.

The numbers on the books rose from 120 in the mixed school in 1855 to 337 in 1899, while from 1863 to the end of the century infant school numbers rose from 45 to 111. This gave a fairly constant teacher/pupil ratio over the period of 1/40+, which closely matched the national average.

About 1865/67 Herston school, by now almost certainly a mixed school, had a master, Richard Rigby (PO Dir. of Dorset 1867). The first mistress of Herston School may have been Kezia Savage, an uncertificated untrained teacher aged 18 (PRO Ed 7/24.1857). The school was still at the time an infants school.

From 1887 until 1900 there were four successive mistresses at Herston, E. Langdon, M. Fright, A. Jordan and M.L. Averbs. The staff at the school usually comprised the mistress and two uncertificated teachers, augmented towards the end of the century when attendance figures were rising, by a succession of either uncertificated teachers or monitresses, none of whom stayed more than a few months. Continuity of staff was achieved by the service of two uncertificated teachers, Miss Corben and Miss Masters, each of whom was at the school for 10 years.

During the period 1887-1900 attendance figures varied between 77 and 127, giving a teacher/pupil ratio of 1/30+.

At the Congregational/British School the master and mistress in 1861 were a Mr. and Mrs. Skutt, (P & SWH 10.1.61) and in 1865 a Mr. and Mrs. Farthing (Harrod 1865,189).

From the mid-century teachers fell into several categories. Apart from certificated teachers there were the pupil teachers who were apprenticed for five years from about the age of 13. Although the best of these teachers then went on to training

college, those who failed to do so might also become certificated by passing the necessary examinations, or might continue to teach as an uncertificated teacher. An uncertificated teacher had to be at least 18 years of age but was not necessarily an ex-pupil teacher.

A master or mistress (head teacher) of a school, usually but not always certificated, might therefore be little more than 18 years of age. The pupil teachers aged from 13 to 18 often gave their master at Swanage as much trouble as the scholars. They were reportedly guilty of such conduct as striking children, climbing the school wall, reading behind a curtain when they should have been teaching, or failing to complete their exercises before 8 a.m. However, very few failed to stay the course and eventually attain assistant master or mistress status. The pupil teacher system proved attractive to such children as it appeared to open the way to social advancement.

The training of the pupil teachers was the responsibility of the head teacher and preparation for examinations was carried out either before morning school or in the evenings. Under the Revised Code of 1862 the amount and level of instruction they were to receive was reduced. At Swanage in 1878 the master reported that the pupil teachers were at work every evening from 6 p.m. to 8 p.m. for six weeks in preparation for their examination. As compensation Mr. Hillier would sometimes give them a treat as in May 1871 when they had a trip on the *Heather Bell*, George Burt's new paddle steamer, on her maiden voyage.

In 1892 the instruction of pupil teachers in the town began to be centralized and Saturday morning classes were held in the Town Hall (SLBH 1892,205). The following year the classes were removed to Wareham (SLBH 1892,319).

At Herston there were no pupil teachers. A school had to be of a certain size and standard before the head teacher was eligible to train pupils. Instead at Herston a 'monitress' was sometimes employed. They appear to have fulfilled a similar role to that of a pupil teacher, but not being apprenticed it was a dead-end job and tended to be filled by girls for short periods after the end of their schooldays as a stop-gap occupation. The only information relating to the salaries paid to teachers at either school is that in 1857 at Herston, Kezia Savage, age 18, uncertificated and untrained, was paid an annual salary of £18 as mistress of the school (PRO Ed 7/24.1857). Gibbs found that at the tiny Arne school in Purbeck the untrained, uncertificated mistress was paid £15 a year, whilst the trained and certificated master at the nearby larger Wareham National School was receiving £152.6.8. a year (Gibbs 1960,181).

### Technical Instruction

In 1889 the Technical Instruction Act enabled local authorities to administer rate assisted technical education. The Local Board of Health was empowered to subscribe a sum not exceeding one penny in the pound on the general district rate. A committee of the Swanage Science and Art Classes was formed with George Burt, John Mowlem's nephew and business partner, as chairman (DCC 12.9.89). In 1892 this committee with numerous additional members became the Technical Instruction Committee of the Local Board of Health (SLBH 1892,187). The classes consisted of 'Freehand Drawing, Model Drawing, Perspective Drawing, Shading from Moulds, Shading from Casts, Outline Drawing from Casts, Practical Plane and Solid Geometry, Machine Construction and Building Construction' (SLBH 1892,186). No evidence has been found to indicate how successful the classes on this impressive list were considered to have been.

THE REV. THOMAS ALFRED GURNEY  
RECTOR OF SWANAGE 1887 - 1901  
AND

### THE SCHOOL BOARD

One of Mr. Gurney's first tasks on arriving in the parish was to raise funds to meet a deficit of £100 existing at the town school. This he successfully achieved but fresh debt soon accrued

(SPM Nov 1890). He came to Swanage at a time when even in an impoverished rural area the provisions of the 1870 Elementary Education Act were beginning to have an effect. In his speech in 1870 to the House of Commons, Mr. Forster introducing the Bill had stated that one of its main purposes was to 'fill the gaps'. It was intended that all children should attend school and that there must therefore nationwide be sufficient suitable accommodation to achieve this goal. Throughout his years in Swanage Mr. Travers had been struggling in a poor parish towards this same end by constantly extending the school buildings at both Swanage and Herston. The 1870 Act provided for the formation of directly elected local school boards who had the power to levy rates and provide schools in areas where government inspection deemed this to be necessary. The question was not a purely educational one. For many years the Church had had the monopoly of instruction which they considered essential to retain, while in the political arena the T.U.C. at their conference in 1868 were backing a 'free, national, unsectarian and compulsory' system of education. As finally passed the Act stated that in board schools 'No religious catechism or religious formulary which is distinctive of any particular denomination shall be taught in the school'.

At the Swanage school as reported in the log book in 1892, the inspector was complaining of overcrowding. He assessed the accommodation at the statutory 8 sq. feet per child to be for 196 whereas there were 234 on the books and 198.4 in average attendance. As reported in the log book some of the children at this time were being taught in the Rectory Classroom near the Church. The following year the position was worse and the lower standards had been temporarily moved into the old British School building across the road, deemed 'unsuitable' by the inspector. In addition 30 town children living nearer the western end were transferred to Herston School. The annual grant was reluctantly paid by the government but it was stated that a fresh site and new buildings were necessary. These should be completed by the autumn of 1894. A total provision for 120 boys, 120 girls and 120 infants was suggested. Although not so inadequate as the buildings at Swanage, those at Herston were not quite up to standard. If the school provision in a town was inadequate in either size or quality a school board would be formed with power to make good the deficiency. Whereas, statutorily, there was nothing to stop both National schools and a board school co-existing in town, financially in Swanage this was a complete impossibility.

Discussion began in 1893. Two parties emerged; one led by the Rev. T.A. Gurney and his managers who were for the continuance of a voluntary school and the other headed by the Rev. T. Steer, the Congregational minister, who supported the creating of a board school. In the opinion of a government inspector in 1887, the population of Swanage as a whole was mainly Non-Conformist (NHSF 1887). A meeting of the Voluntary Schools Building Committee was chaired by Mr. George Burt, whose arguments were strictly financial; between £1,000 and £1,500, largely from outside the town, had already been offered towards the continuance of a voluntary school but if a board school were established the rate-payers would be saddled with a debt of at least £4,000. In addition board schools were said to be more expensive to maintain. Mr. Gurney spoke of the 'evil to the town religiously and financially' if a board school were to be established. It seemed that sufficient help would not be forthcoming from the town to maintain the voluntary school and the Chairman concluded 'I shall not be to blame when the rate collector calls' (DCC 1.6.1893).

The following month the Bishop of Salisbury arrived in the town to attend a conference of church representatives in the Town Hall to consider the matter. The Bishop put forward the terms on which the Diocese would be prepared to help and suggested certain compromises in the management and religious instruction of the school which would go some way to meeting the more general wishes of the town (DCC 6.7.1893). Some years previously George Burt had complained of the completely Episcopalian nature of the National Schools

Management (BG 31.7.86). However local church people were apathetic about retaining their school under any circumstances and it was transferred to the newly formed Swanage School Board in 1894.

Mr. J.E. Mowlem, whose father had been his uncle John Mowlem's heir, was the first chairman of the Board (DCC 31.5.94). He was succeeded in 1897 by Mr. S.J. Smith, a draper and provision merchant. Other members of the Board recorded in the log books as having visited the town school were the Rev. T. Russell Wright, headmaster of the recently opened Purbeck College, Mr. T. Randell, a solicitor, and Mr. C. Hayter, a builder, Mr. S.J.S. Tatchell, who had previously been correspondent to the National School, was Clerk to the Board (Kelly 1895,169).

Members of school boards sat for three years and required neither a property nor a residential qualification. A small parish usually had a board of five members. Each voter, who had to be a ratepayer had as many votes as there were seats on the board, which if he so wished he could allocate to one candidate. Voting hours were then 9 a.m. to 4 p.m. which made it extremely difficult, if not impossible, for many working men to register their vote. Despite the fact that property qualifications were not required the Board members appear to have been of some substance for a small town.

Procrastination about new school buildings for the town continued for several more years and it was the end of 1897 before new Board school buildings at Mount Scar were in use.

#### Swanage Board School

The new buildings were of local stone. The accommodation was one schoolroom and 2 classrooms for the mixed school and in a separate building one schoolroom and one classroom for the infants. The whole including site and fittings etc., was estimated to cost £5,860 for which the school board required a loan from the Public Works Loan Board (PRO E21/4260). The height of the mixed school built as it is into rising ground still renders it impressive. The builder was the local firm of H & J Hardy and the architects the London firm of Houston and Houston (DCC 4.11.1897). The site then occupied an area of 2 acres. The government inspector was pleased to refer to the school buildings the following year as being 'excellent'. A small silver key, now in the keeping of the Tithe Barn Museum in the town, was presented to Mr. J.E. Mowlem when, according to the inscription, he opened the school on 28th October, 1897.

The estimated ratio of the population of the parish attending elementary school had risen from 1 in 8 in 1863, to 1 in 6 in 1900. These figures closely accord with national statistics. At the time of the educational census in 1851, 1 in 8 of the total population was attending day elementary schools. In 1870 this had risen to 1 in 7, the target then being 1 in 6 (Sutherland 1971,18).

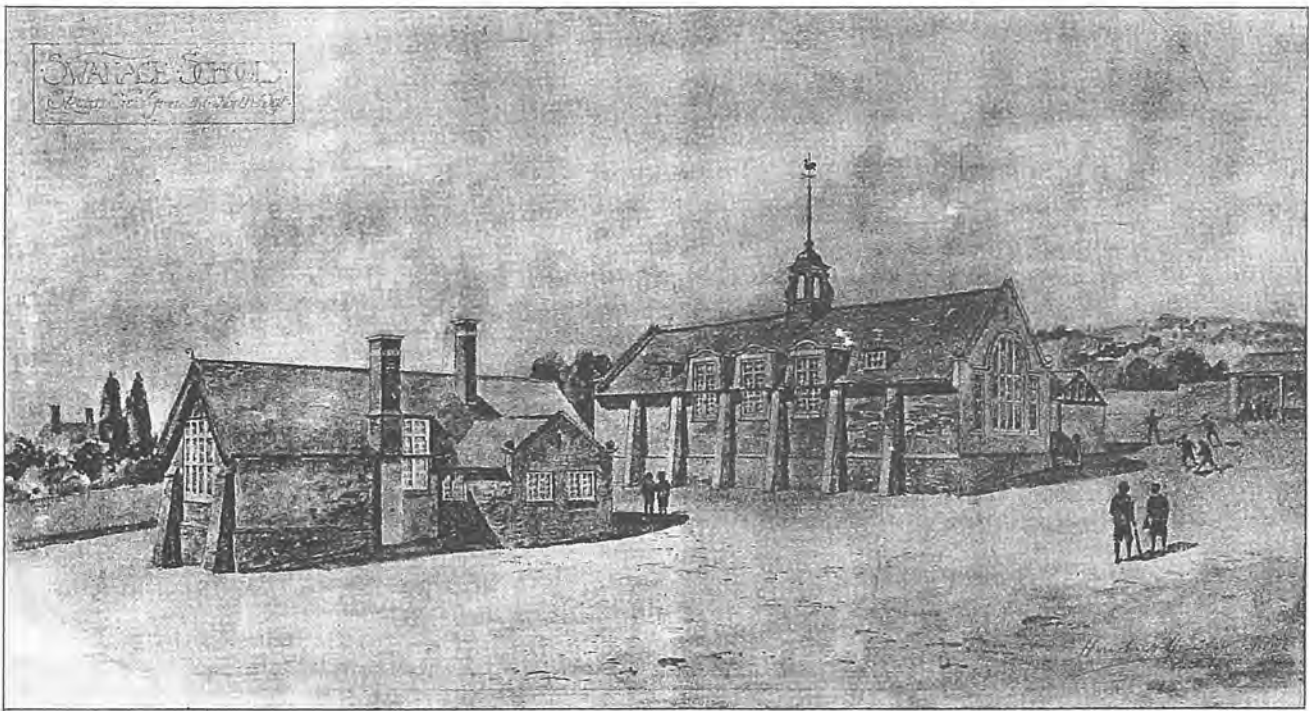
#### Herston Retains Its National School

Paradoxically the Church managed to retain control of the school at Herston, possibly the part of the parish more predominantly Non-Conformist. The Diocesan inspector there in 1889 complained that the catechism and the prayer book were the weak points 'which is not to be wondered at as so few are church children'.

The fate of the school was no foregone conclusion. The log book reports that on 2nd March 1894 the school had passed to the Board but a week later it was reprieved 'as subscriptions had been promised outside the parish'. The difficulties in this case appear to have been not so much the standard buildings as the provision of the annual maintenance cost of £60, towards which the Bishop of the Diocese offered to subscribe £5 a year for the next three years (BG 7.4.94). The Church connection has survived at Herston to the present day.

#### Halfpenny Dinners

School log books always have much in common but those at



3. Swanage Mixed and Infants Board Schools. Opened 1897. (Contemporary Lithograph).

Herston have one distinction making them rare among rural schools. From the late 1880s there commenced a depression in the stone trade in the town from which it never fully recovered. Some men were leaving to find work elsewhere (SPM Oct.90). Others could not leave and in January 1890 as recorded in the log book the Rector visited the school at Herston, largely comprising quarrying families, and proposed giving the children a course of 'halfpenny dinners' as 'so many of the fathers are out of work'.

The Parish magazine refers to the 'distress which has been felt through the long paralysis of the stone trade' (SPM April 90). The provision of meals, often however of very poor quality, was not uncommon in the poorer areas of large towns and cities during this period of general depression but was most unusual in rural areas and merits a contemporary quotation:-

The dinners have been held regularly . . . three times a week, on Mondays, Wednesdays and Fridays, and have been much appreciated by the children who have attended in large numbers . . . The children are provided with tin plates, spoons and mugs. The dinners consist of the following in rotation:- Soup (shin of beef, peas and other vegetables) and bread and jam; suet puddings with jam; suet puddings with currants; meat roly polys. The dinners have been cooked on a large patent Newcastle 'Penny Dinner Cooker' . . . Mrs. Harris of Herston has admirably superintended the cooking throughout . . . The cooker is placed in the Herston Reading Room (SPM April 1890).

Although today most people would consider this a laudable project, at that time many throughout the country thought such efforts diminished the sense of parental responsibility.

#### Evening School

As well as teaching during the day and instructing pupil teachers before or after school, it was the master's duty at Swanage to superintend and teach in the evening school. The Southern Counties Adult Education Society had been set up in 1853 (Gibbs 1960,165). Evening school activity was recorded in the school log book until 1885 when it appears to have lapsed for a number of years. The number of nights a week that the school was held varied. During this time apart from pupil teachers preparing for their examinations, most pupils were engaged in reading, writing and arithmetic, which at that time

they were required to pass. Some scripture, history and geography was also taught. This suggests less a furthering of education than an attempt to make good earlier deficiencies. Of the eight Swanage night school students who obtained awards in 1861, three - Walter White 17, a servant, William White 21, a



4. Herston Reading Room built 1864. Here in 1890 the 'Halfpenny Dinners' were cooked.

carpenter and Albert Toms 17, a mason, had never attended a day school (DCC 16.5.1861). Also between 1866 and 1870 adult evening classes were held at the homes of Miss Colson and Miss Price (DCC 17.10.1867, 13.1.1870).

In 1893 the evening school was restarted after a lapse of eight years. This was a direct result of the new evening school code of that year in accordance with the recommendations of the Cross Committee. A separate log book was started at this time. The code made evening institutes more popular with students by abolishing the requirement to pass the '3 Rs', making adults recognizable for grant and widening the syllabus. Mr. Padmore was now the master at Swanage and with the help of two or three assistant teachers, usually also employed in the day school, he successfully carried the evening classes on into the next century. As the log book reveals the basic subjects were not neglected but over the years to these were added, singing, history, mensuration, algebra, book-keeping, shorthand, geography, needlework, knitting, mending, wood carving, physical drill, drawing, physiology, domestic economy and French. They were indeed busy. The visiting inspector expressed apprehension at the idea of physiology being taken with a mixed class and it thereafter disappeared from the syllabus. Geography and history were frequently illustrated by lantern slides, in which the classes were reported to be 'much interested'. Numbers attending continued to rise and by October 1899 the evening school was opened for the session with 56 students in attendance. At Herston there was no evening school.

#### Scholarships

The mixed school log book at Swanage records that in 1896, 1898 and 1899 the County Council Technical Committee awarded a scholarship for secondary school education to a boy in the top standard of the town school. These scholarships were valued at £30 a year for two years.

#### Private Schools

After the opening of the new National School buildings in 1855 and 1858 no evidence for the existence of private schools has been found until in 1874 the Swanage log book recorded that a 'small select school' had been opened in the Mission House in the High Street (now used by the Salvation Army). This remained open until at least 1878. A 'middle class' school offering music, French and science was opened in the Congregational school building at the end of 1886, succeeding as the log book relates in luring away 30 of the National school pupils. Five months later the same source reports that the new school had 'come to grief'.

In 1885 a Miss Annie Hillier, almost certainly the daughter of the master of the National School, opened a 'Ladies School' at 5 Park Road (Kelly 1885,441) which she continued to run until at least 1899. The first of the new schools for 'young gentlemen', Purbeck College, was opened in 1890 by the Rev. Thomas Russell Wright (Linton 1893,42). It was intended to prepare young boys for the large public schools. This was catering for boys from outside the town in the main as nearly all the pupils were boarders. The last reference found to this school was in 1899 (Kelly 1899,320). The early twentieth century saw growth in this sector of education in the area but only one of the schools *Forres* continues to flourish in the town to the present day.

#### The New Century

The town of Swanage entered the twentieth century with the new board school at Mount Scar and the National school at Herston, but even the Board School was soon to be outmoded. The Education Act of 1902 abolished both board schools and National schools and the County Councils which had been created in 1894 were given responsibility for both elementary and secondary education. The school at Mount Scar was designated a 'provided school' more generally becoming known as a 'council school'. The school at Herston being a voluntary school was classified as a 'non-provided school'.

Non-provided schools provided the building free of charge and were responsible for repairs except those due to fair wear and tear. They had the power to nominate four of the six school managers. With regard to secular education they were subject to the local education authority.

Whatever the shortcomings of the system and the drawbacks of a virtual Anglican monopoly, the dedication of the Swanage rectors during the nineteenth century ensured that some education was available to practically all who wished for it.

#### ACKNOWLEDGEMENTS

The author wishes to thank all those who have in any way assisted particularly Mr. Richard Bartelot, Mr. George Willey, Mr. B.J. Deem the late headmaster Swanage First School, Mr. E. Gosney the late headmaster Swanage St. Marks First School, Swanage Town Council, Dorset County Record Office, The Church of England Record Centre and the Public Record Office, all of whom provided access to essential primary sources.

For permission to use illustrations thanks are due to Mr. R. Bartelot and Mr. D. Mabey.

#### ABBREVIATIONS

BG	<i>Bournemouth Guardian</i>
DCC	<i>Dorset County Chronicle</i>
DCL	Dorset County Library
DCRO	Dorset County Record Office
DNB	Dictionary of National Biography
DYB	<i>Dorset Year Book</i>
HSLB	Herston School Log Book
NHSF	National Society Herston File
NSSF	National Society Swanage File
PRO	Public Record Office
P & SWH	<i>Poole &amp; South Western Herald</i>
SISLB	Swanage Infant School Log Book
SLBH	Swanage Local Board of Health
SPM	<i>Swanage Parish Magazine</i>
SSLB	Swanage School Log Book
TOB	Thomas Oldfeld Bartlett Diaries
VCH	Victoria County History

#### BIBLIOGRAPHY

##### MANUSCRIPT SOURCES

- Bartlett, The Rev. T.O. Diaries 1817-1840 (Private Collection)  
 Herston National School Log Book 1887-1901 (Swanage St. Marks First School)  
 National Society. Herston File 1855-1902 (Church of England Record Centre S.E.16)  
 National Society. Swanage File 1837-1919 (Church of England Record Centre S.E.16)  
 Swanage Evening School Log Book 1893-1900 (Swanage First School)  
 Swanage Local Board of Health Minutes. Vol 4. (Swanage Town Hall)  
 Swanage National Infants School Log Book 1874-1898 (Swanage First School)  
 Swanage National Mixed School Log Books 1863-1886 (Swanage First School)  
 Swanage National Mixed School Log Books 1886-1907 (Swanage First School)

##### PUBLIC RECORD OFFICE

- Herston National School. Building Grants. Ed 21/4261  
 Swanage National School. Grant 1858. Ed 21/4260  
 Swanage National School. Preliminary Statements. 1855 & 1857. Ed 7/24  
 Swanage Board School. New School Building 1897. Ed 21/4260

##### PLANS

- Herston National School 1855. D 209/57 DCRO  
 Herston National School Alterations c.1865. D 209/57 DCRO  
 Herston National School Extra Classroom. c.1871. D 209/57 DCRO  
 Swanage National School c.1857. D209/56 DCRO

Swanage Board School 1894. Ed 21/4260 PRO

#### PRINTED PRIMARY SOURCES

##### ACTS OF PARLIAMENT

1867 Representation of the People Act (30 & 31 Vict) c.102  
1870 Elementary Education Act (33 & 34 Vict) c.75  
1876 Elementary Education Act (39 & 40 Vict) c.79  
1880 Elementary Education Act (43 & 44 Vict) c.23  
1889 Technical Instruction Act (52 & 53 Vict) c.76  
1902 Education Act (2 Edw 7) c.42.

##### PARLIAMENTARY PAPERS

Digest of Parochial Returns Pt 1. HC 1819, 1x. 223 & 231.  
Report of the Commissioners appointed to inquire into the State of Popular Education in England. HC 1861, xxi.Pt 1. 157.  
Returns Relating to Elementary Education. HC 201. 1871.Iv.420.  
Return of Schools throughout the Country. HC62. 1835 xli-xlii.238.

##### LOCAL GOVERNMENT BOARD

Dr. Home's Report on the Sanitary State of Swanage Dorsetshire. (Medical Department) 1872

##### NEWSPAPERS AND MAGAZINES

Bournemouth Guardian  
Dorset County Chronicle  
Poole & South Western Herald  
Swanage Parish Magazines

##### DIRECTORIES

*Harrod's Postal and Commercial Directory of Dorsetshire 1865*  
*Hunt & Co. Directory of Dorsetshire 1851*  
*Kelly's Directory of Dorsetshire 1885*  
*Kelly's Directory of Dorsetshire 1899*  
*Kelly's Directory of Hants, Wilts and Dorset 1895*

*Kelly's Post Office Directory of Hant, Wilts and Dorset 1859*

*Pigot Directory of Dorsetshire 1844*

*Post Office Directory of Dorsetshire 1855*

*Post Office Directory of Dorsetshire 1867*

*Slaters Royal National and Commercial Directory and Topography of the Counties of Cornwall, Devon, Dorsetshire and Somersetshire 1852-3*

##### OTHER CONTEMPORARY PUBLICATIONS

Densham W & Ogle T. 1899. *The Story of the Congregational Churches in Dorset* (Bournemouth)  
Linton Lynn. 1893. *Healthy Pretty Swanage* (Private Publication) DCL  
Southey Charles Cuthbert. 1844. *The Life of the Rev. Andrew Bell*. Vol II

##### UNPUBLISHED SOURCES

Gibbs W.F.E 1960. *The Development of Elementary Education in Dorset from the early nineteenth century to 1870* (unpublished M.A. Thesis) University of Southampton.

##### PRINTED SECONDARY SOURCES

Armitage W.A.G. 1970. *400 Years of English Education*. 2nd Ed.  
Curtis S.J. 1967 *History of Education in Great Britain*. 7th Ed.  
Curtis S.J. & Boulton M.E.A. 1966. *An Introductory History of English Education since 1800*. 4th Ed.  
Dictionary of National Biography 1917 (reprint) Vol 2.  
Graham John T. (author) 1952/3. 'A Rector of Swanage' *The Dorset Year Book* (46th year of issue) 99 - 103.  
Hardy W.M. 1908. *Old Swanage and Purbeck* (Dorchester)  
Hutchins John. 1861. *The History and Antiquities of the County of Dorset*. Vol I. 3rd Ed.  
Sutherland Gillian. 1971. *Elementary Education in the Nineteen Century*.  
Tatchell Leonard. 1951. *Short History of Swanage Congregational Church*. (Private Publication)  
Victoria County History of the County of Dorset. 1908. Vol 2.

# Brickmaking at Gillingham and Motcombe, Dorset

M.S. ROSS

Shaftesbury & District Archaeological Group

## BUTTERPRINT LANE BRICKWORKS, MOTCOMBE, DORSET (Fig. 2, No. 1)

### History

A small and previously unknown brickworks (ST 84452310) is bounded by Butterprint Lane and the former Turnpike Road, (now the A30), some 1 km from those recently recorded at Long Cross, Shaston St. James (Shaftesbury) (Ross 1990, 146-9). Fig. 3.

The Tithe Map and Apportionment for Motcombe (DRO T/MOT 1838) lists a brickyard (No. 830), owned and occupied by Humphrey Lear, part of his holding there of some 24 ac, when he is described as a farmer, although not as a brickmaker. His likely forebears, George and Humphrey Leare or Leer, were signatories to an Indenture of 1661/2, testifying to the transfer of the Guildhall of the Royal Manor of Gillingham and a dwelling house known as Dunhids Lodge (probably Donedge Lodge), from the Earl of Elgin to Sir Edward Nicholas, Secretary of State to King Charles II (DRO D1/5774, 1660).

Land Tax Assessments for Motcombe from 1783-1824 record land as 'late Lear' with William Lear occurring between 1783 and 1810 and Humphrey Lear as an occupier of land in 1810, but having his tax redeemed and exonerated (DRO QDE (L) 25/1,4,6,11,16,35,39/4 1783-1824). Today his great, great grandson lives in Woolcott's Farm (ST 83962309) which was thought to be the 'House with symmetrical ashlar front of three bays advertised as new-built in the *Salisbury Journal* of 26th December 1814' (RCHM 1972, 51). However, the detailed record and drawing made during the survey in 1949 and kindly supplied by the RCHM (pers. comm.) is of a house some 30 m to the west and the actual advertisement does not tally with the above description but is as follows:-



Fig. 1 Location Map of Shaftesbury-Gillingham Area.

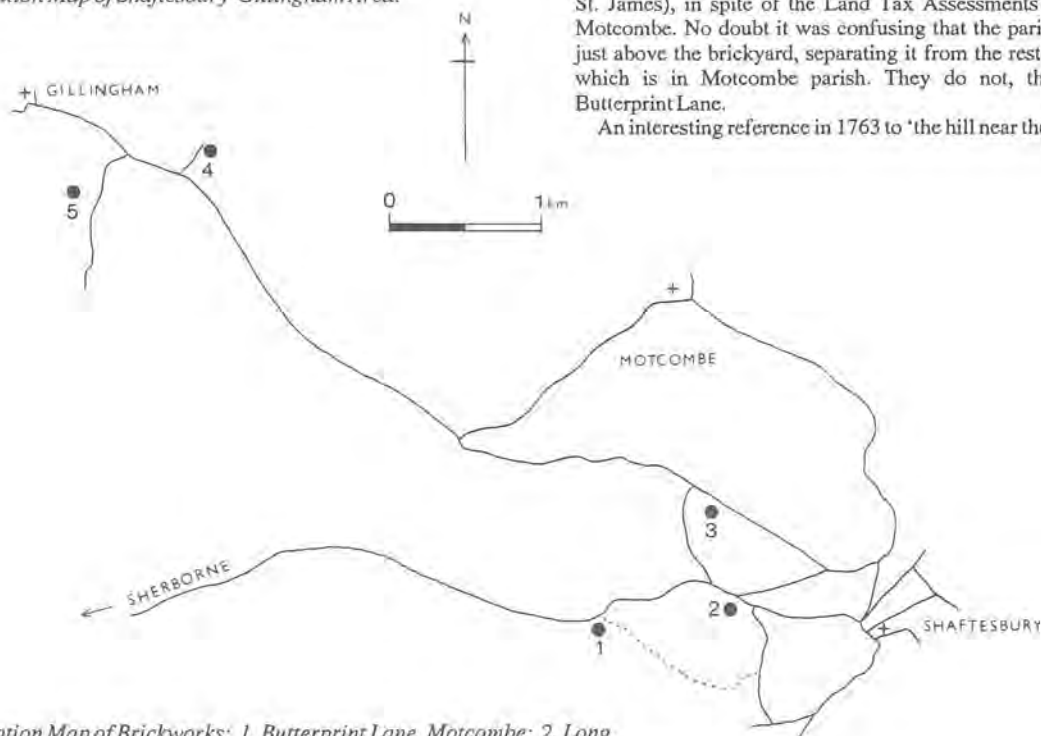


Fig. 2 Location Map of Brickworks: 1. Butterprint Lane, Motcombe; 2. Long Cross, Shaftesbury; 3. Hawker's Hill, Motcombe; 4. Kingscourt, Gillingham; 5. Gillingham.

Lot 2. A substantial and newly-erected MESSUAGE or DWELLING HOUSE; consisting of a parlour, kitchen and three good bedrooms, with attics; and a garden adjoining, containing about (*illegible*); situate at Sherborne Causeway, in the parish of Motcombe, Dorset, close by the turnpike road and within a mile and a half of the town of Shaftesbury'. (Salisbury Reference Library, microfilm). It is not known where the former advertisement appeared although it could perhaps refer to the same house.

John Woolcott, as a proprietor in 1824, paid Land Tax of £2.2.6. although where is not specified (DRO QDE (L) 25/39/4 1824) and presumably gave his name to the house which was occupied at some time by Humphrey Lear, although the present owner states that Woolcott was the driver of the London to Exeter mail coach and, as a personal friend of Humphrey Lear, had the house named after him (Mr. Geoffrey Lear, pers. comm.).

However, the land was also assessed from 1780-1815 for various people and their properties named 'Brickell'. From these and other owners and occupiers at a consistent tax of 6s comes 'the Brickell' (1780), 'Brickhill House' (1783), 'Brickiln House' (1785) and the 'Brick-kiln' (1790).

The death of George Foyle, described as owner of the Long Cross (Shaston St. James) brickyard (DRO D/1679A, 1779) was recorded in 1795 (Hutchins 1868, 84) and is probably the reason why Mr. William Meader is shown as both proprietor and occupier of the 'Brickiln' in 1795 and 1800, as well as in 1805 when it is referred to as the 'Brickland' and in 1810, 1815 and 1820 when he is still the owner but without qualification. The entry in 1824 lists 'late William Meader' with Motcombe parish as the occupier for the same 6s tax (DRO QDE (L) 25/1,4,6,11,16,35,39/4 1783-1824). Shortly after this there is a proposal in 1827 for a new line of road out of the town of Shaftesbury to deviate from Tout Hill and to enter the road to Sherborne Causeway opposite Mr. Swyer's brick kiln, which geographically must refer to Long Cross and a new owner (*A letter to the Commissioners of the Shaftesbury District Turnpike Road*, by a Commissioner, printed and published by John Rutter 1827. (William Swyer was mayor of Shaftesbury in 1825 and 1829 and notorious for his part in the Swyer v Rutter Case in Shaftesbury (Hopton 1975, 30-33).)

These references and the reasonable continuity of ownership are conclusive that the brickyard in question is that at Long Cross (Shaston St. James), in spite of the Land Tax Assessments for the parish of Motcombe. No doubt it was confusing that the parish boundary runs just above the brickyard, separating it from the rest of the settlement which is in Motcombe parish. They do not, therefore, refer to Butterprint Lane.

An interesting reference in 1763 to 'the hill near the Brick Kiln in the

parish of Motcombe' by the Commissioners of the Turnpike Road (DRO QSM 1/9 1763) must also relate to the Long Cross site, the only one on a steep hill and on the Turnpike Road, which would put its date back some 16 years at least (Irene Jones, pers. comm.)

The holding of Humphrey Lear is the same as part of that held by Mr. Geoffrey Lear today and is bounded by the original perambulation in 1225 of the Royal Forest of Gillingham, where at *La Bitene* (probably a

valley bottom (Mills 1989, 58), Fig. 3), lay the meeting place of the lands of the King (Henry III) and those of the Abbots of both Alcester and Bec (*Book of Cerne*, Cambridge University Library ff. 15b & 16a, transcribed in Hutchins 1868, 662). The same bounds can be traced on the map of the Royal Forest of Gillingham of 1624 (copied 1816 or later, RCHM, plate 56).

The large field within this boundary was formerly known as

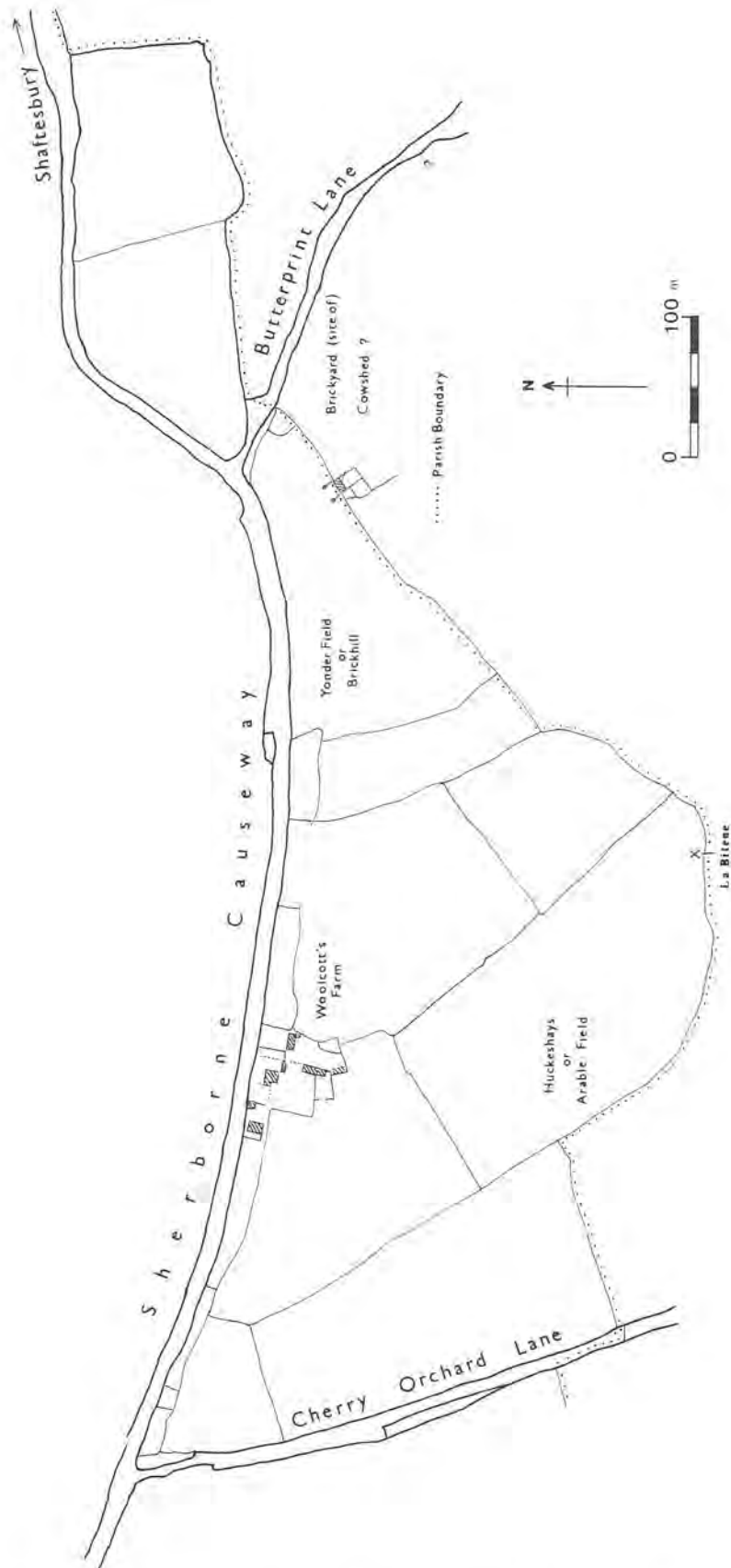


Fig. 3 Motcombe: Butterprint Lane Brickworks, from 1902 OS Map, 1:2500 with Field Names added from Tithe Map.

Huckshays (or Huckeshayes in 1568) (Mills 1989, 58) and is described as on or near the brickfield and a small holding which belonged to the late Humphrey Lear, where some curious fossils had been found (Grosvenor 1873, 18), but nothing is known of them. According to Lady Theodora Grosvenor, Butterprint Lane was then, as now, only a farm track leading to St. James, Shaftesbury, previously the route from the west which pilgrims followed to the Abbey (*ibid.* 20).

### The Site

The area of the brickyard is very small, as far as can be ascertained from the Tithe Map, and occupies a corner of the field now called Brickhill, but recorded as Yonder Field in 1838. It extended to 1 rood, 10 perches (approximately 5142 square yards or 4298 square metres), and lay on the Kimmeridge Clay at c. 112m OD. There is a small pond in the corner, obviously the original pit from which the clay was gained, each of its sides some 10 m long. It was said to be very deep in the past and considerable infilling has taken place since, both in the pond and in the field. The Forest boundary on the south side has a bank over 1 m high and some 2 m wide, topped by a hedge and a few mature trees. Dog's mercury and bluebells, botanical indicators for ancient woodland, appear in places, emphasising its antiquity. Some 100 m along the hedgeline from the pond, are the remains of a building which appears to have been set into the hedge bank. It is 11 m long with about four courses still standing, probably of oolitic limestone. Rubble and brick debris lying nearby does not look as if it could have been part of a kiln, nor does it appear to have been associated with the brickworks. It is said to have been a cowshed and from the 1:2500 map of 1902 was roofed.

A sherd of Verwood pottery, obviously brought in from the Shaftesbury area with other material in the course of infilling, is similar to one recorded from Dorchester (Draper 1990, 150) and has the name R Shering rouletted under the rim. He was the only Verwood potter to sign his work (Fig. 4) and was making pots from the mid- to late-19th century, at least before 1881, as described (*ibid.*) Details are as follows:-

The computed diameter of the pot is 50 cm, but as this seems unlikely, the vessel may have been oval or merely distorted.

Internally it is glazed in the typical Verwood orange with small brown flecks. Externally it is a dull tan/orange. The rouletted band has been made with a wheel and this has produced the erratic lettering (Jo Draper, pers. comm.)

### Conclusion

So little is known of this brickyard that it is impossible to gauge its working life and possible connection with the Long Cross brickyard.

The fact that it is recorded on the Tithe Schedule of 1838 does not necessarily mean that it was still working, for there are no entries in the *Post Office Directories*, either to the site or its owner, nor is anyone specifically related to it in the Census Returns. With the main part of the field listed as pasture on the Tithe Schedule, it might be assumed that the yard had ceased working by then if not earlier (Young 1972, 214, n.7).

Conversely a later date might be indicated, suggesting its continued existence because Lady Theodora Grosvenor, writing in 1873, refers to the brickfield at Butterprint Lane, although the field she names as Huckshays was shown as Arable Field on the Tithe Schedule. Perhaps she was writing from earlier notes and names. Another argument for the later survival of the brickyard is the change of name of its field, at a time unknown, from Yonder Field in 1838 to Brickhill, by which it is recognised today.

It may be, as Young suggests, that it was opened in the mid-19th century for the manufacture of drain pipes needed for agricultural

improvement (Young 1972, 226), and was too small to be viable once mechanisation was introduced.

All in all, with such uncertainty of dates and the absence of any artefacts or of a kiln structure, only recording of the site has been possible.

### HAWKER'S HILL BRICKWORKS, MOTCOMBE, DORSET (Fig. 2, No. 3)

### History

An entry on the Apportionment and Tithe Map of 1838 for Motcombe is the first reference to this brickyard, which is listed as part of a meadow of just over 12 ac, known as Hawker's Hill (ST 85202385), Fig. 5, although no dwellings are shown (DRO T/MOT 1838, Nos. 708, 708A). The owner and occupier was George Chitty, one of the Capital Burgesses and sometime Mayor of Shaftesbury and reputed to be a speculator in land (Mr. F. Hopton, pers. comm.)

Some 32 ac of land known as Three Hawkers and thought to be associated with Hawker's Hill and other similar names (Mills 1989, 53), appears as part of the holding in Motcombe of Sir William Webbe, knight, in 1608. He also held, according to the custom of the manor, a mansion house, three other houses, farm buildings and a 'a bowlinge allye' (Survey of the Manor of Gillingham 1608, Nicholas MS No. 88, p. 51, John Rylands Library No. R45817, unpublished). Hutchins describes how Sir William, having inherited the land '...adorned it with building' (1868, 629), perhaps referring to Payne's Place which the family were known to have occupied.

The estate of Motcombe was bought in 1825 by Earl Grosvenor, who was created Marquess of Westminster in 1831. The second Marquess, who succeeded to the title in 1841, started his programme of improvement and rebuilding in Motcombe, particularly during the 1850s and 1860s. He was responsible for the acquisition of considerable land during this time and it is assumed that he bought Hawker's Hill and the brickyard on Mr. Chitty's death in 1869 if not earlier. The Deed and Conveyance of 1927 transferring the property of the Gillingham Pottery, Brick and Tile Company Limited from the agents Gaskin and Benton, included several documents relating to the Grosvenor family and estate, implying a previous interest (Conveyance *et al.* 1927, Mr. M Haggard, pers. comm.) Kelly's *Post Office Directory* of 1899 described Hawker's Hill brickyard (Motcombe) as a branch of the then-styled Gillingham Pottery and Brick Company, and this is borne out by an entry in the Minute Book of the Company in 1898, detailing a lease to Gillingham of the 'messuage or dwelling house and close of land known as the brickyard' by Lord Stalbridge (Mr. K. Harris, pers. comm.), who had inherited the estate on the death of the Marchioness of Westminster in 1891 but the reason for this is not known.

By 1851 the brickyard was apparently flourishing, maybe as a result of the abolition of the Brick Tax in 1850, and was occupied by Henry Munday, born in Bishopstrow, Wiltshire, and described as a brickmaker employing eleven men and two boys, which rose to thirteen men and two boys in 1861. Ten years later he is no longer listed although his son George was a brickmaker and his wife, Fortunata, from Sicily, Corfu (*sic*) was living in Enmore Green, Shaftesbury. Elijah Gray had now taken over the brickyard with a labour force of seventeen men and three boys (Census Returns, Motcombe: PRO HO-107/1851, 1861, 1871, microfilm in Dorset Reference Library).

In about 1908 an oil engine was installed (Young 1972, 225), when the old mixing shed was probably demolished as shown (Fig. 5) and the new housing erected. Presumably after this the hand-moulded bricks with the characteristic 'W' in the frog were no longer made or the moulds may even have been changed following the death of the Marchioness of Westminster in 1891. It has been said that there were also bricks with 'G' in the frog but no evidence has been forthcoming about this. A Tangye engine was installed in 1929 at a cost of £335 (Mr. K. Harris, pers. comm.)

The outbreak of war in 1939 resulted in a shortage of labour and the brickyard was closed, with the men being transferred to Gillingham. It was finally sold in 1945.

Young gives an example of a clay pit being filled in, after 1927 in this case (Young 1972, 220) presumably coinciding with the sale to Gillingham. The field in question was known as Pug's Hole, about one acre in extent, some 375 m to the west of the brickyard and as far from the road. It was arable in 1838 and woodland in 1902 (1:2500 map) and is now part of a large pasture. Extensive enquiries have failed to reveal information about its possible use as a clay source and its distance from the brickworks makes this doubtful.

Quite apart from the industrial use, Dorset's fossil record was enhanced by the discovery of a Hippopotamus skeleton in 1869 (Thompson 1869, 206-8).



Fig. 4 Sherd of Verwood Pottery by R. Shering. (Drawn by Christopher Chaplin) 1:2

### The Geology

The brickyard is shown to lie on the Kimmeridge Clay at c. 122 m OD (Geological Survey of Great Britain, Sheet 297), Wincanton, 1:50,000, 1972).

As Gillingham also lies in Kimmeridge Clay it might be thought that the bricks would be the same colour but this is not the case. Those seen in the dated examples of 19th century cottages in Motcombe and Motcombe House itself, rebuilt in 1895 and said to have taken a million bricks (Huxley 1980, 10) are of a rose-red shade, while those in Gillingham are a bright orange colour.

Mr. K. Harris states that a variety of coloured tiles were produced in Gillingham brickworks by sanding the moulds with differing materials and also that the use of clamp kilns with less-controlled firing, produced colour variations. In fact, this method was used when the railway tunnel at Buckhorn Weston was constructed in 1859-60 (Mr. K. Harris, pers. comm.)

However the probable reason has been given in a personal communication by Mr. C.R. Bristow of the British Geological Survey and is as follows:-

'The discrepancy in colour is probably due to the different levels in the Kimmeridge Clay that were worked. At Gillingham, it was the basal beds (and possibly the underlying Ringstead Waxy Clay) of the Lower Kimmeridge Clay that were worked. At Hawker's Hill, much higher strata - probably in the lower part of the Upper Kimmeridge Clay were dug. Generally the higher strata are more calcareous and silty than the Lower Kimmeridge Clay, and beds of bituminous shale (oil shale) are common. It is these fairly small differences which could result in the markedly different colours of the fired bricks'.

### The Brickmaking

The illustration (Fig. 5) shows the buildings and extent of clay extraction, which increased considerably this century, presumably after the installation of the oil engine about 1908, when bricks were made by machine instead of by hand. From the map (Fig. 3) there appear to have been two kilns, but only one is known in recent times. Latterly only bricks were made, but an open gully drain with 'DRAIN' moulded on top is an example of similar items which were made during the rebuilding on the estate in the last century (Mr. M. Haggart, pers. comm. and items presented to the Dorset County Museum).

Much information has been kindly provided by the Director of Gillingham Brick and Tile Company, Mr. K. Harris, and the widow of the foreman at Hawker's Hill Brickyard from 1932-1939, Mrs. Merefield, which gives some insight into the brickmaking process at

that time.

Clay was dug in the winter months by two men and carried in tubs on a tramway, worked by pulleys. This was left to weather until the actual work of brickmaking started, from April to October. One man fed an engine-driven pug-mill with rotating knives to mix the clay, to which Greensand was added to give a milder constituency. This was forced through a die and extruded like a 'bar of chocolate', measuring approximately 9 in x 4 in and then wire-cut to a thickness of 2½ in, to form eight bricks on a pallet. (This was the net size of the finished brick, but the die was slightly larger to allow for shrinkage in drying and burning). Four of these pallets fitted on a long barrow which were wheeled away for drying. The covered drying shed with open sides has since been filled in for use as a cowshed, but bricks were often left out in the open and cap-covered with shaped wooden covers. Hurdles were laid along one side. The foreman had to move the hurdles as necessary to protect the bricks according to the direction of the wind and rain, getting up in the night as required. This process of drying took about two weeks or longer depending on the weather.

The Suffolk kiln was an updraught, intermittent type, the lower half being built underground. A brick tunnel formed a pedestrian way along both sides of the kiln to give access for firing (Plate 1). Eight fire holes were located on either side and fires lit within these on 8 foot long iron bars which projected halfway into the central block of the kiln. Coal, delivered from Radstock by lorry, was fed into the fire holes from a galvanized chute along either side. The capacity of the kiln was 45,000 to 50,000 bricks which were carefully stacked and spaced to allow the hot gases to circulate within. The top of the kiln was then flattened down with old bricks.

As the fires caught, they were gradually spread along the bars to the centre and this slow fire burned for three days to dry out the bricks further, gradually building up to full firing. As this took place, one out of every three bricks on top was removed with tongs to ensure even firing and, as the heat came through, were closed up again and finally covered with ashes. The doors were sealed (i.e. to pug up the wicket) with green pug (Greensand and clay).

The foreman, Mr. J. Merefield, started full firing at 6 am and stoked every twenty minutes until 10 pm when he was relieved for the night. Next morning he started again at 6 am, still stoking continuously as before, for the next thirty-six hours or until he knew the bricks were fired. His wife used to sit with him most of the time in the shelter of the coal chute. (Mrs. Merefield, pers. comm.)

The kiln was allowed to cool for about a week and unloaded reversing the process. First the ashes were removed from the top, then one or two bricks lifted off and finally the doors were opened gradually. Apparently at its peak the yard employed eleven men. Bricks were sold at £3 per thousand, the foreman getting a bonus of £1 per thousand, for good quality bricks only, out of which he had to pay the men. There would be seven firings in a good year. Mr. Harris remembers selling bricks at 45/- and 55/- per thousand at Gillingham. Deliveries were made within a 25 mile radius.

An entry in the accounts of the Primitive Methodist Chapel for 1910 at Kington Magna shows a bill for 'repairs' with 600 bricks costing £1.2.0. which would almost certainly have come from the local

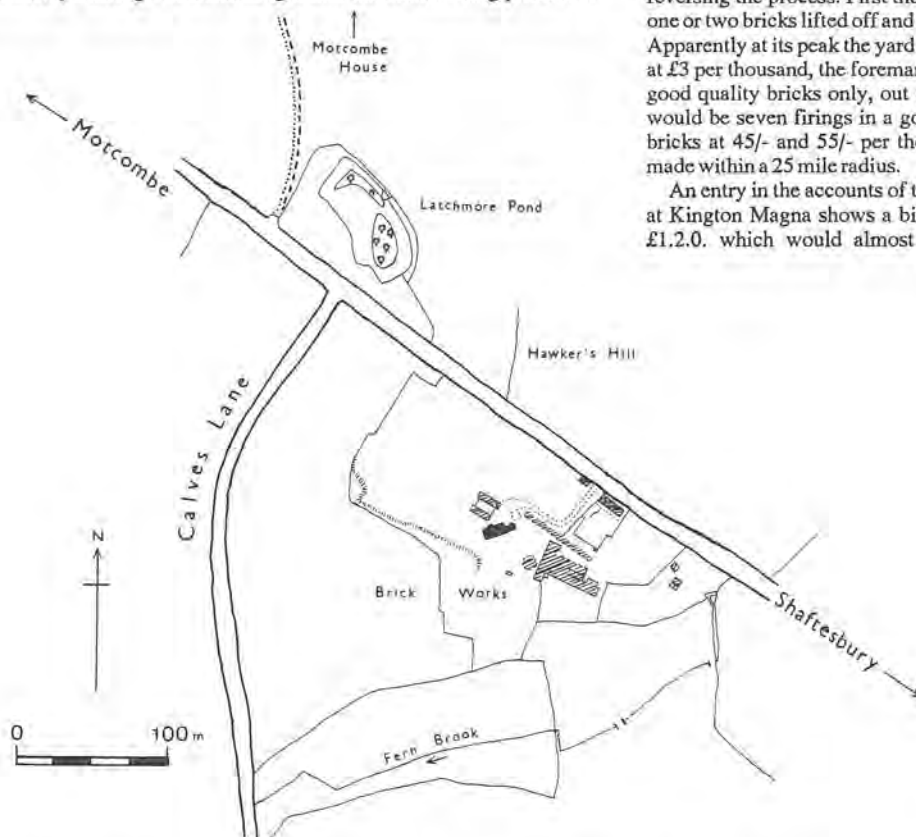


Fig. 5 Motcombe: Hawker's Hill Brickworks, from 1902 OS Map, 1:2500 with Field Names added from Tithe Map. Building in black represents new mixing and engine shed c. 1906, replacing adjacent building on east side.

brickyard (DRO Acc 2248, Trust Accounts 1827-1929 & DCM L1991.308).

#### KINGSCOURT BRICKWORKS, GILLINGHAM, DORSET (Fig. 2, No. 4)

Although Gillingham is noted for its former major brickworks to the south of the town, the nineteenth century *Post Office Directories* list a brick and tile maker at Newbury on Gillingham's eastern fringe, named Mrs. Eliza Silverthorne. Although apparently known to local people, the position of this site has not previously been published. (ST 81802620).

The Tithe Map of 1841 and Apportionment of 1839 (DRO T/GIL) lists a Brickyard and Garden (No. 937A), near King's Court Palace (Fig. 6). The Marquess of Westminster was the land owner and the occupiers George Thick and Silverthorne (*sic*), for an area extending over 3 ac 1 r with rent at 11s.

In 1842 Eliza Silverthorne is recorded as a brickmaker (Pigot & Co), *Directory of Dorsetshire*, 1842) and by 1848 is also a shopkeeper (Kelly & Co., *Post Office Directory*, 1848). The Census Return of 1851 shows her still as a brick and tile maker at the age of 50 and gives her place of birth as Stourton, Wiltshire. John Silverthorne, presumably her son, is described as a potter (PRO HO-107/1851, photocopy in DRO), but by 1859 he is a corn merchant (Kelly & Co., *Post Office Directory* 1859). It is possible to speculate that Mrs. Silverthorne was carrying on a business as a widow, which her husband had started previously, although there is no record of this. Mrs Silverthorne ceases trading as there are no further entries. Although her will was made in 1872, probate was not granted until 1887, so she must have been about 85 years old at the time of her death. She left her copyholds, not specified, and '...£100 to be invested by deposit in the bank at Gillingham or in any other manner...' to her two sons-in-law (DRO MIC/R/375 1886-9). There is no reference to the brickworks which presumably had gone out of use after 1867 as no other owner is recorded.



Plate 1 Motcombe: Hawker's Hill Brickworks: Underground fire tunnel, probably 19th century, revealed by digger in the 1980s. The tunnel was c. 10-12ft long and c. 8ft high.

#### The Site

The site of c. 3 ac is roughly triangular, with the confluence of the River Lodden and the Fern Brook forming one side, and is clearly depicted as a marshy area with large ponds on the O.S. large-scale maps consulted from 1886 (Fig. 6). It lies on the Kimmeridge Clay at c. 76 m OD.

Today it appears that an area adjoining the Fern Brook has been infilled and reclaimed as meadow, but it is not clear whether a much larger part of the site was involved originally, as there are now several houses on the southern section. However, an area of the old pit remains, which had been dug out to a depth of some 10 feet (3 m) and is much overgrown with scrub and trees.

A resident most helpfully produced deeds representing his ownership of part of the site from 1956 and stated that someone in the past had remembered infilling of the pit about a hundred years ago, but it was said that the brickyard had failed due to the poor quality of the clay (Mr. L. Gurnett, pers. comm.), although it was apparently in use for at least 20 years. A brick fragment was found close to the site which was very crudely mixed and, if representative of the products, was obviously sub-standard.

Mr. Gurnett also stated that bricks, pipes and land drains had been produced, the introduction of the latter for agricultural improvement in the mid-nineteenth century giving impetus to such an industry. Similarly the opening of the Salisbury to Yeovil railway at Gillingham in 1859-60 may also have increased demand for bridges and buildings in brick.

Perhaps the installation of steam-powered equipment at Gillingham in 1866 (Young 1972, 222) and the age, at well over 60, of Mrs. Silverthorne, made such a small brickyard hopelessly uncompetitive and enforced its closure.

In this context, it seems appropriate to quote from Edward Dobson's *A rudimentary Treatise on the Manufacture of Bricks and Tiles* written in 1850. 'The actual cost of moulding bears so small a proportion to the total cost of brickmaking, that in small brickworks the employment of machinery would effect no ultimate saving and therefore it is not to be expected machinery will ever be generally introduced for brick moulding...'

At least some remains of the brickyard site can be seen which makes the recording more credible.

#### DISCUSSION

Numerous brickyards sprang up in the last century in response to increasing urban and rural development, exploiting the various clay deposits. Many have gone unrecognised, as pits became rapidly overgrown and equipment was removed, so it is only through documentary research, notably in the Tithe Schedules of the early 19th century, that their existence has become known. However, the fact that many may be much older is illustrated by an example which has recently come to light in Puddletown in the south of Dorset. A field named Brickclose is cited in various documents from 1623-33 (Moon 1983, 274), a hundred years later the survey of the parish lists a brickmaker living 'close to the old Brickhill' (Sinclair Williams 1988, 60, 64, 70) and Brickclose reappears on the Tithe Apportionment in 1843 (DRO T/PUD). Similarly it is noted that a reference to Brickmore Acre 'laying in the Common Field' is recorded in 1608 (Survey of Gillingham p. 26, *op. cit.*) The name is described as probably alluding to brickmaking (Mills 1989, 25) although in the absence of other evidence, this can only be a matter for speculation.

Even so, it is perhaps surprising that brick was becoming fashionable and widely used in Dorset as early as the 18th century (Young 1972, 218), but this is evident in Shaftesbury, in spite of the alternative of building stone from the Upper Greensand. No doubt brickmaking was easier and possibly more profitable than quarrying.

Brickmaking seems to have been a traditional, even a cottage industry and often a family affair for generations, with a number of women taking over their husbands' businesses. Two out of the four yards described had women proprietors at some time. Mr. K. Harris who has kindly given so many details about brickmaking at Motcombe and Gillingham, is the fourth generation of his family to operate brickworks, with his great grandfather starting at Kington Magna (the yard was known as Buckhorn Weston) (Ross 1985, 40-2), and a cousin running the Bourton yard. His grandfather was one of the named

subscribers for *A History of English Brickwork* (1925) by Nathaniel Lloyd. The early gentlemen owners at Hawker's Hill (George Chitty) and Long Cross (George Foyle and William Swyer) in the 18th and 19th centuries, demonstrate that brickyards were perhaps a good investment at that period, with a foreman or agent being employed to operate them.

By 1763 Long Cross was already a landmark for the Turnpike Commissioners, which would indicate an earlier existence. It appears to have been the only yard working in the area at that time. Its failure after about a century in the 1860s suggests that it was overtaken by Hawker's Hill brickyard which was then flourishing under the auspices of the Grosvenor estate with their major building programme. The dating and operation of Butterprint Lane remains unknown and it may well have failed for the same reason after apparently working on a very modest scale.

A similar initiative took place in Gillingham, with Kingscourt working at least from 1842 as recorded in the Tithe Schedule. After the railway line between Salisbury and Yeovil had opened in 1859-60, the main brickworks at Gillingham was founded in 1866 (Fig. 2, No. 5). Its position adjacent to the station and using a steam-powered engine (Young 1972, 225), meant that it had the capacity and was well-placed to benefit from the ensuing development, giving fast transport in and out of the town and opening up markets previously out of reach. As a result, the Kingscourt yard would have become relatively isolated and uncompetitive, leading to its closure sometime after 1867.

Brickmaking was extremely hard work, involving long hours in the summer and low wages, with a need for alternative employment during the winter months. In view of the poor state of Dorset's agriculture during the last century, it may have provided a more satisfactory, if precarious, way of earning a living than agriculture. Survival of brickworks from these described would appear to depend on the owner's ability to improve techniques and finance new machinery in order to be competitive, a dictum that would not be out of place today.

#### THE ARCHIVE

All finds have been deposited in the Dorset County Museum with the illustrations and relevant archival material.

Artefacts are marked with the site number as follows:-

Butterprint Lane - BP 91

Gillingham - Gillingham Brickworks 1990

Hawker's Hill - HH 90

Kingscourt - Kingscourt, Gillingham.

#### ACKNOWLEDGEMENTS

The author is most grateful to the present owners of the former brickworks for permission to investigate the sites and for their interest and help, namely Mr. and Mrs. M. Haggard (Hawker's Hill), Mr. and Mrs. G. Lear (Butterprint Lane) and Mr. L. Gurnett, (Kingscourt).

She would also like to thank many others who have given valuable advice and information, particularly Mr. K. Harris, Director of Gillingham Brick and Tile Company for reading and commenting on the section on Brickmaking and Mrs. Merefield, formerly of Hawker's Hill brickworks, for their detailed knowledge of brickmaking; Mr. C.R. Bristow of the British Geological Survey; Christopher Chaplin who drew the Verwood sherd; Elizabeth Churchman of the RCHM; Mr. L. Clark; Jo Draper; Mr. F. Hopton; Professor M. House; Mrs. I. Jones; Mr. D. Lloyd, National Westminster Bank; Mr. J. Lodder; Mrs. D. May; Mr. J. Pinnock; the Archivists and staff of the Dorset Record Office; the Curator and staff of the Dorset County Museum and the staff of the Dorset County Reference Library.

#### BIBLIOGRAPHY

- Celoria, Frances, (ed.), 1971, Edward Dobson's 'A rudimentary Treatise on the Manufacture of Bricks and Tiles' (1850), Mountford, A.R. (ed.), *Journal of Ceramic History*, No. 5.
- Draper, J., 1990, 'A Named Bread-Bin from Verwood', *Dorset Proceedings*, Vol. 112.
- Grosvenor, Theodora, 1873, (3rd ed.), *Motcombe: Past and Present*.
- Hutchins, John, 1868, (3rd ed.), Vol. III, *The History and Antiquities of the County of Dorset*.
- Huxley, Elspeth, 1980, *Nellie: Letters from Africa*.
- Mills, A.D., 1989, *The Place-Names of Dorset*, Part III.
- Moon, A.A., 1983, 'Brickmaking in 17th century Holnest', no. 152, *Somerset and Dorset Notes and Queries*, xxxi, pp. 272-5.
- Ross, M.S., 1985, 'Kington Magna: A Parish Survey', *Dorset Proceedings*, Vol. 107, pp. 23-46.
- Ross, M.S., 1990, 'Long Cross Brickworks, Shaston (Shaftesbury) St. James, Dorset', *Dorset Proceedings*, Vol. 112, pp. 146-9.
- Royal Commission on Historical Monuments, (England), 1972: *An Inventory of Historical Monuments in the County of Dorset*, Vol. IV. North Dorset.
- Sinclair Williams, C.L., 1988, 'Puddletown', *Dorset Record Society*, No. 11.
- Thompson, T., 1869, 'Discovery of a skeleton of the Hippopotamus in post-Pliocene Drift near Motcomb (sic), Dorset', *Geological Magazine*, No. 6, pp. 206-8.
- Young, Donald, 1972, 'Brickmaking in Dorset', *Dorset Proceedings*, Vol. 93, pp. 213-242.

#### ABBREVIATIONS

DCM - Dorset County Museum

DRO - Dorset Record Office

PRO - Public Record Office

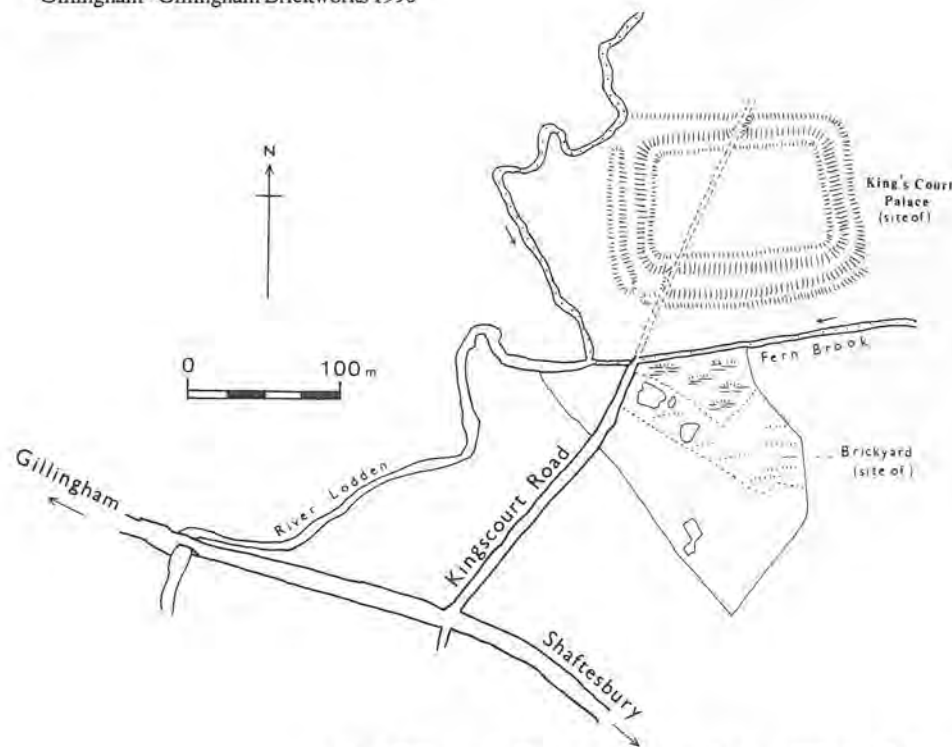


Fig. 6 Gillingham: Kingscourt Brickworks, from 1902 OS Map, 1:2500.

# Anglo-Saxon Abbey Shaftesbury - Bectun's Base or Alfred's Foundation?

ELINOR MURPHY

## Introduction

The origins of Shaftesbury Abbey in North Dorset have never been satisfactorily established. A rich and historically important nunnery, it certainly stood on its conspicuous and strategically significant spur of land from King Alfred's reign until the Dissolution, though little more than the uncertain outlines of the Norman footings are visible today. Various theories exist concerning the approximate date and site of its foundation or re-foundation by Alfred, which will be examined here. The Royal Commission on Historic Monuments, however, referring to the abbey's possible beginnings (RCHM 1972, 58), cites a much earlier charter of c.670 (BCS,107,S.1164).

This charter relates to a plot of land near the stream at *Funtamel* (Fontmell) granted to an Abbot Bectun and later sold to Tisbury Abbey, as confirmed in a further charter of 759 (BCS 186,S.1256). The modern village of Fontmell Magna, through which the brook flows, lies some four miles south of Shaftesbury, so it has been proposed that Abbot Bectun and his successors, Catwali and Tidbald, who are referred to in these charters, might have been associated with a religious house at Shaftesbury as early as the 7th century (Keen 1984, 213).

Tisbury is on the River Nadder, near Wardour Castle, some six miles to the north-east. It was probably the site of the Council on the Nodder in 705 and its abbot, Wintra, who bought the charter lands, is known to have been at the Synod of Wessex, 710 x 716 (Haddon & Stubbs 1871, 276 and 295). He appears as signatory to other charters. It was obviously a religious house of some importance, but nothing further is heard of it, except that many of its lands, including the abbey site itself, were eventually granted to Shaftesbury, probably as part of Alfred's 9th-century endowment of his nunnery there (Jackson 1985, 164). A 13th-century list, described by Birch (1872) as probably the work of a Benedictine or Cistercian monk at Canterbury, makes no mention of Tisbury at all among some five hundred religious houses in Great Britain, and his two lists of heads of religious houses, compiled about the same period, which refer to Egwald, Wintra and 'Tisselbury', show clearly that the mediaeval compilers, who quoted their sources, had no more recent knowledge of this monastery than the references given here.

Lands in the vicinity of the Fontmell Brook certainly did end up in the possession of Shaftesbury (Harley 61), but a closer look at the charters and other evidence throws the suggestion of any direct connection between Shaftesbury Abbey and Bectun's community open to question. It is therefore of considerable importance, in any examination of the context of Alfred's 9th-century nunnery to try to establish the actual relevance of these charters to the site.

## The Bectun Charters

The Latin texts, excluding introductory and closing formalities, read:

*BCS 107* Ea quae secundum ecclesiasticam disciplinam ac sinodalia decreta salubriter definiunter, quamvis solus sermo sufficeret, tamen, pro evitanda futura temporis ambiguitatem fidelissimis scripturis et documentis sunt commendanda. Quapropter ego Coirredus, pro remedio animae meae et relaxatione piaculorum meorum, aliquam terrae particulam donare decreverim venerabili viro Bectune abbati, id est. xxx manentes, de aquilone rivus nomine Funtamel, ex meridie habet terram beatae memoriae Leotheri episcopi; nam earundem supradictarum cespites pro ampliori firmitate evangelium super posui, ita ut ab hac die tenendi, habendi, possidendi, in omnibus liberam et firmam habeat potestatem.

*BCS 186* Hoc signum ego Cyniheardus indignus episcopus impressi ad confirmandam roborandamque hanc cartulam quam huiusmodi conscriptum esse fateor successor abbatis prenominati Bectuni Catuuali nomine dedit terram supra designatam. xxx. manencium Uuintran abbati pro pecunia sua et scripsit libellum alium donacionis huius atque possessionis suprascriptae subtraxit tamen et donacionis primae litteras et subsciptciones regum episcoporum abbatum atque principum quia inter cetera terrarum suarum testimonia hec eadem terrae particula conscripta non facile potuit eripi neque adhuc potest. et propterea decedentibus primis testibus longa deceptatio inter familias duorum monasteriorum orta est et perseverat usque nunc. habeant autem hanc terram semper ex quo a praefato abbate primo data est Wirtrun successores eius. et alterius familiae et successores primum libellum que manibus praedictorum testium roboratur.

Idcirco ego nunc atque rex noter caeteri quorum testificatio et subsriptio infra notatur. Reconciliavimus eos in pace partim data pecunia partim juramento adhibito in tantum ut deinceps successores Wintrun abbatis id est Eguuald et familia eius quae est in monasterio quod dicitur Tissebiri cum licentia alterius familiae cui praestat Tidbald abbas habeant, possideantque, perpetualiter terram de quam diu altercatio erat et praesens libellum ego descripsi. atque excerpti ab illo primitus dato Betuno abbati concadente scilicet Tidbaldo abbate et familia eius et dedi Eguualdo abbati testibus infra notatis consentientibus atque confirmantibus hanc scripturam reprobantibus autem alia scriptura quae sunt edita de hac terra.

The Whitelock translation (EHD I, 1979 a Charters 55) of the significant passages of the 7th-century document has:

'Those things which are profitably defined according to ecclesiastical teaching and synodal decrees, although the word alone suffices, ought yet to be committed to most trustworthy writings and documents, to avoid uncertainty in future time. Wherefore, I Cenred, for the relief of my soul and the remission of my sins, have decided to grant a certain small portion of land to the venerable man, Abbot Bectun, i.e. thirty hides north of the stream Fontmell by name; it has on the south the land of Bishop Leuthere of blessed memory. Now I have placed for more complete security sods of the above-mentioned lands on the gospel, so that from this day he may have in all things free and secure power of holding, having, possessing.....'

Leuthere was Bishop of Wessex from 670-676 and one of the witnesses. Whitelock, along with more recent commentators, considers that the document is probably authentic, dismissing anachronisms such as 'of blessed memory' as a copyist's insertion. She equates Cenred with the father of King Ine, then probably a powerful local leader. Successive commentators (Levison 1946, 228; Whitelock *op.cit.*; Edwards 1988, 230) have noted that Leuthere's Frankish origins may have influenced some of the wording. The confirmatory charter is also thought to be authentic:

'I Cyneheard, an unworthy bishop, have impressed this sign for the confirming and strengthening of this charter....: the successor of the afore-named Abbot Bectun, Catwali by name, gave the above-designated land of thirty hides to Abbot Wintra for his money, and wrote another deed of this donation....., since this portion of land had been enrolled among the other testimonies and their lands, it could not easily be detached, nor can it yet. And, therefore, after the original witnesses were dead, a long strife arose between the communities of the two monasteries.....

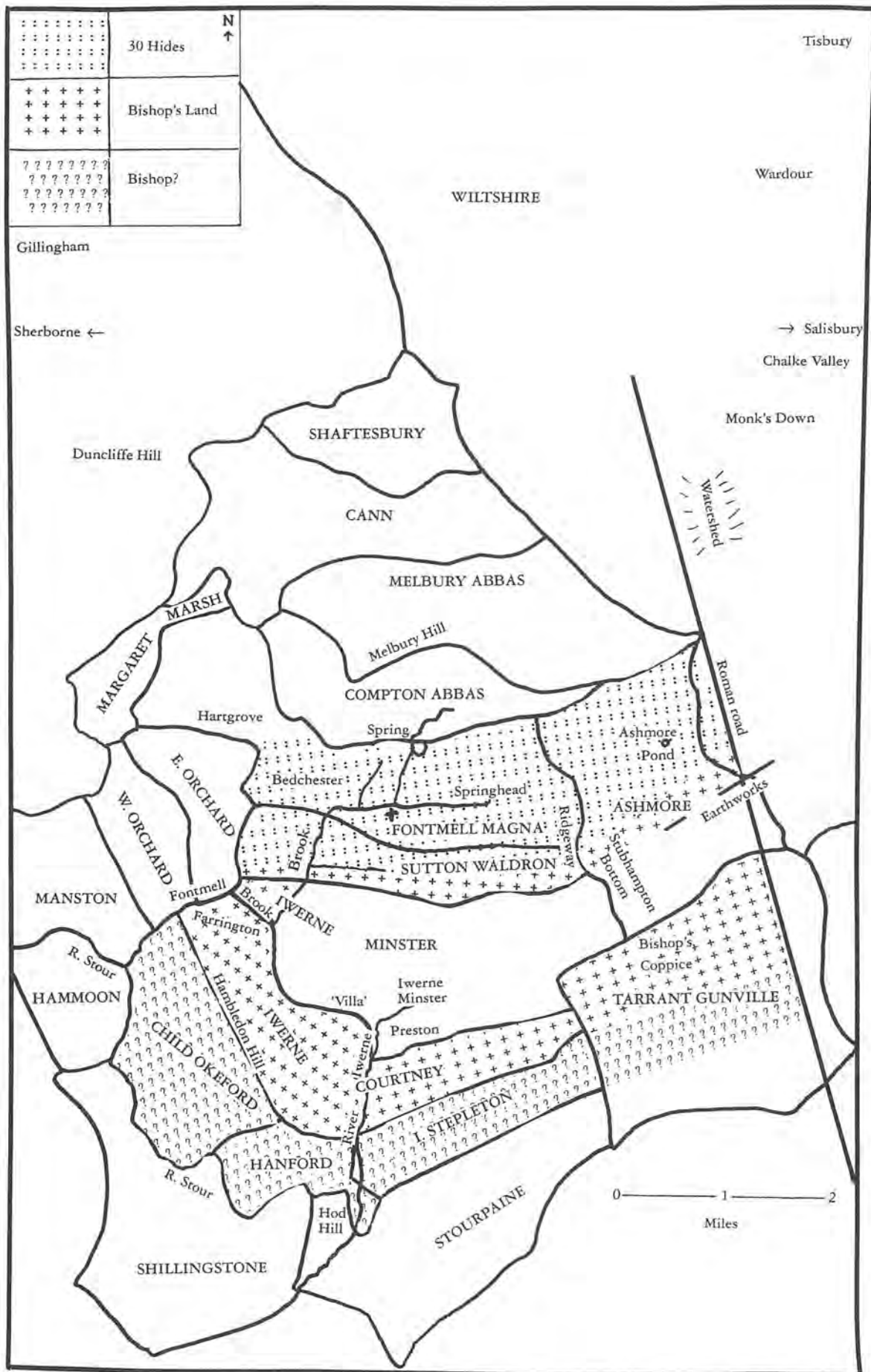


Figure 1. A portion of N.E. Dorset illustrating the relationship between Shaftesbury, the proposed bounds of Abbot Bectun's 30 hides and other significant early reference points, shown in terms of modern parishes.

'Therefore I now, and our king, and the rest whose witness and subscription is noted below, have made a peaceful reconciliation between them,..... that hereafter the successors of Abbot Wintra, i.e. Egwold and his community which is in the monastery which is called Tisbury, are to have and possess for ever, with the permission of the other community, over which Abbot Tidbald presides, the land about which there long was a dispute..... and I have given this writing to Abbot Egwold..... rejecting other writings which have been drawn up about this land.' A copy of the original was attached.

Cyneheard seems to be saying that the land by Fontmell Brook was not the only estate in the endowment, but, as Edwards (*op.cit.*233) points out, there is no reason to suppose that all these lands were in the same vicinity. Since Cenred is thought to have been the father of King Ine, a man of substance who would probably have had the gift of property over quite a wide area, her suggestion that a community deciding to sell off a small part of its holdings would be more likely to dispose of a plot that was detached, or some way from its house, rather than one on its doorstep, certainly needs consideration. It cannot, if that is the case, even be assumed that Abbot Bectun's community was based anywhere near Fontmell or Shaftesbury. At the same time, the evidence does not rule this out, so it must be considered.

This charter was drawn up within forty years of the conversion of Wessex so, if the land was not granted to an absentee landlord - i.e. a well established religious house in another area, of a size to be able to administer scattered estates - it seems likely that the beneficiary was a small pioneer community under the protection of the local bishop. Perhaps this particular plot was given when the community began to grow and its needs increased, to supplement an initial endowment with which it was engrossed in the records.

The husbandry of land at Fontmell would have raised problems of time and manpower for such a community, with religious duties to fulfil, if it occupied the top of the steep hill at Shaftesbury some four miles to the north of the brook - as would its effective protection by the bishop, even further away. It is therefore logical also to explore alternative sites nearer to Fontmell. This means first having a better idea of the location of the thirty hides than has so far been established.

Eminent scholars have found the Latin text of the Bectun charter ambiguous and various interpretations have been put on it. Levison (1946,226) refers to 'land *on* on the river Fontmell' and Stenton (1955, 23) to land '*by* the river', while Finberg (1964, no.551) offers an alternative translation for '*de aquilone rivus nomine Funtamel*' as 'bounded on the north by the river' (instead of 'north of the stream', as Whitelock has it). This he proposes would place the thirty hides in Fontmell Magna (he seems to mean the southern part of it) and possibly Sutton Waldron, with the Bishop's land in Iwerne Minster, substantially altering the picture suggested by the EHD version.

A look at the topography shows that the Fontmell Brook, from the present church, flows east-west towards Bedchester (an old settlement), then drops south, before turning in a westerly direction again near Pegg's Farm and Farrington (see fig.1). Upstream from Fontmell church, however, it has two branches, one, known as Collyers Brook, rising at Springhead and following the same east-west line, while the other, longer one joins from Compton Abbas to the north. A little further down the main valley the Iwerne also flows from north to south before making its way to the Stour. This may have caused Pearce (1982,119) to describe the reference in the charter to the 'north side of the river Fontmell' (she relies here on the EHD version) as rather obscure, since, she says, 'the Fontmell runs roughly SW-NE (*sic*)'. The fact is, however, that there are two places where it flows approximately east-west, which could consequently, other things being equal, provide a recognisable northern or southern boundary.

Barker (1984, 36), on the other hand, aware of the two streams of the brook, puts yet another interpretation on the text,

in which, '*de aquilone*' equals 'from the north' and identifies, not a boundary, but the branch of the stream that flows *through* the charter land. She thus provides a further possible permutation. Again, this would, in her estimation, place the thirty hides firmly in Fontmell and its adjacent 'tuns', though not distinguishing between north and south of the stream - an attractive proposition, since it offers a larger, more versatile area in which to accommodate them. Such an approach, however, would appear to ignore the fact that the phrase '*de aquilone*' is balanced further on by the words '*ex meridie*', the two surely providing the northern and southern limits.

The versions proposed by Whitelock and Finberg are, on the face of it, preferable, given the strong source at Springhead and the general east-west orientation of the ancient landstrips here. Emanating from a spectacular natural configuration of projecting hills and combes at their eastern extremities, they have long boundaries to the north and south reaching towards the river Stour in the west, and, with their respective springs and roughly equal shares of hillside and valley, woodland and pasture, they probably reflect very early patterns of cultivation and holding, just as they formed the basis of later manors and parishes (Drew 1947).

Before the 19th-century turnpike road was constructed, drawing a hard, straight line down the middle, the north-south highway did not run through the valley but along the Ridgeway, referred to variously over the centuries as the *Greenway* in 956 (S.630), a *Via Regalis* at the time of King John's perambulations (Hawkins 1983, 15 & 98) and, more prosaically today, as the C13. From it, Good (1966, 96) has shown that the communicating network of lesser roads led down through the villages in the same east-west pattern as the land formations, while no direct north-south link road existed between them. Access from Fontmell to Sutton involved a considerable detour, probably following some ancient land boundary. It is equally interesting that, from the south, a lane from Iwerne stopped short in Sutton Waldron village (Good 1966, 125) - and still does. It was clearly not heading for Fontmell or Shaftesbury (maps: Taylor 1765; Bayly 1773).

This consistent east-west alignment has clear implications for the interpretation of the Bectun charter, for, wherever the thirty hides of Cenred's grant were in relation to Fontmell Brook, in 670 they formed a discrete unit within this system, in the gift of Cenred and separable from the rest of the recipient's land at a later date, when they were sold to Abbot Wintra of Tisbury by Abbot Catwili. Indeed, they must have borne some relationship to up to three other plots - the bishop's estate and the rest of the land in Cenred's charter, as well as the community's original base.

Bishop Leuthere was not only one of the eminent witnesses to the original transaction but also a neighbour. It seems probable therefore that he was an interested party, guaranteeing protection and support to an embryo religious house. The community would doubtless have been in need of such protection. This assumption, as suggested earlier, would have pointed to its location near to the bishop's land. That could mean that it, too, was south of the thirty hides on the brook. Nonetheless, as many permutations as possible need to be looked at. It is not realistic to believe that a positive identification can be reached on present evidence and each of the alternatives based on the apparent north and south boundaries provided could also be developed with further variations and still have drawbacks, but what can be attempted is to weigh the probabilities.

#### Propositions Explored:

Four propositions are elaborated first, assuming that the thirty hides were alternatively north or south of the east-west sections of the brook:

*Fig 2(a)*: The thirty hides could have been north of the brook at Fontmell, with the bishop's land south of it and the original base of Bectun's community, together with the rest of Cenred's

endowment, further to the north or west, near to the charter holding. This would suggest a centre somewhere towards West Melbury, Cann, Shaftesbury or Hartgrove, where there was an old chapel. Hartgrove is included in the Fontmell bounds of Athelstan's grant to Shaftesbury Abbey (S.419. Grundy 1935, 103), but at some stage it became part of East Orchard and was a chapelry of Iwerne (RCHM 1972, 21). It was linked to Fontmell by the *Halgen Weg*, or Holy Road (Grundy 1935, 107), which might have been of some significance. However, nowhere in these locations has so far emerged as having historical associations continuous enough even to suggest such an early monastic origin, apart from the later and improbably situated Shaftesbury, with a possible Romano-British site at its foot, and traces of Roman presence outside the supposed Saxon perimeter (Porter 1949,67; RCHM 1972, 76). This is some distance from the Bishop's land.

*Fig.2(b)*: If the hides were north of the brook at Farrington, the bishop's land would have to have been in Iwerne Courtney and/or Child Okeford, so Bectun's community and the rest of the endowment would most likely have been to the north (in Hartgrove) or east (in the Sutton/Iwerne area). The community would more probably be in the latter as it would then have been adjacent to the bishop. In later times, Farrington was the centre of a tax hundred (Exon xxxv) associated with Gillingham, ultimately replaced by Redlane, and was grouped with Child Okeford, Hanford, Gold Hill, Iwerne Courtney, Sutton Waldron and probably Manston (Thorn & Thorn 1983, Appendix). Gillingham, and possibly nearby East Stour, did indeed have Saxon church origins (Keen 1984, 208), but they seem too far away to be considered as possible sites for a small community with lands to husband that ran down as far to the south as the stretch of Fontmell Brook by Farrington itself.

*Fig.2(c)*: Taking the charter translation to mean that the thirty hides were south of the brook, the next possibility is that they ran down from Farrington, thus bringing the bishop's land right to the Stour where it turns behind the escarpments of Hambleton and Hod. Bectun's house, to be relatively near to the bishop's estate, would be likely to be in the Iwerne area to the east, as location to the west would have taken it to the other side of the Stour from the thirty hides. The rest of the endowment could then have been north of the brook or anywhere else on the Fontmell, Sutton, Iwerne axis.

The Iwerne area would be a propitious site for the community, in continuity terms (Pearce 1982, 133). This was noted by T. Dayrell-Read (1947,303) and the village and its surroundings have a history of settlement from Neolithic (Mercer, 1980), Mesolithic (Arnold et al. 1988,122) through Iron Age and Romano-British times, lying below the Ridgeway on one side and Hambleton and Hod Hills on the other. One of the barrows on Iwerne Hill was found to contain an inverted urn covered in black ash and six cremations (Hutchins 1868, 555). A substantial Roman farmstead building, generally referred to as a 'villa', was excavated by Gen. Pitt-Rivers nearby (RCHM 1972,40), though probably not occupied after the mid-4th century, and it is considered possible that a more important Roman villa with which it was associated may await discovery in this central part of the valley (Irvine, personal communication). Moreover, Catwali had a British name. Lastly, there is said to be a spring under the cellars of the present vicarage (Warren, 1944) and, according to Hutchins (1868, 555), the vicarage itself was built partly from the remains of an ancient monastery already there.

However, this grouping would seem to leave very little room for the thirty hides, as no mention is made of the Stour in the boundaries. They would also be a long way from Wintra's lands, without any obvious reason why his community should have wanted them enough to pursue a dispute over them for so long.

*Fig.2(d)* This leads to the hypothesis that the thirty hides were south of the brook in South Fontmell and Sutton, as proposed by Finberg. At least part of the bishop's land would then have to have been in Iwerne, even if only north of the spring. Again, if it was to

be near the bishop's land, this suggests that Bectun's community was south of the spring at Iwerne and the rest of the endowment either north of Collyers Brook or to the west.

This argument pre-supposes that Catwali, if his community was indeed local, would have been unlikely to let Fontmell springs go to Wintra if he did not have access to those at Iwerne. The solution remains problematic, however, since, despite Finberg's and Barker's conjecture, it is doubtful that South Fontmell and Sutton were parts of a single holding. Sutton appears to have been a discrete entity which, unlike Compton, Fontmell and Iwerne, had not found its way into the Shaftesbury inheritance by the 11th century, despite its suggested identification as the south 'tun' of Barker's conception of the Sixpenny Hundred centred on Fontmell (*op.cit.* 36). Lying between Fontmell and Iwerne, it formed an anomalous projection of the old Farrington Hundred into the surrounding Sixpenny Hundred, to which most of the other villages under the Ridgeway belonged (Thorn & Thorn 1983, Hundreds Map). As already seen, later roads skirted it. In 1086, by which time both Tisbury Abbey and Bectun's community seem to have perished (if the latter was ever in the area), this enclave was in the hands of Waleran (Thorn & Thorn, *op.cit.*), who also held lands in Wiltshire and Hampshire, including Ansty near Tisbury (Thorn & Thorn, Wilts. 1979 and Hutchins 1868, 69 & 107-8). He had them from Godmund.

Though Sutton could once have formed part of the Tisbury Abbey lands that reverted to the Crown and were in due course redistributed through royal grants, it would have been an odd piece and situation to have been carved out of the Fontmell holding in this way at that stage. The fact that Sutton did not pass to Shaftesbury suggests that it could long have been part of a distinct estate of ecclesiastical origins, excluding however, twenty-four strips of mead and an unspecified lot of 'Treasurer's land' in Sutton which were included in Athelstan's grant of Fontmell Magna to Shaftesbury in 932 (S.419).

Two further variants are therefore to be considered:

*Fig.2(e)*: If Sutton is excluded from Finberg's tentative location, the thirty hides would be contained within the South Fontmell strip alone, leaving the narrow Sutton projection as an ecclesiastical enclave, possibly attached to the rest of the later Farrington Hundred, or at least to Iwerne Courtney. Bectun's house could then have been on land at Iwerne itself, even if only from the spring northwards, with other lands running east up to Hill Farm (Drew 1947, 49 and Thorn & Thorn 1983, Note I) and beyond.

In this case, it would be possible to hypothesise that Cenred, in his capacity as local king or leader, may originally have held a traditional administrative centre of the valley around Preston, close to which there is a hill called 'King Hill' (Grundy 1936, 131;S.630), as well as the site of the Roman farmstead already mentioned. If he had other lands elsewhere, he might well, perhaps at the instance of Leuthere, have granted all or part of Iwerne to Bectun as a missionary base for the area. The embryo minster would thus have lain safely in the embrace of the bishop.

One problem this combination would present is the fact that the thirty hides would be separated from Bectun's other land by the bishop's estate. On the other hand, that objection might be overcome, as it could be precisely why Catwali sold it.

A more serious difficulty is that the South Fontmell strip on its own, bounded on the north by the brook, which also excludes Hartgrove, is very narrow and, at least on the basis of its present limits, not large enough, even assuming that the hide in Dorset was much smaller at that time than the average mediaeval hide.

*Fig.2(f)*: The sixth option is, therefore, a variant of (e), introducing an interpretation of the charter that draws on both Finberg and Barker. It relies on a single northern landmark, the source of the north branch of the Fontmell Brook, here taken as being the '*holenwylle*' (Grundy 1935, 115 & 1936, 107), the spring just north-west of the mill pond at Manor Farm on the

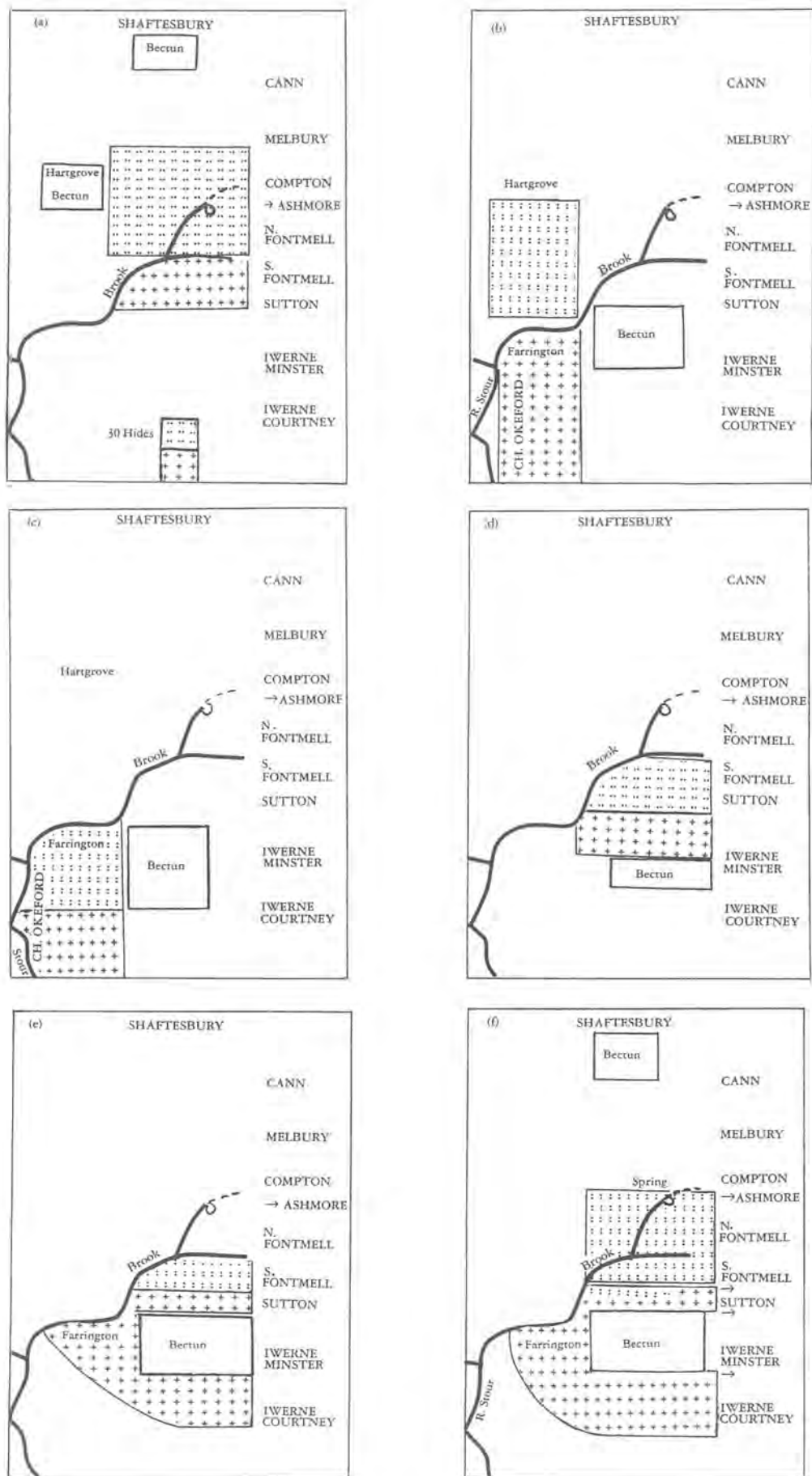


Figure 2 (a-f). Shaftesbury in relation to six alternative locations for Abbot Bectun's 30 hides on Fontmell Brook and the original base of his community, shown diagrammatically.

present parish boundary with Compton. This is a very conspicuous valley feature viewed from the top of Fontmell Down, over which the line continues eastwards, dividing the parishes on the heights. The southern and east-west limits would then have been determined by the border with the bishop's land in Sutton, amended as suggested in the following arrangement -

The thirty hides could have stretched from the source of the Fontmell Brook to the north and up from the bishop's land in the south, extending eastwards, beyond the modern bounds, to include Ashmore. The bishop, too, could then have held all or part of the area that became the Farrington Hundred, including the long narrow strip of Sutton, carrying on over the Ridgeway to an alternative line that would have provided access to the Roman road at the present Wiltshire border (see also fig.1. 'Bishop's Coppice'). Moreover, geographical features suggest that the boundary between Sutton and Fontmell may possibly have been slightly south of the present one, below the small tributary of the Fontmell Brook in the west and following a line eastwards to pass through the village of Sutton itself, which is the terminus of the old lane from Iwerne, before bearing north-eastwards towards Sutton Hill and Ashmore.

This more controversial but attractive model would leave the location of Bectun's community and other lands either further to the north (most probably in the lee of the south-east slopes of Shaftesbury, with the other land between them, the thirty hides, the springs and the bishop's estate), or, much more likely, in Iwerne, as in (e), except that the boundary between Sutton and Iwerne would also run on, from West Lodge, roughly along a line of ancient ditches, to the Roman road (RCHM 1972, North Dorset Map).

If the suppositions in (f) could be substantiated, it would nearly double the area available for the location of the thirty hides within the limits provided by the charter.

The possibility that Fontmell once stretched further into Sutton is supported by the reference to its ownership in 932 of the twenty-four strips of mead and the 'Treasurer's Land' in the later Sutton Waldron. The extension of these estates to the Roman road is made plausible by the existence of footpaths which suggest that the east-west road system could originally have begun there. It seems entirely logical that such a network should have flowed from that road, connecting it with the Ridgeway and on to the north-south highway through Bedchester and the Stour valley. It would bring the east boundaries to the watershed between the Chalke and Fontmell/Iwerne valleys, probably making the Fontmell strip continuous with the Tisbury estates.

It must be said that, like Sutton, Ashmore was never in the later Sixpenny Hundred, nor did it pass to Shaftesbury Abbey. Before 1066 it was held by the considerable landowner, Brictric, and thereafter by Queen Matilda. It fell within the old Exon tax return Hundred of Long Bartow (*Langeberge* - Exon xxii), later absorbed into Cranborne (Thorn & Thorn 1983, 1:17 & Appendix). Inclusion of part of it in the thirty hides sold to Tisbury would raise the question of when Fontmell, Sutton and Iwerne were cut off at Stubhampton Bottom to create the separate entity of Ashmore (now the heart of the Cranborne Chase), reducing the valley villages roughly to their present parishes. This would probably have been after the demise of Tisbury Abbey; perhaps, indeed, at about the time that parcels of Tisbury's former land were given to Shaftesbury by the crown, since it is not included within the bounds of Fontmell in the Athelstan charter.

Unlike the idea of an idiosyncratic omission of Sutton Waldron from the Shaftesbury endowment, if it had not always been in separate hands, there is a possible logic to Ashmore's severance from the rest of the Bectun charter property acquired by Tisbury when this reverted into the gift of the crown. It may by then already have been identified as the desirable hunting estate it is known to have become by the time of King John. This is suggested by the references in Eadwig's charter of 946 (S630) to the deer leap (in, but not out) on the high ground east

or south east of Melbury Hill (Grundy 1935, 114, Compton Abbas bounds point 14), and also to the edge of the game enclosure, described in point 9 of the Fontmell bounds and thought by Grundy to be at Fontmell Wood (S.419. Grundy 1936, 103).

It can be seen that none of these possible combinations is entirely conclusive in solving the whereabouts of the thirty hides or the house of Bectun. Nevertheless, the last hypothesis, broadly interpreted, offers an approximate identification of the disputed charter area with later grants of ex-Tisbury land in Fontmell (less Ashmore) to Shaftesbury Abbey, an explanation for the later projection of Farrington through Sutton and an arguably appropriate site for an early minster at Iwerne.

It could be asked what Tisbury would have wanted from a smallish parcel of land on the west side of the Ridgeway. Yet all the east-west strips of land started east of the crest and Tisbury held land in the Chalke valley, running up to the Ridgeway north-east of the modern Fontmell boundary (see fig.1 'Monk's Down'), which mostly passed in due course to Wilton Abbey (Jackson 1985, 177). If this reflects earlier patterns, Wintra may have wanted access to Ashmore pond and the springs at Fontmell, which would make that a more likely site than the more distant Farrington.

#### Bectun at Shaftesbury.

The chances of more documents coming to light regarding the two communities involved in the dispute over the Bectun charter lands are slight. The 15th-century cartulary, Harley 61 (B.M. Quarterly 1933/4, 8 (i) 18) would probably have included all that were at Shaftesbury when it was compiled. Two cartularies from the end of that century, also in the British Library (the *Calendar Donacionum* drawn up by Alexander Katour for Abbess Margery Twynyho c.1500 and the *Liber Ruber Abbatiae de Shaftesbury* a little earlier - Egerton 3098/3135), show that even of the deeds recorded in Harley 61 many were lost by that date, assuming Katour was conscientious about his task (Bell 1933/4, 18-22).

After the dissolution of the monasteries, the then muniments of Shaftesbury Abbey, together with those which it had from Tisbury, passed into the possession of the Arundel family at Wardour Castle and are still in the private hands of their descendants at Hook Manor in Semley, Wilts. An inspector at the Historic MSS Commission, who examined the muniment room at Wardour in 1870 (Collins 1935/6, 66-68), could not find even the 'legier booke & divers autiente writings' of the abbey that were supposed to be there, though this was said to be a large volume of 482 folios and might have contained some material not separately listed in the Egerton mss. The same article quotes Tanner's *Notitia Monastica* as referring to a missing cartulary of Shaftesbury having formerly been in the possession of D. Joh Low de Shaston, but the likelihood of any documents relating to the Saxon period still coming to light is remote.

The association of the Bectun charters with Shaftesbury has arisen solely from their presence in Harley 61. This, however, is of no significance, because much of the Tisbury inheritance, following its disappearance, had ended up, like Tisbury itself, in the hands of Shaftesbury by the time of the Domesday Book survey (Jackson 1985), having been passed on through a succession of royal grants and dowries of nuns. Similarly, other references in RCHM (1972, 58) to a possible pre-Alfredian foundation sustaining the charge of a nunnery must remain purely hypothetical, as they, too, are based on the existence of certain early charters (S.277, 326, 329, 334, 342) which ended up in the cartulary. All of these list individual beneficiaries without plausible reference to the nunnery and are most likely to have been come by in later generations in exactly the same way. The site of Tisbury itself was among grants confirmed by Aethelred in 984 (S.850). Since Jackson (1985, 164) suggests that it formed part of Alfred's initial endowment of Shaftesbury, the latter might thereby be seen as its successor.

Especially in the face of a more probable alternative at Iwerne, it therefore appears that little evidence can yet be

adduced to support the theory that either Bectun's 7th-century community or any other is likely to have chosen the heights of Shaftesbury to site a minster before Alfred's time. The overwhelming weight of circumstantial evidence (Murphy 1990), including spurious elements in the foundation charter dated to the 870's (S.357), Alfred's other pre-occupations at that time, the age of his daughter (Aethelgifu, the first Abbess), the sending by Pope Marinus in the early 880's of True Cross relics suitable for the consecration (Whitelock 1930, 59), the precedence of Athelney, the combined evidence of the chroniclers and the probable first date of the defences, all point to the completion of this building between 887 and 889.

#### The Site and Structure.

Alfred's nunnery on Shaftesbury spur was no flimsy or ephemeral foundation. It flourished and became one of the most important religious houses in the land. It was well endowed and, unlike other early monasteries, appears to have remained in continuous existence for over 650 years from that date to the Dissolution in 1539.

He commanded his designers and craftsmen to build a monastery 'suitable for nuns' (Keynes & Lapidge 1983, 105). The task implies a building that was secure and functional. Aethelgifu would have led a community there that was perhaps cosmopolitan (as Asser describes at Athelney), devoted to learning, prayer for saints and benefactors, the guardianship of relics and valuables, hospitality, the copying of texts and all the occupations and crafts necessary to estate management and institutional life. To these activities might very possibly be added other contemporary skills not suitable for cold fingers, such as fine needlework and illumination of books, though none have survived that could be attributed to this House. In other words, the building that was to house the King's delicate daughter and her religious women would have had to be proof, not only against marauders, but also against the prevalent winds. It is likely to have been of solid construction.

Given this situation, and easy access to local quarries, compared with its parallel for monks at Athelney in the Somerset marshes, which was of timber construction, it seems likely that it was built, at least partly, of stone. Evidence from recent studies of southern sites that include late 9th-century stone-work, such as St. Oswald's in Gloucester, dating from the Mercia of Alfred's daughter (Heighway 1990, 79; Heighway & Bryant 1986, 188; Gem 1986, 152), as well as Deerhurst (Rahtz 1976, 7-10; Gem 1986, 152), and Winchester (Biddle & Biddle 1990a & 1990b) shows that the style and decoration may not have been unsophisticated.

But why, as Hinton (1977,40) asks: 'was Alfred so determined to found a nunnery at Shaftesbury?' No doubt there were passing camps, ephemeral occupations and small clusters of wooden houses here over the centuries, but there seems to be as little hard evidence of any enduring secular settlement or solid defences on the top of this spur in earlier Saxon times as there is for a nunnery. No archaeological indications for either have been found (Penn 1980,84). Though it became a burh, it is conceivable that the old name of *Sceftesburg* may have been derived originally from that of the promontory itself, as a landmark in the general area. It has been suggested that 'Sceaft-' or 'Sceft-' represented a shaft or spur. Ekwall notes that the source of the '-bury' element in Melbury Hill, which faces it, may, as in some other such places, be OE *'beorg'* (a hill). If so, it would be consistent that it should also be so used in Shaftesbury, though Mills prefers 'a fortified place' in both examples (Mills 1989, 130 & 142; Ekwall 1940, 305).

William of Malmesbury claims to have seen an inscribed stone here indicating that Alfred built the town in 880. Leland refers to this as having been set up 'in knowledge that he [Alfred] *repayred* Schaftesberye, dystroyed by the Danes' (Cohen 1964, 110-111). However, even if the information on the stone was approximately correct, as seems likely (Murphy 1990), Leland's comment is his own gloss. It may be based on the several spurious and inherited early charters in the cartulary

whose relevance is disputed. Even these, however, do not refer to any fortification obligations and, despite the situation of the site, between Chippenham and the coast, there is no record of the Danes ever attacking Shaftesbury or making use of it for over-wintering.

The site is on an exposed east-west spur of land with steep drops on three sides and a narrow eastern neck joining it to the northern end of the Blackmore Vale. There are several old wells on the spur (Howarth & Young 1972; Fletcher & Cox 1986), but they involved very deep drilling and whether any of these would have pre-dated the nunnery and Alfred's major works is doubtful, when more sheltered sites with ample water were available just below. A lack of reliable, easily come-by water may indeed account for the apparent lack of earlier established settlement.

To the north-west, the Forest of Gillingham, an off-shoot of Selwood, came right up to it, pierced by the two small peaks of Dunccliffe, on the higher of which attributes of a temple site and Iron Age and Roman figurines have been found (Henig & Keen 1984). This site definitely does have a spring. Defensively, the peaks represent valuable look-out points over the northern approaches. To the south, the tops of Hambleton and Hod Hills had provided encampments to man from earliest times (Richmond 1968; Mercer 1980), while Melbury Hill guarded the Ridgeway leading from the coast. To the south-east was the forest that became the Cranborne Chase, crossed by the Roman road from Badbury Rings, leading to Wardour, which was certainly known to Alfred at least towards the end of his reign, when he held court there and adjudicated in a land dispute (EHD 1979, I 544). Close to this would have been the defunct monastery at Tisbury and the road west through the great Selwood Forest. There can be little doubt that the narrow and beautiful spur of land where Alfred built his nunnery was familiar to him when he chose it and was in a truly strategic position.

Again, just to the north was Pen Selwood, where Cenwulf is thought to have fought against the Britons in c.658 and where Alfred most probably met his supporters in the forest before his victory at Edington in 878 (EHD 1979, I ASC). It has been suggested (Dutton 1987,141) that Egbert's Stone, the rendez-vous, was actually at Shaftesbury, but the Pen Selwood/Stourhead area seems a more likely spot to have chosen, because, while being secluded and further north, it was in fact well served with roads from all directions. Apart from those already mentioned, Good (1966,93) refers to the east-west roads being 'crossed by what must be regarded as one of the most outstanding old routes....beginning far away to the north....through Penselwood, along the Corallian Ridge that separates the headwaters of the Cale from those of the Stour'. The secret landmark itself must presumably have been known to Alfred and at least some of his followers from earlier hunting expeditions or campaigns.

After Edington, he would immediately have been planning the resettlement and defence of Wessex, though he still had some battles to fight in the east. Such plans would credibly have included reinforcement of the Christian presence west of Winchester and north of Wimborne, filling a gap that had probably been left by Tisbury. If he saw his new monasteries, not only as settings for making a fresh start in the areas of learning and religious life in his kingdom, but as acts of thanksgiving for refuge and victory (Dutton 1987, 141), both Athelney and Shaftesbury would have combined symbolic with strategic significance for him.

Since Tisbury is no longer thought to have been part of Alfred's ring of fortified towns listed in the Burghal Hidage (Brooks 1964), while Shaftesbury was, it is likely that he chose Shaftesbury for its greater defensive possibilities. It would follow that he would also choose it for his new centre of Christianity in the area, ensuring the safety of the holy women by building some form of protection first, just as he seems to have built the fort at Athelney before the monastery and causeway. It remains to be established, however, where these

defences at Shaftesbury were in relation to the monastery. They themselves were not necessarily of stone.

The only recorded trace of defensive banks is at a point near the middle of the spur, at Magdalene Lane (RCHM 1972, 75). This, however, if it represented the eastern extent of the Anglo-Saxon town, would leave the Norman ruins of the Abbey outside, not inside, its East Gate, which seems improbable in the circumstances just considered (see Fig.3). It is, of course, possible that the Saxon monastery might have been further west than the Norman one. On the other hand, the Normans usually rebuilt churches on, or alongside, the established and sanctified site (Yarwood 1976, 6). Hinton (pers. com.) has pointed out that, if there had been a line of churches, as at Glastonbury, the Norman church would only have overlain one of them, but an east wall so far west would have left little room for the town itself, if it also included a church or churches. The hill top is quite narrow and excavations (Rigold 1947-9) on the even narrower north-western projection, known as Castle Hill, have revealed nothing significant to indicate occupation of that extremity before the insubstantial 12th-century fort (RCHM 1972, 76). A town wall in the middle of the spur, would, in any case, not seem to make best use of the natural approaches and neck of the site for defensive purposes.

If the Magdalene Lane earthwork is not the eastern wall of the town but the western bound of the abbey site, the logical line for the Saxon town defences, including the Abbey, would run along the western boundary of the later St. Peter's parish, which Rutter (1989, 125-7) has shown as likely to have almost exact antecedents in the bounds of land granted to Wulgar by Eadwig (S.655) in the mid-10th century.

This suggested line is slightly west of the position favoured by Keen (1984, 233). If it were correct, it would allow for access to an East Gate near the present narrow fork of Park Lane, just to

the east of the line of the South Chapel of the Norman abbey, approached from French Mill Lane and the Salisbury/Wilton road, continuing across the top to Bimport and the northern Slopes, west of Tout Hill. A deep north-south ditch containing 13th-century material found in the Savoy Cinema excavation (Fletcher & Cox 1986), could then just possibly be the route of a track headed for a North Gate on Bimport (since Tout Hill is clearly aligned on the mediaeval town further east).

These bounds, or something like them, would conform with Asser's location of the abbey by the East Gate and allow it ample room to fall within the defences of the burh, fitting neatly alongside the proposed boundaries of Charter S.655 (Rutter 1989, *op.cit.*). If, indeed, as suggested, Alfred founded his nunnery here on a virgin site, built over by Cnut and the Normans, but relatively little disturbed at lower levels since, the possibility of still finding recognisable traces of it is an exciting one. Though there have been several superficial clearances in the 19th and first half of the 20th-centuries and RCHM (*op.cit.*60) records a few pre-Conquest pieces among the considerable amount of loose, uncatalogued stonework, it is surprising that no modern excavation has taken place on this fascinating site.

#### ACKNOWLEDGMENTS

I should like to thank numerous people for their kind and helpful response to my requests for advice on various points discussed in this article and my longer essay, on which it is based. They include Richard Gem, on contemporary 9th-century buildings; David Hinton, for his wide-ranging comments on early drafts; C.A. Raleigh Radford and the R.C.H.M for remarks on the defences of Shaftesbury, as well as use of notes from correspondence; Alexander Rumble for reviewing my survey of the Burghal Hidage literature as it relates to Shaftesbury and

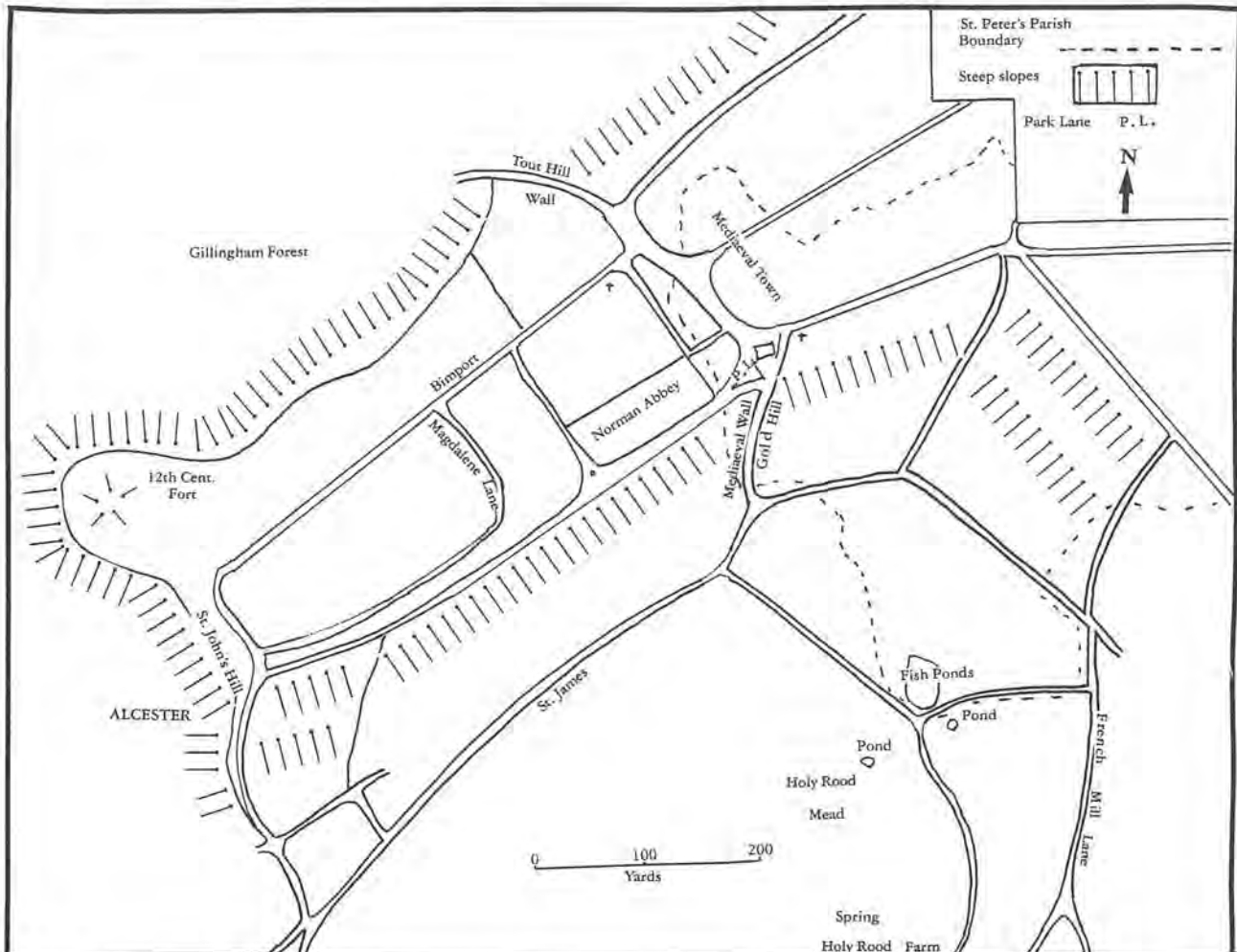


Figure 3. Shaftesbury spur, illustrating its defensive potential in relation to the siting of King Alfred's nunnery.

its defences; the Prior of Downside and Brother Terence Richardson of Ampleforth for suggestions on the use of relics in the consecration of early nunneries and Peter Irvine and Jude James for encouragement to develop my theories about local boundaries. Above all, I must record my great appreciation of the time and attention given to the text at various stages, and the provision of extensive reading lists, by Laurence Keen. None of these generous advisers must, however, be held responsible for any slips or, indeed, for the perhaps controversial hypotheses finally put forward here for further debate.

This article is based on the same author's Mansell-Pleydell Memorial Competition Essay 1990 entitled *Some Questions Around the Anglo-Saxon Origins of Shaftesbury Abbey*.

#### BIBLIOGRAPHY

Abbreviations: ASC = Anglo-Saxon Chronicles. BAR = British Archaeological Report. BCS = Birch, Cartularium Saxonicum. CBA = Council for British Archaeology. DB = Domesday Book. DNHAS = Dorset Natural History and Archaeological Society. DRO = Dorset County Record Office. EHD = English Historical Documents. F. = Finberg Charter No. (vide Finberg below). JBAA = Journal of the British Archaeological Association. RCHM = Royal Commission on the Historic Monuments of England. S. = Sawyer Charter No. (vide Sawyer 1968 below). VCH = Victoria County History. All dates are AD.

- Anglo-Saxon Chronicle, 1979 in Whitelock, D. ed. *English Historical Documents I*, 145-261.
- Arnold, John, Green, Martin, Lewis, Barry & Bradley, Richard, 1988, 'The Mesolithic of Cranborne Chase', *Proceedings of the Dorset Natural History & Archaeological Society* 110, 117-125.
- Asser Menevensis, c. 893, 'Life of King Alfred', in Keynes S. & Lapidge, M. ed. *Alfred the Great* 1983, 66-110.
- Barker, Katherine, 1984 'Institution & Landscape in Early Medieval Wessex: Aldhelm of Malmesbury, Sherborne & Selwoodshire', *Proceedings of the Dorset Natural History & Archaeological Society* 106, 33-42.
- Bayly, J., 1773, *A Map of Dorsetshire from Actual Survey and Records of the County DRO M12*.
- Bell, H.I. 1933/4, 'A Register of Deeds from Shaftesbury Abbey', *British Museum Quarterly* VIII, 18-22
- Biddle, Martin & Biddle, Birthe Kjolbye, 1990a 'Painted Wall Plaster from the Old and New Minsters in Winchester' and 1990b 'The Dating of the New Minster Wall Painting', in Cather, S., Park, D. & Williamson, P. ed. *Early Mediaeval Wall Painting and Painted Sculpture in England* BAR 216, 41-43 and 44-64.
- Birch, W.de G., 1872, *On Three-Lists of Monasteries Compiled in the 13th Century*, (based on Cotton MSS Vespasian A.xviii, Cleopatra A.xii, Titus D.xii).
- Birch, W.de G., 1885, *Cartularium Saxonicum*, I.
- Brooks, N., 1964 'The Unidentified Forts of the Burhal Hidage', *Journal of Mediaeval Archaeology* VIII 74-90.
- Cohen, J.M. ed., 1964 *Leland's Itineraries in England & Wales* X 110-111.
- Collins, A.J., 1935/6, 'A Cartulary of Shaftesbury Abbey', *British Museum Quarterly* X 66-68.
- Drew, C.D., 1947 'The Manors of the Iwerne Valley, Dorset: A Study of Early Country Planning', *Proceedings of the Dorset Natural History & Archaeological Society* 69 45-50.
- Dugdale, Sir W., 1846 *Monasticon Anglicanum* II, ed. Caley J., Ellis, Sir H., Bardinel, Bulkeley, D.D., 474-6.
- Dutton, L.S., 1987 'King Alfred at Shaftesbury: The Location of Egbert's Stone', *Proceedings of Dorset Natural History & Archaeological Society* 109, 141-142.
- Edwards, H., 1988 *The Charters of the Early West Saxon Kingdom*, BAR 198 107-236.
- Ekwall, Eilert, 1940 *The Concise Oxford Dictionary of English Place Names*, 2nd ed.
- English Historical Documents I, c.500-1042, 1979 Whitelock

- Dorothy ed.
- Finberg, H.P.R., 1964 *Early Charters of Wessex*.
- Fletcher, Mark & Cox, Peter, 1986 'Excavations at the Savoy Cinema, Shaftesbury' *Proceedings of the Dorset Natural History & Archaeological Society* 108 106.
- Gem, Richard, 1986 'ABC: How should we Periodize Anglo-Saxon Architecture?', *CBA Research Report* 60 146-155.
- Gem, Richard, 1975 'A Recession in English Architecture during the Early 11th-Century', *JBAA* 38. 28-49.
- Good, Ronald, 1940 & 1966 *The Old Roads of Dorset*.
- Grundy, G.B., 1935 'Saxon Charters of Dorset', *Proceedings of Dorset Natural History & Archaeological Society* 57 114-139.
- Grundy, G.B. et al., 1936 'Saxon Charters of Dorset', *Proceedings of Dorset Natural History & Archaeological Society* 58 103-136.
- Haddon, W.W. & Stubbs, W., 1871 *Councils & Ecclesiastical Documents* III.
- Harley 61, *Early 15th-century Cartulary of Shaftesbury Abbey* British Library Sch.27390.
- Hawkins, D., 1983 *Cranborne Chase*.
- Heighway, C.M., 1990 'Painted Plaster and Sculpture from the 10th-century New Minster of St. Oswald at Gloucester', in Cather, S., Park, D. & Williamson, P. ed. in *Early Mediaeval Wall Painting and Painted Sculpture in England*, BAR 216 79-88.
- Heighway, C. & Bryant, R., 1986 'A Reconstruction of the 10th-Century Church of St. Oswald, Glos.', *CBA* 60 188-195.
- Henig, H. & Keen, L., 1984 'Figurines from Duncliffe Hill', *Proceedings of the Dorset Natural History & Archaeological Society* 106, 147-8.
- Hinton, D.A., 1977 *Alfred's Kingdom - Wessex & the South, 800-1500*.
- Howarth, F. & Young, J.A., Shaftesbury 1972 *A Brief History of the Water Supply of Shaftesbury, Dorset*.
- Hutchins, John, 1868 & 1870, *History & Antiquities of the County of Dorset* (3rd ed.) III & IV, ed. & aug. Shipp, William & Hodson, James Whitworth.
- Irvine, Peter, 1990 *The Villa at Ibernio*, Illustrated lecture to Shaftesbury Archaeological Group, 9.10.90.
- Jackson, R.H., 1985 'The Tisbury Landholdings Granted to Shaftesbury Monastery by the Saxon Kings', *Wiltshire Archaeological and Natural History Magazine* 79 164-177.
- Keen, L., 1984 'Towns of Dorset' in Haslam J. ed. *Anglo-Saxon Towns*. Chichester.
- Keynes, S. & Lapidge, M., ed. 1983 *Alfred the Great*.
- Levison, W., Oxford 1946 'The Descent of the Anglo-Saxon Charters', in Ford Lectures 1943 *England and the Continent in the 8th Century*.
- Loyn, H.R., 1962 *Anglo-Saxon England & the Norman Conquest*.
- Mercer, R., ed. 1980 *Hambledon Hill: A Neolithic Landscape*.
- Mills, A.D., 1989 *The Place Names of Dorset* III.
- Murphy, Elinor C., 1990 *Some Questions around the Anglo-Saxon Origins of Shaftesbury Abbey*, Mansell-Pleydell Memorial Competition Essay. ms. copy in Dorset County Museum.
- Okasha, Elizabeth, 1983 'A Supplement to Hand-List of Anglo-Saxon Non-Runic Inscriptions', *Anglo-Saxon England* XI 23-44.
- Pearce, S., 1982 'Estates & Church Sites in Dorset & Gloucester: The Emergence of a Christian Society', in Pearce, S. ed. *The Early Church in West Britain & Ireland* BAR 102 117-143.
- Penn, K.J., 1980 *Historic Towns in Dorset* 84-90.
- Porter, N.Teulon, 1949 Report *Proceedings of the Dorset Natural History & Archaeological Society* 71, 67.
- Rahtz, Philip., 1976 *Excavations at Deerhurst, 1971-3* CBA Research Report 15.
- Read, T. Dayrell, 1947 *The Rise of Wessex*.
- Richmond, Sir Ian, 1968 *Hod Hill - Excavations Carried Out*

1951-1958.

- Rigold, S.E., 1949 'Excavations by the Shaftesbury Historical Society at Castle Hill Shaftesbury, 1947-1949' *Proceedings of Dorset Natural History and Archaeological Society* 71 54-57.
- Robertson, A.J., 1939 & 1956 *Anglo-Saxon Charters*.
- Royal Commission on Historic Monuments, 1980 *Ancient and Historical Monuments in the City of Salisbury* I.
- Royal Commission on Historic Monuments, 1972 *An inventory of Historical Monuments in the County of Dorset*, IV North.
- Rutter, J., 1989 'The Search for a Small Anglo-Saxon Bound at Shaftesbury', *Proceedings of Dorset Natural History and Archaeological Society* III 125-127.
- Sawyer, P.H., 1968 *Anglo-Saxon Charters: An Annotated List and Bibliography*.
- Stenton, F.M., 1955 *Latin Charters of the Anglo-Saxon Period*.
- Sydenham, Laura, Oakwood 1959 *Shaftesbury & its Abbey*.
- Taylor, Isaac, 1765 *Map of Dorsetshire* (Copy in Dorset County Library).
- Thorn, C. & Thorn, F. ed., Chichester 1983 *Domesday Book: Dorset* 7.
- Thorn, C. & Thorn, F. ed., Chichester 1979 *Domesday Book: Wiltshire* 6.
- Victoria County History, 1975 *Dorset* II.
- Warren, F.C., c.1944. Unpublished notes on Fontmell Magna in Dorset County Museum.
- Webb, E.Doran, 1902-4 *Excavations on the Site of Ancient Abbey of Our Lady & St. Edward the Martyr at Shaftesbury*, Reports to the Shaftesbury Abbey Excavation Fund Committee in Dorset County Museum.
- Whitelock, Dorothy, ed., 1979a *English Historical Documents, c.500-1042*.
- Whitelock, Dorothy, 1930 *Anglo-Saxon Wills*.
- Yarwood, D., 1976 *The Architecture of Britain*.

# Field Survey and Excavation on Worgret Heath, 1990

DUNCAN COE AND JOHN W HAWKES  
Wessex Archaeology

## SUMMARY

*Archaeological work was carried out in advance of the construction of a pipeline by BP Exploration across Worgret Heath. The results of the evaluation work on the two possible routes are discussed. The chosen route involved the crossing of the Worgret Dykes, a linear ditch system to the west of Wareham. The pipeline was excavated archaeologically where it crossed this Scheduled Ancient Monument. Ditches from the dyke system were located and excavated. No dating evidence from these monuments was retrieved but phosphate analysis of their fills gives some indications of land use in the area at the time of construction.*

## INTRODUCTION

As part of the development of the Wareham Oilfield, the construction of a flowline connecting wellsite C and the existing Purbeck-Southampton Pipeline (PSP) was proposed by BP Exploration. Various routes across Worgret Heath were considered, and preliminary archaeological work was undertaken on one of these (Option 1) in November 1989. This route was later withdrawn, and another archaeological assessment followed by more detailed archaeological investigation was carried out along the chosen route (Option 3) before and during construction in July 1990.

At least ten Bronze Age round barrows are recorded in the area of Worgret Heath on the spur of land dividing the Frome and Piddle valleys (Grinsell 1959, 86); one of these, Arne 2, a ditched bowl-barrow, lies adjacent to the chosen route but outside the working area. The heath is crossed by a series of undated linear earthworks collectively known as the Worgret Dykes (RCHME 1970, 515-517). All feasible pipeline routes would necessarily have involved the crossing of this monument in at least one place.

The results of the evaluation were used to compile a project design which provided for an archaeological input into the development, and formed the basis of an application for scheduled monument consent with respect to the crossing of the dyke system.

## PRELIMINARY SURVEY

A series of 1m<sup>2</sup> test pits was hand-excavated at either 20m or 25m intervals along the Option 1 and Option 3 routes, avoiding the areas of Scheduled Ancient Monuments (Fig. 1C). Previous surveys on areas of heath and reclaimed heathland in Dorset (Cox and Hearne 1991) have

suggested that besides the opportunity to recover artefacts and locate sub-soil features, the observation of above-average depths of humic soil in test pits provides a useful indicator of areas of former human activity.

In addition to test pits, geophysical (magnetometer) and contour surveys on the Option 3 route were carried out both along the route and adjacent to the point where the pipeline was to cross the dyke (approximately the area shown in Fig. 2), and in an area where the proposed route approached most closely to the monument (see Fig. 1C). Contour survey in the latter area confirmed the alignment of the earthworks, but provided little evidence for the presence of the monument in the fields adjacent to the barrow. Geophysical survey failed to produce conclusive evidence for the presence of ditches associated with the dyke in either area, the presumed ditch surrounding the barrow, or any sub-soil features within the area scanned; a more detailed report is contained in the archive.

## Test pit results

A total of 67 pits was excavated, supplemented by 7 auger holes in areas of the Piddle floodplain unsuited to hand-excavation (Option 1 route). Details of the results from the individual pits are to be found in archive, with a summary of those with finds, features and above average soil depths included in Table 1 (these pits numbered on Fig. 1C).

## Finds

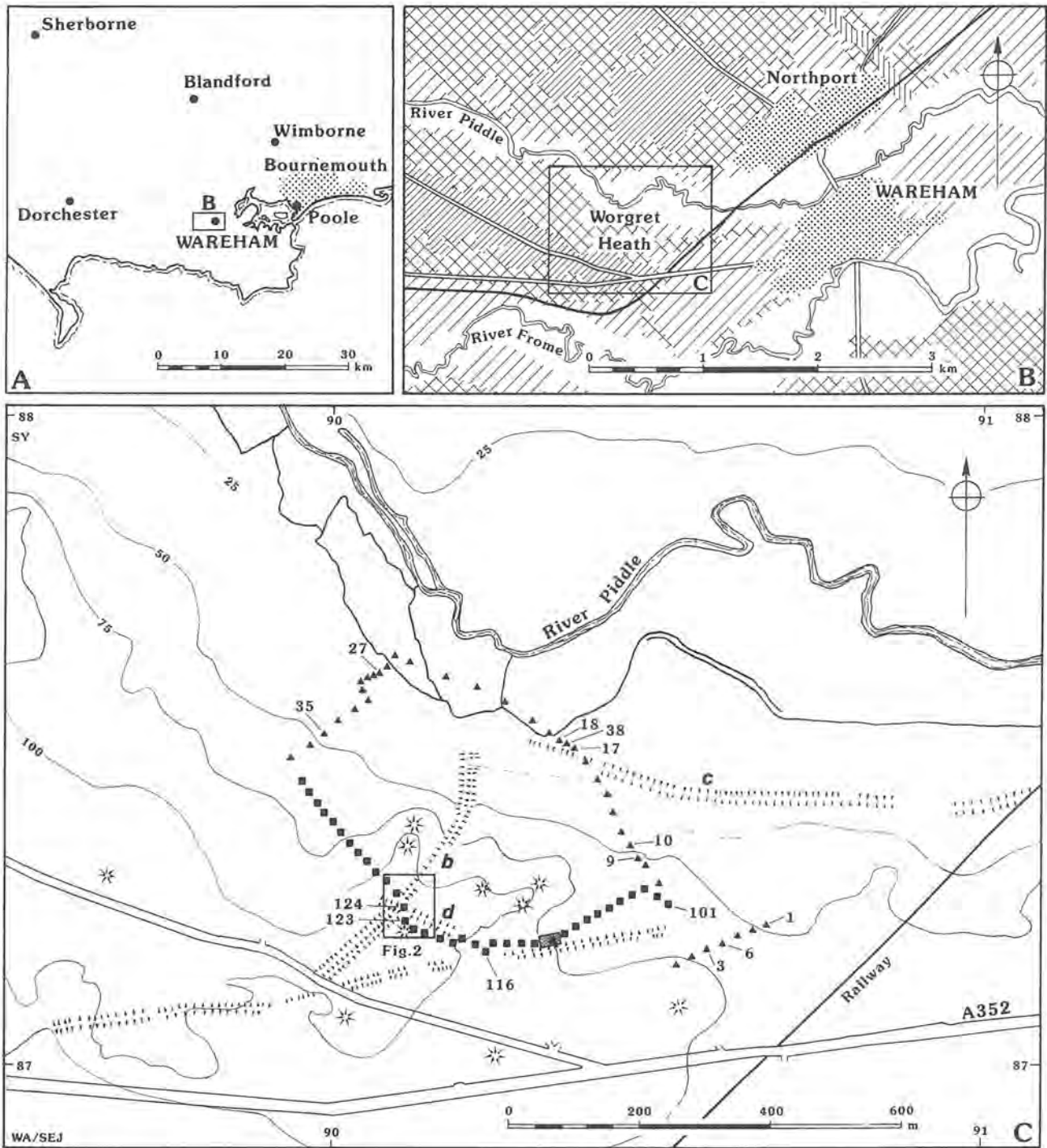
The broken flint flake from test pit 1 is comparable to shale-working tools of late Iron Age or Romano-British date commonly found in the Purbeck area (cf Woodward 1987, 171-176).

The blade-like flake from pit 17 showed evidence of having been struck from a core from which several blades had already been removed.

All the flakes recovered from pit 38 were of mottled orange/grey flint likely to have derived from the nearby gravels. None could be dated with any precision, but the single flake from test pit 17 showed

TP	Context	Finds	Observations/Features
1	1	1 flint flake (broken) ? lathe tool	-
3	5	1 Medieval sherd	-
6	11	1 flint flake	-
10	-	-	Total soil depth 480mm
17	77	1 blade-like flake (butt broken off)	-
18	78	3 pieces (222g) burnt flint	-
27	-	-	Total soil depth 800mm
38	105	10 flint flakes (2 broken) 8 pieces (110g) burnt flint	- -
35	84	1 core fragment	-
101	-	-	Total soil depth 780mm
102	-	post-Medieval and modern	Shallow gully/ total soil depth 770mm
103	-	pottery	Shallow gully/ total soil depth 810mm
104	-	and glass	
108	-	-	Shallow gully
116	-	-	Total soil depth 980mm
123	-	-	? linear feature (undated) 400mm deep
124	-	-	Total soil depth 710mm

Table 1: Worgret Heath: Test Pits - Summary of Archaeological Finds and Observations













<b>KEY</b>	<b>B</b>		<b>C</b>	
		Alluvium		Worgret Dyke Earthwork (after R.C.H.M.E.)
		Peat		Barrow
		Valley Gravel		Option 1
		Plateau Gravel		Option 3
		Bagshot Beds	} Test pits	
		Built-up Area		
	All contours in feet O.D.			

Figure 1. Worgret Heath: site location plan.

technological features most readily matched in Mesolithic or early/middle Neolithic industries (F Healy pers. comm.). This latter item may have been of chalk-derived flint not from the immediate locality.

#### Enhanced soil profiles

Enhanced soil depths were recorded in several areas. It is possible that the enhanced soil profile recorded in Pit 27 is associated with a continuation of the east-west dyke running below the 25ft contour, additional evidence for which may be found in the form of poorly-defined earthworks just visible to either side of the Option 1 pipeline route in this area.

The soil depths in pits 101 to 103 were significantly deeper than the average for the whole of Option 3 ( $0.35 \pm 0.21\text{m}$  at 1 standard deviation). It is likely that the enhanced depths, along with the recovery of quantities of post-Medieval to modern pottery may be related to a adjacent building platform, c. 20 x 10m, which was not affected by the pipe-laying operation and was not further investigated.

Pit 116, within the garden of Ashworth House, lay in close proximity to the projected line of the dyke, and it was considered that its above-average soil depth may have been indirectly associated with the presence of the monument. Consequently, it was determined that the line of the pipe trench should be excavated archaeologically in this area for a length of c. 18m, with a width of 1.5m, nearest to the course of the monument. This excavation confirmed the enhanced soil profile but revealed no evidence for the monument or any associated activity. The underlying topography suggests that the soil may have been deliberately dumped during landscaping operations associated with Ashworth House.

#### Auger survey

The auger survey across the floodplain revealed alluvial silts and peat in several locations (details in archive). Many of the deposits encountered are likely to have contained preserved pollen, potentially of considerable value in reconstructing the landscape history of the area, but following the abandonment of the Option 1 route, no further sampling or analysis was undertaken.

#### Conclusions

The results from the preliminary assessment suggested that there was only a small probability of the pipe-laying operation disturbing significant areas of archaeological deposits away from the major monuments, and that the proposed Option 3 route would not impinge on the likely position of the barrow ditch or the dyke earthworks except in the area of the crossing point. Additional protection for the monuments was afforded by restricting working areas, temporary soil dumps and the movement of heavy construction plant.

A watching-brief was undertaken along the length of the route during the contractors' stripping of the working width and machine-excavation of the pipe trench. These observations produced no additional archaeological information. Responses to specific areas comprised the hand-excavation of a short length of pipe trench in Ashworth House garden (described above), and hand-excavation of the pipe trench crossing the dyke earthwork and adjacent to the barrow (described below).

The abandonment of the Option 1 route precluded both the examination of any environmental data from the floodplain and further investigation of the probable earlier prehistoric activity area immediately above the floodplain represented by the flint scatter. The full extent and potential of this site remains unknown.

#### EXCAVATION OF WORGRET DYKE

##### The Monument

Visual inspection and detailed contour surveying confirmed that the condition of the earthworks was markedly poorer than had been the case at the time of the RCHME investigations in the 1960s.

The published plans and sections (RCHME 1970, 517, Dyke



Plate 1. Excavations at Worgret Dykes, looking north-west towards Wellsite D.

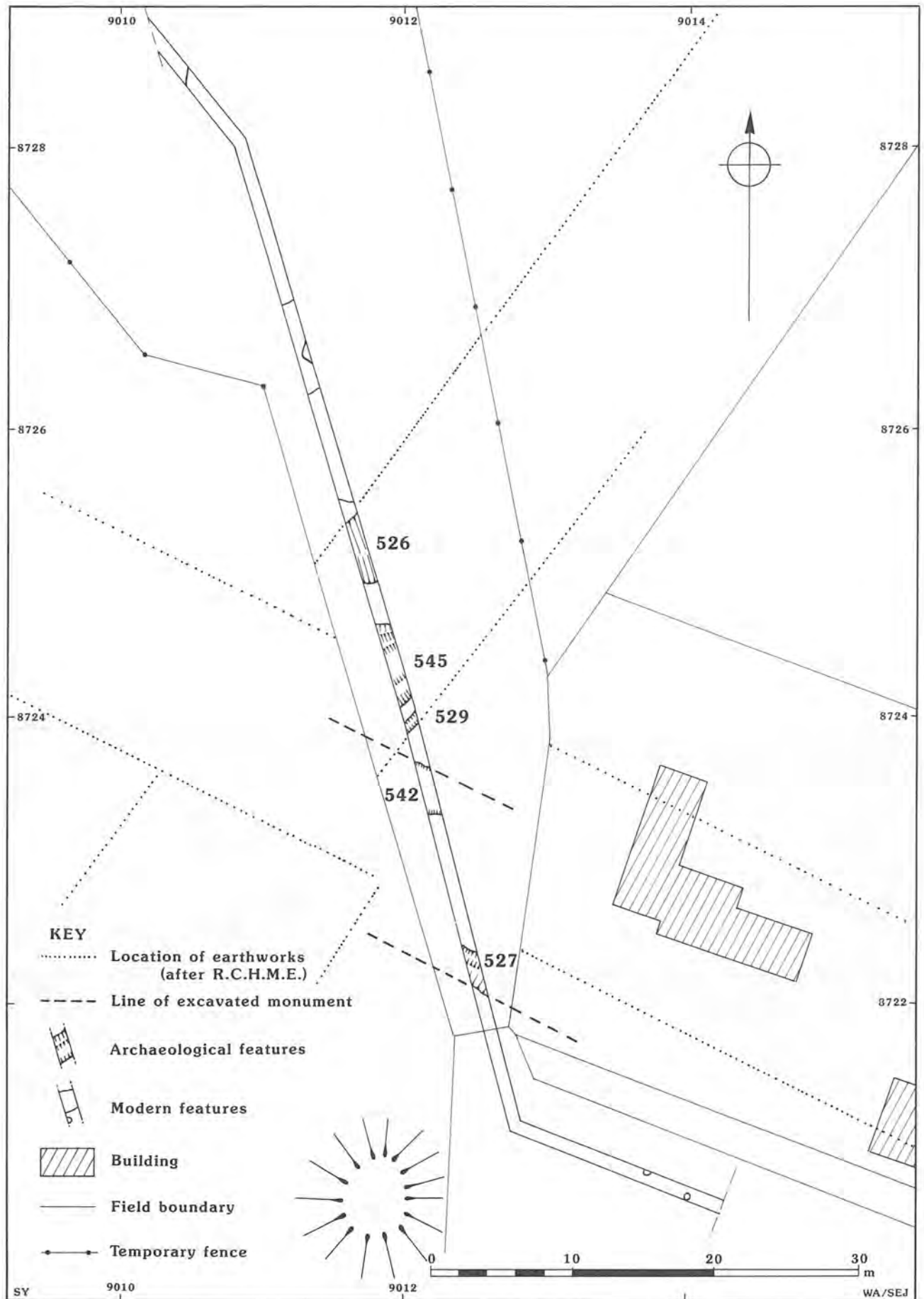


Figure 2. Plan of excavations across Worgret Dykes.

b, section C-D) demonstrate the form of the dyke in the area excavated to have been a double ditch with banks flanking either side. The height of the monument, from the top of the banks to the top of the ditch silts, was in excess of 1.5m. Further to the south-west, a third bank between the two ditches had been clearly visible. The division between these two forms of the monument was apparently marked by the intersection with a

second, east-west dyke (RCHME 1970, 517, Dyke d) as a ditch with counterscarp bank, over 9m wide in total, surviving to a height of almost 1m. This latter earthwork had been recorded as cutting the former, and it was conjectured that it may have been associated with the Battery Bank, a separate earthwork system intermittently traceable for over 5.5km to the north-east along the crest of heathland ridge towards East Stoke.

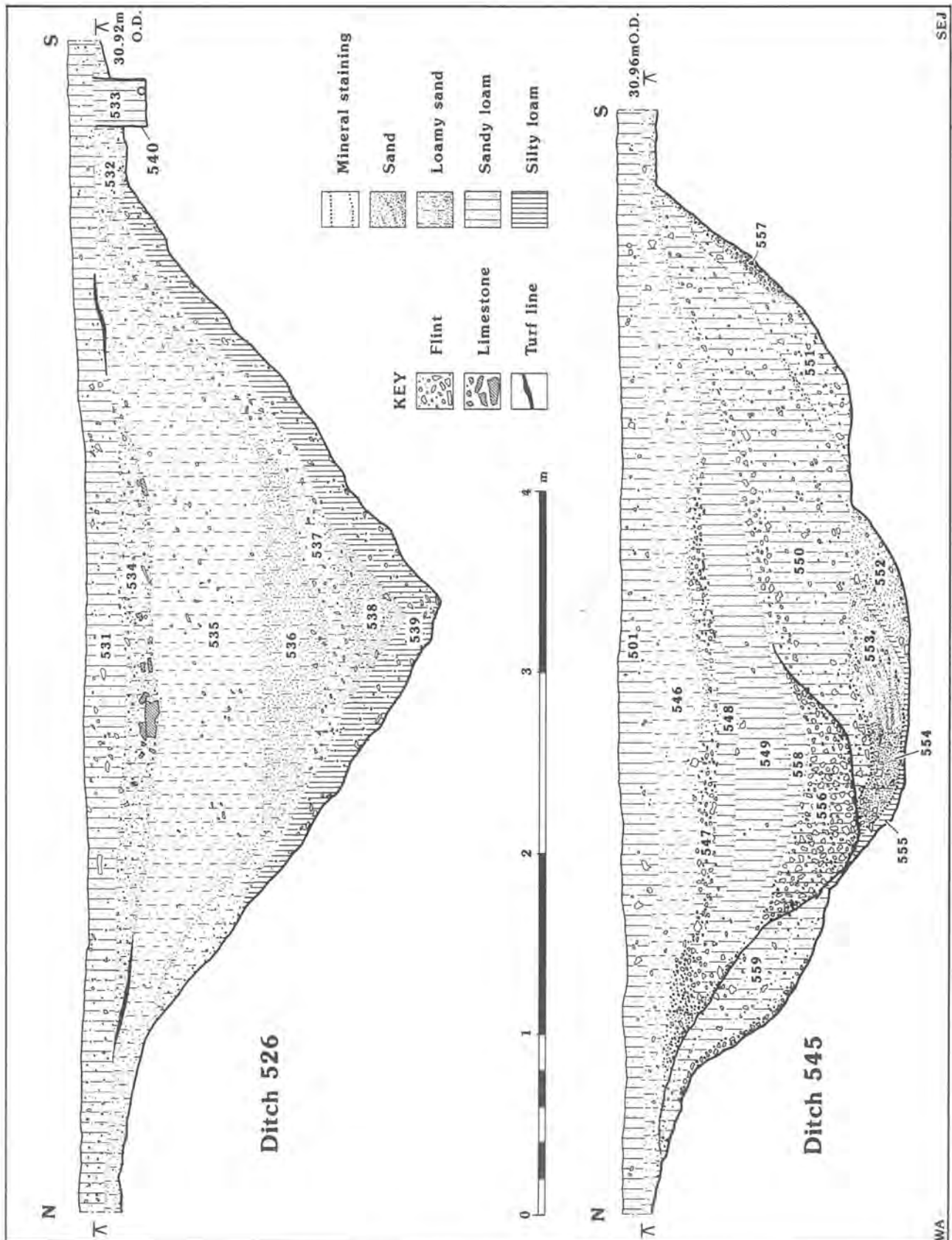


Figure 3. Sections through Worgret Dykes.

By 1990 the course of the Dyke *b* was only vaguely visible in the field to the south-west of the intended crossing point. Within the area of the magnetometer and contour survey neither Dyke *b* nor Dyke *d* could be recognised, and extensive disturbance was evident, particularly along the line of the farm track between the pipeline and the Wessex Water Pumping Station.

### The Excavation

Excavation strategy was determined following discussions with the Dorset County Council Archaeological Officer, English Heritage, and BP Exploration. A length of pipe trench to include the full width of the dykes was reserved for archaeological excavation. It extended for a minimum distance of 10m beyond the projected line of the earthwork to the north-west, and to the south-east extended beyond the track adjacent to the barrow. The latter facilitated the investigation of the immediate setting of that monument. A 1m-wide trench measuring 100m in length was opened, within which all features were investigated (Fig. 2).

Other than modern material from the filling of recent areas of disturbance, no artefacts were recovered. Bulk samples were taken from all pre-modern features for environmental analysis, but an assessment of selected samples demonstrated an almost complete absence of any suitable data. The remaining samples were discarded without being processed. Details of the sampling procedure and the assessment are held in archive. Smaller samples for the determination of pH were also taken, and are reported on below.

### Ditches

Sections across the two anticipated alignments of both dykes were excavated, each being found to comprise a pair of parallel ditches. The intersection of these two earthworks lay to the west of the pipe trench as excavated, and the relationship between them could not be examined.

### Dyke *b*

Two large ditches were found on the expected alignment of Dyke *b*. These ditches, [526] and [545], ran parallel to each other some 2.5m apart. The course of the pipeline necessitated an oblique section at an angle of c. 55° (Fig. 3).

Ditch [526] was the north-western of the two ditches. It was 4.5m wide, 1.98m deep, V-shaped in profile with moderately sloping, straight sides, and was cut into soft sand. Its fills were generally of silty sand with varying amounts of flinty gravel. At its top, layers [531] and [534] contained substantial amounts of modern building material, iron wire, and bronze objects above a buried turf line. This stabilised level may have been the profile at the time of the RCHME survey.

Ditch [545] formed the south-eastern side of the monument, and was cut into flint gravel. It was 5.5m wide, 1.52m deep, and had moderate to steeply sloping sides with a stepped profile. These steps or ledges were apparent on both sides: to the north, 0.2m wide at a depth of 1.1m; to the south, 0.5m wide at a depth of 1.2m. The centre of the ditch had a flat base, and it is possible that this had resulted from recutting. The fills were generally of silty sand or loamy sand with pockets of flinty gravel and the silting/slumping patterns were quite clear. Stoney layers [556] and [547] are likely to represent periods of stabilisation in the process of ditch infilling, as are the bands of mineralisation within the primary fill. These suggestions of a sporadic silting pattern (less continuous than is indicated for ditch [526]) must in part be a function of the broad and shallow profile.

There was no evidence for an *in situ* bank. The asymmetrical filling of ditch [545] would suggest the presence of a bank to the north (ie between the two ditches), although no similar evidence could be discerned from the section across ditch [526]. No indications for the former presence of banks along the outer edges of the monument (as recorded by RCHME) could be found from the ditch fills.

### Dyke *d*

The course of the east-west-aligned Dyke *d*, plotted by the RCHME survey as cutting the main Dyke *d*, was intercepted. Two insubstantial linear ditches or gullies, [527] and [542], running parallel to each other 1.1m apart, were observed and sectioned (Fig. 2).

Ditch [527] was the more southerly of the two, and lay south of the expected line of Dyke *d*. It was 2.5m wide and 0.25m deep, it had a broad U-shaped profile with a wide shelf on its northern side, and was filled with a sandy loam material. This feature is almost certainly the same as cut [804], observed 35m to the east during topsoil stripping on the same alignment (not shown on plan).

Ditch [542] was 3.2m wide and 0.2m deep with steep sides and a flat bottom, and was located on the anticipated northern edge of Dyke *d*. It was filled with a loamy sand with frequent flinty gravel.

There was no dating evidence from either feature, no evidence for any associated banks, and no evidence to demonstrate that the two ditches comprised elements of the same monument. The RCHME survey (1970) had suggested that Dyke *d* had been narrower and with only one ditch, but it is possible that the true nature of the earthwork had not been apparent at the time of their study.

### Other features

Other undated features include a narrow linear cut, [529], which ran parallel to and 0.65m to the south of ditch [545]. This was 0.8m wide and 0.25m deep, with a U-shaped profile and was filled with a sandy loam soil. No connection with Dyke *b* could be established.

Two post-holes found at the southern end of the trench, [508] and [513], would appear to be of a modern date as one produced several small corroded nails.

Other modern features, mainly small to large pits, were found at the northern end of the trench; most of these appeared to be the result of small scale quarrying followed by dumping of modern rubbish. Substantial areas of disturbance were also recorded south of ditch [527], where concrete and hardcore had been used to consolidate a the existing farm track.

### Phosphate Analysis of Ditch Fills

M J Allen and E Hambleton

A total of 17 spot samples from each context of ditches [526] and [545] was analysed and a pH profile for each ditch constructed (Fig. 4). The aim of the analysis was to record pH values over time to characterise the deposits and determine if any significant changes could be attributed to human activity. It was considered that comparison of the two profiles might aid the determination of contemporaneity or the identification of similar soil histories. Ditches [527] and [542] were considered to be too shallow to yield useful results, and were not sampled.

Interpretation of these pH profiles is difficult because the ditch fills are not necessarily *in situ* soils but are derived from adjacent landscapes and represent varying sedimentation regimes. As it is not possible to ascribe the deposits to either a specific horizon of an eroded palaeosol nor to artificially dumped, reworked and deposited material, all interpretations must be treated with caution.

### Results

The overall variation in pH (5.9-7.1) was significant. The ditches showed variation in absolute pH values; ditch [545] displayed consistently lower values with a range from 5.9 to 6.7, whereas the range for ditch [526] was from 6.6 to 7.1, and the two pH profiles were almost mutually exclusive. Despite differences in absolute pH, the overall trends in the pH profiles were similar. Both showed an initial rise in pH values, peaking in the secondary deposit, followed by an overall increase in acidity. The modern pH of the areas is similar in both cases (pH 6.6 and 6.8), and is likely to have been substantially influenced by recent land management practices.

### Conclusions from the phosphate analysis

The overall similarity of the pH profiles may suggest that both ditches underwent a similar sequence of events, and it is possible that the ditches had the same function and underwent similar changes during infilling. An increase in pH might be the result of deliberate improvement of the soils for either agriculture or pasture. Ploughing generally increases acidity and would be expected to result in the very rapid infill of the ditches. Improved pasture, on the other hand, might result in an increase in base status and a decrease in acidity leading to a better grass crop. The peak in pH values (optimum conditions for grassland) may reflect direct and deliberate intervention. It can be tentatively suggested that the ditches were not contemporary on the basis that, although they displayed similar pH profiles, the variation in absolute pH value may have been the result of long-term attempts to reduce the overall acidity of the podzols. Thus it could be suggested that ditch [526] was constructed after [545] at a time when the overall base status had already been improved. Alternatively, it may be that ditch [545] was dug into an area with a longer history of artificial increases in the base status.

From the evidence presented it may be suggested that pH values had been increased artificially at or soon after ditch construction. Improvement of pasture would provide a possible incentive for this deliberate raising of the base status. If pH levels may be assumed to have increased over time at a consistent rate, then it is evident that ditch [526] was dug through previously improved soils. Whether such improvement indicates spatial variation in land management or temporal variation in ditch construction cannot be determined on the basis of these analyses alone.

GENERAL DISCUSSION

The only previous archaeological record of cuttings across the Worgret Dykes was of a water main crossing the east-west earthwork closest to the Piddle floodplain some 0.8km east of the present excavation (Farrar 1956). These observations, made under difficult circumstances, suggested a U-profiled ditch 2.75m wide and 1.2m deep. No evidence for date was recovered. Observations during the Option 1 assessment suggest that this particular earthwork (RCHME 1970, 517, Dyke *c*) may formerly have continued at least 200m west of its extent as recorded on Fig. 1C.

The contrasting profiles and plans evident from the 1956 observation, the RCHME survey and the 1990 excavations suggest a monument of diverse form, although the true extent of any variation is now no longer apparent. The RCHME survey recorded earthworks in a somewhat better state of preservation than is presently the case, but even in the 1960s erosion and damage to the monument was well advanced. Differential survival may lead to overstatement as well as understatement of variety: the evidence presented above for a bank between the two ditches suggests that there may have been no real difference in the form of Dyke *b* either side of the intersection with Dyke *d*.

This is contrary to the RCHME survey.

Differences in the form of the monument do undoubtedly exist, and these might be taken to suggest a piecemeal development of the dyke system. There is, however, scant evidence for a protracted period of construction and use, and this can only be advanced on the basis of the possible recut within ditch [545] and the speculative suggestion from the pH analysis that ditch [545] may have been succeeded by [526]. The only recorded relationship, that between Dykes *b* and *d*, has been considered as evidence for the whole Worgret Dyke system preceding the Battery Bank (RCHME 1970, 516-517). In the absence of any dating evidence from the excavations it has not been possible to confirm or modify the hypothesis (*ibid*, 517) that the Worgret Dykes are of Romano-British date.

The results from the pH analysis do offer some insight into the function of the dykes. Both elements of Dyke *b* appear to have been open during short-lived periods of diminished soil acidity, and this would support an interpretation that the dykes functioned as boundaries within a pastoral environment. Worgret Heath would have offered grazing land easily accessible from Wareham, surrounded on the three other sides by marshy ground, but would also have been attractive to

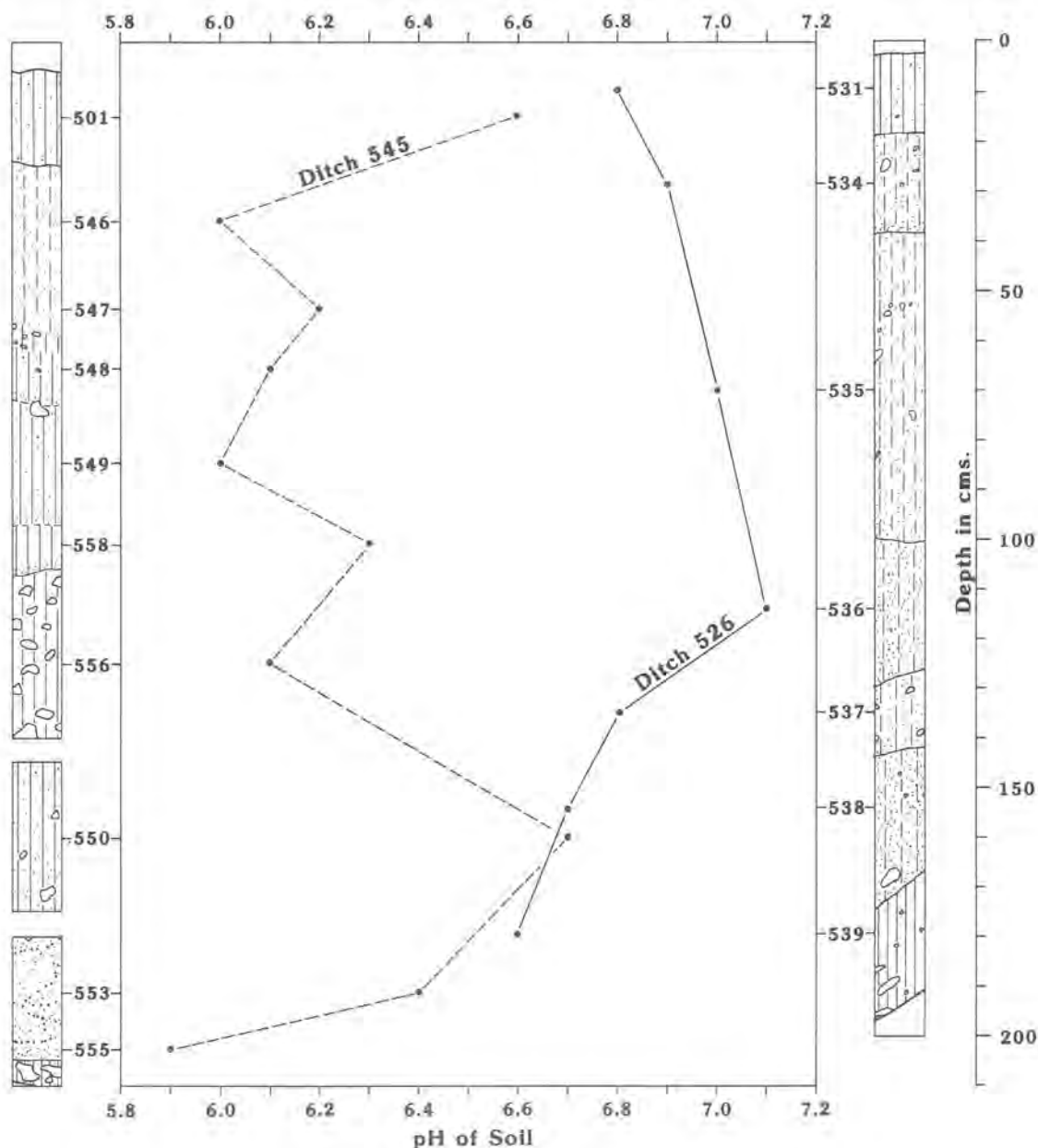


Figure 4. pH profiles for section through Worgret Dykes

pre-urban communities in the area. Indications from the test-pitting survey do not suggest substantial settlement of any date in the immediate locality, and it would appear that the barrows and the dyke system were located within an otherwise largely empty landscape.

#### **Acknowledgments**

The archaeological work was financed by BP Exploration, and the assistance of M J Mason, C Pollard and S Moorhouse is gratefully acknowledged. The evaluation of the Option 1 route was managed by P W Cox and was supervised in the field by M J Allen. The Option 3 evaluation and excavations were managed by J W Hawkes and were supervised by D Coe. The drawings were carried out by S E James. The site archives are currently held by Wessex Archaeology, indexed under the site codes W340 (Option 1) and W364 (Option 3).

#### **BIBLIOGRAPHY**

- Cox, P W and Hearne, C M, 1991 *Redeemed from the Heath: The Archaeology of the Wytch Farm Oilfield*, Dorset Nat. Hist. Archaeol. Soc. Mono. 9 (Dorchester)
- Farrar, R A H, 1956 'Archaeological Fieldwork in Dorset in 1956: some recent cuttings through Wareham Walls and the Dyke on Wareham Common' *PDNHAS* 78, 77-79
- Grinsell, L, 1959 *Dorset Barrows*
- RCHME 1970 *An Inventory of the Historical Monuments in the County of Dorset, Vol 2, South-East*
- Woodward, P J, 1987 'The Excavation of an Iron Age and Romano-British Settlement at Rope Lake Hole, Corfe Castle, Dorset' in Sunter, N and Woodward, P J, *Romano-British Industries in Purbeck*, DNHAS Monograph 6, 125-180

# Observations at Merchant's Garage, High West Street, Dorchester, 1983.

PETER S. BELLAMY

## SUMMARY

*During the redevelopment of this property on the north side of High West Street, by McCarthy and Stone Ltd, a number of archaeological features were observed. These indicated a range of activity on the site from later prehistoric times to the post-medieval period.*

*The earliest feature on the site was a possible Late Bronze Age boundary ditch which traversed the site diagonally WNW-ESE. The earliest activity in the Roman period was represented by several large pits and traces of one, possibly two, rectangular timber beam-slot buildings with rammed chalk floors. Two hearths probably associated with metalworking also may belong to this period which has been tentatively dated to the first century AD. These beam-slot buildings were replaced by another rectangular building with walls supported by upright posts in individual post-holes or carried on drystone flint and limestone footings in the area disturbed by the earlier pits. Traces of mortar and chalk floors were found within this building. Three ovens or furnaces may have been associated with it. A second-to-third-century date is suggested for this phase of activity. In the later third century AD, there was a change in alignment of the buildings. Fragments of a large house with walls on mortared flint and limestone footings were found on the eastern side of the site aligned NE-SW. Traces of a mosaic floor were found in one room and fragments of both mortar and chalk floors were found elsewhere within the building.*

*The earlier structures on the site were probably industrial buildings but the latest building appears to have been a large town house. The expansion of domestic buildings into this area of the Roman town can also be seen in Colliton Park, just to the north of the site. The early Roman industrial activity appears to shift to the north in the third century and has been investigated on the adjacent Library Site in Colliton Park.*

*In the medieval and post-medieval period, evidence for activity is restricted to a small number of pits and two possible property boundaries.*

## INTRODUCTION

In August 1983 the former premises of Merchant's Garage at the west end of High West Street, (Fig. 1) were demolished to make way for a new retirement home 'Homechester House'. Laurence Keen, the Dorset County Council Archaeological Officer, arranged with the developers, Macarthy and Stone Ltd permission for limited archaeological investigation of the site.

This opportunity was important as it is only infrequently that such large areas within the Roman town of Durnovaria become available for study. The adjacent excavations on the Library Site, Colliton Park (Aitken 1982) had indicated the possibility of the survival of deeply stratified deposits.

With the short time available, the lack of money and the constraints imposed by the developers, it was possible to carry out only a very limited archaeological investigation. This



Plate 1. Merchant's Garage, Dorchester: General view of the site from the south-west.

consisted mainly of cleaning up the area, and then planning and recording the visible features (Fig. 2). It was also possible to dig a very few small slots across some of the features to assess their nature and to try to clarify the major relationships. This was augmented by observing the features exposed in the sides of the foundation trenches during construction. As the area next to High West Street was almost completely disturbed by cellars and other building activity the work was focussed on the area to the north, behind the street frontage.

Unlike the Library Site (Aitken 1982) immediately to the north, the undisturbed archaeological deposits consisted almost entirely of features cut into the chalk bedrock, with only a few low walls and thin floor deposits surviving above the level of the chalk (Fig. 2). As a result, most of the features can only be characterised by their plan shape. In addition, few finds were recovered from individual features, so the exact nature of the archaeology is unknown and the dating evidence is very sparse

indeed. Despite this it has been possible to suggest a tentative sequence of events for the site.

The finds and archive have been deposited in the Dorset County Museum. This report was completed in February 1987.

### THE DOCUMENTARY EVIDENCE

Jo Draper

Merchant's Garage occupied three plots on the High West Street frontage nos 45, 46 and 47 seen on a photograph of 1934 with the buildings surviving (Draper 1984, no. 79). The backlands of no. 44 was also included in the redevelopment. All the 18th- and 19th-century maps of Dorchester show the street frontage filled with houses, their boundaries running at right angles from the road to a common back boundary. An early 17th-century map of this part of Dorchester (DRO D124) also

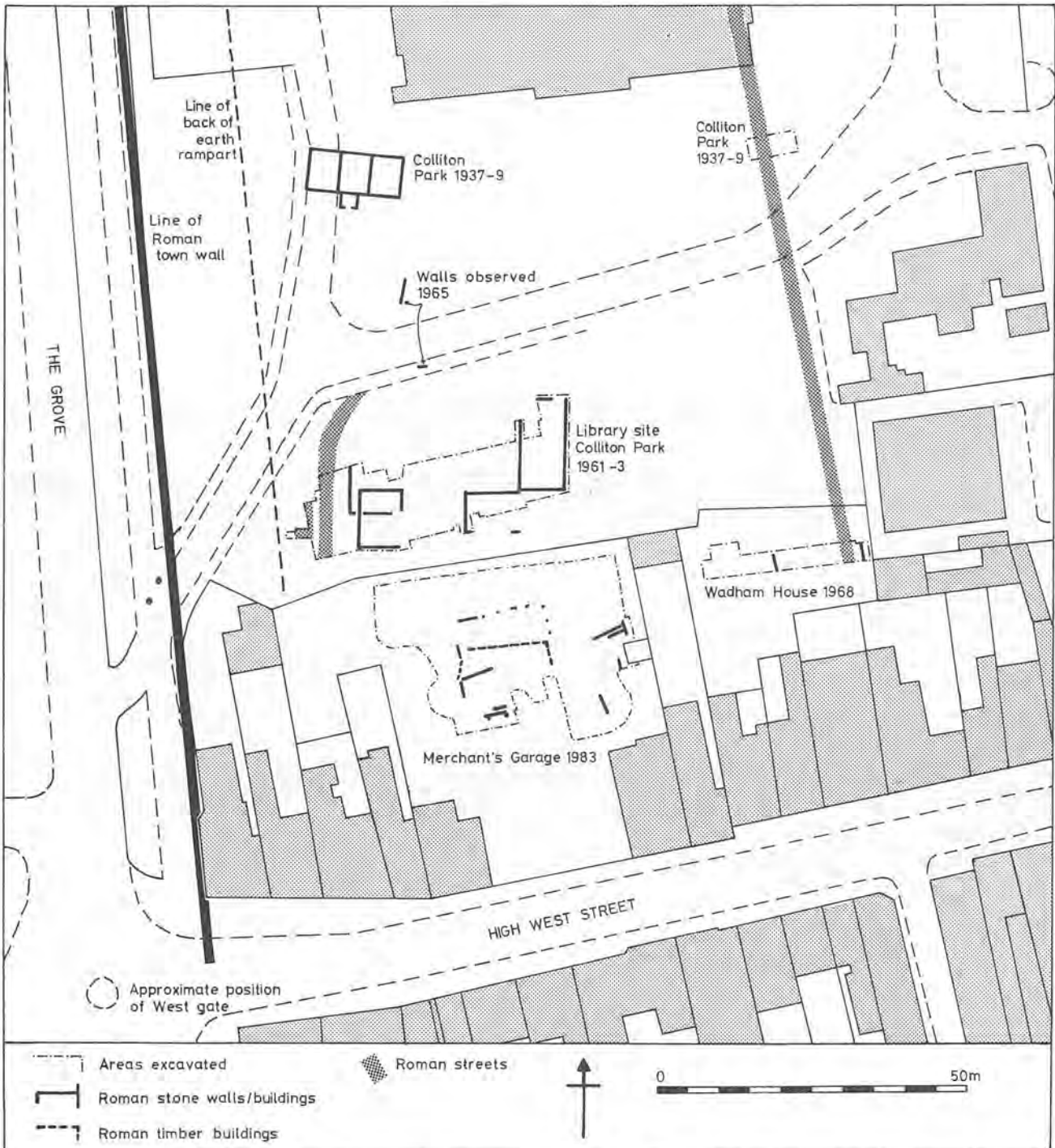


Figure 1. Merchant's Garage, Dorchester: Site location plan, also showing other excavations in the area.

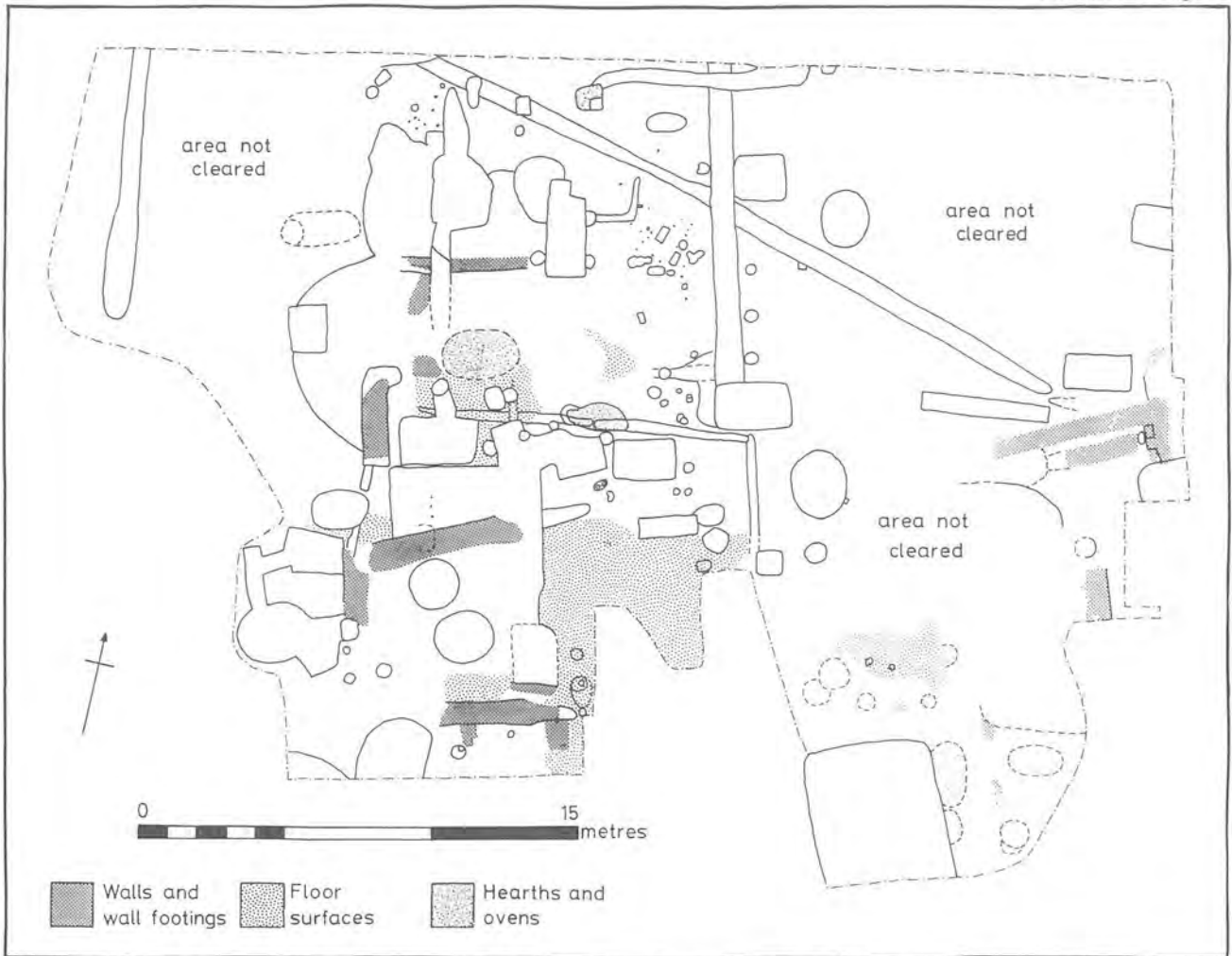


Figure 2. Merchant's Garage, Dorchester: Overall site plan showing all observed features.



Plate 2. Merchant's Garage, Dorchester: General view of the site from the east.

shows the street frontage filled with houses.

The Dorchester Domesday, a register of house transfers in Dorchester from 1395, can be used to reconstruct the pattern of buildings in the town because most are described by naming the neighbours. This part of High West Street can be fully reconstructed, with seventeen houses between the west end of the street and Glyde Path Road. This correlates exactly with the 1964 Ordnance Survey which has seventeen plots. This matching conceals some amalgamation and division since the 1810 map (DRO OE1) shows only sixteen plots. A will of 1411 shows clearly that the houses extended up to the west end of the street: 'my tenement in Dorchester, situated on the north side of West Street, near the gate' (Mayo 1908, 187).

The buildings must have been right on the street frontage, the area destroyed by cellaring. The excavation concentrated on the back gardens and it is not surprising that no buildings, only pits for rubbish or cess were found. The lack of boundaries is more surprising, since at least three should have crossed the site north-south.

## THE OBSERVATIONS

### PHASE 1

There was very little evidence of activity pre-dating the establishment of the town of Durnovaria on the site (Fig. 3). The natural chalk surface was very weathered with several solution features (237) in it and patches of pre-Roman soils (38, 293, 300, 304, 347) were found, mainly in the southern half of the site. There was a fairly frequent occurrence of struck flint flakes in these soils and also some 1st-century Black Burnished Ware (BB1) pottery.

In the northern part of the site, a linear feature (240), oriented WNW-ESE was uncovered for a total length of 24m. One end of this ditch continued beyond the northern limit of the site and the other finished in a shallow round terminal. The line was immediately

continued ESE by another similar ditch (348), of which only a very small portion was revealed. Ditch 240 did not have a constant width and four small sections dug across it indicated that there were some large, and sometimes sudden, changes in depth: on average this was between 0.2 - 0.5m. It had steep sides and a narrow flat bottom and was filled with yellowish brown clay (239) in the west and reddish brown clay in the east. The date of this feature is problematical as no finds were recovered from it. It was stratigraphically earlier than the other features on site and is on a very different alignment to them. The complete lack of finds is unusual as most of the larger Roman features contained quantities of pottery. The filling of the ditch (which appears to have silted up naturally), was very similar to the pre-Roman soils. It is therefore possible that this ditch was a prehistoric field boundary.

The only other feature which might belong to this phase was a possible pit (290). This was not excavated but the lack of finds from the top surface (unlike most of the other pits) and the similarity between the filling of ditch 240 and this feature suggests that it might have an early date. It was cut by the phase 2 ditch, 269.

### PHASE 2

Phase 2 is characterised by a series of timber beam-slot buildings (Fig. 4). No complete building plan was recovered but fragmentary traces of at least three buildings can be recognised.

The most complete building was probably rectangular in shape and its surviving remains consisted of two abutting slots (209), 0.3m wide and 0.2m deep, traced for a total distance of 11.25m and oriented E-W. The western end was shallower and gradually petered out, so it may have originally continued further in this direction. Another similar slot (212), 0.3m wide and 0.1m deep, was found at right angles south of the eastern end of 209. It was only traced for a distance of 6.25m before it disappeared out of the cleared area. The extensive rammed chalk layer (10) was probably the floor of this building as it appeared to abut slot 212. The floor was relaid at least once, as indicated by the thin trampled charcoal layer (315) found within it. A small patch of redeposited chalk (45) to the west may also be part of this floor layer. Two post-holes (9 and 309) were associated with this floor as they were partially covered by layer 10, leaving only the post-pipes free.

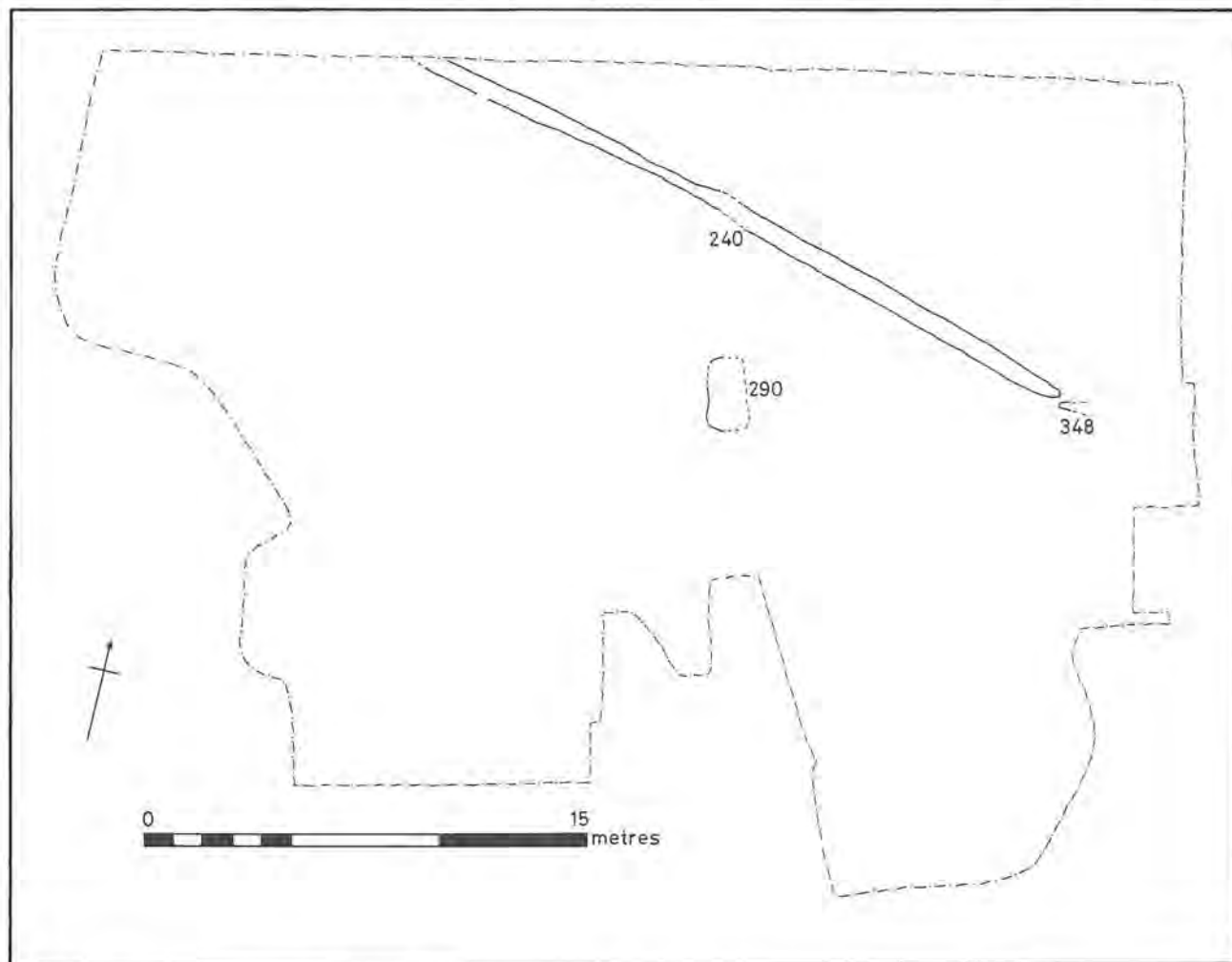


Figure 3. Merchant's Garage, Dorchester: Plan of Phase 1, possible prehistoric features.

Another post-hole (335), containing a post-pipe (326) 0.2m in diameter was cut through floor 10 but the filling was not covered by the chalk floor. It was not a primary feature in this building as it cut the northern side of a steep-sided flat-bottomed cut (338) which was also cut into the chalk floor. The true size and plan shape of this feature is not known, but it measured about 0.45m N-S and was 0.2m deep. It was filled with a very chalky clay soil (334) containing many laminated bands of charcoal and copper alloy fragments suggesting that it was associated with bronze working. The top of this feature had a dense layer of chalk blocks over it, indicating that the chalk floor was remade after it went out of use.

Not enough survived to be certain of the size or many of the structural details of the building, but it is likely that the main walls were carried on timber sleeper beams in slots 209 and 212. The bronze working feature 338 may point to it being an industrial building.

There are suggestions that it was replaced by at least one other similar structure because slot 209 was cut by a similar slot (350) which ran approximately N-S. Also, to the west, there were traces of another slot (322/323), running in a N-S direction (but on a slightly different alignment to the other slots), which cut chalk layer 45. Perhaps post-hole 335 belonged to this activity.

Some of the area to the north had been badly truncated during machine clearance of the site. Despite this there were some suggestions of further structures: a small shallow 'L-shaped' slot (229) may have been the remains of another beam slot and a small rectangular post-hole (143) which was covered by the rammed chalk layer 165 leaving only the post-pipe (162) free may have been part of the interior of another building. The extent of the chalk layer 165 was not determined as it merged imperceptibly with the surrounding natural chalk.

The line of slot 212 was continued northwards by a flat-bottomed linear ditch (269) 0.6m deep. The southern end of this ditch had been destroyed by a later pit but it must have terminated immediately to the north of the main timber beam-slot building. In the north the ditch continued out of the excavated area but it must have soon terminated as no traces of it were picked up on the Library Site (Aitken 1982). This line probably represents a property boundary. The fact that the

eastern wall of the timber building formed the basis of this line and the ditch stopped just before the building suggests that the boundary was established after the construction of this structure. It is interesting to note that no traces of timber buildings were found to the east of this property boundary. This ditch was filled with a layer of reddish brown clay (270) and a thin layer of dark brown loam (271) on top. Both these layers contained 1st-century pottery including many conjoining sherds of a large BB1 jar with countersunk handles in the lower layer. This suggests that this feature was filled in during this phase.

In the south-eastern corner of the site there was a small flat bottomed cut (379) 0.6m long N-S and 0.2m deep, cut into the natural chalk. It was not fully exposed but only seen in section in the side of a foundation trench. The bottom of the cut was covered with a thin hard layer of gray sandy ash 0.02m thick with small laminae of charcoal and chalk flecks. Above this was a 0.08m thick layer of burnt reddish brown coarse sand (380) containing charcoal and some lumps of reddish brown clay. Several fragments of a small early Roman crucible were found in this feature, strongly suggesting that it was used for metal smelting. This feature was sealed below the tessellated floor of the phase 4 building.

There were also several pits which may belong to this phase. At the northwestern corner of the main timber building were the remains of a large shallow flat-bottomed pit (54). This only survived as a roughly semicircular feature up to 6m wide N-S. It was not excavated but only observed in section in the sides of a foundation trench which showed that it was only 0.35m deep. It was filled with mid orange-brown clay loam (53) with some late 1st-century pottery in it. Although the relationship between this pit and the timber building is not known, the pit appears to be the earlier feature. This would give a *terminus post quem* of the late 1st century for the construction of the timber building.

Probably at the end of the phase, a small subrectangular pit (62) was dug through chalk floor 10. This pit was not fully excavated so its complete size and its filling is not known. Immediately to the south was a small oval scoop 0.5m deep (65). Its relationship with chalk layer 10 was not preserved. In the northwestern part of the site were traces of two possibly intersecting pits, both picked up in the sides of foundation trenches. Neither pit was examined fully but they were

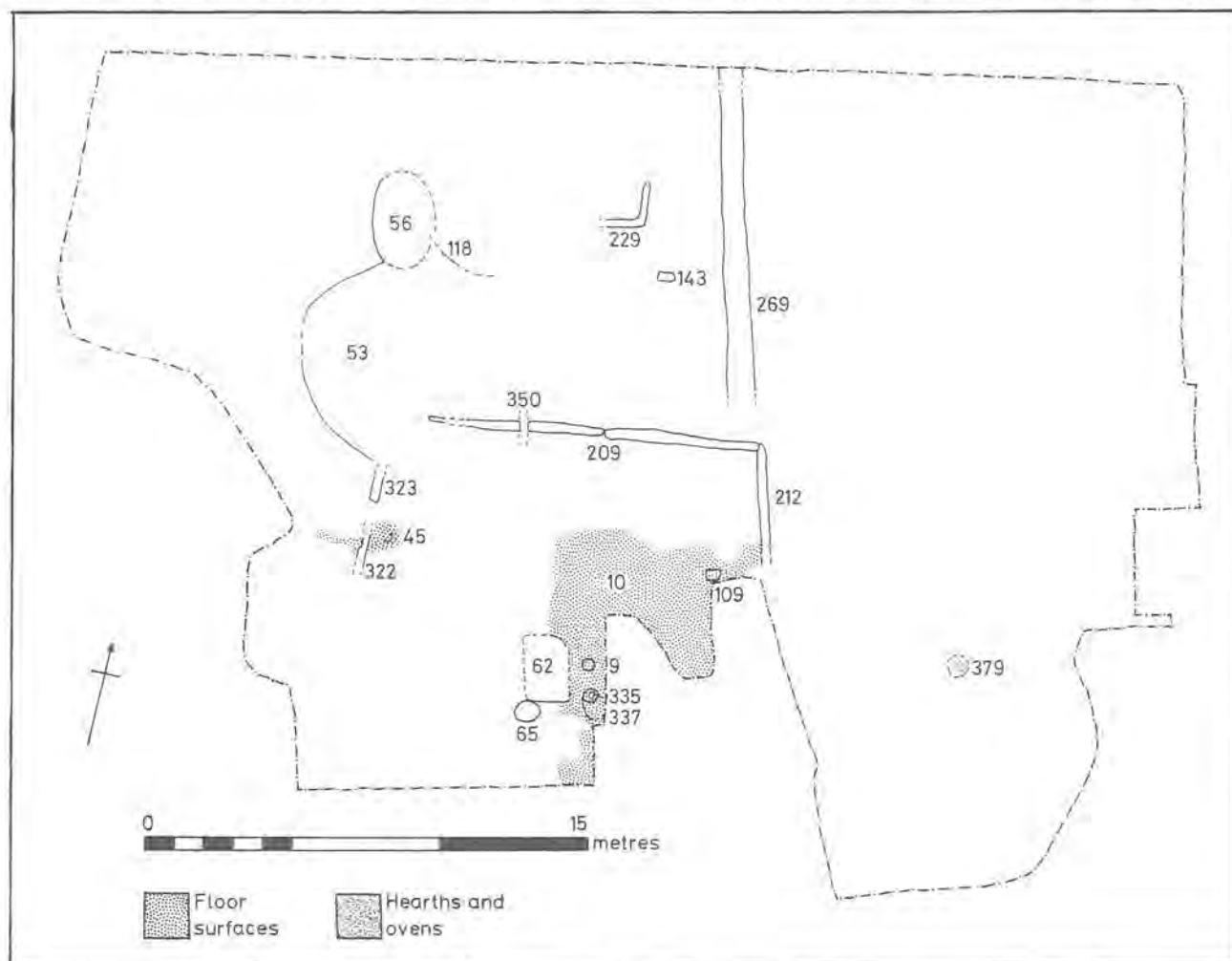


Figure 4. Merchant's Garage, Dorchester: Plan of Phase 2, early Roman (late first century) features.

probably oval in plan. The westernmost pit (56) was oriented roughly N-S and was filled with dark brown loam (57) and the other pit was possibly oriented E-W and was filled with mid yellowish brown clay (118).

### PHASE 3

This phase consisted mainly of the remains of one large building in the western part of the site with its eastern wall on almost exactly the same line as the phase 2 boundary 269 (Fig. 5). The remains are fragmentary and the complete plan of the building did not survive, but it is clear that it had undergone some major structural modifications during its life. It measured at least 14m N-S and 12m E-W and was oriented roughly NNW-SSE.

The northern wall consisted of a flint and limestone drystone build wall (112), one course high, which survived for a length of 4m and was 0.52m wide. The line of this wall was continued eastwards for 7.5m by a row of five post-holes (119, 120, 151, 137), and the corner post (278) set about 1.75m apart. The eastern wall consisted of three post-holes (274, 276, 278) about 1.6m apart. The E-W row of post-holes were all about 0.4-0.5m in diameter with flint and limestone packing. They were not excavated so their depth is not known. Two of them (151 and 137) were not circular but had a trilobate shape which suggests that they had contained a total of three posts, in other words there were probably two episodes of post replacement. The N-S line of post-holes were about 0.4m in diameter with no post-packing. They were all shallow with an average depth of 0.1m.

The western wall consisted of flint rubble wall foundations (52), 2.25m long and 0.75m wide, set in a shallow foundation trench (55) 0.08m deep. Two patches of collapsed stone work (77 and 110) suggest that this wall continued northwards to link up with wall 112. There was no trace of the wall to the south of 52.

The only surviving part of the southern wall was in the top of pit 62 and consisted of a 1.6m length of drystone wall (16) built from roughly shaped flint and limestone blocks, which survived three courses high. The northern side of the wall was faced but the southern side had been destroyed. The southern wall was probably rebuilt at some stage as there was another flint and limestone drystone wall (4)

immediately to the south of 16. This was 3.6m long, 0.75m wide and survived only one course high. Both sides of the wall were faced. Butted against the southern face were two roughly rectangular settings of limestone and flint (3 and 6) about 1 x 0.8m across and one course high, which may have been the remains of two buttresses. The southern side of the wall 16 was probably destroyed when wall 4 was being built.

Several different floors were found in the building suggesting that it was divided into several rooms. However, the structural elements of the internal divisions cannot be confidently recognised although some of the post-holes observed within it may belong to these partitions. In the southwestern corner was a slightly sunken rectangular floor of hard pale yellow mortar (371) about 0.03m thick which gradually graded into a thin layer of chalk (372) about 0.08m thick. This chalk floor had flecks of charcoal and burnt red clay trampled into its surface and some of the chalk was discoloured by burning. This floor was laid on top of a thin layer of gray soil in a large shallow rectangular cut (370) which measured 5.0m E-W by at least 5.4m N-S and was about 0.15m deep. The western edge of the cut was on the same line as the eastern face of wall 52, thus illustrating the line of the southern part of the western wall. This floor was not fully uncovered, but only revealed in the sides of the foundation trench, so its full extent is not known, nor could any hearths or other structures be seen, though a line of three stakeholes about 0.3m apart and oriented N-S were seen in section in the northern part, thus hinting at some internal structure. Part of another floor was discovered at the southernmost end of the structure. This was a roughly rectangular patch of hard yellow sandy mortar (18) which butted against wall 4 and crossed the line of wall 16 suggesting that it was part of the reconstruction of the building at this end. This mortar floor was laid at ground level and not slightly below it as in the case of 371.

The floor in the northern end of the building was slightly more complex. The eastern side had a chalk floor 0.02m thick (of which only a small patch (160) survived) laid on top of a thin layer of brown soil (161), immediately on top of the natural chalk. A compact layer of chalk lumps (82/101) further to the west may have been part of this same floor. To the north of 82/101 (and only observed in section) was a

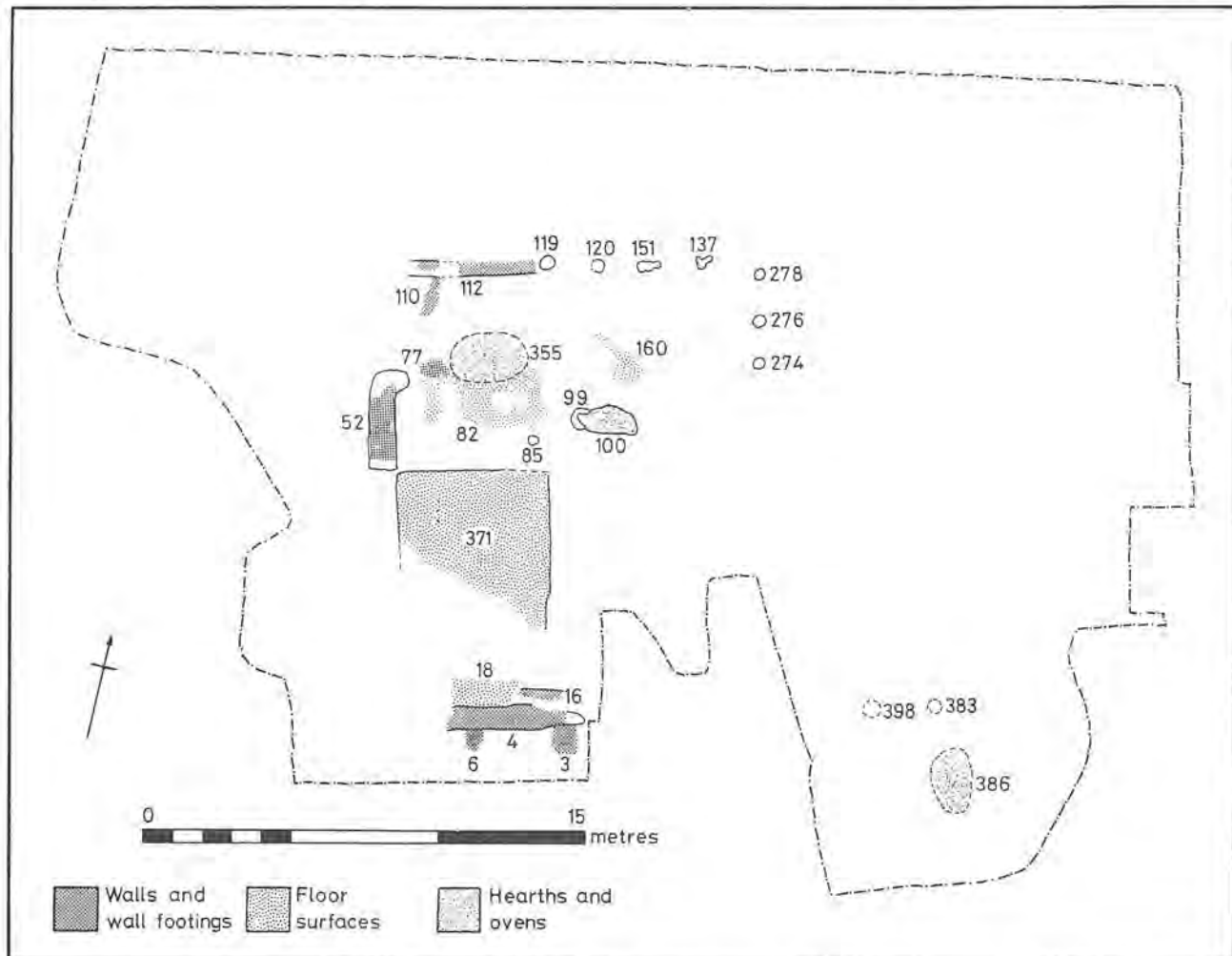


Figure 5. Merchant's Garage, Dorchester: Plan of Phase 3, early Roman (second century) features.

dark orange brown clay layer (362) with frequent charcoal flecks, some fishbone and pottery in the top of it, which butted wall 112. This was probably the remains of a clay floor though its full extent is not known and its relationship with layer 82/101 is uncertain. Perhaps it continued beneath 82 to form the original floor in the western half of the building and was later replaced by the chalk floor 82/101 which was on a slightly higher level.

No clear floor layers were found in the southeastern part of the structure but perhaps the rammed chalk floor 10 was re-used from the previous phase 2 building.

About 1m north of the northeastern corner of floor 371 was a small pit (85) which contained two large storage jars, one inside the other. The larger jar fitted the pit so exactly that it is very likely that the pit was dug to house it.

In the northwest was an oven/furnace (356) which cut through floor 362. Only a certain amount of the structure and dimensions of this feature can be reconstructed as it was only discovered when it was partly destroyed by a foundation trench. It was built in a pit (355) 2.85m long E-W and 0.60m deep. The structure itself consisted mainly of squared limestone blocks (several of them burnt) built into the western end of the cut and bonded with mortary clay (356). The firing floor was immediately to the east and was filled with many lenses of fine orange, gray, and black ash (438). It is difficult to be certain whether this oven/furnace was built inside the building or was constructed after its demolition. The pit (355) was cut through floor layer 362 but its relationship with floor 82/101 was not observed. A thin layer of burnt clay (354) lay directly on top of the southern end of floor 362 and also covered the eastern end of furnace 356. This burnt clay layer may have been a hearth built on floor 362 in the northwestern part of this building after oven/furnace 356 went out of use. If this hypothesis is correct then 356 would have been part of this building, albeit a secondary addition.

It is notable that the western half of the building was composed of low drystone walls and the eastern half had individual post-holes dug straight into the chalk. None of the stone walls were built straight on top of the chalk but all are over or in the soft soil infillings of pits or other negative features. Perhaps these walls were reinforcement

against subsidence where the building was not constructed straight onto the chalk. It is likely that the structure was mainly timber built, as the rough nature of the stone wall suggests that they were not designed to be built to any great height but were more likely to be low sleeper walls for a timber-framed construction.

The lack of any surviving evidence for the southern end of the eastern wall is puzzling, as it is surprising that further post-holes were not revealed. However beam-slot 212 which formed the eastern end of phase 2 timber building was on exactly the same line as the postulated eastern wall so perhaps it was re-used in the later building. Alternatively perhaps the building was not rectangular but 'L-shaped'. If there was another post (now destroyed by the later pit 272) to the south of post-hole 274 in the eastern wall, at which point the wall turned a corner to run eastwards to form an east wing, then no traces of this would necessarily have been noticed, as the area was not properly cleared. The only suggestion that this may be the case were the two post-holes 838 and 398 which were on the same line as the southern wall of the building. Both of these post-holes were below phase 4 deposits and were only seen in the sides of foundation trenches, so more post-holes might have existed in this area but were not revealed. Both these post-holes were about 0.6m in diameter and were about 0.4m deep and filled with flint packing.

A layer of orange brown clay (159), stuffed full of tile and stone fragments, and chalk and charcoal flecks, which overlay floor 160 may be a levelling layer following the demolition of the building. Cut into this layer was a small oven/furnace (99) which consisted of a semi-circular arrangement of mortared limestone blocks, 0.75m across which survived one course high. This oven/furnace, unlike 356 was built at ground level and not set in a pit. To the east of 99 was a roughly triangular-shaped firing floor (208) 2.3m long and 0.2m deep filled with dark gray brown and orange ash (100) which also filled the middle of 99.

The function of this phase 3 building is difficult to ascertain, not least because neither the exact ground plan, nor most of the floor area was revealed. Also one cannot be certain that its function did not change during one of the rebuilding episodes. However, there are a few clues as to its use. The charcoal and burning on floor 372 suggests



Plate 3. Merchant's Garage, Dorchester: The western end of the site, viewed from the north.



Plate 4. Merchant's Garage, Dorchester: The central area of the site, from the north, showing ditch 269 (Phase 2).

that there was a hearth in this room. It is not possible to determine whether the oven/furnace 356 was for domestic or industrial use without having observed more of the feature, but since it was replaced by a hearth, and with the occurrence of food remains on floor 362 it may have been part of a kitchen in the northwestern corner of the building. The well made mortar floors 371 and 18 may also point to a domestic rather than an industrial use.

The pottery on floor 362 was of an early 2nd-century date and the pottery in demolition layer 159 was 2nd-century in date also which gives a fairly good date for the life of this building.

Besides the features associated with the building there were a few other features which probably belong to this phase. In the southeastern corner of the site was another oven/furnace, similar to 356, which was only discovered when it was cut through by two parallel foundation trenches. It was built in a cut (386) 2.3m long and 0.45m deep and appeared to be oriented N-S. The bottom was covered by a thin layer of mid gray brown ash (387) and the chalk bedrock below it was burnt. In the northern part was an ash deposit (391) up to 0.3m thick which consisted of several layers of light gray and mid gray ash. Against this layer were laid the large burnt limestone blocks bonded together with light orange clayey mortar (388) of the oven/furnace structure. At the southern end of 386 there was a slight deepening of the cut (up to 0.05m) for a length of 0.6m which was filled with several layers of ash. In the western side the ash was only 0.07m thick, but in the eastern side it survived up to a thickness of 0.3m. The ash layers (390 and 428) consisted of many thin lenses of red, orange, light gray, dark gray and black ash and charcoal. Although it is not conclusive, it does appear that the superstructure cut the ash layer 391 thus suggesting that the oven/furnace had been fired first from the north, then rebuilt with the firing floor to the south. Where the western side of ash 390 had been cut away it was covered by a mixed layer of orange clay and mortar, chalk lumps, ash and charcoal, and limestone pieces (389). This layer probably represents the destruction of the furnace.

#### PHASE 4

There is a change in alignment of the buildings in this phase (Fig. 6), so that they were now roughly parallel to the main E-W Roman street.

The principal structure was a largely destroyed building with mortared flint walls which survived in the southeastern corner of the site. Only a small part of its ground plan was revealed, as parts of it lay to the south and east outside of the site. But from what was revealed, it was obvious that it had undergone some rebuilding as there were two walls (344 and 369) oriented roughly ENE-WSW, built immediately adjacent suggesting that one replaced the other. The chronological relationship between them has not been preserved. The southernmost wall (344) was a single course of mortared flints, 2.5m long and 0.75m wide which ended abruptly 0.25m before wall 367, which ran perpendicular to it. In this gap was a supine infant inhumation (343) in a shallow oval cut (342) into the natural chalk which was covered with rubble which filled the area between wall 344 and 367. The northernmost wall (369) was a single course of mortared flint nodules 0.8m wide which survived for a length of 6.0m. On top of the western end of this wall was a thin patch of mortar with a smooth top surface. The eastern end was bonded to wall 367. To the north of the line of 369, wall 367 survived only as a mass of flint rubble within its probable construction trench (366). It was traced northwards for a length of 1.7m where the wall turned eastwards and disappeared out of the site. To the south of the line of 369 it survived two courses high for a length of 1.2m with a small rectangular niche 0.45 x 0.30m built into the second course just south of wall 369.

About 3.5m south of wall 344 and 1.75m east of wall 367 was another wall (341) which ran roughly but not exactly on the same alignment as 367. It was drystone built with flint and some limestone and brick rubble and survived one course high. The southern end continued out of the cleared area but the northern end was squared off suggesting that it terminated in an entrance at this point. On the western side near the northern end was a small rectangular projection 0.35m long and 0.2m wide.

In the southwestern corner of the site were the fragmentary remains of another wall (410), on the same alignment as 367, which was traced over a distance of 4m. This wall consisted of unmortared flint nodules up to two courses high in places, set in a vertical-sided, flat-bottomed cut (409) 0.25m deep.

Several fragments of floor were found. The largest exposed floor

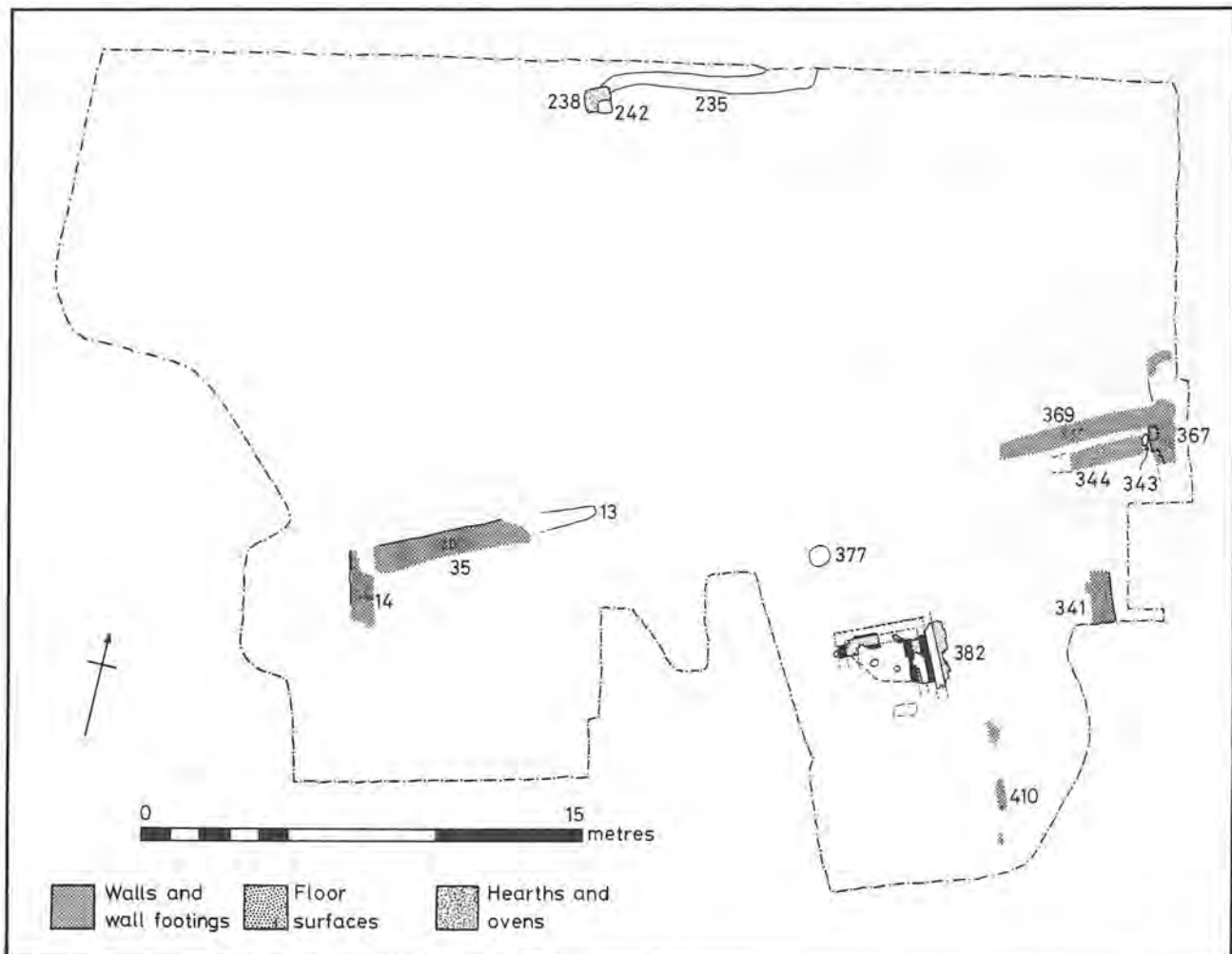


Figure 6. Merchant's Garage, Dorchester: Plan of Phase 4, Roman (third-fourth century) features.

area was a patch of tessellated pavement (382) set on a mortar base (381), which measured 2.3 x 3.9m across, found 1.5m north of the northern end of 410. The surviving portion of this floor consisted of five stripes of red, gray, and white tesserae oriented NNW-SSE (parallel to walls 410 and 367). At the northern end these turned and ran roughly WSW before returning southwards, thus enclosing an area roughly 1.3m wide. The innermost stripe was of red tile tesserae (shaded black on Fig. 6); the next was of gray limestone tesserae (stippled on Fig. 6), followed by a stripe of chalk tesserae, then another stripe of gray limestone tesserae. It is not clear what was enclosed within this border, though along the inner edge of the red stripe the mortar had been squeezed up as if the tesserae had been butted against a solid protrusion. Indeed at this point there was a rectangular area 0.35 x 0.45m defined by its very much smoother surface compared to the rest of the mortar base. Although there were plenty of tesserae in the surrounding soil these were all very large, similar to those in the border. If there had been a central mosaic panel it had been completely robbed out. This floor was in the northern end of a room which must have measured at least 4.4m across.

Butted against the eastern side of wall 410 was 0.07m thick, hard compacted chalk floor (411) which had a worn surface with charcoal flecks trampled into it. This floor was not exposed except in the side of a foundation trench so its extent is not known. On the western side of wall 410 was another similar chalk floor (412), found in a similar manner. The relationship between wall 410 and floor 412 had been destroyed. To the east of wall 367 another similar chalk floor layer could be seen in the east section of the site.

Cut into the mortar base 381 of the tessellated floor were two circular holes (414 and 416), both about 0.25m in diameter. One (414) was 0.06m deep with a rounded bottom and was filled with dark brown loam (415). The other (416) was crammed full of pieces of tile stacked vertically (417). It was covered by a small thin patch of yellowish brown clayey mortar (397).

On the western side of the site there was a 5.2m long fragment of wall (35) on the same line as wall 369. This wall was 0.9m wide and survived two courses high in some places. It was set in a foundation trench (36), though this could only be positively identified where it cut through chalk floor 10 (13). The base of the wall in foundation trench 36 consisted of large mortared limestone blocks (only seen when the wall was being destroyed by mechanical digger) on top of which were flint and limestone facings with a flint rubble core. This rubble was in a brown loam matrix very similar to the garden soil (1) which completely covered the site at a later date. It is likely that this wall was originally drystone built and the soil was incorporated much later. At the western end of wall 35 was another similar stretch of wall (34) which only survived one course high. This wall was 2.8m long and 0.8m wide. It was composed of flint and limestone facings and a flint rubble core, with some indication that the facing stones had been laid in a herringbone pattern. These two walls were not exactly at right angles to each other and unfortunately the exact relationship between them has not been preserved; however, it appears likely that they once joined. The N-S wall 34 is on the same alignment as the earlier phase 3 building so perhaps it belonged to that structure and was re-used in the later building. On the other hand, it was not on the same line as wall 52 (the western wall of the phase 3 building) so perhaps it belonged to the rebuilding associated with wall 4. Unfortunately there was not enough surviving evidence to satisfactorily decide the exact relationships between these various features. No floor layers survived which could be related to walls 34 and 35.

Not enough structural evidence survived to determine the ground plan of the building described above, but it seems clear that it was divided into several rooms. It is not certain whether walls 34 and 35 were an integral part of the building as their construction was much cruder. Undoubtedly they were related, given the same alignment of walls 369 and 35, so perhaps this western end was an outhouse or similar, and not a part of the main structure.

This house would seem to have had a long life span as there was some major rebuilding. Besides the replacement walls 344 and 369 described above, post-hole 414 may have replaced 416 as this latter was very tightly refilled with tile and covered by a patch of mortar (397). The relationship between these holes and the tessellated floor 372 is not certain as it would seem unlikely that the posts protruded through the tessellated floor, yet the patching of the mortar base suggests that 416 was replaced whilst the floor was still in use.

This building was demolished at the end of the phase. Pit 337 was filled with limestone slab fragments, flint nodules, wall plaster, nails etc which was probably debris from this demolition, and layers 332 and 333, south of wall 344 and overlying wall 367 also contains mortar, wall plaster, tile and limestone fragments. The pottery in these layers was 4th - 5th-century in date.

The size, the well-built nature of the wall, and the tessellated floor suggests that the building was a large town house. It may represent

another example of the 3rd - 4th-century expansion in this area as seen in Colliton Park (RCHM 1970, 535). This house was probably demolished in the late 4th or early 5th-century.

To the north of this building, close to the northern edge of the trench was a sub-rectangular hearth (238), 0.7 x 1.0m across, which consisted of a flat surface of tile, limestone, and burnt red clay. It overlaid the end of a shallow linear feature (235) oriented E-W, which cut across ditch 269 (phase 2). The eastern end of 235 curved northwards and disappeared out of the excavated area and the western end curved southwards to meet hearth 238. This trench was filled with very dark brown soil (236) which contained a mould fragment (possibly used for casing a strap hinge). It is not certain whether the trench or the mould fragment were directly associated with the hearth. A rectangular cut (242) 0.4 x 0.3m across, packed with flint nodules, was neatly inserted into the southeastern corner of the hearth. The filling of this was not burnt suggesting that it was not directly related to the hearth. It is not certain what sort of structure (if any) this hearth belonged to, as there were no surviving structural features except for a few isolated post-holes in this part of the site.

## PHASE 5

Very little activity can be traced to the medieval and post-medieval periods. The features were mainly pits (Fig. 7). The pottery in the top of these was mainly of 17th-century date. Pit 58 was notable for its drystone lining (59). The filling (60) was very cess-like.

Two possible medieval boundaries (298 and 113) were discovered. Ditch 298 in the northwestern corner of the site was oriented roughly N-S and was approximately 9m long with a terminal at its southern end. Its northern end was beyond the limits of the site. It was 0.5m wide and 0.2m deep with a rounded bottom. About 10m to the east, on the same alignment as 298, were the more fragmentary remains of another linear feature (113). This ditch was about 0.6m wide and about 0.1m deep with a rounded bottom. It was most distinctly seen where it cut through wall 112 (phase 3); south of this point it became difficult to see amongst the general mass of features and to the north it petered out about 1m south of the edge of the site. Both these ditches were filled with dark brown loam (299 and 114). No medieval pottery was recovered but the filling of 298 (299) contained a mixture of late Roman pottery. No finds were collected from ditch 113.

The whole of the site was covered by a layer of dark brown loam (1) up to 1.5m deep. This garden soil suggests that there was very little urban activity behind the street frontage in this part of the town following the Roman period.

The rectangular pit 123 was a modern disturbance dug by the contractors during clearance and redevelopment.

Just behind the High West Street frontage, outside the excavated area, a well shaft with its top lined with chalk blocks was revealed during demolition work. Its exact location was not recorded but it lay towards the eastern side of the area.

## UNPHASED FEATURES

Not all the features have been included in the phase framework outlined above. These unphased features are mainly individual post-holes and pits which do not fit into any recognisable pattern and cannot be placed into any one phase with any degree of assurance. The main problem is the lack of stratigraphic and dating evidence. Some pottery was found in a few of these features but as all the finds were recovered from the top silt layers (because most features were not excavated), they cannot be used to produce a reliable date. The low quality of much of the data means that it was thought best to leave these features unphased.

The only unphased features which formed any pattern were the line of rectangular pits across the middle of the site immediately south of the northern wall of the phase 2 building (Fig. 2). There are problems over the exact stratigraphic relationships of these but because of their alignment they were presumably dug prior to phase 4.

## THE FINDS

This report has been prepared without the aid of the coins, the metalwork, and the painted wall plaster, as all these items cannot now be found. Unfortunately they were lost before cataloguing so the complete list of missing items and their respective contexts are not known.

### Roman Pottery

The pottery has not been fully examined, but a preliminary identification was made by Jo Draper and the following comments are based on her observations. She also selected the pieces for illustration.

**Coarsewares**

A total of 761 sherds, weighing 20.635g, were recovered from stratified contexts. These were all BB1 types with only one possible Durotrigian sherd (residual in context 327) identified. The pottery forms a typical assemblage from Dorchester with most forms paralleled at Colliton Park and Wollaston House (Andrews forthcoming). The date range was from the early 1st-century to the 4th-century. No very late forms were recovered.

**Fine Wares**

A total of 83 sherds of assorted fine wares, weighing 1176g, were recovered from stratified contexts. These were mainly Oxford and New Forest wares and included red slipped bowls, parchment ware and indented beakers. These all occurred in fairly typical proportions.

**Briquetage**

Two sherds of Hobarrow Bay type briquetage (pers comm Peter Cox) were found in context 272.

- Fig. 8.1. Context 304. BB1 rim sherd with lozenge decoration on the rim. Similar decoration on some vessels from 1st-century contexts at Exeter (Bidwell 1979).
- Fig. 8.2. Context 53. 13 sherds of a single poppy head beaker with lozenge shaped panels of applied dots; 1st-century.
- Fig. 8.3. Context 116. New Forest jug handle fragment. Fulford type 25 (Fulford 1975); AD 300-350.

**Samian**

Hedley Pengelly.

**Stratified Material**

*Context 1*

- 1. Form 36, South Gaulish. Flavian or Flavian-Trajanic.
- 2. Form 37 (rim), Central Gaulish. Antonine.

- 3. Form 37 (base and footing), Central Gaulish. Mid- to late-Antonine.
- Context 116*
- 4. Form 31 (abraded rim), Central Gaulish. Antonine.

*Context 236*

- 5. Form 18/31, Central Gaulish. Hadrianic or early Antonine.
- 6. Form 33, Central Gaulish. Antonine.

*Context 267*

- 7. Form 31, Central Gaulish. Antonine.
- 8. Form 37, Central Gaulish, with ovolo I or Cinnamus (Stanfield and Simpson 1958, Fig. 47,1) and panel with incurving festoon containing a hare D. 950a variant, used by Cinnamus, Pugnus and Secundus. c. AD 150-180.

*Context 273*

- 9. Form 27, South Gaulish. Neronian.

*Context 287/210*

- 10. Form 37, Central Gaulish. One fragment and one other, unstratified, from the same panelled bowl; partly burnt. In the style of the Large-S Potter (Stanfield and Simpson 1958 pl. 76); his spiral motif, from which he takes his nickname, Rogers (1974) S71, fine bead-rows Rogers A2, and possibly, maened with tambourine D. 210, slightly misstruck. The second figure, a flautist O. 611, seems to be a new type for 'Large-S'. c. AD 125-145.

*Context 303*

- 11. Form 37, South Gaulish, showing part of an ovolo with a wavy line below. c. AD 75-95.

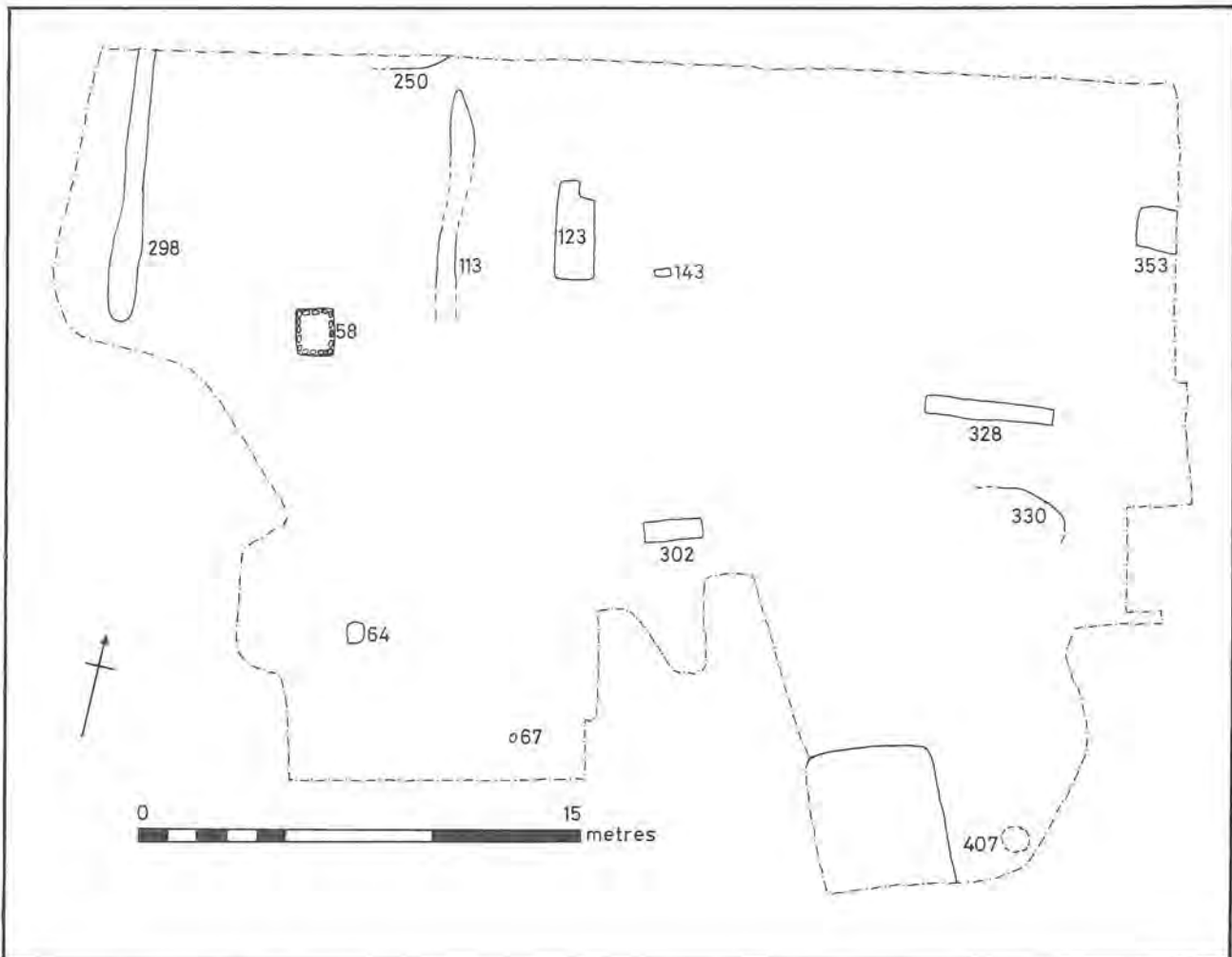


Figure 7. Merchant's Garage, Dorchester: Plan of Phase 5, medieval and post-medieval features.

## Context 304

12. Form 37, South Gaulish. Part of the rim and traces of an ovolo only. Flavian.

## Context 327

13. Form 18/31R-31R - on the borderline between the two forms, Central Gaulish. Hadrianic-Antonine.

## Context 362

14. Form 37 (rim), Central Gaulish. Probably Trajanic-Hadrianic.

## Context 378

15. Form 36, Central Gaulish. Hadrianic or Antonine.

## Context 417

16. Fragment, Central Gaulish, of a large dish, having very fine grit, from the kiln, adhering to both surfaces. Mid-second century.

## Context 421

17. Form 37 (rim), South Gaulish. Flavian.

## Unstratified Material

18. Form 29, South Gaulish, with a winding scroll in the lower zone. The frilled-edge pointed leaf was used by a number of potters working at La Graufesenque in Neronian and early-Flavian times. The crackled, glossy finish is consistent with a date c. AD 55-75.
19. Form 37, South Gaulish, with a 'palisade' of common Flavian type, e.g. Knorr 1912, Taf. VI. c. AD 75-90.

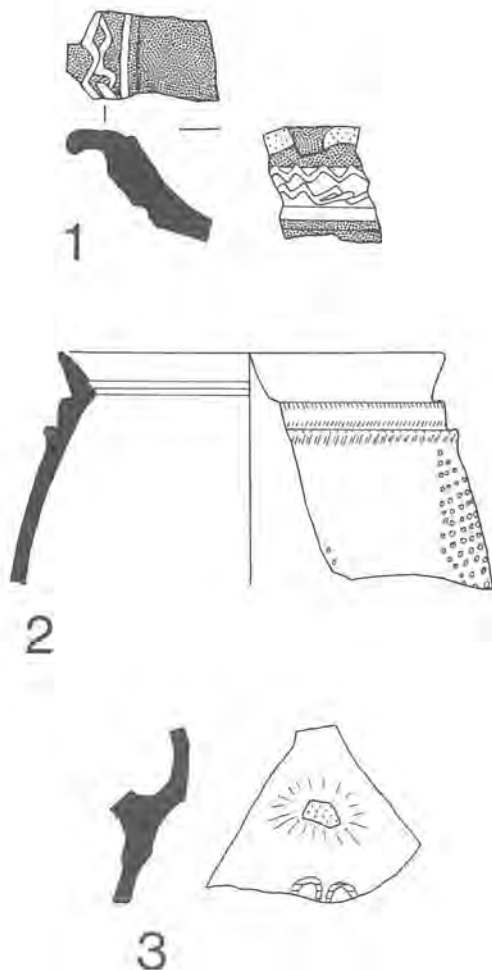


Figure 8. Merchant's Garage, Dorchester: Romano-British pottery; scale 1:2.

20. Form 37, Central Gaulish. The larger of two burnt fragments from the same bowl, has a deliberate, partly rounded profile suggesting possible intention of use as a polisher or rubber. The Large-scroll design is very close to that on a bowl from Wells, attributed to the early Cinnamus style, cf. Karnitsch 1959, Taf. 70, 2. This bowl has the same large leaf, Rogers (1974) H24, striated bud, identical placement of Pan 0. 717, and a male figure 0. 622, and a small kneeling horse. This type frequently incomplete, without ears, has no Déchelette or Oswald number, and Karnitsch, *op cit.*, takes it to be a hound. c. AD 140-165.
21. Form 37, Central Gaulish, two fragments, one of rim, from the same bowl. The ovolo is badly distorted, but identification with Cinnamus's ovolo 3 series seems certain, cf. Simpson and Rogers 1969, Fig. 1. The large leaf-scroll, with a bird, probably 0. 2239B, is of a kind well enough known for the Cinnamus group, e.g. Stanford and Simpson 1958, pl. 162; Karnitsch 1959, Taf. 72,3. c. AD 145-180.
22. Form 37, Central Gaulish; burnt. The tip of an ovolo and parts of two panels, with a festoon containing a bird 0. 2315 in one, and a striated spindle and a large medallion in the other. The festoon and the bird are on a stamped bowl of Cinnamus from Balmuilly and the spindle and medallion are on a stamped bowl of his from London, cf. Stanford and Simpson 1958, pls. 159,24 and 160,45. c. AD 150-180.
23. Form 37, Central Gaulish. Both the bead-row and the figure
24. Form 37, Central Gaulish, two joining fragments including part of the rim. The ovolo has a slightly unusual 'tongue' end, but cf. a Verulamium bowl (Hartley 1972, D117) ascribed to the work of Secundus of Lezoux, and also having the same kind of festoon used by him. Secundus frequently, though by no means exclusively, uses straight lines in conjunction with his ovolos and he often extends his vertical panel dividers into the ovolo area. The beads in this divider, however, are not ones normally associated with him. c. AD 150-180.
25. Form 37 (rim), Central Gaulish. Antonine.
26. Two small fragments of an enclosed jar or similar. Central Gaulish. Second half of the second century.
27. Form 37, East Gaulish, fragment of shallow bowl with orange-red fabric and slip. The festoon in the decoration is somewhat badly struck, but cf. Ricken and Fischer 1963, KB138. This detail was used by a number of Rheinzarben potters, but only Reginus II amongst them seems to have used it blank (cf. Ricken and Ludowici 1948, Taf. 136.7 and 138.3 etc.). The leaf is like Ricken and Fischer's P142 and the rosette is like their 057, except that here it shows a distinct central dot or pistil. The ovolo is close to Ricken and Fischer's E 25, but the 'egg' is slightly more rounded here. Late second century.
28. Form 18, South Gaulish. Flavian or Flavian-Trajanic.
29. Form 18/31, probably, in overfired Central Gaulish fabric. Early second century.
30. Fragment in micaceous Lezoux fabric; perhaps from a flanged or cordoned bowl, form 38 of 44, having a footing like Oswald and Pryle 1920, pl. LXXII, 9. Probably late Trajanic-Hadrianic.
31. Form 27, Central Gaulish. Hadrianic or early Antonine.
32. Form 18/31R (two), Central Gaulish. Hadrianic-Antonine.
33. Form 18/31-31 - on the borderline between the two, Central Gaulish. Hadrianic-Antonine.
34. Dish fragment, Central Gaulish. Perhaps roughly shaped for use as a large counter. Hadrianic or Antonine.
35. Form 33, Central Gaulish. Hadrianic or Antonine.
36. Form 33, Central Gaulish. Early Antonine.
37. Form 33 (six, one slightly burnt), Central Gaulish. Antonine.
38. Form 18/31R-31R, Central Gaulish. Antonine.
39. Form 31, Central Gaulish. Antonine.
40. Form 31R (two), Central Gaulish. Antonine.
41. Form 36 (three, one burnt), Central Gaulish. Antonine.
42. Dish fragment, Central Gaulish. Antonine.
43. Three fragments of a Central Gaulish dish. Antonine.
44. Rim flake, possibly form 38 (or 37), East Gaulish. Probably Antonine.
45. Form Curle 23 (two), Central Gaulish. Mid- or mid- to late-Antonine.
46. Form 31, Central Gaulish. Mid- to late-Antonine.
47. Form 31R (two), Central Gaulish. Mid- to late-Antonine.
48. Form Walters 79 or 79R, Central Gaulish. Mid- to late-Antonine.
49. Form 31R, Central Gaulish. Mid- to late- or late-Antonine.

50. Form 31R, Central Gaulish. Late second century.  
 51. Form 31R, East Gaulish. Late second- or early third century.  
 52. Form 33, Central Gaulish. Antonine.

The small number of early forms is probably due to the lack of excavation. All the Samian came from the top layers of features.

#### MEDIEVAL AND POST-MEDIEVAL POTTERY

A total of 93 sherds of medieval and post-medieval pottery was recovered from stratified contexts (total weight 1779g). No attempt has been made to differentiate between the medieval and the later wares for the purposes of this report. The majority of the pottery was of 17th-century date (pers comm Jo Draper).

#### CRUCIBLE AND MOULD FRAGMENTS

Justine Bayley

##### *Context 380*

Three conjoining sherds of a crucible made of a fabric with very little mineral temper but considerable quantities of vegetable matter. This sort of fabric is known for Iron Age crucibles but not for those of later periods. The form however is not typical for the Iron Age when crucibles were normally triangular in plan, for example at Gussage All Saints (Wainwright 1979) and Meare Lake Village (St. George Gray and Bullied 1953). These sherds would appear to be from a roughly circular, hand-made vessel with a pinched out pouring lip with walls that vary from c. 8mm near the rim to over 10mm nearer the base. Traces survive of an added layer of clay near the rim on the outside of the crucible which may be the remains of a lid of some sort. The form is not typically Roman but, given its context, the crucible is probably early Roman, the fabric showing some continuity from the pre-conquest period. XRF analysis detected traces of metals but the quantities were not sufficient to show what sort of copper alloy was being melted.

##### *Context 8*

Three mould fragments which have the typical fine finish to the modelled surface which is reduced fired though the outer part of the mould is oxidised as is normally the case. It is not possible to say if these fragments come from investment moulds (typical of the Iron Age but continuing in use into Roman times) or from piece moulds which were the common form of mould for small castings in Roman times.

##### *Context 236*

One fragment of a mould which could have been for casting a strap hinge, though these types of objects are more often smithed to shape from sheet metal.

#### CLAY TOBACCO PIPES

Elizabeth Watkins

Twenty six pipes and 63 stem fragments were recovered, all unstratified. Two pipes mid-17th century, with some rouletting around the rim (8/64" bore). Six pipes mid- to late 17th-century, the larger three with rouletting (two 8/64" bore, four 7/64" bore). Twelve late 17th- or early 18th-century pipes (6/64" bore): eleven long bowls with small circular bases, two with a line around the rim, four with the initials IP at the junction of bowl and stem (commonly found in the Dorchester area, but maker not known), two 7/64" bore; two with initials BS in the same position (not so common as IP, but also found in the Dorchester area; maker not known), one 7/64" bore; one pipe with large bowl and pointed spur (7/64" bore).

Six 18th-century pipes (all 6/64" bore): one spurred pipe with what appears to be a flower incised on the bowl; two with smaller bowls and flat bottomed spurs, one distorted; one with largish bowl, slightly waisted, flared top and with large flat bottomed spur; two with smaller bowls and rounded spur.

Two 19th-century pipes: one sharp spur only (5/64" bore), the other moulded with flutes on lower 2/3 of bowl and semicircles of dots under the rim, large flat-bottomed spur with a blurred ?mark either side (4/64" bore).

This is a typical selection of pipes to be found in Dorchester. Fuller details of pipes and stems may be found in archive.

#### DISCUSSION

In common with most sites excavated in the Roman town of Durnovaria, very little evidence of pre-Roman activity was found. However, ditch 240/348, on a different alignment to the Roman features on site, had a very similar alignment to the Middle Bronze Age field system uncovered at Poundbury (Green 1987). This field system was aligned along the edge of the Frome river valley. It is not certain whether this ditch was directly associated with the Poundbury field system or was part of another unit of fields further east, as the two are separated by a N-S coombe. The irregular nature of the ditch suggests that it was dug piecemeal.

The large pit 54 is similar, though shallower, to the largest of the 1st-century pits on the Library Site (Aitken 1982, Fig. 5.10 and 11). Such large diameter shallow pits seem unlikely to have been dug primarily as rubbish pits, and indeed very little debris was apparent in 54, but the original function cannot be postulated without more complete excavation. They seem to have been a feature in this part of the town during the 1st century.

The timber building in phase 2 was very large. Perhaps the fragmentary remains represent several buildings, both contemporary and replacements. The true sequence is likely to be much more complex than it appears. This uncertainty does not help the interpretation of their function but the general lack of domestic refuse (though none of the pits was excavated) and the presence of metalworking evidence suggests that they were industrial in nature. The building debris in the 1st century pits on the Library Site suggests that there was some more substantial domestic(?) building nearby at this time.

It is interesting to note that the other timber buildings in the vicinity e.g. Wadham House (Draper and Chaplin 1982) and the Library Site, Building 4 (Aitken 1982) have a late date. The buildings on Merchant's Garage, however, have a much greater affinity with the 1st century timber buildings found on Greyhound Yard (Woodward *et al.* 1984).

If the phase 3 building is interpreted as being domestic in character, as seems likely for at least part of its life, then this was unusual for this part of the Roman town where most of the building activity does not appear to commence until the 3rd century (RCHM 1970). The long sequence of buildings on this site may be due to its greater proximity to the main street. The street frontage may have been built up at an early date with the expansion behind it happening at a much later date.

There seems to have been a shift of industrial activity northwards from Merchant's Garage to the Library Site in the late 2nd - 3rd century. The first buildings (1 and 2) on the Library Site were late 2nd century in date (Draper 1983) and the ovens were all later than this also. The ovens on Merchant's Garage and also the metal working hearths were all earlier than this date. This shift was caused by the construction of the phase 4 town house.

The exact date of construction of the town house is uncertain, but was probably during the 3rd-century. It can be paralleled by the building activity (wall A) at Wadham House (Draper and Chaplin 1982). It seems to be earlier than most of the buildings at Colliton Park (RCHM 19770, 553-560). This house may have continued in use until the 5th century (there was some late 4th- early 5th-century pot in the demolition layers 332 and 333), but it was unlikely to have continued very late, given the lack of very late forms of pottery (Jo Draper pers. comm.).

Finally, a note of caution - on every part of the site where foundation trenches were dug during redevelopment, a very much more complex sequence of events than could be seen on the surface was revealed. If it had been possible to undertake proper archaeological excavation, a much richer more complex sequence than the one proposed above would undoubtedly been revealed, *cf.* Greyhound Yard (Woodward *op. cit.*). This may well have contradicted elements of the above sequence. It is a tragedy that the opportunity for proper archaeological investigation was missed on such a large and important site.

## ACKNOWLEDGEMENTS

The archaeological work was financed by Dorset County Council. Laurence Keen and Mark Simons did much of the work on site, R. Matthews compiled the Plane Table survey and Mark Simons organised the finds processing. Many thanks are due to the volunteers for their hard work both on site and for finds processing. Jo Draper provided much advice and help on many aspects of this report.

## Bibliography

- Aitken, G. and N., 1982, 'Excavations on the Library Site, Colliton Park, Dorchester, 1961-3', *Dorset Proceedings*, Vol. 104, pp. 93-126.
- Andrews, (forthcoming)
- Bidwell, P.T., 1979, *The Legionary Bath-house and Basilica and Forum at Exeter*, Exeter Archaeological Reports 1.
- D. (Figure-type in) Déchelette, J., *Les Vases céramiques ornés de la Gaule romaine*, tome ii, Paris 1904.
- Draper, J., 1983, 'Some further discussion of the Library Site, Colliton Park Dorchester', *Dorset Proceedings*, Vol. 105, pp. 157-159.
- Draper, J., 1984, *A Dorchester Camera*.
- Draper, J. and Chaplin, C., 1982 *Dorchester Excavations, Vol. 1*, DNHAS Monograph No. 2.
- DRO Dorset Record Office.
- Fulford, M.G., 1975 *New Forest Roman Pottery*, Brit. Archaeol. Rep. 17, Oxford.
- Green, C.J.S., 1987, *Excavations at Poundbury, Vol. 1: The Settlements*, DNHAS Monograph 7.
- Hartley, B.R., 1972, 'The Samian Ware' in Frere, S.S., *Verulamium Excavations I*, Research Report of the Society of Antiquaries of London, XXVIII, pp. 216-62.
- Karnitsch, P., 1959, *Die Reliefsilligata von Ovilava*, Linz.
- Knorr 1912, Knorr, R., *Südgallische Terra-Sigillata-Gefässe von Rottweil*, Stuttgart 1912.
- Mayo, C.H., 1908, *The Municipal Records of the Borough of Dorchester* (Exeter)
- (Figure-type in) Oswald, F., *Index of Figure-Types on Terra Sigillata*, Liverpool 1936-7.
- Oswald, F. and Pryce, T.-D., 1920, *An Introduction to the Study of Terra Sigillata*, London.
- RCHM 1970. *An Inventory of the Historical Monuments in the County of Dorset*, Vol. II, South-East.
- Ricken, H. and Ludowici, W., 1948, *Die Bilderschusseln der römischen Töpfer von Rheinzarben* (Tafelband), Speyer.
- Ricken, H. and Fischer, C., 1963, *Die Bilderschusseln der römischen Töpfer von Rheinzarben* (Textband), Bonn.
- Rogers, G.B., 1974, *Potteries sigillées de la Gaule centrale* tome i, *Les Motifs non figurés*, XXVIIIème-supplément à Gallia, Paris.
- Simpson, G. and Rogers, G.B., 1969, 'Cinnamus de Lezoux et quelques potiers contemporains', *Gallia* XXVII, pp. 3-14.
- Stanfield, J.A. and Simpson G. 1958 *Central Gaulish Pottery*, London.
- St. George Gray, H. and Bullied, A., 1953, *The Meare Lake Village* Vol. II.
- Wainwright, G.J., 1979, *Gussage All Saints An Iron Age Settlement in Dorset* DoE Archaeological Reports No. 10.
- Woodward, P.J., Davies, S.M. and Graham, A.H., 1984, 'Excavations on the Greyhound Yard Car park, Dorchester, 1984'. *Dorset Proceedings* Vol. 106 pp. 99-106.

## Appendix 1 CONCORDANCE OF FINDS AND CONTEXTS

Phase	Context No	Context Description	Finds	Phase	Context No	Context Description	Finds
				5	60	Filling of cess pit 58	Pottery; BB1 (6), post-med. (5).
1	293	Old ground surface	Pottery; BB1 (8 sherds): Flint; 7 flakes.	5	68	Filling of post-hole 67	Pottery; med. (2).
1	304	Old ground surface	Pottery; BB1 (6 sherds), Samian (no 12).	5	144	Filling of post-hole 143	Pottery; med. (1).
2	53	Filling of pit 54	Pottery; BB1 (37), poppy-head beaker (13)	5	250	Filling of cut 249	Pottery; BB1 (7), New Forest beaker (3), Med. (3).
2	66	Filling of scoop 65	Pottery; BB1 (16); Tile (1): 2 ?quern frags.	5	299	Filling of ditch 298	Pottery; BB1 (8), New Forest (3); Tile (4): 2 iron nails.
2	210	Filling of beam slot 209	Pottery; BB1 (2).	5	303	Filling of pit 302	Pottery; BB1 (1), samian (no 11), post-med. (10); Tile (2): 1 iron strip.
2	270	Filling of ditch 269	Pottery; BB1 (3), Roman finewares (8).	5	329	Filling of pit 328	Pottery; BB1 (1), post-med. (5).
2	271	Top silting of ditch 269	Pottery; BB1 (6).	5	331	Filling of pit 330	Pottery; BB1 (14), New Forest (1), post-med. (2); Tile (3): 1 tessera.
2	315	Charcoal layer in floor 10	Pottery; BB1 (5).	5	353	Filling of pit 352	Pottery; BB1 (1), post-med. (19); Tile (2): claypipe (2).
2	327	Filling of post-pipe 326	Pottery; BB1 (5), samian (no 13); Tile (1).	5	408	Filling of pit 407	Pottery; BB1 (1), med. and post-med (3): 1 iron knife tang.
2	334	Filling of hearth 337	Copper Alloy; 2 frags: Slag (12 pieces).	5	422	Part of layer 1 (above)	Pottery; BB1 (10), Roman finewares (2): 1 copper alloy pin: 1 iron nail: 10 tesserae.
2	380	Filling of hearth 379	3 crucible frags: 2 copper alloy frags: 6 iron frags.	-	28	Filling of post-hole 29 - SW corner of site	Pottery; BB1 (18). Roman finewares (6); Tile (1): Copper alloy brooch: 1 sherd bottle glass.
3	86	Filling of cut 85	Pottery; BB1 (59).	-	41	Filling of pit 42	Pottery; BB1 (8), Roman fineware (1); Tile (2).
3	100	Ash on firing floor	Pottery; BB1 (8); Tile (15); Iron; 1 nail.	-	70	Filling of pit 69 - part of pit line across centre of site	Pottery; BB1 (46).
3	159	?Demolition layer	Pottery; BB1 (3); Tile (5).	-	71	Mortar layer in top of pit 69	Tile (1).
3	356	Oven/furnace	Pottery; BB1 (6); Tile (2): 1 bone pin frag.	-	94	Filling of pit 93 - part	Pottery; BB1 (22), Roman fineware (1): 1 iron nail.
3	362	Floor layer	Pottery; BB1 (8), samian (no 14).	-	116	Filling of pit 115	Pottery; BB1 (32), samian (no 4), New Forest (11), amphora (2); Tile (1).
3	384	Filling of post-hole 383	Pottery; BB1 (1).	-	154	Filling of post-hole 153 - in centre of site	1 iron nail.
4	236	Filling of linear feature 235	Pottery; BB1 (19), samian (nos 5-6), New Forest beaker (1): mould frag: Tile (3): Glass; 2 vessel sherds.	-	287/210	mixed	Pottery; BB1 (11), samian (no 10).
4	332	Demolition layer	Pottery; BB1 (13), New Forest (2); Iron; 2 nails, 6 frags: Glass; 1 handle frag.	-	234	Filling of oval scoop 233 - in north part of site	Pottery; BB1 (47), New Forest (1); Tile (3).
4	333	Demolition layer	Pottery; BB1 (95), New Forest beaker (5), Oxford red-slip (9); Tile (2): 1 tessera: 56 frags painted wall plaster: 1 iron nail: Glass; 2 vessel sherds.	-	267	Filling of pit 266 - in NW part of site	Pottery; BB1 (25), samian (no 9), Roman finewares (5), briquetage (3); Tile (2).
4	378	Filling of pit 377	Pottery; BB1 (22), samian (no 15): 4 tesserae: 7 painted wall plaster frags.	-	292	Chalk layer in SW part of site	Pottery; BB1 (10).
4	411	Chalk floor	Pottery; BB1 (2).	-	314	Filling of post-hole 313 - in centre of site	Pottery; BB1 (1).
4	412	Chalk floor	Pottery; BB1 (1): 1 iron nail.	-	346	Filling of pit 345 - east end of site	Pottery; BB1 (15), New Forest (3).
4	417	Filling of 416	Pottery; BB1 (2), samian (no 16); Tile (10).	-	401	Filling of pit 400 - SE part of site	Pottery; BB1 (1).
5	1	Topsoil	Pottery; samian (nos 1-3).	-	419	Filling of cut 418 - SW part of site	Pottery; BB1 (1).
5	7	Topsoil over floor 371	Pottery; BB1 (37), Roman finewares (9): 2 iron nails.	-	421	Filling of 420 - SW part of site	Pottery; BB1 (5), samian (no 17).
5	8	Topsoil south of wall 4	Pottery; BB1 (17), med. and post-med (24): 3 mould frags: Tile; Roman (4), med. (1).				
5	50	Filling of post-hole 64	Pottery; BB1 (13), med. and post-med. (29): 1 iron knife tang: 1 whetstone frag.				

# A Late Iron Age Settlement and Black-Burnished Ware (BB1) Production Site at Worgret, near Wareham, Dorset (1986-7)

CARRIE M. HEARNE and ROLAND J. C. SMITH  
Wessex Archaeology

with contributions by

J. Bird, W. J. Carruthers, A. J. Clark, R. M. J. Cleal,  
R. E. Clough, J. A. Davies, B. Dickinson, A. P. Fitzpatrick,  
J. M. Mills, J. C. Richards, R. Seager Smith,  
D. F. Williams, N. Winder

## SUMMARY

*Excavations in advance of the construction of the Wareham by-pass (Stage II) have afforded the first opportunity to examine the Romano-British Black-Burnished Ware (BB1) pottery production site at Worgret, first discovered in 1915. The excavations have demonstrated a late Iron Age origin for the site, focused on a major ditched enclosure. Pottery production could not be convincingly associated with the economy of the late Iron Age settlement. However, in view of the subsequent development of the site, its prime location for potting and the expansion which the local Durotrigian ceramic industry is known to have undergone in the first century BC, it is highly likely that pottery manufacture, at some level, was undertaken on the site at this time.*

*Continual Romano-British occupation occurred between the later first and late fourth centuries AD. The evidence suggests that the site was primarily, if not purely, involved in the manufacture of Black-Burnished Ware during this period. Worgret is the first site where undisputed evidence for the manufacture of Poole Harbour BB1 exists by a combination of features associated with pottery production; namely, the extraction of raw clay, its preparation for potting and the firing of vessels. The excavation of a pit clamp, dated to the late first/early second century AD, and a series of small, clay-walled, updraft kilns dating from the second century AD onwards must now dispel the widely-held view that BB1 was fired in bonfire kilns throughout its period of manufacture. The BB1 assemblage from the site is of intrinsic interest, not least because it included an abandoned, in situ, kiln load and a large group of true production wasters.*

*Evidence for other industrial activities was confined to a low level of shale working. No settlement area was defined within the excavated part of the site but the presence of stone building debris on the site, some re-used in the walling of a late Roman kiln, may indicate the former existence of a building nearby.*

*In a local context, the ascending importance of the site during the late first and second centuries AD appears to be linked with a shift away from the pre-existing industrial sites on the southern shores of Poole Harbour and into the lower Frome valley. By contrast, an apparent rationalisation of the site during the later third and fourth centuries AD may be linked with the re-emergence of the southern harbour shore as an important zone for manufacturing industry, including pottery production, and trade.*

*The report also contains a summary of a small-scale excavation undertaken further south along the by-pass route at Stoborough Heath. The low linear earthwork examined could not be dated but it has been suggested that it marks the line of a Roman Road from Flowers Barrow hillfort (on the south coast of Purbeck) to Wareham.*

## INTRODUCTION AND ARCHAEOLOGICAL BACKGROUND

The late Iron Age and Romano-British site at Worgret, centred on SY 91258690, lies 1 km to the west of the town of Wareham on a gentle south-facing slope, c. 4-15 m OD, between the low ridge that forms the watershed between the valleys of the Rivers Piddle and Frome (Fig. 1).

The site was first discovered in 1915 during the construction of an army camp at Worgret. A 'mass of ancient pottery' recovered was interpreted as the 'site of a Romano-British pottery works' (Symonds 1915, xl-xli). A further widespread pottery scatter was recorded following ploughing in 1952 (Farrar 1953, 96) and the possibility of earlier prehistoric activity in the area was suggested by the discovery of finds of flint flakes, scrapers and a barbed and tanged arrowhead in 1955 (Farrar 1956, 151).

Further definition of the site was obtained by aerial photography in 1969 (OS, 69 186, Photo no. 46). Cropmarks indicated the existence of curvilinear enclosures and possible pits and kilns at the southern end of the site, immediately above the flood plain of the Frome. The eastern portion of these cropmarks (to the east of Cuckoo Pound lane) was disturbed by the construction of the Purbeck School and playing fields in 1974, but no archaeological recording took place.

In the mid-1970s a plan to construct a by-pass road for

Wareham put forward two alternative routes to the west of the town, the shorter of which (the route ultimately adopted, as shown on Fig. 1) cut through the suggested area of the archaeological site at Worgret. The archaeological implications of the proposed routes were outlined in a report submitted to the Dorset Archaeological Committee (Johnston 1975). In preparation for this report, a geophysical survey (by magnetometer scan) of the route affecting the Worgret site was undertaken in June 1975 by A. J. Clark of the Department of Environment, Ancient Monuments Division. This survey identified the enclosures indicated by the 1969 air photographs along with an extensive area of magnetic anomalies in the same area. To the north, high magnetic readings were recorded and were thought to be associated with disturbance from the army camp. The report therefore concluded that the southern area of the site was likely to be the area of most intense archaeological activity related to a Romano-British settlement and industrial site (*ibid.*, 8).

This report details the programme of archaeological works which was undertaken prior to the construction of Stage II of the Wareham by-pass (Worgret roundabout to Stoborough Heath). The excavation programme comprised a detailed geophysical (magnetometer) survey of the road construction corridor in December 1985, followed by area excavation of a small proportion of the site (about 10% of the affected area) between May and July 1986. Construction on the by-pass

commenced in April 1987 when a watching brief was undertaken during and after the removal of topsoil. Limited excavation of specific structures on the site was also carried out at this stage by members of the Wareham and District Archaeology and Local History Society.

A note on the results of a small-scale excavation undertaken within the southern sector of the by-pass, near Stoborough, is also included, separately, at the end of this report (Appendix III). These excavations focused on the line of a low linear earthwork which marks the line of a footpath/property boundary on the west side of the Stoborough Green to Furzebrook road (Fig. 1). Full details of this excavation are held in the site archive.

All excavation and post-excavation records for the project and all finds recovered during the excavation have been deposited with the Dorset County Museum (WA reference codes: W136 - Worgret; W210 - Stoborough earthwork). Microfiche copies of the paper archive are held by the National Monuments Record and with Wessex Archaeology, Salisbury.

#### Summary archive contents (W136)

- FILE 1: Archive contents and background to the excavation  
 FILES 2-5: Primary field records, comprising the following - context records, site notes, graphics register, level book, photographic register.

- FILE 6: Photographic archive: monochrome negatives and prints.  
 FILE 7: Primary finds records, comprising the following - context finds records, special finds records, box index.  
 FILE 8: Finds post-excavation analysis and reports, comprising the following categories - Kimmeridge shale, metals (including coins), slag, fired clay, animal bone, plant remains, flint, glass, worked stone, earlier prehistoric pottery, Roman and Romano-British pottery (all categories except BB1). File 8 also contains the archaeomagnetic dating report.  
 FILE 9: Finds post-excavation analysis and reports: Black-Burnished Ware (BB1). All aspects of BB1 analysis including vessel form type series, ceramic petrology report, re-firing experiment.  
 FILE 10: Site post-excavation analysis and reports, comprising the following - stratigraphic phasing, phased trench descriptions, draft site report, publication report.

#### THE EXCAVATION PROGRAMME

##### Magnetometer survey (Fig. 2A)

The programme of archaeological work began in December 1985 with magnetometer survey of c. 13,500 sq. metres of the road construction corridor, from the area immediately south of the Worgret roundabout across the presumed extent of the site (c. 450 m of the by-pass route). The survey was undertaken by A. Bartlett of the Ancient Monuments Laboratory (Geophysics Section) using a fluxgate gradiometer. The survey identified a series of anomalies across the full length of the survey area (northern 230 m only shown on Fig. 2A) which indicated

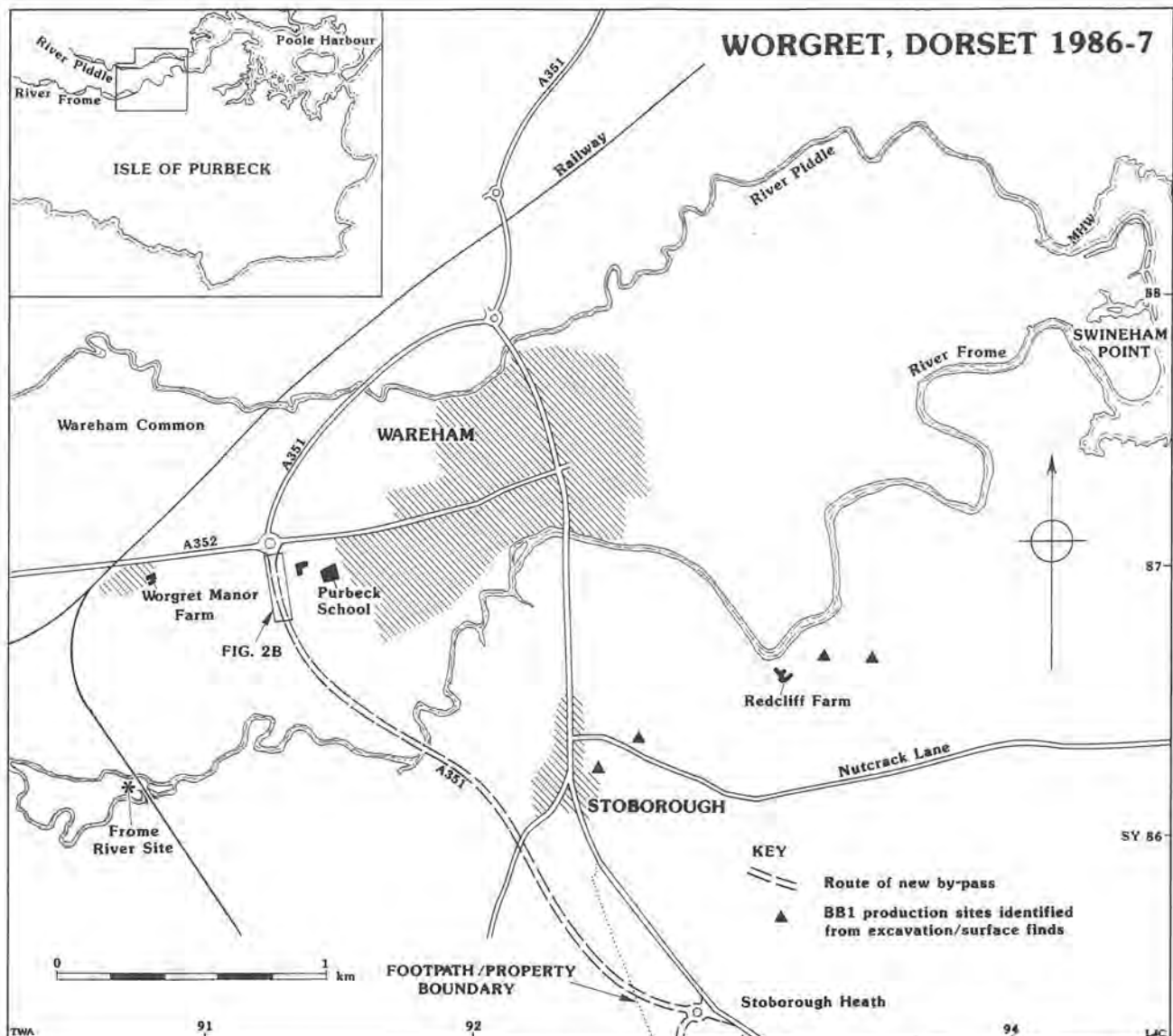


Fig. 1: Site location

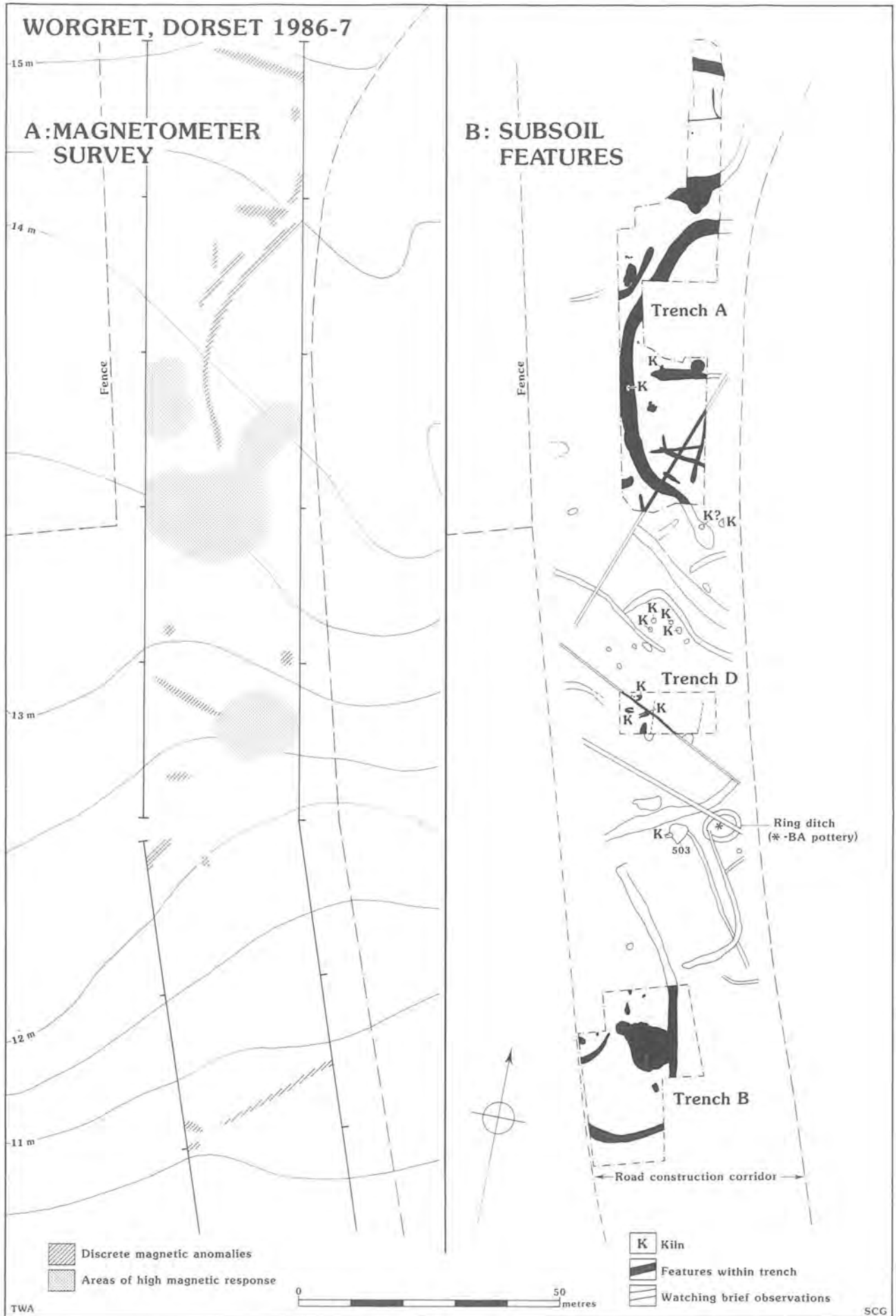


Fig. 2A: Magnetometer survey results Fig. 2B: Plan of all recorded subsoil features

the existence of linear and curvilinear features, large areas of undefined disturbance and smaller isolated anomalies. The most intensive area of magnetic response correlated with the northern part of the site. This was at variance with the 1975 survey and with the evidence from the 1969 air photographs which had suggested that the main settlement/industrial area lay further to the south. The 1985 geophysical survey did indicate an area of disturbance to the south, about 400 m north of the River Frome, but on examination (trench C) this was shown to be the remnants of a modern bonfire and iron water pipe.

The 1985 survey clearly indicates a series of curvilinear and linear anomalies which correspond to the excavated enclosure patterns identified in trenches A, B and D (Fig. 2B), and indicate the likelihood that these enclosures continue to the east and west of the by-pass corridor. However, the survey was not able to distinguish clearly between ancient and modern disturbance for the larger, less well-defined anomalies, especially in indicating those likely to have been caused by the presence of the army camp. This was most clearly illustrated by the defined areas of high magnetic readings corresponding to the area of trench D and at the southern end of trench A. The former was shown by excavation to reflect a substantial deposit of dense black ash associated with Romano-British industrial activity, whereas the latter was primarily the result of debris and clinker-filled trenches of the demolished army camp. The ashy infilling of the enclosure ditches, as a result of Romano-British industrial activity, appears to have been responsible for their magnetic susceptibility. However, the kilns and other clay-walled structures identified by excavation were not identifiable as discrete magnetic anomalies. This was partly due to the fact that some of the kilns were located within ditches or other ashy deposits, which 'masked' their presence, but also because the kilns were constructed of a local clay whose thermoremanent magnetism was weaker than the magnetism induced by the magnetic susceptibility of the ditch fills.

### Area excavations

The geophysical survey provided the basis for the location of the trenches excavated between May and July 1986. Limitations imposed by the resources available meant that it was impossible to examine the entire extent of the archaeological deposits likely to be affected by road construction. Consequently a limited sampling strategy was implemented. The aims of the excavation strategy were, firstly to examine the broad areas of magnetic response to determine whether they were due to archaeological activity or modern disturbance and, secondly, to locate and define the enclosure systems and associated features in an attempt to identify the settlement and/or industrial characteristics of the site.

A total of 2000 sq. metres, subdivided between four trenches (A-D) and approximating to about 10% of the area under threat, was stripped by a JCB excavator (with toothless bucket) to the base of the soil overburden. In trenches B and C approximately 300 mm of humic soil overburden was removed onto the underlying drift geology comprising Tertiary yellow-brown sands, sandy gravels and clay of the Poole Formation (formerly called the Bagshot Beds). In trenches A and D the soil overburden was substantially deeper: approximately 800 mm of humic soil was removed at the south of trench A. Two substantial east-west lynchets across the site, one of which lies just south of trench A may, in part, be responsible for the enhanced depth of soil overburden. The deep soil accumulation appears to have protected the upper archaeological levels of the site from plough erosion to the north of the site (trench A), although some damage is likely to have occurred to deposits further south (trenches D and B) where the depth of soil cover is less substantial.

Trenches A, B and D were located on the three main areas of geophysical interest (Fig. 2B). Trench C was positioned at the extreme south of the survey area on a discrete zone of high magnetic readings. Excavation revealed that the anomaly was co-incident with the remnants of a post-Medieval bonfire and modern water pipe.

The excavation of archaeological features was undertaken by hand. Since the overall volume of features able to be excavated was low (see Fig. 3), emphasis was placed on establishing a detailed plan of features, identifying the chronological sequence and development of the site and examining the nature of the industrial and related features. The site report refers to primary context numbers, details of which are contained in the site archive (Level II) along with the stratigraphic analysis for the site (Level III).

### Observations during road construction

A further opportunity to examine archaeological features within the development area was taken in April 1987 during the initial stages of

road construction. Topsoil and soil overburden were stripped from the remaining areas of the site during preliminary operations for constructing a cutting for the new road south of the Worgret roundabout. This allowed for the observation and recording of further elements of the site. Priority was placed on obtaining as full a plan as possible of all subsoil features visible. This was followed by the rapid excavation of specific industrial structures, notably some of the seven other kilns which were recorded across the site. These excavations were undertaken with members of the Wareham and District Archaeology and Local History Society. A summary of the features and structures recorded during the watching brief is included on Fig. 2B and the nature of specific deposits, structures and finds have been incorporated briefly into this report. Fuller details of the archaeological features and finds recovered during the watching brief are held in the site archive.

## CHRONOLOGY AND PHASING

Within each trench a limited stratigraphic sequence was recorded (see Fig. 3). The plan of all visible features provided by the watching brief (Fig. 2B) indicates that the lack of intensive horizontal stratigraphy recorded within the trenches was representative of that across the site as a whole.

Due to the minimal amount of closely-datable objects from the site, and with the exception of the independent date ranges provided by archaeomagnetic dating (see Appendix I), the dating of excavated contexts and features has relied on the ceramic analysis of the local coarseware assemblage. The date of the assemblage spans the late Iron Age and early to late Romano-British period.

For the Romano-British occupation the small group of coins associated with the site effectively appear to delimit the overall chronological span of activity (i.e. Vespasianic to Valentinian). Within this broad period certain features and structures may be assigned specific date ranges. In addition, overall shifts in the focus and extent of activity have been detected. However, given the overall lack of stratigraphy, the small areas of the site examined in detail and the generally imprecise date ranges which analysis of the BB1 assemblage can provide, it was considered unwise to attempt to establish a chronological sequence for the first- to fourth-century occupation. In addition, given that the ceramic assemblage suggests that the Romano-British occupation was continual, it was also considered somewhat 'artificial', and possibly misleading, to define discrete chronological spans within the Roman occupation.

The site is of intrinsic importance for Poole Harbour BB1 studies but, at the same time, can only offer a limited amount of data to the ongoing attempts to refine Poole Harbour BB1 date ranges. As a result, it was further considered that the presentation of the features excavated and the BB1 assemblage should be in a format which would allow them to be easily re-assessed (i.e. with regard to dating) in the future.

For the above reasons, therefore, four broad periods of activity have been identified.

Period Earlier prehistoric (Bronze Age) activity

1:

Period Late Iron Age occupation (first century BC to earlier first century AD)

2:

Period Romano-British industrial activity (later first to late fourth century AD)

3:

Period Site abandonment and post-Romano-British activity

4:

### PERIOD 1: EARLIER PREHISTORIC ACTIVITY

Evidence from the excavation for earlier prehistoric activity was confined to worked flint and a small collection of pottery. Most of the flint was recovered from the field surface but limited amounts were also recorded as residual material in later (late Iron Age and Romano-British) features. The pottery comprised a small group (eleven sherds) of highly-abraded middle Bronze Age pottery and a single sherd diagnostically of late Bronze or 'earliest' Iron Age date (Fig. 10). All the stratified early prehistoric sherds were recovered from a Period 2 pit (126) which might suggest a former concentration of Bronze Age activity existed nearby which was removed or severely disturbed by later features.

During the watching brief a group of large, unabraded and freshly-broken sherds from the base of a flint-tempered urn was recovered from a discrete area located centrally within a small ring

WORGRET, DORSET 1986-7

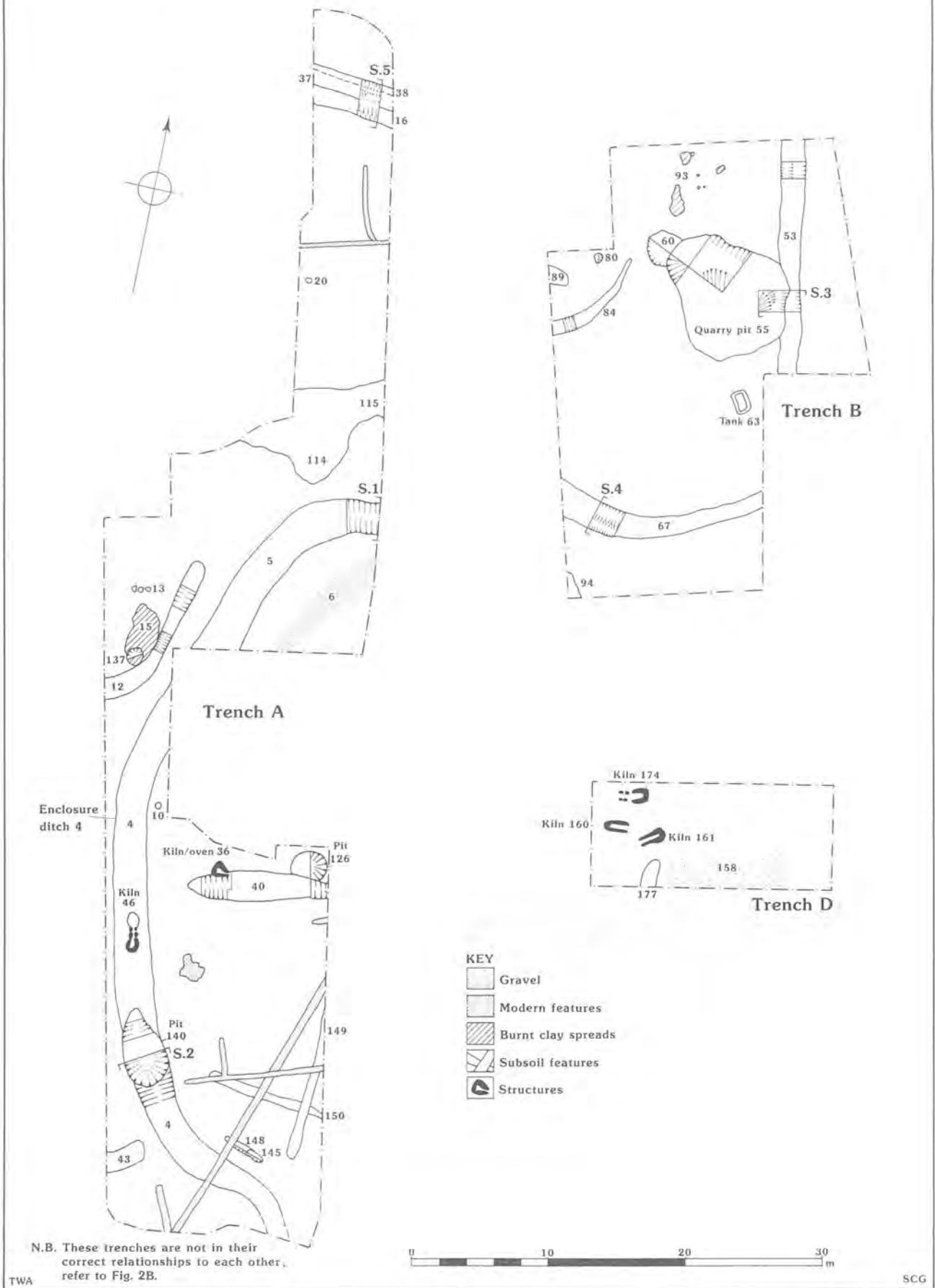


Fig. 3: Plan of excavated features; trenches A, B, D

ditch (Fig. 2B). The ring ditch was 0.90 m wide and with a maximum diameter of 7.50 m. It is tempting to suggest that the urn base and ring ditch are contemporaneous, marking the site of a small, simple Bronze Age burial mound. The small size of such a barrow is not unusual within the context of Deverel-Rimbury funerary mounds on the Dorset/Hampshire heaths. Peterson has demonstrated that Deverel-Rimbury barrows are on average much smaller than those with primary early Bronze Age burials or with secondary Deverel-Rimbury burials (Peterson 1981, 196). Examples in the size range 9-12 m are not uncommon, including the Worgret Heath and Chick's Hill barrows (9.30 and 10.4 m, respectively) which both lie in the immediate locality of the Worgret site, above the Frome valley (Wainwright 1966; Ashbee and Dimbleby 1959).

Overall, apart from the possibility of a middle Bronze Age funerary mound, the level of evidence for earlier prehistoric activity is comparable with previous artefactual evidence recovered across the site (Farrar 1956, 151). The discovery of early Bronze Age worked flint, middle Bronze Age pottery and late Bronze Age/very early Iron Age material suggests activity within the lower Frome valley throughout the Bronze Age. The recovery of comparable collections of worked flint from the same topographic zone only one kilometre to the west of the site (Addison and Maynard 1990, 124) is perhaps an indicator of the intensity with which the valley was exploited during the earlier prehistoric period. The importance of the river valleys draining into Poole Harbour for earlier prehistoric occupation has also been demonstrated by discoveries associated with the lower Corfe River valley (Cox and Hearne 1991).

## PERIOD 2: LATE IRON AGE OCCUPATION (first century BC to earlier first century AD)

The ceramic evidence suggests that late Iron Age activity was focused on, if not confined to, the northern part of the site. This activity was clearly associated with the major late Iron Age enclosure (ditch 4: Fig. 3). Only one feature within the enclosure (pit 126) can be confidently assigned a late Iron Age date, but there remains the possibility that some of the other features located within the enclosure circuit may have been associated with this occupation.

Interestingly, the other two features which can be assigned a pre-Conquest date (ditch 16 and pit 137 with associated deposits) both lie outside the major enclosure, on its north side. Although small

ceramic groups were recovered from both these features, their nature suggests that they are likely to pre-date the major enclosure ditch. It may be proposed, therefore, that the extreme northern zone of the site was the focus for the earliest, Iron Age occupation, which may be dated to the earlier first century BC.

The main enclosure ditch (4) comprised an irregular curvilinear ditch. The presence of this ditch was indicated by the 1985 magnetometer survey, although its southern extent was obscured by an anomaly associated with the remnants of the army camp. The ditch formed a slightly irregular semi-circular enclosure within trench A and ran beyond the south and eastern limits of the excavation. A bulbous terminal was located during the watching brief approximately 10 m beyond the southern limit of trench A. The remaining portion of the enclosure circuit must lie to the east within the area of the Purbeck School and sports field. Ditch 4 was of regular profile, 1.25 m deep and on average 2.60 m wide (Fig. 4, S.2). It was filled with a primary silt of light grey-brown gravelly sand and a series of consistently dark, grey-brown silts. The only evidence for an associated bank was a spread of dense gravel (6), following the alignment of the northern portion of the ditch on its inner side (see Fig. 3). However, if this did represent the traces of a bank, its date is unclear since it exists in an area where the enclosure ditch was substantially recut in the early post-Conquest period (ditch 5; Fig. 4, S.1).

Pit 126 was circular, 2.80 m in diameter, 1.02 m deep with steep sides. It was filled with a sequence of dark brown silty sands containing occasional small burnt clay fragments. The function of the pit is unclear: it is conceivable that it was related to sand extraction since it was cut into an homogenous yellow brown sand, although its regular and sharply-defined profile is not really compatible with a quarry pit.

Ditch 16, to the north of ditch 4, was less substantial. The western continuation of ditch 16 was located by the magnetometer survey although the full extent and plan of any enclosure it is likely to have been associated with is unclear. The ditch was 2.63 m wide and 0.65 m deep, and was infilled with dark brown silty sands (Fig. 5, S.5).

Pit 137 was located immediately outside the main enclosure, on its north west side. This small pit was circular in plan, 1.44 m in diameter, 0.41 m deep and U-profiled. It was filled with black and dark brown ashy sands containing slag and burnt and vitrified clay. The pit was adjacent to and partially sealed by spreads of ash and reddish burnt clay also containing slag. The burnt clay spread (layer 15), clearly indicated on the magnetometer survey, had no structure or form.



Plate 1: General view of excavation (trench A), looking south west across the Frome valley to the Purbeck ridge

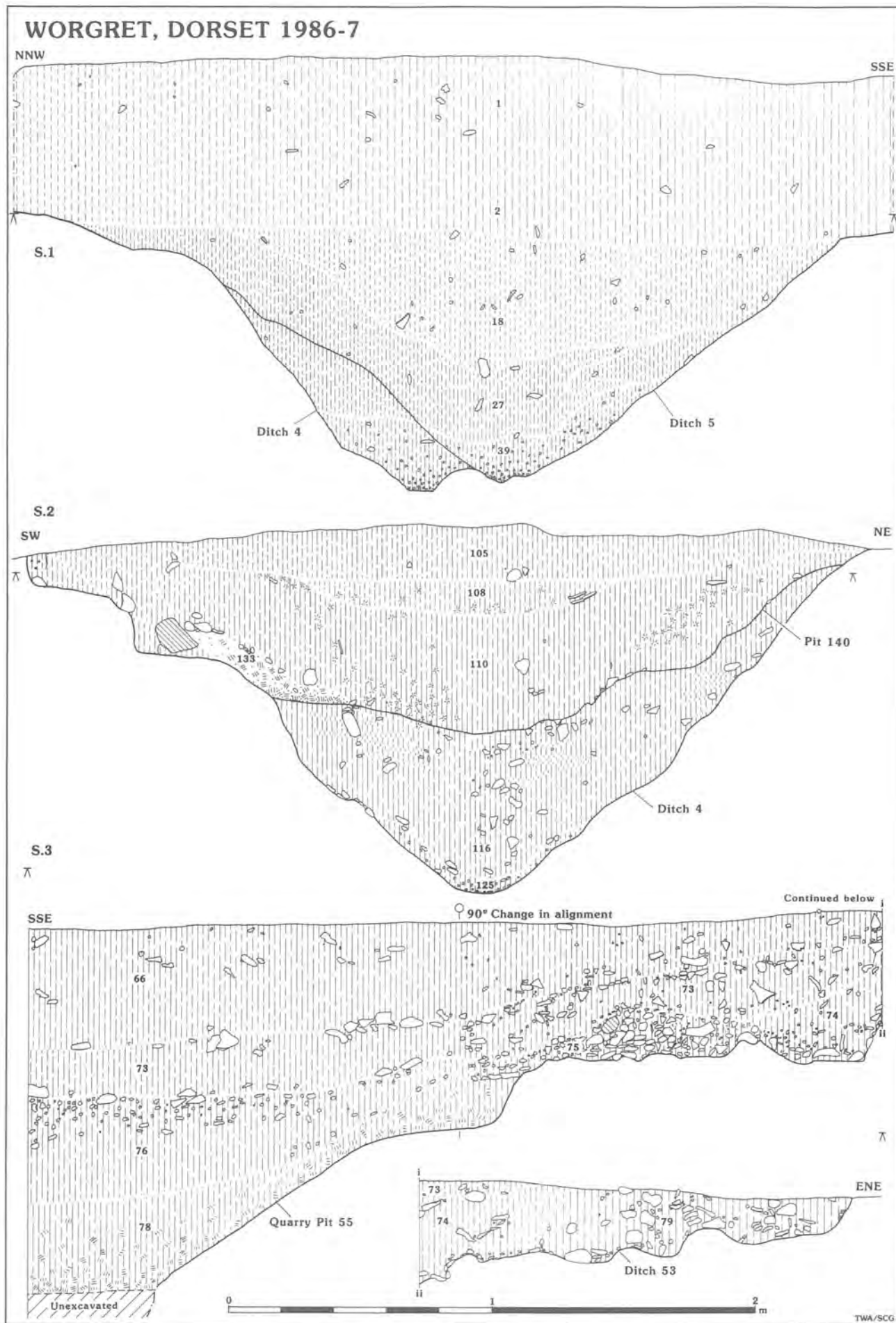


Fig. 4: Ditch/pit sections; S.1-S.3 (see Fig. 7 for key)

However, a number of unburnt limestone blocks were incorporated within its matrix and three irregular limestone blocks set into the Eocene sands immediately to the north may be directly associated (context 13; Fig. 3). Examination of the slags recovered from pit 137 and the associated clay spreads indicate that the area marks the site of a small iron-working hearth (see Clough, below).

Iron working can therefore be identified as an economic component of the late Iron Age settlement but evidence for other industrial activities, notably pottery production, is scarce. The fillings of both the Period 2 ditches (4 and 16) were conspicuously less ashy than those of their later recuts (see below) and neither contained any distorted pottery indicative of manufacture. Pit 126 contained a slightly bloated sherd from a Durotrigian straight-necked jar (Type 1) in its upper filling but this single sherd is hardly adequate as evidence for pre-Conquest pottery production within the excavated areas of the site.

### PERIOD 3: ROMANO-BRITISH OCCUPATION (later first to late fourth century AD)

As discussed above, a chronological sequence of occupation has not been produced for the Romano-British period. Description of the first- to fourth-century AD occupation will focus, therefore, on the industrial and related structures which, on the whole, may be assigned specific date ranges and which appear to characterise Romano-British activity on the site. Further aspects of the kilns, including parallels and technology, are addressed in the overall site discussion.

Ceramic analysis has indicated shifts of activity associated with the Period 3 occupation. During the earlier Romano-British occupation (later first and second centuries AD) activity continued in the area of the late Iron Age settlement and also expanded to the south. The fact that most of the Period 3 subsoil features appear to date to this earlier part of the Romano-British occupation and that several of the late Iron Age enclosure ditches were recut in this period, indicates that the site continued to be defined by a series of enclosures.

The later Romano-British occupation (third century AD onwards) was concentrated further south, continuing the move downslope towards the river. By this period the northern part of the site (correlating with the area of the late Iron Age settlement) had been abandoned. The enclosure ditches of the earlier periods were by now infilled, or at least disrespected, and the site was of open plan.

### Firing structures and kilns

#### *Pit 140: late first century/early second century AD*

The earliest feature interpreted as a firing structure was an oval, scoop-like, pit, 140, which cut into the upper fills of the late Iron Age

enclosure ditch on its western side (Fig. 3; Fig. 4, S.2). The southern edge of the pit was semi-circular and well defined, whereas to the north it was less regular and poorly defined. The pit measured 2.90 m wide, 7.10 m long and 0.60 m deep and was lined on its western side with slightly burnt clay (133) and occasional limestone and sandstone blocks. Thirteen stake-holes, up to 70 mm in diameter and 150 mm deep, were recorded incorporated into the exposed part of the clay lining (Plate 2) and appeared to form three intersecting lines. The full extent of this clay lining was not determined.

The pit was filled with black, ashy sands and occasional thin lenses of reddish-brown ash, containing a large collection of pottery of both Durotrigian and post-Conquest vessel types. A group of distorted and spalled pottery was recovered from the upper filling (108) of the pit.

The lining around the sides or part of the sides of pit 140, is clearly *in situ* and if, as appears, a series of stakes was incorporated into it, some form of structure may have existed within the pit during its use. The lower, ashy fills may also be *in situ* whereas the upper fills may be the result of dumping into the pit after its abandonment.

Irregular scoops filled with ash and pottery recorded on late Iron Age and early post-Conquest pottery production sites have been interpreted as pit clamps (Swan 1984, 54). A similar-sized scoop, with some form of clay lining was excavated on the Wytch Farm project at West of Corfe River: a late Iron Age industrial site where it is strongly suspected that salt working and pottery production were carried out (Cox and Hearne 1991). The pit's position within a partially-infilled enclosure ditch is a factor which may also be considered in its interpretation. Such utilisation of earlier ditches is an attribute of some of the second-century kilns at Worgret. The phenomenon also has parallels at other industrial sites in Purbeck (see site discussion). Overall, the attributes of the pit, including its date, suggest that it served as some form of pit clamp, prior to the development of simple, chambered kilns.

#### *Kiln 46: mid-second/early third century AD (Fig. 6; Plates 3-4)*

Kiln 46 was located within the partially-infilled late Iron Age enclosure ditch, only 8 m north of pit 140. The structure was aligned along the length of the ditch and comprised a clay-walled, sub-circular chamber and a stone and clay flue (overall length 1.85 m). The chamber had an internal diameter of 480 mm with slightly sloping sides which survived to a height of 400 mm. The chamber walls butted against two parallel walls of burnt stone blocks set into a clay matrix. This channel, or flue, measured 950 mm in length and was 330 mm wide internally.

The inner surface and walls of the chamber and the clay incorporated into the walls of the flue had been burnt hard to a yellowish-red colour, whilst the outer part of the chamber walling

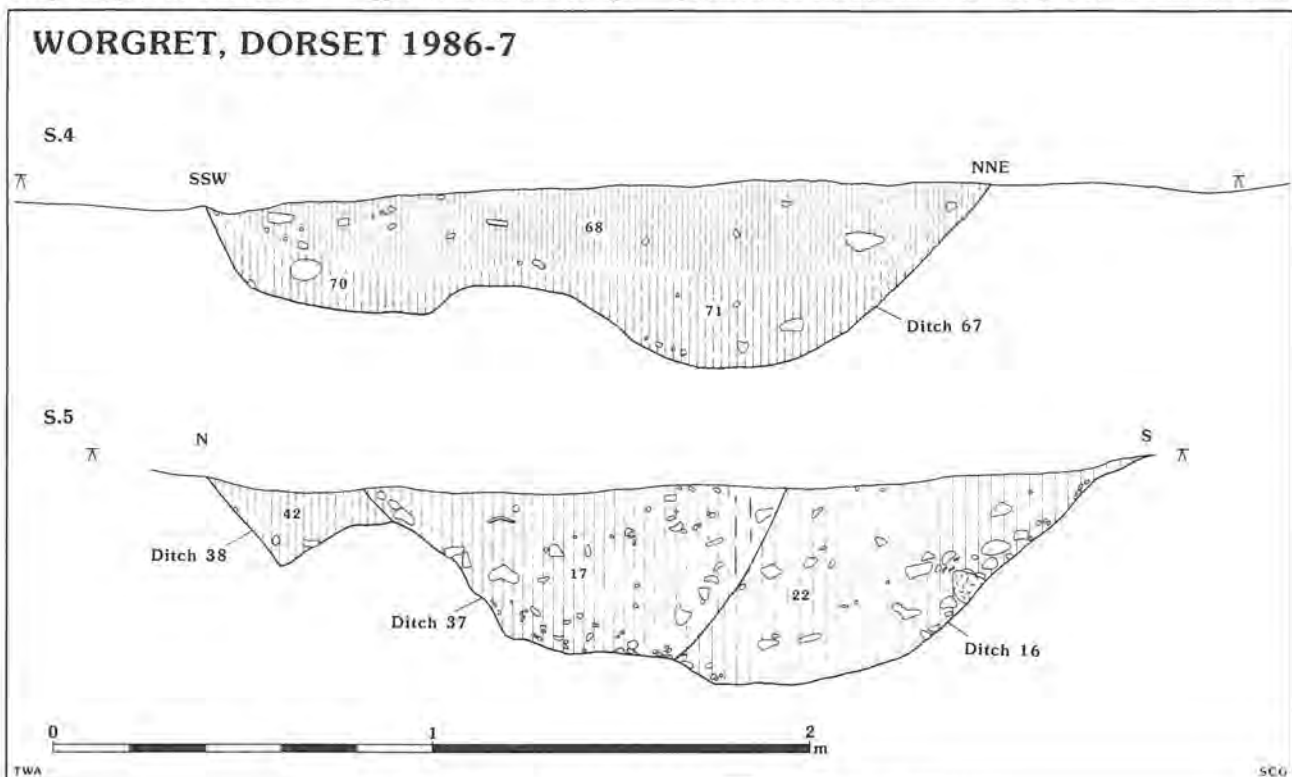


Fig. 5: Ditch sections; S.4-S.5 (see Fig. 7 for key)

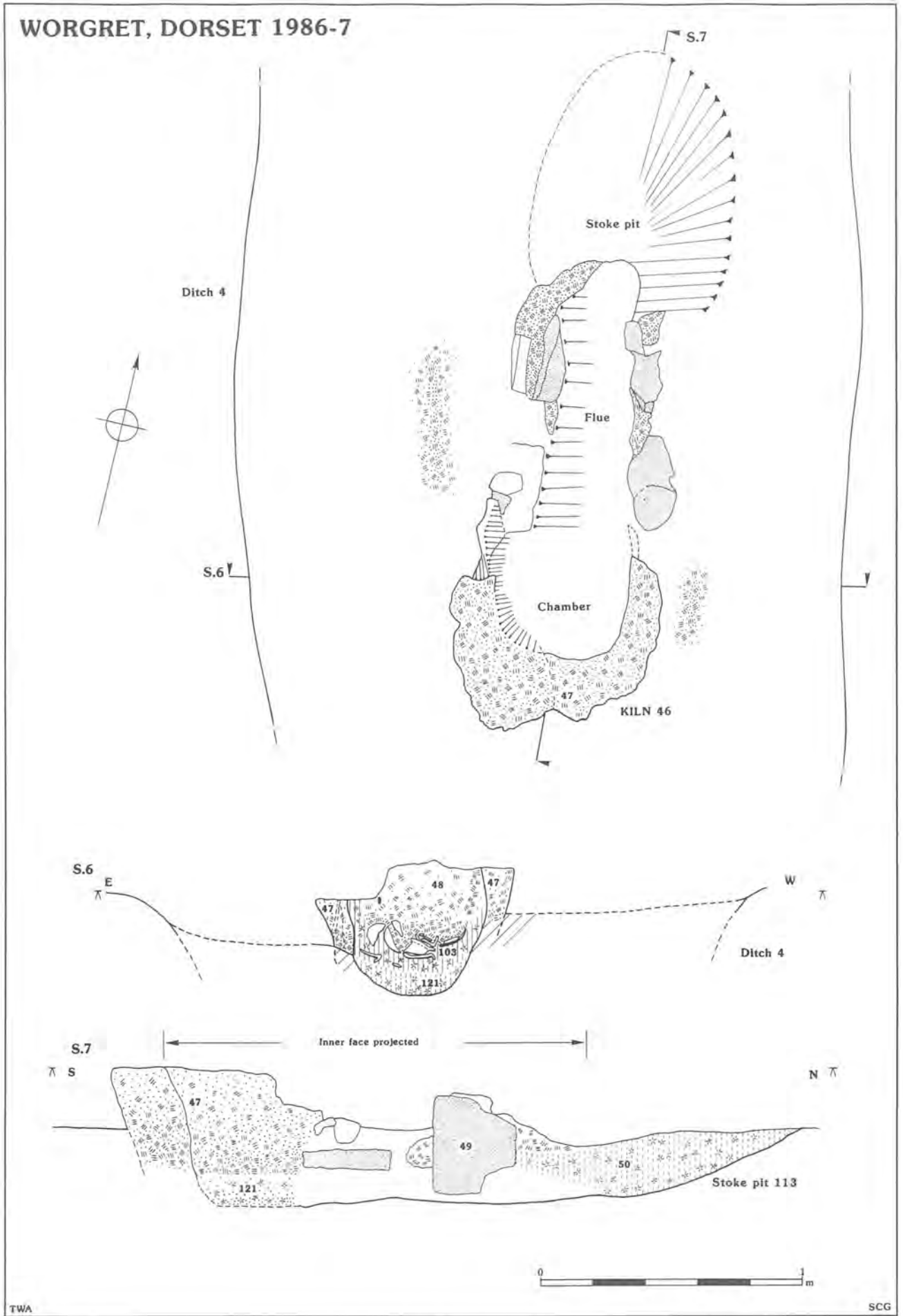


Fig. 6: Kiln 46: plan and sections; S.6-S.7 (see Fig. 7 for key)

comprised unburnt (slightly pliable) clay.

The flue terminated in an oval scoop (113), 200 mm deep, interpreted as a stoke pit. The deposit of black ash and sand which filled the stoke pit continued south into the flue, and a similar deposit (121) formed the lowest fill in the chamber itself (Fig. 6, S.6, S.7).



Plate 2: Clay lining associated with western side of pit 140, showing stakeholes and stones *in situ*; enclosure ditch 4 fully excavated beneath (scale 1 m)

Within the chamber and extreme southern part of the flue, the ash horizon was overlain by a dense deposit of broken, oxidised BB1 sherds. One nearly-complete vessel was recovered from the flue while the arrangement of the sherds within the chamber suggested a small number of complete or near-complete vessels had broken *in situ* (Plate 4). A layer, 250 mm thick, of burnt clay, consistent with that of the chamber walls, sealed the vessels within the chamber and was presumably derived from the collapse of the upper chamber walls. The contents of the kiln chamber have been interpreted as the *in situ* last load of the kiln.

The collapsed upper portion of the chamber means that its upper arrangement is unknown. It cannot, therefore, be determined whether the chamber incorporated a permanent superstructure (although this is considered unlikely, see below). Similarly, the original total height of the chamber can only be estimated. Based on the dimensions of the base of the chamber (and thus its likely overall proportions), it is considered unlikely to have attained a height much more than about one metre.

The base of the kiln was formed by the underlying sandy ditch fills. It did not incorporate an inbuilt floor and there was no evidence for the existence of a raised floor within the chamber. A group of specialised clay stackers was recovered among the vessels in the chamber: their form and function is discussed below.

Archaeomagnetic dating of kiln 46 provides a last firing date within the range cal AD 120-230 (Appendix I: Ref. AJC-8). The abandonment of the kiln with its final load must, therefore, be dated no later than the earlier third century AD. How long the kiln was in use cannot be determined.

*Kiln/oven 36: mid-second/early third century AD* (Fig. 7; Plate 5)

Structure 36 was located within the major late Iron Age enclosure, on the northern edge of a partially-infilled ditch (40). The structure comprised a sub-circular, clay-walled chamber, 1.60 m long, which survived to a maximum height of 0.50 m. The clay walling was of substantial thickness (maximum 300 mm) around most of its perimeter but had an elongated eastern end running into ditch 40. The chamber walls were sloped, giving an internal diameter of 360 mm at its base and 700 mm at its uppermost limit (as surviving). The internal surface of the chamber had been burnt hard to a yellowish-red colour. A 'ring' of similarly-coloured clay within the fabric of the walls suggests that the chamber had been relined. As with kiln 46, there was no evidence for a clay base or raised floor. The bottom of the structure was filled with a thin layer of black ashy sand. The remaining fill comprised solid yellowish-red unstructured clay, no

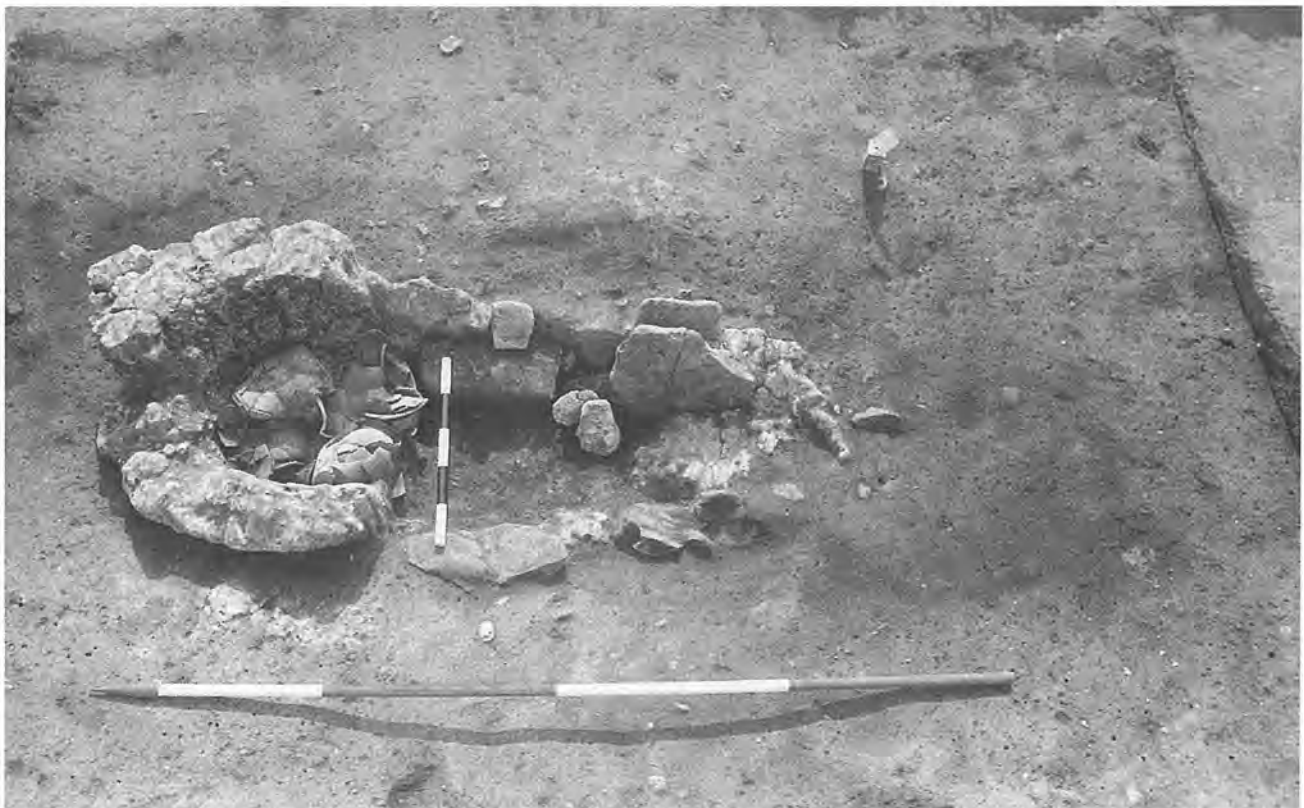


Plate 3: Kiln 46 looking west, unexcavated stoke pit 113 at RHS (larger scale 2 m)

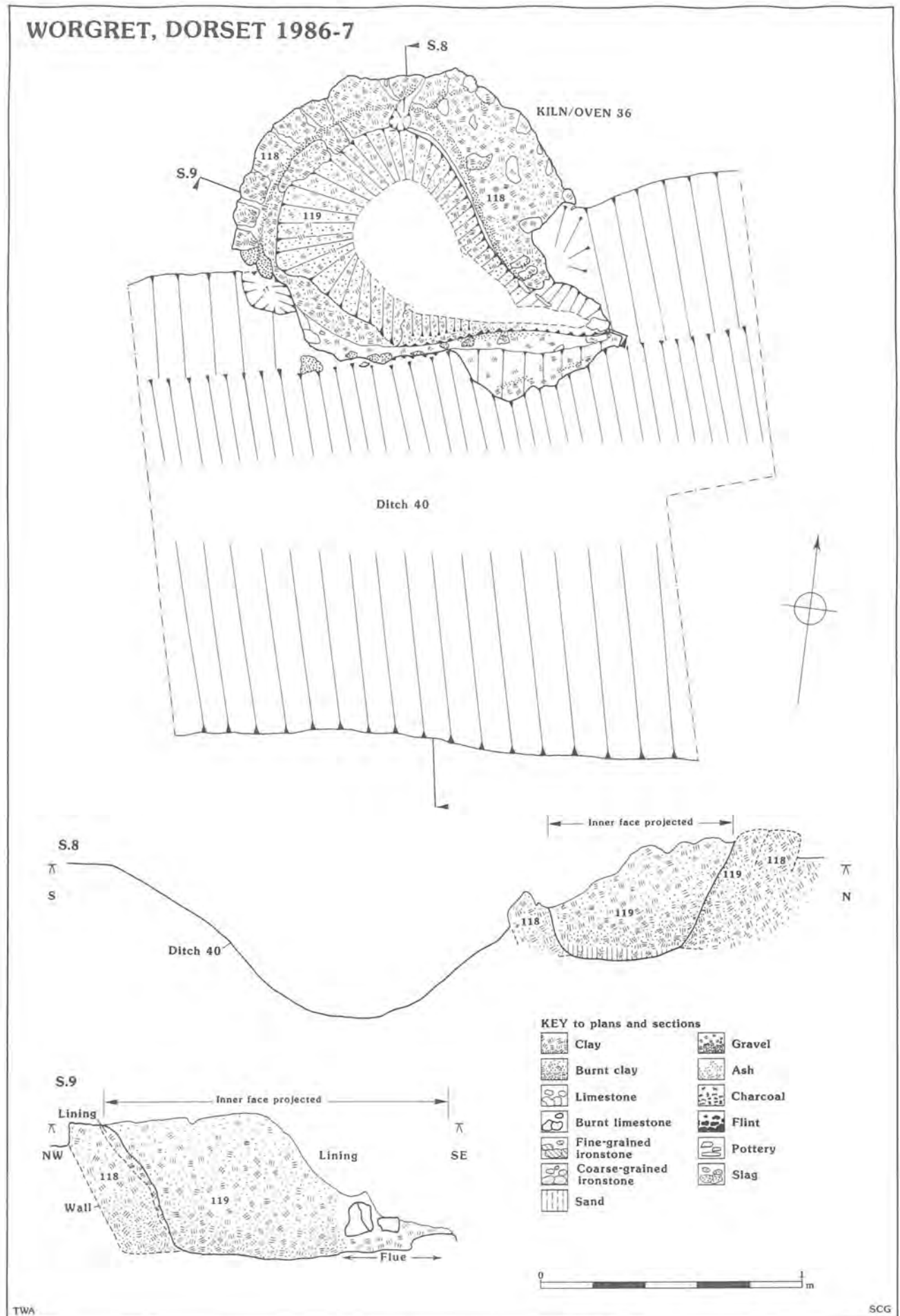


Fig. 7: Kiln/oven 36: plan and sections; S.8-S.9

doubt the collapsed upper chamber walls and/or roof.

The location of the structure and its alignment relative to ditch 40 suggest that the ditch was probably used as the stoke pit and rake out area. It may, however, be noted that the ditch fills excavated were not of an ashy nature. Sherds from a single incomplete cooking-pot were recovered from the chamber: along with the form of the structure and the lack of ash in the chamber or ditch, it might suggest that structure 36 served as some form of oven, possibly for drying vessels prior to firing, rather than for their actual firing.

The instability of the structure resulted in an imprecise archaeomagnetic date (Appendix I: Ref. AJC-7). However, the declination is not incompatible with the date range obtained from kiln 46 and ceramic analysis also suggests that the two structures are broadly contemporaneous.

*Firing structure 174: later second/early third century AD* (Fig. 8A; Plate 7)

Structure 174 was, stratigraphically, the earliest of three kilns recorded within trench D. It was sealed by the ash horizon (see below) and located within the extreme northern limit of the trench (Plate 6). The structure comprised a spread of yellowish-red burnt clay covering an area of 1.75 m by 0.80 m, aligned roughly east-west. At its western end, the clay spread was solid but irregular with no apparent structure. The eastern extent of the clay was formed by an elongated ridge, 60 mm high and semi-circular in plan. A continuation of the sub-circular area was provided by several burnt stone blocks, set into the clay and forming two parallel (if short) lines of stones, 300 mm apart. The overall appearance is of the vestiges of some form of chamber/chamber base. An extremely poorly-preserved structure similar to kiln 46 could be represented, but the association of the clay spread to the west and the extremely limited extent of the stone channel or 'flue' suggests that it is more probable that a different type of structure is represented.

Archaeomagnetic dating of the firm clay spread to the west of the stones provided a date within the range cal AD 160-210 (Appendix I: Ref. AJC-10). The structure may, therefore, be considered broadly contemporary with kiln 46 and kiln/oven 36.

*Ash deposit (trench D): second/third centuries AD*

A deposit of black, very ashy, sandy loam extended across the whole of trench D (Plate 6). It was a maximum of 380 mm deep. The horizon sealed structure 174 and the gravel surface 158 (see below). The deposit was undoubtedly derived from industrial activity in the

vicinity. It may comprise rake-out from structure 174 and the group of kilns identified to the north of trench D during road construction. The ash horizon was cut by the late third/fourth century kilns 160 and 161.

The BB1 from the ash deposit and the stratigraphy recorded in trench D, indicate that the ash was, overall, derived from the earlier Romano-British occupation of the site (second/earlier third centuries AD). However, given the existence of later kilns in the same area and the presence of diagnostically late Roman cultural material within the deposit (i.e. Oxfordshire and New Forest Wares and a Valentinian coin), the upper levels of the ash are likely to have derived from later Roman activity.

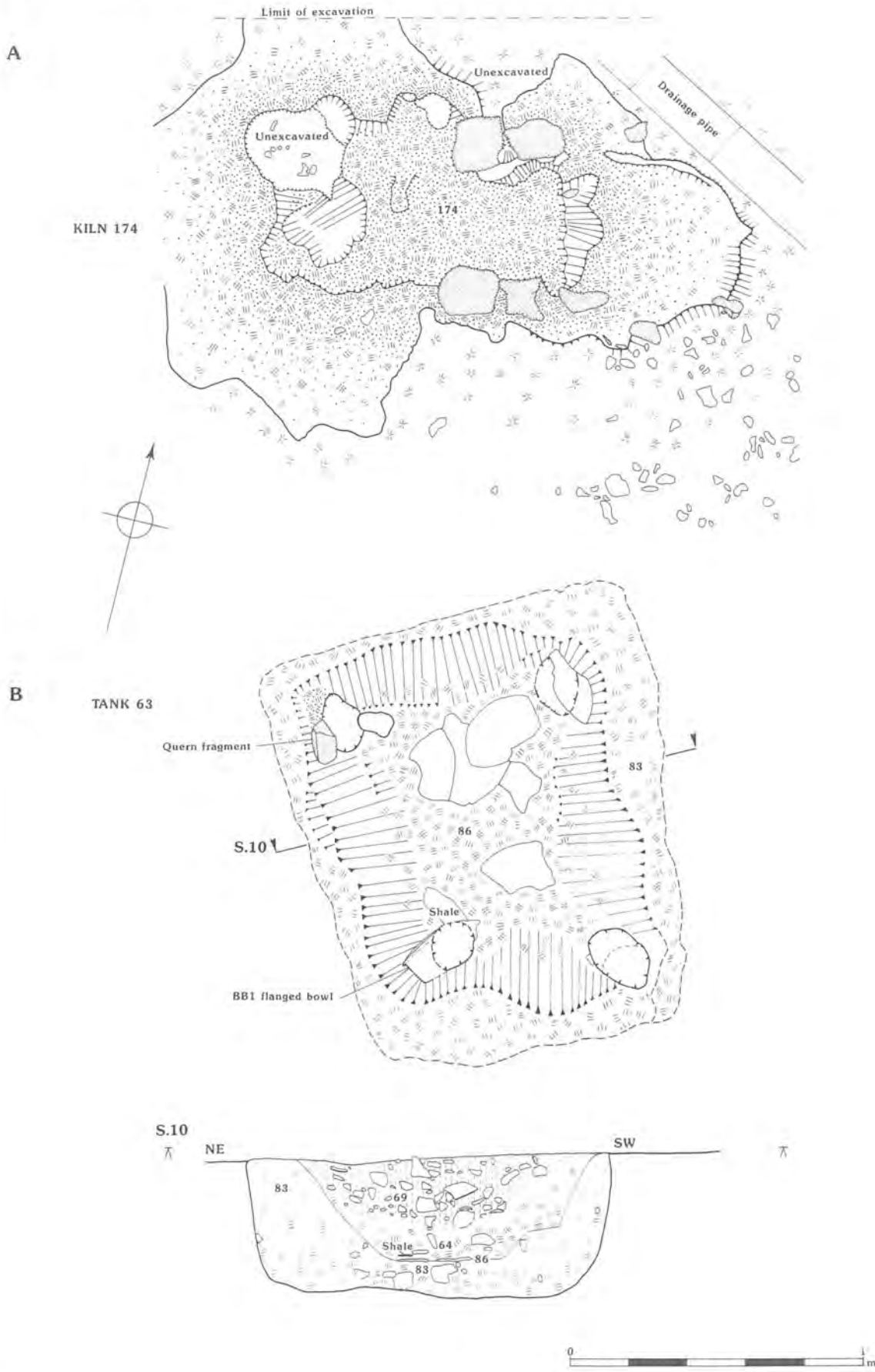


Plate 4: Kiln 46; detail of kiln chamber with in situ load (scale 1 m)



Plate 5: Kiln/oven 36 looking north, showing position on northern edge of ditch 40 (larger scale 1 m)

# WORGRET, DORSET 1986-7



TWA

SCG

Fig. 8A: Kiln 174: plan Fig. 8B: Tank 63: plan and section; S.10



Plate 6: Western end of trench D, looking south showing kilns 161 (left), kiln 160 (right), firing structure 176 (foreground) and ash horizon across trench (scale 2 m)



Plate 7: Firing structure 174 looking east (scale 500 mm)

*Kiln 160: late third century AD+* (Fig. 9B; Plate 8)

Kiln 160, like kiln 161 (see below) was cut into the ash horizon in trench D. It was aligned east-west and was 2.15 m long and 0.90 m wide. The structure comprised a roughly sub-rectangular area defined by vertical clay walls. At its western end, the walls were of consistent thickness (100-150 mm) with a well-defined rounded end, surviving to a maximum height of 340 mm. Further east the clay walls were less regular and incorporated some small stone blocks, forming two parallel sides. The eastern end of the structure was defined by an elongated and thickened southern wall. The asymmetrical nature of the kiln appears to be an original attribute and not due to differential survival of the walls since the well-defined stoke pit associated with this kiln was slightly offset (i.e. to the north) to the longitudinal axis of the kiln.

There was no clay flooring within the chamber nor evidence for any raised floor. Discrete areas of firing chamber and flue cannot be identified. Although the irregular eastern end might be considered to lie outside the extent of the firing chamber, the overall form of the structure gives the impression of an elongated chamber.

The base of the chamber was filled with ash but above this lay a mixed deposit of ashy sands and clay (Fig. 9, S.12). A large portion of the filling of the western end of the chamber comprised a dense deposit of completely oxidised and over-fired BB1 sherds, with kiln stackers, within a matrix of mixed clay and soil. The nature of this deposit and an examination of its contents leaves little doubt that the pottery represents waster material dumped into the kiln after its abandonment rather than an *in situ*, failed, load. Ceramically, the waster dump is dated late third/fourth century AD.

Archaeomagnetic dating of the clay walls has provided two alternative date ranges for the last firing of the kiln: mid second to early third century AD and late third to early fifth century AD (Appendix I: Ref. AJC-9). The stratigraphic position of the kiln suggests that the later of the two archaeomagnetic date ranges is applicable to the kiln.

*Kiln 161: late third century AD+* (Fig. 9A; Plates 9 and 10)

Kiln 161 lay 2 m to the east of kiln 160. It was aligned north-east to south-west with its stoke pit adjacent to that of kiln 160. Like kiln 160, it was cut into the ash horizon in trench D. It displayed clear differences to kiln 160 in its construction and, overall, was of more



Plate 8: Kiln 160, looking north west; chamber contents half excavated showing pottery waster dump (scale 500 mm)

complex design. The structure was 2.4 m long and 1.45 m wide. The chamber survived to a height of 330 mm and was set above a footing of large stone blocks and clay (Plate 10). These footings or foundation stones continued across the base of the chamber, providing a solid stone floor to the structure. Neither stone footings nor flooring was recorded in association with any of the other kilns on the site. The substantial thickness of the chamber walls (400 mm) appears to have been the result of successive relinings, which were characterised (in plan) by a series of intermittent clay lenses of different colour to the main body of the chamber wall (as recorded in kiln/oven 36). The latest phase of relining provided a chamber of internal dimension 1.15 m by 0.75 m.

There was no clearly defined, elongated flue associated with the kiln. Short lengths of straightened clay walling, incorporating a few stone blocks, existed at the western end of the chamber but whether they constitute a 'flue' is debatable. A stoke pit lay immediately to the west and comprised a large, but poorly-defined scoop filled with black ash.

The chamber was filled with mixed deposits of ash, clay and soil (Fig. 9, S.11). The pottery recovered was similar to that from kiln 160 in terms of the vessel forms and its over-fired condition but was a considerably smaller ceramic group with no convincing evidence for a discrete waster dump like that in kiln 160. Kiln 161 was not subjected to archaeomagnetic dating, but on stratigraphic and ceramics grounds there is little doubt that it was in use at broadly the same time as, or perhaps slightly later than, kiln 160.

#### *Kilns observed during road construction*

During the initial stages of road construction 7 other structures or deposits were recorded which were interpreted as kilns or probable kilns (located on Fig. 2B). Two were located in the northern part of the site, immediately south of trench A. One of these (528) comprised a spread of burnt clay and sandstone blocks cut into the upper fills of ditch 4, near its southern terminal. This structure was not examined further but its nature and location suggests it may have been of similar construction/date to kiln 46.

Further south, a cluster of structures was recorded immediately north of trench D. Three of these had clearly-defined fired clay walls, similar in nature and size to kiln 160. The fourth structure in this group was poorly preserved.

Further south, away from the other kilns, a well-preserved clay and



Plate 9: Kiln 161, looking north-east; unexcavated stoke pit in foreground (scale 500 mm)

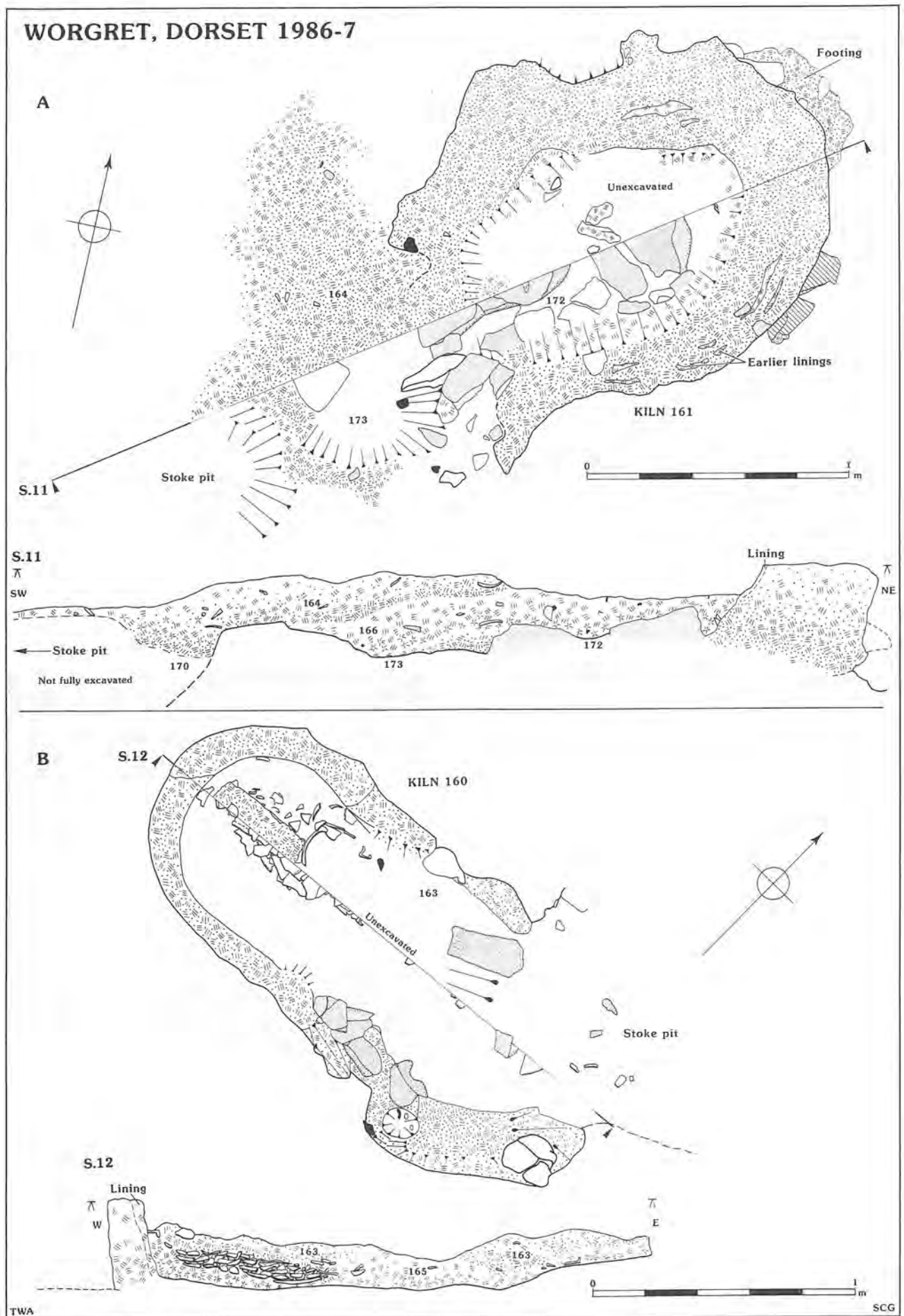


Fig. 9A: Kiln 161: plan and section; S.11 Fig. 9B: Kiln 160: plan and section; S.12

stone kiln (503) was located (Plate 11). The chamber was unlike those recorded during the excavation, comprising an outer stone wall and inner clay lining. This kiln appeared of more 'conventional' construction since it incorporated a short but well-defined stone flue. The flue contained large boulders including a reused, architectural, socketed, padstone set vertically (visible in Plate 11). The kiln was associated with a large sub-circular stoke pit, about 4 m in diameter and filled with a dense ashy deposit. The pottery recovered within the chamber is of fourth-century AD date and it is considered likely that the kiln itself is one of the latest Romano-British features excavated on the site.

### Other industrial / pottery production features

In addition to evidence for structures and deposits which have been interpreted as directly related to the firing of pottery, several other structures and deposits were recorded which relate to other stages of pottery production; namely extraction of raw clay and its preparation for potting and kiln building. The features are ordered chronologically.

#### *Tank 63: second century AD (Fig. 8B; Plate 12)*

Feature 63 was located 4 m south of the quarry pit and lay within the area bounded by enclosure ditches 67 and 53 (see below). It comprised a subrectangular pit with vertical sides, 1.65 m long, 1.25 m wide and 0.44 m deep. The pit was lined with a thick layer of yellow/grey hardened (unburnt) clay (Fig. 8, S.10) to form a tank with regular sloping sides and a flat base. Thin slabs of limestone lay on the basal clay lining. A small posthole was cut into the lining in each corner: a fragment of quern stone (SF 28), limestone blocks and a BB1 flat-rimmed bowl (Fig. 13, 43) had been utilised for post-packing. The lower fill of the tank consisted of a 'dirty' yellow clay similar to the lining but containing flint inclusions. The upper fill consisted of a grey brown sandy silt with frequent stone inclusions.

The function of the clay-lined pit is unclear but it is reasonable to suggest that it was used for some aspect of clay preparation associated with pottery production. The lining suggests it was used as some form of tank or trough (e.g. a slaking or settling pit) but the limestone blocks would have provided a firm base, if used for mixing or pummelling clay. The four posts may have supported an awning or cover to prevent drying out or contamination. The pit may also have served simply for storing or weathering clay, although its small size and elaborate lining perhaps make this less likely than the other options.

Locally, the closest parallel for the feature is the clay-lined 'vat' discovered at Stoborough (north of Nutcrack lane). The Stoborough

vat was interpreted as a potter's 'clay puddling hole' (Farrar 1953, 95-96).

The flat-rimmed bowl used as post-packing suggests the tank was in use during the second century AD. Ceramic analysis suggests the tank was abandoned by the third century. The high proportion of distorted material in the infilling indicates that the tank was used as a rubbish dump from nearby firing, after its abandonment. In relation to other structures on the site, the tank is broadly contemporary with kiln 46, kiln/oven 36 and structure 174.

#### *Clay quarry pit 55*

A clay quarry was located in trench B (Fig. 3). It comprised a large pit with a subcircular mouth, 9.0 m x 5.6 m in plan. In profile it combined a series of steps and sloping sides cut through upper Eocene sands and gravels and lower clays. In the deeper south-eastern part of the pit (Fig. 4, S.3), it was only possible (because of waterlogging) to excavate the pit to a depth of 1.25 m, at which level a high quality white/creamy ball clay was reached.

The date of the use of the quarry is uncertain. It is conceivable that the pit was worked over a prolonged period. The pit's proximity to tank 63 suggests it may have been in use from the second century AD onwards.

The base of the pit was filled with clayey gravels. The upper fills comprised a series of dark brown, silty sands, representing a period of more protracted filling. These indications and the distinctive nature of the pottery from the pit (small, highly-abraded sherds) suggested that the final infilling of the quarry pit occurred some time after the abandonment of the Romano-British site at a time when the area had been turned over to agriculture (Period 4).

#### *Scoop 80 (undated)*

An undated feature was located in trench B, west of the quarry pit. The feature consisted of a shallow oval scoop, 700 mm in diameter, lined around its upper edge by a band of unburnt grey clay, 40 mm thick. The scoop was filled with an unstructured deposit of raw clay. Beyond interpreting the pit as associated with clay preparation, the exact function cannot be determined.

#### *Clayspreads 93 (undated)*

Spreads of unstructured, reddish clay were recorded immediately north of the quarry pit. They may represent all that survive of the floor of bonfire clamps or the remnants of clay spread out for weathering.



Plate 10: Kiln 161, detail of chamber construction showing stone footings beneath the northern end of the chamber (scale 500 mm)



Plate 11: Kiln 503 (watching brief), showing reused stone padstone incorporated into structure (height of padstone c. 500 mm)



Plate 12: Tank 63, looking south (larger scale 2 m)

#### *Yard surface 158 (undated)*

A flint gravel spread (158), sealed by the ash horizon, extended across the southern part of trench D (Fig. 3). Its continuation to the north and south was not determined. It is likely that the gravel spread represents the remnants of a metallised surface, possibly a small working or preparation area, associated with the kilns in trench D.

#### **Subsoil ditches and other features**

The remaining features associated with the Period 3 occupation

comprised enclosure ditches, other ditches and gullies, pits, postholes and irregular features. Where possible, stratigraphic and/or ceramic evidence has been used to suggest whether these features were contemporary with the earlier Romano-British occupation (late first and second centuries AD: contemporary with kiln 46 and kiln/oven 36) or the later Roman occupation (later third/fourth centuries AD: contemporary with kilns 160 and 161). However, such data must be viewed cautiously and there remains the possibility that some of the features, particularly those which lie within the circuit of the major late Iron Age enclosure (trench A), may have been of late Iron Age (Period 2) date.

Summary details of the subsoil ditches and other features are included on Table 1. Table 1 does not include two postholes (trench A: features 10 and 20) and a group of irregular soilmarks which were not excavated (trench A: features 43, 114, 115; trench B: features 60, 89, 94). Full details of all these features are held in the site archive.

Two of the ditches in the northern part of the site (ditches 5 and 37) demonstrate that some recutting of late Iron Age enclosure ditches was undertaken during the earlier Romano-British occupation. The recut of the major late Iron Age enclosure (ditch 5) only affected a portion of the ditch and may, like the other intrusions into the silted Period 2 ditch (pit 140 and kiln 46), have been associated with a pottery-firing structure beyond the eastern limit of trench A.

Many of the Period 3 ditches were characterised by their ashy fills and nearly all contained distorted material in varying amounts. Ditch 67, in trench B (Fig. 5, S.4) contained the highest number of distorted sherds (minimum 13) within these features.

#### **PERIOD 4: SITE ABANDONMENT AND POST ROMANO-BRITISH ACTIVITY**

There is little evidence which can be cited to support continued occupation after the fourth century AD. The depth of soil overburden, especially at the north of the site (c. 800 mm), had protected the upper levels from disturbance and suggests that little stratification had been lost during later Medieval ploughing. The large quantity of unabraded sherds from the lower soil overburden in trench A, suggests the existence of waster dumps, associated with the later periods of activity, that had only been partially disturbed.

The enhanced depth of humic soil overburden across the site correlates with the data from the Wytch Farm project in the Isle of

Date	Trench	Feature	Fig.	S.No	width	length	depth	Comments/observations
Early Romano-British (later 1st-2nd century AD)	A	Ditch 37	Fig. 5	S.5	0.65 m	-	0.40 m	Outside main enclosure. Recut of Period 2 enclosure ditch 16. Ashy fill.
	A	Ditch 12	-		1.10 m	-	0.44 m	Outside main enclosure. Adjacent to Period 2 iron-working hearth. Ashy fill.
	A	Ditch 5	Fig. 4	S.1	2.40 m	-	0.90 m	Recut of Period 2 main enclosure ditch 4, on its northern side. Contemporary with pit clamp 140. Possibly contemporary with inner bank 6.
	A	Ditch 40	Fig. 7	S.8	1.70 m	-	0.45 m	Within main enclosure, probably contemporary with use of pit clamp 140. Utilised by kiln/oven 36. Non-ashy fill.
	A	Gully 149	-		1.05 m	-	(unex)	} within main enclosure, ? internal divisions
	A	Gully 150	-		0.75 m	-	(unex)	
	A	Pit 148	-		0.90 m	3.40 m	0.42 m	Sub-rectangular pit with vertical sides.
	A	Pit 145	-		1.00 m	1.40 m	0.41 m	Cuts / recut of pit 148. Contained a worn (pierced) limestone mortar (Fig. 21, 2) laid in its base. ? Recessed grinding pit.
Later Romano-British (3rd century AD)	B	Ditch 67	Fig. 5	S.4	2.20 m	-	0.48 m	Ashy fill, containing distorted pottery.
	B	Ditch 53	-		1.55 m	-	0.40 m	Distorted pottery within fill
	D	Pit 177	-		1.50 m	3.55 m	>0.30 m	Stratigraphically contemporary with kilns 160 and 161. Ashy fill containing large comparatively large group of pottery, including BB1 imitation samian bowl (Fig. 14, 65). Small proportion of pottery within pit was distorted.

Table 1: The Period 3 subsoil ditches and features

Purbeck (Cox and Hearne 1991). Here, above-average humic soil accumulations (up to 1300 mm) were consistently recorded in areas of former settlement and industrial activity. The mechanisms responsible for such accumulations, how they relate to the decay of the abandoned settlement and/or subsequent activity across the area and parallels for the phenomenon within other areas of podzolic soils have been addressed and reviewed elsewhere (Staines and Allen 1991). At Worgret, topographic factors and the presence of two lynchets across the site (see below) are also likely to have contributed to the variable soil depth recorded.

A blue glass bead of probable sixth-century date from the topsoil in trench B (Fig. 19, 5) is the only post-Roman find identified from the site. The name *Worgret* has Saxon origins (from *wearg-rod* meaning 'gallows') and it has been suggested that the low ridge west of Wareham, on which the site stands, was the only likely area for cultivation associated with the Saxon burgh (Keen, pers. comm.).

Evidence for Medieval occupation from the excavation is confined to a small collection of thirteenth- and fourteenth-century pottery from the topsoil. Documentary evidence suggests the existence of a thriving settlement at the hamlet of Worgret during the Middle Ages and the area of the excavations correlates with *Eastfield*, one of the three major arable units of the hamlet (Ladle 1987). Medieval ploughing has resulted in the formation of two substantial lynchets across the site. Both run east-west subdividing the field into three terraces. The northern lynchet has contributed to the substantial soil accumulation to the south of trench A and separates the fairly level northern part of the site from the gentle slope down to the south, towards the River Frome. The depth of topsoil between the two lynchets is less substantial (c. 300 mm) and, as a result, the archaeological deposits in trenches B and D are likely to have been more vulnerable to disturbance. It must be assumed that Medieval cultivation has removed all traces of extant earthworks that may have been associated with the Romano-British industrial site.

Clay pipe stems and post-Medieval pottery from the topsoil indicate the continued use of the area for agriculture, as it is today to the west of the by-pass corridor. The only interruption to agricultural use seems to have been the construction of a First World War army camp in 1915. This temporary camp was built to house the 50th Brigade of the 17th Infantry Division, posted to Dorset from the north of England (Lanning 1988, 18). The camp was demolished in 1928, only surviving across the excavation areas as a series of narrow, clinker-filled trenches and ceramic drains in the southern part of trench A. To the east of the excavations, construction of the Purbeck School and landscaping for its sports field in 1974 are likely to have disturbed a substantial proportion of the site as visible on the 1969 air photographs.

## THE FINDS

Unstratified finds not described in individual finds reports comprise the following: 48 sherds of Medieval/post-Medieval pottery (589 g); 2 fragments of Medieval glazed roof tile; 19 fragments of

Medieval/post-Medieval tile and brick; 20 clay pipe stem fragments, and three small lead objects. Details of these finds categories, along with full details of all other finds categories, are held in the site archive.

## EARLIER PREHISTORIC POTTERY

Rosamund M. J. Cleal

A total of 30 sherds of earlier prehistoric pottery were recovered: 11 from the excavation (of which five were from stratified contexts) and 19 from the watching brief.

Five body sherds of prehistoric pottery were recovered from Pit 126 (trench A). One sherd (5 g) is grog-tempered, from a moderately thin-walled vessel, while the other four (50 g) are flint-tempered and from two or more thick-walled vessels.

Of the 6 sherds (93 g) recovered during the excavation from the soil overburden, one (context 1) shows a sharply-defined shoulder angle and is decorated with single, non-plastic, fingernail impressions (Fig. 10). The fabric of this sherd is hard, and contains moderate to common (15%-20% by surface area) well-sorted flint temper (<2 mm in length) and moderate sand (0.5 mm diameter). The form of this vessel indicates that it is unlikely to be earlier in date than the late Bronze Age and could be as late as the early Iron Age. Similar thick-walled vessels with sharp shoulders occur in the Eldon's Seat I assemblage, without fingernail decoration (Cunliffe and Phillipson 1969, fig. 10; 2 and 6), and in the Kimmeridge II assemblage with fingernail decoration (*ibid.*, fig. 23; 7-9). In the sequence proposed by Cunliffe and Brown (1987, 303-305), Kimmeridge II immediately follows Eldon's Seat I and precedes Eldon's Seat II. As the Kimmeridge II parallels for Fig. 10 are closer than the Eldon's Seat parallels, it is possible that this sherd represents activity at the site within the date bracket 800-400 BC in what Cunliffe and Brown term the 'earliest Iron Age' (*ibid.*, 305).

The remaining earlier prehistoric pottery (19 sherds, 612 g) was recovered during the watching brief from a discrete area located centrally within a ring ditch (located on Fig. 2B). This collection (context 547) comprises conjoining, flint-tempered sherds (14 mm thick) from the base of an urn, whose diameter is 220 mm. The fresh, unabraded condition of the material is notable when compared with the very badly-worn material recovered from the excavation.



Fig. 10: Earlier prehistoric pottery, at half life size

With the exception of the carinated sherd discussed above, all of this prehistoric pottery is likely to be middle Bronze Age in date.

### LATE IRON AGE AND ROMAN POTTERY

#### Samian

A small quantity of samian was found in stratified contexts (Table 2). The material is likely to be evenly distributed in date from the Flavian to later Antonine periods, as many of the Southern Gaulish sherds, particularly those from context 162 could be from only one or two vessels. There is no earlier Southern Gaulish ware and none of the material need be as early as the Terra Nigra. The late stamp of Albinus, unless it is the work of a homonym, is noteworthy.

#### *The potter's stamp (B. Dickinson)*

Context 144. Dr. 31, stamped [U•L•BI•N•I•] M• in a frame with slight swallow-tail ends: Albinus ii of Lezoux, Die 6b. All the letters have pronounced serifs and there is a faint diagonal stroke after the final stop, perhaps coming from a scratch on the die.

The distribution of this stamp is confined largely to Britain and it is usually on form 33. Apart from an example at Castlecary (Hartley 1972, 18) there is no site dating. Other stamps of a Central Gaulish Albinus are often on Hadrianic and early-Antonine forms, such as 18/31, 18/31R and 27, and if this stamp belongs to the same potter it must come from one of his late dies, as the form of this dish, with its extremely high basal kick, suggests that it can scarcely be earlier than AD 150/160.

#### *The decorated samian (J. Bird)*

Fragments of three decorated vessels were found, only one of which (no. 1, below) was in a stratified context.

1. (Not illustrated). Context 162 (ash horizon). Dr. 37, CG; two joining sherds. The figure of Hercules is Oswald (1936; 1937) type 783; the leaf Rogers (1974) type H185, used by Priscus and on bowls in the style of Pugnus. Antonine.

2. (Fig. 11). Context 2 (soil overburden). Dr. 37, CG. No specific potter can be suggested for this small bowl, as the various motifs were shared by a number of potters. The main links are with Butrio, and with the potters Laxtucissa and Paternus II. The border is Rogers (1974), A23, the ovolo B114, the nine-pointed rosette C194, and the frond J170; the small acanthus is probably K35, and the tree is very close to N9. A date in the range c. AD 135-75 is likely.

3. (Not illustrated.) Context 1 (soil overburden). Dr. 37, CG. Fragment of ovolo; the fabric and the rosette tongue suggest a date c. AD 125-50.

#### *Unstratified undecorated samian*

Fourteen sherds (260 g) of plain forms were recovered from unstratified contexts. The material includes the base of a Central Gaulish Dr. 37 which has been trimmed for secondary use. Apart from including a Central Gaulish mortarium, the composition of this group largely mirrors that of the stratified material with a number of sherds likely to be from the same vessels.

#### Gallo-Belgic Wares (A. P. Fitzpatrick)

Two small sherds (13 g) of Terra Nigra were recovered from the soil overburden (Period 4). One (context 34) was probably from a Cam. 16 platter. The other sherd, which is from a different vessel (context 52), was probably also an open form. Given the lack of other early imports at the site, both these vessels are likely to date to the first century AD (pre-Flavian).

#### Corfe Mullen Ware (A. P. Fitzpatrick)

Two sherds (6 g) of buff or grey/buff fineware vessels, likely to be Corfe Mullen products were recovered from stratified contexts. One sherd, which contained iron oxide grains, was from the basal fill of pit 126 in trench A (context 129, Period 2). The other was from the ash layer in trench D (context 167).

#### New Forest Wares (R. Seager Smith)

Thirty-two sherds (212 g) of New Forest wares were recovered from three different features. Ditch 12 in trench A, (context 31, Period 2) contained one undiagnostic body sherd from a red-slipped ware bowl (Fulford 1975, 324, fabric 1b). Ditch 53 in trench B (context 79, Period 3) contained one sherd from a possible bag-bodied beaker (*ibid.*, 56-7, Type 44; fabric 1a), dated c. AD 300-350 and one undiagnostic sherd from a red-slipped ware bowl (*ibid.*, fabric 1b).

Pit 55 in trench B (Period 3) contained 29 sherds of New Forest ware. Twenty-one body sherds of undiagnostic grey ware, and two body sherds and a rim from an indented beaker (Fulford 1975, 50-1, Type 27; dated c. AD 270-350) were recovered from context 62. One sherd from a flanged bowl (possibly of Fulford 1975, 64, Type 63; dated c. AD 270-400) and one fabric 1a body sherd were recovered from context 66. Three body sherds of undiagnostic grey ware were recovered from context 77.

Eighteen sherds (100 g) of unstratified New Forest wares were also recovered.

#### Oxfordshire Wares (R. Seager Smith)

Eleven sherds (145 g) of Oxfordshire red colour-coated ware were recovered from trench D. All sherds are very abraded and in most cases only faint traces of the colour coat remain. Ditch 40 in trench A (context 45, Period 3) contained one rim from an imitation Drag. 38 bowl, dated c. AD 240-400+ (Young 1977, 160, fig. 59). The ash deposits in trench D (context 162) contained a low pedestal/footring base sherd probably from a carinated bowl or platter.

Pit 55 (trench B) contained the following: 5 plain body sherds; one rim sherd from a bead rimmed bowl (context 56); one decorated body sherd with two concentric incised grooves on the internal surface, probably from the base of a bowl or platter (context 62); one decorated, wedge-shaped base sherd (context 62) and one rim sherd from a possible Type C49 bowl, dated c. AD 240-400+ (Young 1977, 159, fig. 58) (context 62).

Fifteen sherds (164 g) of unstratified, Oxfordshire red colour-coated ware were also recovered.

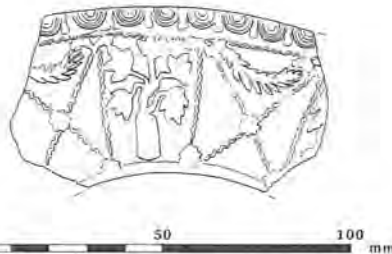


Fig. 11: Samian, at half life size

Context	Feature	No. Sherds	Weight (g)	Form (Dr.)	Origin	Date
11	kiln 46	1	11	35	SG	Trajanic?
62	pit 55	1	35	18/31	CG	2nd century AD
74	ditch 53	1	5	?35	SG	later 1st century AD
113	kiln 46	1	3	36	SG	Trajanic?
144	feature 145	1	31	31 (stamped)	CG (Lezoux)	later Antonine
152	ash horizon	2	62	18/31	SG	Flavian
		1	6	?	CG	?
162	ash horizon	2	17	18	SG	Flavian
		1	4	18/31	SG	Flavian
		1	2	18	SG	Flavian
		1	7	18/31	SG	Flavian
		2	4	?	CG	?
		2 (1 dec.)	24	37	CG	Antonine
<b>TOTAL</b>		<b>17</b>	<b>211</b>			

Table 2: Identification of stratified samian

**Amphorae** (D. F. Williams)

A small quantity (14 sherds, 615 g) of amphora body sherds was recovered. Southern Spanish, French and a possible Catalan fabric were identified. The stratified material consists of a small southern Spanish sherd from ditch 12 (context 109) and a sherd of *Pélichet* 47 from pit 140 (context 108): both Period 3 features. The rest of the assemblage was derived from the soil overburden and from unexcavated features and layers.

**Dressel 20** (context 44, 1 sherd; context 93, 10 sherds)

This is the most common amphora type imported into Roman Britain, though recent research has shown that it was already present in some numbers during the late Iron Age (Williams and Peacock 1983). Dressel 20 amphorae were made in the southern Spanish province of Baetica, along the banks of the River Guadalquivir and its tributaries between Seville and Cordoba, and carried olive-oil (Ponsich 1974; 1979). This type of amphora had a wide date-range, from the Augustan prototype (Oberaden 83) with a fairly upright rim, a short spike and less of a squat bulbous body than the later form, to the developed well-known globular form which, with some typological variation, was in use at least up to the late third century (Zevi 1967).

**Southern Spanish** (context 109, 1 small sherd)

This vessel probably derives from the coastal regions of southern Spain, between Cadiz and Malaga, and seems to have been mainly used to carry fish-based products from the late first century BC to the second century AD (Peacock 1971; 1974).

**Pélichet 47** (context 108, 1 sherd)

*Pélichet* 47 is a flat-bottomed wine amphora form predominantly made in southern France, more particularly around the mouth of the Rhone in Languedoc, where a number of kilns are known (Laubenheimer 1985). The type had a long life from about the middle of the first century AD to at least the early fourth century AD (Panella 1973). In Britain, *Pélichet* 47 is not found in pre-Boudiccan levels (Peacock 1978).

**Catalan** (context 1, 1 small sherd)

This sherd is reddish-coloured with visible inclusions of feldspar and mica. It is difficult to be certain with such a small sherd, but it is possible that the vessel represented here is one of the granitic tempered amphora types made in Catalonia. The Catalan form Dressel 1 - Pascual 1 is present in some numbers at nearby Ower Peninsula (Williams 1987; 1991), though the Worgret vessel may be a Dressel 2-4. Both were essentially wine-carrying amphorae: Dressel 1 - Pascual 1 are mainly late Republican/early Augustan in northern Europe, while Dressel 2-4 range from late first century BC to mid-second century AD (Peacock and Williams 1986).

## LOCAL COARSEWARES: BLACK-BURNISHED WARE (BB1)

Carrie M. Hearne

The Black-Burnished Ware assemblage (BB1) from the excavation amounted to 18,372 sherds (248.35 kg). Thirty-five per cent of this collection (6,430 sherds; 86.36 kg) is unstratified material from the soil overburden (contexts 1, 2, 51, 52; Period 4). The remaining 65% (11,942 sherds; 161.99 kg) represents material from stratified contexts within trenches A, B and D. In addition, 1,874 sherds were recovered from the watching brief and associated excavations.

Material from all major features, was analysed in detail. This collection comprised a 76% sample (9,076 sherds; 123.69 kg) of the stratified assemblage. This report provides a summary of the results of the analysis: more detailed information about the material, by context, is held in the site archive. Material from the watching brief is incorporated only with reference to particular kiln groups.

**Methodology**

After overall quantification of the number and weight of material within each context, sherds were sorted into rim, base, body, decorated body and other vessel parts (e.g. handles) and each of these categories was quantified. Sherds

within each context were then recorded individually, by coding the following attributes where present: vessel form; thickness; surface treatment; decorative treatment and decorative position. For rim and base sherds the diameter, number (if conjoining sherds were present), and percentage present of the diameter were recorded. Where total vessel profiles existed, the total height was recorded. Material from the watching brief was quantified by count and only rim types/vessel forms were analysed in detail. A simplified recording system was adopted for this material, consisting of overall characterisation of each context or group, noting any unusual elements or attributes.

**Chronology**

The dating of individual deposits and features across the site has relied, largely, on the analysis of the local coarseware assemblage. Characterisation of the late Iron Age (mostly Durotrigian) assemblage is based on local ceramic parallels from sites such as Tollard Royal (Wainwright 1969), Gussage All Saints (Wainwright 1979), Ower Peninsula (Woodward 1987a) and the more recent excavations in Purbeck associated with the Wytch Farm project (Lancley and Morris 1991).

The greater part of the assemblage is of Romano-British date. Over the last decade the recovery and analyses of large, well-stratified, Roman assemblages from excavations in and around Dorchester (Davies and Hawkes 1987; Seager Smith and Davies forthcoming; Seager Smith forthcoming) have enabled advances to be made concerning the dating applicable to Poole Harbour BB1 in its production zone and local markets vis-a-vis the well-developed chronology of the products as they reached wider, military, markets, notably the northern frontier (Gillam 1976). In addition, the detailed examination and sourcing of BB1 assemblages from Exeter and the south-west peninsula have also helped to refine date ranges for Poole Harbour products (Holbrook and Bidwell 1991, 88-114).

For specific ceramic groups, the implications of the archaeomagnetic date ranges are of considerable importance. Beyond such independent dating evidence, the dating of vessel forms at Worgret utilises the occurrence of forms from Greyhound Yard and Colliton Park, 1988 (Seager Smith and Davies forthcoming; Seager Smith forthcoming). Hopefully, the analysis of more recently-recovered assemblages from Dorchester (e.g. Wessex Court: Seager Smith in prep.) will enable further refinement of local date ranges for Poole Harbour BB1.

**Fabric and petrological analysis**

Macroscopic variability within an overall quartz-sand fabric, has increasingly come to be regarded as a characteristic element of Poole Harbour BB1 assemblages (see Bidwell 1977, 189-90; Woodward 1987a, 83; Davies and Hawkes 1987, 123; Seager Smith and Davies forthcoming). The variability is characterised by the abundance and size of quartz grains and the frequency and range of other 'inclusions' and impurities (such as shale, ferruginous sandstone, flint and chalk). Although all sherds from Worgret conform to the broad fabric descriptions for the ware, this was clearly variable. No attempt was made, however, to develop a fabric series for the assemblage.

A selection of BB1 sherds of both pre-Conquest and Romano-British date underwent heavy mineral separation and thin sectioning as part of a programme of comparative petrological analyses undertaken by D. F. Williams (HBM ceramic petrology project: extracts only from his report included here). In each case, heavy mineral analysis produced the tourmaline-rich mineral suite which characterises the Tertiary clays of the Poole Formation (Williams 1977, group I). Thin sectioning and inspection under a petrological microscope showed a fairly uniform

fabric. This consists of an anisotropic clay matrix containing frequent subangular grains of quartz ranging up to 1 mm across, although the average size is between 0.20-0.60 mm. Also present is some quartzite, chert, flecks of mica and a little shale. Occasional grains of tourmaline were also noted. Interestingly, the two sherds sampled in thin section from a pre-Conquest feature (Pit 137, Period 2), although similar in composition to the later BB1 material, were slightly more packed with quartz grains than the latter. This may merely be due to a sandier pocket of clay being used for the pre-Conquest pottery, or perhaps reflect a greater degree of preparation or a different 'recipe' that was in use during the later period.

Given that South-Western BB1 (Bidwell 1977, fabric 40) has been identified in an assemblage from Hamworthy, Poole (Holbrook and Bidwell 1991, fig. 25) and is now being identified in significant quantities within assemblages from Dorchester and rural sites further west in Dorset, it is worth noting that the few possible sherds of this fabric in the Worgret assemblage were discounted as such (Williams, pers. comm.).

### Vessel form

The vessel forms and rim types represented in the assemblage were classified according to the Wessex Archaeology late Iron Age/Romano-British BB1 type series developed for excavations at Greyhound Yard, Dorchester (Seager Smith and Davies, forthcoming). All 'new' forms at Worgret were added to the type series (Types 50-56), although they include a few forms diagnostically of pre-late Iron Age date and an unparalleled object which may not represent a vessel form.

The type series of forms (plus base, handle and decoration types) present at Worgret is illustrated in Figs. 12-15. Rim Types 52 and 53, which are likely to be earlier in date than the late Iron Age, are not included in the illustrated type series but within groups which have been illustrated to characterise the pre-Conquest assemblage (Fig. 16, Groups A and B: see below). Parallels were sought for all vessel forms (full details in archive): only those for uncommon elements within the assemblage are reproduced here. Table 3 shows the occurrence of vessel form for individual features, structures and major deposits across the site

The total range of vessel forms may be divided into four main classes.

#### 1. Jars (Types 1-3, 5-8, 12, 50, 53)

This category includes types normally termed cooking-pots (with straight or everted rims), large storage jars, and jars with a bead rim. The range of jars among the assemblage encompasses both native late Iron Age forms and early to late Romano-British types.

#### 2. Straight-walled bowls and dishes (Types 20-25)

This group, always associated with a flat or chamfered base, includes so-called 'dog' and 'fish' dishes and also a range of flat-rimmed and flanged bowls and dishes. All these types were introduced in the post-Conquest period.

#### 3. Open bowls of all other form (Types 13, 15, 16, 18, 51, 52, 54)

This group includes round-bodied bowls, carinated bowls and also a small number of local copies of Gallo-Belgic and samian forms. With the exception of Type 18, which appears to be a very late Roman form, and the copies of imported wares, this group comprises the pre-Conquest, Durotrigian (and earlier) tradition of open bowls which were superseded and eventually replaced by the straight-walled forms.

#### 4. All other forms (Types 10, 26, 27, 29, 30, 55, 56)

For convenience, the remaining types may be grouped together. They consist of a varied range of forms much less ubiquitous than the standard range of BB1 vessels. The group includes beakers, cups, lids, flacons, *paterae* and other rarer forms.

The forms represented in each of the main trenches (A, B and D) indicates distinct chronological differences between the three groups. Trench A contains almost the complete collection of Durotrigian elements (as defined by rim Types

1, 6, 7, 8, 16, 50, 53, pedestal and footing bases and countersunk handles). Of the jar forms, Type 1 is dominant and trench A contains the only features whose contents comprise Durotrigian forms with no admixing of post-Conquest types. The majority of the groups analysed from Trench A are characterised by second-century AD material: flat rims dominate the straight-walled bowl forms and only one stratified drop-flanged bowl was recovered. Acute lattice sherds are present in far higher numbers than obtuse. Ceramically, the latest group of material is that within kiln 46 and the fill of ditch 40, dated to the late second/early third century AD.

In trench B a restricted range of Durotrigian forms are present. Types 2 and 3 dominate the jar forms and there are very few acute lattice sherds. Of the bowl forms, flat-rimmed (Type 22) is dominant in all features except the clay quarry pit where drop-flanged (Type 25) vessels predominate. The general chronological range of the material seems to be second/third century AD with the exception of quarry pit 55 which is characterised by later (late third/fourth century AD) material.

The material from trench D shares some similarities with that from trench B. There is a notable lack of Durotrigian forms and no straight-necked (Type 1) cooking-pots. Trench D contains the highest overall proportion of later BB1 types, including a group of uncommon forms (Types 12, 18, 21) which comprise the latest BB1 material from the site.

The distinction in the range of vessels types between the trenches is coincident with recognisable differences in the decorative and surface treatments from each group (see below).

### Catalogue of late Iron Age/Romano-British vessel type series present at Worgret

- Type 1. Cooking pots/jars with upright or slightly everted rim; rim usually beaded on exterior edge; some examples with countersunk handles. Date range: 1st century BC to 1st century AD. Fig. 12, 1-6, see also Fig. 16, 93-94 (Group A)
- Type 2. Cooking pots/jars with everted rim, usually beaded; rim diameter narrower than maximum diameter of vessel body. Date range: Some examples of 1st-century AD date but generally 2nd century AD onwards. Fig. 12, 7-12
- Type 3. Cooking pots/jars with everted rim flaring from shoulder; rim diameter equivalent to or greater than maximum diameter of vessel body. Date range: later 3rd century AD onwards. Fig. 12, 13-16.
- Type 5. Jars with plain, slightly everted rims. Date range: 1st century AD onwards. Fig. 12, 17.
- Type 6. Storage jars or bowls with flattened, triangular-sectioned rims, frequently very large vessels. Date range: 1st century BC to 1st century AD. Fig. 13, 18-19, see also Fig. 16, 95 (Group A).
- Type 7. Jars with beaded rims, some with defining groove or incipient shoulder; encompasses a wide range of vessel profiles. Date range: generally 1st century BC to 1st century AD but locally continuing later; probably throughout the 2nd century AD. Fig. 13, 20, see also Fig. 16, 90 (Group A).
- Type 8. Jars with developed or 'pulled' bead rims; some with high shoulder. Date range: generally 1st century AD but locally continuing later, as for Type 7.
- Type 10. Beakers, with slightly everted or beaded rims. Date range: later 1st century AD onwards, possibly into the 3rd century AD. Fig. 13, 24.
- Type 12. Storage jars with everted or rolled 'pie-crust' rims. Possibly imitation of other coarseware forms, eg New Forest (Fulford 1975, type 40). Parallels: Poundbury (Davies and Hawkes 1987, fig. 87, 27); Greyhound Yard (Seager Smith and Davies forthcoming); Colliton Park (Seager Smith forthcoming, fig. 26, 58). Date range: very late 3rd/4th centuries AD. Fig. 13, 25-26.
- Type 13. Round-bodied, open bowl with range of profiles; some examples may be lids. Date range: later 1st century BC to 1st century AD. Fig. 13, 21 and 27.

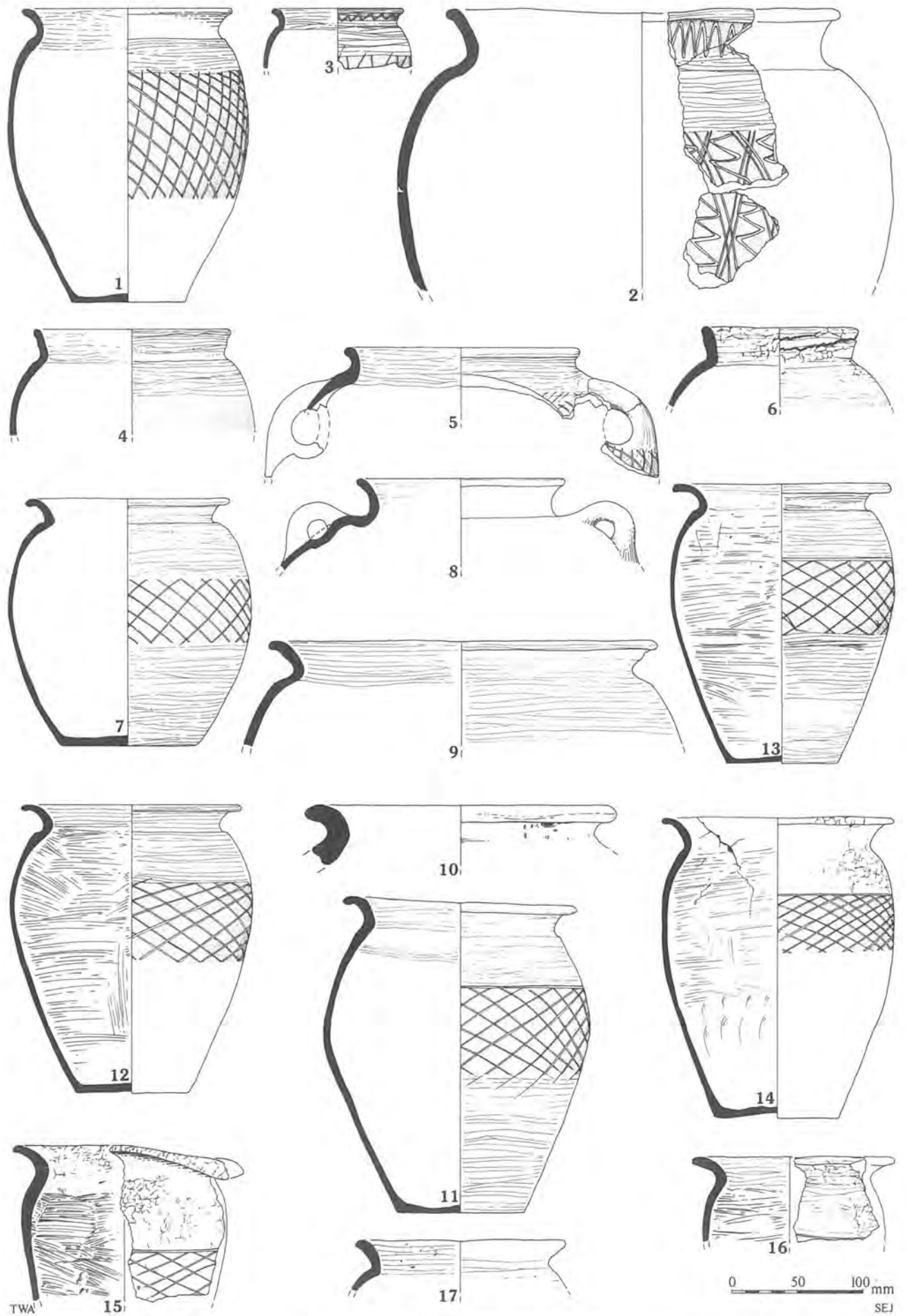


Fig. 12: Late Iron Age and Romano-British (BB1) pottery type series (1-17), at quarter life size

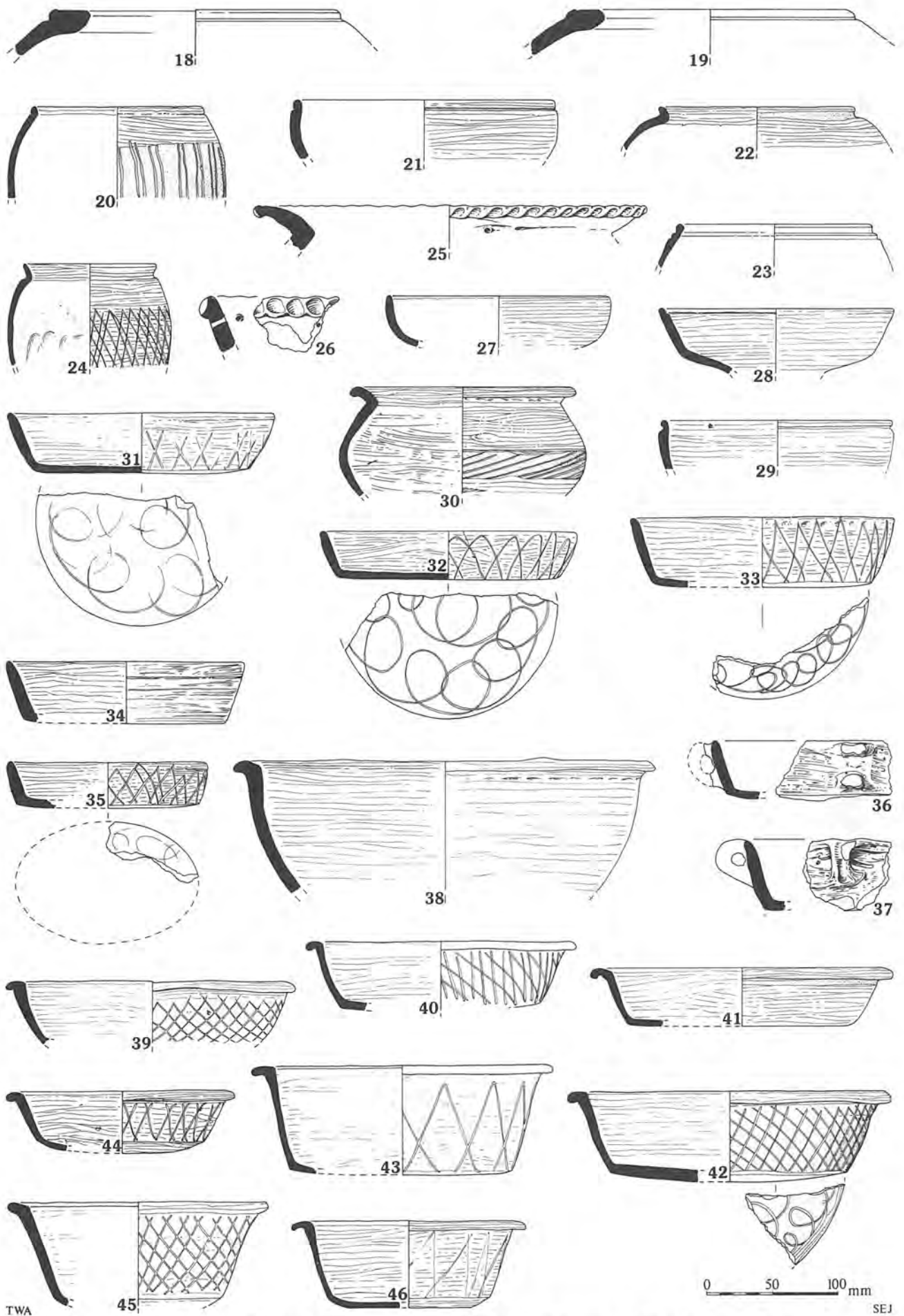


Fig. 13: Late Iron Age and Romano-British (BB1) pottery type series (18-46), at quarter life size

- Type 15. Carinated open bowl with plain or beaded rim; footring or pedestal base. Illustrated example probably an imitation of a Gallo-Belgic form. Parallels; Ower Peninsula (Woodward 1987a, fig. 47, 116). Date range: later 1st century BC to 1st century AD. Fig. 13, 28.
- Type 16. High-shouldered open bowl with beaded rim; taller examples have 'inverted pear' profile. Date range: later 1st century BC to 1st century AD. Fig. 13, 29.
- Type 18. Round-bodied, open bowl with everted rim. Parallels: Poundbury, period IV (Davies and Hawkes 1987, fig. 88, 41); Greyhound Yard, single example from mid 4th-/mid 5th-century AD context (Seager Smith and Davies forthcoming); Catsgore, example dated post c. AD 360 (Leech 1982a, fig 109, 422); Exeter SE Dorset BB1 type series, Type 21 (Holbrook and Bidwell 1991, 94, 103, fig 29). Date range: late 4th century AD onwards, possibly continuing into the post-Roman period. Fig. 13, 30.
- Type 20. Dishes (and/or lids) with straight walls and plain rims ('dog-dishes'). Date range: long lifespan, from the late 1st century AD to the end of the Roman period. Fig. 13, 31-34.
- Type 21. Oval, straight-walled dishes; most examples with opposing rod or strap handles ('fish-dishes'). Date range: late 3rd to 4th century AD. Fig. 13, 35-37.
- Type 22. Flat-rimmed bowls and dishes. Date range: very late 1st/early 2nd century AD to earlier third century AD. Fig. 13, 38-43.
- Type 23. Flat-rimmed bowls with chamfered base. Date range: early to mid/late 2nd century AD. Fig. 13, 44-46.
- Type 24. Flat-rimmed bowls or dishes with groove on rim top ('groove-flanged bowls'); with flat or chamfered bases. Date range: mid/late 2nd century AD to 3rd century AD. Fig. 14, 47-52.
- Type 25. Bowls or dishes with a dropped flange; wide range of form and position of actual flange. Date range: later 3rd century AD onwards. Those with a narrow, residual flange (e.g. Fig. 14, 53) comprise the latest of the vessel type: probably dated later 4th century onwards. Fig. 14, 53-58.
- Type 26. Lids with handles, all forms. Date range: some late Iron Age examples, but generally 1st century AD onwards. Fig. 15, 80-82.
- Type 27. Cups: wide range of forms; with handles. Date range: 1st century AD onwards, some imitating late Roman forms. Fig. 14, 59.
- Type 29. Flagons and jugs: all forms. Date range: mostly 1st century AD, some examples 2nd century AD. Fig. 14, 67-68.
- Type 30. *Paterae* (also called skillets). Parallels: Poundbury (Davies and Hawkes 1987, fig. 89, 54); Ower Peninsula (Woodward 1987a, fig. 50, 191-2); Greyhound Yard (Seager Smith and Davies forthcoming). Date range: generally dated 4th century AD but the two examples from Greyhound Yard are derived from late 1st to early 2nd century AD levels (Greyhound Yard Period 6), suggesting that the date range for this rare type should now be revised. Fig. 14, 69.
- Type 36. Open, carinated bowl with slightly flared wall; plain rim and footring base; imitation Drag. 30. Date range: probably 1st century AD. Fig. 14, 60.
- Type 38. Straight-sided, wide-mouthed vessel with a bead rim. Date range: uncertain, those from Greyhound Yard probably of 2nd-/3rd-century date. Fig. 14, 61.
- Type 50. Necked jar with a thickened, vertical rim. Date range: uncertain, probably late 1st century BC / 1st century AD. Fig. 14, 62-63.
- Type 51. Very large, open, thin-walled bowl with plain rim and round-bodied walls; wide applied strip (detached) below rim. Date range: uncertain; pre-3rd century AD by association at Worgret. Fig. 14, 64.
- Type 52. Open, sharply-shouldered, small bowl with slightly everted rim. Parallels: Gussage All Saints, phase 1 (Wainwright 1979, fig. 54, 597); Eldons Seat, period IIc (Cunliffe and Phillipson 1969, fig. 17, 145); Hengistbury Head, LIA 1/2 (Cunliffe and Brown 1987, ill. 176, 1608, 1830). Date range: Morphologically this vessel form has its origins in early Iron Age but it continues through the middle Iron Age and possibly into the 1st century BC. Fig. 16, 88-89 (Group A).
- Type 53. Round-bodied storage jar with thickened and crudely-beaded rim. Morphologically, this vessel has its origins in the middle Iron Age. General parallels at Rope Lake Hole (Davies 1987) and Eldons Seat (Cunliffe and Phillipson 1969). Date range: middle/late to late Iron Age. Fig. 16, 91 (Group A).
- Type 54. Small, open bowl with straight, flaring walls and plain rim; footring base; imitation Drag. 33. Date range: 2nd-3rd century AD (or later). Fig. 14, 65.
- Type 55. 'Vase'-shaped vessel with plain rim and narrow base; lower body cylindrical, upper body with slightly flaring sides. Date range: uncertain; 2nd/3rd century AD by association at Worgret. Fig. 14, 66.
- Type 56. Object, ?non-vessel form with fluted, column-like, stem and circular base; hollow stem and roughly finished interior; possibly a completely closed form. No parallels known, possibly an apprentice piece or an item of furniture such as a table leg. Date: probably 2nd/3rd century AD by association at Worgret. Fig. 14, 70.
- Base types: Type 100. Flat base with external thickening; Fig. 15  
Type 101. Footring base: bowl/dish and jar forms; Fig. 14, 60 and 65; Fig. 15, 73.  
Type 102. Flat base: bowl/dish and jar forms; e.g. Fig. 15, 74 (decorated).  
Type 103. Sagging base; illustrated example a strainer base; Fig. 15, 75.  
Type 104. Pedestal base; Fig. 15, 76-77; see also Fig. 16, 97 (Group A).  
Type 105. Chamfered base; Fig. 13, 44-46.  
Type 106. 'W' section base with central depression; Fig. 15, 78.  
Type 107. Wedged base; Fig. 15, 79 (decorated); see also Fig. 16, 92 (group A).
- Handle types: Type 200. Undiagnostic fragments.  
Type 201. Strap handle, multiple grooves down back.  
Type 202. Rod handle.  
Type 203. Plain strap handle.  
Type 204. Countersunk handle; Fig. 12, 5.  
Type 206. 'Ear' shaped handle; Fig. 15, 83.  
Type 207. Strap handle with 'wings'; Fig. 15, 84.

### Decorative treatments

Decoration, and its position, were coded and recorded for each sherd. This brief summary is based on fully-quantified data held in the archive. Further aspects of chronology are included in the overall discussion of the assemblage. The following decoration types were observed: all of the designs comprise burnished lines unless otherwise stated.

Decor- ation Type	Description
1	Acute angled lattice.
2	Obtuse angled lattice.
3	90 lattice (Fig. 12, 7).
4	Acute lattice with multiple grouped lines along one axis.
5	Diamond lattice (Fig. 14, 60).
6	Open diamond lattice.
7	Multiple-line diamond lattice.
8	Short diagonal lines (top left to lower right; Fig. 15, 85).
9	Short diagonal lines (top right to lower left; Fig. 13, 30; Fig. 15, 86).
11	Diagonals confined within lines top and bottom.
15	Wavy lines around neck of vessel (Fig. 12, 2-3).
17	Open overlapping hoops (Fig. 13, 32; Fig. 14, 49, 58).
19	Continuous arcs, formed with single line.
20	Multiple continuous arcs, intersecting (Fig. 14, 48).
21	Random scrolling, on base of dish/bowl (Fig. 13, 31-33, 35).
28	Multiple line chevrons (Fig. 16, 98; Group A).
32	Open inverted narrow 'V's.



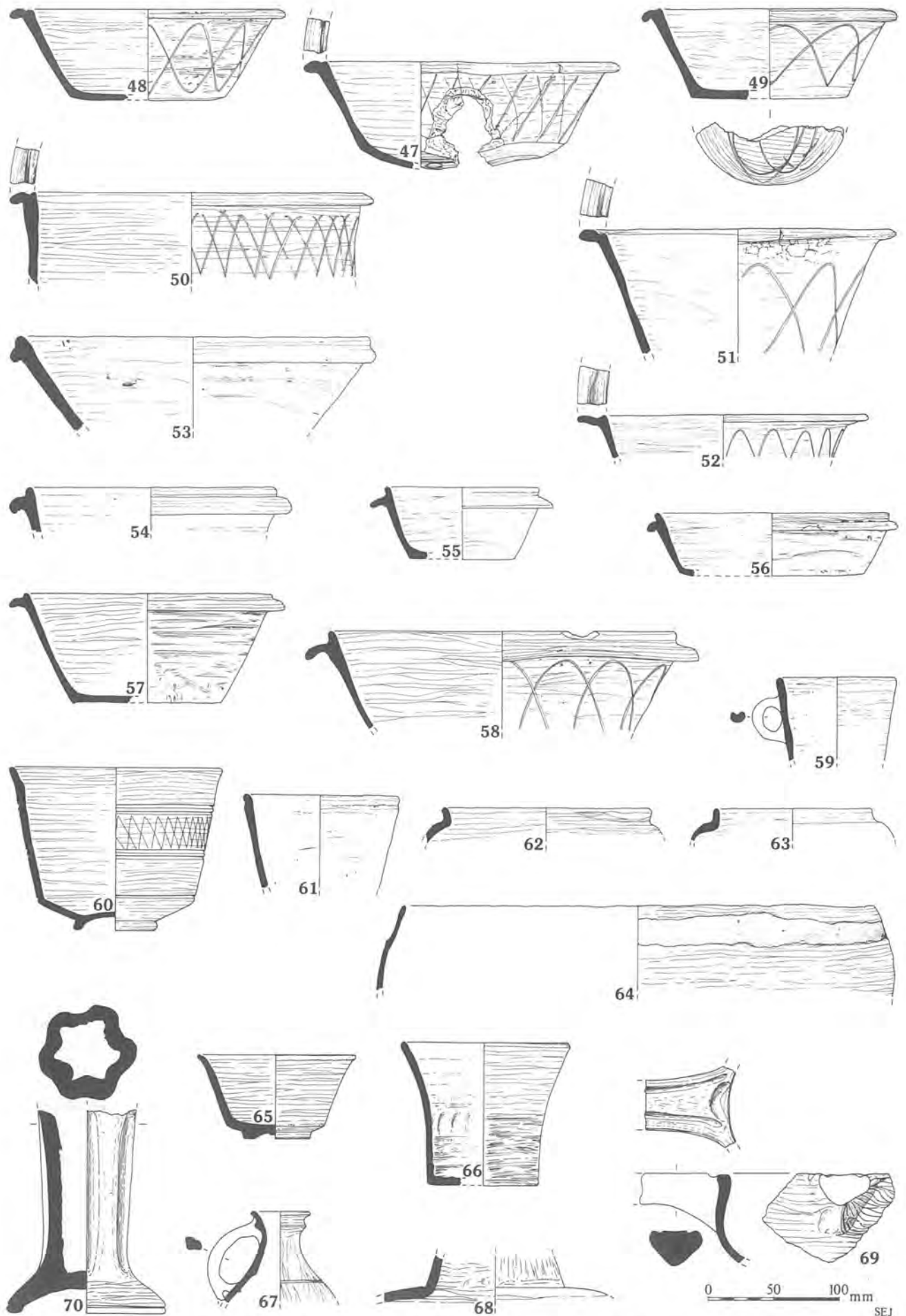


Fig. 14: Late Iron Age and Romano-British (BB1) pottery type series (47-70), at quarter life size

- 36 Paired lines, almost vertical (Fig. 13, 20).
- 37 Equally-spaced vertical lines.
- 38 Double cross of lines (on a base: Fig. 15, 74).
- 39 Crossed lines and zig-zag design (Fig. 12, 2).
- 41 Shallow, impressed groove (Fig. 16, 95; Group A).
- 42 Band of parallel, wavy, incised lines bounded by horizontal line, top and bottom (Fig. 15, 87).
- 43 Concentric impressed circular grooves (on a base Fig. 15, 79).

The correlation of vessel form and decoration within the stratified assemblage is shown on Table 4. The most common designs (in terms of overall number of examples and range of vessel types on which they are found) are decoration types 1, 2, 5, 6, 17 and 21.

Among the common decorations, the only exclusivity of design to vessel type seems to be that acute lattice appears on neither Type 3 cooking-pots nor Type 25 drop-flanged bowls and that, with the exception of a single Type 8 'developed' bead rim vessel, obtuse lattice only appears on Type 2 and 3 cooking-pots. A range of decorations, including base decoration, was associated with flat-rimmed and groove-flanged bowls (Types 21-24), whereas the only design recorded on drop-flanged bowls (Type 25) was overlapping hoops (decoration type 17).

Those designs applied to Type 20 (plain-rimmed dishes) were in most cases applied to bowl forms as well. Scrolling, most commonly recorded on the (exterior) bases of plain-rimmed dishes, was also observed on Type 22 (flat-rimmed) and Type 24 (groove-flanged) bowls, though not on drop-flanged bowls (Type 25). It was also observed that scrolling occurred on both flat (Type 102) and chamfered (Type 105) bases. Little can be said of the less common motifs which only occurred as body sherds (decoration types 4, 7, 8, 11, 28, 42). Uncommon motifs which could be

assigned to vessel forms were associated with both Durotrigian and post-Conquest forms.

The most notable factor arising from the correlations on Table 4 is the increased occurrence of decoration associated with the late first/second century AD forms when compared with both the earlier (Durotrigian) and later (third/fourth centuries AD) periods. This apparent 'interest' in decoration during the second century AD and overall chronological trends in the decoration and surface treatment of vessels are further discussed below.

A distinctive decorative type which may be assigned to the repertoire of the late Roman BB1 potters is parallel diagonal lines (types 8, 9; Fig. 15, 85-86). In the Worgret assemblage, this decoration type can only be associated with the very late Roman round-bodied bowls (Type 18). This correlation appears to be entirely consistent with the other published examples of the vessel form (see catalogue). Parallel diagonal lines may, therefore, be considered to represent the successor of the narrow band of obtuse lattice which is characteristically found on late Roman (fourth century) Type 3 cooking-pots. It may be noted that although examples of obtuse lattice on Type 18 bowl have been recovered from Greyhound Yard and Exeter (Holbrook and Bidwell 1991, fig. 29, 21.2) no examples are known of parallel diagonal lines on Type 3 cooking pots.

The chronological distinction of the ceramic material recovered from each trench is reinforced by characterisation of decoration within each group. A wide range of distinctive decoration types/patterns was observed amongst the material from trench A. Most of the sherds with diagonal parallel lines (decoration types 8 and 9) are included in the material from trench B. Trench B also includes the only two sherds of incised wavy line decoration (decoration type 42) which is also considered likely to be a late Roman BB1 decoration. In trench D, apart from the obtuse lattice cooking-pots, there is an overall lack of decorated material.

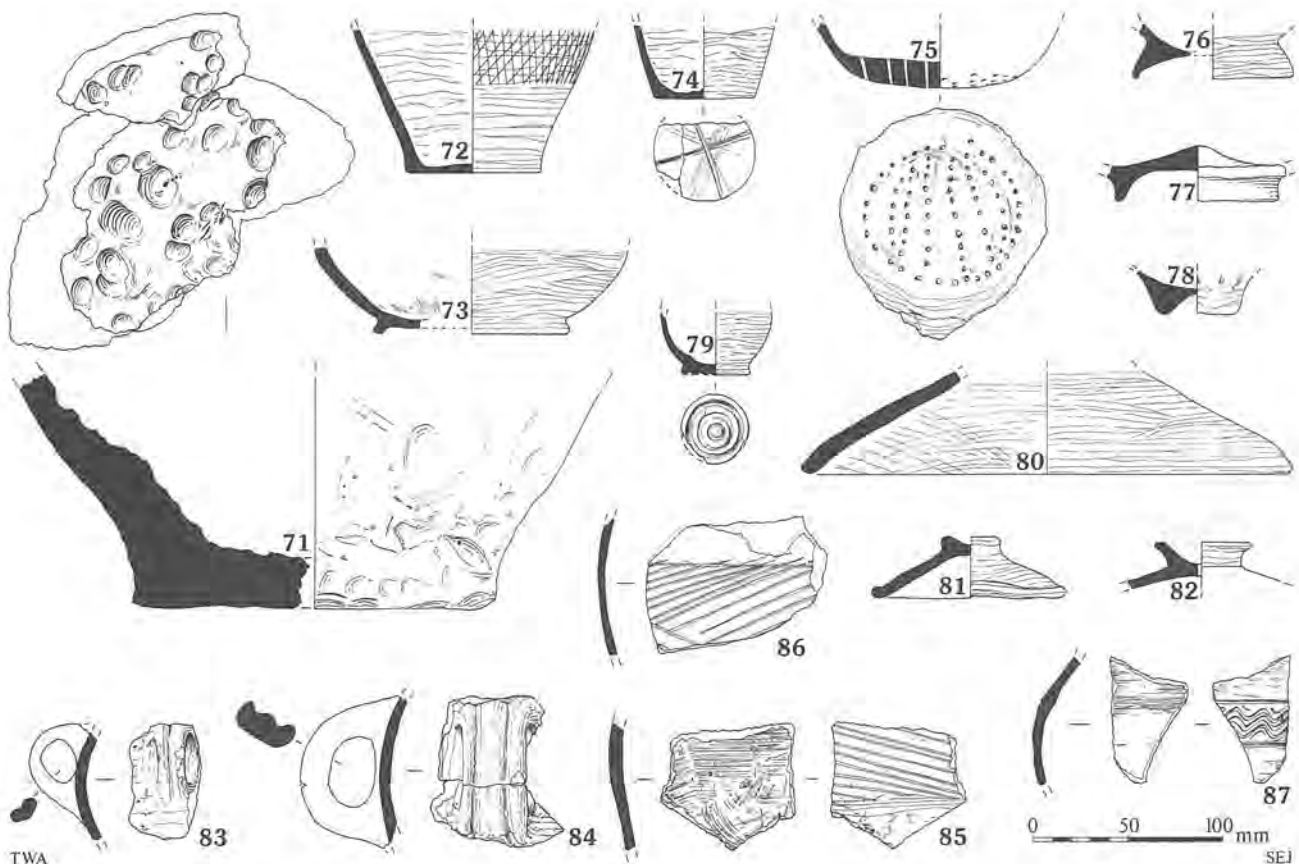


Fig. 15: Late Iron Age and Romano-British (BB1) pottery type series (71-87), at quarter life size

DEC. TYPE	VESSEL TYPE															BASE TYPE			BODY SHERD	MAXNO EXAMPLES	
	6	7	1	8	10	36	20	2	22	23	24	25	3	21	18	102	105	107			
	(1st BC/1st AD)					(2nd AD)					L3rd AD+										
1			*		*		*	*	*	*	*										109
2				*				*					*								121
3								*													17
4																			*		38
5						*	*		*		*										52
6									*	*											137
7																			*		1
8																			*		9
9														*					*		9
11																			*		1
15			*					*													21
17							*		*	*	*	*									48
19							*														7
20							*				*										10
21							*				*					*	*				58
28																			*		2
32							*		*												3
36		*																			1
37							*														1
38																*					1
39			*																*		6
41	*																				1
42																			*		2
43																		*			1

Table 4: Late Iron Age and Romano-British local coarsewares; correlation of vessel form and decorative type. (Dates are for introduction of the vessel form type)

### Surface treatments

Surface treatments were recorded for each vessel or sherd analysed, since it is now generally appreciated that Black-Burnished Ware is neither always, nor exclusively, burnished. The following general comments are derived from fully-quantified data in the site archive.

Burnishing, smoothing, wiping and slipping were all observed and combinations of these treatments on single vessels occurred frequently. Burnishing itself varied from a heavy, meticulous treatment, producing an even and deep lustre (e.g. Fig. 12, 2-4; Fig. 13, 21, 28; Fig. 14, 50, 60, 65) to light and sometimes scratchy burnishing. Jar forms (Types 1-3) were often carefully burnished on the rim (exterior and interior), shoulder and upper body but only very lightly burnished or simply smoothed below the central band of lattice (Fig. 12, 1, 12). The interior of cooking-pots and other closed forms was either left matt (Fig. 12, 1-4, 7, 11) or roughly wiped (Fig. 12, 12-15). Wiping was also observed on the exterior of certain open forms, notably Types 20 (plain-rimmed dish) and 25 (drop-flanged bowls). In many cases the wiped exterior of these vessels was in contrast to their finely-burnished interiors (Fig. 13, 32, 34; Fig. 14, 58). This combination of surface treatments was also observed on slipped vessels (Fig. 14, 56-57).

The question of slips is problematic since, unless obvious characteristics are evident (e.g. boundaries or drip and smear marks), they cannot always be discerned macroscopically with confidence, particularly if the surfaces were subsequently burnished. In addition, vessels not obviously slipped may well have been worked over to produce a form of self-slip, which would be impossible to detect macroscopically. The completely oxidised nature of certain sherds (e.g. within kiln 160, see below) betrayed the presence of a slip (pinkish-orange or white on these sherds). It is, therefore, necessary to be aware of a possible bias towards identifying slips simply because of their greater visibility

under oxidised firing conditions. This is not to imply that slips cannot be identified on unoxidised sherds: a group of later Romano-British material from quarry pit 55 was identified with an applied slip, as was the unparalleled column-like object (Fig. 15, 70).

Along with decoration, surface treatment reinforces the differences between the material from trenches A, B and D. Trench A is dominated by finely-burnished material. Open forms are invariably meticulously burnished on both their interiors and exteriors. The only wiped material consists of the interiors of some of the cooking-pots from kiln 46, considered to be one of the latest ceramic groups within the trench. The interiors of the rest of the closed forms were simply smoothed or left rough. No wiping was observed on open forms. No slipped sherds or vessels were identified, though the proportion of material self-slipped cannot be quantified.

Trench B is characterised, firstly, by open forms with wiped exteriors and burnished interiors (particularly evident on Types 20 and 25) and, secondly, closed forms with wiped interiors. Slipped sherds were recorded amongst the material. Trench D is characterised by a large amount of slipped material, including slipped open forms subsequently burnished on the interior and wiped on the exterior. However, the lack of well-burnished material within the group is notable.

### Firing conditions

If it has already been observed that Black-Burnished Ware is not consistently burnished, it should similarly be emphasised that the epithet 'black' is not always applicable. The colour of vessels in the assemblage varied from light grey/white to pink, bright orange, dark red/brown and dense black. Combinations of these colours frequently occurred on a single vessel. Variation in colour between vessels and over any single vessel cannot be assumed to be the result of

processes associated with manufacture since the temperatures involved in domestic activities such as cooking may be high enough to affect the colour of vessels. Vessels blackened during manufacture by carbon deposition are, in particular, vulnerable to re-oxidisation or discolouration during use.

In analysing the assemblage, therefore, and since 'discoloured' material is only to be expected on a production site, little attention was paid to the colour of sherds alone beyond the fact that more than 50% of all sherds were completely oxidised, partly oxidised or 'discoloured' (i.e. a range of colours). Vessels and sherds were diagnosed as 'distorted' if they displayed signs of over- or unsuccessful firing - generally characterised by spalling, firecracking, bloating, warping and near vitrification of vessels. A small number of under-fired sherds were also denoted as being distorted, though the poor preservation qualities of such material may mean that it is under-represented in the assemblage.

Table 3 includes the minimum number of distorted vessels/sherds identified per feature: detailed quantification of the sherds and the vessel type they relate to is held in the archive. Of the 71 contexts analysed in detail, 38 (54%) contained distorted sherds. Apart from the small dump in kiln 160 (see below), no discrete 'waster tip' was located during excavation. However, it is likely that the very large amount of unabraded material from the soil overburden (35% of all ceramic material recovered from the site) contains midden material derived from the latest phase of activity plus industrial waste from pottery production. This material was not analysed in detail.

Distortion was not confined to a single type or group of vessel. Rim Types 1-3, 5, 7, 20-25, 38 and base Types 102 and 105 all contained distorted sherds. This list of types includes all the most common forms encountered within the assemblage. The only distinction of possible significance is that there were far more examples of distorted obtuse lattice sherds than acute lattice.

The nature of most of the distorted sherds amongst the assemblage appears to be a direct result of over-firing generally or over-rapid firing. An over-rapid rise in temperature during the 'water-smoking' stage causes moisture still present in the vessel wall to expand rapidly and, as a result, large lens-shaped pieces (spalls), generally half the thickness of the vessel wall, break away (Rye 1981, 105-6). Numerous examples of spalled vessels and sherds were identified including a groove-flanged bowl with the spall penetrating the total thickness of the vessel wall (Fig. 14, 47).

Fast firing also results in fire-cracking which usually occurs in the third, main phase of firing; the 'clay-mineral decomposition' stage. Over-rapid heating leads to a network of fine cracks extending over the vessel surface, especially radiating from large inclusions. It is also characterised by deeper cracks extending into the body wall. Both types of fire-cracking were identified within the assemblage (e.g. Fig. 12, 6, 14, 15; Fig. 14, 51). It was also observed that bases, in particular, appeared to be vulnerable to fire-cracking.

Extreme over-firing ultimately leads to vitrification of the vessel body. In the assemblage near-vitrified sherds were always associated with extreme bloating of the vessel wall. Near-vitrification is also the stage at which warping or sagging of parts of vessels occurs (e.g. Fig. 12, 15; Fig. 14, 47). Vessels in the assemblage frequently demonstrated that extreme over-firing, as evidenced by bloating and warping, appears to be very much a localised phenomenon, even within a single vessel. Fig. 14, 47 well demonstrates this: half the vessel is unoxidised and well-fired, while the other is oxidised, spalled, warped and near-vitrified. Dunting cracks on vessel rims were also identified within the assemblage. These are generally caused by over-rapid cooling of vessels

after firing which leads to excessive tension at the rim (from where heat is most quickly lost). However, similar types of crack can occur during the firing process itself (Rye 1981, 114).

#### Characterisation of the local coarseware assemblage

The chronological range of the local coarseware assemblage is broad and appears continuous. Durotrigian forms comprise about 12% of the total collection of analysed rim sherds (total number 1,147). Although most of these vessel types continued to be used and made in the post-Conquest period the evidence suggests that certain groups at Worgret, at least, should be assigned a first century BC date. Post-Conquest straight-walled vessels (late first to third century AD and later) occur in profusion and account for 55% of the total rim collection. Within both cooking-pot and flanged bowl forms the established range of rim forms is represented (Gillam 1976), although it should be noted that the 'evolution' of such forms, particularly that of flanged bowls, has recently been re-assessed (Holbrook and Bidwell 1991, 95-99). Late Roman material is well represented and the presence of uncommon forms such as 'pie-crust' rims (Type 12) and the everted rim, round-bodied bowl (Type 18) point to activity on the site well into the fourth century AD.

The overall range of rim and vessel type represented in the assemblage is fairly wide but dominated by cooking-pot (Types 1-3) and straight-walled bowl/dish (Types 20-25) forms which together comprise 91% of the total stratified rim collection. Thus all other forms together represent only 9% and are generally characterised by a few or a single example of many types.

#### The pre-Conquest assemblage (Fig. 16: Groups A and B)

The only vessels among the assemblage which may confidently be assigned a pre-first century BC date are the two examples of Type 52 shouldered bowls. However, the minimal occurrence of earlier material, combined with its direct association with Durotrigian forms, cannot suggest Iron Age occupation on the site prior to the first century BC.

With a few exceptions, the range of Durotrigian vessel forms within the assemblage continued to be used, produced and distributed throughout the first century AD. Some elements, notably the bead and developed bead rim forms (Types 7 and 8) appeared to have been an even more enduring element of the indigenous black burnished ware tradition, probably continuing in use throughout the second century AD, and perhaps later. However, the restricted spatial occurrence of Durotrigian vessel forms and attributes across the site (i.e. largely confined to trench A) and the recovery of 'pure' pre-Conquest ceramic groups in the same area indicates that some of the Durotrigian assemblage should be assigned to the pre-Conquest period, probably from the later first century BC onwards.

Groups A and B (Fig. 16) characterise the pre-Conquest assemblage (for full contents of these groups see Table 3). Group A is that recovered from pit 137 and associated clay spreads outside the main late Iron Age enclosure ditch (4). This group contains the earliest (stratified) ceramic elements of the Iron Age assemblage: two small shouldered bowls (Fig. 16, 88 and 89) and the thickened rimmed jar (Fig. 16, 91), the latter being more reminiscent of middle Iron Age jar forms than late Iron Age rim profiles. The other vessel forms include common elements of local late Iron Age assemblages, namely bead rim jars (e.g. Fig. 16, 90), straight-necked jars (Fig. 16, 93 and 94), a triangular-sectioned rim (Fig. 16, 95), wedge and pedestal bases (Fig. 16, 92 and 97 respectively). The collection is dominated by undecorated vessels and sherds although the presence of an unusual motif (Fig. 16, 98) may be noted. Vessels are generally, but not always, burnished and where burnishing does occur it is slightly erratic and/or uneven in its

coverage. Overall, this group may be considered of first century BC date.

Group B is from the primary and lower fills of enclosure ditch 4. It includes a typical collection of Durotrigian ceramic forms and attributes. These elements comprise groups of straight-necked jars (e.g. Fig. 16, 99) and bead rims (e.g. Fig. 16, 101), a large triangular-sectioned storage jar (Fig. 16, 100) and foot-ring and pedestal bases (Fig. 16, 106 and 107 respectively). The group also contains open bowls (Fig. 16, 102 and 103) some of which may be rounded lids. The rarer element within the group is the neck sherd of what is probably a rounded flagon type vessel (Fig. 16, 104) which was recovered from the primary fill of the ditch. The group is dominated by burnished material and is notable for its meticulous tooling. The most striking example is the lower half of an extremely finely-burnished jar (Fig. 16, 105) with an intricate acute lattice decoration around the girth. Ceramically the group post-dates Group A and may be considered to be of late first century BC/early first-century AD date.

#### The Romano-British assemblage

The post-Conquest BB1 assemblage, which forms the bulk of the illustrated type series (Figs. 12-15), may generally be characterised as follows.

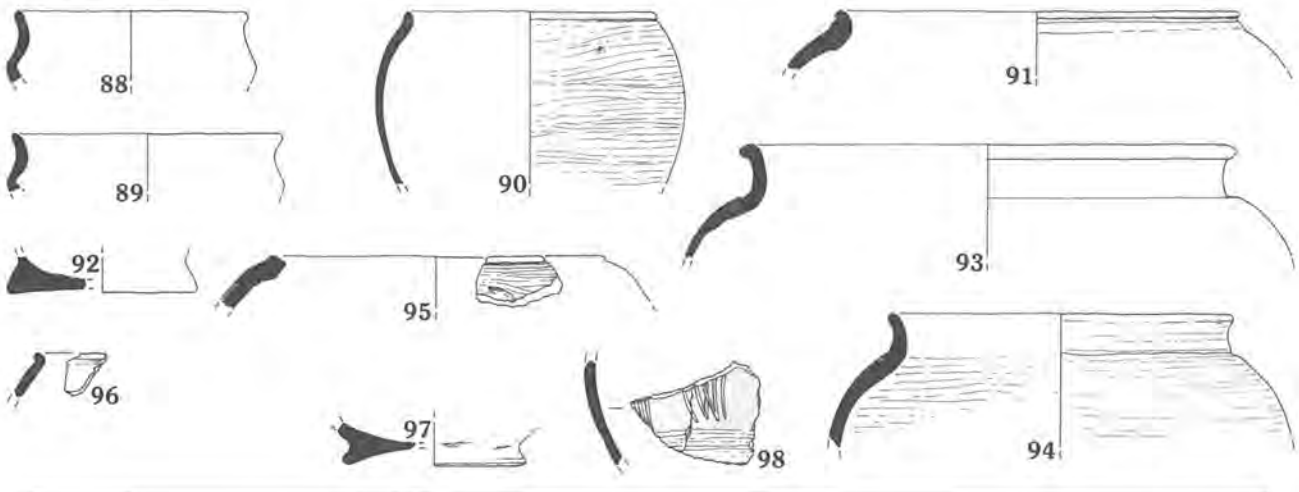
- First century AD. Continuation of Durotrigian forms with the probable introduction of the plain-rimmed dish (Type 20) and flat-rimmed bowl (Type 22) at the end of the period.

- Second century AD. Continued presence of some Durotrigian forms, especially bead rims. Straight-walled Types 20 and 22 prevalent. Presence also of straight-walled Types 23 and 24 and chamfered bases. Cooking-pot rims non-vertical. Development of decoration repertoire.

- Third century AD. Predominant forms: plain-rimmed dish (Type 20); drop-flanged bowls (Type 25) and flared-rim cooking-pots (Type 3).

- Late third/fourth centuries AD. Continued presence of third century AD forms plus introduction of oval 'fish-dishes' and 'pie-crust' rim vessels. Introduction of round-bodied open bowls (Type 18) during late fourth century.

### GROUP A



### GROUP B

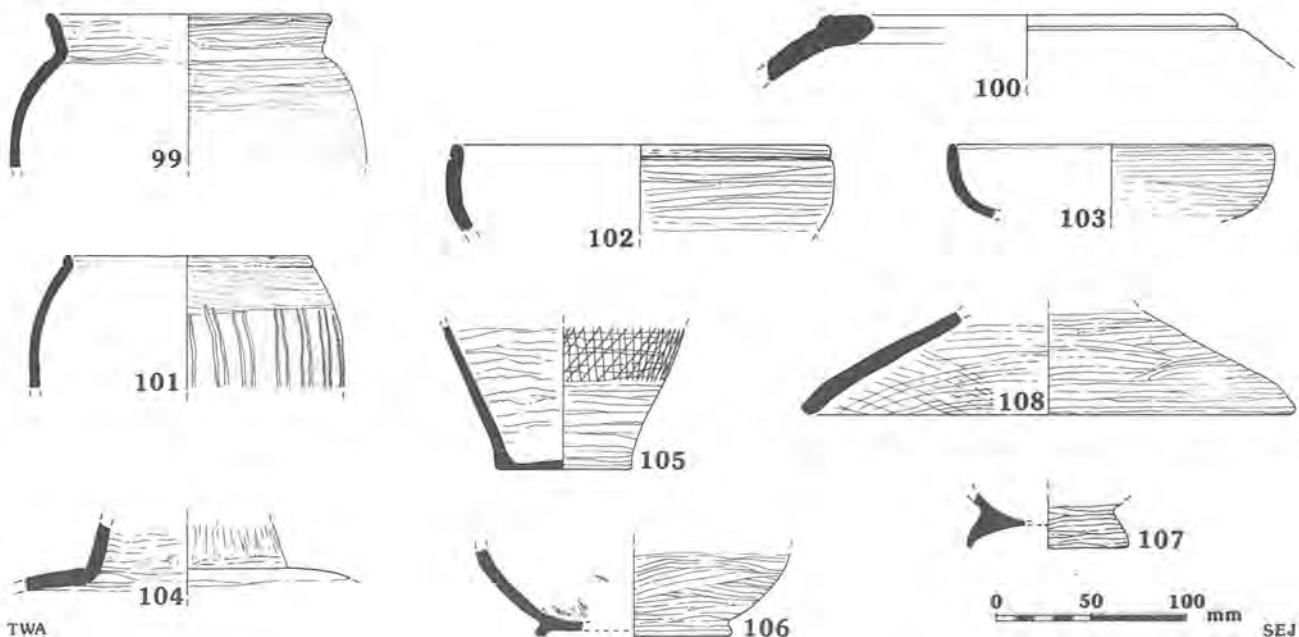


Fig. 16: Late Iron Age (pre-Conquest) local coarsewares: Group A (88-98); Group B (99-108), at quarter life size

Description and discussion of the Romano-British assemblage is provided by a commentary on certain key chronological groups, mostly those associated with firing structures and kilns. Full description and characterisation of all groups analysed (by feature) is held in the site archive.

### 1. Pit 140

The contents of the pit include a range of late Iron Age/first century AD forms which comprise about 40% of the total collection. Also present is an imitation Gallo-Belgic dish (Fig. 13, 28) which may be placed in the first century AD. Parallels for this form have been recovered at the first century AD trading and industrial settlement at Ower Peninsula (Woodward 1987a; Cox and Hearne 1991). Another first-century copy of an imported form is the imitation samian bowl (Fig. 14, 60). This finely-made vessel is meticulously burnished inside and out and interestingly combines the form of the Gaulish original with a burnished decoration typical of the native black burnished repertoire.

The other main component of the material from pit 140 is a large group of straight-walled bowls and dishes which comprise about 45% of the rims. Flat-rimmed bowls (e.g. Fig. 13, 39-40, 42) and plain-rimmed dishes are the dominant types but a few examples of bowls with chamfered bases (Fig. 13, 44-45) and groove-flanged bowls (Fig. 14, 50) are also present. Other forms present include beakers (Fig. 13, 22, 24), lids (e.g. Fig. 15, 81) and a miniature jar (Fig. 15, 74). Seventy-five definite examples of acute lattice occur within the collection but only one sherd of obtuse lattice (from the uppermost fill). The group is interesting for its direct association of Durotrigian and early post-Conquests forms. The fairly equal balance, in terms of number, between the two chronological groups supports assigning the collection to the very late first/early second century AD, and may indicate that the early straight-walled forms were in production and use prior to the beginning of the second century AD. The other notable attribute of the material from pit 140 is the group of extremely distorted and spalled sherds (straight-necked jars, flat-rimmed bowls and bases) present in the uppermost fills, including Fig. 12, 6).

### 2. Kiln 46 (Group C: Fig. 17, 109-112)

Apart from two unoxidised sherds of a straight-sided dish (recovered from the ash layer in the base of the kiln) and a single unoxidised flat-rimmed rim sherd, the contents of the kiln chamber and the sherds within the collapsed clay walling of the structure comprise an homogenous collection representing a relatively small number of complete or near-complete vessels. The unoxidised sherds were probably derived from the ditch fill below the kiln which is not unexpected since the kiln did not incorporate a floor.

The only forms represented are cooking-pots (Types 2 and 3) and a groove-flanged bowl. The group contains five complete or nearly complete Type 2 cooking-pots with obtuse lattice (e.g. Fig. 17, 109, 111), a single complete Type 3 cooking-pot with obtuse lattice (Fig. 17, 110), the lower half of a cooking-pot with 90° lattice, the base and rim of a slightly under-fired Type 2 cooking-pot with obtuse lattice, two further cooking-pot bases and a complete (slightly under-fired) groove-flanged bowl (Fig. 17, 112).

The association of forms within the group is interesting since it combines several attributes usually considered as chronological 'indicators'. The direct association of Type 2 and 3 rims, and 90 and obtuse lattice decoration may be noted within the cooking-pots, along with their association with a groove-flanged bowl.

The archaeomagnetic date range of cal AD 150-230 (Appendix I: AJC-8), provides an important *terminus ante quem* for the group since there is little doubt (from the nature/arrangement of the deposit and the subsequent vessel reconstruction exercise) that the group represented the *in situ*

last load of the kiln. The archaeomagnetic date therefore confirms the appearance of obtuse lattice by the early decades of the third century AD. It may also be noted that some of the cooking-pots from the group (e.g. Fig. 17, 109-110) include a burnished line defining the upper limit of the obtuse lattice, an attribute which is generally associated with later (late third/fourth century) cooking-pots.

The condition of the material displays a high degree of variation across single vessels and between vessels. Of the five complete vessels, three are completely oxidised, one displays oxidised surfaces and an unoxidised core and one is highly affected by fire-clouding across its outer surface. The group contains slightly over-fired vessels (Type 2) and also slightly under-fired vessels (Types 2 and 24). Although some fire-cracking was recorded, the group does not contain any attributes of extreme over-firing as recorded within the groups from kilns 160 and 161 (see below). Variation in surface treatment is also evident across the vessels. Three of the complete cooking-pots were wiped on the interior (e.g. Fig. 17, 110, 111) whereas the other two were merely smoothed (e.g. Fig. 17, 109). With the exception of the lower part of one vessel (Fig. 17, 111), all the outer surfaces of the cooking-pots were burnished. No slip was visible on any of the sherds or vessels. Some variation in height (overall range 215-245 mm) and proportion is also evident from the three illustrated cooking-pots in Group C.

The maximum number of vessels represented in the group (excluding the disturbed material from ditch 4) is nine cooking-pots and one bowl. Whether or not this group of vessels comprised the complete kiln load, or just its lower portions, cannot be determined.

Material from the clay spread (layer 11) above the kiln chamber included a Type 3 rim which conjoins with one of those from the kiln chamber (Fig. 18, 1: illustrated in conjunction with a fired clay stacker from the same context). A small mixed assemblage was recovered from stoke pit 113, broadly similar to that from the clay spread (Table 3), including distorted sherds (Types 3 and 24).

### 3. Kiln/oven 36

The only ceramic material recovered from within the structure comprised sherds from a single, incomplete Type 2 cooking-pot with acute lattice decoration. The vessel is extremely thin-walled but not oxidised or distorted in any way. Typologically the vessel could be placed from the mid- to late second century AD. Although the archaeomagnetic result was imprecise (Appendix I: AJC-7), it suggests contemporaneity with kiln 46 and structure 174.

### 4. Ash deposits, trench D

The large collection of pottery recovered from the ashy deposits in trench D (c. 24 kg, 1,673 sherds) displays a correspondingly wide range of forms (Table 3). The dominant forms represented are plain-rimmed dishes and everted rim cooking-pots (Types 20 and 3: 70% of total diagnostic rims). The material appears to derive from industrial activity in the vicinity although distorted material only represents about 7% of the group. The presence of unusual vessel forms is a marked feature of the material. These include jar/cups (Fig. 14, 59, 61), a 'vase' shaped vessel (Fig. 14, 66), a strainer (Fig. 15, 75), a miniature vessel (Fig. 15, 79) and other unusual base types (e.g. Fig. 15, 77-78). The most unusual element is the beautifully-made, fluted, object (Fig. 14, 70). No parallels are known for this object, although it is probably not a vessel form.

Chronologically, the BB1 from the ash deposit is characterised by second century AD and later material. Later third/fourth century material is present but the very small number of drop-flanged bowls (5 examples) should be noted. Overall, the group clearly pre-dates those from kilns 160, 161 and the quarry pit (see below).

5. Kiln 160 (Group D: Fig. 17, 113-116)

A restricted range of vessel forms was recovered from within kiln 160 (Types 2, 3, 20 and 25; see Table 3). Type 3 cooking-pots with obtuse lattice (typically like Fig. 17, 113) comprise 67% of the total rim collection. Drop-flanged vessels, which comprise 15% of the total, include both short-sided dishes (e.g. Fig. 17, 115) and deep bowls (e.g. Fig. 17, 116). Type 20 plain-rimmed dishes (e.g. Fig. 17, 114) form 10% and Type 2 cooking-pots 2%. The remaining 6% comprise indeterminate rim forms, mostly small sherds from everted rim cooking-pots.

Apart from two unoxidised sherds of a Type 2 cooking-pot, the entire contents of the kiln are composed of completely oxidised and over-fired pottery. At least 50% of the sherds are visibly distorted with many examples of fire-cracking, spalling, warped and bloated rims and bloated vessel walls. Most of the collection has been excessively over-fired, some nearing a state of vitrification. The entire deposit undoubtedly represents production waste.

The oxidised nature of the sherds betrays the application of a thin slip (creamy/white in colour) on both the cooking-pots and bowl/dishes. On the cooking-pots, slip is confined to the

exterior (excluding the patterned zone) and the interior rim. Bowls and dishes are slipped all over, including the base. The presence of smear, wipe and some run marks indicates that the slip was a 'true', applied, one rather than a 'self' slip (i.e. worked over with a wet hand or cloth prior to firing). It is also evident that after the application of the slip it was subjected to both wiping and burnishing. Wiping was most often recorded on the exterior of open forms, burnishing was generally recorded on the interior of open forms and the rims of the cooking-pots.

The lack of decoration among the bowls and dishes is notable. Two examples of scrolling on dish bases (e.g. Fig. 17, 114), one example of open overlapping hoops on a drop-flanged bowl and a total of six other (non-lattice) decorated body sherds were recorded in total.

Unlike the contents of kiln 46, attempts to reconstruct individual vessels met with very little success. The collection appears to comprise a large number of incomplete vessels. Taken with the actual nature of the deposit as excavated (i.e. within a matrix of mixed clay and soil), there is little doubt that the contents represent the backfilling or dumping of production waste (including kiln stackers, see report below)

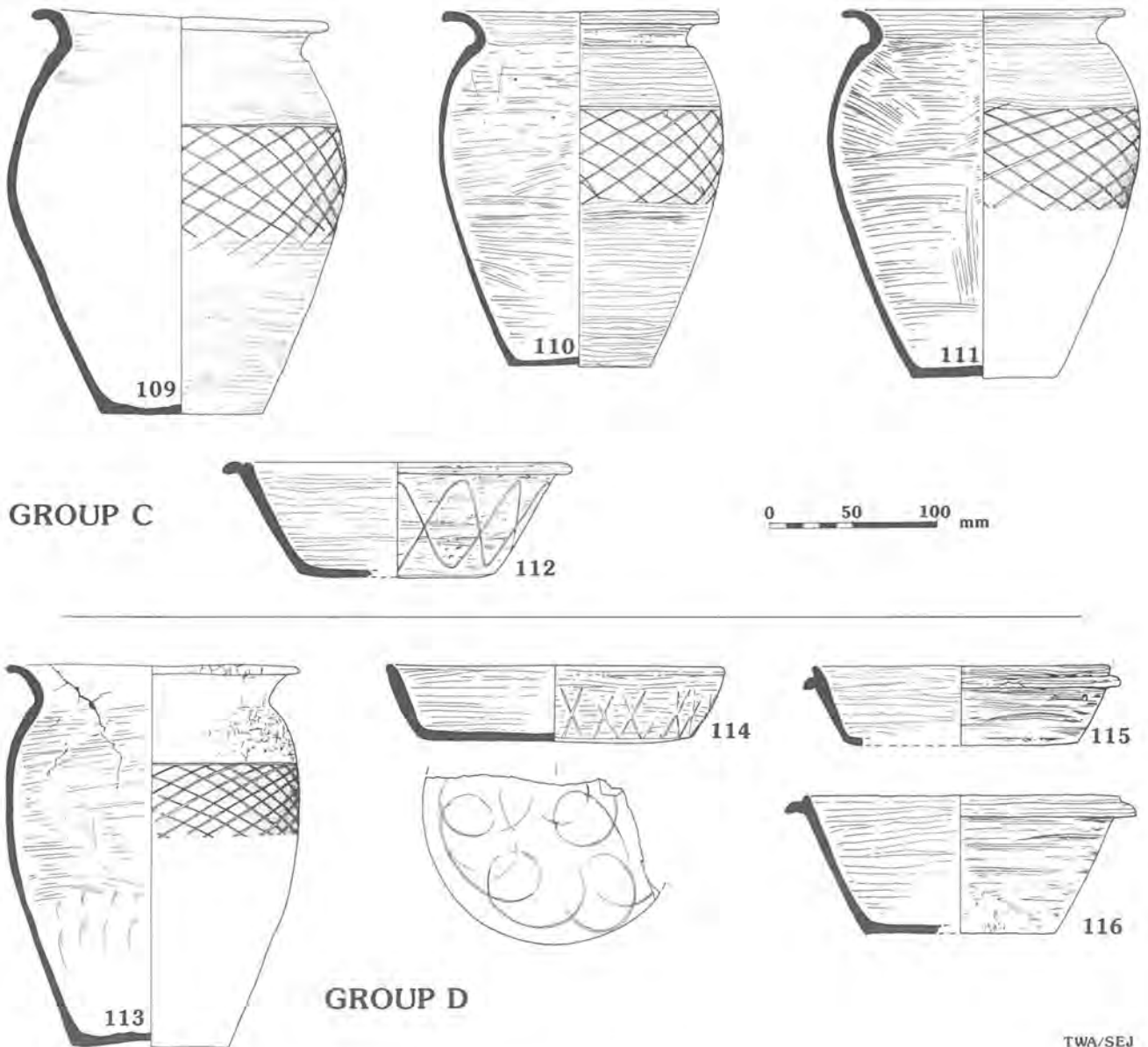


Fig. 17: Black-Burnished Wares (BB1): Group C (109-112); Group D (113-116), at quarter life size

into a disused kiln. It cannot be assumed that the collection was fired in kiln 160 itself.

The association of vessel forms, the overall proportions of the everted-rim cooking-pots, and other observations concerning decoration and surface treatment (as discussed above) all indicate that the group is considerably later in date than Group C. Overall, a date of late third/earlier fourth century AD is considered applicable to the waster dump.

#### 6. Kiln 161

A relatively small amount of material was recovered from within the kiln (Table 3). The range of vessel types includes all those found within kiln 160 and also single examples of a plain everted-rimmed jar (Type 5), a 'pie-crust' rim (Type 12: Fig. 13, 26) and a 'fish-dish' (Type 21: Fig. 13, 37). The 'pie-crust' rim sherd is one of only three examples from Worgret (the other two are from the stoke pit associated with kiln 161 and quarry pit 55). The form is not common (see type series catalogue for parallels). Both this type and the 'fish-dish' are part of the late BB1 repertoire. The small amount of material contrasts with kiln 160 but it may be noted that 90% of the sherds associated with kiln 161 were completely oxidised and that about 50% of these were visibly distorted, spalled or fire-cracked.

On balance, the group is considered slightly later in date than that from kiln 160: a later fourth-century date is suggested. As with the material from kiln 160, it cannot be assumed that the pottery is directly related to the use of the kiln from which it was recovered.

Types represented in the stoke pit were consistent with those in the chamber with the addition of the single example of Type 18 round-bodied bowl from the site (Fig. 13, 30). Like the 'pie-crust' rim it is an unusual and late vessel form. It does not occur in Gillam's series (1976) and from the available parallels (see catalogue) may be dated late fourth century or later. The example from Worgret is completely oxidised and appears to be slipped and finely burnished to produce an eggshell-like surface finish. The other late Roman component in this group is the drop-flanged bowl with a conical profile and residual flange (Fig. 14, 53). Very few bowls of such profile were identified in the assemblage.

#### 7. Quarry pit 55

Over 20 kg (2,277 sherds) of BB1 pottery was recovered from the quarry pit. Some general observations on the condition of the material are worth noting here since the collection contrasts with all other groups recovered from the site, including that from the soil overburden. The notable attributes may be listed as follows:

- The average sherd size is very small with few conjoins within or across contexts.
- Over half of the material is of a very abraded nature.
- The group contains a very small amount of distorted pottery. Only eight sherds (0.35% of the collection) were oxidised and, of these, only 3 could properly be termed 'distorted' in view of their fire-cracked or spalled surfaces.
- Iron accretions on sherds and sherds concreted together were frequently recorded attributes. This is likely to represent fluctuating water levels in the pit (i.e. a post-depositional factor).

A range of rim forms is represented (Table 3) but it is dominated by plain-rimmed dishes and drop-flanged bowls (Types 20 and 25: 68% of total diagnostic rims) and, to a lesser extent, everted rim cooking-pots. All other forms totalled only 17 rims (6%). There is a marked paucity of early material in the collection. Durotrigian forms are only represented by six straight-necked jars and a single footring base. Second-century bowl forms (i.e. Type 22, 24) are poorly represented (10 rims in all). The predominance of later third-century and later (e.g. the 'pie-crust' rim: Fig. 13, 25) material is also reinforced by the occurrence of decorated sherds in that they consist entirely of obtuse lattice and

non-lattice including parallel diagonal lines (Fig. 15, 85-86) and wavy line decoration (Fig. 15, 87). The complete absence of scrolling decoration may also be noted despite the large number of plain-rimmed dishes in the pit. There is a distinct lack of well-burnished material amongst the non-abraded sherds. The greater proportion appears to be wiped and the only part of vessels commonly burnished appears to be the interior of the open forms, although their exteriors were almost always wiped (e.g. Fig. 13, 34). Slipped (reduced) sherds were also recorded including Types 3, 20 and 25. The overall character of the material therefore appears to be slipped vessels subsequently burnished or wiped, often at the expense of decoration on the open forms.

From the condition of the sherds it can be concluded that the material comprises a non-primary deposit of weathered and/or ploughed material. In all probability the group represents material which has survived for some time in the ploughsoil of a post-Romano-British field system, before being deposited into quarry pit.

#### List of illustrated pottery

##### Fig. 12

1. Type 1 jar, partially oxidised. (Context 131, pit 140).
2. Type 1 jar. (Context 131, pit 140).
3. Type 1 jar. (Context 51, overburden).
4. Type 1 jar. (Context 124, ditch 4).
5. Type 1 jar, oxidised surfaces, reduced core. (Context 105, pit 140).
6. Type 1 jar, oxidised, over-fired, bloated. (Context 108, pit 140).
7. Type 2 jar. (Context 144, pit 145).
8. Type 2 jar, partially oxidised. (Context 74, ditch 53).
9. Type 2 jar, partially oxidised. (Context 105, pit 140).
10. Type 2 jar, partially oxidised. (Context 73, pit 55).
11. Type 2 jar, oxidised. (Context 103, chamber, kiln 46).
12. Type 2 jar, reduced core and interior surface, exterior surface generally oxidised with fire clouding around base. (Context 103, chamber, kiln 46).
13. Type 3 jar, oxidised surfaces, reduced core. (Context 103, chamber, kiln 46).
14. Type 3 jar, oxidised, slipped exterior and rim, fire-cracked and bloated rim. (Context 163, kiln 160).
15. Type 3 jar, oxidised, slipped exterior, overfired and warped. (Context 168, pit 177).
16. Type 3 jar, oxidised, slipped exterior, bloated and near-vitrified. (Context 152, ash, trench D).
17. Type 5 jar, oxidised, bloated and near-vitrified. (Context 153, ash, trench D).

##### Fig. 13

18. Type 6 jar, oxidised surfaces, reduced core. (Context 108, pit 140).
19. Type 6 jar, oxidised surfaces, reduced core. (Context 116, ditch 4).
20. Type 7 jar, partially oxidised. (Context 116, ditch 4).
21. Type 13 bowl, finely burnished. (Context 116, ditch 4).
22. Type 8 jar. (Context 131, pit 140).
23. Type 8 jar, oxidised surfaces, reduced core. (Context 147, pit 148).
24. Type 10 beaker, oxidised, fire-clouding on outer surface. (Context 108, pit 140).
25. Type 12 jar, oxidised. (Context 66, pit 55).
26. Type 12 jar, oxidised. (Context 164, clay spread above kiln 161).
27. Type 13 bowl, possibly a lid. (Context 116, ditch 4).
28. Type 15 bowl, finely burnished. (Context 110, pit 140).
29. Type 16 bowl. (Context 131, pit 140).
30. Type 18 bowl, oxidised, slipped exterior. (Context 170, stoke pit assoc. with kiln 161).
31. Type 20 dish, oxidised, localised near-vitrification. (Context 163, kiln 160).
32. Type 20 dish, oxidised. (Context 1, soil overburden trench A).
33. Type 20 dish, oxidised. (Context 105, pit 140).

34. Type 20 dish, slipped. (Context 73, pit 55).
35. Type 21 dish. (Context 1, soil overburden trench A).
36. Type 21 dish, oxidised, slipped, overfired. (Context 152, ash trench D).
37. Type 21 dish, oxidised, slipped, spalled base. (Context 164, kiln 161).
38. Type 22 bowl, partially oxidised. (Context 1, soil overburden trench A).
39. Type 22 bowl, oxidised, spalled and bloated rim. (Context 110, pit 140).
40. Type 22 dish, partially oxidised. (Context 110, pit 140).
41. Type 22 dish, oxidised with fire clouded rim, spalled base. (Context 153, ash trench D).
42. Type 22 bowl. (Context 108, pit 140).
43. Type 22 bowl, oxidised. (Context 64, tank 63).
44. Type 23 dish, partially oxidised. (Context 108, pit 140).
45. Type 23 bowl, oxidised, near-vitrified. (Context 131, pit 140).
46. Type 23 bowl, oxidised, fire clouded exterior. (Context 153, ash trench D).

## Fig. 14

47. Type 24 bowl, oxidised and fire clouded all over, overfired with warped base and spalled side. (Context 152, ash trench D).
48. Type 24 bowl, oxidised surfaces, reduced core, base has slightly 'soapy' feel, possibly underfired. (Context 103, kiln 46).
49. Type 24 bowl, oxidised core, reduced surfaces. (Context 162, ash trench D).
50. Type 24 bowl, finely burnished. (Context 105, pit 140).
51. Type 24 bowl, oxidised, localised bloating around rim. (Context 1, soil overburden trench A).
52. Type 24 bowl, oxidised. (Context 106, ditch 40).
53. Type 25 bowl, oxidised, ?slipped. (Context 107, stoke pit assoc. with kiln 161).
54. Type 25 bowl. (Context 41, ditch 40).
55. Type 25 bowl, partially oxidised. (Context 152, ash trench D).
56. Type 25 dish, oxidised, slipped. (Context 163, kiln 160).
57. Type 25 bowl, oxidised, fire clouded outer surface, slipped. (Context 163, kiln 160).
58. Type 25 bowl, partially oxidised. (Context 162, ash trench D).
59. Type 27 cup. (Context 152, ash trench D).
60. Type 36 bowl, finely burnished. (Context 108, pit 140).
61. Type 38 jar, oxidised, over-fired. (Context 153, ash trench D).
62. Type 50 jar. (Context 11, clay spread above kiln 46).
63. Type 50 jar. (Context 50, stoke pit, 113, assoc. with kiln 46).
64. Type 51 bowl. (Context 144, pit 145).
65. Type 54 bowl, finely burnished, ? slipped. (SF 9, Context 168, pit 177).
66. Type 55 ?beaker, partially oxidised, some fire clouding. (Context 162, ash trench D).
67. Type 29 flagon. (Context 1, soil overburden trench A).
68. Type 29 flagon neck. (Context 125, ditch 4).
69. Type 30 *patera* handle, finely burnished. (SF 8, Context 34, soil overburden trench A).
70. Type 56 object, slipped. (SF 7, Context 162, ash trench D).

## Fig. 15

71. Type 100 base, oxidised, roughly finished vessel. (Conjoining sherds from contexts 54 & 59, ditch 53).
72. Type 100 base, finely burnished. (Context 123, ditch 4).
73. Type 101 base. (Context 120, ditch 4).
74. Type 102 base of miniature vessel, finely burnished. (Context 105, pit 140).
75. Type 103 base, of strainer, partially oxidised. (SF 11, context 162, ash trench D).
76. Type 104 base, partially oxidised. (Context 123, ditch 4).
77. Type 104 base, oxidised. (Context 152, ash trench D).
78. Type 106 base. (Context 152, ash trench D).
79. Type 107 base of miniature vessel. (Context 167, ash trench D).
80. Type 26 lid. (Context 116, ditch 4).
81. Type 26 lid, partially oxidised. (Context 131, pit 140).
82. Type 26 lid, oxidised. (Context 74, ditch 53).
83. Type 206 handle. (Context 54, ditch 53).

84. Type 207 handle, partially oxidised. (Context 153, ash trench D).
85. Body sherd, decoration type 8. (Context 73, pit 55).
86. Body sherd, decoration type 9, oxidised, slipped. (Context 77, pit 55).
87. Body sherd, decoration type 42, slipped. (Context 75, pit 55).

## Fig. 16

## Group A (Pit 137 and associated deposits)

88. Type 52 bowl. (Context 138, pit 137).
89. Type 52 bowl. (Context 138, pit 137).
90. Type 7 jar, oxidised margins, reduced core. (Context 138, pit 137).
91. Type 53 jar. (Context 117, clay spread above pit 137).
92. Type 107 base, oxidised. (Context 107, ashy spread above pit 137).
93. Type 1 jar, oxidised. (Context 15, clay spread above pit 137).
94. Type 1 jar, 90% oxidised. (Context 15, clay spread above pit 137).
95. Type 6 jar, finely burnished. (Context 15, clay spread above pit 137).
96. Type 8 jar. (Context 15, clay spread above pit 137).
97. Type 104 base, partially oxidised. (Context 15, clay spread above pit 137).
98. Body sherd, decoration type 28. (Context 15, clay spread above pit 137).

## Group B (Enclosure ditch 4)

99. Duplicate of Fig. 12, 4.
100. Duplicate of Fig. 13, 19.
101. Duplicate of Fig. 13, 20.
102. Duplicate of Fig. 13, 21.
103. Duplicate of Fig. 13, 27.
104. Duplicate of Fig. 14, 68.
105. Duplicate of Fig. 15, 72.
106. Duplicate of Fig. 15, 73.
107. Duplicate of Fig. 15, 76.
108. Duplicate of Fig. 15, 80.

## Fig. 17

## Group C (Kiln 46)

109. Duplicate of Fig. 12, 11.
110. Duplicate of Fig. 12, 13.
111. Duplicate of Fig. 12, 12.
112. Duplicate of Fig. 14, 48.

## Group D (Kiln 160)

113. Duplicate of Fig. 12, 14.
114. Duplicate of Fig. 13, 31.
115. Duplicate of Fig. 14, 56.
116. Duplicate of Fig. 14, 57.

## FIRED CLAY AND KILN STACKERS

Carrie M. Hearne

This report discusses all fired clay recovered from the site (in total: 225 pieces, 4,871 g). The material includes a large group of undiagnostic (generally featureless) fired clay and pieces characterised by distinctive impressions, some of which can be shown to have acted as kiln 'stackers' or 'setters'. A few pieces of fired clay displaying localised vitrification and/or vitrified accretions were also recorded: these are included in the report on vitrified remains, below. The overall composition and quantification of the fired clay is shown on Table 5.

## Fabric

Macroscopically, the fabric of the fired clay was closely comparable to that of the local coarseware pottery (BB1). The only noticeable difference was that many pieces contained stone inclusions much larger (up to 18 mm) than those generally incorporated into vessel fabrics. All fired clay was oxidised, ranging in colour from bright orange to light grey. Thin-sectioning of some of the diagnostic pieces from kiln 160 has confirmed their close similarity with vessels from the site (D. F. Williams, archive report). It is hardly surprising that the same clays utilised in pottery production on the site were used to manufacture the fired clay 'objects' although the overall impression is that less energy was expended on preparation and tempering of clay body not being used to produce actual vessels.

### Undiagnostic fired clay

Undiagnostic fired clay formed the bulk of material recovered (66% by weight). It was retrieved from all trenches and associated both with late Iron Age (Period 2) and Romano-British (Period 3) occupation of the site. This category includes completely featureless pieces and also pieces which displayed finger marks and/or smears but which were not associated with any other diagnostic attribute (as described below). The size and weight of undiagnostic pieces ranged from small fragments of 5 g or less to fairly massive pieces, for example a piece from kiln 161 with finger smears weighing 267 g which may represent kiln lining or walling. Overall, the undiagnostic material may have resulted from several different activities; that from Period 3 contexts may contain unidentifiable fragments of the diagnostic objects discussed below.

### Diagnostic fired clay

Three main types of diagnostic fired clay were recognised among the assemblage, each characterised by a distinctive type of 'impression'. The three categories may be summarised as follows.

Type 1. A large group (23% of total assemblage by weight) generally of rough appearance (often with finger marks) but each incorporating one extremely smooth surface, clearly formed when the clay was in a very plastic state.

Type 2. A group (11% by weight) similar to the first group but on which the smoothed area is not flat but appears to take the form of a negative profile of a everted rim jar. This interpretation was supported by the recovery of a single lump of fired clay with a cooking-pot rim still embedded in it (Fig. 18, 3).

Type 3. A small group (2 pieces only) with rectilinear impressions or holes, presumed to represent burnt-out organic material.

#### Types 1 and 2

The pieces with undiagnostic flattened surfaces (Type 1) and the rim-impressioned pieces (Type 2) were only recovered from Period 3 and later contexts (Table 5). Apart from the group assigned to Period 4, (which were all derived from directly above kiln 161: context 155), and a single Type 1 piece from pit 55, all the material (70 pieces) was recovered from only seven contexts. All these contexts are directly associated with kilns (context 11: clay spread above chamber of kiln 46; context 121: ash layer in base of kiln 46; contexts 159, 163, 165: fill of kiln 160; contexts 164, 166: fill of kiln 161).

A representative selection of the rim-impressioned pieces is shown in Fig. 18. The single piece from context 11, the clay spread above kiln 46, has been illustrated in conjunction with a BB1 cooking-pot rim from the same context to demonstrate how well the fired clay sits against the rim and neck of the vessel (Fig. 18, 1). The vessel sherd conjoins with one of the near-complete pots, recovered from the chamber of kiln 46, which have been interpreted as an abandoned last load.

The rim sherd from kiln 160 found embedded (but not fused) in the clay (Fig. 18, 3) confirms that the distinctive form of these 'objects' was the result of their having been pressed against rims and necks of cooking-pots and it is reasonable to suggest a similar function for all the other pieces with impressions and flattened surfaces. No negative impressions of any straight-walled vessel rims were identified, though the pieces with larger flattened surfaces may derive from such. Similarly, no base impressions were observed although they would have been easily identifiable if present within the assemblage.

The nature of the objects and their limited provenance across the site

supports the suggestion that they acted as some form of stacker or setter incorporated within the kiln load during firing. The function of such objects was probably to separate vessels (thus aiding even circulation of heat between the load) and also to span gaps within the kiln load, thus stabilising it during firing.

However, in proposing such a function for these objects it should be noted that no similar (typologically) parallels are known from other Romano-British kiln sites. The most frequently encountered type of stacker/setter appears to be pre-formed rings or cylinders of clay, which were tailor-made and re-usable (see Swan 1984, 38-41). By contrast, the Worgret stackers were not pre-formed: the surviving objects clearly betray the fact that clay in a *plastic* state was pushed onto and around the rims of the leather-hard vessels due for firing. There can also be little doubt that the Worgret stackers were not re-usable; on unloading the kiln, most pieces would have had to have been broken or chipped away from the vessel.

The stackers do not provide conclusive evidence on the way the pots were loaded, since they could have served with upright and/or inverted pots. The example with the embedded rim (Fig. 18, 3) displays a flattened surface above the rim, on the interior side, which might indicate that the pots were stacked directly above one another. The stackers are unlikely to have been placed around the entire circumference of the pot rims, as this would prove extremely detrimental to their firing. Fig 18, 2 is likely to reflect the maximum extent of the stackers, which were probably placed at two or three points around the rim.

During firing the stackers and vessels would not fuse. However, since the stackers must have been 'manufactured' (i.e. applied) as the kiln was being loaded, it is likely that some time was allowed to elapse before firing commenced to allow the stackers to dry out to some extent. If this precaution was not taken, the still-plastic stackers would be liable to explode as the temperature rose in the kiln, thereby causing the load to become unstable. Further discussion of the stackers is included in the overall site discussion, below.

#### Type 3

Two small fragments with distinctive rectilinear impressions were identified amongst the assemblage (not illustrated). Although other fragments containing some form of angular impressions were noted amongst the undiagnostic material (e.g. context 155) it was felt to be too subjective an exercise to try and quantify such material. The two fragments are of different 'form' and are best described separately.

A small cuboid fragment (15 g), 16 mm thick, was recovered from ditch 53 in trench B (context 59). One face contains a depression, rectangular in plan (16 x 8 mm) with regular tapering sides to form an elongated inverted pyramid. The impression appears too regular to have been formed by a large stone inclusion (although this cannot be entirely discounted) and is best interpreted as the site of a small wooden stake with a short pointed end which has been pushed into the plastic clay. It may also be noted that the 'back' of the piece is smoothed and clearly represents a former surface.

The second fragment, also from trench B, was recovered from pit 55 (context 66). The piece is a small (8 g), irregularly-shaped fragment containing two elongated rectilinear impressions. One of these is intact (4 mm square in plan) and pierces through the centre of the fragment. The other impression is of the same dimensions but has been broken across, so that only two of the sides are visible.

The small impressions are most likely to be the result of burnt out rectilinear wooden rods, perhaps incorporated into the clay as a

PERIOD	FEATURE/DEPOSIT	UNDIAGNOSTIC PIECES	DIAGNOSTIC PIECES		
			TYPE 1	TYPE 2	TYPE 3
2		18/250 g	-	-	-
3	pit 140	6/224 g	-	-	-
	kiln 46	6/66 g	6/69 g	5/150 g	-
	kiln 160	29/349 g	34/552 g	19/345 g	-
	kiln 161	30/1005 g	5/166 g	1/34 g	-
	ash	15/464 g	-	-	-
	ditch 53	11/331 g	-	-	1/15 g
	pit 55	2/104 g	1/26 g	-	1/8 g
4	above 161	22/386 g	8/290 g	-	-
	topsoil	5/37 g	-	-	-
TOTAL		144/3216 g	54/1103 g	25/529 g	2/23 g

Table 5: Quantification (no./wt.) of fired clay, by period and deposit

support. Although this piece was not recovered from within a kiln structure, it was found in association with a larger fragment incorporating a flattened surface (see below) and it is reasonable to interpret it as associated with pottery manufacture.

#### Illustrated objects (Fig. 18)

1. Fired clay object shown with cooking-pot rim from same context which conjoins to vessel in context 103, fill of kiln 46. Fired clay and vessel oxidised throughout. (Context 11: clay spread above kiln 46).
2. Fired clay with oxidised, slightly grey fabric. Part of upper surface appears to have collapsed on itself. Outer surface has fingertip impressions. (Context 121: ash layer in base of kiln 46).
3. Fired clay with *in situ* cooking-pot rim (vessel type 3). Vessel and fired clay oxidised throughout, vessel with orange/white slip on exterior and interior surfaces. A flattened (inner) surface is evident above the rim. (Context 165: fill of kiln 160).
4. Oxidised fabric. (Context 165: fill of kiln 160).
5. Oxidised fabric with slightly grey surfaces. Rough outer surface with vertical finger smears. (Context 166: fill of kiln 161).

### ROMAN COINS

John A. Davies

Four Roman coins were recovered: two bronze issues and a silver *denarius* from the excavation and a single bronze coin from the watching brief.

Of the four coins, the earliest is a well-preserved silver *denarius* of Antoninus Pius (cat. no. 1). It has a non-figurative reverse, showing two clasped hands holding corn ears and a caduceus. Pius' COS IIII coinage is not closely dated in catalogues but this issue almost certainly belongs to the greater output of the years AD 145-6.

The three other coins are all familiar fourth-century bronze issues, commonly found on Romano-British sites. The coin recovered from the upper fills of enclosure ditch 4 (cat. no. 2) is a *foliis* of Constantine II bearing the reverse legend BEATA TRANQVILLITAS; a type struck in great numbers at the mints of London, Trier and Lyons. This example comes from London, which was the dominant supplier to much of Britain until its closure in AD 326.

The remaining two coins, represent two of the most prolific issues to have circulated in fourth-century Britain. The VRBS ROMA (cat. no. 3) was struck at Trier and the GLORIA ROMANORVM (cat. no. 4) was struck at Lyons: both mints having been major suppliers to Britain in the middle years of the fourth century, after the closure of London.

It may also be noted that a fifth Roman coin from the site, significantly earlier than those from the excavations, has been reported. A bronze issue of the Emperor Vespasian, dated AD 72-73 was retrieved from displaced soil on the newly-landscaped sides of the by-pass (Ladle 1990).

#### Catalogue of coins (RIC: Mattingly and Sydenham 1923ff.)

1. SF 1, context 2 (soil overburden).  
Antoninus Pius: Denarius; AD 145-61.  
O ANTONINVS AVG. PIVS. P.P.  
RCOS. IIIII; clasped hands holding caduceus and corn ears.  
Mint - Rome. RIC III: 136.
2. SF 3, context 24, (fill of ditch 4).  
Constantine II: Follis; AD 321.  
O CONSTANTINVS IVN NC  
R BEATA TRANQVILLITAS, VOT/IS/XX.  
Mint - London. RIC VII: 219.
3. SF 76, (watching brief, u/s).  
Constantine I: Follis; AD 333-4.  
O VRBS ROMA  
R Wolf and twins.  
Mint - Trier. RIC VII: 553.
4. SF 26, context 162 (ash layer, trench D).  
House of Valentinian: AE3; AD 364-78.  
O Illegible  
R GLORIA ROMANORVM  
Mint - Lyons. RIC -.

### COPPER ALLOY OBJECTS

J. M. Mills

Six copper alloy objects were recovered. These comprise a sprung bow brooch (Fig. 19, 1), a decorated lid, tag end or pendant (Fig. 19, 2), a sheet fragment (Fig. 19, 3), a possible handle (Fig. 19, 4), a short length (15 mm) of possible brooch pin and a small cast object, possibly a terminal. Two objects were found in stratified contexts (both Period 3); the brooch pin (upper fill of pit 140) and the sheet fragment (upper fill of clay quarry pit 55). The brooch and handle were recovered from the lower soil overburden levels, the decorated tag end, was collected from the field surface and the cast object was recovered during the watching brief. All items except the brooch pin and cast object are illustrated on Fig. 19 (1-4).

#### Illustrated copper alloy objects (Fig. 19)

1. Backworth type, trumpet-headed bow brooch. The spring and pin are missing, although traces of the iron spring remain in the perforations of the spring housing. Mid 1st to 2nd century AD (Parallels: Leech 1982b, 107, no. 19; Crummy 1983, fig. 10, 67). Length 69 mm. (Context 65, SF 65, Period 4).
2. Hooked tag, pendant or part of a small lid. The object is ornamented with a stamped decoration. Although undated, the style of ornamentation suggests a late Medieval or post-Medieval date. Length 22 mm, width 13 mm, mm thick. (Context 101, field surface, SF 51).
3. Rectangular sheet (damaged), pierced by three punched rivet holes. Possibly a patch or repair piece. Late 3rd century AD (? or earlier). Length 36 mm, width (maximum) 26 mm, thickness mm. (Context 72, SF 5, Period 3).
4. 'C'-shaped length of wire with indented terminals. Possibly a vessel or box handle. Undated. Length 62 mm, diameter c. 4 mm, diameter of terminals c. 2 mm. (Context 1, SF 52, Period 4).

### IRONWORK

J. M. Mills

Twenty-five objects were recovered: twenty from the excavations and five from the watching brief. Of the excavated objects, nine were from stratified contexts (Periods 2 and 3). None of the ironwork is illustrated. A full catalogue of the objects is held in the site archive.

The Period 2 (late Iron Age) ironwork comprises a single nail

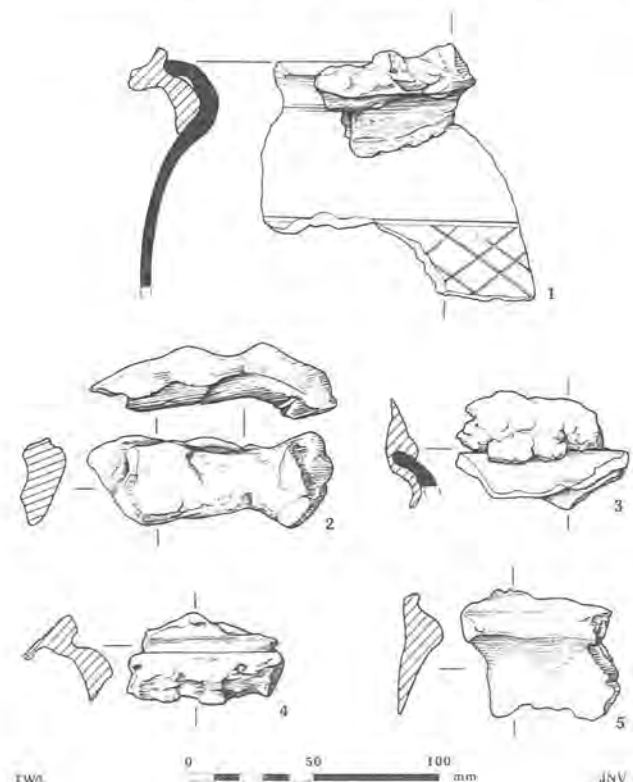


Fig. 18: Fired clay stackers (1-5), at one third life size

fragment from the fill of ditch 16 in trench A. Period 3 material was recovered from the ash horizon in trench D and the fill of quarry pit 55 in trench B. Ironwork from the ash horizon consisted of two nails, a hinge pivot or pintle similar to one found at Neatham, Hants (Redknapp 1986, fig. 80, no. 286) and a ring-headed pin, similar to one from Borough Hill, Northants. (Manning 1985, pl. 59, R. 32). Ironwork from the quarry pit comprised a sheet fragment (possibly binding) and three nails, (including a hobnail).

The nine nails and nail fragments recovered from the soil overburden include a diamond-headed type (Manning 1985, type 2), probably of Romano-British date, which is the only intrinsically datable object from the site. The other two objects from Period 4 contexts were a joiner's dog and a rod with an irregular rectangular cross-section.

The material from the watching brief comprises a circular perforated terminal, the handle and part of a blade of a knife, a large loop handle and two nails.

**FERROUS SLAGS AND THE VITRIFIED REMAINS**  
R. E. Clough

A total of 9.609 kg of slag, fuel ash slag and vitrified clay was recovered. With the exception of two small lumps of bloomery slag from the soil overburden in trench B (context 52), all the material was recovered from trench A. Furthermore, within the spatial distribution of the stratified material (90.4% by weight), two discrete concentrations are evident, both lying outside the major late Iron Age enclosure ditch (ditch 4). A small proportion (2.8% by weight) was recovered from ditch 16 (Period 2) in the extreme north of the trench (contexts 17, 22). The remainder of the stratified material was recovered from deposits associated with clay spread 15 and pit 137 (contexts 15, 23, 107, 117, 138) and the fill of the later ditch, 12, in the same area (contexts 26, 31, 109). Full descriptions of the material, by context, are held in the site archive.

The overall impression gained from examination of the slags and associated fired clay is that it represents the remains from a small iron-working hearth. The structure of the slags, their heterogeneous appearance with many inclusions of flint, chalk and charcoal, and apparent composite nature, are all consistent with slags deriving from a forge. The glassy surface evident on many of the cakes is formed near the blast and is the product of a combination of temperature, cooling rate and composition, particularly fuel-ash constituents. Potassium and calcium are major components of fuel ash and are well-known glass formers.

Also present are some slags with an apparent flow structure (context

109), a feature normally associated with tapped smelting slags. However, given the small quantity of such pieces and the absence of ore and larger quantities of furnace body, smelting is unlikely to have been carried out on the site.

The fired clay with vitrified accretions probably relates to the construction of hearths or furnaces but only one piece (context 17), has any direct indication that it was part of such a structure.

**GLASS**

Two pieces of Roman vessel glass were recovered; both were examined by J. Johnson. Part of the neck of a translucent aquamarine vessel, 1.5mm thick and dated to the mid-third century AD was found in the upper fills of enclosure ditch 4 (Context 24, SF 42). A sliver of translucent dull green glass, 1mm thick, from the backfill of the clay quarry pit (context 74, SF6) has been tentatively dated to the late third/fourth century AD.

An opaque dark blue annular bead (Fig. 19, 5) recovered from clearance levels across trench B (Context 51, SF 53) was examined by M. Guido. Although a type in manufacture over a considerable period of time, she considers it most likely to be of circa sixth-century AD date.

The other glass recovered from the site were seven fragments of dull green bottle glass of post-Medieval date. All these pieces were recovered from the soil overburden levels in trench A (contexts 1 and 2).

**WORKED FLINT**  
Julian C. Richards

A total of 142 pieces of worked flint and two pieces of worked chert were recovered. About 30% of the worked flint was collected by casual 'fieldwalking' across the northern half of the field (context 101). The composition of the collection can be described as follows.

Cores	6
Core fragments	3
Flakes	71
Broken flakes	21
Burnt worked	1
Retouched flakes	27
Scrapers	10
Other tools	2 (1 knife, 1 flake from a ground tool)
Chert flakes	2
Hammerstones	1
Burnt flint	9 (118 g)

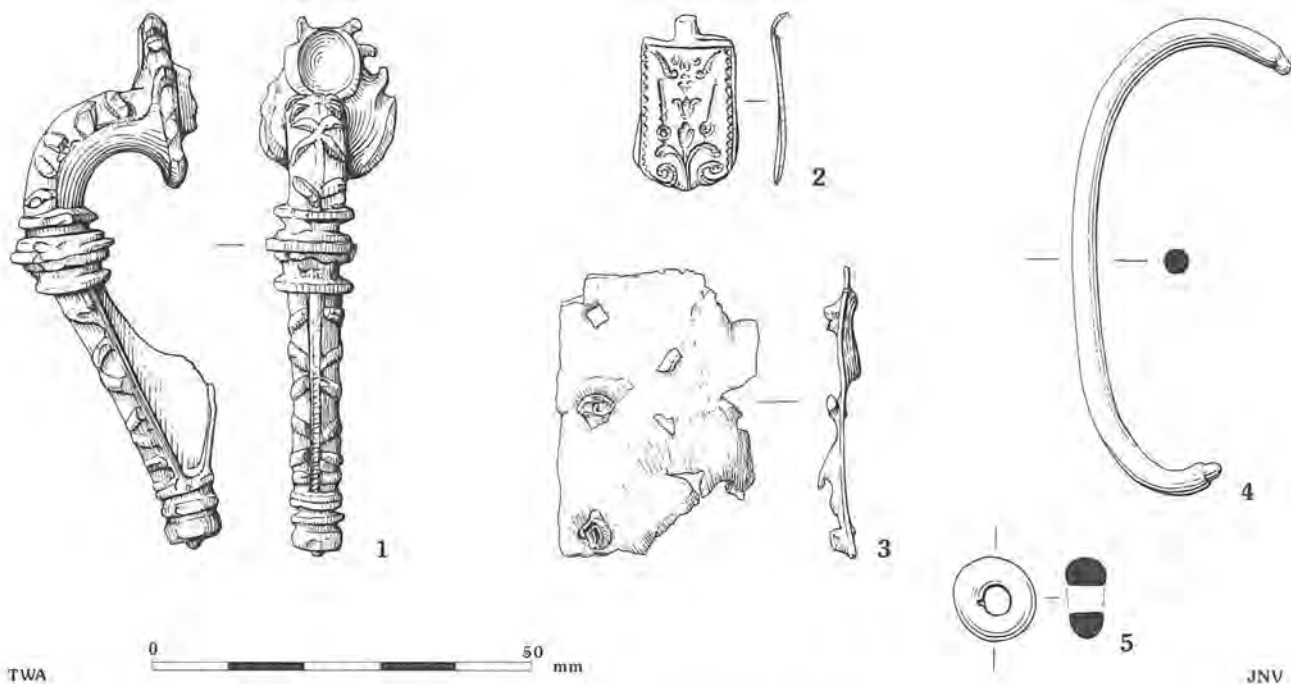


Fig. 19: Copper alloy objects (1-4) and glass bead (5) at life size

The small sample makes it unwise to attempt a detailed analysis but some basic observations can be made. On the basis of cortex and patination, the raw material employed appears to have come from a variety of sources. Local gravel flint forms a large part of the assemblage, chalk flint is present in small amounts and the small hammerstone has been manufactured from a rounded pebble. The two pieces of chert are markedly different.

The proportion of tools and retouched material is high, representing 28% of the whole flake assemblage. This may, however, be a factor of collection bias among the non-excavated flint. The scrapers, on the whole, are small and well-made with neat, invasive retouch and can be suggested as being typical of the early Bronze Age. The only other potentially diagnostic artefact is the flake from a ground tool but this is so small that it is impossible to say from which type of tool it came.

No finished lathe tools associated with the late Iron Age and Romano-British shale-working industry were identified amongst the assemblage. However, within the broken flakes, six are clearly derived from the manufacture of such tools on the basis that they exhibit the classic trapezoidal/rhomboidal profile and lateral snapping technique associated with the industry (see Cox and Woodward 1987b).

Although the earlier prehistoric flint was not directly associated with contemporaneous features, the collection may be added to that recorded by Farrar (1956, 151) and provides further evidence for early prehistoric (Bronze Age) activity along the lower reaches of the Frome valley. The assemblage from Worgret may be closely compared, both in size and composition to collections made across the northern floodplain and terrace of the river, 1 km to the west (Addison and Maynard 1990, 124).

## KIMMERIDGE SHALE

Carrie M. Hearne

A total of 41 pieces of Kimmeridge shale was recovered from the excavations. The collection has been classified using the typology adopted for the Wytch Farm assemblage (Cox and Mills 1991) and may be summarised as follows.

- Unworked shale (category 1); 22 pieces, total weight 2674 g.
- Undiagnostic worked shale (category 2); 8 pieces, total weight 726 g.
- Circular 'blanks' with chiselled edges (category 4i); 2 examples, total weight 55 g.
- Lathe cores (category 14); 4 examples. Three different types of fixing technique for lathe-mounting are represented: one with central square hole (14A); two with central square recess (14B) and one with paired circular bored holes (14C).
- Hand-made objects (category 21); 2 examples.
- Lathe-turned objects (category 22); 2 examples.
- Other objects (category 23); 1 example, a re-used lathe core.

Shale was dispersed across all areas of the site. Only four pieces are intrinsically datable: the two lathe cores with central square lathe-fixing techniques may be considered pre-Conquest/first century AD in date, while two of the finished objects are demonstrably of Romano-British date. However, with the exception of a circular blank stratified in a late Iron Age (Period 2) context, all the shale was recovered from Period 3 and 4 contexts. It is therefore reasonable to suggest that the majority of the shale was derived from the Romano-British (Period 3) occupation of the site.

### Unworked and undiagnostic shale waste

Shale assigned to categories 1 and 2 comprises 73% (by number) of the total material. No spatial concentrations of unworked and undiagnostic shale were recorded. The unworked material included one large block (262 g) which had been charred. The material displaying visible signs of working (category 2) included a range of debris types. Most was not indicative of any specific activity and was generally characterised by fragments with chiselled or sawn edges. One piece appeared to have had a disc removed from it and may represent a waste offcut from shale armlet manufacture. Other category 2 material included a smoothed, irregular, slab (115 x 95 x 12 mm) one side of which was covered with saw marks. This piece probably reflects the casual use of shale as a cutting board or working surface.

### Diagnostic worked shale waste

Diagnostic worked shale waste comprising blanks and core material

(categories 4 and 14) forms 5% of the collection, by count. Both categories are derived from the manufacture of armlets. The presence of these fragments need not indicate shale working on the site, indeed the complete lack of bracelet fragments and flint lathe tools is notable. However, the presence of broken flint flakes from the manufacture of lathe tools supports a scenario of low-level, 'domestic' shale working which is typical of Purbeck sites away from the main production centres (see below).

### Finished objects

All five objects recovered are illustrated on Fig. 20. They comprise a probable spindle whorl (Fig. 20, 1), a small counter or gaming piece (Fig. 20, 2), the base of a table leg (Fig. 20, 3), an unidentifiable object (Fig. 20, 4) and part of a tablet/plaque (Fig. 20, 5).

#### Re-used lathe core (Fig. 20, 1)

A badly-worn, re-used lathe core was recovered from the clay quarry pit 55 (context 62, SF 46). This article represents a two-pin lathe core (category 14C) which has subsequently been re-pierced (centrally), probably for use as a spindle whorl. The edges of the object are so badly worn and abraded that virtually none of the original outer edge of the lathe core survives. Finely-worked shale spindle whorls were manufactured but the re-use of lathe and vessel cores for the same purpose is equally, if not more, common.

#### Counter/gaming piece (Fig. 20, 2)

This small object, only 9 mm in length, was recovered from the lower soil overburden in trench A (context 2, SF 4). Its exterior has been knife-cut; the ends horizontally, the sides into nine irregular facets. The piece does not show any curvature and is therefore unlikely to have been cut from an armlet; it is best interpreted as a counter or gaming piece. Alternatively, it could represent an abandoned or mislaid rough-out for a shale bead.

#### Table leg (Fig. 20, 3)

The base and lower part of a table (or chair) leg was recovered from the ash horizon in trench D (context 152, SF 41). A centring hole for lathe-mounting is visible on the underside of the foot. Although some lamination of the leg has occurred, it can be ascertained that the lower barrel of the leg incorporated three, hand-carved, mortice holes for horizontal cross-piece inserts, probably wooden. Whatever item of small furniture the leg belonged to, the presence of only three mortice-holes indicates that it was not a corner leg but a centrally-placed support within a three-legged table, or perhaps a stool.

Although the upper design of the leg is unknown, the Worgret example may be considered of simple, even utilitarian, design when compared to other ornate zoomorphic examples incorporating griffin-type feet (see Liversidge 1969). Like the tablet, Norden is thought to have been the manufacturing site for these ornate goods, although they are thought generally to be of late third-/fourth-century date.

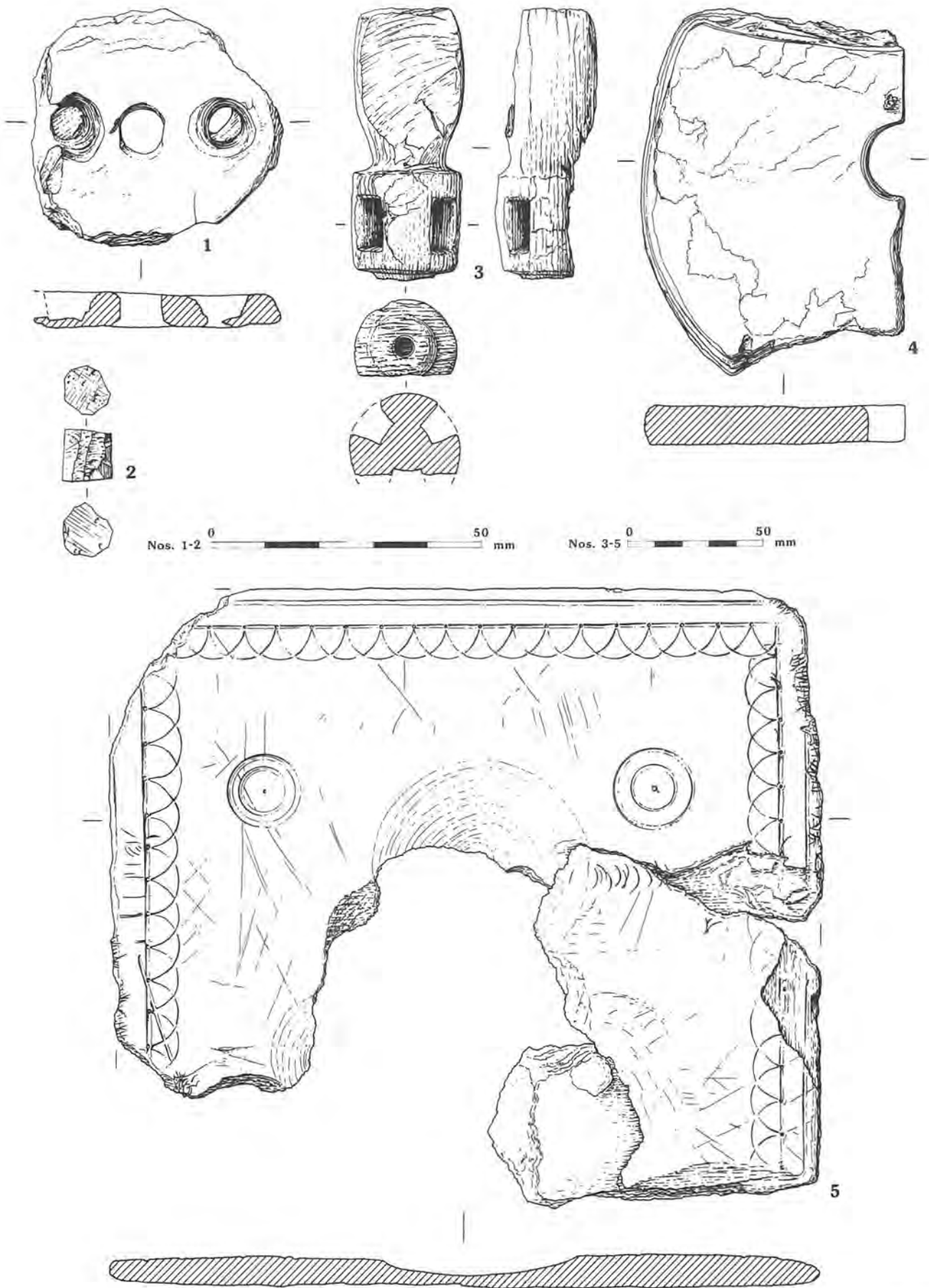
#### Unidentifiable object (Fig. 20, 4)

This badly-laminated fragment was recovered from the fill of pit 177 (Period 3), in trench D (context 168, SF 72). The object is incomplete and no obvious function can be proposed. A similar-looking object, part of a complete circle, was recovered from Norden (Sunter 1987, fig. 22, no. 46), but if the Worgret object originally comprised a full circle, it has subsequently been cut along a diameter.

#### Tablet/plaque (Fig. 20, 5)

Four fragments (three conjoining) from a rectilinear tablet were recovered from the lower soil overburden in trench A (context 2, SF 54). The plaque is 10 mm thick and 260 mm wide; its original length cannot be determined. The intact outer edges of the tablet are finely worked and rounded. The upper surface is dressed to a smooth finish and decorated with an engraved border enclosing a series of compass-incised overlapping semi-circles and concentric circles. Other features visible on the tablet are a series of knife marks, both across the upper surface and outer edges and a distinct central depression. This depression is worn rather than carved and is therefore unlikely to have been an original component (i.e. as manufactured) of the tablet. The underside of the tablet (not illustrated) is roughly smoothed, but generally uneven.

The Worgret tablet is one of a distinctive but fairly small group of such objects principally known from sites in Dorset and Hampshire. The occurrence and distribution of these objects has been discussed in detail by Biddle (1967; see also Lawson 1976) although it may be



TWA

SEJ

Fig. 20:Kimmeridge shale objects (1-5). Nos 1 - 2 at life size ;Nos 3-5 at half life size

noted that further examples are now known from Norden (Sunter 1987, 33-5), Poundbury (Davies and Cox 1987) and Greyhound Yard, Dorchester (Mills and Woodward, forthcoming). Biddle has observed that the tablets generally fall into two size ranges: c. 500 x 400 mm and c. 300 x 250 mm; the Worgret example may be comparable to the smaller of these sizes. The design on the Worgret tablet is typical, if somewhat more simplistic than is often encountered. Varying functions have been attributed to these distinctive items but the knife marks and worn centre of the Worgret tablet supports the suggestion that this example at least was used as chopping board or 'trencher' rather than a table top or architectural fitting. The tablets are likely to have been manufactured primarily, if not exclusively, at Norden; those recovered from datable contexts suggest a late first-/second-century date for their production (see Sunter 1987, 34-5).

### Discussion

Overall, the amount and range of shale types from Worgret is typical of the small assemblages recovered from sites in Purbeck away from the main known production centres of Norden and Rope Lake Hole (Sunter 1987; Woodward 1987b). However, there are two aspects of the assemblage which merit brief discussion. Firstly, the relatively large amounts (3.40 kg) of unworked and undiagnostic shale (categories 1 and 2) recovered. Although the amount is miniscule in comparison with Norden, Rope Lake Hole and sites such as Ower Peninsula where shale working is likely to have played an important part in the economy of the site, it may be compared with the weight of category 1 and 2 shale recovered from sites during the Wytch Farm project, which although of pre-Conquest date were all involved in shale working (Cox and Mills 1991). The weight of category 1 and 2 material from Furzey Island (511 g), East and West of Corfe River (1.212 kg and 1.878 kg respectively) is considerably less than Worgret; that from West Creech (3.265 kg) is more comparable.

Clearly the amounts of unworked and undiagnostic shale at Worgret

cannot be attributed to shale working on any scale. It is more likely that waste shale and shale debris was being brought to the site for use as a fuel, probably comprising a useful supplement to local timber and/or heathland turves. The low percentage of charred or burnt shale recovered is not incompatible with this hypothesis since the properties of shale as it burns (i.e. fracturing into numerous small fragments and, ultimately, reduction to ash or fuel ash slag) means that burnt shale is always likely to be under-represented in the archaeological record.

The second aspect of the assemblage worth noting is that although the number of finished products is low, the inclusion of two objects which are normally considered 'luxury' goods (the table leg and the tablet) is unusual within Purbeck (non-production) sites. These goods, which are relatively rare anyway, are generally confined to the 'consumer' centres such as Dorchester, Poundbury and Hengistbury Head. There remains the possibility that such objects were failed pieces, also utilised as fuel, although it would be difficult to apply this hypothesis to the tablet, which has clearly been subject to considerable use. Alternatively, it could be suggested that the 'luxury' goods reflect the presence of a building of some wealth and/or status nearby.

### STONE OBJECTS AND ARCHITECTURAL FRAGMENTS

J. M. Mills and Carrie M. Hearne

Objects of stone other than worked flint and Kimmeridge shale comprise small portable items such as burnishers, pestles, mortars and quernstones, a range of architectural objects and a marker stone. The utilisation of both local (Purbeck) and non-local rock sources is evident within the collection, but all stone types employed are recoverable from the Hampshire-Dorset Basin. Several of the pieces were recovered from stratified Romano-British contexts. Of the four objects retrieved during the watching brief, two, a padstone and the marker stone had been reused in a kiln structure. The objects are

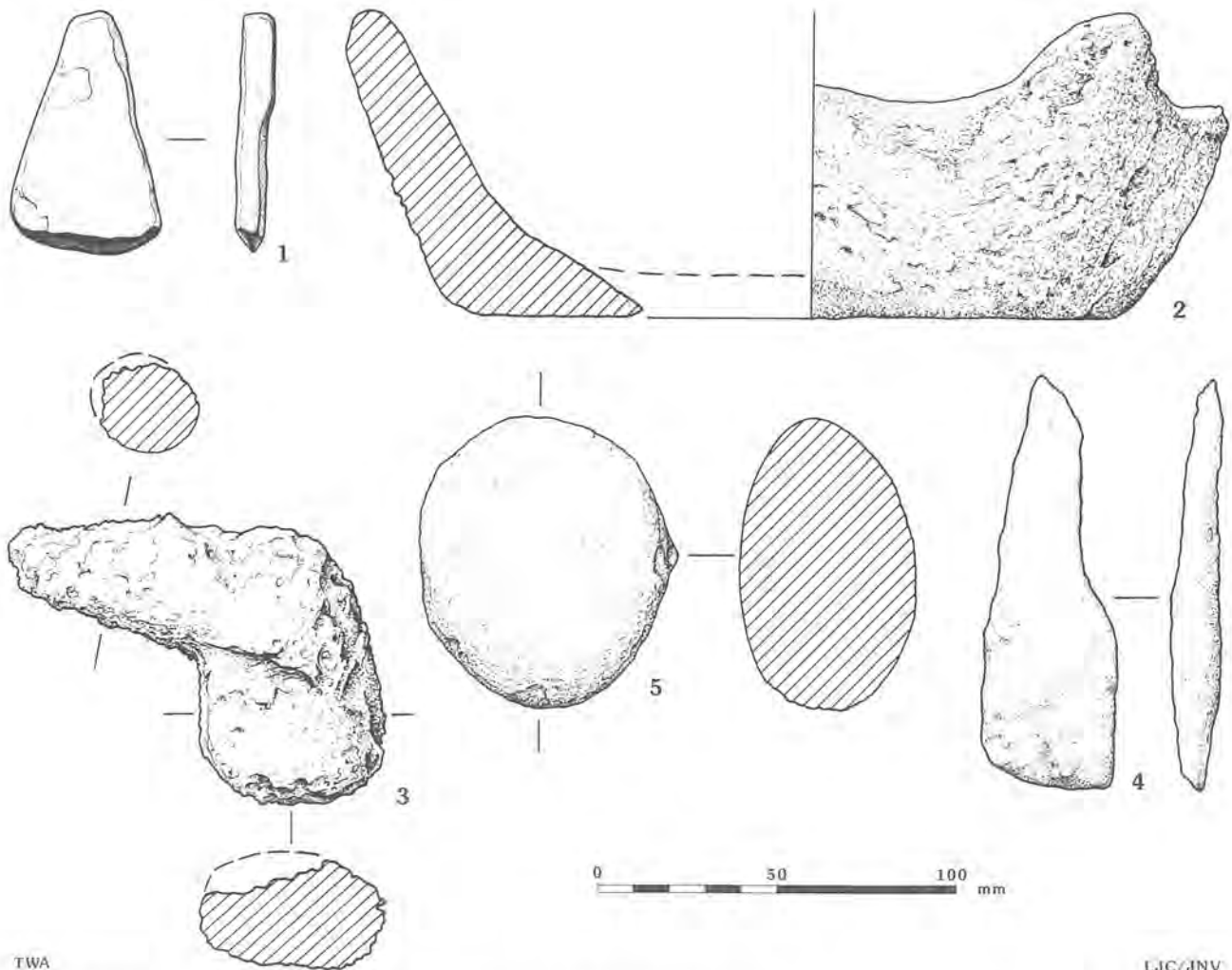


Fig. 21: Stone objects (1-5): ferruginous sandstone (1); Purbeck limestone (2 and 4); Purbeck marble (3); quartzite (5), at half life size

described under functional headings and a selection is illustrated in Figs. 21–23. The non-local stone was identified by Paul Ensom.

### Burnisher

A small sub-triangular shaped object of very fine-grained ferruginous sandstone (Fig. 21, 1) was recovered from the soil overburden in trench A. The wide edge of the object is slightly bevelled and highly-polished from use, probably as a burnisher. Length 66 mm, width 41 mm, thickness 8 mm. (Context 2, SF 66, Period 4).

A second object of comparable dimensions but of less regular shape may also have functioned as a burnisher (Fig. 21, 4). This object, of Purbeck limestone was recovered from the ashy deposits at the mouth of kiln 161 and is in a worn condition with a slightly bevelled edge. Length 114 mm, width (maximum) 38 mm, thickness 13 mm. (Context 170, SF 73, Period 3).

### Pestle and rubber stone

An 'L'-shaped pestle of Purbeck marble was recovered from pit 177 in trench D (Fig. 21, 3). The object is severely decayed, through chemical etching, and virtually none of the original surface survives. The pestle is similar to a Romano-British example from Colchester (Crummy 1983, 77, fig. 80, no. 2087). Length 95 mm, head 78 mm wide, 30 mm thick. (Context 168, SF 25, Period 3).

A rubber-stone of quartzite (source unknown) was recovered during the watching brief (Fig. 21, 5). The object is sub-circular, roughly worked around its edges. The faces are convex and smoothed, one (illustrated) displaying a marked polish across most of its surface. Length 75 mm, width 68 mm, thickness (maximum) 47 mm. (SF 91, unstrat.).

### Mortars

Two mortars were recovered from stratified contexts. The lower part of a Purbeck limestone mortar was found, probably *in situ*, in the base of a shallow pit (145) within the main enclosure in trench A (Fig. 21, 2). The mortar has a slightly curved exterior (maximum height 80 mm) and a level sub-circular base (diameter 200 mm). The interior is rounded and completely worn through the centre of the base, leaving a hole, approximately 120 mm in diameter. (Context 144, SF 27, Period 3).

The second mortar, a base fragment of highly decayed Purbeck marble (not illustrated) was found in association with the marble pestle described above and was, in all probability, used in conjunction with it. The mortar has a circular flat base 170 mm in diameter with a sharply angled exterior profile and a rounded inner profile (height 50 mm). The mortar is most closely paralleled to a third-/fourth-century AD example from Norden (Thomas 1987, 36, fig. 24, no. 3). (Context 168, SF 24, Period 3).

### Quernstones

Five fragments from four different quernstones (all topstones) were recovered: two small fragments from stratified contexts (Period 3) and two, including a complete topstone, from the watching brief. Only the latter has been illustrated (Fig. 22). Those from the excavations (nos. 1–2) are described first.

1. (Not illustrated). Fragment of well-shaped topstone of rotary quern. Tertiary sandstone, Poole Formation. Perimeter of central aperture and overall outer perimeter intact. Virtually flat upper surface with no hopper evident. Traces of worn handle socket which does not extend as far as the central aperture. Danebury type R2 (Brown 1984, 415, fig. 7.54, no. 8.26). Overall diameter 280 mm, aperture diameter not determinable, thickness 80 mm (centre), 88 mm (outer). (Context 83, SF 28, Period 3).

2. (Not illustrated). Fragment of topstone of rotary quern. Burnt Upper Greensand. Part of perimeter of central aperture present but outer perimeter of quern does not survive. Flat upper surface with steep funnel-shaped hopper. Overall diameter 380 mm, aperture diameter 80 mm, thickness 51 mm (centre), 63 mm (outer). (Context 66, SF 29, Period 3).

3. (Fig. 22). Complete topstone of well-dressed, greensand, rotary quern. Incorporates a handle groove which intersects a broad hopper, and a sub-circular central aperture. Danebury type R1 (Brown 1984, 414, fig. 7.53, no. 8.25). Overall diameter 400 mm, aperture diameter 108 mm, maximum thickness 80 mm. (Watching brief, SF 87, unstrat.).

4. (Not illustrated). Two fragments (non-conjoining) of badly-worn/weathered topstones of greensand rotary quernstone. Found together and probably from same quern although the smaller fragment has a

roughly circular outer edge, whereas the larger is more irregular and incorporates a straight edge with rounded corners. Slightly dome-shaped upper surface, this type probably incorporated a side handle socket. Most similar, typologically, to Danebury type R3 (Brown 1984, 415). Overall diameter 360 mm, maximum thickness 90 mm. (Watching brief, SF 88, unstrat.).

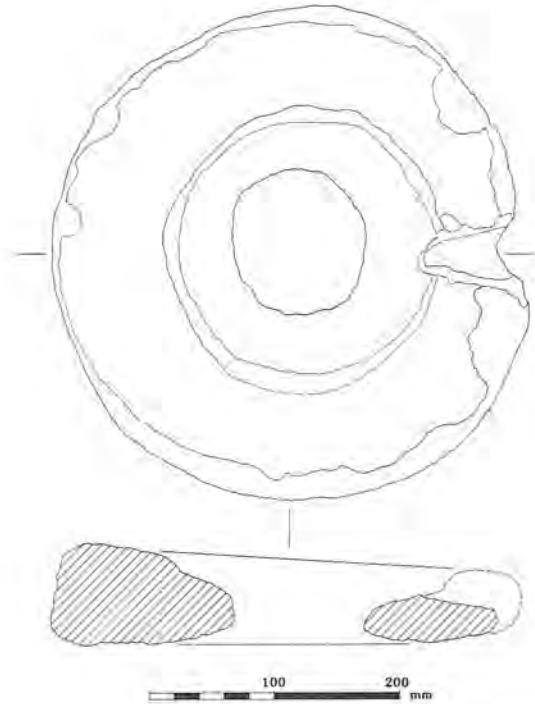


Fig. 22: Greensand rotary quernstone (topstone) at one sixth life size

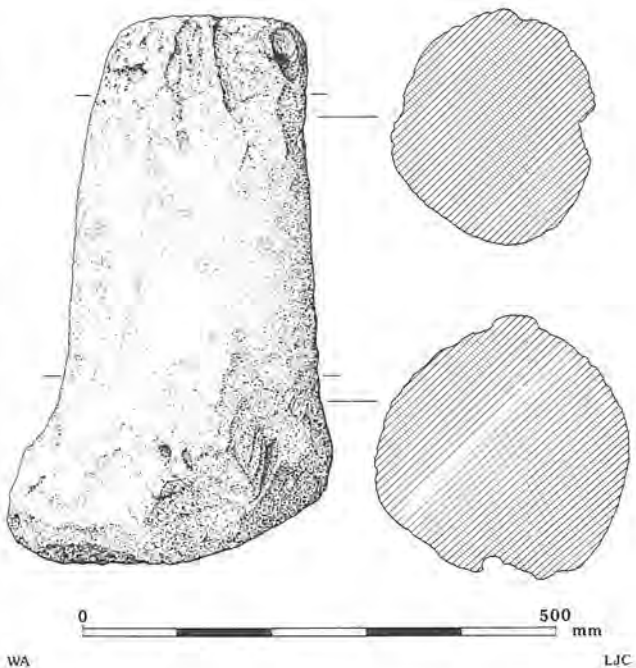


Fig. 23: Purbeck Limestone marker stone at one eighth life size

### Architectural and other stone objects

The architectural and other stone fragments comprise three ashlar limestone blocks, four mudstone tesseræ, a ferruginous sandstone socketed padstone and a limestone marker stone. Both the padstone and the marker stone had been reused, incorporated into the walling of a late Romano-British kiln.

The ashlar blocks, of Purbeck limestone were recovered from the lower levels of the soil overburden in trench A (context 1, Period 6). All are well-faced, dimensions as follows; 280 x 260 x 60 mm, 240 x 200 x 70 mm and 330 x 240 x 60 mm.

Four mudstone tesseræ were recovered from the soil overburden in trench A. All are sub-cuboid, the smallest (most regularly-shaped) piece measuring 12 x 15 x 10 mm, the largest measuring 15 x 23 x 12 mm. (Context 2, SF 34, Period 4).

The padstone (SF 89) had been incorporated into the flue walls of kiln 503, excavated during the watching brief (Plate 11). It is of coarse-grained ferruginous sandstone and sub-cuboid in shape (maximum length c. 500 mm). The upper face of the padstone is roughly flat and contains a single square socket, c. 150 mm in plan.

The marker stone (SF 90) is of Purbeck limestone, maximum length 550 mm (Fig. 23). The upper part of the object has been worked to a cylinder with a slightly tapering profile and a flattened top. The lower part of the stone is roughly-worked, bulbous and irregular. The form of the object is similar to a larger stone recovered from Ower Peninsula, found reused in a third-/fourth-century AD building, which has been interpreted as a marker stone or stele (Cox and Woodward 1987a, 105, fig. 56, no. 256). The stone was clearly an object of some importance but its exact original function is unknown. It may have served as some form of boundary stone. Woodward has suggested links with Armorican stelæ for the Ower example.

### ANIMAL BONE

Nick Winder

Animal bone was recovered in small quantities associated with Period 2 and 3 occupation of the site as well as from the post-occupation and soil overburden levels (Period 4). The assemblage comprises 302 fragments (3.57 kg). The bone is in a variable state of preservation; generally very poorly preserved and/or heavily eroded although in certain contexts (e.g. 152, 168) the bone is in very good condition. The assemblage was assigned to five taxonomic groups, namely cow, large artiodactyl (cow/red deer size), small artiodactyl (sheep/pig size), ovicaprid and small mammal (sheep/pig/dog size). The absence of any reliably diagnostic pig material should not be assigned any economic significance, given the small size of the assemblage and the poor preservational conditions which the site generally provided.

Period	cow	large artiodactyl	small artiodactyl	ovicaprid	small mammal	indeterminate
2	6	7	11	-	-	50
3	17	30	4	4	52	70
4	4	28	3	-	-	16
Totals	27	65	18	4	52	136

Table 6: Identification of animal bone, by period

The composition of the faunal material is summarised by Period in Table 6. More detailed comments on the material, including identification of bones and teeth, by context, are held in the site archive.

The only economic or behavioural inferences which can be drawn from this extremely small assemblage are the obvious ones that some artiodactyl bones were deposited, and hence presumably exploited and discarded on the site. The presence of bones of such variable utility as teeth, sesamoids, humeri and innominates must lead us to conclude that refuse from all stages of carcass processing may have been generated on site. However, as is typically the case when preservation is poor, the surviving assemblage is dominated by durable, low-utility elements, particularly loose teeth.

### THE CARBONISED PLANT REMAINS

W. J. Carruthers

A total of 48 fragments of charcoal and a single fragment of hazelnut shell was recovered by manual collection (trenches A and B). Charcoal was associated with all excavated periods of occupation of the site, although most fragments were derived from Period 2 (late Iron Age)

contexts. The identification of all material, by period, is presented in Table 7. Full identification and quantification of species, by context, is held in the site archive.

The charcoal and carbonised hazelnut shell fragment represent primarily the remains of common woodland trees, and shrubs of hedgerows or scrub. The small, twisted carbonised stems of heather (identified by Rowena Gale) are indicative of the ericaceous heathland habitat typical of the area during the late Iron Age and Roman periods (Scaife 1991), although now largely reclaimed in the immediate area around Wareham today. The small size of the collection precludes any discussion of the material represented by period but overall gives a useful indication into the range of timber which was probably being utilised to fire pottery kilns on the site.

Period	Taxa	No of fragments
2	Quercus sp. (oak)	19
	Ulmus sp (elm)	1
	cf. Pomoideae (hawthorn, apple, pear)	3
	cf. Erica sp/Calluna vulgaris (heather)	5
	Prunus sp. (sloe/cherry)	1
	cf. Fagus sylvatica (beech)	7
	Indeterminate charcoal	5
3	Quercus sp. (oak)	2
	Corylus avellana (hazel)	1
	Pomoideae (hawthorn, apple, pear)	1
	Indeterminate waterlogged twigs (immature)	3
4	Corylus avellana (hazelnut shell fragment)	1

Table 7: Identification of carbonised plant material, by period

### DISCUSSION

Carrie M. Hearne

The late Iron Age and Romano-British site at Worgret is of considerable importance for local and national BBI studies. Although various sites in Purbeck have been identified which are known or suspected to have been involved in the production of Poole Harbour BBI, there have been limited opportunities to examine most of them and the archaeological evidence for actual pottery production at those which have been excavated has proved elusive. As a result, the industry remains one of the least well understood of the Romano-British potteries despite the prevalence of its products on Romano-British sites across the country.

Although only a limited sample of the site was examined in detail, the excavations have demonstrated the chronological development of the site, identified a range of deposits and structures associated with pottery production and provided a welcome insight into the poorly-understood technology of Poole Harbour BBI manufacture. The nature of the excavations was not conducive to examining the spatial organisation of the site throughout its occupation but nevertheless some observations on the layout of the site, and changes in it, are able to be made.

#### Site location and its suitability for pottery production

The site is ideally located for pottery production in that the basic requirements of clay, temper, water and fuel were all available on or within the immediate vicinity of the site. Clay and temper (in the form of quartz sand) were provided by the underlying Eocene deposits; water by the River Frome. High-grade fuel was probably the least plentiful resource available. By the late Iron Age ericaceous vegetation was likely to have dominated the local podzolic soils to the north of the river valley (see Scaife 1991). Gorse or furze and heathland turves would undoubtedly have been utilised as a fuel, and indeed are of some value for the initial firing of kilns and ovens because they burn quickly and attain high temperatures. However, the charcoal identifications also point to the use of oak on the site. This is consistent with the

evidence from the late Iron Age site at East of Corfe River, on the Wyth Farm project where stands of oak, probably surviving on the margins of the river valley, were being exploited for fuel (Cox and Hearne 1991). The fuel supply for pottery manufacture at Worgret may be envisaged therefore to have been of a mixed nature, comprising more readily-obtainable ericaceous plants and turves and more selective use (and, no doubt, careful management) of the localised woodland which probably existed in and around the river valley. Shale debris also seems to have been utilised as fuel on the site. It was probably only used on a casual basis as a fuel supplement, as and when it was available to the potters.

In assessing the suitability of the site for large-scale pottery manufacture it is also important to note that Worgret's location adjacent to the River Frome combined efficient access to both local and wider markets. Upstream, the river and valley corridor provided contact with the heartland of the Durotrigian tribal area and, later, with Dorchester (*Durnovaria*) c. 20 km west of Worgret. The proximity of the site to Poole Harbour (currently only 3.5 km to the east) meant that the site was extremely well-placed for direct transport of its products to wider destinations.

### The late Iron Age settlement

The late Iron Age, pre-Conquest settlement has been located and broadly characterised but detailed information about its overall composition and economy was not forthcoming from the excavation. That the Romano-British BB1 production site at Worgret developed on the site of a Durotrigian settlement is perhaps the more important aspect which the excavation has identified. This allows the site to be placed within a broader landscape context, particularly in view of the recent advances which have been made in understanding the chronological development of pre- and post-Conquest industrial sites on the southern shores of Poole Harbour (Cox and Hearne 1991).

Little can be said of the layout of the site beyond the fact that it comprised a series of ditched enclosures. The major curvilinear enclosure identified in trench A was likely to have formed the focus of settlement from the later first century BC onwards. The indications are that this enclosure replaced a less substantial circuit which existed immediately to the north during the earlier first century BC.

The iron-working evidence suggests small-scale smithing, probably for domestic purposes. The lack of specific features and deposits indicative of pottery production and the low levels of distorted late Iron Age pottery, means that the role of pottery production in the economy of the settlement is problematical. In view of the subsequent development of the site, its prime location for potting and the expansion which the local Durotrigian ceramic industry is known to have undergone during the first century BC, it is highly likely that pottery production, at some level, was undertaken on the site during the first century BC. There remains the possibility that such pottery manufacture was focused beyond the excavated areas of the site. However, it may be noted that a similar lack of distorted ceramics has been recorded from the pre-Conquest sites on the fringes of the southern shores of Poole Harbour where late Iron Age pottery production was almost certainly taking place (Cox and Hearne 1991). The lack of waster material at Worgret is especially evident because of the large amounts associated with the Romano-British pottery manufacture. If, as seems likely, open or clamp firings were used in the pre-Conquest period, it may be possible to correlate the lack of distorted/over-fired sherds amongst the earlier material with the higher temperatures attainable in an updraft kiln structure. Rye states that 'all methods of open firing have restricted maximum temperatures and even localised hotspots...are unlikely to exceed c. 1000 C° (Rye 1981, 98). Simple updraft kilns, however, are likely to attain temperatures in the range

1000-1300° C. Having said this, the difficulties in controlling the rate of heating in the early stages of a bonfire clamp often result in shattered vessels. Spalled sherds would be particularly evident within such failed loads from a bonfire clamp (Cleal, pers. comm.; see O'Brien 1980 for experimental work).

### The Romano-British BB1 production site

Worgret is the first site where undisputed evidence for the manufacture of Poole Harbour BB1 exists by a combination of features associated with the pottery production sequence, namely the extraction of raw clay, its preparation for potting and the firing of vessels. It is also the first site where definite BB1 pottery kilns have been examined (although their form now allows more confidence in assigning other local structures the same function) and where large amounts of true production wasters have been recovered rather than large amounts of oxidised wares.

#### *Evidence associated with the extraction and preparation of clay*

The clay quarry pit (55) is the first of Romano-British date to be identified associated with the Poole Harbour BB1 industry. Its relatively small size makes it more likely that it was one of a group exploited over a period of time rather than the sole source of potting clay for the site. Its location correlates with the southern limits of the site. The quarry may, therefore, be envisaged as lying on the periphery of the complex, but its close proximity to other clay preparation features and structures (tank 63, scoop 80) may be noted. It may, therefore, be suggested that during the earlier Romano-British occupation (pre-third century AD) at least, this part of the site formed a focus for the primary extraction and preparation of clay, away from the main firing area about 100 m to the north, as represented by kilns 46 and 36.

Within the local industry, the preparation tank (63) has its closest parallels in the clay-lined 'vat' at Stoborough, suggested to be a potter's 'clay-puddling hole' (Farrar 1953, 95-96).

The small ferruginous sandstone burnisher was the only object from the excavation likely to be associated with the actual forming of vessels. The four rotary querns, stone pestles and mortars are notable within a finds assemblage distinctly lacking other 'domestic' components. Querns are common finds on kiln sites (Swan 1984, 50) and those at Worgret are far more likely to have been of industrial function (i.e. for the preparation of temper) rather than for the more normal domestic purposes. In addition, given the lack of evidence for actual settlement on the site during the Romano-British period, the pestle and mortars may be attributed to potting activities, possibly used for preparing slips.

#### *The kilns and their technology*

In discussing the Dorset Black-Burnished Ware potteries, Swan suggests that 'the use of surface clamps was...probably normal for this industry during the Romano-British period as well as the Iron Age' (Swan 1984, 54). The lack of readily-identifiable firing structures or actual kilns associated with the Poole Harbour BB1 industry has meant that this view has prevailed. Prior to the excavations at Worgret, deposits and structures which have been interpreted as indicative of pottery firing have been excavated at Redcliff and Ower Peninsula. At Redcliff, the series of interleaved ash and burnt earth layers filling a scoop were suggested to have resulted from repeated open or clamp firings (Farrar 1976). At Ower Peninsula two very different classes of structure were recorded but neither could be proven to be associated with pottery production. It was suggested that the small size of the third-/fourth-century AD clay and stone structure excavated in 1978 may have been of experimental status within an industry largely utilising bonfire clamps

(Woodward 1987a, 65), whilst the dome-shaped structure excavated by Farrar (1977) was interpreted as some form of down-draught pottery kiln. Since the excavations at Worgret, excavations associated with the Wytch Farm project have recorded deposits and structures of late Iron Age date at East and West of Corfe River but again, there are difficulties in proving their association specifically with pottery production since the sites were known to have been involved in a range of industrial activities, including salt production (Cox and Hearne 1991).

The Worgret kilns therefore represent a considerable advance in our understanding of the technology of the Poole Harbour BB1 industry. Moreover, the identification of the pit clamp (feature 140), dated late first/early second century AD, and a series of clay-walled and stone kilns dating from the mid-second to late third/fourth centuries demonstrates a technological development in the firing of vessels on the site.

Parallels for the pit clamp have been cited above in the site description. In terms of firing technology, a pit clamp merely represents a simple variation of an above-ground bonfire kiln or clamp. By setting the load below ground level the pit method afforded greater heat retention and helped exclude draughts: the two factors which Leach considers the most fundamental to the evolution of kilns (Leach 1976, 180). It may also be noted that pit clamps are well-suited to the production of black pottery because it is far easier to exclude oxidising gases from the vessels (Rye 1981, 99). The exact function of the clay lining remains unknown. It may have served to further insulate the firing 'chamber' and may also imply that the pit was used over a period of time rather than for a single firing. The overall form of the feature could not be determined but if, as with later kilns on the site, it was located within the partially-infilled ditch to aid air flow and for rake out, the structure may represent a technological refinement of a basic pit clamp.

In attempting to classify the clay-walled and stone structures across the site, it may be noted immediately that no two were exactly the same in terms of size, shape and design. However, despite these apparent variations all may be considered simple examples of what Swan terms single-chambered, single-flued updraught kilns 'lacking a proper raised or false oven floor' (Swan 1984, 113-117, fig. II.ii). Furnace and pottery chamber are combined in a single 'chamber' in this class of structure and, to aid the passage of air within it, props and portable furniture are often incorporated below and within the load.

Given their close technological affinities with bonfire and pit clamp firings, Swan considers that this unsophisticated class of kiln 'evolved directly from pit-clamp techniques' (Swan 1984, 114). The sequence of structures at Worgret leaves little doubt that the single-chambered kilns were developed on the site during the mid to later second century AD from the refined pit clamp firings represented by pit 140. The evidence from Worgret also strongly suggests that although the kiln design was subject to modifications during later periods (third/fourth centuries), it never progressed technologically beyond this class of structure.

The number of kilns present at Worgret and their date range does not really allow for the possibility that they were merely experimental, although the range in detail of kiln construction and design certainly suggest that the potters were experimenting, adapting and attempting to refine, the basic kiln design in use on the site. Whether the modifications to the basic kiln design were accompanied by variations to the superstructure cannot really be gauged from the surviving evidence. The amount of clay collapse associated with the mid second-/early third-century structures (46 and 36) indicates that the clay walling continued for some height above that which survived *in situ*. Given the evidence for the loading and arrangement of vessels within the kilns, it is more likely that the chamber

incorporated a temporary, removable capping, perhaps of heathland turves (see Swan 1984, fig. II.iv), rather than a permanent clay dome.

Although the small size of the kilns may appear difficult to reconcile with the production of BB1 on a large scale, it is not without parallels across the country (e.g. the Crambeck industry). Small kiln loads of a dozen or so vessels may have been compensated by a large number of kilns in use at any one time, although this would have been somewhat inefficient with fuel, particularly since high-grade fuel was unlikely to have been in plentiful supply.

Both kiln 46 and kiln/oven 36 were sited within or adjacent to partially-infilled enclosure ditches. This phenomenon has been recorded at other local sites for kiln/oven structures of both late Iron Age (East of Corfe River, Wytch Farm) and Romano-British (Ower Peninsula) date. At Worgret at least, the practice appears to have been discontinued since it is not associated with the later third-/fourth-century kilns (160 and 161).

Clues to the loading and arrangement of vessels within the chamber during firing are provided by the ceramic stackers associated with kilns 46, 160 and 161. The unusual attribute of these objects is that they were not prefabricated, re-usable pieces. It has been demonstrated that they were formed from plastic clay as the kiln was being loaded and that they would have had to have been chipped away from the vessels once firing was over. If, as has been suggested, the stackers were used to separate and stabilise the firing load, the technology of the kilns with which they were associated probably provides the answer as to why they were used. In discussing single-chambered, single-flued kilns lacking a proper raised floor, Swan has commented that the spacing out of vessels is important to 'ensure ample circulation of hot gases' within the chamber (Swan 1984, 114). A load in a kiln with no raised floor would also need extra stabilisation and support since the vessels would be liable to movement and/or subsidence as the fuel beneath them burned away. It seems most likely, therefore that the Worgret stackers formed part of what Swan has termed the 'scaffolding network' (*ibid.*, 114) which both supported and spaced out the kiln load. The Worgret stackers were likely to have resulted in a far more stable load than loose, prefabricated objects could provide since the load (or perhaps just the lower levels of it) would be physically bound together. No parallels for such *ad hoc* stackers are known but since they are only likely to be positively identifiable if excavated *in situ* and/or if sufficient of the objects survive to recognise the profile of the impressions, it may well be that this method of stacking vessels was more commonly used in simple kilns than is currently realised.

The oxidised nature of the kiln walling and the fired clay stackers should be recorded since both ought to be indicators of the prevalent conditions within the kiln. Aspects concerning the likely techniques used to produce black pottery on the site are addressed further below, but it is here worth noting that in contrast to open firings where 'it is very difficult to maintain a true oxidising atmosphere throughout the firing' (Rye 1981, 98), in simple up-draught kiln structures 'a reducing atmosphere is difficult to produce. Blackening by carbon staining is usually achieved by sealing the kiln during cooling, after filling the firebox with fuel' (*ibid.*, 100). Rye also states that a disadvantage of up-draught kiln structures is the uneven distribution of temperature, which leads to localised overheating ('hotspots') and the overfiring of adjacent vessels (see Mayes 1961; 1962 for experimental work with up-draught kilns).

#### *The products*

It is impossible to state categorically that all the BB1 from Worgret was manufactured on the site. Although it may seem reasonable to assume that all the distorted and completely oxidised BB1 recovered was made on the site, such an

assumption can not be made of all the other material, although, on balance, it would seem likely that most of it was.

All vessels in the assemblage are hand-made but this does not have to imply that no form of turntable was used in their manufacture. The precision of some of the rims and flanges favours their being finished on a turn-table. Also, the regular decoration of the girths of the jars with lattice would most easily have been effected by rotating the vessel in some way (see Farrar 1973 for discussion on techniques of forming).

Apart from a small collection of rare forms and oddities, the Worgret assemblage comprises a limited range of common BB1 forms. The rarer forms include a small group of copies of imported wares (a single copy of a Gallo-Belgic vessel and three identifiable samian copies), which may be compared with the much larger collection of copies recovered from Ower Peninsula (Woodward 1987a; Cox and Hearne 1991). The presence of these, and the other rarer forms, not frequently found outside the local production zone, serves to demonstrate that even if the demand on the local potters was largely for a standard and somewhat restricted range of vessel form, it did not curtail or suppress a potter's own individuality and creativity. At the same time, such vessels also demonstrate the skill of the potters which, in the case of these hand-made vessels, is perhaps too often overlooked.

In the discussion of a BB1 production site it is relevant to consider vessel forms not present within the assemblage. From Gillam's 1976 series three major forms are not well-represented or not represented at all. Only three examples of beakers with or without handles (Gillam 1976, nos 19-29), generally dated second century AD are present within the assemblage. No definite examples of chamfered bowls with bead or grooved rims (Gillam 1976, nos 50-52), also dated second century, have been identified. At Worgret, the only vessels with chamfered bases are those associated with flat or groove-flanged rims. Dishes with grooved/bead rims (*ibid.*, nos 68-74) are also not convincingly represented at Worgret; plain-rimmed dishes are dominant in the assemblage with only a few examples with a hint of beading at the rim (e.g. Fig. 13, 31). It therefore seems reasonable to suggest that these forms, at least, were not being produced at Worgret.

The incidence and nature of vessel decoration appears to be a useful indicator of developments in the techniques of vessel production and finish from the Durotrigian industry and during Romano-British production. The apparent 'interest' in decoration during the second century AD, from a limited and usually simplistic Durotrigian repertoire, is reflected by the diversification of decorative motifs employed, the decorating of sides and bases/tops of vessel and the actual care employed in the tooling of burnished decoration. All these factors imply a considerable expenditure of time and energy finishing vessels. Conversely, the later third century sees a sharp decline in decorated vessels, with an extremely limited repertoire of decoration associated with drop-flanged bowls and no recorded examples of decorated bases of this vessel type. In addition, the development from acute to obtuse lattice on jars could be cited in support of a declining regard for decoration in the later Roman period, since it is considerably quicker to cover the girth of a jar with obtuse lattice rather than acute in that fewer and longer lines are required.

It is also worth noting the surprisingly small number of designs which occur repeatedly within the assemblage. This probably reflects the strong traditional element and conservative development of the ware but might also be indicative of standardisation and/or the use of specific designs as identifiers of individual production centres. The so-called 'Redcliff motif' has been suggested as some form of trademark from that pottery (Farrar 1973, 90-91). Although no such obvious motif was recorded among the

Worgret assemblage, the actual vessel decoration may, conceivably, have served the same function.

The observed decline of decoration appears to be part of an overall trend towards less time-consuming techniques of vessel finish which may be summarised as follows. The early (pre-Conquest / first-century AD) material is generally meticulously well-burnished and displays a limited repertoire of decoration. Second-century, straight-walled, forms are characterised by a variety of decoration, careful tooling of decoration, a lack of slipped material and a low incidence of wiping. By contrast, the later third-century and later material displays less careful burnishing (frequently only associated with the interior of open vessels), slipping and wiping are common and appear to be accompanied by a decline of decoration on straight-walled forms (i.e. slip replaces decoration).

The colour of Black-Burnished Ware and the technique/s responsible for it have attracted intermittent attention during the course of Poole Harbour BB1 studies (see Farrar 1973, 70). The re-firing experiment (Appendix II) was undertaken in an attempt to contribute to the available data, particularly since the oxidised clay-walled structures and stackers at Worgret seemed to point to the likelihood that BB1 vessels on the site were fired under oxidising conditions, and thus that the ultimate black colour of the ware was more likely the result of smudging or carbon deposition. The results of the re-firing experiment are inconclusive but have demonstrated that, in at least some cases, pottery was blackened by carbon deposition. This observation, taken with the oxidised kiln walls would, on balance, suggest that pottery was generally, blackened by smudging or carbon deposition on the site rather than by firing vessels in a true reducing atmosphere. Also, the technologically-simple kilns at Worgret seem unlikely to have been built with the intention of deliberately achieving reduction. They may, however, have been intended to facilitate smudging, in which, towards the end of firing, a carbon-rich atmosphere is obtained by covering the vessels with organic material so that carbon can be absorbed into the fabric of the pots. It may also be noted that if carbon deposition was the general method of producing Poole Harbour BB1, the explanation of 'discoloured' and partially-oxidised BB1 on sites beyond the production zone becomes of less significance since such wares are more vulnerable to partial re-oxidisation.

Although the assemblage from Worgret may be considered an important component in the continuing attempts to refine the chronology of Poole Harbour BB1, it is beyond the scope of this report to try and address the issue in overall terms. It is, however, possible to identify specific chronological aspects which the assemblage seems to point to. In particular the co-occurrence of vessel forms supports the hypothesis that the early, straight-walled, bowl and dish forms (plain-rimmed dishes and flat-rimmed bowls) were in production and use during the late first century AD, rather than making their first appearance in the early second century. The recovery of groups of these vessel types in Period 6 levels (AD 75-120) at Greyhound Yard (Seager Smith and Davies forthcoming) allows for the possibility that these vessels were in circulation in local markets at the turn of the century.

#### *Evidence for other activities on the site*

The evidence for activities other than BB1 production, whether industrial, domestic or agricultural, is minimal. However, it should be remembered that the areas of the site examined in detail represented only about 10% of the area of the site under threat. The lack of a convincing 'domestic' component to the finds assemblage has already been noted. The small number of personal objects (three items) may also be recorded along with the extremely low level of non-BB1 pottery, both for imported wares and native finewares. Other

industrial activity is only represented by a low level of shale working. Based on the presence of only four mudstone tesseræ and no associated unworked or partly-worked lumps of this stone from the site, it would be unwise to suggest they were associated with the manufacture of tesseræ. Evidence for agricultural activity is poorly represented but, in view of the acidity of the local soils, it would be unwise to suggest the faunal assemblage is representative of that which was originally associated with the site.

The presence of stone architectural fragments, some re-used in kilns, and 'luxury' shale goods on the site may indicate that a building of some wealth and/or status existing in the vicinity of the site, probably during the second century AD. However, this need not imply that such a building was directly associated with the economy of the pottery production site itself.

#### The site in its local landscape

The chronological development of the site is of considerable importance in attempting to view it in the contemporaneous local landscape. There appears to have been no significant chronological break in occupation from the late Iron Age to the late Roman period. The excavated evidence suggests that the late first/earlier second century AD was a period of major investment in the site, as represented by the recutting of late Iron Age ditches and the establishment of a series of new enclosures. These factors are of some interest when viewed alongside the recent evidence from the sites around the southern shores of Poole Harbour (Cox and Hearne 1991). There, late Iron Age industrial sites were abandoned in the late first century AD. Those that continued to be occupied were turned over to arable agriculture during the second century AD, and the return of an industrial basis to the area, including pottery production, did not occur until the (?later) third century AD with a rationalised settlement pattern comprising smaller-scale industrial complexes. The ascending importance of Worgret during the late first and second centuries AD therefore appears to be linked with a shift of activity away from the harbour shores and into the Frome River valley. This is supported by the available dating evidence from Stoborough (Nuterack lane) and Redcliff, where BB1 production appears to have been in operation during or from the late first and second centuries AD (Farrar 1953; Farrar 1976). For the later period (later third and earlier fourth centuries AD), a general expansion in the number of industrial centres across the area may be envisaged, no doubt to meet the wider markets the industry was then supplying, as testified by the prevalence of Poole Harbour products on civilian sites in Southern Britain during this period.

Apart from the intrinsic interest of the site at Worgret for BB1 studies, and particularly the technological aspects of such, the excavations should also be valued for their contribution in helping to identify and define the importance of the lower Frome valley for later prehistoric and Romano-British industry, relative to the other industrial 'zones' of Purbeck (see Woodward 1987a, fig. 1). The Frome valley is perhaps the least well understood of these zones but as an artery between Poole Harbour, Purbeck and the rest of southern and western Dorset, its role ought not to be underestimated. Its importance for BB1 production now seems firmly established and the evidence from Worgret, at least, points to the site being primarily, if not purely, involved in the manufacture of BB1 pottery for wider transport and exchange. In addition, although the exact nature and date of the Frome River site, only 1 km to the south west of Worgret (see Fig. 1) is unclear, the indications are for iron smelting, on a large scale in the late Roman period (Maynard 1989).

The importance of the lower Frome valley for industry in the Romano-British period was not, therefore, only likely to have been for pottery production. However, it is interesting to note that, unlike sites such as Ower Peninsula (Woodward

1987a; Cox and Hearne 1991) and Norden (Sunter 1987) which were engaged in a range of manufacturing activities, the evidence available for the lower Frome perhaps points to the existence of a series of Romano-British industrial sites each of a more specialised nature.

## APPENDIX I: ARCHAEO-MAGNETIC DATING

A. J. Clark

Four of the kiln structures excavated were sampled for archaeomagnetic dating. For kilns 36 and 46 north orientation of the samples was by theodolite with gyro attachment. For kilns 160 and 174 north orientation was obtained by a magnetic compass, using the previous gyro readings. All samples were taken using the disc method (Clark *et al.* 1988). Measurements were made in a Molspin spinner magnetometer, with partial demagnetisation in an alternating field (AF) to remove viscous magnetic components where necessary. Date spans are given at the 68% confidence level.

### 1. Kiln/oven 36 (Ref. AJC-7)

This kiln was somewhat cracked: its location on the edge of a ditch (ditch 40) has clearly resulted in physical instability which was reflected in the results. Ten samples were taken from the inner surface of the structure. The samples gave scattered readings and also showed evidence of slight subsidence in a north-westerly direction. Viscous components were removed in an AF field of 20 millitesla.

Mean direction of thermoremanent magnetisation:

Dec = 12.0°E; Inc = 64.9°; alpha-95 = 5.9°

Although this result is too imprecise to provide a useful date, it is not incompatible with the results from the other structures.

### 2. Kiln 46 (Ref. AJC-8)

The siting of this kiln, in a partially infilled enclosure ditch (ditch 4) had afforded it comparatively good protection. Its far less precarious location than structure 36 (above) is reflected in the much more coherent results obtained. The eight samples taken from the upper surface of the chamber walls were treated in an AF field of 20 millitesla.

Mean direction of thermoremanent magnetisation:

Dec = 4.4°W; Inc = 59.0°; alpha-95 = 4.9°

Date of last firing: cal AD 150-230.

### 3. Kiln 160 (Ref. AJC-9)

The only part of this kiln available for sampling was the rather thin chamber walls. As its physical stability was not ideal, 16 samples were taken, well spread around its periphery. The material was magnetically very stable, although affected by a tenacious viscous component that required partial demagnetisation of the samples at the high AF field of 45 millitesla.

Mean direction of thermoremanent magnetisation:

Dec = 1.2°W; Inc = 61.3°; alpha-95 = 3.9°

This corresponds with a date within the limits cal AD 140-210. A possible alternative date span is cal AD 275-410.

### 4. Kiln 174 (Ref. AJC-10)

The flue and chamber walls of this structure were poorly preserved and did not appear to be very stable physically. This was confirmed by the scattered results which were obtained from three samples taken for experimental purposes (results not included in final calculations).

The main area sampled was the firm clay floor of what is probably the mouth of the flue. The eleven samples taken showed that the floor material was magnetically stable and gave the most precise result obtained from the four structures. Slight viscous components were removed with an AF field of 2.5 millitesla.

Mean direction of thermoremanent magnetisation:

Dec = 2.5°W; Inc = 58.6°; alpha-95 = 2.6°

Date of last firing: cal AD 160-210.

## APPENDIX II: RE-FIRING OF BLACK-BURNISHED WARE SHERDS

Rosamund M. J. Cleal

A limited re-firing exercise was undertaken in an attempt to provide some data for a discussion of the firing techniques responsible for the colour of Black-Burnished Ware (see Farrar 1973, 70; Shepard 1956, 16-17, 102-107). Re-firing black pottery in a true oxidising atmosphere establishes the fully oxidised colour of the clay, which in turn is an indication of whether a clay is iron-rich, iron-poor or

iron-free. Clays which are iron-free (or virtually iron-free) will not fire black/dark grey under reducing conditions because of the lack of iron compounds they contain. As a result, if black pottery can be shown to have been produced from iron-free clay, it can be assumed that its dark colour is due to carbon deposition (by 'smudging') and/or to the incomplete burning out of carbonaceous material present in the clay body rather than to reduction.

Ten sherds of the local coarseware assemblage, representing various vessel types and all displaying very dark grey or black surfaces and cores were selected for re-firing in an oxidising atmosphere in an electric kiln. The sherds chosen for the analysis and the results are summarised in Table 8.

### Methodology

Each sherd was sawn into approximately equal pieces. Half of each sherd was retained in its original condition. The sherds for re-firing were placed in an electric kiln: each propped up on edge, against supports, to ensure that the maximum sherd area was fully exposed to the atmosphere during firing. All the sherds were placed at the top of the kiln, directly beneath the thermocouple. The kiln was brought up to a temperature of 500°C at a rate of increase of approximately 100°C per hour and was then switched off and allowed to cool. The sherds were removed when the kiln was sufficiently cool for them to be removed by hand.

### Results

With the exception of sample 8 (context 152), all the sherds fired to clear shades of orange, indicating iron-rich clay. In most cases the colour was clear throughout the section, but sample 4 (context 162), and sample 7 (context 131), showed a clearer colour on the re-fired surfaces than along the section. The cores of these two sherds fired to a grey-buff colour, which is unlikely to be the result of carbonaceous material remaining in the fabric, and may indicate the presence of a slip.

The single exception among the re-fired sherds to the general orange firing colour is sample 8 (a drop-flanged vessel). This rim sherd was black to dark grey before firing, but after firing showed a pale cream-coloured core, and buff surfaces. This indicates that, unlike the other samples, the clay used for this vessel was iron-poor. The colour of the surface, in contrast to the core suggests that a very thin slip is present. This possibility had been noted before the re-firing took place.

### Discussion

The re-firing demonstrated that the clay used for most of the sherds is iron-rich. In these cases, the dark grey to black colour of the sherds (as excavated) could be due to several technological processes: true

reduction of the iron compounds in the clay body; smudging (also called soot-soaking) whereby vessels are blackened by carbon deposition, usually in the later stages of firing or, thirdly, the incomplete burning out of carbonaceous materials present in the clay. A combination of these processes could account for the colour of the sherds which re-fired orange.

The sherd which re-fired to cream with buff surfaces, however, is clearly an iron-poor clay. As such, reducing conditions during firing would not produce the dark grey to black colour of the original sherd (Shepard 1956, 107). In this case, the dark colour of the sherd must be due to carbon deposition by smudging and/or the incomplete burning out of carbonaceous material present in the clay.

The results of the experiment are inconclusive but if it can be shown that processes other than reduction were used to produce some Black-Burnished Ware (i.e. that of iron-poor clay) there remains the likelihood that similar methods were employed for vessels made with iron-rich clay (i.e. those in which the dark colouring could be the result of true reduction). It should also be noted that true black, which does occur on most of the sherds, at least in patches, is usually the result of smudging rather than reduction, the latter process normally producing grey shades of less intensity (Shepard 1956, 105-106).

As mentioned above, the amount of carbonaceous matter remaining in fired pottery often contributes to the dark colour of smudged and reduced pottery (Shepard 1956, 219). On re-firing, carbon deposited during smudging is likely to burn out faster and at lower temperature than carbonaceous material originally present in the clay, but during the re-firing experiment the sherds were not drawn quickly enough for it to be certain that only deposited carbon was burnt out, and it is possible that carbonaceous material was also present in the original clays.

## APPENDIX III: STOBOROUGH EARTHWORK EXCAVATION

A small-scale excavation was undertaken, in advance of road construction (May 1987), towards the southern end of the by-pass, north west of the Stoborough Heath roundabout (Fig. 1). The excavation (centred on SY92608545) examined a low linear earthwork, aligned NNW to SSE which marks the line of a property boundary and footpath on the west side of the Stoborough Green to Furzebrook road.

The earthwork survives as a low mound (c. 6 m wide) flanked on either side by a linear hollow. The eastern of the two hollows marks the line of the current footpath between Stoborough Green and the barrow north of Hill View cottage.

A trench 22 m long and 1.5 m wide was excavated at the eastern end

NO	CONTEXT; FEATURE	SHERD TYPE	PRE-FIRING COLOUR		POST-FIRING COLOUR	
			Surface	Core	Surface	Core
1	116; ditch 4	body sherd acute lattice	N2/0: black	N2/0: black	5YR 6/6: reddish yellow	as surface
2	116; ditch 4	Type 1 jar	N2/0: black	N2/0: black	5YR 6/6: reddish yellow	as surface
3	116; ditch 4	countersunk handle	N4/0: dk grey	N4/0 with 7.5YR 5/4 margins: dark grey with brown margins	7.5YR 7/6 with 2.5YR 6/8 margins: reddish yellow with light red margins	7.5YR 7/6 reddish yellow
4	162; ash	Type 25 bowl	N2/0: black	N3/0: very dk grey	ext. 5YR 6/8: reddish yw. int. 7.5 YR 7/6: reddish yw	10YR 7/6: yellow
5	108; pit 140	Type 23 bowl	N2/0: black	N3/0: very dk grey	7.5YR 7/6: reddish yellow	as surface
6	110; pit 140	Type 22 bowl	N2/0: black partially oxidised patch 7.5YR 5/4: strong brown	N3/0: very dk grey	7.5YR 6/6: reddish yellow	as surface
7	131; pit 140	Type 2 jar	N3/0: very dk grey	N3/0: very dk grey	7.5YR 7/6: reddish yellow	2.5YR 6/2: light brownish grey
8	152; ash	Type 25 bowl	N2/0: black	N3/0: very dk grey	10YR 8/4: very pale brown	2.5YR 8/2: white
9	152; ash	body sherd obtuse lattice	N3/0: very dk grey	N4/0: dark grey	7.5YR 6/6: reddish yellow	as surface
10	152; ash	Type 22 bowl	N2/0: black	10YR 4/1: dk grey	7.5YR 6/6: reddish yellow	as surface

Table 8: Re-firing of Black-Burnished Ware sherds; condition of samples and results of re-firing (Colour references: Pottery Colour Chart, Study Group for Romano-British Pottery)

of the road construction corridor. The earthwork comprised a mound of redeposited clays and sands of maximum height 380 mm. This matrix sealed an *in situ* buried soil horizon, 200 mm deep, of black humic sand. On the eastern side of the mound, three shallow gullies (maximum depth 800 mm) were recorded aligned parallel with the mound (Plate 13). On the western side of the mound no subsoil gullies were recorded but a narrow alignment of stones (flint and ferruginous sandstone) was observed.

It has been suggested that the earthwork represents and preserves the line of a Roman military road between Flowers Barrow hillfort on the southern coast of Purbeck and Warcham (Field, pers. comm.; see Field 1988). Mr. Field considers that the results from the excavation are indicative of a 'typical example of a Claudian military road', suggesting that the road incorporated a 'terre battue' surface and some form of 'sidewalk' on the west side.

#### ACKNOWLEDGEMENTS

The excavations at Worgret and Stoborough Heath were funded by Dorset County Council. Additional financial contributions, for the post-excavation programme, were provided by the Dorset Archaeological Committee and English Heritage. The excavations were undertaken by the Trust for Wessex Archaeology (now Wessex Archaeology): led and co-ordinated by Peter Cox and carried out under the direction of the Project Officer Roland Smith with the Supervisor Carrie Hearne. The Stoborough earthwork excavation was supervised by Julie Lancley. We would like to thank all the members of the small team who took part in the excavations. Thanks must also go to those who kindly volunteered to help process the large amounts of pottery during the excavation. Thanks are due to Laurence Keen and Derek Fowler of Dorset County Council and David Evans



Plate 13: Stoborough earthwork excavation looking north west; showing subsoil gullies during excavation (scale in foreground 1 m)

and Rob Davenport of Purbeck District Council for their contributions in ensuring the smooth running of the project; Mr. J. Baggs for allowing the team accommodation on the site and Ray Farrar, Peter Woodward, Neil Holbrook, the late Tony Brown and the late Ron Lucas for their helpful comments during visits to the site.

Grateful thanks are due to all those members of the Wareham and District Archaeology and Local History Society who undertook excavations during the watching brief. In particular thanks are owed to Lilian Ladle who was largely responsible for organising this phase of excavation. The authors would like to thank all the contributors to the final report and Peter W. Cox for his help and advice in its preparation. The illustrations were produced by Linda Coleman, Serena Garrett, Elizabeth James and John Vallender and photographic plates were prepared by Elaine Wakefield.

#### BIBLIOGRAPHY

- Addison, P. and Maynard, D., 1990 'Observations on the Purbeck to Southampton Pipeline', *Proc. Dorset Nat. Hist. Archaeol. Soc.* 111 (1989), 122-124.
- Ashbee, P. and Dimbleby, G. W., 1959 'The Excavation of a Round Barrow on Chick's Hill, East Stoke parish, Dorset', *Proc. Dorset Nat. Hist. Archaeol. Soc.* 80 (1958), 146-159.
- Biddle, M., 1967 'Two Flavian Burials from Grange Road, Winchester', *Antiq. J.* 47, 224-50.
- Bidwell, P. T., 1977 'Early Black-Burnished Ware at Exeter', in Dore, J. and Greene, K. (eds.), *Roman Pottery Studies in Britain and Beyond*, Brit. Archaeol. Rep. (Supl. Ser.) 30, (Oxford), 189-197.
- Brown, L., 1984 'Objects of Stone', in Cunliffe, B. W., *Danebury: an Iron Age Hillfort in Hampshire - Vol 2, The excavations 1969-78: the finds*, Council for Brit. Archaeol. Res. Rep. 52, 407-426.
- Clark, A. J., Tarling, D. H. and Noel, M., 1988 'Developments in Archaeomagnetic Dating in Britain', *J. Archaeol. Sci.* 15, 645-667.
- Cox, P. W. and Mills, J. M., 1991 'The Kimmeridge Shale', in Cox, P. W. and Hearne C. M., *op. cit.* 170-175.
- Cox, P. W. and Hearne, C. M. 1991 *Redeemed from the Heath: the Archaeology of the Wytch Farm Oilfield (1987-90)*, Dorset Nat. Hist. Archaeol. Soc. Monograph Series No. 9 (Dorchester)
- Cox, P. W., and Woodward, P. J., 1987a 'The Building Materials, Architectural Fragments, and Miscellaneous Stone Objects', in Woodward, P. J., 1987a, *op. cit.*, 104-106.
- Cox, P. W., and Woodward, P. J., 1987b 'The Flint', in Woodward, P. J., 1987b, *op. cit.*, 172-176.
- Crummy, N., 1983 *Colchester Archaeological Report 2 : The Roman small finds from excavations in Colchester 1971-9.*
- Cunliffe, B. W., 1987 *Hengistbury Head, Dorset, Volume 1: The Prehistoric and Roman Settlement, 3500 BC-AD 500*, Oxford University Committee for Archaeology, Mono. 13 (Oxford).
- Cunliffe, B. W. and Brown, L., 1987 'The Later Prehistoric and Roman Pottery', in Cunliffe, B. W. 1987, *op. cit.*, 205-321.
- Cunliffe, B. W. and Phillipson, D. W., 1969 'Excavations at Eldon's Seat, Encombe, Dorset'. *Proc. Prehist. Soc.* 34 (1968), 191-237.
- Davies, S. M., 1987 'The Coarseware Pottery', in Woodward, P. J., 1987b, *op. cit.*, 150-158.
- Davies, S. M. and Cox, P. W., 1987 'The Shale and Jet Objects', in Green, C. Sparey, *Excavations at Poundbury, Volume I: The Settlements*, Dorset Nat. Hist. Archaeol. Soc. Mono. 7, (Dorchester), 107-9.

- Davies, S. M., and Hawkes, J. W., 1987 'The Iron Age and Romano-British Coarse Pottery', in Green, C. Sparey, *Excavations at Poundbury, Volume I: The Settlements*, Dorset Nat. Hist. Archaeol. Soc. Mono. 7, (Dorchester), 123-128.
- Farrar, R. A. H., 1953 'Archaeological fieldwork in Dorset in 1952', *Proc. Dorset Nat. Hist. Archaeol. Soc.* 74 (1952), 85-110.
- Farrar, R. A. H., 1956 'Miscellaneous discoveries and accessions', *Proc. Dorset Nat. Hist. Archaeol. Soc.* 77 (1955), 150-154.
- Farrar, R. A. H., 1973 'The Techniques and Sources of Romano-British Black-Burnished Ware', in Detsicas, A. P. (ed), *Current Research in Romano-British Coarse Pottery*, CBA Res. Rep. 10, 67-103.
- Farrar, R. A. H., 1976 'Interim Report on Excavations at the Romano-British Potteries at Redcliff near Wareham', *Proc. Dorset Nat. Hist. Archaeol. Soc.* 97, (1975) 49-51.
- Farrar, R. A. H., 1977 'A Romano-British Black-Burnished Ware Industry at Ower in the Isle of Purbeck', in Dore, J. and Greene, K. (eds.), *Roman Pottery Studies in Britain and Beyond*, Brit. Archaeol. Rep. Supp. Ser. 30, 199-227.
- Field, N. H., 1988 'Roman Roads in East Dorset', *Proc. Dorset Nat. Hist. Archaeol. Soc.* 109 (1987), 130.
- Fulford, M. G., 1975 *New Forest Roman Pottery*, Brit. Archaeol. Rep 17, (Oxford).
- Gillam, J. P. 1976, 'Coarse Fumed Ware in North Britain and Beyond', *Glasgow Archaeol. J.* 4, 58-80.
- Hartley, B. R., 1972 'The Roman Occupations of Scotland: The Evidence of Samian Ware', *Britannia* III, 1-55.
- Holbrook, N. and Bidwell, P. T., 1991 *Roman Finds from Exeter*, Exeter Archaeol. Rep. 4 (Exeter).
- Johnston, D. E., 1975 The Wareham Bypass - its archaeological implications, Report prepared for the Dorset Archaeological Committee.
- Ladle, L., 1987 A Short History of the Manor of Worgret (privately printed pamphlet prepared for Worgret Manor Hotel).
- Ladle, L., 1990 'A Roman Coin from Wareham Lady St. Mary', *Proc. Dorset Nat. Hist. Archaeol. Soc.* 111 (1989), 107.
- Lancley, J. and Morris, E. L., 1991 'Iron Age and Romano-British Pottery', in Cox, P. W. and Hearne, C. M., *op. cit.* 114-136
- Lanning, G. E., 1988 'Bovington - Before The Tanks Arrived', *Proc. Dorset Nat. Hist. Archaeol. Soc.* 109 (1987), 17-20.
- Laubenheimer, F., 1985 *La production des amphores en Gaule Narbonnaise sous le haute-empire*, Ann. Litt. Univ. Besançon 327/Ser. Centre Hist. Anc. 66 (Paris).
- Lawson, A. J., 1976 'Shale and Jet Objects from Silchester', *Archaeologia* 105, 241-275.
- Leach, B., 1976 *A Potter's Book*.
- Leech, P., 1982a *Excavations at Catsgore 1970-1973: a Romano-British Village*, Western Archaeological Trust Mono. 2 (Bristol).
- Leech, P., 1982b *Ilchester Volume 1, Excavations 1974-1975*, Western Archaeological Trust Mono. 3 (Bristol).
- Liversidge, J., 1969 'Furniture and Interior Decoration', in Rivet, A. L. F., (ed.) *The Roman Villa in Britain*, 127-172.
- Manning, W. H., 1985 *Catalogue of the Romano-British Iron Tools, Fittings and Weapons in the British Museum*.
- Mattingly, H. and Sydenham, E. A., 1923ff. *Roman Imperial Coinage*.
- Mayes, P., 1961 'The Firing of a Pottery Kiln of Romano-British Type at Boston, Lincolnshire', *Archaeometry* 4, 4-18.
- Mayes, P., 1962 'The Firing of a Second Pottery Kiln of Romano-British Type at Boston, Lincolnshire', *Archaeometry* 5, 80-86.
- Maynard, D. 1989 'Excavations on a Pipeline near the River Frome, Worgret, Dorset', *Proc. Dorset Nat. Hist. Archaeol. Soc.* 110 (1988), 77-98.
- Mills, J. M. and Woodward, P. J., forthcoming 'The Kimmeridge Shale and Jet', in Woodward, P. J., Davies, S. M. and Graham, A. H., *The Excavations at the Old Methodist Chapel and Greyhound Yard, Dorchester 1981-1984*.
- O'Brien, C., 1980 'An Experiment in Pottery Firing', *Antiquity* 54, 57-59.
- Oswald, F., 1936 *Index of Figure-Types on Terra Sigillata ('Samian Ware')*, Supp. Ann. Archaeol. Anthropol. 23; 1-4 (Liverpool).
- Oswald, F., 1937 *Index of Figure-Types on Terra Sigillata ('Samian Ware')*, Supp. Ann. Archaeol. Anthropol. 24; 1-4 (Liverpool).
- Panella, C., 1973 'Appunti su un Gruppo di Anfore della Prima, Media e Tarda Eta Imperiale', *Ostia III*, 460-633.
- Peacock, D. P. S., 1971 'Roman amphorae in pre-Roman Britain', in Jesson, M. and Hill, D. (eds.), *The Iron Age and its Hill-Forts*, (Southampton), 169-188.
- Peacock, D. P. S., 1974 'Amphorae and the Baetican fish industry', *Antiq. J.* 54, 232-243.
- Peacock, D. P. S., 1978 'The Rhine and the problem of Gaulish wine in Roman Britain', in du Plat Taylor, J. and Cleere, H. (eds.), *Roman Shipping and Trade: Britain and the Rhine Provinces*, CBA Res. Rep. 24, 49-51.
- Peacock, D. P. S and Williams, D. F., 1986 *Amphorae and the Roman Economy*.
- Petersen, F. F., 1981 *The Excavation of a Bronze Age Cemetery on Knighton Heath, Dorset*, Brit. Archaeol. Rep. 98 (Oxford).
- Ponsich, M., 1974 *Implantation Rurale Antique Sur Le Bas-Guadalquivir*, Vol I (Madrid).
- Ponsich, M., 1979 *Implantation Rurale Antique Sur Le Bas-Guadalquivir*, Vol II (Paris).
- Redknap, M., 1986 'The Small Finds', in Millet, M. and Graham, D., *Excavations on the Romano-British Small Town at Neatham, Hampshire, 1969-1979*. Hampshire Fld. Club Archaeol. Soc. Mono. 3.
- Rogers, G. B., 1974 *Poteries sigillées de la Gaule centrale, I: les motifs non figurés*, Supp. à Gallia 28, (Paris).
- Rye, O. S. 1981 *Pottery Technology*, Taraxacum Manuals on Archaeology 4 (Washington D.C.).
- Scaife, R. 1991 'Pollen Investigation and Vegetational History', in Cox, P. W. and Hearne, C. M., *op. cit.*, 180-197.
- Seager Smith, R. H., forthcoming 'The Roman Pottery', in Smith, R. J. C., *Excavations at County Hall, Colliton Park, Dorchester*, 1988.
- Seager Smith, R. H., in prep. 'The Coarseware Pottery', in Davies, S. M. and Farwell, D. E., *Excavations at Wessex Court, Dorchester*, 1989.
- Seager Smith, R. H. and Davies, S. M., forthcoming 'The Roman Pottery', in Woodward, P. J., Davies, S. M. and Graham, A. H., *The Excavations at the Old Methodist Chapel and Greyhound Yard, Dorchester 1981-1984*.
- Shepard, A. O., 1956 *Ceramics for the Archaeologist*, Carnegie Institution (Washington D. C.).
- Staines, S. J. and Allen, M. J., 1991 'Pedological Report', in Cox, P. W. and Hearne, C. M., *op. cit.*, 197-199.
- Sunter, N. 1987 'Excavations at Norden', in *Romano-British Industries in Purbeck*. Dorset Nat. Hist. Archaeol. Mono. 6 (Dorchester), 9-43.
- Swan, V. G., 1984 *The Pottery Kilns of Roman Britain*, RCHM Supp. Series 5.
- Symonds, H. (ed.), 1915 'The Proceedings of the Club from May 1914 to May 1915: Second Winter Meeting', *Proc. Dorset Nat. Hist. Ant. Fld. Club XXXVI*.
- Thomas, C., 1987 'The Worked Stone', in Sunter, N. *op. cit.*, 30-43.

- Wainwright, G. J., 1966 'The Excavation of a Round Barrow on Worgret Hill, Arne, Dorset', *Proc. Dorset Nat. Hist. Archaeol. Soc.* 87 (1965), 119-125.
- Wainwright, G. J., 1969 'Excavation of Durotrigian Farmstead near Tollard Royal, Southern England', *Proc. Prehist. Soc.* 24 (1968), 119-135.
- Wainwright, G. J., 1979 *Gussage All Saints*. D.O.E. Archaeol. Rep. 10.
- Williams, D. F., 1977 'The Romano-British Black-Burnished Ware Industry: an essay on characterization by heavy mineral analysis', in Peacock, D. P. S., (ed.) *Pottery and Early Commerce*, 163-220.
- Williams, D. F., 1987 'The Amphorae', in Woodward, P. J. 1987a, *op. cit.*, 79-81.
- Williams, D. F., 1991 'Amphorae', in Cox, P. W. and Hearne, C. M., *op. cit.*, 119-121.
- Williams, D. F., and Peacock, D. P. S., 1983 'The importation of olive-oil into Roman Britain', in J. Blazquez and J. Remesal (eds.), *Prod. Y. Com. de Aceite en la Antigüedad. II Congreso*, (Madrid), 263-280.
- Woodward, P. J., 1987a 'The Excavation of a Late Iron Age Trading Settlement and Romano-British BBI Pottery Production Site at Ower, Dorset', in *Romano-British Industries in Purbeck*. Dorset Nat. Hist. Archaeol. Mono. 6 (Dorchester), 44-124.
- Woodward, P. J., 1987b 'The Excavation of a Late Iron Age and Romano-British Settlement at Rope Lake Hole, Corfe Castle, Dorset', in *Romano-British Industries in Purbeck*. Dorset Nat. Hist. Archaeol. Mono. 6 (Dorchester), 125-180.
- Young, C. J., 1977 *The Roman Pottery Industry of the Oxford Region*, Brit. Archaeol. Rep. 43, (Oxford).
- Zevi, F., 1967 'Review of M. H. Callender Roman Amphorae', *J. Roman Studies*, 57, 234-238.



# The Excavation of Fordington Farm Round Barrow

PETER S. BELLAMY

Contributions by M.J. Allen, R.M.J. Cleal, A.V.C. Jenkins,  
J.M. Maltby and J.I. McKinley

## SUMMARY

*A 'lost' round barrow, rediscovered in 1979, was the subject of evaluation in 1986 and partial excavation in 1988, in advance of development. This revealed an initial phase of two rectangular graves surrounded by a discontinuous circular ditch and covered by a small mound. One grave contained the disarticulated remains of an adult male and a child, the other those of an adult male, an adult female and a foetal or neonatal infant. The bones of individuals were carefully separated within the graves. The burials had apparently been contained in timber structures, represented by vertical faces to the packing around the edges of the graves and by slumped mound material towards the centres. The mound was enlarged three times, the first enlargement incorporating concentric arcs or circles of stakes. Two burials post-dated the initial ones but could not be attributed to any particular phase of enlargement: the articulated remains of a young adult male accompanied by cattle bones and a barbed and tanged arrowhead, and the cremated remains of an adult contained in an Collared Urn and accompanied by a copper alloy knife dagger.*

## INTRODUCTION

The barrow was excavated during summer 1988 in advance of development which threatened and eventually effected its total destruction. This report is not a comprehensive account of the archaeological investigations but is designed to make accessible the information presently available about this important monument.

### Location and Topography

The Fordington Farm round barrow lay on the south-eastern outskirts of Dorchester (SY698989) about 150m ESE of the buildings of Fordington Farm (Fig. 1). At the time of excavation it survived as a low spread mound c. 0.4m high within a pasture field. Its site lies on the crest of a ridge of Upper Chalk running east-west at a height of c. 70m OD. To the north the land slopes down to the River Frome floodplain, and 1km to the south is the parallel Conygar Hill ridge, the coombe between them draining westwards into the South Winterborne river. The soils on top of the ridge are thin rendzinas lying directly on top of chalk bedrock.

The Alington ridge, on which the Fordington Farm barrow lay (Fig. 1), contains a number of important prehistoric monuments: Maumbury Rings (Bradley 1975), Mount Pleasant (Wainwright 1979), Flagstones (Woodward and Smith 1987) and Alington Avenue (Davies *et al.* 1985).

### Recent History

The Fordington Farm barrow is one of two which were 'lost' during the 19th century (Green 1979). The Royal Commission state that two barrows may have existed in this area but that no traces remain (RCHME 1970, 444). Both barrows were, however, subsequently rediscovered in 1979 (Green 1979) when the westernmost one was destroyed during road construction. The exact date of the reduction of the mound and the 'disappearance' of this barrow is uncertain. A survey of the open field system of the Manor of Fordington in 1779 (DCO Simpson Map 1779) does not record the barrow but shows that the whole area was within the open field system, which might suggest that the mound had already been severely eroded by this date. But, since the barrow is marked on both Taylor's 1765 map of Dorset (Taylor 1765) and also on the 1811 Ordnance Survey First Series 1" map of Dorchester (where it is incorrectly labelled 'Lawrence Barrow') this does not seem to be the case. It would appear that it was still prominent at the beginning of the 19th century.

In 1986, the Duchy of Cornwall, the owners of the land, commissioned an archaeological evaluation to assess the archaeological potential of the site, prior to the sale of the land for development. The evaluation was undertaken by the Trust for Wessex Archaeology and its Dorchester MSC Community Programme, between May and October 1986 (Woodward *et al.* 1986).

The evaluation of the surviving earthwork traces and

geophysical anomalies revealed that the barrow was a complex monument and that, although denuded, the remaining structure was undisturbed. As a result, preservation of the monument was recommended. However, English Heritage did not view the barrow to be of schedulable quality which meant that it was under direct threat from the proposed development of a new sports centre on the site. West Dorset District Council, the new owner, was unwilling to finance any archaeological investigation. In consequence, the Trust for Wessex Archaeology undertook a salvage excavation in June 1988 with the aid of the MSC Community Programme, as well as a small grant from the Dorset Archaeological Committee.

Subsequent to the excavations English Heritage provided limited resources to enable the publication of a report. This report is limited to the description and discussion of the main salvage excavations with no attempt to integrate the data from the earlier evaluation, which are only briefly summarised here.

### The Evaluation

The original evaluation of the barrow consisted of a single 1m wide trench, oriented E-W, across the mound. The trench was in fact located about 4m south of the centre of the barrow (Fig. 2); consequently the full complexity of the monument was not revealed, although it was apparent that there were at least three phases of construction, the last converting the monument to a bell barrow, and that curvilinear alignments of stake-holes and deposits of flint-knapping debris were present.

In addition a series of small trenches was dug to investigate other slight earthworks and geophysical anomalies. The former proved to be field boundaries of historical date. The latter included the ditches of a Romano-British droveway which was probably a continuation of one excavated at Alington Avenue. A coin of the 4th century AD was recovered from the basal silts of one of its ditches. Relatively few settlement features were recorded.

### Excavation Method

The subsequent salvage excavations investigated the barrow mound using the traditional quadrant method, after the removal by machine of the overlying topsoil and ploughwash. Lack of resources did not permit the total excavation of the barrow, consequently only the NW and SE quadrants were totally cleared, the bulk of both being removed by machine. The central area was, however, fully excavated to reveal the early phases of the monument in their entirety (Fig. 2). The outer ditches were sampled by digging a 3m wide section across them along the line of the quadrant axes by machine (Fig. 2). Other features were selectively sampled in order to determine their nature and date.

## EXCAVATION AND STRUCTURES

It was clear upon excavation that the barrow had undergone several periods of construction and modification. Five major phases have been

identified and are described in turn below. The eroded nature of the monument meant that some features, most significantly those cut into the centre of the mound, no longer had any surviving secure stratigraphic relationships.

**Pre-barrow Activity**

There was very little evidence which could be attributed to activity prior to the construction of the barrow. Traces of the old land surface, a 0.08m thick decalcified dark brown clay layer (31), survived where it had been protected by the primary barrow mound (Fig. 2). At the southern edge of this ancient soil was an irregular scoop (40), 2.20 x 1.40m across and up to 0.40m deep (Fig. 2), filled with abraded chalk rubble in a brown silty clay soil matrix (41). No artefactual material was recovered from this feature. It appeared to have been cut by the phase 1 barrow ditch (38) and was partially sealed by the phase 1 barrow mound. It is uncertain whether this feature was directly associated with the barrow; it may have been a natural disturbance, perhaps related to clearance at some time prior to the construction of the barrow.

**Phase 1**

The primary burial activity on this site consisted of two large grave pits (59 and 70), oriented roughly NNW-SSE and 0.30m apart, which cut through the old land surface (31) into the chalk bedrock below (Figs. 2 to 5). These pits were very similar in size and character. The northern pit (59) was roughly sub-rectangular in shape and measured 2.40 x 1.50m across with vertical sides 0.80m deep. Around the edge, the pit was filled with clean, hard-packed, angular chalk rubble (83) which defined a central rectangular area (82), 1.80 x 0.80m across with vertical sides. This central area was filled with slightly earthy, sub-angular chalk rubble (60; Pl. 2). Within this area, at the base of the pit, was a quantity of disarticulated human skeletal material representing two individuals: an adult male and a child (SF1145 and SF1132). The bones of each individual had been carefully and separately arranged in the pit (Pl. 3; Fig. 3), the adult in the northern half and the child to the south. There were no surviving grave goods.

The structure of the grave suggests that there had been a coffin or timber lining within this pit. The vertical edge to the chalk rubble

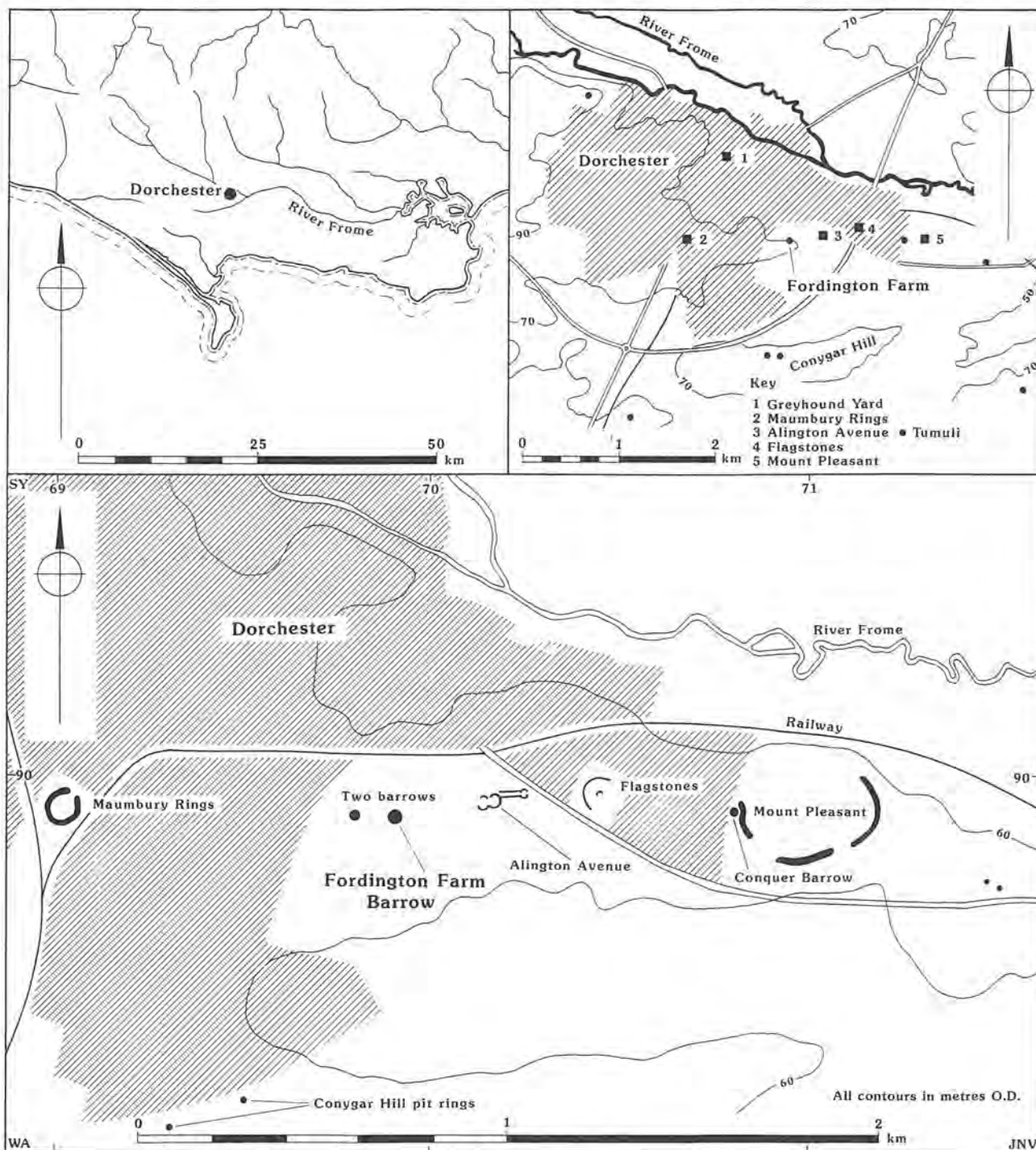


Figure 1. Fordington Farm Barrow: Location in relation to other prehistoric sites along the Alington Ridge.

packing around the edge of the pit indicates that it was retained by some central structure. Also the overlying mound material had subsided into the middle of the pit (Fig. 5), which might indicate the collapse of a wooden structure and subsequent settlement of the filling. No physical trace of any timber survived.

The southern pit (70) measured 2.10 x 1.70m across and 0.80m deep. It too had vertical sides and a central rectangular area (84) defined by clean, hard-packed, angular chalk rubble (85) around the edge. The central part of the grave measured 1.80 x 0.80m across and contained disarticulated bones from three individuals, an adult male, an adult female and a very young or foetal infant. The bones of each individual were neatly and separately arranged (Pl. 4; Fig. 3) with the female, together with the infant, to the south and the male to the north. The association of the female and perinatal infant might indicate death in childbirth. No grave goods were discovered. The central loose sub-angular chalk rubble filling (71) had settled into the pit in a similar fashion to grave 59 suggesting that it too contained a timber structure. Surrounding both these grave pits was a spread of fine chalk rubble (79), over the old land surface (31) which might represent material remaining after the excavation and backfilling of the primary graves.

The burial area was defined by a small interrupted ditch (8) which enclosed a circular area 10.20m in diameter. The graves were not positioned centrally within this, but were offset slightly to the south and west. (Fig. 2). The ditch consisted of four segments (32/36, 34, 38, 97) with rounded terminals and narrow causeways between. The segments

were fairly uniform in width and depth (c. 1.50 x 0.40m) with steep sides and a flat bottom (Fig. 5) but had widely differing lengths (Fig. 2). The shape of the bottom of the ditch in the northern end of segment 32/36 suggested that it may have originally consisted of smaller pits subsequently enlarged into one complete ditch segment.

Within the area defined by this interrupted ditch was a thin, very dark brown, silty clay layer (78) which covered the chalk layer 79 and sealed the two grave pits. This layer had slumped into the top of the graves and can perhaps be interpreted as the base of the barrow mound derived from turf stripped from the area around the barrow prior to the excavation of the ditches. Overlying this was a steep-sided circular mound of chalk rubble (6), 8.20m in diameter which survived in a truncated form to a height of 0.44m (Pl. 1). Between the mound and the ditch was a berm c. 1.20m wide. Around the edge of the mound was a layer of small weathered chalk rubble (10) which extended across the berm. The ditches were filled with similar weathered chalk rubble (33, 35, 36, 37, 39, 98). It is assumed that this was material eroded from the mound and ditch sides.

Cut into the south-western part of the mound, approximately above grave pit 70, was a roughly circular scoop (42), about 1.20m in diameter with rounded sides 0.40m deep, which was filled with compact weathered chalk rubble (43). The nature of this disturbance is difficult to determine.

At some time after this disturbance, the mound and the virtually silted-up ditch segments were sealed by a thin compact pale brown silty

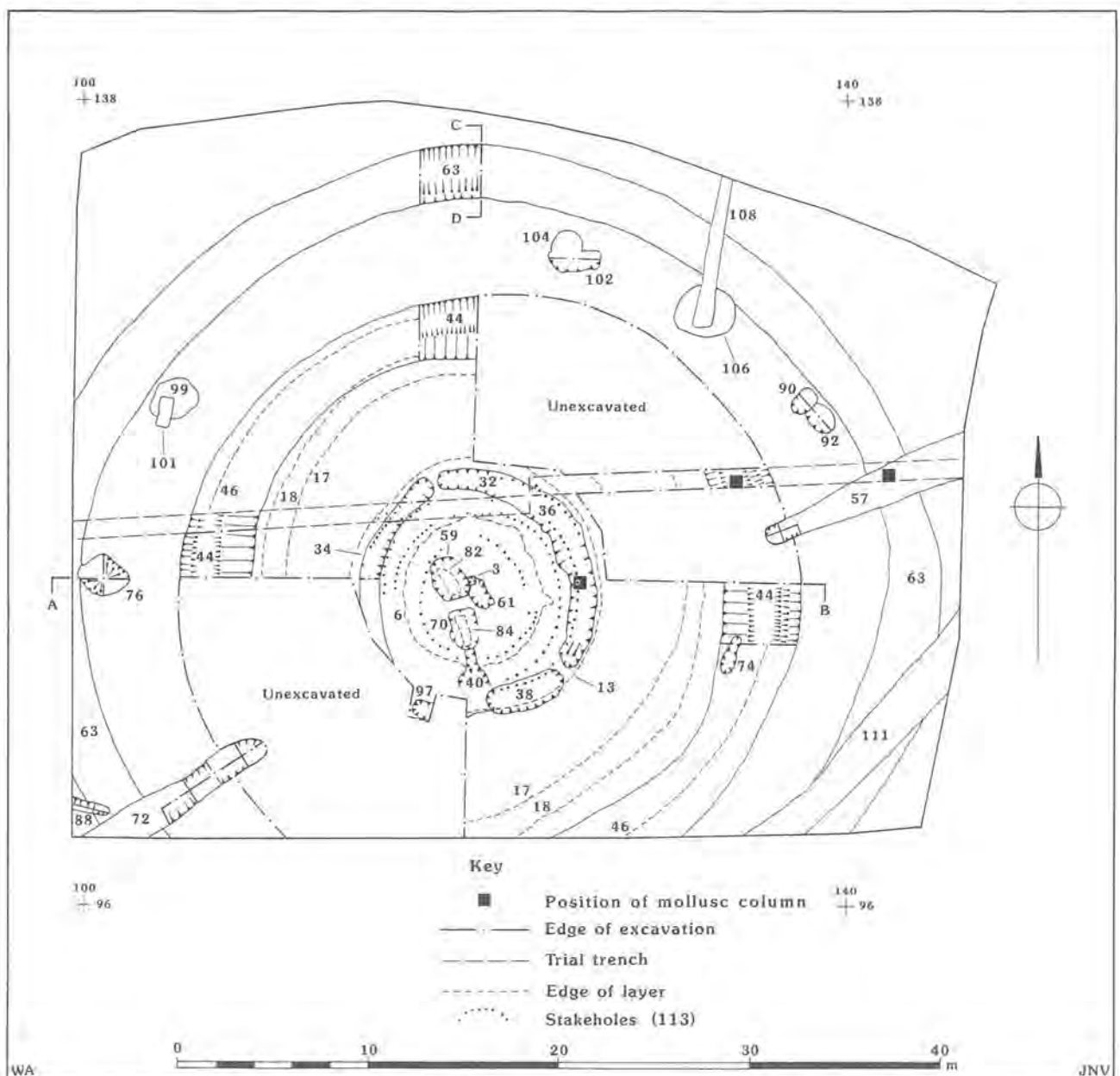


Figure 2. Fordington Farm Barrow: Plan of all features, showing extent of excavation.

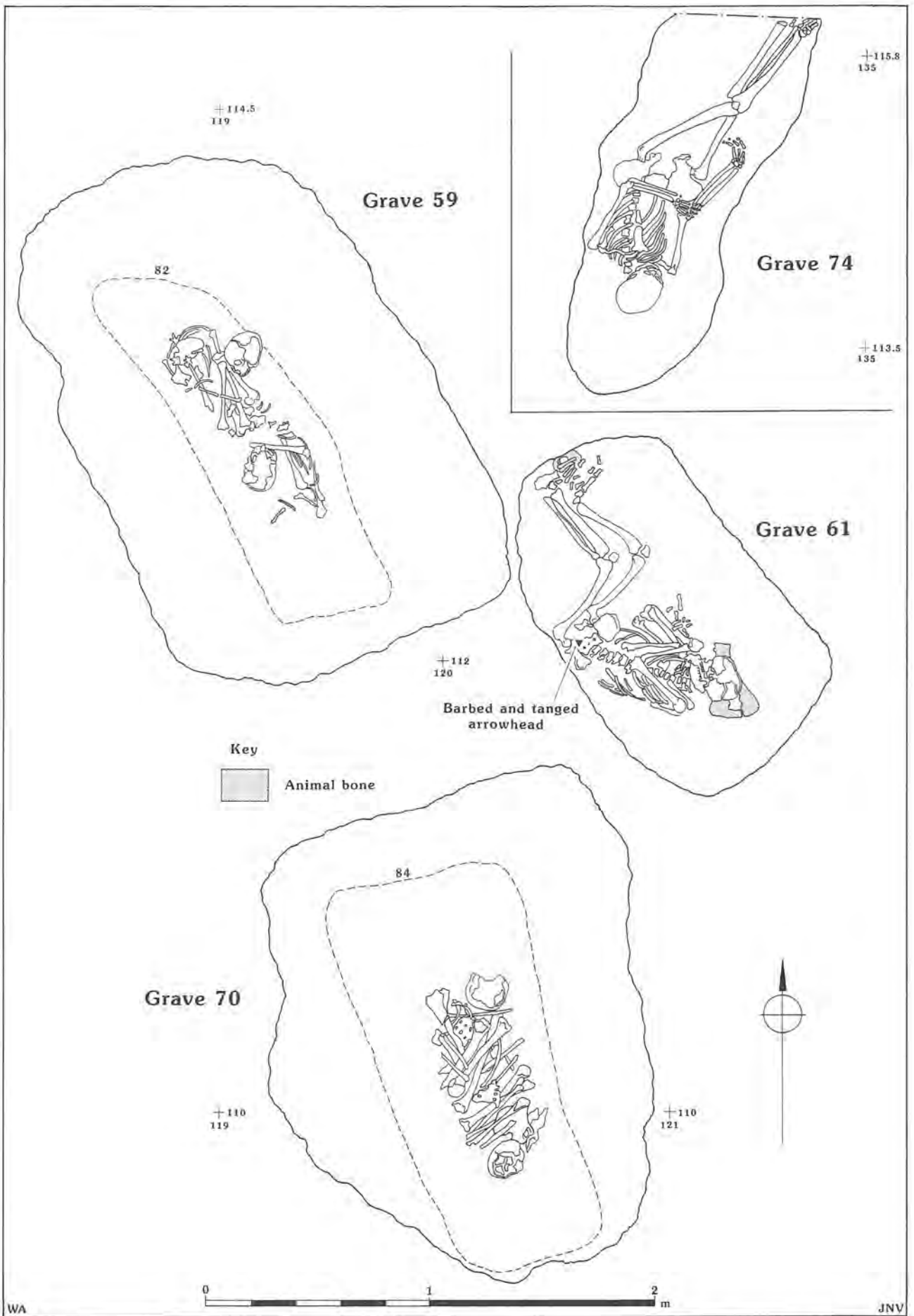


Figure 3. Fordington Farm Barrow: Detail of graves 59, 61, 70 and 74, the first three in their original relation to each other, the last inset. Its position is shown in Figure 2.

clay layer (11), 0.05m thick (Fig. 5) which appears to represent a period of stabilisation when the barrow was left relatively undisturbed.

### Phase 1a

A further period of activity centred on the primary mound, after the development of the stabilisation horizon (11) can be recognised. This was represented by a large quantity of flint (22) which survived in the top of the silted-up ditch above layer 11. The flint was collected as a series of discrete samples (23 - 30) to enable the distribution to be plotted effectively. Unfortunately, because of the restricted resources available, it has not proved possible to analyse this material. However, a rapid appraisal during excavation, suggested that it had a fairly even distribution around the barrow and consisted mainly of small natural flint nodules with some knapping debris also present. No implements were recognised during the collection of this material. Thus it appears that the top of the barrow mound was used for stone clearance and for flint knapping, the debitage subsequently eroding down into the ditches.

Around the edge of the northern half of the barrow mound, and partly overlying the layer of flint, was an arc of coarse, rounded chalk rubble (86), 2.80m wide and 0.10m thick. On top of this was a thin, pale brown, silty clay layer (87) 0.05m thick, very similar to layer 11 with which it merged (Fig. 5). This may represent a slight refurbishment of the barrow mound at some time after the flint knapping episode.

### Phase 2

The second phase of the barrow development consisted of an enlargement of the earlier barrow mound (Fig. 4). The destruction of the upper part of the barrow meant that no burial can be stratigraphically related to this or any subsequent phase.

Visible in the stabilisation horizon (11, 87) which covered the phase 1 barrow mound and ditch was a series of concentric arcs of stakeholes (113; Fig. 2). These stakeholes were of uniform character, oval in plan, c. 0.05m across, vertical-sided, round-based, and c. 0.12 - 0.14m deep.

They were set, on average, about 0.5m apart. The relatively small number of stakeholes on the northern side may partly result from their not all having been recognised in the evaluation trench. The other large area without stakeholes was in the south-west quadrant which was not fully excavated. Thus these may have originally formed four concentric, slightly ovoid, circles between 5.60 and 12.10m in diameter centred on the phase 1 mound. It could not be determined from the dark brown soil fillings (114) whether the stakes had rotted in situ or had been removed. No traces of the stakes were recognised in the overlying mound material.

The mound consisted of a dark brown turf stack (13), 13.80m in diameter, which survived in a truncated form to a height of 0.28m around the earlier barrow. The turves were clearly visible in the section through the mound and were c. 0.06m thick with chalk still clinging to the undersides. There was no evidence for a ditch surrounding this mound.

A substantial dark brown decalcified turfline (14), between 0.10m and 0.15m thick, developed over the mound. It also survived directly on top of the chalk bedrock in the area protected by subsequent phases of mound construction (Fig. 5), which suggests that the turf had been stripped from the immediately surrounding area to form the mound. The development of this turfline suggests a considerable period of stabilisation.

### Phase 3

A tertiary phase of barrow construction, utilising the existing barrow as its core was recognised (Figs. 4 and 5). The mound consisted of a thin discontinuous spread of chalk rubble (16), covered by a substantial dark greyish brown silty loam layer (17) which survived up to a total diameter of 20.80m and a maximum thickness of c. 0.25m. Many individual turves could be identified in section within this layer. This was overlain by a layer of angular chalk rubble (18) up to 0.12m thick which had the effect of creating a barrow mound with a total diameter of 23.40m; around the edge the chalk was very weathered (19).



Plate 1. Fordington Farm Barrow: The excavation viewed from the south-east, showing the phase 3 ditch (foreground), the interrupted phase 1 ditch and the phase 1 chalk rubble mound.

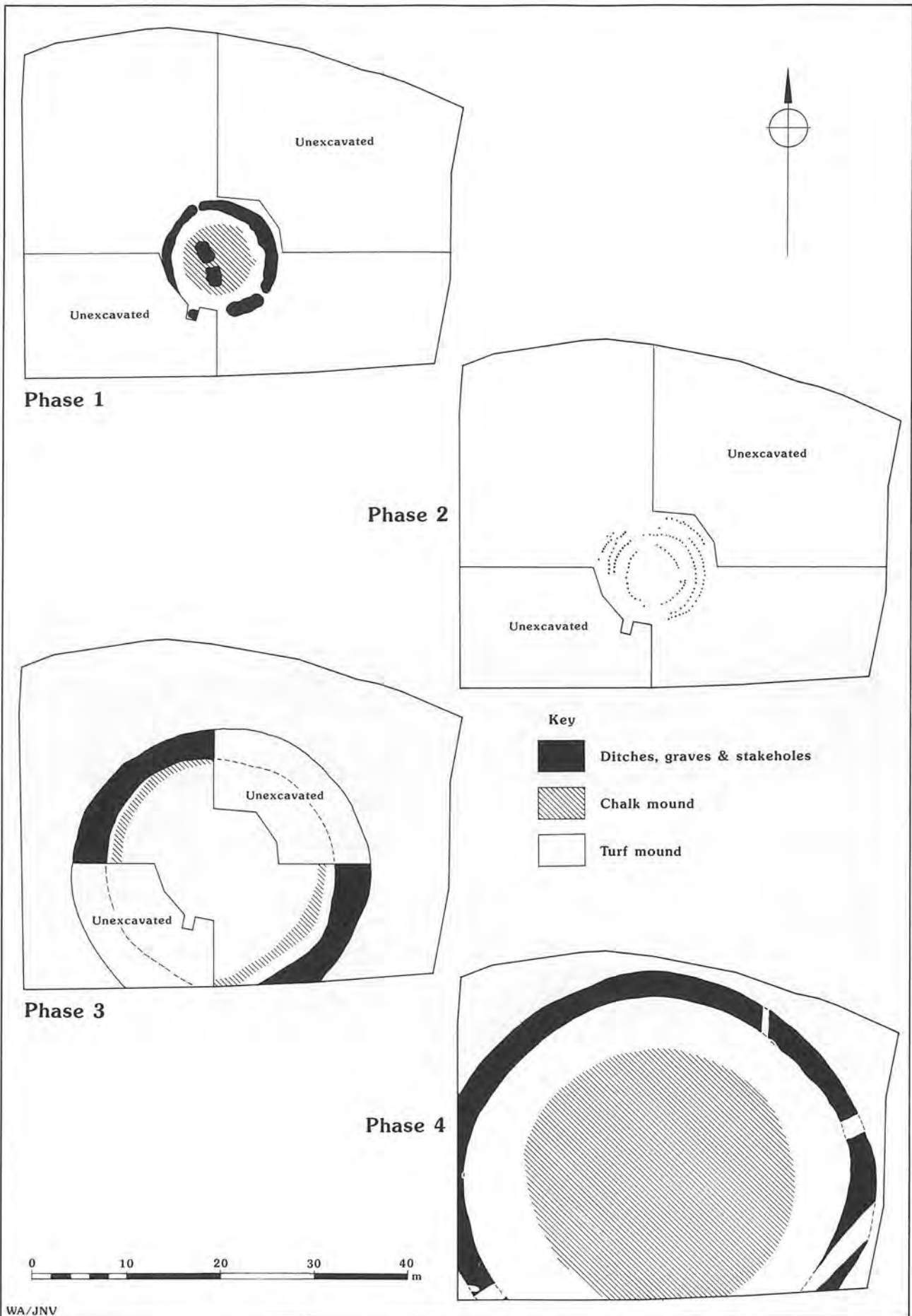


Figure 4. Fordington Farm Barrow: Phase plans.

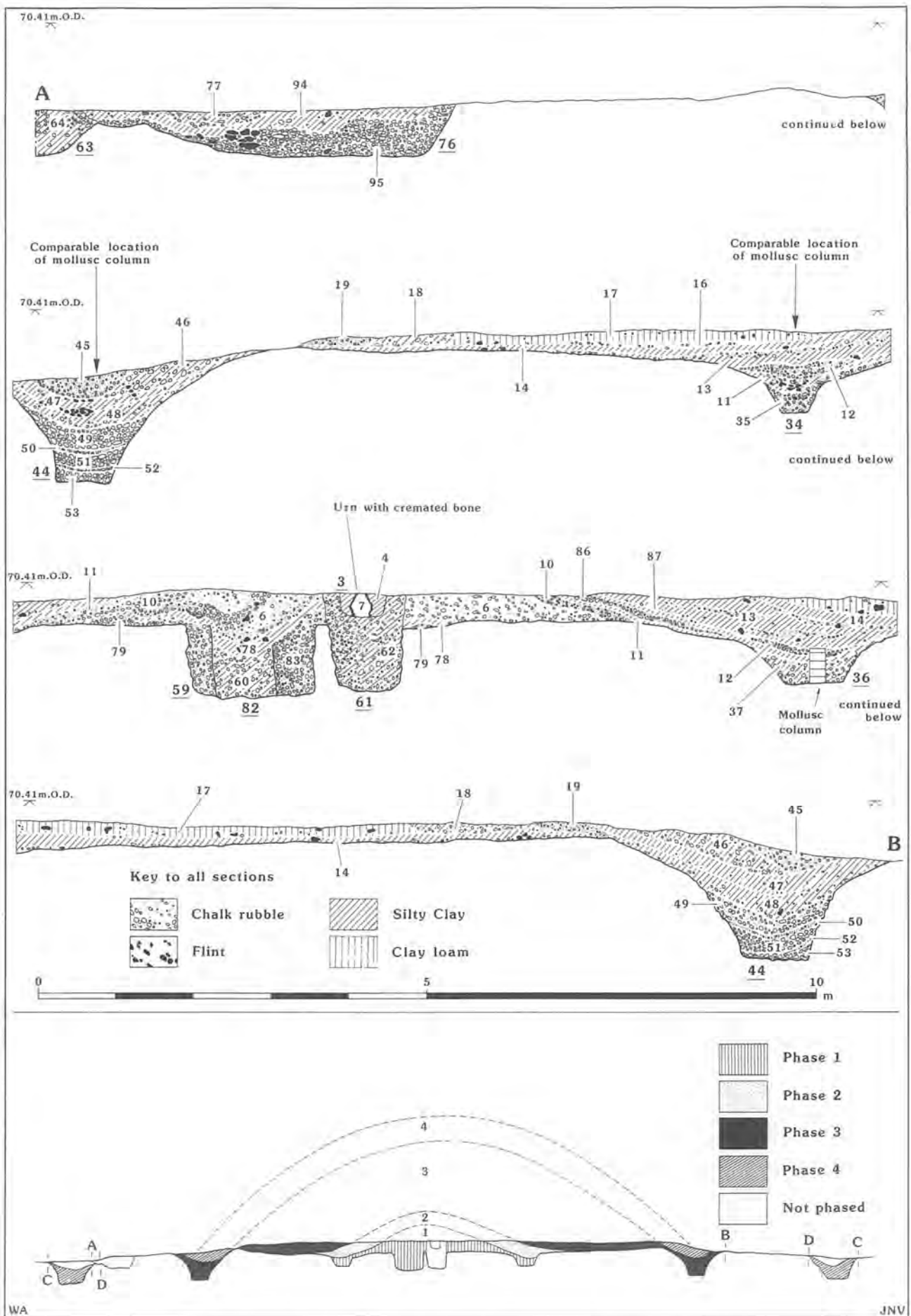


Figure 5. Fordington Farm Barrow: East-West section through monument.

The mound was surrounded by a continuous, steep-sided, flat-bottomed ditch (44) with no berm between, thus creating a bowl barrow (Figs. 2 and 5). The ditch had a weathered upper profile and measured 3.30m wide and 1.40m deep. The lower part was filled with coarse, sub-angular chalk rubble (49, 51, 53) interleaved with thin layers of fine chalk rubble (50, 52). Thus it would appear that the ditch was allowed to silt up rapidly with material derived from the mound and the ditch sides. Above these chalky weathering layers was a 0.15m thick layer of brown chalky silty clay soil (48) which might represent a period of stabilisation (Fig. 3).

**Phase 4**

The last major period of barrow reconstruction consisted of an enlargement of the mound and the excavation of a new ditch (Fig. 4). This ditch (63) enclosed an area 42.30m in diameter and had a steep-sided, flat-bottomed profile, 2.60m wide and 0.96m deep (Fig. 6).

The barrow mound was refurbished by the addition of material derived from the digging of the new ditch. Above the phase 3 stabilisation (48) in ditch 44 was a discontinuous brown clay layer (47), up to 0.15m thick, which may represent the turf stripped from the area of the new ditch (63). This was overlain by a layer of coarse angular chalk rubble (46) which probably represents the last vestiges of the phase 4 mound. This only survived as a 0.32m thick layer in the depression above the silted-up ditch 44 (Fig. 5). Thus the full dimensions of this mound cannot be determined with confidence. However, around the outer edge and partly overlying this chalk was a layer of small, rounded, chalk rubble (45) 0.30m thick (Fig. 5), which can be interpreted as the weathered exterior of the barrow mound, in which case the mound would have been about 29.50m in diameter. This would leave a berm about 4.5m wide between the ditch and mound, thus converting this monument from a bowl barrow into a bell barrow.

The lower half of the ditch (63) was filled with coarse, angular chalk

rubble (67, 69) with a lens of fine, abraded chalk rubble (68) between. Above the chalk rubble was a layer of light yellowish-brown chalky soil (66). The remainder of the ditch was filled with a 0.40m thick layer of yellowish-brown clayey soil (64) with a concentration of flint nodules (65) towards the base of the layer. It seems likely that this ditch was allowed to silt up naturally, but the upper filling of the ditch suggests that the area immediately around the barrow was under arable agriculture, which was not the case in the earlier phases of the monument.

**Unphased Burials**

There were two graves, one cremation and one inhumation, which cut the primary mound material (6). The cremation pit cut the other grave but no further stratigraphic relationship had been preserved. These graves are demonstrably later than phase 1 but cannot be ascribed with confidence to any of the later phases.

The earlier grave (61) was sub-rectangular in shape and oriented

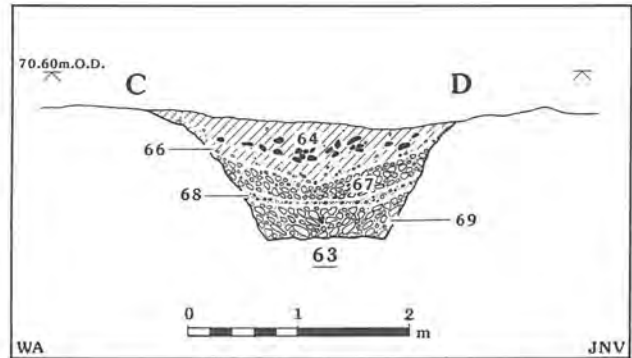


Figure 6. Fordington Farm barrow: Section through ditch 63.



Plate 2. Fordington Farm Barrow: Grave 59 in the course of excavation, showing contrast between clean, angular chalk rubble packing around edges and earthier, sub-angular chalk rubble fill of central area. Scale in 0.50m intervals.



Plate 3. Fordington Farm Barrow: Stacked bones of two individuals on base of Grave 59. Scales in 0.10m intervals.

NE-SW. It cut through the centre of the primary mound into the underlying chalk bedrock, immediately to the east of the primary burials (Figs. 2 and 5). It measured 1.68 x 0.96m across and survived to a depth of 1.10m. This grave contained a semi-crouched young adult male inhumation (SF1008) with his head to the south-east (Pl. 5; Fig. 2). Below the skull was a cattle scapula (SF1009) and the feet rested on an axis vertebra of the same species (SF1010). A barbed and tanged arrowhead (SF1011; Fig. 7.1) was found in the pelvic region. On, or just above, the base of the grave, behind the lower legs of the skeleton, were two pieces of a cattle humerus (SF1012, SF1013). The grave was filled with sub-angular chalk rubble (62) which contained three more cattle scapulae (SF1004, SF1005, SF1007) and a cattle pelvis fragment (SF1006) placed above the area of the body, between 0.35 and 0.70m above the bottom of the grave.

The north-western end of grave 61 was cut by a small circular pit (3) 0.42m in diameter which survived to a depth of 0.26m. This pit contained an inverted Collared Urn (SF1001; Fig. 7.3) filled with the cremated bone of an adult of uncertain sex (SF1000) accompanied by a small copper alloy knife dagger (SF1002; Fig. 7.2). The base of the urn had been destroyed by later ploughing. The pit was filled with fine dark brown soil (4) which contained much charcoal, ash and some cremated bone.

### Post-barrow Activity

A series of features were revealed which probably relate to activity after the barrow ceased to be used as a funerary monument, although it is clear that the barrow remained a significant physical feature in the landscape.

**Pits** Just inside the area of the outer ditch (63), a series of relatively evenly-spaced pits (76, 99, 102/104, 106, 90/92) was recognised (Fig. 2). Three of these (76, 102/104, 90/92) were excavated and all proved to be similar in nature. They were oval or sub-circular in plan, varying between 0.70 - 2.60m in diameter and between 0.12 - 0.44m in depth

with steep, rounded sides and irregular flat bases. The fillings were mainly of angular chalk rubble (95, 110, 96) with a layer of chalky dark yellowish-brown clayey soil (94, 77, 105, 93) overlying this. Pits 104 and 92 had been re-cut by shallow, round-bottomed, oval scoops (102, 90) which were filled with chalky, dark yellowish-brown, clayey soil (103, 91). A post-barrow date is suggested by the fact that pit 76 cut the upper ploughwash (64) in the phase 4 ditch (63) (Fig. 2). Unexcavated pit 106 also appeared to cut this ditch filling, and to be cut by a possible field boundary ditch (108, Fig. 2). The pits seemed to have silted naturally, and no artefacts were recovered. It is likely that the barrow was still visible as a standing monument given that they were dug around the edge of the mound. The apparent relationship between pit 106 and possible field boundary ditch 108 suggests that they were cut before the post-medieval development of the Fordington field system.

**Burial A** single isolated grave (74), oriented NNE-SSW, was discovered cut into the eastern edge of the barrow mound (46) (Figs. 2 and 3). This had been much reduced by later cultivation and survived as a slightly irregular, sub-rectangular cut measuring 2.00 x 0.70m across and 0.35m deep. It contained an extended supine adult male inhumation (SF1015) with a very small or premature infant (SF1014) overlying it, although the precise location of this latter skeleton was not recorded. The grave was filled with dark brown clay loam (75). No artefacts were recovered. The form of the grave and the position of the body, as well as the fact that this grave cut the final phase of barrow mound construction, suggest that this may be an isolated outlier from the extensive Romano-British cemetery known from neighbouring excavations at Alington Avenue (Davies *et al.* 1985) and the Trumpet Major (Woodward *et al.* 1986), rather than part of the burial sequence directly associated with the barrow.

**Ditches** Two roughly parallel linear features (57, 111), between 6.5 and 10.5m apart, entered the excavation area from the north-east (Fig. 2). The southernmost feature (111) was not excavated but appeared to cut across the outer barrow ditch 63, skirt the southern perimeter of the



Plate 4. Fordington Farm Barrow: Grave 70 showing clean, hard-packed, angular chalk rubble packing around edges and stacked bones of three individuals on base. Scales in 0.10m intervals.



Plate 5. Fordington Farm Barrow: Grave 61 showing cattle scapula under head of skeleton. Scale in 0.10m intervals.

context	phase	human bone	animal bone		worked bone		Beaker		Urn		Prehist.		R-B.		Post-Med.		flint		copper alloy		ceramic building mat.		coin		iron		shale	
			no	wt	no	wt	no	wt	no	wt	no	wt	no	wt	no	wt	no	wt	no	wt	no	wt	no	wt	no	wt	no	wt
1																												
2			8	136g																								
4																												
6																												
7	I	*																										
11			110	782g																								
13	2		6	114g																								
20			140	384g	1	4g																						
21			6	15g																								
23	Ia																											
24	Ia																											
25	Ia																											
26	Ia																											
27	Ia																											
28	Ia																											
29	Ia																											
30	Ia																											
33	I		13	104g																								
58	R-B.		4	2g																								
60	I	*	30	2138g																								
62	I	*																										
71	I	*																										
73	P-Med?	*	16	114g																								
75	R-B.	*																										

Table 1: All finds by context. \* = present but not quantified

barrow mound, and then continue out beyond the southern limit of the excavation. It measured about 2.2m wide. The northern linear feature (57) was about 2m wide and terminated at the edge of the barrow mound. It had a shallow U-shaped profile 0.25m deep, and was filled with yellowish-brown soil (58) with a concentration of flint nodules (80) at the base. A similar linear feature (72), on the same alignment, was discovered on the other side of the barrow where it also terminated at the edge of the mound. This ditch had a shallow U-shaped profile 1.60m wide and 0.25m deep. It was filled with yellowish-brown soil (73) with a concentration of flint nodules (81) at the bottom. These ditches probably formed part of a droveway of Romano-British date which was picked up, on the same alignment, further to the east during the evaluation and which may have been part of a droveway discovered in the north-western part of the excavations at Alington Avenue (*ibid.* fig. 1). It is likely that the droveway was aligned on this barrow, which was then incorporated into the droveway, hence the break in the northern ditch where the mound still formed an effective obstacle.

Two other linear features were discovered. In the south-western corner of the excavations was a small shallow, U-shaped, gully (88), 0.50m wide and 0.10m deep, which was oriented roughly E-W and terminated at the edge of ditch 72 of the droveway. It was filled with fine yellowish-brown silty soil (89). Entering from the northern edge of the excavations was a linear feature 0.7m wide (108) which was oriented N-S and terminated just before the edge of the barrow mound. This feature was not excavated. These two linear features may have been field boundary ditches, further traces of which were picked up during the earlier evaluation (Woodward *et al.* 1986). These ditches can be matched up with boundaries in the Fordington field system (DCO Simpson map 1779, plot no. 412). It would appear from this that the barrow mound formed a landmark around which the later field systems were laid out.

RADIOCARBON DATES

A series of three samples of human bone was presented for radiocarbon measurement:

- i) left and right femora (SF1101, SF1111): context 71, grave 70 (Phase 1).
- ii) left and right humeri (SF1149, SF1153): context 60, grave 59 (Phase 1).
- iii) left and right femora (SF1008): context 62, grave 61 (Unphased, but cutting into the primary mound, which sealed both phase 1 graves).

The following radiocarbon determinations were obtained:

feature	lab. no.	Cal BC (Pearson and Stuiver 1986)		
		<sup>14</sup> C years BP	1 sigma	2 sigma
grave 70	UB-3304	3715±54	2199-2037	2290-1970
grave 59	UB-3305	3767±47	2286-2137	2347-2039
grave 61	UB-3306	3844±30	2452-2284	2459-2201

The determinations cluster closely together, giving a tight date range for the burials. The dates for the primary burials (UB-3304 and -3305) overlap substantially and suggest that the two primary grave pits were near-contemporaneous. The third determination (UB-3306) overlaps with them only at two sigma and may indicate a greater age for the skeleton from grave 61. Stratigraphically, however, it is clear that grave 61 was later than the phase 1 mound which in turn clearly sealed the primary grave pits 59 and 70 (Fig. 5).

THE FINDS

Rosamund M. J. Cleal

The total finds from the barrow are presented in Table 1. Not all of the finds have been reported on in full because of the limited resources available.

GRAVE FINDS

Catalogue

Grave 61

Barbed and tanged arrowhead (Fig. 7.1): A single, complete, but heavily patinated, barbed and tanged arrowhead was recovered from the pelvic area of the adult inhumation.

Length 25mm; maximum width 23mm, weight 1.2g.

(SF1011; context 62, grave 61; unphased)

Pit 3

The cremation recovered from Pit 3 was contained within an inverted

urn and accompanied by a copper alloy knife dagger, also within the urn (context 7).

Urn (Fig. 7.3): Approximately one-third to two-thirds of this vessel survives, the base and lower body having been lost due to the truncation of the mound. The fabric is moderately hard (can just be scratched with the fingernail) and contains a moderate to common amount (c. 15-20% by area) of well-sorted, sub-angular, grog (some .5mm, but most < .1mm); quartz sand is also present, but is rare (< 2%). The fabric was examined with a binocular microscope of X20 magnification and the frequency of temper estimated with the aid of comparative charts (Terry and Chilingar 1955); because of the difficulty of distinguishing grog from the surrounding matrix the frequency of grog given must be regarded as a very approximate figure.

The surfaces are partially oxidised to shades of pale-brown and buff on the exterior, and to pale brown and grey on the interior. The core is black, and an orange margin to the exterior surface probably indicates the fully oxidised colour of the fabric. The surface texture is smooth and the fracture hackly.

The rim has a well-defined internal bevel, and there is an internal moulding at the angle between the collar and the body. The collar is short, and slightly convex in profile. Overall, the vessel is tripartite, the slight change of angle at the shoulder also being marked by a slight shoulder groove between low ridges. The groove carries five stops, almost certainly applied (none is visible in section). The decoration is all of Z-twisted cord impression (i.e. made with an S-twisted cord).

The condition of the surviving part of the vessel is fresh. No residues are present.

Rim diameter 260mm; surviving height 210mm; (estimated original height probably no more than 250-260mm)

(SF1001; context 4, pit 3; unphased)

Knife dagger (Fig. 7.2): A small knife dagger with two rivets in situ. The rivets differ in section: one is oval, and the other lozenge-shaped. The heel of the blade is only slightly rounded, and the hilt line straight. A very slight bevel along one edge on one side may be an original feature, but could also be the result of resharpening; it is more apparent in plan than in section. The blade appears to be worn.

At X20 magnification fine lines and striations, which are of at least three types, are visible on the blade. The most frequent are sets of very fine parallel lines which lie at an angle of about 300 to the blade edges and which would seem most likely to have been caused by sharpening, perhaps with coarse whetstones. Less frequent, but clearer, individual lines run parallel to the blade edges and, occasionally, down the middle of the blade; these do not appear to be in 'sets', are less regular, and therefore seem likely to have been caused by use wear rather than sharpening. In the area of the tip many slight lines are visible, but do not form a regular pattern.

The blade shows some corrosion, especially around the tip and one of the rivets, but is generally in good condition, with a fine, very pale, golden surface on which there are only a few patches of patination or staining.

Scanning electron microscope and X-ray fluorescence analyses undertaken by Dr G. McDonnell (report in archive) showed that the dagger was made from a bronze containing approximately 13% tin and 1.8% arsenic. The rivets were made from a different alloy, samples from each containing respectively 22.8% tin and 5.3% arsenic and 35.5% tin and 2.9% arsenic. The higher tin content may be the result, in part, of deliberate surface enrichment. The rivets would, therefore, have had a different colouration.

Maximum length 84.5 mm, width 29 mm.

(SF1002; context 7, pit 3, within SF1001; unphased)

## Discussion

### Grave 61

The barbed and tanged arrowhead is of Green's Conygar Hill type, the type site for which lies only a kilometre to the south of the barrow. This type is characterised by squared barbs and tang and a convex plan to the base of the arrowhead (Green 1980, 117), all features exhibited by the Fordington example.

The associations of Conygar Hill type arrowheads are with Food Vessels and other Early Bronze Age urn styles, rather than with Beakers (Green 1980, 130 and table VI.20). The nearby eponymous site produced six arrowheads associated with an inhumation, a cremation, and a Food Vessel (Green 1980, Corpus no 307), but the similarity between these and that from Fordington is not marked (cf. Green 1980, pl. Ia).

### Pit 3

The urn (Fig. 7.3) is an unusual vessel, clearly possessing traits

characteristic of Longworth's Primary Series of Collared Urns, but also exhibiting features more typical of Food Vessels. According to the classificatory scheme established by Longworth the vessel possesses four Primary traits: an internal moulding, a simple rim, a straight to convex collar, and internal decoration other than on the rim or rim bevel. The combination of four Primary traits and a stopped shoulder groove places the urn with a few similar vessels isolated by Longworth within the Primary Series (Longworth 1984, pls 22 and 23). Only one is from Dorset (*ibid.*, pl. 23d, from Winterbourne St. Martin 31), and this shows little similarity in detail to the Fordington urn. It is clear, however, that the Fordington vessel does lie within the Collared Urn tradition, and is not strictly a Collared Urn/Food Vessel hybrid, as it has only a single shoulder groove, in contrast to the vessels illustrated by Longworth as Primary Series Collared Urns/Food Vessels which have multiple grooves and/or other anomalous features.

The blade (Fig. 7.2) is classifiable as a flat riveted knife dagger on the grounds of its size (i.e. less than 100mm) and flat section. It also conforms to the type, as described by Gerloff, in having two rivet holes and a straight hilt mark (Gerloff 1975, 161). Gerloff also notes that bevelled edges and traces of resharpening are often present and that most blades are damaged. The very slight bevel on the Fordington example, visible in plan, but so unpronounced as to be undetectable in section, and the traces interpreted as sharpening marks, are in accordance with this, as is the general appearance of the blade, which suggests that it has been well-used.

Flat riveted knife daggers are found associated with both male and female burials, with cremation as the most common burial rite (*op. cit.*, 167). Artefacts associated with such knife daggers belong to both phases of the Wessex Culture.

## Summary and local relationships

The association between the Collared Urn and the knife dagger, and of the two objects with a cremation, is quite consistent with what is already known of both artefact types. However, although Collared Urns and knife daggers do occur together, the number of such occurrences is small. The artefacts associated with Collared Urns in grave groups are frequently not of metal or other exotic materials, even within the area dominated by Wessex Culture burials, and of the four cases of flat riveted daggers accompanying Collared Urns noted by Longworth, none are from the south of England (Longworth 1984, 57). Although the Fordington knife dagger appears to be an exceedingly modest artefact, when compared with the contemporary dagger types found in Wessex Culture graves, it must be borne in mind that it is extremely unusual to find any metalwork at all deposited with Collared Urns. This is illustrated clearly by the fact that of 118 Collared Urns listed by Longworth as from funerary contexts in Dorset, only two were accompanied by metalwork (1984, corpus nos 375, from Hengistbury Head, Bournemouth, and 500, from Wimborne St Giles).

Flat riveted knife daggers are noted by Gerloff as occurring in three other locations in the area immediately around Dorchester, in Bradford Peverell, Winterborne Came, and Winterborne Monkton (Gerloff 1975, corpus nos 243, 248, and 294). However, although Gerloff illustrates the Winterborne Came knife dagger as part of a group with two daggers, bone implements, and a bone ring-headed pin (*op. cit.* pl. 47B), she notes that the group, also known as from Fordington, is an uncertain association, not supported by a reading of the original publication (Bingham 1848). The original publication is indeed ambiguous, but to interpret it as implying that all the objects illustrated by Gerloff were found together seems to be straining the evidence to its limits. A more plausible reading of the publication would seem to be that the blunt-ended bone artefacts (Gerloff 1975, pl. 47B, nos 3, 6, and 8-11) were found together, probably with the pointill decorated dagger and the flat riveted knife dagger (*op. cit.*, nos 2 and 7), and probably came from Fordington parish. The provenances of the ring-headed pin and bone point (*op. cit.*, nos 5 and 4) are not known and the broken dagger (*op. cit.*, no 1) is quite clearly from a barrow in Winterborne Came.

Apart from the non-funerary material from Mount Pleasant, which includes only a few sherds certainly of Primary Series Collared Urn, and an unclassifiable sherd from Poundbury (Longworth 1984, corpus nos 445 and 406; Longworth 1979, fig. 52, P246), the only other Collared Urn from Dorchester noted by Longworth is a Primary Series vessel from the Lawrence Barrow (SY68499059), in the former parish of Fordington. This barrow also produced a dagger of Gerloff's Armorico-British C type and a grooved knife dagger (1975, corpus nos 145 and 331). Gerloff notes these as associated with the Collared Urn, but the association appears uncertain (Longworth 1984, corpus no 405). The urn is plain, and carries three shallow grooves on the collar and one just above the shoulder.

The date of the burial in pit 3 and its associated artefacts is not known,

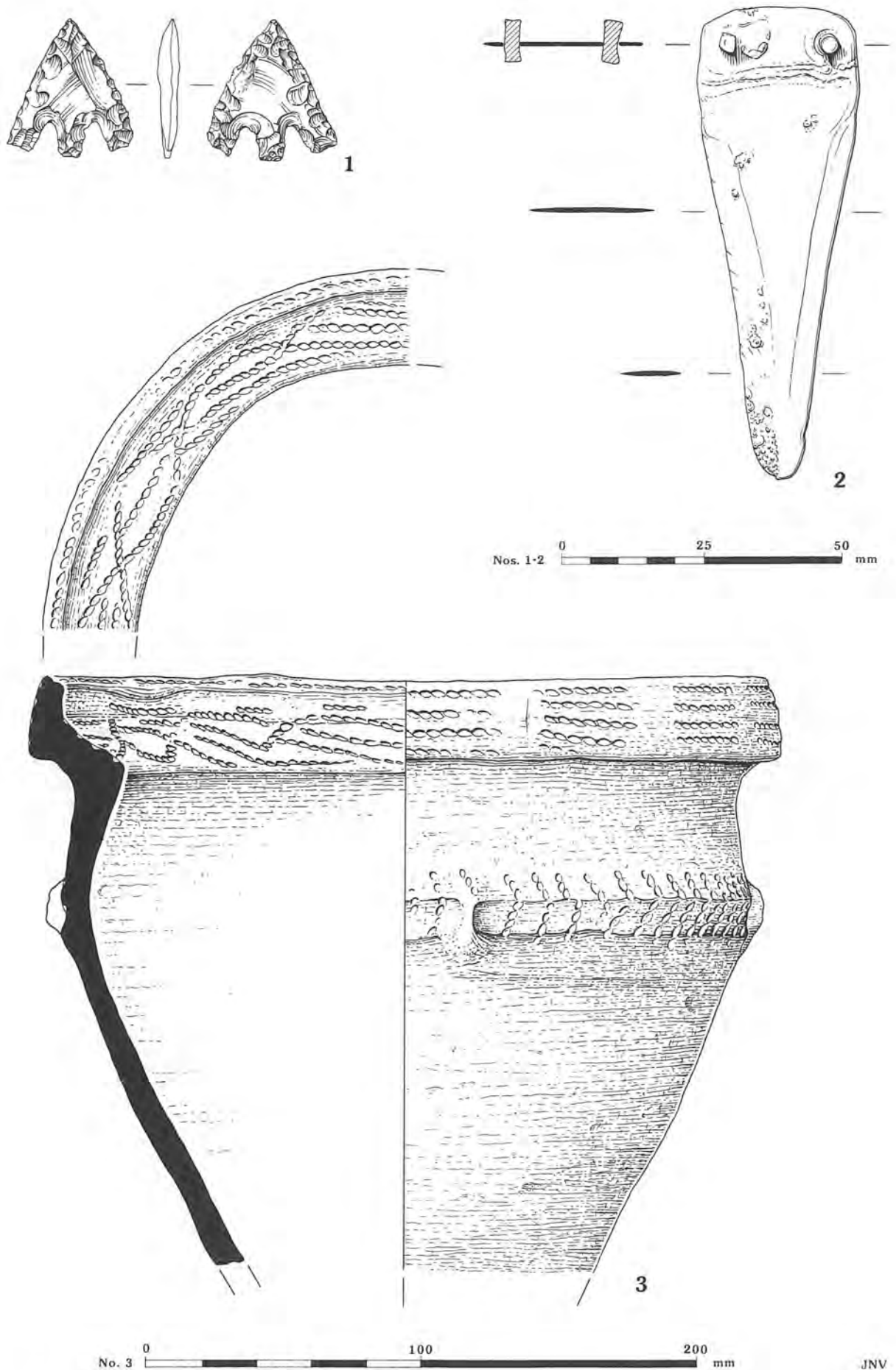


Figure 7. Fordington Farm barrow: The grave goods.

as samples from the cremation have not been submitted for radiocarbon dating. This is unfortunate, as the dating of Collared Urns is still uncertain. It is clear that Primary Series Collared Urns, or at least those which, like the Fordington urn, also qualify as Early urns in Burgess's classification (1986), developed prior to the appearance of Wessex I graves, and may have survived into Wessex II (Longworth 1984, 79). The association with the knife dagger does not assist in the dating of the urn, as Gerloff, although considering such blades unlikely to be earlier than Wessex I, points out that they occur with both Armorico-British and Camerton-Snowhill Series daggers. The form and decoration of the urn itself do suggest an early date on typological grounds. Tomalin notes that there was undoubtedly a time in the ancestry of some Dorset Collared Urns and Food Vessel urns when designs were drawn from a common stock (Tomalin 1980, 30). This period appears to have been before the Biconical Urn Horizon, c. 1700-1900 cal. BC (Tomalin 1988, fig. 6) and therefore unlikely to be contemporary with Wessex II burials (*op. cit.*, fig. 8).

OTHER FINDS

Bone awl (Fig. 8)

An awl with a slightly damaged tip, made from the proximal end and shaft of a sheep or goat metatarsal (Dr C. Gamble, pers. comm.) was recovered from a clearance layer after machining. While undated, the awl is similar to an example from Mount Pleasant (Wainwright 1979, fig. 80, B3) which was found in a Late Neolithic/Early Bronze Age context in which Food Vessel and Collared Urn sherds occurred (*op. cit.*, 47).

Length 89 mm, width 19 mm.  
(SF1003; context 20; cleaning)

Other pottery

Thirty-three small sherds, weighing 257g, were recovered (Table 1). They are summarised by context below:

- Context 1: one post-medieval sherd (8g)
- Context 2: six Romano-British sherds (104g); two post-medieval (45g)
- Context 11: two Beaker sherds decorated with paired plastic fingernail impressions (10g)
- Context 13: three flint-gritted prehistoric sherds of indeterminate date (10g)
- Context 20: one possibly prehistoric sherd (5g)
- Context 58: five Romano-British sherds (30g)
- Context 73: 13 Romano-British sherds (45g)

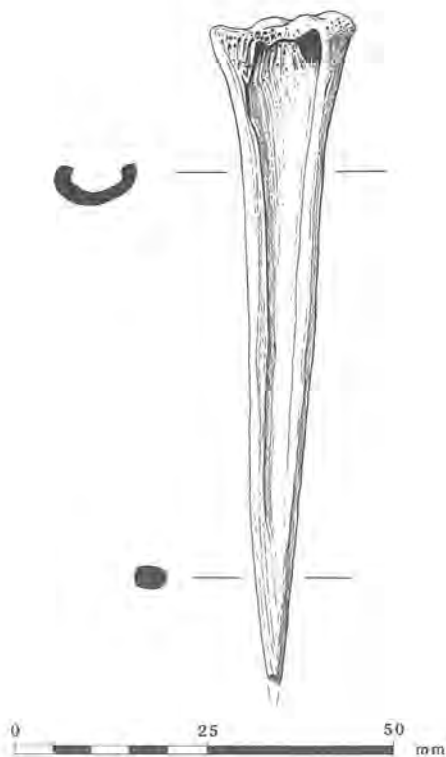


Figure 8. Fordington Farm barrow: Bone awl.

THE HUMAN BONE

INHUMATIONS

A.V.C. Jenkins

Introduction

The human bones presented for examination were recovered from four distinct features and represent at least eight individuals comprising five adults, one juvenile, and two infants; one perinatal, the other premature or very small. The condition of the bones varied from excellent to poor, while their preservation varied similarly from almost complete to a few barely identifiable fragments. Only two of the graves contained articulated skeletons. Within the other two the bones were disarticulated but deposited in individual groups.

Method

Stature was estimated according to the formulae of Trotter and Gleser as published by Brothwell (1981). Age of adults was assessed from either dental attrition by comparison with published patterns of wear, or from the conformation of the pubic symphysis by comparison with published stages of development (Brothwell 1981). The age of the juvenile was assessed following Scheuer *et al.* (1980) and Bass (1987); the age of the infants from the criteria of Fazekas and Kssa (1978) and Powers (1988). Sex was evaluated by examination of the traits recommended by the Workshop of European Anthropologists (1980). Dental coding is that of Wells (1977) in which the upper line represents the maxilla and the lower line the mandible. The right of the subject is on the left of the reader:

- 1, 2, 3, etc. = tooth present in the jaw
- .
- O
- 8
- 
- C
- A

Dental attrition was graded according to the system of Brothwell (1981). Metrical data for each skeleton are recorded in Table 2.

Grave 59

This feature contained the well preserved remains of an adult and the poorly preserved remains of a child. Both skeletons were disarticulated.

Skull SF1145 and associated material

Male 19-23 yrs. 1.72-1.74m

The skull is too fragmented to be easily reconstructed, consequently no dimensions have been recorded. Very prominent brow ridges are evident, and the mandible, although broken, is clearly of robust form.

Teeth	8	7	6	5	0	0	0	0	:	0	0	0	0	5	6	7	8
	8	7	6	0	0	0	2	0	:	0	0	3	4	0	6	7	8

Attrition: M1?, M2 1, M3 1.

The left femur has a flattened head, which is indicative of a slipped epiphysis (Juliet Rogers, pers. comm.) and the left acetabulum is correspondingly shallow. The right femur head is normal, but the acetabulum was not observable since the right os innominatum is missing. There is a small hole suggestive of osteochondritis dissecans in the proximal articulating surface of the proximal phalanx of the left hallux. The state of epiphyseal fusion is that of a young adult.

Skull SF1132 and associated material

Unsexable. 10-14 yrs.

Parts of the skull, mandible, most long bones and left scapula survive. Fragments only of pelvis, sacrum, ribs and vertebrae.

Teeth									:					0	6	7	-
	?	?	6	0	0	3	2	1	:	1	2	3	4	5	6	0	-

Attrition: M1 1.

Grave 70

This feature contained the disarticulated remains of three individuals: a fairly well preserved adult, a poorly preserved adult and an almost entirely decayed infant. Ten vertebrae were not sufficiently distinctive to be assigned to one or other of the adults in this grave.



preservation. The left elbow also shows some degeneration.

#### SF1014

Unsexable. Very young or premature infant.

The remains are few and very fragmentary. The only complete bone being the right clavicle. In addition, there are fragments of the base of the skull, of some ribs, of vertebrae, and the distal portion of the left radius.

At 39mm in length the clavicle indicates a gestational age of either 30 weeks (Powers 1988) or 36 weeks (Fazekas and Kssa 1978). The minimum age which can be considered full-term is 37 weeks, therefore these remains may represent a premature birth; but without further material it is not possible to say that for certain that this was not a small full-term child. Since it was found in association with a male it cannot be considered to be unborn.

#### Discussion

The condition of the teeth is generally good and may well indicate a diet low in fermentable carbohydrates and high in fibre, but the generally low age of the subjects should be noted. Within the limits of this sample the poorer dentition of the Romano-British subject (SF1015) is as likely to relate to his greater age as to any change in diet or oral health practices, although a fall in dental hygiene from the Bronze Age to Roman times has been observed previously (Brothwell 1981, 154).

The following observations appear to be of significance regarding the disarticulated remains from the phase 1 graves pits 59 and 70:

Skull SF1100 and associated bones - The mandible was missing and the sacrum did not fit against the ilia.

Skull SF1126 and associated bones - the right humerus, right scapula and left pelvic bone were missing.

Skull SF1132 and associated bones - The right scapula was missing.

Skull SF1145 and associated bones - The right pelvic bone was missing.

Despite the variable preservation of these skeletons some of the small bones of the hands and feet were recovered from each of them. Since pelvic bones, scapulae, humeri and mandibles are comparatively large bones of distinctive shape, their absence can hardly be attributed to oversight, and it must be concluded that they were deliberately retained. There is also a strong suggestion that the disarticulation occurred in a guarded environment. One would expect that if the corpses had been exposed to predators and the elements then the smaller bones would be scattered and lost while the surviving ones showed the marks of tooth and claw. No such signs were observed - and neither were there any cut marks, so dismemberment is not indicated either. A possible explanation is that graves were re-opened after a time for the purpose of removing a bone of the deceased and that skeleton was rearranged at the time.

#### CREMATION

J. I. McKinley

A single cremation was recovered from within an inverted urn (4) and from the surrounding filling (7) of the pit (3).

#### Method

The bone was passed through a series of three sieves, 10 mm, 5 mm, and 2 mm mesh size, to obtain percentages of fragmentation by weight within these size groups. The maximum fragment size for skull and longbone was also taken. Identifiable bone was separated out for further analysis in four skeletal categories: skull, axial, upper and lower limb. Any variation in colour from the usual buff/white was noted.

Age was assessed from the degree of epiphyseal fusion (McMinn and Hutchings 1985; Webb *et al.* 1985); pattern of degenerative changes in the pubic symphysis (Brooks 1955); tooth wear patterns (Brothwell 1981); and the general degree of cranial suture fusion and degenerative changes to the bone. Age categories rather than age in years are used in view of the difficulties surrounding the accurate assessment of age for adult individuals over 25/30 yrs (i.e. following final epiphyseal fusion). The relevant age categories are: mature adult (25 - 40 yrs); and older adult (40 yrs+).

Sex was assessed from the sexually dimorphic traits of the skeleton (Bass 1987).

#### Results

The full details are available in the archive.

Total weight = 1063.9g (92.3% in urn, 7.7% in pit).

Weight of identifiable bone = 698.1g (65.6% of total weight) (62.5% in urn, 3.1% in pit).

The remains are those of an older mature or older adult of uncertain sex. Bronze staining noted on fragments of temporal vault and right proximal humerus.

#### Pathology

1) Medium-gross osteophytes in lumbar vertebrae. Slight osteophytes on anterior margins of left femoral distal articular surface. Slight osteophytes on dorsal margins of proximal foot phalanx distal articular surface. (Osteophytes are bony growths which develop on the margins of articular surfaces in response to stress over time.)

2) Slight osteoarthritis in minimum of one thoracic vertebra. Heavy osteoarthritis in lower lumbar vertebrae. Mild osteoarthritis in distal articular surface of metacarpal.

3) Disc degeneration in lumbar vertebrae.

4) Schmorl's nodes in one lumbar vertebra. (Schmorl's nodes are formed by a rupture in the intervertebral disc.)

5) Pitting and surface new bone in sacral auricular surface.

6) Slight exostoses and pitting in left radial tuberosity.

7) Large cyst in left scapula medial to glenoid surface.

#### Discussion

The cremation represents between 35-45% of what would have been the weight of the entire cremated remains (McKinley 1988). It is interesting to note the paucity of small bone in the collection, fragments of only three finger phalanges and four foot phalanges being present.

The cremation was not very efficient, much of the spongy bone, especially the lumbar vertebrae, being orange-brown, an indication of incomplete oxidation. Spongy bone generally takes longer to oxidise than compact bone, due to its higher infiltration by organic material (McKinley, forthcoming b). Other bones are merely charred (black) or blue/grey. This would suggest that there was insufficient time for complete cremation and/or the pyre was not tended to ensure complete oxidation of the bones. The large size of many of the fragments also implies a lack of tending which serves to break up the bone. The much poorer oxidation of, for instance, the right femur shaft as opposed to the fairly good oxidation of the left, and of the left malar (black) as opposed to the right, would suggest that the corpse shifted on the pyre at some stage in the cremation process, the left side of the skull and the right lower limb becoming buried in the wood ash at the base of the pyre, cutting off oxygen and, thereby, the cremation process.

The bias towards large fragment size and paucity of the small bones of the hands and feet may indicate that the bone were collected from the pyre as individual fragments rather than en masse, the larger fragments being easier to locate and pick up from the pyre debris.

The small quantity of bone recovered from the pit may have accidentally spilt from the urn. Alternatively, as the pit contained other pyre debris in the form of charcoal, the bone in the pit may have gone in from the pyre with other debris, rather than being deliberately collected as was the bone in the urn. The occurrence of pyre debris in the pit would suggest that the pyre site was fairly close to the place of deposition.

The large fragment size noted here is similar to that found in other cremations from Bronze Age barrows examined by the writer from Field Farm, Berkshire (McKinley forthcoming a) and Alington, Norfolk (McKinley 1990), although the weight of bone is not as great. This latter point may be due to the inefficiency of the cremation at Fordington Farm: it is possible that a quantity of incompletely oxidised soft tissue may still have been connected to the bone, taking up space in the urn, thereby reducing the quantity of bone it was possible to deposit (McKinley forthcoming b).

#### THE ANIMAL BONE

J.M. Maltby

Animal bones from the excavations were identified and recorded at the Faunal Remains Unit, Department of Archaeology, University of Southampton. Material was obtained from four contexts associated with the construction and use of the barrow. The bones from these deposits are discussed in detail below. A small amount of bone was recovered from five other contexts (Table 1) but has not been examined.

#### Grave 61

Seven bones of domestic cattle were found in the fill (62) of the grave. These included four substantial portions of scapulae, one of which acted as a 'pillow' for the inhumation. An axis (2nd cervical vertebra) acted as a 'foot rest'. A pelvis and two fragments probably of the same humerus completed the assemblage. The unusual nature of the assemblage merits a detailed description of each of these bones.

*SF1009 Cattle Left Scapula*

This bone was complete but the blade had been broken into three pieces during or subsequent to excavation. Fine cut marks ran diagonally on the medial side of the neck reaching as far as the edge of the supraglenoid tubercle (tuber scapulae). These are likely to have been made during the separation of the scapula from the humerus. Finer cuts ran longitudinally along the length of the medial aspect of the blade. These probably resulted from the process of stripping meat from the bone. The spine was intact and there was no discernible damage or wear on the dorsal border of the blade. The glenoid cavity had fused and a number of measurements could be taken (Table 3). This scapula was the one which lay beneath the head of the inhumation.

*SF1004 Cattle Left Scapula*

Over three-quarters of the bone survived but it was broken at the neck and the glenoid cavity and the supraglenoid tubercle were absent. Fine cuts ran postero-anteriorly on the medial aspect near the dorsal end of the blade. Several fine cuts also ran longitudinally along the medial aspect of the bone, presumably made during filleting. The spine survived intact but the dorsal end had been damaged. Marks near the cranial angle looked suspiciously like those caused by carnivore gnawing. No measurements could be taken but the bone was a little larger than the one previously described.

*SF1005 Cattle Left Scapula*

This bone was virtually complete. The medial side displayed a larger number of fine cut marks. Two ran close along the edge of the glenoid cavity made during the disarticulation from the humerus. About ten ran axially along the centre of the blade; two ran diagonally towards the neck and several more also ran diagonally close to the caudal angle near the dorsal end of the blade. Other possible cut marks were noted on the cranial border of the blade. The spine was damaged but about half of it survived. Damage to the dorsal end, particularly towards the cranial angle, looks more likely to have been caused by gnawing rather than by the use of the bone as a shovel. Measurements (Table 3) showed that this specimen belonged to a smaller animal than SF1009.

*SF1007 Cattle Right Scapula*

This bone was also virtually complete; only the cranial border had been damaged and most of the spine had been broken off. The causes of this damage are uncertain. Once again the medial aspect displayed a number of fine cut marks: those on the neck ran diagonally; those on the main part of the blade mostly ran axially, although diagonal marks were also observed. They were all probably made during filleting. The size of the bone was slightly larger than SF1009 (Table 3).

*SF1006 Cattle Left Pelvis*

The acetabulum and most of the ilium survived. Fairly heavy cut marks were observed on the lateral aspect of the dorsal edge of the sacro-iliac joint. The bone belonged to a relatively young animal since the fusion lines joining the pubis and the ilium were still visible. The shape of the acetabular border suggested that the bone belonged to a male, possibly about a year old.

*SF1010 Cattle Axis*

The feet of the inhumation rested on this bone. Over three-quarters of the bone was present but the dorsal spine only partially survived and the caudal part of the vertebra was absent. The bone was slightly

eroded. No cut marks were observed.

*SF1012 Cattle Right Humerus*

Two fragments of humerus, probably from the same bone were represented. The first fragment consisted of the proximal articular surface and a small portion of the shaft. The epiphysis was just fusing, indicating that the bone belonged to an animal that was not fully mature, possibly between three and four years old (Grigson 1982). Damage to the bone may have been caused by scavenging animals.

*SF1013 Cattle Right Humerus*

The second fragment consisted of the distal quarter of the bone. The epiphysis was fully fused. The articular surface survived almost intact but parts were of a slightly darker brown colour, possibly as a result of scorching. Measurements are given in Table 3.

*Discussion*

At least three cattle were represented by the scapulae, all of which bore cut marks associated with the removal of meat from the blade. Some of them also bore cut marks made when the scapula was detached from the humerus. No clear evidence for the use of the bones as shovels or for other purposes was detected. Damage to the cranial borders of the scapulae could have been inflicted by scavengers rather than by their use as tools. The sizes of the cattle represented were quite large but not untypical of the sizes of animals of Late Neolithic or earlier Bronze Age date represented elsewhere in Wessex.

*Other Animal Bones Associated with the Barrow*

Only three other contexts produced animal bones.

*Context 11* - the stabilisation horizon above the phase 1 mound - was the most productive, providing over 100 fragments (Table 4). Preservation was moderate and many of the fragments were weathered. This is reflected in the high proportion of unidentified fragments and perhaps by the dominance of loose teeth amongst the identified portion of the assemblage. Nineteen of the 23 identified fragments belonged to domestic cattle. These included a scapula with a maximum length of the glenoid process of 67.3mm, smaller than any of the scapulae in the grave (Table 4) but not unusually small for cattle of this period. Ageing evidence was limited: a mandible with both the second and third molars in mature wear (Grant 1982; stages k and j respectively) belonged to an adult animal probably over five years of age; an unfused distal tibia belonged to an immature animal probably under 30 months old (Grigson 1982). No bones of neonatal or foetal cattle were recovered but one of the three pig bones - a humerus - did belong to such an animal. The only bone of sheep/goat consisted of a shaft fragment of a tibia. This bone was in a slightly better state of preservation than nearly all the other bones in this context and the possibility that it was a later intrusion cannot be entirely ruled out. Most of the unidentified fragments belonged to large mammals. Given the absence of horse and red deer from the identified assemblage, these probably all belonged to cattle.

*Context 13* - the phase 2 turf mound - produced just four bones. They probably all belonged to cattle but only a fragment of unfused distal radius and the ilium of a juvenile animal could be identified to species.

*Context 33* - from the phase 1 ditch - produced two well preserved bones. Both probably belonged to cattle but only a scapula fragment was identified.

Bone	Object no	SLC	GLP	LG	Bd	BT	LA	BFCr
Scapula	SF1009	58.2	75.8	63.6				
Scapula	SF1005	50.3	71.6	60.2				
Scapula	SF1007	58.0	77.1	67.6				
Humerus	SF1013				81.0	70.2		
Pelvis	SF1006						73.9	
Axis	SF1010							96.6

*Notes*

Cow = cattle

S/G = sheep/goat

LM = unidentified large mammal

SM = sheep-sized mammal

UM = unidentified mammal

Table 3: Measurements of Cattle bones from Grave 61 (context 62)

## THE ENVIRONMENTAL HISTORY

Michael J. Allen

## Introduction

Columns of samples for molluscan analysis were taken through all three ditch sequences and the old land surface (OLS) of the phase 2 barrow. Both the phase 1 and phase 3 ditch sequences contained buried soil horizons. Unfortunately no sample was available for analysis from the old land surface beneath the phase 1 barrow. Apart from this omission, the suite of 27 samples was designed to include all major phases of mound construction and episodes of activity. The samples from the inner segmented phase 1 ditch were taken during the main excavation (Fig. 2), but the columns from the two outer ditches and the spot sample from the old land surface were taken during the evaluation (W127) in 1986. Both columns were taken from the southern face of the eastern evaluation trench (Fig. 2). Comparable sections are illustrated in Figure 5. A further three spot samples were analysed from adjacent westerly barrow of the 'Two Barrows' (SY 69658979) reported by Green (1979). Data from the comprehensive suite of samples from the Fordington Farm barrow can be placed in the Dorchester landscape sequence built up from good sets of environmental data from many sites in the area, among them Maumbury Rings (Evans 1975), Mount Pleasant (Evans and Jones 1979), Poundbury (Vaughan 1987), Maiden Castle (Evans and Rouse forthcoming), Alington Avenue (Allen forthcoming) and the sites of the Dorchester by-pass including Flagstones (Allen in prep.).

## Method

All field sections were cleaned, prepared and described before sampling. Soil descriptions follow Hodgson (1976) whilst the tripartite classification of ditch sedimentation (primary, secondary, and tertiary) is that described by Evans (1972, 321-329) and Limbrey (1975, 290-300). The methods of mollusc analysis employed are those outlined by Evans (1972, 44-45). One kilogramme of air-dried soil was normally processed except where the primary ditch fill was comprised of vacuous chalk rubble, in which case samples in excess of two kilograms were processed in an attempt to recover enough shells to make some palaeo-environmental statements from the early fills. The three samples supplied by Green from the adjacent barrow, were however, considerably less than one kilogramme (Table 5). All the samples were disaggregated in water and hydrogen peroxide, any floating shells were decanted onto a 0.5mm mesh sieve whilst the slurry and residue was washed through a nest of sieves of 5.6mm, 2mm, 1mm and 0.5mm mesh aperture and oven dried. Apical and diagnostic mollusc fragments were extracted (S. Wyles) and identified (MJA) using a x10 to x30 stereo-binocular microscope and the residue fractions weighed and recorded (results and details in archive).

Mollusc nomenclature follows Waldin (1976) and the results of

analysis are presented in Table 5 and graphically as histograms of relative abundance (Fig. 9) in which each species is plotted as a percentage of the total individuals, excluding the burrowing, and thus palaeo-ecologically insignificant, species *Cecilioides acicula* which is recorded as a percentage over and above the rest of the assemblage.

## The Mollusca

Despite considerable variation between deposits in the absolute numbers of shells present (Table 5), the overall composition of the assemblages was of a very restricted nature and typical of dry, open grassland and arable faunas (cf. Morris 1968; Chappell *et al.* 1971; Evans 1972 and Bell 1983).

## Phase 1

A sequence through the primary fills and buried soil of the phase 1 segmented ditch was analysed. The basal sample (1-1.10m) was unfortunately devoid of shells and the contiguous sample above contained only 13 shells, none of which were shade-loving according to Evans' ecological groupings (1972, 194-202). The species present indicate open, dry conditions, whilst the presence of *Pomatias elegans* indicates loose, broken soil. Whether this is a reflection of the nature of primary fill within the ditch or perhaps of adjacent arable is hard to discern. What is certain, however, is that *P. elegans* here does not reflect the broken earth contexts frequently occurring as a consequence of clearance. The paucity of any shade-loving species suggests that woodland was cleared and the landscape intensively managed considerably earlier than the construction of the barrow: long enough beforehand to allow the establishment of a highly specialised, xerophilous and restricted fauna and the extinction of many of the more mesic components.

The upper primary fill was dominated by two species; *Pupilla muscorum* and *Vallonia excentrica*. It is difficult to ascertain the precise origin of these shells (i.e. ditch fauna, mound fauna or fauna of the immediate environs), however the abundance of *P. muscorum*, which tolerates bare earth but shuns arable, indicates that it and *V. excentrica* probably represent an adjacent well established dry grassland. The combination of *P. muscorum*, *V. excentrica* and *Vertigo pygmaea* is likely to indicate an open, but not necessarily very short grassland as *V. excentrica* seems to be more tolerant than its congener *V. costata*, and will thrive in tilled land or longer dry grassland.

## Phase 2

## Ditch

Immediately overlying the primary fills of the phase 1 ditch was a well developed, stone-free buried soil (Fig. 5, context 11). This horizon existed up to 0.15m thick in the ditch profile and a high degree of stability is indicated by the vastly increased mollusc numbers (1334).

context species	62		11					13		33	
	Cow	Cow	S/G	Pig	LM	SM	UM	Cow	LM	Cow	LM
Skull frags.	-	3	-	-	13	-	-	-	-	-	-
Mandible	-	3	-	-	-	-	-	-	-	-	-
Loose teeth	-	9	-	-	2	-	-	-	-	-	-
Scapula	4	1	-	1	-	-	-	-	-	1	-
Humerus	1	-	-	1	-	-	-	-	-	-	-
Radius	-	-	-	-	-	-	-	1	-	-	-
Pelvis	1	1	-	-	-	-	-	1	-	-	-
Tibia	-	2	1	-	-	-	-	-	-	-	-
Fibula	-	-	-	1	-	-	-	-	-	-	-
Ribs	-	-	-	-	-	-	-	-	1	-	1
Axis	1	-	-	-	-	-	-	-	-	-	-
Thoracic verts.	-	-	-	-	-	-	-	-	1	-	-
Lumbar verts.	-	-	-	-	1	-	-	-	-	-	-
Longbone frags.	-	-	-	-	7	8	-	-	-	-	-
Unident. frags.	-	-	-	-	32	-	17	-	-	-	-
Species Total	7	19	1	3	55	8	17	2	2	1	1
Context Total	7	103					4		2		

Notes  
Cow = cattle  
S/G = sheep/goat

LM = unidentified large mammal  
SM = sheep-sized mammal  
UM = unidentified mammal

Table 4: Animal Bones from contexts associated with the barrow

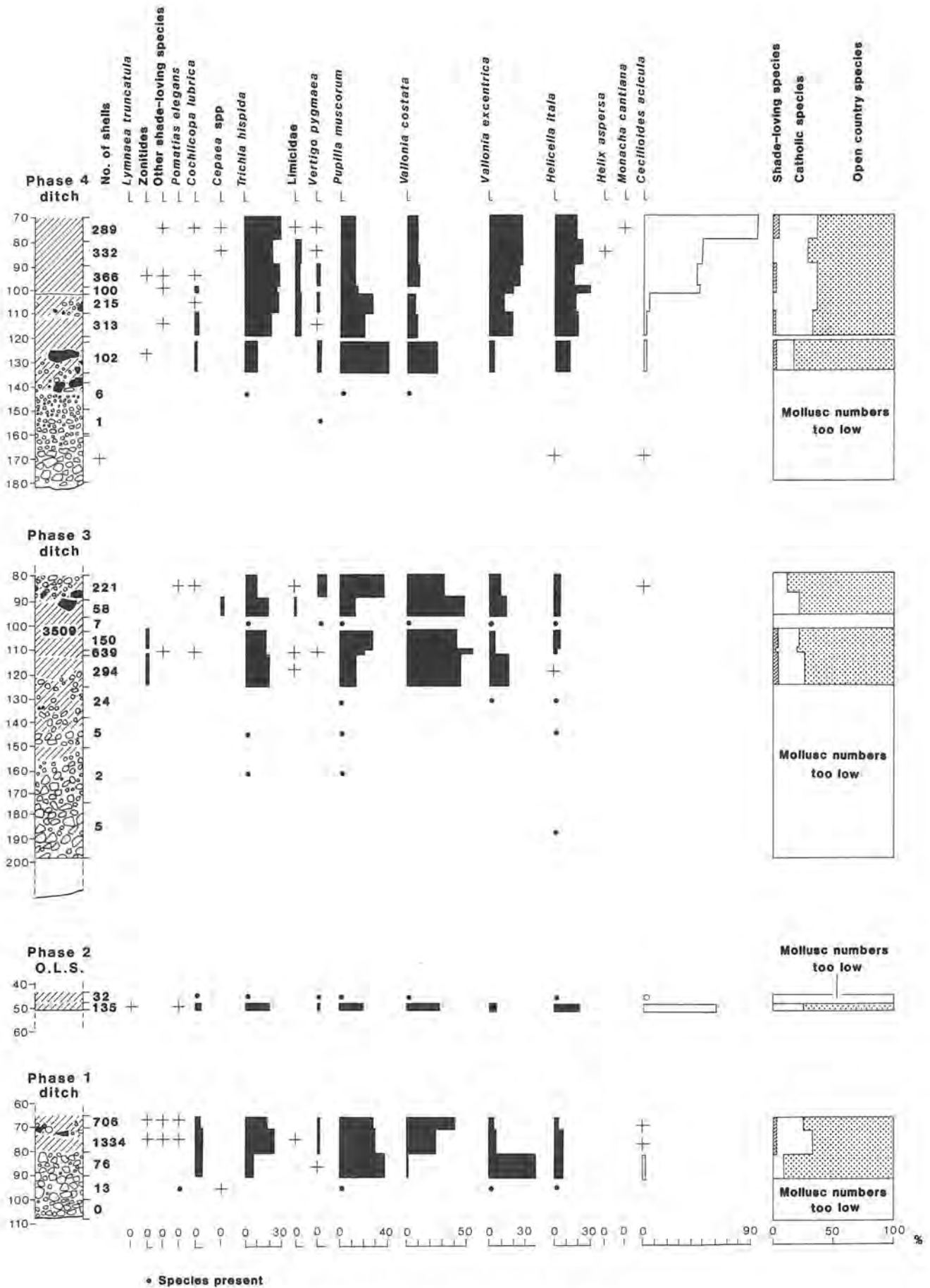


Figure 9. Fordington Farm barrow: Mollusc diagram.

A decrease in the relative numbers of both *P. muscorum* and *V. excentricalis* accompanied by a relative increase in those of *Trichia hispida* and *Vallonia costata*. Although *Pupilla* still represents a significant portion of the assemblage, *V. excentrica* no longer does. The buried soil also produced low numbers of Zonitids and other shade-loving species; namely *Nesovitrella hammonis* and *Punctum pygmaeum*. This is a typical grassland fauna, which on the basis of the low numbers of the obligatory calcicole *Helicella itala* and the presence of *Vertigo pygmaea* may be one with a fairly thick root mat, this layer inhibiting the necessary calcium carbonate for *H. itala*. The paucity of shade-loving species when compared with the information presented by Cameron and Morgan-Huws (1975) suggests a grassland sward of less than c. 0.1m. Indeed, those shade-loving species present are some of the first to colonise an established long standing grassland (Cameron and Morgan-Huws 1975). The short-turfed nature of the grass may indicate grazing, and Evans (1972) states that both *P. muscorum* and *V. costata* thrive in such environments, whilst the *H. itala* population may be reduced or impeded by intensive grazing. With the exception of the introduced Helicellids this highly restricted and specialised assemblage compares fairly well with trampled (Chappell et al. 1971) and grazed pasture.

#### Old Land Surface

Two assemblages were analysed from the phase 2 old land surface, a dark brown silty clay loam, heavily earthworm-worked and with fine blocky peds which was sealed beneath the later mound. The upper 0.04m was almost devoid of shells; probably due to increasing stability resulting in a grassland with a well defined, earthworm-sorted horizon, high organic content and lower calcium carbonate levels, supporting a well established root mat. The lower stony horizon produced an assemblage much the same as those from the buried soil and indicates a stable grassland with a mature rendzina indicative of established pasture.

#### Phase 3

A column of samples through the primary and secondary fills of the phase 3 (bowl barrow) ditch was unfortunately almost devoid of shells. Nevertheless the depauperate assemblages were entirely comprised of the open country species represented in earlier profiles. Overlying the secondary fills, as in the inner, segmented, ditch was an extensive and well developed buried soil (context 8509). The evaluation field descriptions divide this unit into two distinct components (cf. contexts 47 and 48). Mollusc analysis confirmed this (Fig. 9), indicating the likelihood of two buried soils, one above the other. Although there is no strict dating evidence for these units, it is likely that the lower, and thicker soil, formed in situ and was associated with phase 3, whilst the upper soil is more likely to have been associated with the phase 4 bell barrow.

The phase 3 buried soil (0.96-1.25m) was a dark humic loam with a distinctly stone-free upper horizon (0.96-1.02m). The lower portion (1.12-1.25m) produced assemblages comparable with those from both the phase 1 buried soil and the phase 2 old land surface. Although some changes in the assemblages can be seen (an increase in *P. muscorum* and decrease in *V. excentrica*) these represent faunas of grazed pasture. The stone-free earthworm-worked horizon again produced a paucity of shells, indicating the high organic status of a mature rendzina supporting a dense grass sward.

If the upper buried soil (0.96-1.02m) is to be considered a part of the phase 4 barrow, then its precise origin needs to be determined. The humic dark brown loam does not display a well defined ped structure and some massive mixing of the context was observed. Indeed, detailed inspection on site (see archive) seemed to indicate that the layer was discontinuous with a distinctly wavy upper boundary and coincidental with many of the troughs were vertical festoons of small and very small chalk pieces. The molluscan assemblage was once again typical of grassland, and apart from the low mollusc numbers (58) and the reduction in the relative quantities of *P. muscorum*, was similar to that of the previous buried soil. It is difficult to find a natural mechanism for the supersession or pedogenesis of another soil profile above the first. In view of this, and both field and mollusc evidence, it is plausible that the upper of the two soils represents turves deposited in the ditch during construction of the phase 4 barrow. The turves therefore probably originated from the area between the two outer ditches and thus, although deposited as a result of the bell barrow construction, probably represent the grazed pasture of the phase 3 bowl barrow.

The deposit sealing the turf is material used in the construction of the bell barrow but it probably also represents a derived assemblage from the phase 3 (bowl barrow) landscape. It too indicates, not surprisingly, a grazed grassland whilst the significant increase in *Pupilla muscorum* is probably a result of the bare earth context produced as a result of mound building.

#### Phase 4

The primary fills of the phase 4 bell barrow ditch produced depauperate mollusc assemblages. However, once the ditch had stabilised sufficiently to enable molluscs to survive, numbers of shells rose significantly. The secondary fill produced the now familiar restricted and specialised assemblages dominated by *Pupilla muscorum* and *Vallonia costata*. The upper tertiary fill (context 3509 cf. 66) of the ditch though, produced a subtly different assemblage. *Trichia hispida*, *Vallonia excentrica* and *Helicella itala* increased at the expense of *Pupilla muscorum* and *Vallonia costata*. *H. itala*, an obligatory calcicole, can survive in the harsher environments caused by tillage, *Vallonia excentrica* also thrives in such environments which are shunned by its congener *Vallonia costata*. Although *Trichia hispida* is common in grassland habitats it occurs in a wide variety of other habitats (Forcart 1965, Evans 1972) and is frequently associated with the *Vallonias* and *H. itala* in ploughwash and colluvial contexts. The assemblage is highly comparable with those from the lynchets at Overton (Evans 1972), Bishopstone (Thomas 1977), and Hambleton (Bell and Allen 1985) as well as others from dry valley fills (Bell 1983; Allen in prep.). Thus the tertiary fills of the later ditch seem to represent tillage, probably in the Iron Age.

The upper tertiary fills at the sample point were cut by a Romano-British trackway (Fig. 2, 57). The deposits within the hollow trackway were typical calcareous ploughwash and the mollusc assemblages were almost identical to those in the tertiary fills with the exception of increases in the occurrence of *Ceciliooides acicula*.

#### 'Two Barrows'

Three samples taken by Green from the adjacent barrow during road construction were analysed (Table 5). All the samples were very small (less than 500g) and were from both the stony and stone-free horizons of the old land surface and the upper fill of the ditch. The basal portion of the OLS produced only 3 shells whilst the stone-free horizon was totally devoid of molluscs. The upper ditch fill in contrast produced 162 snails. The assemblage was dominated by *H. itala*, *Trichia hispida* and *Vallonia costata* and thus is comparable with the arable phases of the upper ditch fills discussed above. Fragments of *H. aspersa* indicate that here, as at the Fordington Farm barrow, tillage was a Roman or post-Roman phenomenon.

#### Discussion

The extremely restricted and specialised mollusc assemblages are representative of only a few quite specific niches. Certainly open grassland, and by comparison with Morris (1968), Chappell et al. (1971) and Cameron and Morgan-Huws (1975), probably grazed or trampled pasture existed. Therefore, despite the lack of evidence from the primary old land surface, the paucity of shade-loving species from the earliest contexts analysed indicates not only that the monument was built in pasture, but that the pasture had been in existence long enough for the replacement of a former shade-loving fauna by a specialised open country one. The paucity of mesic elements and the mature nature of the open country faunas suggest that clearance of the woodland was considerably earlier and that the environs had been intensively managed and grazed prior to the construction of the barrow.

Throughout the modification and enlargement of the barrow, the area around the monument was probably grazed by sheep and cattle. The first conclusive evidence for tillage occurs in the tertiary fills of the final, phase 4, ditch and can probably be attributed to the Iron Age. The tillage of the land around the barrow encouraged ditch filling and during the Romano-British period the trackway was constructed through existing field systems and skirted the barrow. The trackway itself, at Fordington, existed in an arable landscape.

Although the evidence for early and extensive land-use can be paralleled from many sites in the Dorchester area, such as Mount Pleasant, Alington Avenue, Flagstones and Maiden Castle, the fact that such land-use seems to have been long-term pasture is contrary to the evidence from sites such as Alington Avenue (Allen forthcoming), Mount Pleasant (Evans and Jones 1979) and the many of the Dorchester by-pass sites (Allen in prep.). To the east of the barrow, on the edge of the Alington ridge, there is evidence of extensive and intensive arable farming from at least the late Neolithic, at Alington Avenue and Flagstones. Such episodes can also be detected in the later fills at Mount Pleasant, whilst the earlier deposits indicate grazing and longer rough pasture. Thus to the east of Fordington, a block of land may have been set aside for arable from the Neolithic onwards, with this use intensified and formalised in the Romano-British period. At Fordington Farm barrow and Maumbury Rings (Evans 1975), on the other hand, there seems to have been extensive pasture which does not appear to have

Table 5: Mollusc Data

phase feature context sample depth (cm) weight (g)	W259							W127																	Two barrows				
	1			2				3										4							A	B			
	36	-	-	OLS	3909										3817														
	37	87	12	3609	3809	3609	3709	3509	3908	3617	3417	3317	321	10	11	12	10	11											
31	32	33	34	35	1	2	13	14	15	16	17	18	19	20	21	22	3	4	5	6	7	8	9	10	11	12	10	11	
100-110	90-100	80-85	70-80	65-70	48-51	44-48	175-198	152-175	138-152	125-138	112-125	110-112	102-110	96-102	89-96	79-89	161-180	150-160	139-150	122-135	110-120	102-110	99-102	90-99	80-90	70-80	C	-	
1000	1000	1000	1000	1000	910	1000	2681	2425	1875	1500	1000	707	1000	1000	1000	1000	2560	2728	2040	1000	1000	1000	1000	1000	1000	1000	420	230	
Pomatias elegans (Mller)	-	1	-	2	2	1	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-
Cochlicopa lubrica (Mller)	-	-	1	23	7	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cochlicopa spp.	-	-	6	62	20	6	-	-	-	-	5	1	-	-	-	-	-	-	-	-	3	12	3	3	3	-	2	-	1
Vertigo pygmaea (Draparnaud)	-	-	1	22	14	2	1	-	-	-	-	3	-	1	-	16	-	1	-	4	4	5	1	9	4	4	2	-	-
Pupilla muscorum (Linnaeus)	-	7	35	401	196	26	2	-	1	1	18	40	127	40	1	7	80	-	-	2	41	64	56	14	43	41	33	-	5
Vallonia costata (Mller)	-	-	2	318	285	37	14	-	-	-	-	129	310	62	1	27	64	-	-	1	25	26	14	-	37	25	27	-	1
Vallonia excentrica Sterki	-	3	37	74	29	7	-	-	-	-	1	47	21	6	2	8	19	-	-	-	4	58	25	20	93	88	78	1	38
Punctum pygmaeum (Draparnaud)	-	-	-	4	2	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	1	-	1	1	-	1	-	-
Vitrina pellucida (Mller)	-	-	-	-	-	-	-	-	-	-	-	4	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vitrea contracta (Westerlund)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Nesovitrea hammonis (Str <sup>n</sup> )	-	-	-	1	1	-	-	-	-	-	-	6	6	3	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-
Limacidae	-	-	-	4	-	-	-	-	-	-	-	2	4	2	-	1	2	-	-	-	-	15	11	4	14	15	4	-	4
Ceciliooides acicula (Mller)	-	-	[2]	[+]	[6]	[83]	[51]	-	-	-	-	-	-	-	-	-	[2]	[1]	-	-	[2]	[5]	[6]	[46]	[160]	[158]	[268]	-	[27]
Clausilia bidentata (Str <sup>m</sup> )	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Candidula intersepta (Poiret)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Helicella itala (Linnaeus)	-	2	8	97	26	28	5	5	-	3	5	3	22	9	-	3	14	+	-	-	13	62	38	30	59	79	53	1	59
Monacha cantiana (Montagu)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Trichia hispida (Linnaeus)	-	-	6	326	123	25	9	-	1	1	-	58	110	26	2	11	20	-	-	3	11	71	63	27	105	77	88	-	43
Cepaea spp.	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	2	-	1	-
Helix aspersa (Mller)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	1	+	-	+
Lymnaea truncatula (Mller)	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Taxa	0	4	8	11	11	9	6	1	2	3	3	9	11	8	5	7	9	0	1	3	8	9	8	8	11	9	10	3	8
TOTAL	0	13	96	334	706	135	32	5	2	5	24	294	638	150	7	58	221	0	1	6	102	313	215	100	366	332	289	3	152

Notes:  
A = Base of OLS B = Upper fill of ditch C = Below stony horizon [] = not included in total

been tilled on any scale until the Iron Age - Romano-British periods. In fact, the formalisation of field systems at Alington Avenue in the later Iron Age and Romano-British periods might reflect pressures and demands upon the land requiring the extensification of tillage into the pastures around Fordington Farm barrow.

## DISCUSSION

Despite the unassuming physical remains of this barrow prior to excavation, it has proved to contain a wealth of detail on the range of burial and funerary practices in the late third and second millennium BC. The successive enlargement and re-modelling of a round barrow is not uncommon. Examples include Amesbury 71, Wiltshire (Christie 1967) and Frampton 4 and 5, Dorset (Forde-Johnson 1958). The closest parallel to Fordington Farm barrow as a whole is perhaps Long Bredy 9a, also in Dorset (Eogan 1980). This barrow also had three ditches, the inner one being segmented. Unfortunately the central burial area had been disturbed but the possibility of multiple primary inhumation cannot be discounted.

The first phase of the Fordington Farm round barrow recalls many features which have been seen to be typical of Neolithic funerary practice, including multiple, disarticulated burials, mortuary structures, and interrupted ditches. The phase 1 barrow might thus be regarded as a Late Neolithic round barrow, like those discussed by Kinnes (1979). The radiocarbon dates, however, place the construction of the monument at the end of the third millennium cal. BC, within the currency of Early Bronze Age burial practices and artefactual traditions (Table 7).

## Burials

### Phase 1

The primary interments at Fordington Farm barrow are exceptional in the seemingly deliberate ordering and placing of the bones, in a fashion reminiscent of some long barrows (Ashbee 1970), although the classic interpretation of disarticulation as being the result of exhumation does not seem to fit the evidence from Fordington Farm. Here, the disarticulation appears to be the result of disturbance and re-ordering the bones through subsequent opening of the grave. Closer examination of some long barrow interments, for example at Wor Barrow, Dorset (Pitt Rivers 1898, 48-100) and Giants' Hills, Skendleby, Lincolnshire (Phillips 1936), indicates that a similar origin can be postulated for the disarticulation. Successive interment of complete bodies accompanied by rearrangement of previous burials has been demonstrated most clearly at Hazleton North, Gloucestershire (Saville 1990, 105-125, 250-252).

Disarticulated burials and multiple inhumation are not uncommon in round barrows (Petersen 1972). Normally, however, the disarticulated skeletal material is disordered and often scattered throughout the filling of the grave, suggesting that this had been disturbed during subsequent burials, as at Frampton 4, Dorset (Forde-Johnson 1958) or Amesbury 71, Wiltshire (Christie 1967). The difference at Fordington Farm is that the bodies were interred in wooden structures rather than buried in backfilled graves, so that disturbance was minimised. The re-ordering of the Fordington bones argues that the bodies remained accessible long enough to allow for decomposition to take place before the mortuary structures were covered by the mound. The presence of a mortuary structure would allow easy access to the deceased. The radiocarbon dates suggest that the two phase 1 grave pits were being used almost contemporaneously (Table 7).

Unfortunately, the records of the multiple inhumations in Amesbury barrow 51, Wiltshire, where a similar mortuary structure was found, are not precise enough to establish if a comparable pattern existed there (Ashbee 1978). At Chilbolton, Hampshire, however, there was evidence for the sequential burial of two individuals within a wooden mortuary structure, the second causing some disturbance to and rearrangement of the first. Radiocarbon determinations for both are statistically indistinguishable from those for the phase 1 burials at Fordington; cultural affinities are in this case defined by

accompanying Beakers and other artefacts, including goldwork (Russel 1990).

The re-opening of the graves might well have been to remove certain bones for use elsewhere. This practice can be postulated at several long barrows such as West Kennet, Wiltshire (Piggott 1962), Wayland's Smithy, Berkshire (Atkinson 1965), Fussell's Lodge, Wiltshire (Ashbee 1966) and Giants' Hills, Skendleby, Lincolnshire (Phillips 1936) where various bones were missing and 'extra' bones were present. In these long barrows the missing bones were primarily skulls and femora, but at Fordington Farm a wide range of bones (pelvis, scapula, humerus and mandible) was absent.

### Grave 61

The barbed and tanged arrowhead associated with the skeleton in this grave recalls Beaker burial practices where archery equipment occurs as grave goods. However, Green (1980, 130) states that typical Conygar Hill type arrowheads are generally absent from Beaker graves but occur with Food Vessels. He has also noted (*ibid.*, 132) that this type of arrowhead is usually associated with skeletons placed on their right side, as is the case at Fordington Farm. It cannot be determined whether the arrowhead was the cause of death, was buried in a pouch at the waist of the person, or is the remains of a complete arrow placed on the body.

The other grave goods placed in this grave were cattle bones which were found both directly associated with the skeleton (i.e. the scapula under the head and the axis under the feet) and within the grave filling above the skeleton. The presence on all three scapulae of cut marks associated with the removal of meat from the blade indicates that they were deposited as bones rather than as joints of meat. The selection of these parts of the skeleton is exceptional, although cattle bones, especially skulls, figure in both Neolithic and Early Bronze Age burials. A cattle skull on the base of one of the ditches of the Alington Avenue long barrow provides an earlier instance of local ceremonial use of the species (Davies *et al.* 1985, 104).

## Mortuary Structures

Without more surviving evidence, any discussion of the possible mortuary structures will be necessarily tentative. Their dimensions compare with those of the Chilbolton example, which measured approximately 1.80 x 1.10m and survived to a depth of approximately 0.75m (Russel 1990, fig. 2). Their salient features can also be paralleled by the central burial of Amesbury barrow 51 where there was evidence for a much better-preserved wooden mortuary structure (Ashbee 1978). Here the rectangular structure consisted of upright horizontal planks retained by four vertical corner posts forming a box 2.3 x 0.9 x 0.7m. Ashbee (*ibid.*, 29) proposed a pitched roof on the basis of the amount of subsidence into the pit (some 0.6m). Although the subsidence was not so great (c. 0.4 m), similar structures can be envisaged at Fordington Farm. However, unlike the Amesbury 51 structure which only occupied the lower part of the grave pit, the Fordington Farm structures appear to have continued up to the ground surface. Thus, when surrounded and covered by the surplus chalk rubble (79) from the pits, the appearance of a small long or oval mound would be achieved. The length of time between the construction of these structures and their incorporation into the barrow mound cannot be determined.

## Barrow Structure

### Phase 1

The small long or oval mound over the mortuary structures was covered by a round chalk mound, thus emphasising the transitional nature of this barrow. The Neolithic aspect of the barrow is further emphasised by the causewayed ditch surrounding the mound. A segmented ditch is a relatively rare feature of round barrows in Britain (Ashbee 1978, appendix 1). There appears to be a difference between barrows with one or two causeways across the ditch which are often associated with

Deverel-Rimbury cremation cemeteries, such as Simons Ground (White 1982) and Knighton Heath (Petersen 1981), both in Dorset, and those with three or more causeways which often have Beaker associations (Table 6). The majority of these latter barrows are also very small.

The interrupted ditches associated with the round barrows listed in Table 6 appear to be of two different types: those which have evenly spaced causeways; and those where these are unevenly spaced. A third type of interrupted ditch can perhaps be identified in those barrows where the ditch consists of a series of quarry scoops, as at Shrewton 5a, Wiltshire (Green and Rollo-Smith 1984) or Handley 27, Dorset (Pitt Rivers 1898). The definition of these types must necessarily be very tentative until more examples of each type have been discovered.

The Fordington Farm barrow had a ditch with unevenly spaced causeways. Closer examination of this type reveals that the causeways are grouped in a distinct pattern with the smaller segments grouped together and the whole ditch laid out about an axis through a causeway between two short segments and a causeway dividing two larger segments. This axis appears to have been laid out with reference to the central burial(s). At Fordington Farm the two grave pits are aligned along this axis (Fig. 2). The overall effect creates a focal point on the south side of the barrow. A similar situation can be seen at Amesbury 51 (Ashbee 1978, fig. 2). Thus, it is clear that this particular relationship is important and it may explain why the burials were not centrally placed beneath the mound.

The provision of causeways across the ditch raises questions about access into the central area. It cannot be determined whether the ditch or the grave pits were constructed first. However, since, in common with many round barrows, the structure of the phase 1 mound reflects the digging of the ditches, i.e. the initial removal of the turf (layer 79) followed by the excavation of the chalk below (layer 6), it seems likely that the ditch and mound were created in one operation. This is

confirmed by the fact that the estimated original volume of the mound is very similar to the estimated original volume of the ditch. Therefore, the graves would have been constructed first then enclosed beneath a mound with surrounding ditch. In other words, the causeways were not designed to allow access into the mortuary structures and the skeletal material contained within them. Also, this effectively discounts the possibility that the ditch was created first to form a small hengiform, similar in size to those found nearby on the northern side of Conygar Hill (Woodward and Smith 1987).

Thus, it can be seen that the phase 1 monument replicates the salient features of the long barrow tradition within a round barrow. The arrangement of causeways in the ditch provides a focus, normally absent from round barrow construction, but an important part of the long barrow tradition (Ashbee 1960, Ashbee 1970). It is of interest that a similar arrangement of ditch sections occurs at Wor Barrow (Pitt Rivers 1898). The provision of a mortuary house structure containing carefully arranged disarticulated multiple inhumations reflects long barrow practice more closely than that normally associated with round barrows. Indeed the completion of the grave pits and mortuary structures created a small long or oval mound.

#### Phase 1a

The nature of the possible refurbishment of the barrow is uncertain, given the slight and tenuous nature of the evidence. It may represent no more than convenient dumping of chalk rubble from some other activity onto the side of the mound. The chronological gap between phases 1 and 1a cannot be determined.

The presumed knapping activity associated with this phase cannot be considered in detail without proper analysis of the flint assemblage. The large number of natural flint nodules suggests that this material was ultimately derived from field clearance. Similar concentrations of flint have been found

site	mound dia.(m)	ditch dia.(m)		no. of causeways	spacing of causeways	burial associations
		int.	ext.			
Fordington Farm	8.2	10.2	12.7	4	unequal	2 grave pits with mortuary structures. 75 disarticulated inhumations.
Falmer 11	14.7	-	-	3	?	not excavated (Grinsell 1934, 260).
Chippenham	16.7			4	equal	central crouched inhumation with stone axe-hammer and bronze dagger (Leaf 1936).
Corfe Castle 12	16.6	-	-	4	?	not excavated (Grinsell 1959, 102)
Amesbury 51	12.8	21.8	26.5	5	unequal	central grave with mortuary structure containing up to 4 inhumations possibly 2 Beakers. (Ashbee 1978).
Stockbridge Down	5.2	5.2	6.7	5	equal	central crouched inhumation with Beaker and copper awl (Stone and Hill 1940).
Shrewton 24	7.1	8.6	12.0	7	equal	central crouched inhumation with Beaker (Green and Rollo-Smith 1984).
Rudston LXIII	7	13.7	16.1	at least 4	equal	uncertain, 2 inhumations and Beaker sherds disturbed by secondary central grave (Greenwell 1877, 245-51).
Westbury 7	c. 18	?	?	?	?	(Hoare 1812, 54)
Wilsford 51	14.7	?	?	?	?	primary inhumation with Beaker (Grinsell 1957, 198; Longworth 1959, 275).
Long Bredy 9a	10.6	10.6	12.5	at least 3	unequal	6 disturbed inhumations (Eogan 1980).
Conquer barrow	c. 30	c. 84	c. 98	at least 2	?	mound not excavated (Wainwright 1979).

Table 6: Round barrows with causewayed ditches

around the edges of other barrows in Wessex (Christie 1967; Christie 1970; Saville 1980). In the Dorchester area, the majority of examples appear to be Middle to Late Bronze Age in date, e.g. Cowleaze (Harding 1991); Flagstones (Bellamy, forthcoming (b)); Maiden Castle Road, South (*ibid.*); Winterborne Monkton 1c (Lanceborough barrow group; Woodward et al. forthcoming). The evidence from the Alington Avenue long barrow, however, (Bellamy, forthcoming (a)) indicates that this type of activity also occurred in the Neolithic.

### Phase 2

The second major phase of barrow construction is characterised by a ditchless turf mound covering several stake circles. Concentric rings of stakes are not an uncommon feature in round barrows (Ashbee 1960). Unusually the stake rings at Fordington Farm were composed of a series of arcs rather than a single continuous circuit. This is most clearly seen in the inner, most complete, ring which has three separate arcs (Figs 2 and 4). Although the outer ones were not complete, it is likely that they originally formed complete circuits, by analogy with other barrows such as Sheeplays 293, in Glamorgan (Fox 1941), and Arreton Down (Alexander *et al.* 1960) and Gallibury Down (Tomalin 1979), both on the Isle of Wight. This would place the Fordington Farm stakes into Ashbee's category C2 (Ashbee 1957). The size of the stakes is comparable to those from other barrows, e.g. Amesbury 61, Wiltshire (Ashbee 1985, 57). The spacing of the stakes is also similar to that recorded from other barrows such as Arreton Down (Alexander *et al.* 1960) and Buckskin, Hampshire (Allen *et al.* forthcoming). It is of interest to note that the inner stake ring was about the same diameter as the inner stake rings from both Arreton Down and Buckskin.

The stakes can be seen as a structural element of the mound construction or as features defining the area of ceremonial and burial ritual. In some instances, such as Amesbury 71 (Christie 1967), Gallibury Down (Tomalin 1979) and Winterbourne Stoke G47, Wiltshire (Gingell 1988), amongst others, the stake rings appear to act as a revetment for a turf stack. The stake ring in Barrow III at West Heath, Sussex has been proposed as representing a hurdle fence revetting the turf mound (Drewett 1976). At other sites such as Arreton Down the stake circles have been interpreted as a temporary sacred area (Alexander *et al.* 1960, 270). At Buckskin it has been proposed that the stake circles served as a demarcation of the central area but were later used as a revetment of the mound (Allen *et al.* forthcoming). The precise function of the stake structures at Fordington Farm is not clear. None of the circles were complete but it is uncertain whether this was an original feature or was principally the result of incomplete preservation or recognition. Likewise it would have been extremely difficult to recognise the stakes in the overlying mound material so it cannot be determined whether the stakes were removed before the construction of the turf mound or were an integral part of it, nor whether they were the remains of a hurdle fence. It is possible that these stake rings were structural, as the edge of the turf mound was just outside the line of the outer circle, which may indicate that it formed some kind of external revetment, although the shape of the mound in section does not confirm this, unlike at Amesbury 71 (Christie 1967, pl. XL) where there was an almost vertical edge to the turf stack. Also, the turf stack was built over the existing mound which therefore, may have needed some internal support to prevent it slumping. The most plausible hypothesis for the stake rings would seem to be that they were used to revet the turf mound to stabilise its construction over the top of the pre-existing mound and ditch.

The frequency of occurrence of unditched round barrows is difficult to assess as they can only be recognised by excavation and many early excavations were insufficient to prove the existence of a ditch or otherwise. They appear to be unusual in Wessex. Grinsell's published list (1941, appendix IX) of ditchless barrows in Wessex has been subsequently augmented by very few examples. The majority of these appear to consist of mounds scraped up from the surrounding soil over a single

grave (Ashbee 1960, 44), as Woodford G13, Wiltshire (Gingell 1988). Other examples of ditchless barrows do occur but these appear to be restricted in Hampshire and Dorset to heathland areas (Petersen 1981, table X). These were constructed of turf, as at Beaulieu I (Piggott 1943) and Hurn barrow I (Piggott 1941-43), both in Hampshire, or a mixture of other local materials like sand and gravel, as at Landford barrow (Preston and Hawkes 1933). The closest parallel to the phase 2 barrow at Fordington Farm is Shrewton 23, Wiltshire, which had a turf mound 18m in diameter (Green and Rollo-Smith 1984). This barrow did not have any internal stake structures but it did cover a wooden post structure. Ditchless barrows appear to have no chronological homogeneity. Shrewton 24 is associated with Food Vessels and late Beaker practices (Green and Rollo-Smith 1984, 285). Others such as Landford barrow have Deverel-Rimbury associations and Beaulieu I appears to have Late Neolithic associations.

No burial event can be reliably associated with the phase 2 barrow. However, it has been suggested by the excavator (Copson pers. comm.) that the grave containing the crouched inhumation (61) belonged to this phase. The filling of the grave was fairly clean chalk rubble, similar to the phase 1 mound material. Copson argued that, if this burial belonged to a later phase it would have cut through the turf mound which would have produced a more mixed grave filling. However it must be noted that the grave in a similar unditched turf barrow, Shrewton 24, had been backfilled with turf rather than the chalk derived from digging it, which was left scattered on the surface surrounding the barrow (Green and Rollo-Smith 1984). This argues for a deliberate choice of backfilling material which was not necessarily the material originally removed from the grave. The seemingly deliberate deposition of a bronze awl within the filling of the grave of Shrewton 24 serves to underline the formal nature of the pit filling. It would seem that the nature of the grave filling cannot be used confidently to place this burial event in this phase. The fact that the dates from the primary and secondary burials cluster closely together might argue for a short interval between them, suggesting that grave 61 does indeed belong to phase 2.

### Phase 3

The surviving remnants of the phase 3 barrow indicate that it was a typical example of a bowl barrow built on the Wessex chalkland, with a central turf core and a chalk envelope. Its overall dimensions are average for a bowl barrow in Dorset (Grinsell 1959, 85-161).

### Phase 4

The badly eroded remnants of the phase 4 bell barrow cannot contribute much towards our understanding of this monument type (cf. Petersen 1981, appendix VI). There is some evidence that it consisted of a central turf core and an overlying chalk mound. The most noteworthy feature of the final phase monument is its size which places it amongst the largest barrows of this type in Dorset (Grinsell 1959, 162-167).

### The Monument In Its Setting

The Fordington Farm round barrow does not stand in isolation but is part of a complex archaeological landscape within which it forms part of a relatively well dated sequence of monument construction along the Alington ridge (Fig. 1; Table 7). It was established during a period of transition in the ritual landscape at the end of the third millennium cal. BC (Table 7) when the Flagstones enclosure finally appears to have gone out of use; the timber palisade was constructed at Mount Pleasant and the stone cove replaced earlier timber structures there (Wainwright 1979); and a probable double round barrow was built across the end of the Alington Avenue long barrow.

The initial burials at Fordington Farm took place in what was a well established open, grazed grassland environment. By this date the Neolithic landscape had already been substantially altered by the conversion of the area around the Alington

Avenue long barrow and also around the Flagstones enclosure into an arable agricultural regime which resulted in the rapid silting up of the long barrow ditches and subsequently of that of the possible double round barrow. Three crouched inhumations were found within the eastern half of this ditch, buried in graves cut through the secondary ditch silts. One of these burials produced a date broadly contemporary with, or slightly earlier than, the first burials at Fordington Farm (Table 7).

The Fordington Farm round barrow was constructed along an already well established monumental alignment which included Conquer Barrow, Flagstones and the Alington monuments (Fig. 1; Table 7). However, Fordington Farm seems to have been the first monument where the activity centred around burial. No burials were found associated with the Alington long barrow, nor were there any contemporary burials within the probable double round barrow, although both monuments were so heavily-ploughed that the evidence may have been destroyed. At Flagstones, the infant burials (Woodward and Smith 1987) are unlikely to have been the central activity associated with the enclosure. Excavation at the Conquer Barrow has not been extensive enough to locate any burials but, in terms of its size and possible early date, this large mound is more comparable to Silbury Hill (where burial does not seem to be the central

function) than to most round barrows. In this respect it is interesting to note that the Fordington Farm barrow was built in a block of land reserved for pasture rather than arable which could indicate the deliberate siting of this burial monument in an area where it would be protected from agricultural damage. The land remained in pasture until the Iron Age or Romano-British period.

The suggestion that the phase 1 graves had been re-opened and skeletal material removed poses the problem of where these bones were taken and for what purpose. Beyond the fact that the Fordington Farm monument was sited on a previously established monumental alignment, there is no obvious relationship between it and the other monuments in the vicinity. It is striking that the focus of the primary barrow was not aligned towards any of the monuments on the ridge but towards the SSE. The probable double round barrow at Alington Avenue, the closest neighbouring monument, had an 'entrance' at virtually 180° to this, in the NNW. The precise form and function of this monument is not known but the date for a burial cut into the ditch silts (Table 7) would appear to indicate that was built and in use by the time of the construction of the phase 1 monument at Fordington Farm. There is nothing which might suggest an intimate relationship based upon the transference of human

site	material	lab.no.	date <sup>14</sup> C years BP	date Cal BC (Pearson and Stuiver 1986)	
				1 s	2 s
<b>FORDINGTON FARM</b>					
grave 70	H	UB-3304	3715±54	2199 - 2037	2290 - 1970
grave 59	H	UB-3305	3767±47	2286 - 2137	2347 - 2039
grave 61	H	UB-3306	3844±30	2452 - 2284	2459 - 2201
<b>ALINGTON AVENUE</b>					
long barrow					
ditch basal fill	B	HAR-8579	4450±80	3335 - 2928	3370 - 2910
?double round barrow					
ditch burial	H	HAR-9662	3810±120	2460 - 2044	2580 - 1920
pit burial	H	HAR-9661	2160±70	366 - 109	390 - 30
<b>FLAGSTONES</b>					
E Neo pit	C	HAR-9161	4960±80	3850 - 3660	3970 - 3540
enclosure					
burial	H	HAR-9158	4490±70	3345 - 3039	3370 - 2920
burial	H	OXA-2321	4210±110	2919 - 2619	3091 - 2494
basal ditch fill	A	OXA-2322	4450±90	3330 - 2930	3355 - 2915
basal ditch fill	A	HAR-8578	4030±100	2863 - 2460	2889 - 2300
central ring ditch					
burial	H	HAR-9159	3560±70	2028 - 1782	2133 - 1740
<b>MOUNT PLEASANT</b>					
Conquer Barrow					
ditch fill	A	BM-795	4077±52	2863 - 2507	2876 - 2480
pre-enclosure settlement	C	BM-644	4072±73	2866 - 2498	2886 - 2460
enclosure ditch W entrance	A	BM-645	3734±41	2201 - 2045	2288 - 2034
	A	BM-646	3728±59	2272 - 2039	2300 - 1970
	C	BM-664	3410±131	1890 - 1530	2117 - 1430
enclosure ditch N entrance	C	BM-788	3506±55	1911 - 1749	2018 - 1690
	C	BM-789	3459±53	1881 - 1701	1920 - 1670
	C	BM-790	3619±55	2119 - 1911	2140 - 1827
	C	BM-791	3891±66	2470 - 2291	2575 - 2146
	C	BM-792	4058±71	2862 - 2494	2881 - 2460
	C	BM-793	4048±54	2856 - 2496	2869 - 2470
timber structure	C	BM-663	3911±89	2564 - 2289	2853 - 2140
	A	BM-666	3941±72	2570 - 2352	2852 - 2207
	A	BM-667	3988±84	2606 - 2458	2869 - 2290
	C	BM-668	3630±60	2131 - 1921	2192 - 1828
	C	BM-669	3274±51	1626 - 1514	1680 - 1440
palisade trench	A	BM-662	3637±63	2133 - 1928	2197 - 1829
	C	BM-665	3645±43	2130 - 1961	2173 - 1902
	B	BM-794	3956±45	2565 - 2459	2583 - 2346
<b>MAUMBURY RINGS</b>					
shaft 1 primary fill	A	BM-2282	3970±50	2573 - 2461	2600 - 2351

A = Antler B = Animal Bone C = Charcoal H = Human Bone

Table 7: Radiocarbon dates for the monumental sequence on the Alington Ridge

bones between these two monuments, nor is there any evidence available to indicate a similar relationship with any of the other monuments such as those at Mount Pleasant. On present evidence, there is no indication of where the bones removed from the phase 1 mortuary structures were taken. It is possible that they were not removed for ritual purposes in connection with a large monument but were involved with more private rituals conducted away from these.

The Fordington Farm barrow developed and changed through time as part of a changing landscape. The initial phase of monument construction contained many elements transitional between 'indigenous' Neolithic and Early Bronze Age funerary practices during a period when the ritual landscape in which it was placed was undergoing change. The barrow developed as part of a linear barrow cemetery along the Alington ridge (Fig. 1) which included the westernmost of the 'Two Barrows' and the barrow in the centre of the Flagstones causewayed enclosure. The latter produced a date of 2133-1740 cal. BC which suggests that the cemetery was established not long after the construction of Fordington Farm barrow. The later phases of this monument survived only in a very poorly preserved state, however, it is clear that during its development it incorporated many changes in barrow construction and burial tradition and it culminated in one of the largest bell barrows in Dorset.

### THE ARCHIVE

The limited nature of the resources means that this report is not based on an exhaustive study of all the available material in the record. Instead it is an attempt to summarise our knowledge so far. The archive has potential for a substantial amount of further work, which is briefly discussed below. It is split into two parts: the evaluation record (TWA Archive Ref. W127); and the excavation record (TWA Archive Ref. W259). Each consists of written, drawn and photographic records, together with the finds. The latter amount to 38 boxes (measuring 0.39 x 0.25 x 0.18m) from the evaluation and 44 from the salvage excavation. Records and finds will be deposited with Dorset County Museum.

### RECOMMENDATIONS FOR FURTHER WORK

A high priority must be given to obtaining a much larger series of radiocarbon dates from all phases to establish a secure dating framework for the finds, the structure of the barrow and its relationship with the other monuments in the region. The major artefact category not so far examined is the flint. It is hoped that the volume of material, which runs into thousands of pieces, and the method of collection will allow the nature of the assemblage and its deposition pattern to be established.

Most further work on the barrow will have to concentrate on the results of the evaluation. A very detailed record of the structure of the mound and the distribution of artefactual material within it was kept. This might be able to provide further detail on the construction of the various phases of the monument and further refinement of the various periods of activity may be possible.

### ACKNOWLEDGEMENTS

The evaluation exercise was managed by Peter Woodward and supervised in the field by Vincent Jenkins. The salvage excavation and subsequent reporting were managed by Peter Chowne. These excavations were supervised in the field by C. K. Copson. Thanks are due to all the volunteer and M.S.C. labour without whom these excavations would not have been possible. The text has benefited from comment by Andrew Lawson, Susan M. Davies and Frances Healy.

The excavations were aided by a timely grant towards the cost of machining by the Dorset Archaeological Committee. This report was produced with the help of a grant from English Heritage.

### BIBLIOGRAPHY

- Alexander, J., Ozanne, P.C., and Ozanne, A., 1960 'Report on the Investigation of a round barrow on Arreton Down, Isle of Wight' *Proc. Prehist. Soc.* 26, 263-302.  
 Allen, M.J. forthcoming 'The land Mollusca' in Davies, S.M., *Excavations at Alington Avenue, Dorset*. (Dorset Natur. Hist. Archaeol. Soc. Mono.).  
 Allen, M.J., Morris, M. and Clark, R.H., forthcoming 'A Bronze

- Age Barrow at Buckskin, Basingstoke: Bronze Age ritual and landscape appraisal' *Proc. Prehist. Soc.*  
 Ashbee, P., 1957 'Stake and post circles in British round barrows' *Archaeol. J.* 114, 1-9.  
 Ashbee, P., 1960 *The Bronze Age Round Barrow in Britain*.  
 Ashbee, P., 1966 'The Fussell's Lodge Long Barrow', *Archaeologia* 100, 1-80.  
 Ashbee, P., 1970 *The Earthen Long Barrow in Britain*.  
 Ashbee, P., 1978 'Amesbury barrow 51: Excavation 1960', *Wiltshire Archaeol. Natur. Hist. Mag.* 70/71, 1-60.  
 Ashbee, P., 1985 'The excavation of Amesbury barrows 58, 61a, 61, 72' *Wiltshire Archaeol. Natur. Hist. Mag.* 79, 38-91.  
 Atkinson, R.J.C., 1965 'Wayland's Smithy', *Antiquity* 39, 126-133.  
 Bass, W.M., 1987 *Human Osteology* (Missouri Archaeol. Soc.)  
 Bell, M.G., 1983 'Valley sediments as evidence of prehistoric land-use on the South Downs', *Proc. Prehist. Soc.* 43, 119-150.  
 Bell, M.G. and Allen, M.J., 1985 'Valley sediments and molluscs from around Hambledon Hill, Dorset' (Unpub. MS for R. Mercer).  
 Bellamy, P.S. forthcoming (a) 'The flaked stone' in Davies, S.M., Heaton, M.J. and Woodward, P.J., *Excavations at Alington Avenue, Fordington, Dorchester* (Dorset Natur. Hist. Archaeol. Soc. Mono.).  
 Bellamy, P.S. forthcoming (b) 'The flaked stone' in Smith, R.J.C., *Excavations along the Southern Dorchester By-pass* (English Heritage Archaeol. Rep.).  
 Bingham, C. W., 1848 Note in 'Archaeological Intelligence, Early British Period', *Archaeol. J.*, 5, 322-325.  
 Bradley, R., 1975 'Maumbury Rings, Dorchester: The excavations of 1908-1913' *Archaeologia* 105, 1-97.  
 Brooks, S.T., 1955 'Skeletal age at death: The reliability of cranial and pubic age indications' *Amer. J. Phys. Anthropol.* 13, 567-97.  
 Brothwell, D.R., 1981 *Digging up Bones* 3rd. ed. (Oxford, Brit. Mus. Natur. Hist.)  
 Burgess, C., 1986 'Urnes of no small variety: Collared Urns reviewed', *Proc. Prehist. Soc.*, 52, 339-351.  
 Cameron, R.A.D. and Morgan-Huws, D.I. 1975 'Snail faunas in the early stages of chalk grassland succession' *Biol. J. Linn. Soc.* 7, 215-229.  
 Chappell, H.G., Ainsworth, J.F., Cameron, R.A.D., and Redfern, M., 1971 'The effect of trampling on the chalk grassland ecosystem', *J. Applied Ecology* 8, 869-882.  
 Christie, P.M., 1967 'A barrow-cemetery in the second millennium BC in Wiltshire, England' *Proc. Prehist. Soc.* 33, 336-366.  
 Christie, P.M., 1970 'A round barrow on Greenland Farm, Winterbourne Stoke', *Wiltshire Archaeol. Natur. Hist. Mag.* 65, 64-73.  
 Davies, S.M., Stacey, L.C., and Woodward, P.J., 1985 'Excavations at Alington Avenue, Fordington, Dorchester, 1984/85: Interim Report', *Proc. Dorset Natur. Hist. Archaeol. Soc.* 107, 101-110.  
 DCO Duchy of Cornwall Office.  
 Drewett, P.L., 1976 'The excavation of four round barrows of the second millennium B.C. at West Heath, Harting, 1973-75', *Sussex Archaeol. Collect.* 114, 126-150.  
 Eogan, G., 1980 'The excavation of a round barrow at Long Bredy, Dorset' *Proc. Dorset Natur. Hist. Archaeol. Soc.* 100 (1978), 43-53.  
 Evans, J.G., 1972 *Land Snails in Archaeology*.  
 Evans, J.G., 1975 'Land Mollusca', in Bradley (1975), 29.  
 Evans, J.G., and Jones, H., 1979 'The Land Mollusca', in Wainwright (1979), 190-213.  
 Evans, J.G. and Rouse, A., forthcoming 'The Land Mollusca', in Sharples, N.M., *Maiden Castle: Excavations and Field Survey 1985-6*, English Heritage Archaeol. Rep. 19.  
 Fazekas, I.G., and Kssa, F., 1978 *Forensic Foetal Osteology* (Akademiai Kiado, Budapest).  
 Forcart, L., 1965 'New researches on *Trichia hispida* (Linnaeus) and related forms' *Proc. European Malacological Congress* 1, 79-89.  
 Forde-Johnson, J., 1958 'The excavation of two barrows at Frampton in Dorset', *Proc. Dorset Natur. Hist. Archaeol. Soc.* 80, 111-132.  
 Fox, C., 1941 'Stake-Circles in Turf Barrows: a record of excavation in Glamorgan, 1939-40', *Antiq. J.* 21, 97-127.  
 Gerloff, S., 1975 *The Early Bronze Age Daggers in Great Britain* (Prähistorische Bronzefunde, Abteilung VI, 2. Band. München).  
 Gingell, C., 1988 'Twelve Wiltshire round barrows. Excavations in 1959 and 1961 by F. de M. and H.L. Vatcher', *Wiltshire Archaeol. Natur. Hist. Mag.* 82, 19-76.

- Grant, A., 1982 'The use of tooth wear as a guide to the age of domestic ungulates', in Wilson, B., Grigson, C., and Payne, S., (eds), *Aging and Sexing Animal bones from Archaeological Sites*, (Brit. Archaeol. Rep. 109, Oxford) 91-108.
- Green, C.J.S., 1979 in Keen, L.J. (comp), 'Dorset Archaeology in 1979', *Proc. Dorset Natur. Hist. Archaeol. Soc.* 101, 135.
- Green, C. and Rollo-Smith, S., 1984 'The excavation of eighteen round barrows near Shrewton, Wiltshire', *Proc. Prehist. Soc.* 50, 255-318.
- Green, H.S., 1980 *The Flint Arrowheads of the British Isles* (Brit. Archaeol. Rep. 75, Oxford).
- Greenwell, W. 1877 *British Barrows* (Oxford).
- Grigson, C., 1982 'Sex and age determination of some bones and teeth of domestic cattle: a review of the literature', in Wilson, B., Grigson, C., and Payne, S., (eds), *Aging and Sexing Animal Bones from Archaeological Sites*, (Brit. Archaeol. Rep. 109, Oxford), 7-24.
- Grinsell, L.V., 1934 'Sussex Barrows', *Sussex Archaeol. Collect.* 75, 217-75.
- Grinsell, L.V., 1941 'The Bronze Age round barrows of Wessex', *Proc. Prehist. Soc.* 7, 73-113.
- Grinsell, L.V., 1957 'Archaeological Gazetteer' in Pugh, R.B. and Crittall, E. A., *History of Wiltshire* part 1, (The Victoria History of the Counties of England).
- Grinsell, L.V., 1959 *Dorset Barrows* (Dorset Natur. Hist. Archaeol. Soc.).
- Harding, P., 1991 'Stratified groups from Rowden and Cowleaze' in Woodward, P.J., *The South Dorset Ridgeway, Survey and excavations 1977-1984*, (Dorset Natur. Hist. Archaeol. Soc. Mono. 8, Dorchester), 73-87.
- Hoare, R.C., 1812 *The Ancient History of South Wiltshire*.
- Hodgson, J.M., 1976 *Soil Survey Field Handbook* (Soil Survey Technical Mono. 5, Harpenden).
- Kinnes, I., 1979 *Round Barrows and Ring Ditches in the British Neolithic* (Brit. Mus. Occas. Pap. 7).
- Leaf, C.S., 1936 'Two Bronze Age barrows at Chippenham, Cambridgeshire', *Proc. Cambridge Antiq. Soc.* 36, 134-155.
- Limbrey, S., 1975 *Soil Science and Archaeology*.
- Longworth, I.H., 1959 'Notes on excavations in the British Isles 1958', *Proc. Prehist. Soc.* 25, 270-282.
- Longworth, I.H., 1979 'The Neolithic and Bronze Age pottery', in Wainwright (1979).
- Longworth, I.H., 1984 *The Collared Urns of the Bronze Age in Great Britain and Ireland* (Cambridge).
- McKinley, J.I., 1988 'Cremations: Expectations, Methodologies and realities' in Roberts, C.A., Lee, F., and Bintliff, J., (eds), *Burial Archaeology. Current Research. Methods and Developments* (Brit. Archaeol. Rep. 211, Oxford), 65-76.
- McKinley, J.I., 1990 untitled report on cremated bone in Wymer, J.J., 'A cremation burial at Alington', *Norfolk Archaeol.* 41(1), 71-73
- McKinley, J.I., forthcoming a 'W267, cremation from Bronze Age urn', in Butterworth, C.A., and Lobb, S.J., *Excavations in the Burghfield Area, Berkshire: Developments in the Bronze Age and Saxon Landscapes*
- McKinley, J.I., forthcoming b 'The Anglo-Saxon cemetery at Spong Hill, North Elmham, Part VIII The Cremations', (E. Anglian Archaeol.)
- McMinn, R.M.H. and Hutchings, R.T., 1985 *A Colour Atlas of Human Anatomy* (Wolfe Medical Publications).
- Morris, M.G., 1968 'Differences between the invertebrate faunas of grazed and ungrazed chalk grassland II: the faunas of sample turves' *J. Applied Ecology* 5, 601-611.
- Pearson, G.W., and Stuiver, M., 1986 'High-precision calibration of the radiocarbon time scale, 500-2500 BC', *Radiocarbon* 28 (2B), 839-862
- Petersen, F.F., 1972 'Traditions of multiple burial in Late Neolithic and Early Bronze Age England', *Archaeol. J.* 129, 22-55.
- Petersen, F.F., 1981 *The Excavation of a Bronze Age Cemetery on Knighton Heath, Dorset* (Brit. Archaeol. Rep. 98, Oxford).
- Phillips, C.W., 1936 'The excavation of the Giants' Hills Long Barrow, Skendleby, Lincolnshire', *Archaeologia* 85, 37-106.
- Piggott, C.M., 1943 'Excavation of Fifteen Barrows in the New Forest 1941-2', *Proc. Prehist. Soc.* 9, 1-27.
- Piggott, C.M., 1941-43 'Three turf barrows at Hurn, near Christchurch', *Proc. Hampshire Fld. Clb. Archaeol. Soc.* 15, 248-262.
- Pitt Rivers, Lieut.-Gen., 1898 *Excavations in Cranborne Chase IV*.
- Powers, R., 1988 'Appendix 4: a tool for coping with juvenile human bodies from archaeological excavations', in White, W.J., *The Cemetery of St Nicholas Shambles* (LAMAS Special Paper 9, London), 74-78).
- Preston, J.P. and Hawkes, C. 1933 'Three late bronze age barrows on the Cloven Way', *Antiq. J.* 13, 414-454.
- Rogers, J., Watt, I., and Dieppe, P. 1985 'Paleopathology of spinal osteophytosis, vertebral ankylosis, ankylosing spondylitis, and vertebral hyperostosis', *Annals of Rheumatoid Diseases* 44, 113-120.
- R.C.H.M.E., 1970 *An Inventory of the Historical Monuments in the County of Dorset: South East*.
- Russel, A., 1990 'Two Beaker burials from Chilbolton, Hampshire', *Proc. Prehist. Soc.* 56, 153-172.
- Saville, A., 1980 'Five Flint Assemblages from excavated sites in Wiltshire', *Wiltshire Archaeol. Natur. Hist. Mag.* 72/73, 1-27.
- Saville, A., 1990 *Hazleton North, Gloucestershire, 1979-82: The Excavation of a Neolithic Long Cairn of the Cotswold-Severn Group*, English Heritage Archaeol. Rep. 13
- Scheuer J.L., Musgrave, J.H., and Evans, S.P., 1980 'The estimation of late fetal and perinatal age from limb bone length by linear and logarithmic regression', *Annals of Human Biology* 7 (3), 257-265.
- Stone, J.F.S. and Hill, N.G., 1940 'A round barrow on Stockbridge Down, Hampshire', *Antiq. J.* 20, 39-51.
- Taylor, I. 1765 *Map of the County of Dorset*.
- Terry, R.D. and Chilingar, G.V., 1955 'Summary of 'Concerning some additional aids in studying sedimentary formation' by M.S. Shvetsov', *J. Sedimentary Petrology* 25, 229-234.
- Thomas, K.D., 1977 'A preliminary report on the Mollusca from the lynchet section' in Bell, M., 'Excavations at Bishopstone', *Sussex Archaeol. Collect.* 115, 70-74.
- Tomalin, D.J., 1979 'Barrow excavation in the Isle of Wight', *Current Archaeol.* 68, 273-274.
- Tomalin, D.J., 1980 'Discussion', in Bailey, C. J., 'Excavation of three round barrows in the parish of Kingston Russell', *Proc. Dorset Natur. Hist. Archaeol. Soc.* 102, 19-31.
- Tomalin, D.J., 1988 'Armorican vases' anses and their occurrence in southern Britain', *Proc. Prehist. Soc.* 54, 203-221.
- Vaughan, M.P., 1987 'The land Mollusca', in Green, C.S., *Excavations at Poundbury, Volume I: the Settlements* (Dorset Natur. Hist. Archaeol. Soc. Mono. 7), 132.
- Von den Driesch, A., 1976 *A Guide to the Measurement of Animal Bones from Archaeological Sites*, (Harvard University: Peabody Museum Bulletin 1).
- Wainwright, G.J. 1979 *Mount Pleasant, Dorset: Excavations 1970-1971* (Rep. Res. Comm. Soc. Antiq. London 37).
- Walden, H.W., 1976 'A nomenclatural list of the land Mollusca of the British Isles' *J. Conchology* 29, 21-25.
- Webb, P.A.O. and Suchey, J.M., 1985 'Epiphyseal union of the anterior iliac crest and medial clavicle in a modern multiracial sample of American males and females' *Amer. J. Phys. Anthropol.* 68, 457-66.
- Wells, C., 1977 'The Human Bones' in Donaldson, P., 'The Excavation of a Multiple Round Barrow at Barnack, Cambridgeshire 1974-1976', *Antiq. J.* 57, 197-231.
- White, D.A., 1982 *The Bronze Age Cremation Cemeteries at Simons Ground, Dorset* (Dorset Natur. Hist. Archaeol. Soc. Mono. 3).
- Woodward, P.J., Jenkins, V., and Davies, S.M. 1986 'Excavations and Survey at Fordington Farm and the Trumpet Major: An interim note', *Proc. Dorset Natur. Hist. Archaeol. Soc.* 108, 169-171.
- 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 note', *Proc. Dorset Natur. Hist. Archaeol. Soc.* 109, 79-89.
- Woodward, P.J., Bellamy, P., Edmonds, M., Evans, J.G., Rouse, A., and Staines, S., forthcoming 'The Landscape Survey' in Sharples, N.M., *Maiden Castle: Excavations and Field Survey 1985-6*, English Heritage Archaeol. Rep. 19.
- Workshop of European Anthropologists, 1980 'Recommendations for Age and Sex Diagnoses of Skeletons', *Journal of Human Evolution* 9, 517-549.

# The Halstock Mosaic found in 1817

R.N.LUCAS.

In *The Gentleman's Magazine* (Vol.88, January to June 1818) was published a letter to the editor from John Bellamy of Benville:

'I submit to you an account of a tessellated pavement lately discovered near Halstock, Dorsetshire. . .

This pavement was first found by a labourer, about two feet under the surface; and it is now covered by a temporary building, erected at the expense of Henry Stephen Earl of Ilchester, that Nobleman most politely giving me admittance agreeably to my request.'

Mr. Bellamy then goes on to describe the weather and the landscape and then gives a somewhat confusing description of the design of the mosaic: 'forming a diamond shape, having a wide border of the larger dies so placed to meet at right and left angles transversely.'

Within this border, that is, alternately stone and red brick on each side, a circular sort of fillet in fretwork goes round, taking off the

square of the corners, very nicely and mathematically adjusted; in each of these intermediate spaces is a small circle, each containing a head of a warrior in his helmet, the back of which is represented having a double cross in an oblique position from right to left, extending far over the shoulders. etc., etc.

The centre of the whole is the next part connected with a large mathematical encircled star on one side: this part presents the perfect figure of a face within a circle, very like the rest with the difference only of being larger, and of richer construction: the face is ornamented with a sort of irregular ruff or crest round the whole forehead as far as the ears.

Mr Bellamy then goes on to conjecture about 'an analogy to our Lord's thorny crown on the cross' and comes to the conclusion that 'from the figures before alluded to having the symbol of the cross, that this work may have been done during the reign of some of the Christian Emperors.'

Briefly, Mr Bellamy's description may be interpreted as of a square mosaic with a wide border of squares of red and

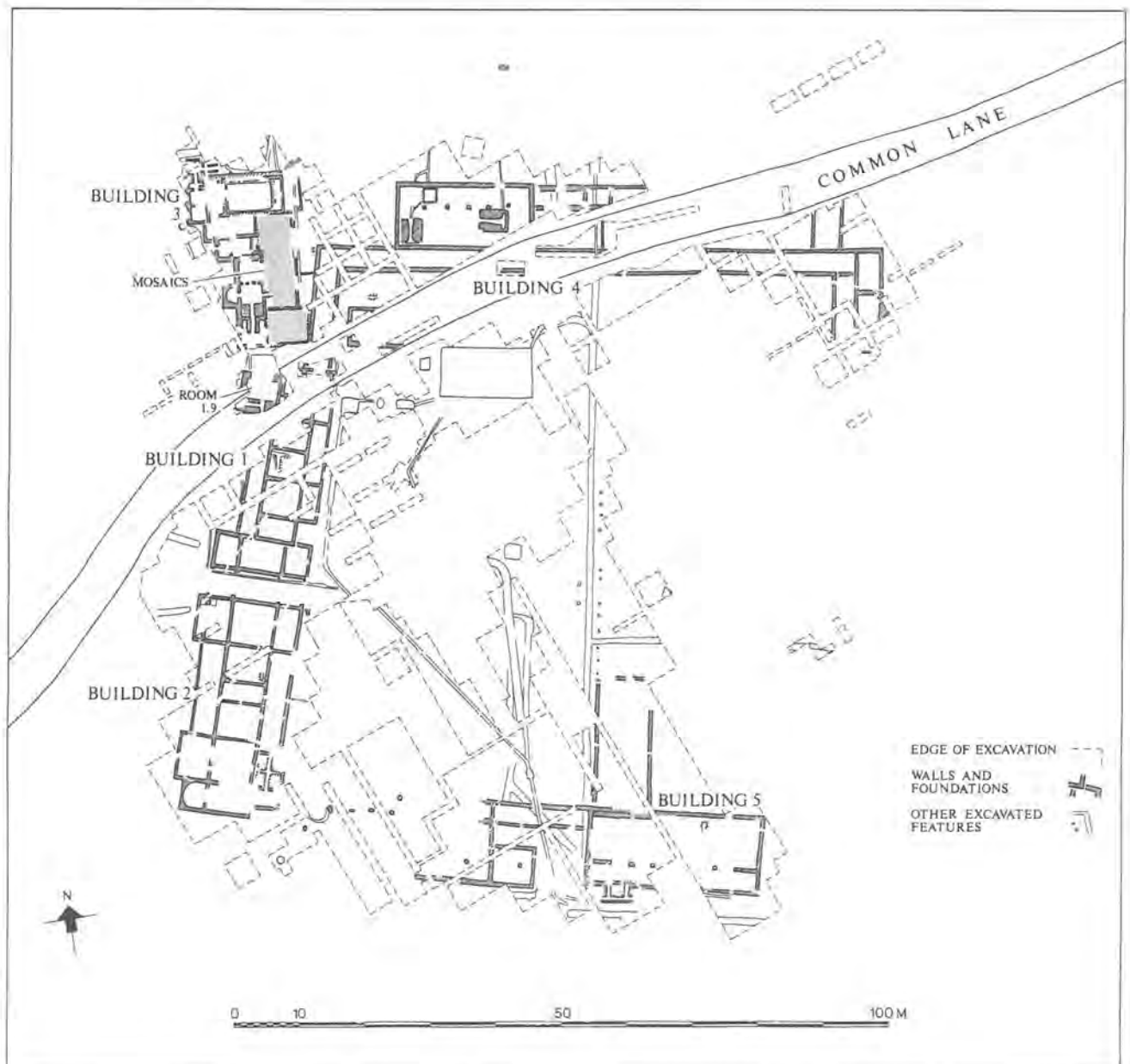


Figure 1: The Halstock Roman villa with the rooms discussed indicated.

possibly white tesserae, within the mosaic a circle of guilloche, each corner of the square segmented by the circle and within each segment a further circle within which is a head and shoulders portrait with what he describes as a double cross behind. Then, in the centre of the pavement within a circle of guilloche is a finer portrait with something around the forehead that causes Mr Bellamy to think of Christ.

It is an intriguing picture that is mentally drawn and the mosaic pavement at Hinton St Mary is brought to mind. . Bellamy's letter is dated December 24th 1817 and he states that he visited the pavement the day previously. His memory of the design is then fresh and one must assume that his description is fairly accurate. He offers to send to *The Gentleman's Magazine* a 'faithful drawing from the original'; he didn't make a drawing the previous day as 'the frost setting in severely, deprived me of the animation necessary to complete my purpose'. There is no evidence that he subsequently drew the mosaic.

The following paragraph is from Hutchins *History of Dorset*, Vol. 4, 3rd edition (1870, p. 465)

About the year 1830 some men repairing the byeroad called Common Lane, leading to the village of Corscombe, came on some pieces of mosaic pavement in the ditch; they were shown to the Earl of Ilchester, who had the adjoining field examined, and discovered an extensive Roman pavement of various coloured tesserae from one to two feet below the surface. It consisted of a large circle with figures, flowers and devices in the Centre, and a medallion figurehead in each corner, forming a square floor. Lord Ilchester had it wholly uncovered and a slated brick house built round to protect it. But some of the villagers, under the idea that treasures were secreted beneath, broke open the house at night and destroyed much of the pavement. The house was then by his request taken down and the pavement covered with bricks, the earth and turf being replaced as before.

In the Reserve Collection in the Dorset County Museum there is a small box of tesserae marked as being found by Mr R.Hine of Beaminster at Halstock in 1901 and in the 'Halstock' box file in the museum there is a drawing of a small section of a mosaic pavement. This drawing has written on it:

Nov.1921. Copy of tracing of fragment of Roman Pavement, discovered at Halstock 1830'

This part was uncovered by Mr R Hine of Beaminster 4/9/01, who has original tracing.

[signed] Jas. Andrews Junr.  
4/9/01.'

Following the full stop after '1830' has been inserted in different ink and possibly by another hand 'by Col.C Troyte Bullock DSO of Benville Manor.'

This tracing is approximately 380mm x 230mm, the main feature being a 300mm length of guilloche in tesserae of black, white, red and yellow. This fragment could be and probably is a very small portion of the pavement in Room 3.22 of the Halstock villa.

Where does the date 1830 come from and how does the colonel enter into the recent history of site finds at this villa ?

Field number 324 on the Ordnance Survey 6" map of 1929 or Great Linnards Mead of the Tithe Map 1842 is on the north side of Common Lane. There was in the South West section of this field a large, shallow hollow indicative of probable earlier disturbance. It is thought highly likely that Mr Hine assumed this and carried out his investigation there on the 4th of September 1901. Certainly he could have uncovered and traced the very small area of pavement in an hour or two as in this hollow the mosaic of what was later designated as Room 3.22 of the villa was but a few inches below the surface.

It is assumed that Mr Bellamy's letter in *The Gentleman's Magazine*, the entry in Hutchins' *History of Dorset*, the disturbance in Linnards Mead and the tracing of the fragment of pavement uncovered by Mr Hine led the Ministry of Works to schedule an 'arbitrary' area (approximately 1½ acres) in the south west corner of field 324.

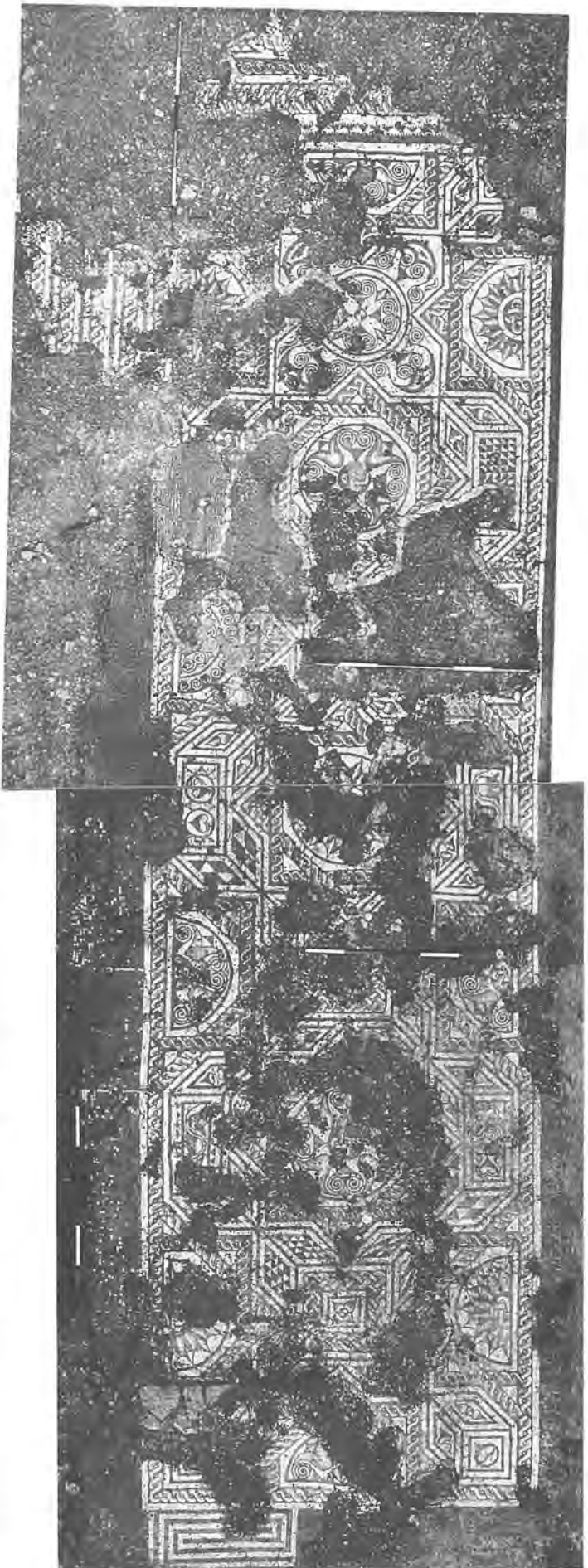


Plate 1: The mosaic in Room 3.22 of Halstock villa.

Similar deductions probably resulted in the Ordnance Survey placing a symbol on the 6" map in approximately the position of the depression near the south west corner of field number 324 and marking it 'Roman pavement found in 1830'.

In Volume 1 of the *Dorset Survey and Inventory* by the Royal Commission on Historical Monuments in section 47, Halstock, is recorded under the heading 'Roman',

'Pavement, on the N.W. side of Common Lane  $\frac{1}{2}$  m S.S.W. of the church, was found about 1818. It was described by John Bellamy (*Gents. Mag.* 1818, Pt.1, p.5) as being a geometrical composition in blue, red, black and white tesserae. The main design was a square set diagonally within a broad border and containing a circle in meander pattern. The corners cut off by the circle were occupied by roundels framing so-called helmeted heads with wands or cross staffs in the background. The large circle enclosed a starshaped panel bordering a medallion decorated with a head closely resembling the others, but larger. The pavement was covered by a temporary building soon after its discovery, but becoming damaged by visitors, the whole was again covered in and no remains now appear above ground.'

In 1967 on behalf of the Dorset Natural History and Archaeological Society, Mr E Large of Broadwindsor began the excavation of the Halstock Roman Villa. After Ted Large died in 1971 the excavations continued under the directorship of Mr R.N Lucas of Weymouth.

Initially, Ted Large cut a short trench across the depression in Great Linnards Mead and located a tessellated pavement. This appeared to be in a very poor condition and it was decided to lay out a grid some 15 metres to the east. Discovery of a large barn and other structures caused the excavation to be extended further east and on completion of this area the excavation was extended to the west and in 1971 the area of depression had been reached. In August of that year the mosaic pavement of Room 3.22 of the villa was uncovered (Plate 1). A large proportion of this pavement had been covered with 'modern' building bricks which appeared to be absolutely unused with no traces of mortar, and the ragged edges of the mosaic had been stabilised with mortar. The pavement proved to be a geometric design of Dr D.J.Smith's designated Corinium School of mosaicists and certainly not the one described by John Bellamy. The presence of the bricks gave credence to the Hutchins article, but again, his description of the mosaic fitted Bellamy's but not the design of the pavement as uncovered in 1971.

The theory was then promulgated that this particular pavement might have been the second that Lord Ilchester uncovered, that when he had erected a permanent building of brick with slate roof over the mosaic seen by Bellamy, bricks that were left over, or extra bricks brought to the site, were laid on this second pavement prior to covering it with earth. No attempt was made to construct a building over this second mosaic because, (a) it was too large, (b) it was damaged, (c) it was not as 'pretty' as the first mosaic with its portraits.

In 1972 Room 3.21 of the villa was excavated revealing another geometric mosaic similar to that in Room 3.22 but this floor had not been previously uncovered. (Plate 2)

It was assumed that as the excavation of the villa progressed the Bellamy Pavement would eventually be revealed but by the end of the 1978 season some doubt and concern was being felt as by this time 44 rooms had been determined with no sign of the elusive mosaic or, at least, what remained of it following the depredations of villagers as described by Hutchins. It was decided then to try to check some of the written record of the nineteenth century events.

In the Holland House Papers at the British Library there are two letters in which reference is made to the pavement found at Halstock:

One has an obscure postmark but Friday and 1818 are visible, dated by the Library to c. 28th of January 1818, from Lady Ilchester to her husband refers to H (or K) Hoare and states she is delighted at his admiration of our Pavement and hopes that her husband will have time to see Mr Lysons.

The second letter written in Petersburg on January 22nd, dated 1819 by the Library, from Lord Ilchester's son to his Aunt at Stinsford, starts by him expressing hope that 'some drawing or print will be made of the tessellated pavement at Halstock', refers to one that he has seen near where he is living that had been brought from Italy and put in a summer house, 'if this at Halstock is sufficiently perfect and bright, I propose its being transported to Melbury either for a room or the turret.'

Later in the letter, in a different context he refers to Mr Hoare and Mr Lysons.

As far as Mr Lysons is concerned, no further investigations have been carried out but in the preparations for her book *Mosaics in Roman Britain* (1973) Mrs Anne Rainey studied the Lysons' material and with her great interest and participation in the excavation of the Halstock Roman Villa it is unlikely that she would not have seized upon any reference to this site. There is, however, in the possession of the Society of Antiquaries an unfinished drawing of part of a mosaic which is identical with a section of the pavement in Room 3.22 of the Halstock villa<sup>1</sup>.

Is it a Lysons' drawing, is it of this floor? If it is this pavement why start to draw this one when the Ilchester pavement, if both were open at the same time, would have been easier to draw and produce possibly a more attractive picture? The answer to this may be that because a temporary building had been erected around the mosaic with the portraits with the intention possibly of erecting a more permanent building later and because it was intended to rebury the geometric mosaic then it would be more important to first make a record of the latter pavement.

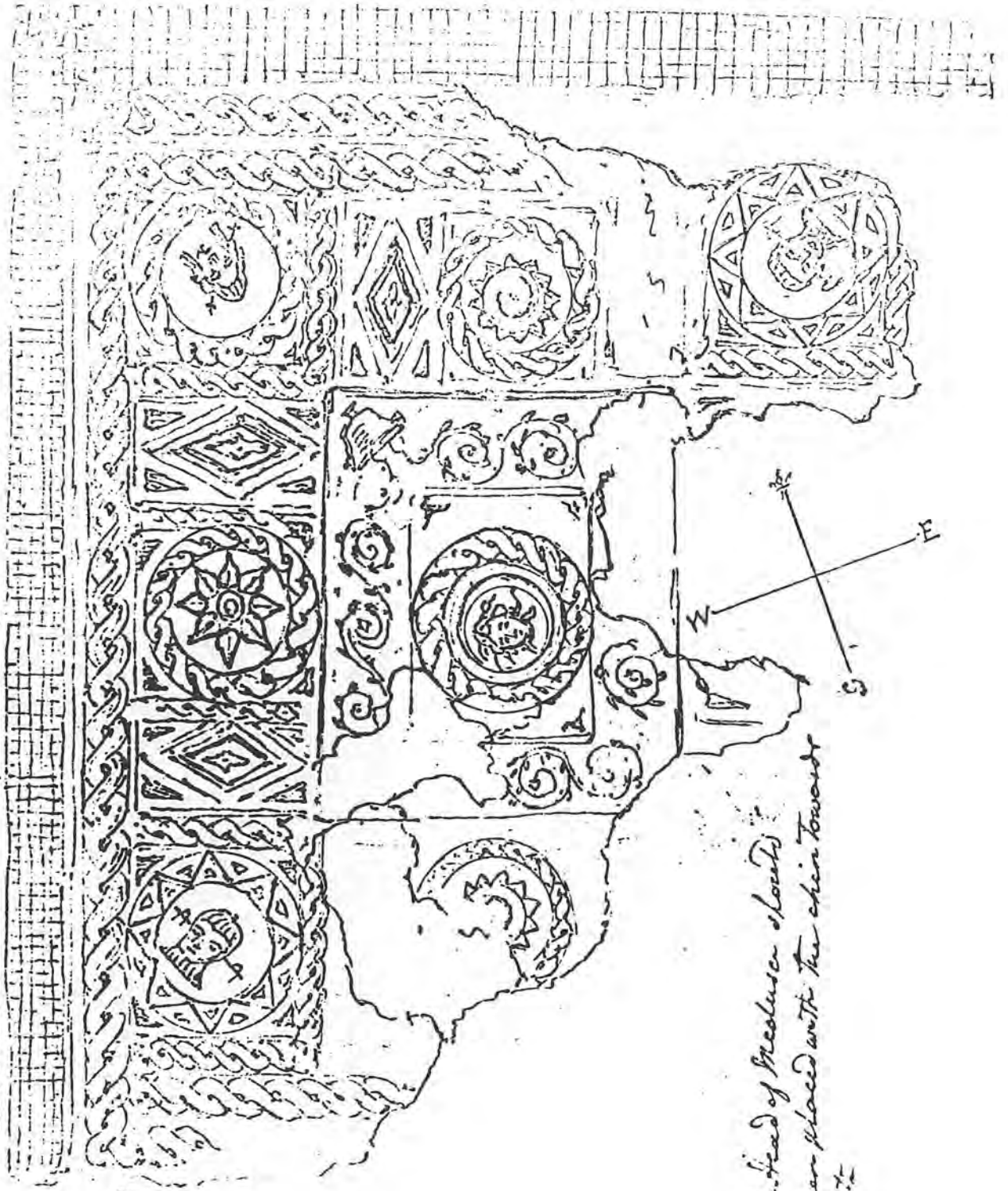
Because of the reference to Mr Hoare in the two letters in

<sup>1</sup> Illustrated in *Dorset Proceedings* Volume 93, p149.



Plate 2: The mosaic in Room 3.21 of Halstock villa.

Mosaic pavement found in the road leading from Halstock to  
Cotswold in Dorsetshire 1817.



The head of Medusa slays  
have been placed with the chin towards  
the North

Plate 3: Thomas Rickett's drawing of the mosaic found at Halstock in 1818.

the Holland House papers a search was made in the Stourhead Archives at the Wiltshire Records Office at Trowbridge. In these was found a letter to Sir Richard Colt Hoare dated the 19th of January 1818 from Thomas Rackett of Spettisbury referring to a 'Mosaic pavement lately found there [in the County of Dorset]'.

As some labourers were widening a ditch in a lane at Halstock, on an estate lately purchased by the Earl of Ilchester, they found some coarse tesserae and on further investigation discovered a Mosaic Tessellated Pavement extending quite across the road. Lord Ilchester with a most laudable care for its preservation has caused a wooden building with a thatched roof to be erected over it and as vestiges of building tesserae have been discovered at some distance, means I am told to make further researches in the spring. It is by no means unlikely that it may form part of a Roman Villa.

The Pavement which was not above three or four inches beneath a common road where waggons must have passed for time immemorial, is about fourteen feet square and the pattern is certainly rich and elegant. I took some memoranda and have made a slight sketch to give you some idea of it. The Head of Medusa in the middle compartment is executed with some spirit of freedom and is surrounded by an elegant scroll of foliage formed of blue tesserae on a white ground. The prevailing colours are blue and white but there is an intermixture of red and yellow in the border in the heads and other parts. Enough of the pattern remains as you will perceive by the sketch to make out the whole design.

The drawing of the pavement (plate 3) shows that when uncovered, rather more than a half of the floor remained intact. The four corners are roughly orientated on the four cardinal compass points as described by Bellamy and, with some notable exceptions, Bellamy's description coincides with the drawing. When Bellamy talks of 'a circular sort of fillet in fretwork' he refers simply to guilloche, not a large circle of guilloche within the border. In the drawing the guilloche does 'take off the square of the corners.' Bellamy describes each of the corner portraits as being 'the head of a warrior in his helmet', unlikely but not a bad description of what the drawing portrays. An important difference, however, is that Bellamy says that behind the heads are double crosses in an oblique position, whereas the drawing shows a single line in a horizontal position in two cases, with a sort of inverted 'U' near each end and in the third portrait, the northerly one, a single line at an angle behind the head with a short line forming a cross at each end.

The major discrepancy is with the central portrait. Bellamy talks about a 'Thorny crown', Thomas Rackett draws Medusa! On the other hand, a note below the drawing advises that the orientation of the Medusa is wrong and that it should be with the chin to the north and not as drawn, (to E.S.E.). Perhaps the devices behind the corner portraits might similarly be not accurate. My belief is however that Rackett's interpretation of the central portrait is more accurate than Bellamy's.

In *The Thomas Rackett Papers*, (Edited by H.S.L. Dewar, Dorset Record Society Publication No.3). there is a copy of a letter dated 23rd January 1818, from Sir Richard Colt Hoare to Rev. Thomas Rackett acknowledging the latter's letter and drawing of the mosaic pavement.

As there is no doubt that the pavement described by Bellamy and the pavement drawn by Rackett are one and the same, we are still left with a query, where is it? Rackett says it is in the road leading from Halstock to Corscombe, in the first paragraph of his letter referring to it as a lane. For various reasons it can now be accepted that this is Common Lane that crosses the site of Halstock Roman Villa. But Bellamy says that it is 'on an easy rising slope, a northeasterly direction, in the midst of flat undulated country', a somewhat contradiction in terms! However if during the early part of the 19th century there was no hedge at least on the north side of the lane then Bellamy's orientation of the pavement would make sense. If, as discussed later, this pavement was in Room 1.9 then there couldn't have been a hedge on the north side, otherwise the major part of the floor would not have been visible and although if a hedge

were there it could have been removed by the floor uncoverers, the roots from the hedge would have severely damaged the mosaic beneath, and locating this floor in Room 1.9 would mean that the hedge would be over the least damaged area of the remaining mosaic according to Rackett's drawing. The north side hedge on that part of Common Lane running across the villa site has been examined and plant specimen dating indicated it as being of some considerable age, 12th or 13th Century. Also, there is in Dorset County Records Office a collection of plans drawn in 1799 of the Estate in Corscombe and Halstock belonging to Thomas Brand Hollis and although none of this gentleman's land embraces the site of the villa, the part of Common Lane across the site is drawn in and the plan appears to show a hedge on the north side of this stretch of the lane.

In 1977 Room 1.9 was excavated. This was in Common Lane with the hedge on the north side of the lane almost bisecting the room from near the N.E. corner to near the S.W. corner. The N.W. corner was located in the field north of the lane. This room is the most westerly room of the north wing of the northern winged corridor house. The orientation of this room and its position in and across the lane coincides with details given by Rackett. The internal dimensions 4.5m (14ft 9in) x 4.6m (15ft 1 in) are not too far divorced from Rackett's 'about 14 feet square.'

When excavating this room a very large number of large red and white tesserae were found and a much lesser number of small tesserae, red, white and blue/grey.

In describing this room at the end of the 1977 season of excavation the following was said:

It is a heated room probably a bath of second or third century date. The northern half of Room 1.9 underfloor consisted of a pilae area with a channel leading to it from a furnace which was set in the southern wall. A further channel about halfway along the west side of this flue ran westwards to the west wall. There are then two grades of heat in this room and one would expect a wall dividing the two parts but no trace of division was found.

In 1977 the northwest corner of Room 1.9 was found to consist of a west wall 109cm wide and the north wall 115cm wide. In the latter were two parallel slots that could have been beam slots but such a construction is puzzling. In 1980 the hedge transversing Room 1.9 was removed in order to further investigate the north wall. It was found that this substantial wall terminated on the western side of a covered drain leading from the underfloor of Room 1.9 to a ditch at the southwest corner of the bath suite. From the east side of the drain to the northeast corner of the room the north wall was found to be extremely ephemeral whereas it might be expected to have remained in reasonably better condition if the mosaic of Rackett's drawing came up to it.

The 1977 interpretation of the function of this room for an earlier phase of the life of this villa may be correct except that there is no obvious provision for hot or cold plunge baths. Evidence for these may have been obliterated by subsequent development. There is no doubt however that the floor of this room had been renewed at least once and possibly twice. In the north west corner of the room was found in 1980 two 2nd century Sestertii amid some wall plaster which perhaps represented an excess falling off the wall during plastering. Then in the hypocaust channel a coin dated 260-8 A.D. had been found in 1977 and further, if the mosaic was in this room then it was most probably laid in the first half of the fourth century.

If the mosaic was in this room what happened to it? What happened to the concrete base on which it was laid as only a few pieces of opus signinum were found on excavation? What happened to the pilae beneath the floor as the three stacks that were found were in an area that is missing on the mosaic drawn by Rackett? Why were there no traces of early 19th century bricks found as would have been expected if Hutchins were accepted though it is probable that in his account the fate of this mosaic and that in Room 1 are

confused?

Did Lord Ilchester follow his son's suggestion and lift the pavement intending to relay it in Melbury House ? It is not there now and there is nothing in the Ilchester archives nor in the Holland House papers about such an enterprise. Is there a heap of tesserae buried somewhere in the two miles between the villa site and Melbury House ?

His workmen must have done an excellent job in removing everything below the mosaic including the pilae but this is one of the indicators that lead me to believe that this indeed must have happened as the three pillars of pilae found during our excavation were not below the remaining

mosaic as drawn by Racketts and if the pilae had been removed in the Roman period for use elsewhere then these three would also have been taken away.

This whole affair is very puzzling and it is probable that we will never know for certain the original location of the mosaic found in 1817 nor its eventual fate but it is felt that we can be reasonably certain that the central motif was a portrait of Medusa and that the pavement had no Christian symbolism as had been conjectured prior to this recent investigation. Further, my own opinion is that despite lingering doubts the balance of arguments come down on the side of Room 1.9 of this villa as the site for this mosaic.

# The geology of the A303 trunk road between Wincanton, Somerset and Mere, Wiltshire

C.R. BRISTOW<sup>1</sup>, B.M. COX<sup>2</sup>, M.A. WOODS<sup>2</sup>, H.C. PRUDDEN<sup>3</sup>, D. SOLE<sup>4</sup>,  
M. EDMUNDS<sup>5</sup> and J.H. CALLOMON<sup>6</sup>

## ABSTRACT

Temporary sections in strata ranging from the Cornbrash to the Lower Chalk along the route of the new A303 have been recorded. They provide a wealth of important data, particularly at the Corallian Group/Kimmeridge Clay junction, in an area of poorly exposed strata.

## INTRODUCTION

The construction of a new dual carriageway between the eastern end (ST 730290) of the Wincanton By-pass in Somerset and the western end (ST 792322) of the Mere By-pass in Wiltshire (Figure 1) during 1990-1991 produced several geological sections in strata ranging from the Cornbrash to the Lower Chalk (Figure 2) in an area, including north Dorset, where these strata are, for the most part, poorly known.

The sections were intermittently examined by CRB, JHC, ME, HP, DS and MAW as excavations proceeded. Most material collected on these visits has gone to the British Geological Survey (BGS), Keyworth (Palaeontological Collections registered numbers MAW1-142; VRB57-195, 274-338; Zu5185-5249, examined by BMC (Jurassic fossils) and MAW (Cretaceous fossils)); some is in Bristol Museum, and some in the private collection of ME.

## STRATIGRAPHY

There were nine principal cuttings (from west to east):

- Bayford (72952895), in Cornbrash.
- 'Borrow pit' (73852950-74152965) in Upper Oxford Clay and Kellaways Beds
- Leigh Moor (74152970 - 74502985) in Hazelbury Bryan Formation (basal Corallian Group).
- Tinkers Hill (74802987 - 75742997) in Hazelbury Bryan Formation to Newton Clay (Corallian Group)
- Chaffey Moor Farm (76213002 - 76602994) in Lower Kimmeridge Clay.
- Feltham Farm (76952995 - 773301) in Sandsfoot Formation (Corallian Group).
- Stour Cutting (776303 - 77903048) in basal Kimmeridge Clay and 'Ringstead Waxy Clay' (see Discussion).
- Zeals underpass (78153055 - 78073078) in basal Kimmeridge Clay and 'Ringstead Waxy Clay'.
- Queen Oak (78323086) - Wolverton (78703172) in most of the Corallian Group, Upper Greensand and Lower Chalk

### a. Bayford (72952895)

The Cornbrash, recorded by JHC, consisted of:

#### Upper Cornbrash

Sandstones, calcareous, fine-grained, to sandy limestones, weathering rusty brown; slabby, locally massive; lenticles of recrystallised fossil fragments, coarse, with some large bivalves at 0.5m above the base; very sparsely fossiliferous with *Microthyridina siddingtonensis* (Davidson), *Camptonectes auritus* (Schlothheim), *Macrocephalites* cf. *verus* S.S. Buckman (one large macroconch body-chamber (Collection ME))

Thickness  
(m)

2.5

#### Lower Cornbrash

Limestone, cross-bedded, coarse, bioclastic, locally hard and massive, bluish grey in lower part, brownish cream in upper part; clasts almost wholly echinoderm plates, with small, needle-like smooth echinoid spines, set in a marly clay; moderately fossiliferous; *Kallirhynchia exalta* S.S. Buckman or *transversa* Douglas & Arkell, *Camptonectes auritus*, *Chlamys* (*Radulopecten*) *scarburgensis* (Young & Bird), *Meleagrinnella echinata* (Wm Smith) [fairly common], *Pholadomya* sp., *Pleuromya alduini* (Brongniart) and *P. uniformis* (J. Sowerby) in life position

c.2.0

The boundary between the Lower and Upper Cornbrash is sharp and undulating, locally with a marly parting or iron crust.

### b. 'Borrow pit' (73852950 - 74152965)

This was a very large excavation in Kellaways Beds and Upper Oxford Clay with no clear section seen. Disturbed material, but thought to be more or less in situ (ME and DS), includes fragments of *Cardioceras* (*Subvertebriceras*) *costellatum* S.S. Buckman, *C. (C.)* cf. *costicardia* S.S. Buckman, *C. ? (C.) studleyense* Arkell, *C. (Vertebriceras) quadrarium* S.S. Buckman and *Goliathiceras* sp. all in solid cementstone or pale phosphatic preservation infilling pink aragonitic shells; these indicate the Cordatum Zone, Costicardia Subzone. A *Gryphaea dilatata* (J. Sowerby) in cementstone probably also came from the Upper Oxford Clay. The presence of *Kepplerites* and *Proplanulites*, also in cementstone preservation, indicate the Kellaways Beds, and confirm the fault shown on the 1:50 000 Geological Sheet 297, although it is Upper Oxford Clay in fault contact with Kellaways Beds, rather than Corallian Group against Upper Oxford Clay.

### c. Leigh Moor (7415 2978 - 7450 2985)

The following section was recorded and collected by HCP and CRB, together with Dr E.C. Freshney:

	Thickness (m)
<b>Cucklington Oolite</b>	unexposed
<b>Hazelbury Bryan Formation</b>	
Unexposed	c.3.50
Clay, sandy, orange-brown, with limonitic ironstone nodules	72.00
Clay, sandy, bluish grey; becoming a silty sand towards the base; shelly with bivalves in solid preservation at base including <i>Isognomon</i> sp., <i>Modiolus bipartitus</i> J. Sowerby, <i>Nanogyra nana</i> (J. Sowerby), <i>Pleuromya alduini</i> (Brongniart) and <i>Thracia depressa</i> (J. de C. Sowerby); fragments of <i>Cardioceras</i> including <i>C. (C.) ex gr. ashtonense</i> Arkell - <i>persecans</i> (S.S. Buckman)	4.50
Sand, ferruginous with limonitic ironstone nodules	0.20
Clay, silty with oysters	0.39
Silt and fine-grained sand, orange-brown with serpulid, <i>Modiolus bipartitus</i> J. Sowerby and fragment of small belemnite ( <i>Hibolites</i> ?)	0.90
Clay, grey	0.50
Sand, silty, ferruginous, weakly cemented at top with ammonite fragment ( <i>Cardioceras</i> ?); weakly cemented sandstone 0.15m thick, 0.5m from top, with <i>Lopha genuflecta</i> Arkell, <i>Modiolus bipartitus</i> J. Sowerby, <i>Cardioceras</i> spp. including <i>C. (C.) ex gr. ashtonense</i> Arkell - <i>persecans</i> (S.S. Buckman),	

<sup>1</sup> British Geological Survey, 30 Pennsylvania Road, Exeter EX4 6BX

<sup>2</sup> British Geological Survey, Keyworth, Nottingham NG12 5GG

<sup>3</sup> 2 Yeovil Road, Montacute, Somerset TA15 6XG

<sup>4</sup> Home Farm, Lyme Road, nr. Axminster, Devon EX13 5SU

<sup>5</sup> 137 Westring, Romsey, Hampshire SO51 7LX

<sup>6</sup> University College London, Chemistry Department, 20 Gordon Street, London WC1H 0AJ

<i>C. (C. trans. Vertebriceras)</i> and <i>C. (Plasmatoceras) ex gr. plasticum</i> Arkell	0.77
Sand, silty, becoming less sandy downwards; broken shell fragments	1.80
Clay, silty, some fine-grained sand, medium grey	4.00

Although the ammonites are incomplete specimens, the assemblage is sufficient to indicate the Cordatum Subzone of the Cordatum Zone.

In a culvert (74612990) to the north-east, stiff grey clay with cementstone nodules dipped at 5° NNW.

**d. Tinkers Hill (74802987 - 75742997)**

Several sections in this vicinity exposed the Hazelbury Bryan Formation, Cucklington Oolite, Sturminster Pisolite and Newton Clay. The west-facing scarp (74792995) at Tinkers Hill is formed of the Hazelbury Bryan Formation, capped by the Cucklington Oolite and Sturminster Pisolite, dipping at about 24° towards the east. The overlying Newton Clay comes in towards the bottom of the dip-slope (at 74842995) and is exposed eastwards for the next 70m on the north side of the cutting (to 79102993). A section (c.748299) in the Hazelbury Bryan Formation showed sandy clays, and sands with sandstone nodules up to 1m across. A representative section (75062990) in the higher strata at the new bridge crossing in November 1990 showed:

	Thickness (m)
Topsoil and Head	
Sandy, clayey, orange-brown	c.1.00
Newton Clay	
Mudstone, soft, medium grey, mottled orange, sandy; some pale buff reduction spots; scattered pisoliths in basal 10cm	c.2.00
Sturminster Pisolite	
Limestone, blue-grey, oolitic	0.35
Limestone, buff, rubbly, clayey, with scattered pisoliths; pisoliths concentrated in basal 8cm; scattered oyster fragments	0.20
Clay, bluish grey; scattered pisoliths in upper part, concentrated in basal 3cm	0.10
Cucklington Oolite	
Limestone, hard, bluish grey, oolitic	0.50

The section in the Sturminster Pisolite recorded above, appears to represent a thick, local development; in a section 15m to the east, it was only 8cm thick.

The section (75322990 - 75702996) east of Tinkers Hill was mostly in Newton Clay, but at the eastern end, the clay is faulted against the Clavellata Beds. A typical section (75582995) showed:

	Thickness (m)
Newton Clay	
Clay, marly, oolitic with thin cemented beds, grey; scattered pisoliths; small oysters common; a few <i>Natica</i>	2.00
Limestone, rubbly, coarsely oolitic, shelly, buff	0.1-0.15
Clay, marly, oolitic, greyish buff	0.70
Mudstone, sandy, calcareous, small pisoliths, bioturbated bluish grey; shell fragments and <i>Nucleolites</i>	0.1-0.20
Clay, fine-grained sandy, dark grey, lignitic	0.25
Clay, sandy, ferruginous, soft	0.10
Sand, very clayey, oolitic	0.1-0.20
Sandstone, oolitic, calcareous, orange, cross-bedded (currents from north) in sets 0.1m thick; scattered shell fragments; pisoliths on top surface; common clay clasts up to 10cm across. Passes downwards at 0.5m into fine-grained sand.	0.90
Mudstone, very slightly sandy, bluish grey	0.20

A north-west trending fault (at 75642995) downthrows Clavellata Beds, consisting of rubbly micritic limestone with *Myophorella* and common large gastropods, to the east. The fault has been mapped for some 2km to the south-east. A second fault, also downthrowing to the east appears to throw 'Ringstead Waxy Clay' against Clavellata Beds (c.76083004).

**e. Chaffeymoor Farm cutting (76213002 - 76602994)**

In the culvert (76173004) at the western end of the section, a single specimen of *Torquirhynchia inconstans* and a *Pictonia?* were found, but unfortunately not retained. If these specimens came from the Inconstans Bed, then the 7m of stiff, dark grey, slightly silty clay proved beneath this level in nearby boreholes must belong to the 'Ringstead Waxy Clay'.

Kimmeridge Clay, dipping gently eastwards, was exposed in the main part of the 8-m deep cutting. No clear section was seen, but a general sequence of four alternating dark and pale beds of clay was recorded, together with sparse, unfossiliferous, calcareous septarian nodules in two layers. Selenite crystals were common and appeared to be of two types, each associated with a slightly different lithology. Abundant monoclinic crystals up to 50mm across occurred in a grey plastic clay, and were overlain by a 20-cm thick laminated shaly bed with myriads of small (12mm) crystals. In a section seen by ME,

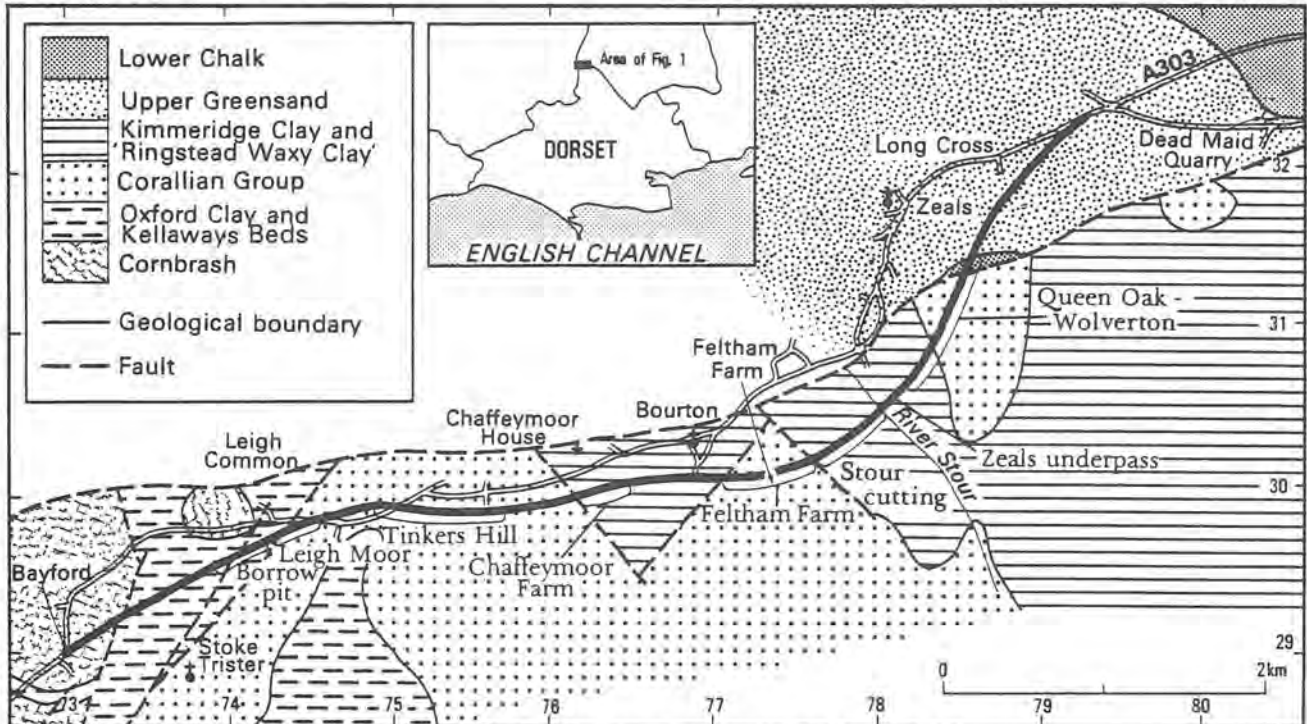


Figure 1. Geological sketch-map of the route of the new A303.

about 90cm below the lowest bed with selenite, there was a shell bed packed with oysters, pectinids, fragments of ammonite body chambers and occasional belemnites. Crushed bivalves and ammonites, found loose (at c.764300) by HCP and DS, include *Liostrea*, *Thracia* and *Rasenia* ex gr. *evoluta* Spath, including *Xenostephanus*-like forms. These ammonites strongly suggest Bed 12 (hereafter referred to as KC12) of Gallois and Cox (1976), in the upper part of the Cymodoce Zone.

#### f. Feltham Farm cutting (76952995 - 773301)

At the western end of the cutting, it was not clear whether the Sandsfoot Formation was faulted against Kimmeridge Clay/'Ringstead Waxy Clay', or if the Sandsfoot Formation/'Ringstead Waxy Clay' boundary dipped steeply westwards. Faulting seemed most likely, and this is supported by the outcrop pattern of ground mapped immediately south of the new road.

The westernmost exposure (77022998) in the Sandsfoot Formation showed a thick (up to 0.9m) massive, bluish grey, calcareous sandstone with *Deltoideum delta* and *Ctenostreon*. Eastwards from this locality to the end of the cutting, there were good exposures showing up to 6m of fine-grained sand with thin (0.1m thick) beds of shelly limestone with common *D. delta*, *Discomiltha*, *Pleuromya* and belemnites. Profuse selenite crystals, flat, orange-red sideritic concretions and layers of *D. delta* were found in weathered 'Ringstead Waxy Clay' at the extreme western end of the section.

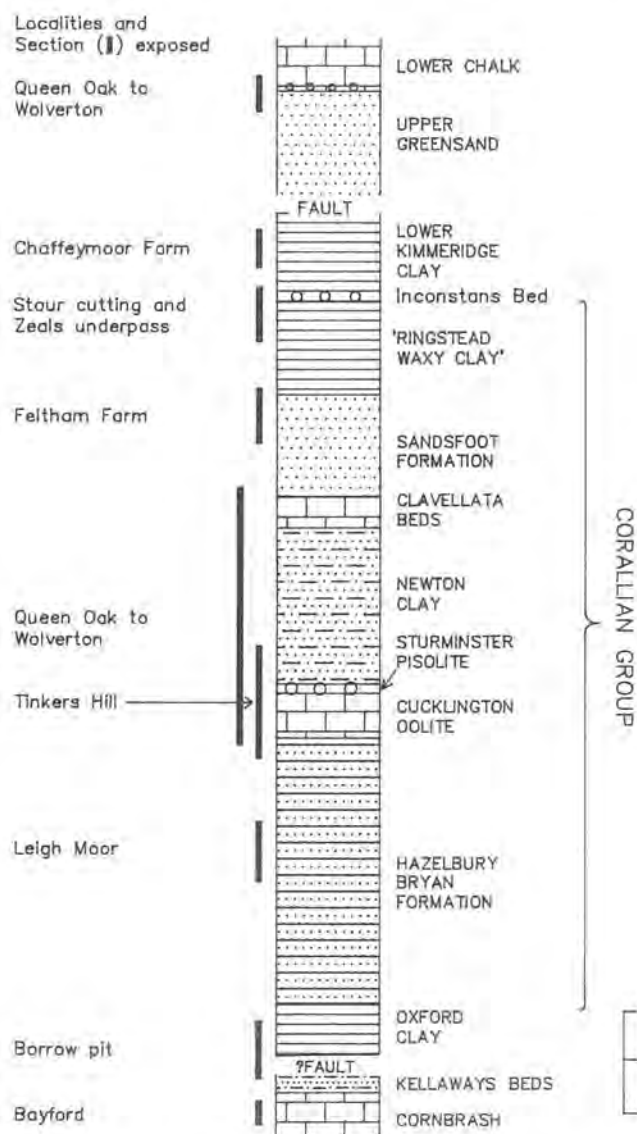


Figure 2. Stratigraphical relationships of the various A303 locations referred to in the text

#### g. Stour cutting (776303 - 77903048)

There was no exposure between the Sandsfoot Formation at the eastern end of the Feltham Farm cutting and the 'Ringstead Waxy Clay'/Kimmeridge Clay at the western end of the Stour Cutting. The boundary between these two sequences appears to be faulted; borehole evidence indicates that the fault crosses the road just east of Brickyard Lane (c.77503022) at Feltham Farm.

A section (77723035) near the midpoint of the cutting showed:

	Thickness (m)
Kimmeridge Clay	
Clay, medium to dark grey with small cementstone nodules; shell bed of <i>D. delta</i> at base	0.2
Mudstone, medium grey	1.0
Cementstone, buff, with <i>Pictonia</i> and corals (Inconstans Bed)	0.1
'Ringstead Waxy Clay'	0.2
Mudstone, medium grey	

Material collected loose by DS (77653032) from just west of the above exposure included *Modiolus*, *Myophorella*, *Pholadomya* and *Ringsteadia* whorl fragments, all in solid preservation.

To the east of the section, an ichthyosaur (?ophthalmosaur, P.Crowther, pers. commn), associated with *Ringsteadia* and plasters of *D. delta* in a cementstone was found by ME (material in the City of Bristol Museum & Art Gallery). To the east, common large 'Aspidoceras' in septarian cementstone were dug up by the excavators. One specimen collected *ex situ* by DS (c.77953045), also had another ammonite (either a late *Pictonia* or early *Rasenia*) embedded in the cementstone matrix (see Discussion). Septarian nodules with large 'Aspidoceras' were also seen *in situ*, just below ground level, by ME just west of the old B3092 (c.78053060). This may have been the source of the 'Aspidoceras' on the spoil heap (79953052) by the Stour crossing. *Lophogregaria* (J. Sowerby) and *Nanogyra nana* (J. Sowerby) were also collected from this cutting.

#### h. Zeals underpass (78153055 - 78073078)

Several sections were seen at different times, but it has not been possible to accurately link them together. However, a tentative reconstruction by ME is given below:

	Thickness (m)
Kimmeridge Clay	
1. Septarian cementstone nodules with 'Aspidoceras', buff	0.15
2. Mudstone, medium grey, scattered <i>Deltoideum delta</i> ; at least two levels of unfossiliferous septarian nodules	c.5.00
3. Large cementstone concretions with rare <i>Torquirhynchia inconstans</i> , bivalves, gastropods and <i>Pictonia</i> (Inconstans Bed)	0.10
'Ringstead Waxy Clay'	
4. Mudstone, medium grey, unfossiliferous	1.00
5. Mudstone, laminated, with abundant small selenite crystals, medium grey	0.20
6. Clay, plastic with large selenite crystals	0.30
7. Mudstone, medium grey, unfossiliferous	0.90
8. Cementstone, shelly, passing laterally into shelly mudstone, buff; <i>Deltoideum delta</i> , <i>Ringsteadia</i>	0.10
9. Mudstone, greyish brown with only scattered bivalves	1.00
10. Cementstone, irregular layer of small (up to 10cm) nodules, buff	0.10
11. Mudstone, brownish grey	0.40

On the eastern bank of the north side (78102075), smooth grey clay with a few scattered *D. delta* (Bed 2 of the above section) and knots of serpulids was seen. In the clays of the lower part of the cutting, HCP found a few ammonite fragments. The beds appeared to dip at 18° to 30°N. Towards the top of the cutting, there were three beds of flat, reddish brown sideritic nodules within a 1-m interval of grey mudstone (?Bed 2).

On the west side of the cutting (78090720), *D. delta* were fairly common throughout the 4-m deep section (Bed 2), and sporadic small (up to 20cm) cementstone nodules, one with *D. delta* and the inner whorls of an ammonite.

In a ditch at the bottom of the west side of the cutting, south of the new road, the following section (78153061) was seen:

	Thickness (m)
8. Clay, shelly with <i>D. delta</i> , and other bivalves, and <i>Ringsteadia</i> ; passing northwards into shelly cementstone with common <i>Dicroloma</i> , common <i>D. delta</i> , <i>Isocyprina</i> , <i>Pinna</i> and other bivalves; some small (up to 2cm) phosphatic nodules	0.1
9. Mudstone, greyish brown with only scattered bivalves	1.0
10. Cementstone, irregular layer of small (up to 10cm) nodules	0.1
11. Mudstone, brownish grey	0.4

Material found loose on the side of the ditch probably came from Bed 8 at the top of the section; it includes whorl fragments of *Ringsteadia*, uncrushed in cementstone and with pink aragonitic shells, and a small cluster of *Nanogyra nana*.

A second section (78153057) in the ditch a little to the south, probably exposed the same sequence as that described above. There, a shelly cementstone, 0.1-0.15m thick (Bed 8), with common *D. delta* and *Ringsteadia*, and *Dicroloma*, *Procerithium*, bivalves including *Camponectes*, *Chlamys*, *Corbulomima*, *Goniomya*, *Nanogyra nana*, *Oxytoma*, *Pinna* and *Plagiostoma*, an *Amoeboceras* fragment and echinoid spines, rested on 2m of medium grey, very slightly sandy mudstone with scattered *D. delta* (?Beds 9-11). One of us (DS) collected a rich fauna of *Ringsteadia*; although collected ex situ, they probably came from Bed 8.

For the next 300m NE of the Zeals cutting, there were only small sections and ditch exposures. Sideritic nodules, similar to those near the top of the first Zeals section, occurred at the top of a ditch, above pale to medium grey clay with only the slightest trace of sand, all the way to Fantley Lane (78253080).

The cutting (78253080 - 78363091) in the next stretch of the road was only just over 1m deep. It exposed about 1m of medium grey sandy clay with common *D. delta*. By a culvert under the road (78403097), there was a lumachelle, about 0.5m thick, of *D. delta*, together with one belemnite, set in a sandy clay matrix. The beds dipped at 20° to 25°N.

East of the culvert, the slope of the rising ground is formed of a dip slope of Clavellata Beds, dipping about 10° south, but there was little exposure on the slope.

#### i. Queen Oak - Wolverton (78323086 - 78703172)

The junction of the Clavellata Beds with the underlying Newton Clay crossed the road (78483117 - 78573115) at the top of the hill. At the latter locality, the Clavellata Beds consisted of c.3m of buff, nodular, shelly micrite, with large gastropods and oysters, resting on 2m of bluish grey, very clayey micritic oolite with numerous clay clasts. The top of the Newton Clay consisted of pale grey, shell-fragmental, pisolitic clay, overlying grey calcareous silty clay (thickness not recorded), which in turn overlay brown sands and dark grey (?lignitic) clays and sands, on thinly laminated white silt and dark grey clay. Boreholes in this vicinity recorded at least 17m of Newton Clay. The lithology, according to the drillers, consisted of stiff, bluish grey, calcareous silty clay with scattered shells, ooliths and pisoliths.

On the north side of the cutting (78483117 - 78513127), clay and sandy clay of the Newton Clay were exposed as far as the northward-dipping micritic limestones with large gastropods of the Clavellata Beds. The dip is 20° to 70°.

The cutting on the south (78603123 - 78613130) showed a more complexly faulted sequence. At the southern end of this section, Newton Clay on the south is faulted against Sturminster Pisolite; the fault trending 10° north of west. Just north of this exposure, a steeply dipping succession exposed the top of the Hazelbury Bryan Formation, Cucklington Oolite (3m thick), Sturminster Pisolite (0.15m thick) and the base of the Newton Clay over a horizontal distance of 20m. Some 20m farther north, Clavellata Beds, 2.5m thick, and sandy clay and fine-grained orange sand of the overlying Sandsfoot Formation dip northwards into the Mere Fault (at 78583131).

The fault, which has no topographic expression at this point, dips 60° south and brings chert beds of the Upper Greensand against the Sandsfoot Formation. The Upper Greensand dips at about 3° southwards into the fault. A short distance to the north (78563134) a sliver of Lower Chalk is preserved. The southern boundary with the Upper Greensand appears to be faulted, but the northern boundary is

conformable. The following section was recorded and collected (by MAW):

	Thickness (m)
Lower Chalk	
5. Chalk, marly, greyish buff, soft, weathering slabby; weakly glauconitic in basal part. Fossils (in shelly preservation) include cf. <i>Grasirhynchia grasiiana</i> (d'Orbigny), ? <i>Cyclothyris</i> , cf. ' <i>Aequipecten</i> ' [ <i>Euthymipecten</i> ] <i>beaveri</i> (J. Sowerby), ' <i>Inoceramus</i> ' ex gr. <i>virgatus</i> Schlüter, <i>Lima aspera</i> (Mantell) and ? <i>Pycnodonte</i>	1.40
4. Chalk, marly, glauconitic, massive, increasingly sandy downwards and passes into Bed 3. Top sharp and marked by a line of pyrite nodules. Fossils (some phosphatised) include ' <i>Inoceramus</i> ' ex gr. <i>crippsi</i> Mantell, <i>Lima aspera</i> (Mantell), <i>Pycnodonte vesiculare</i> (Lamarck), and a single specimen of <i>Schloenbachia varians subplana</i> (Mantell)	0.35
3. Sandstone, glauconitic, greyish green, with diffuse clasts of paler, softer sand. Richly fossiliferous (see below)	1.00-1.50
2. Sandstone, phosphatised, glauconitised and iron-stained with clasts of chert, strongly glauconitised sandstone and phosphate. A limited phosphatised fauna includes cf. <i>Concinnithyris davidsoni</i> (Rollier), a gastropod, poorly preserved bivalves, <i>Hyphoplites curvatus arausionensis</i> (Hébert & Munier Chalmas), <i>Mantelliceras</i> aff. <i>mantelli</i> (J. Sowerby), morphotypes of <i>Schloenbachia varians</i> and a ?fish tooth	0.15-0.30
Upper Greensand	
1. Sand, fine- to medium-grained, glauconitic, with discontinuous nodules of chert up to 0.1m thick (not examined in detail)	2.00

The ammonites in the glauconitic shelly sandstone (Bed 3) are mostly preserved as pale buff to brown phosphatic whorl fragments, although some retain traces of iridescent (?aragonitic) shell; the bivalves show phosphatised and non-phosphatic preservation. Some ammonites have one surface preferentially bored and/or abraded, but few have encrusting organisms. The most abundant fossils are the various morphotypes of *Schloenbachia varians*. The complete faunal list is as follows: cf. *Concinnithyris davidsoni* (Rollier), indet. gastropod, *Inoceramus ?reachensis* (sensu Etheridge), *I. ex gr. virgatus* Schlüter, *I. ex gr. crippsi* Mantell, *I. ex gr. crippsi* cf. *hoppstedtensis* Tröger, ?*Lima*, *Lima aspera* (Mantell), *Entolium orbiculare* (J. Sowerby), '*Aequipecten*' [*Euthymipecten*] *beaveri* (J. Sowerby), *Merklina aspera* (Lamarck), cf. *Mimachlamys henrici* Dhondt, *M. fissicostata* (Etheridge), cf. *Eopecten* [*Velopecten*] *studerii* (Pictet & Roux), ?*Pycnodonte*, *P. (Phygraea)*, ?*Pycnodonte* (*Pycnodonte*), *P. vesiculare* (Lamarck), cf. *Cardita* [*Ludbrookia*] *cottaldina* (d'Orbigny), cf. *Clisocolus*, *Proveniella* cf. *quadrata* (d'Orbigny), ?*Isoarca*, *Cucullaea*, C. cf. *mailleana* (d'Orbigny), ?*Teredo*, *Nautilus* [*?Cymatoceras*] cf. *fleuriauianus* (d'Orbigny), *N. [?C.] cf. elegans* (J. Sowerby), *Hyphoplites curvatus arausionensis* (Hébert & Munier-Chalmas), *Hypoturrillites ?tuberculatus* (Bosc), *Mantelliceras mantelli* (J. Sowerby), *Scaphites* (*Scaphites*) *equalis* J. Sowerby, *Schloenbachia varians* (J. Sowerby), including morphotypes *subvariens* Spath, *subtuberculata* (Sharpe), and *ventriosa* Stieler.

East of this section, only the chert beds of the Upper Greensand were exposed and no further recording was carried out.

#### DISCUSSION AND NOTES

The strata of the Corallian Group exposed along the new road are typical of the north Dorset crop, almost all of which has been mapped by BGS, from the new road southwards across the Wincanton (297) and Shaftesbury (313) sheets (Bristow, 1989; 1990; Freshney, 1990). The stratigraphical sequence and nomenclature is that of Wright (1981), but with some modification by the above authors.

The Hazelbury Bryan Formation (formerly the Lower Calcareous Grit) consists dominantly of sandy clays, but with some beds of fine-grained sand (usually at the top of coarsening-upwards cycles). In the complete succession, four such sands occur, but they are not everywhere present. The

fossiliferous sand at Leigh Common appears to be the second sand from the top; the fauna dates it as Cordatum Zone, Cordatum Subzone. The first sand from the top appears to be missing at Leigh Common, but it is developed farther south; it crops out in both portals (77602473 and 76932462) of the Kingsmead tunnel, where it has been dated as Densiplicatum Zone, Vertebrale Subzone (Cox *in* Bristow, 1990).

The Sturminster Pisolite is one of the more persistent markers in the Corallian sequence. It occurs across the whole of the north Dorset crop, and is seen again in the south Dorset coastal exposures. The pisolite varies in lithology from a pisolith concentrate in a bed rarely exceeding 20cm, to pisoliths scattered through up to 2m of oolitic marl or marly limestone.

The Sandsfoot Formation is quite variable; in the Feltham Farm cutting, it consists dominantly of sand, whereas east of the Zeals underpass, it is mainly sandy clays. A similar variability has been noted to the south, with a thick, dominantly sandy sequence extending to just north of Gillingham, where the sequence passes southwards into a thin unit of sandy clay. In the BGS Knackers Hole Borehole (77911188) just south of Sturminster Newton, the Sandsfoot Formation is 7.7m thick.

At its type locality on the Dorset coast, the Ringstead Waxy Clay consists of pale grey, distinctly smooth-textured mudstones with reddened sideritic ironstone nodules and a sparse fauna which includes *D. delta*. Its presence in north Dorset was first reported by Wright (1981) at Broad Oak, south of Sturminster Newton, but it is generally poorly documented. It was cored in the BGS Knackers Hole Borehole and was also seen in 1990 in a temporary section at Gillingham sewage works (80422590). At both these localities, typical Ringstead Waxy Clay is overlain by 2 to 3m of dark grey, shelly mudstones with common *D. delta*. At the sewage works, this unit yielded smooth, crushed ammonite body-chambers (*Ringsteadia?*). In the Knackers Hole Borehole, the upper unit is overlain by the Inconstans Bed. These shelly mudstones are lithologically distinct from the Ringstead Waxy Clay and could alternatively be referred to the Amphill Clay; however, they are included with the Ringstead Waxy Clay until regional relationships are clarified. Farther north, at Westbury, only typical Ringstead Waxy Clay is present (Birkelund and others, 1983).

The exposures in the Kimmeridge Clay along the A303 all fall within the Lower Kimmeridge Clay; the youngest bed exposed was KC12 (Cymodoce Zone) in the Chaffeymoor cutting. At the base, the presence of the Inconstans Bed (KC1) was inferred at several localities by loose specimens of the eponymous brachiopod. The source of these is believed to be the cementstone with *Pictonia* and corals seen in the Stour cutting. The occurrence of the ferruginous siltstone nodules at the top of the Zeals Underpass may indicate KC4 (Cox and Gallois, 1981, fig.6). The presence of '*Aspidoceras*' in the basal beds of the Kimmeridge Clay is an interesting new record, which will be written up elsewhere.

The Lower Chalk sequence is similar to that in the former Dead Maid Quarry (804323)(Jukes-Browne and Hill, 1903; Kennedy, 1970), about 2km ENE of the A303 exposure, although at the latter locality, an 0.8m bed of glauconitic sandstone intervenes between the chert beds (Bed 1) and the conglomeratic horizon ('Popple Bed')(Bed 2). Above the Popple Bed, the strata are described as hard, buff, glauconitic

chalk and thus differ from the glauconitic sandstone exposed on the A303. A rich remanié *M. mantelli* Zone fauna has been recorded from the Popple Bed with a phosphatised *M. dixonii* Zone fauna in the overlying glauconitic marl (Kennedy and Wright, 1984).

A former quarry (797390) at Maiden Bradley exposed a similar sequence to that in the Dead Maid quarry. There, the glauconitic sand occurring between the chert beds and the pebble bed has yielded unphosphatised ammonites indicating the *M. mantelli* Zone, *N. carcitanense* Subzone. The absence of this fossiliferous sand in the A303 cutting might suggest that the erosive event responsible for the pebble bed was more vigorous in the region of the A303, and that the sediment was removed and the indigenous fauna incorporated in the Popple Bed.

Where the Upper Greensand/Lower Chalk boundary is next seen to the south, at West Melbury (87532015), south of Shaftesbury, no pebble bed is present, and there is a fairly gradual upward passage from the Upper Greensand into the Lower Chalk (Jukes-Browne and Hill, 1903).

This paper is published by permission of the Director, British Geological Survey (NERC).

#### REFERENCES

- Birkelund, T., Callomon, J.H., Clausen, C.K., Nohr Hansen, H. and Salinas, I. 1983. The Lower Kimmeridge Clay at Westbury, Wiltshire, England. *Proceedings of the Geologists' Association*, Vol.94, 289-309.
- Bristow, C.R. 1989. Geology of sheets ST71NE and SE (Marnhull - Sturminster Newton, Dorset). *Technical Report of the British Geological Survey* No. WA/89/59.
- Bristow, C.R. 1990. Geology of the West Stour-Cucklington district. *Technical Report of the British Geological Survey* No. WA/90/48.
- Cox, B.M. and Gallois, R.W. 1981. The stratigraphy of the Kimmeridge Clay of the Dorset type area and its correlation with some other Kimmeridgian sequences. *Report of the Institute of Geological Sciences*, No. 80/4.
- Freshney, E.C. 1990. Geology of sheets ST 70NW and NE (Hazlebury Bryan - Mappowder district, Dorset). *Technical Report of the British Geological Survey* No. WA/90/51.
- Gallois, R.W. and Cox, B.M. 1976. The stratigraphy of the Lower Kimmeridge Clay of eastern England. *Proceedings of the Yorkshire Geological Society*, Vol.41, 13-26.
- Jukes-Browne, A.J. and Hill, W. 1903. Cretaceous Rocks of Britain. 2. The Lower and Middle Chalk of England. *Memoir of the Geological Survey of Great Britain*.
- Kennedy, W.J. 1970. A Correlation of the Uppermost Albian and the Cenomanian of South-West England. *Proceedings of the Geologists' Association*, Vol.81, 613-677.
- Kennedy, W.J. and Wright, C.W. 1984. The Ammonoidea of the Lower Chalk. Part 1. *Palaeontographical Society* (Monograph), 126pp. and 40pls.
- Wright, J.K. 1981. The Corallian rocks of north Dorset. *Proceedings of the Geologists' Association*, Vol.92, 17-32.



# A geological map of Purbeck Beds in the northern part of Durlston Bay

J. F. NUNN

## INTRODUCTION

Durlston Bay provides the type section of the Purbeck Beds which span the uppermost beds of the Jurassic and the lowest beds of the Cretaceous (Allen and Wimbledon, 1991). There are many descriptions and measurements of the sequence, starting with Webster (1826) and continuing through Austen (1852) and Bristow (1857). The most complete and accessible vertical section is that of Clements (in Torrens (1969) and the most comprehensive bed-by-bed description is by Clements (1973), with a later vertical section of the middle Purbeck Formation by El-Shahat and West (1983). Interest in this outstanding coastal section shows no signs of diminishing, and Durlston Bay attracts many geological visitors from all over the world.

It is unfortunate that, apart from certain prominent marker horizons, it can be difficult for the stranger to relate some of the bed descriptions to the ground. Neither the 1:2,500 Ordnance Survey, nor the 1:50,000 Geological Survey (sheet 343) provides the necessary detail to identify beds from the topography. Strahan prepared a geological survey at a scale of approximately 1:10,000 in 1888 and a second edition was released in 1902. However, this provides no more detail than Sheet 343. Perhaps most useful of all is the cliff profile of Strahan (1898,92), subsequently modified by Arkell (1947,136) and House (1989,119). However, at a scale of 1:10,000, it is only possible to indicate the approximate position of a few marker horizons.

The present objective has been to prepare maps and cliff

profiles of the northern part of Durlston Bay at a scale of 1:1,000 (here reproduced at 1:2,500) with full integration of the topography and geology (Figures 1 and 2). The intention has been to make it possible for any visitor to the Bay, equipped with the vertical section, to proceed directly to within a few metres of any particular bed. Also it should now be possible to locate field observations to a ten figure map reference (one metre squares).

## METHODS

The maps, which were prepared with the permission of the Controller of Her Majesty's Stationery Office, were based primarily on the Trig. Point incorporated in the Coastguard Station (04002 78617), and the bench mark at Craig-y-Don (03441 78201). Five secondary points were then established on the cliff top by triangulation using the above fixed points, together with the Wellington clock tower, the stone pier and Downlands. Heights were determined with a bubble sextant and the secondary points are shown on the maps as spot heights on the cliff top. Secondary triangulation was then used to fix a large number of points at beach level. These positions were then confirmed by stretching a tape measure along the cliff base for almost the full length of the bay. Errors were less than 2 m. In 1987, before the coastal protection works were constructed, the coast was photographed from a small boat at a distance of 150 - 400 m from the shore (depending on the height of the cliff) at low water springs in a flat calm. A 135 mm telephoto lens was used and interlocking sets of 5 - 6 photographs were taken



Plate 1. A new exposure of the upper part of the Hard Cockle Beds (29 - 39) at 0352 7816 due to a combination of the storm of January 1990 and the coastal protection works. This exposure is already much weathered. The vertical scale bar is 1 metre and the middle of it crosses bed 32.

from five separate viewpoints covering the coast from Peveril Point to the great fault below the flats (0349 7805). Supplementary photographs were taken from low water mark on the beach. Finally a limited amount of confirmatory evidence was obtained from a vertical aerial photograph taken in 1982 and supplied by the Ordnance Survey. The cliff profiles were drawn as they would be seen from a moving viewpoint at right angles to the coastline and following its curves. Therefore horizontal distances taken from the cliff profiles may not agree precisely with the maps. Note also that the cliff profiles are drawn in relation to mean low water, while the spot heights on the maps relate to Newlyn Datum.

DISCUSSION

Durlston Bay is a cartographer's nightmare. Almost no fixed points are visible from within the enclosure of the bay, and the cliffs are undergoing constant erosion, burial, overgrowth and landslips. The cliff top above the new Coastal Protection Works receded 25m between 1982 and 1988. The cliffs themselves are very unstable and subject to unpredictable rockfalls. Fortunately most beds are represented at the level of the beach, although even here there is still a danger of rock falls in some parts of the bay.

The maps here presented are based on observations made

between 1986 and 1991. During this short time there have been major changes of which the most important were the coastal protection works of 1989 and the storm in January 1990. The rock fill of the coastal protection work has covered a complex and difficult area with multiple faults which, to my knowledge, have never been properly documented. However the storm in January 1990 uncovered many new exposures which had not been seen in recent years and left them in pristine condition. Plate 1 shows a new exposure of the upper part of the Hard Cockle Beds (29 - 39) at 0352 7816 due to a combination of the storm and the coastal protection works. This exposure is already badly weathered. Plate 2 shows the southern Peveril anticline (0402 7861), not seen in recent years, but cleared by the storm. Unfortunately it was promptly buried by the Council to provide a path for public access to the beach, replacing the steps which were carried away in the same storm. The northern Peveril anticline is currently just visible under the foundations of the shelter which were eroded at the same time.

Cliff falls are constantly occurring and being cleared by storms. The maps show only those falls which have never cleared between 1986 and 1991. However, other falls are present at most times. The beach level is also changing and the indicated high and low water levels can only be approximate.

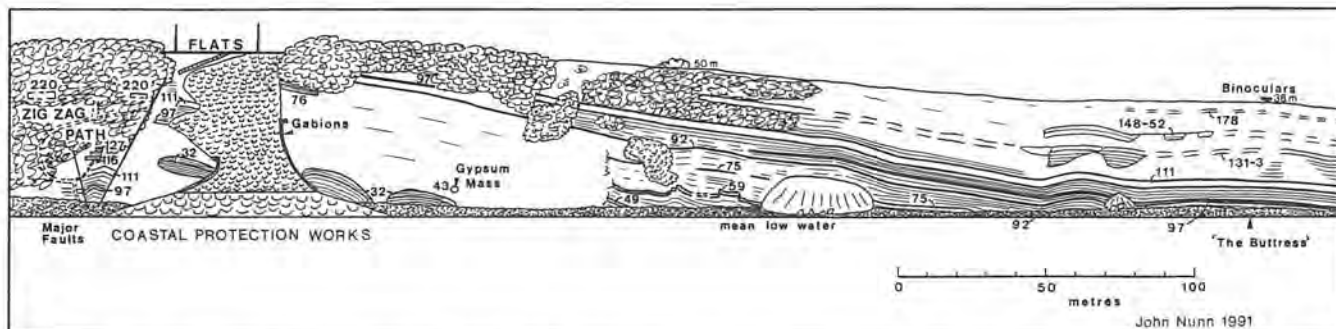
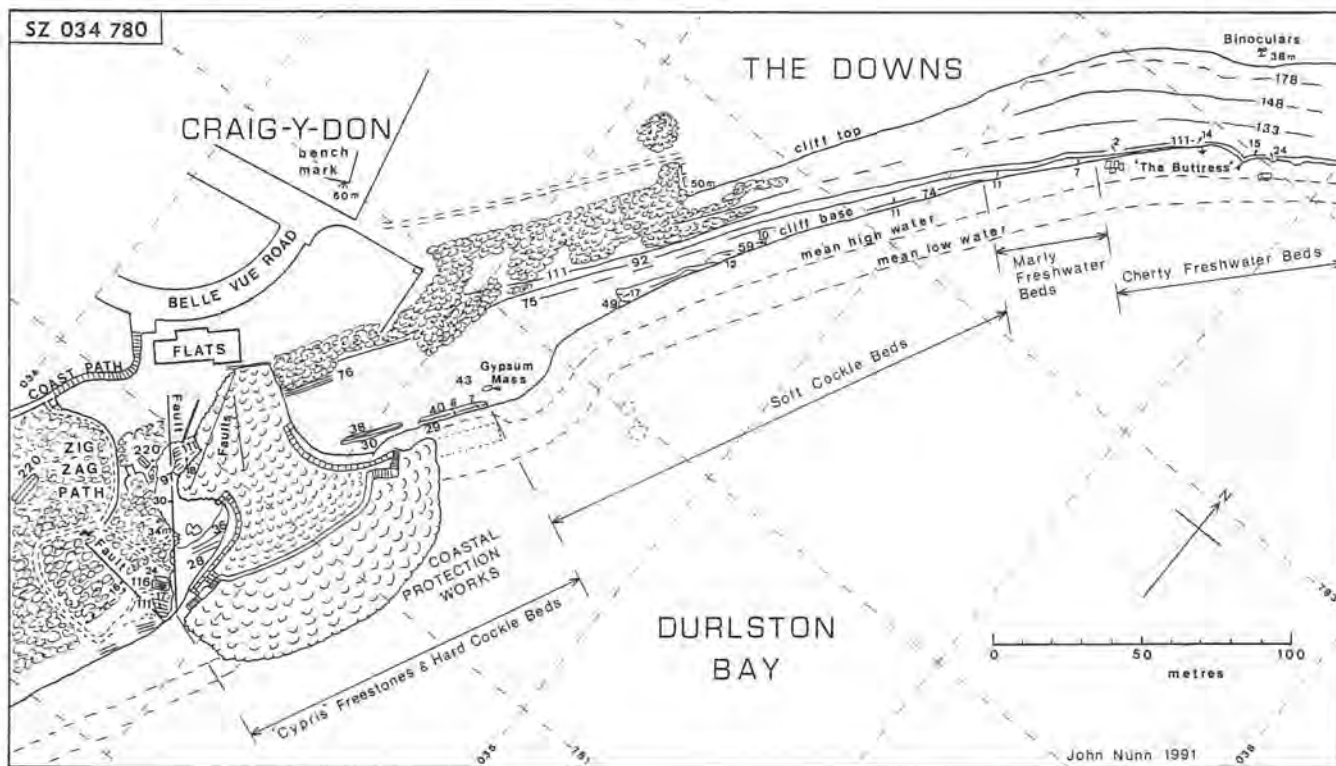


Figure 1. Southern section of map and cliff profile of Durlston Bay. Spot heights are shown in metres. The large numbers indicate bed numbers according to Clements (1969); the small numbers show dip angles.

Doors Bay, the best exposure of the Intermarine Beds, is a name of convenience after the two door-shaped slabs of fallen rock at 03767 78464. Both north and south access to Doors Bay may be cut off at high water springs. The path on the coastal protection works provides access from the Zig-zag path to the soft cockle beds at all states of the tides.

The maps and the thick lines on the coastal profiles show only the more easily identifiable beds, which are numbered in accord with Clements (1969, 1973) and El-Shahat and West (1983). The thin lines in the coastal profiles do not relate to specific beds but serve to show where the most continuous rock exposures are to be found. In the maps, I have indicated where the various beds of the Purbeck series are most easily accessible at the level of the beach. In the north part of Durlston Bay, there is currently no convenient exposure of beds up to 28, between 44 and 49 and between 135 and 143. Exposure of beds 61 to 69 is currently less than ideal. Two conspicuous dinosaur footprints are indicated as described by Nunn (1989).

REFERENCES

Allen, P. and Wimbledon, W.A., 1991, 'Correlation of NW European Purbeck-Wealden (nonmarine Lower Cretaceous) as seen from the English type-areas.' *Cret. Res.* 12, 511-526

Arkell, W. J., 1947, 'The geology of the country around Weymouth, Swanage, Corfe and Lulworth.' *Mem. Geol. Surv. UK.*  
 Austen, J. H., 1852, *A guide to the geology of the Isle of Purbeck and the south-west coast of Hampshire.* Blandford: W. Shipp.  
 Bristow, H. W. and Fisher, O., 1857, Vertical section. sheet 22. *Geol. Surv. UK.*  
 Clements, R. G., 1973, *A study of certain non-marine gastropoda from the Purbeck Beds of England.* PhD. Thesis. Univ. of Hull, Appendix 2A.  
 Clements, R. G., 1969, 'Annotated cumulative section of the Purbeck beds between Peveril Point and the Zig-zag path, Durlston Bay.' In: *H. S. Torrens (Ed.) International Field Symposium on the British Jurassic, Excursion No. 1, Guide for Dorset and South Somerset.* Univ. of Keele. pp 44-71.  
 El-Shahat, A. and West, I.M., 1983, 'Early and late lithification of aragonitic bivalve beds in the Purbeck Formation (Upper Jurassic-Lower Cretaceous) of southern England.' *Sediment. Geol.* 35, 15-41.  
 House, M., 1989, *Geology of the Dorset coast.* Geol. Assoc.  
 Nunn, J. F., 1989, 'A new tridactyl footprint impression in Durlston Bay, Swanage.' *Dorset Proceedings.* 111, 133-134.  
 Strahan, A., 1898, *The geology of the Isle of Purbeck and Weymouth.* HMSO.  
 Webster, T., 1826, 'Observations on the Purbeck and Portland beds', *Trans. Geol. Soc. Lond.* 2, 37-44.

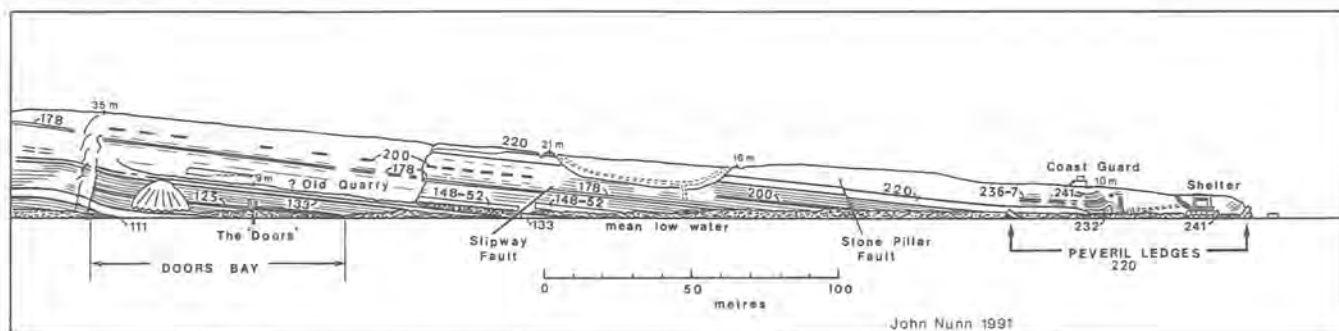
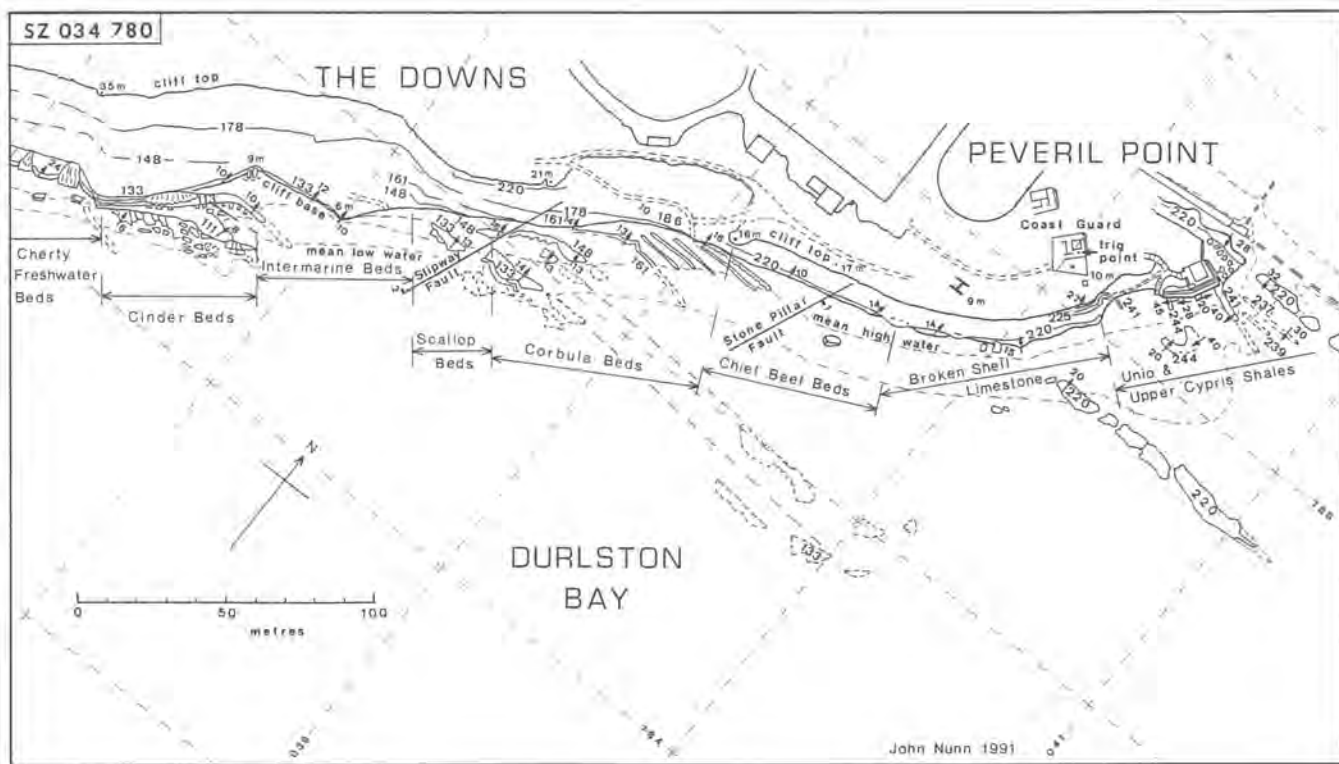


Figure 2. Northern section of map and cliff profile of Durlston Bay.



*Plate 2a. Shoreline view of the southern Peveril anticline (0402 7861), exposed briefly after the storm of January 1990, but promptly buried by the Council to provide a path for public access to the beach. The horizontal scale bar is 1 metre.*



*Plate 2b. Close up view of the southern Peveril anticline. The right hand end of the metre stick is touching bed 232.*

# Dorset Dolines: Part 2, Bronkham Hill

MICHAEL R. HOUSE

## INTRODUCTION

Bronkham Hill, 7.5 km south-west of Dorchester, is famed for its group of thirty Bronze Age burial mounds strikingly set for the most part along the skyline (Figs 1,2. National Grid Reference SY628867). The Royal Commission on Historical Monuments (RCHM 1970, p. 466, pls 209,210) described them as 'now one of the best preserved groups in the county.' Paradoxically Bronkham Hill should also be celebrated to the geologist for its solution hollows, or dolines, which, on the hill and adjacent areas number over two hundred although some, as with certain of the tumuli, are now ploughed out. The result of the man-made burial mounds, and natural hollows, is to give a remarkable warded and pockmarked topography (Figs 1, 3).

The great interest of the Bronkham Hill dolines lies in the fact that many of them certainly postdate the burial mound cemetery, and are traversed by a later dyke and by a field boundary system. These contribute to the establishment of a crude historical time scale for the doline system.

This account is intended to give a brief description of the Bronkham Hill doline system. As an extension of one of the authors' geological mapping courses from the University of Hull in 1973, two students, Howard King and Keith Taylor were asked to plot and measure the dolines on the hill. Much of the statistical data here published results from that work and is gratefully acknowledged. The actual map of the doline field (Fig. 2) was subsequently based on aerial photographs kindly supplied by the Ministry of Defence and the National Air Photo Library (RCHM).

## THE BRONKHAM HILL DOLINE FIELD

Bronkham Hill lies 1.3 km south east of the Hardy Monument (National Grid lines are shown on Fig. 2). The Ridgeway bridle path leaves the Abbotsbury to Martinstown road 300 m east-north-east of the Hardy Monument and passes along the crest of Bronkham Hill and continues on to Ridge Hill. Fences and walls beside the path mark the boundary of the parishes of Winterborne St. Martin to the north and Portesham to the south and this line passes diagonally across Figs 2 and 3.

At the time of the initial survey a significant number of the dolines were readily accessible south of the boundary line but many areas there are now overgrown by gorse and heather and are impenetrable. In these areas there is some uncertainty on the exact placing of dolines marked on the field maps by eye, and those not apparent on the aerial photographs. In the initial survey dolines were numbered from the Hardy Monument end; those that were measured are marked as black spots on Fig. 2. Open circles mark dolines recognised from aerial photographs and these continue the numbering, although many of them, especially on lower ground are now filled in.

The geology of Bronkham Hill is shown on the 1: 50,000 map of Bridport (Sheet 327) published by the Institute of Geological Sciences (now British Geological Survey). The surface of the Chalk is known to be highly irregular on the large and small scales and Tertiary strata of inferred Bagshot Beds age covers the highest ground and is essentially marked by the cover of gorse and heather shown on the aerial photograph (Fig. 1). Chalk crops out from the plough in a field north of the Ridgeway track, and above the 600 foot contour, in the north-west corner of Fig. 2, and is well exposed in the quarry marked 'A' on the map. In the main ridge of Bronkham Hill the base of the Tertiaries is below the 600 foot contour and drops almost to the 500 foot contour on the south-west side but rises to above the 600 foot contour at the south-east end of the ridge. However, the Ridgeway Fault is only 200 m to the south and this rise may be partly or wholly tectonic by analogy with structures farther east and north of the fault. Pinnacles of chalk reach to the crest of the hill near the largest tumulus (Grinsell 1959, p. 166, No. 71a, RCHM 1970, p. 466, No. 43) and are shown on the geological map in other areas. An outlier of Tertiary Beds, also associated with tumuli, is on the south-west side of Shorn Hill (Fig. 2). On almost all the lower ground surrounding the Tertiary hilltops there are thin spreads of

gravels which are marked on the IGS maps as 'Pebble Clay and Sand' and this represents superficial material derived from the Tertiaries. The dolines fall in both the area of outcrop of the Tertiary Beds and of the superficial deposits. But the quarry at 'A' in the chalk shows a gravel-plugged doline indicating that the surface of the Chalk is not free from such structures. For convenience the areas with dolines are divided into groups commencing where the first are encountered on following the track from the Hardy Monument to Martinstown road (Fig. 2).

## Comments on doline distribution

The first group of dolines (Nos 1-13,16-79) occur on the crest of a hillock at the western end of the ridge and are almost entirely above the 600 foot contour. Those measured fall between 4.3 and 8.8 m in diameter. Some of these, mapped by eye onto the twenty-five inch topographic maps, have not been precisely placed using aerial photographs and their position on the map (Fig. 2) is approximate only. Quarry 'A', which has exploited chalk, with doline 14 at the eastern margin (Fig. 6), was probably developed from a larger collapsed doline. The width is about 17 m, which would make it the largest doline measured on Bronkham Hill, but this will have been enhanced by the quarrying, which is indicated by the spoil at the southern end of the quarry.

A second group (Nos 162-166), 200 m north-east of Quarry 'A' is formed near the top of a small rise which is an outlier of Tertiary Beds on which are two tumuli (Grinsell 1959, p. 154, No. 61).

A third group (Nos 15-23) is formed on the north-western promontory of the main ridge of Bronkham Hill and within the Tertiary Beds but some of those on the western flank may have been enhanced by quarrying for gravel. No. 22 (12.2 m in diameter) is the largest and several are less than 4 m diameter. Near the foot of the chalk vale to the east, and marked as 'B' on Fig. 2, is a spring hollow which probably developed from a small doline.

The fourth group (Nos 24-32), is on a promontory marked by a large bell-barrow type tumulus (Grinsell 1959, p. 166, No. 64a; RCHM 1970, p.466, No. 33); several small dolines affect the margin of this barrow. The largest, No 28, is about 10 m across, and there are two very small unnumbered dolines, 1.5 and 2.0 m in diameter, north west of No. 28. Doline 29 (10.2 m in diameter) is the largest in the group. Nos 31 and 32 seem to lie on derived gravels. No. 32 appears also to be a spring hollow, as 'B', but without the outflow lip. This group extends south of the Ridgeway track (Nos. 105-114) but here the placing of some of these may not be exact since they have not been matched on the aerial photographs.

The fifth group (Nos 39-53,58,87,88) is near the greatest width of Bronkham Hill but the southern boundary is arbitrary; other dolines (Nos 97-104,115,189-191) extend the area south of the Ridgeway track where they continue into those of group 8. Central to the fifth group are three bowl barrows (Grinsell 1959, p. 155, Nos 65a,66,66a; RCHM 1970, p. 466, Nos. 39,40). Doline No 49, at 12.2 m diameter, was the largest measured north of the Ridgeway where the density is high; adjacent are dew ponds and dolines Nos. 163 and 164 hold water in wet weather. No. 102, at 15.8 m diameter, was the largest measured excepting Quarry 'A', but No. 103 at 14.6 m was almost as large. The northern limit of this group is taken at the limit of cultivation which approximates to the edge of the Tertiary outcrop. There are artificial workings west of No. 44.

The sixth group is very spectacular because the terrain becomes particularly rugged (Figs 3,4) and dolines are numerous and varied (Nos 54,56, 59-72, 89-96, 122,123,126-128,133-135) and it extends south of the Ridgeway where it is arbitrarily separated from group 8. The area is well documented by other aerial photographs in the National Air Photo Library, especially Negative Nos SY 6286/2 and SY 6488/2. This is the area where a traversing dyke and wall boundary system cross the doline field and contribute towards a chronology for the system (Fig. 4) and this will be discussed in a later section. The area is dominated by a large bell-barrow (Grinsell 1959, p. 116, No. 71a; RCHM 1970, p. 466, No. 42) well shown on the upper right of Fig. 3; it is quoted as 28 m in diameter and the elongated hollow on the crest is an old excavation trench but dolines effect the margin (Nos 54,59). One of these (No. 59) may be the one referred to by Wilson *et al.* (1958 p.179) who wrote 'beside the largest tumulus, a hole about a foot diameter appeared on the surface. Beneath it was a large cave at least 20 ft in diameter and



Figure 1. Enlarged vertical aerial photograph of Bronkham Hill taken on 26 October 1961, DOE 58/RAF/4733. © Crown copyright/MOD reproduced with the permission of the Controller HMSO.

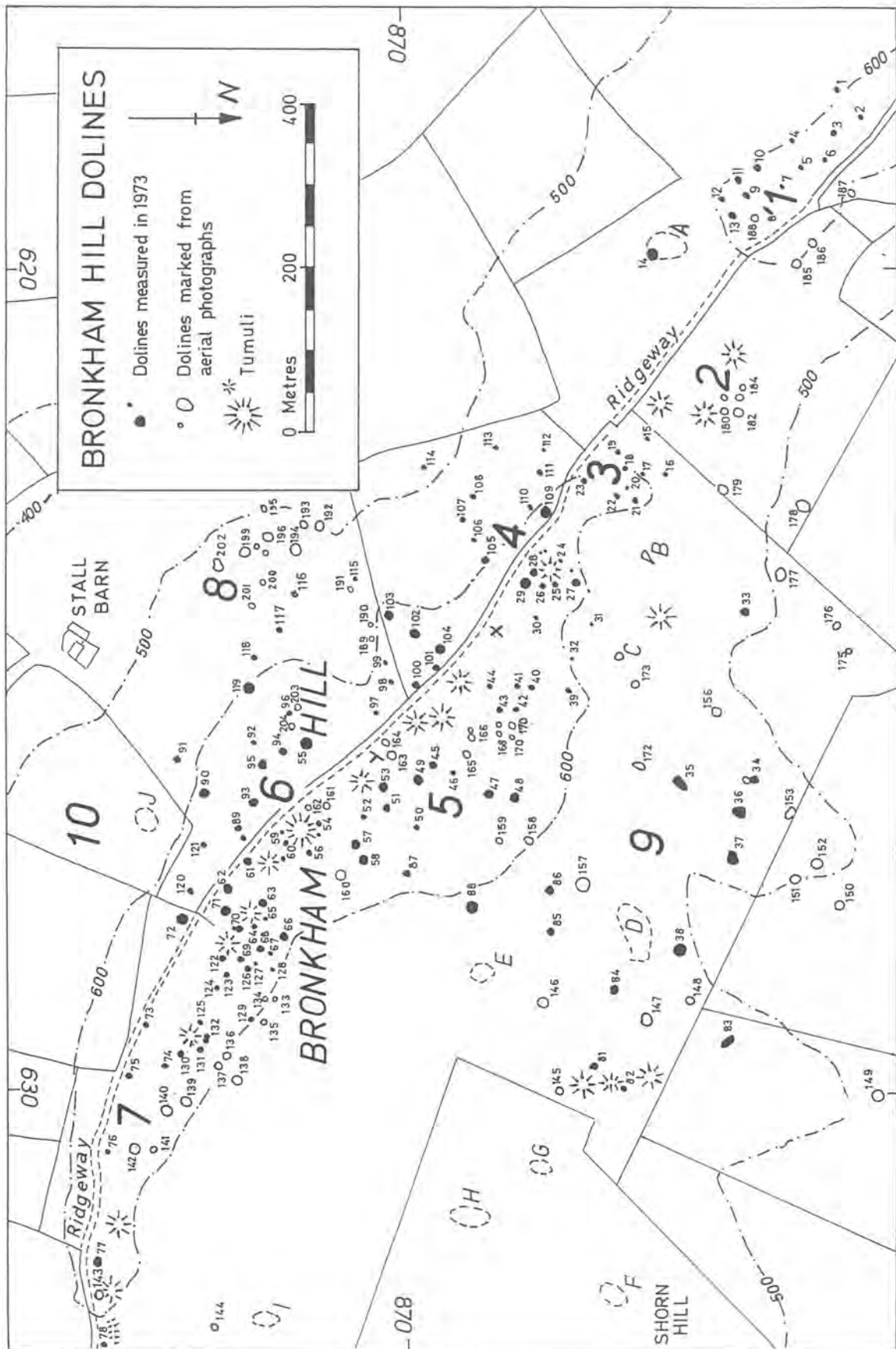


Figure 2. Map of the Bronkham Hill doline field covering the same area as Fig. 1. Note that the orientation, with north down, is used to correspond with the best stereoscopic effect of Fig. 1.



Figure 3. Oblique aerial view of the sixth group of dolines and the largest tumulus (RCHM No. 43) on Bronkham Hill. Copyright RCHM, Negative SY6287/3, date unknown but pre-1970.

about 20 ft deep." The opening is now plugged, and others are being used for infilling, notably at present No. 70. A dyke crosses this area using dolines 95, 93, 89, 61, 70 and 123 (Figs 3,4).

The seventh group (Nos 74-78, 125, 130-132, 136-143) lies on the south-easterly extremity of the hill where the ridge narrows and finally ends. Traces of the dyke continue in this area from No. 123 and again near No. 78.

The eighth group, mostly plotted from aerial photographs, forms a compact group of rather large dolines on a spur from group 6 and north of Stall Barn (Nos 116, 117, 192-202). They appear to be wholly within the outcrop of Tertiary Beds which here drops curiously below the 500 foot contour. Since there is no comparable sag on the east side of the hill, and along the tectonic strike parallel to the Ridgeway fault, it seems likely to have resulted from varied pre-depositional topography.

The area embraced by group nine includes all the country below the Tertiary outcrop north of Bronkham Hill except for a small outlier of Tertiary Beds around the tumuli just west of Shorn Hill (Fig. 2). Otherwise it is mostly covered by superficial deposits but in places these are extremely thin and chalk has formerly cropped out, or does so now when under deep ploughing. When the aerial photograph of Fig. 1 was taken, in 1961, many of the dolines were still open. Some had already been artificially filled by the survey in 1973 when many of those remaining were measured. Today virtually all are gone. There are large structures shown on the photographs (E, G-I) which were filled early. This area where the Tertiary Beds have been removed is instructive because it suggests dolines may have extended well below the base of the Tertiary as vertical solution pipes.

The area south of Bronkham Hill is marked as group 10 (Fig. 2) although there is only one structure (J) shown on the aerial photographs which deserves comment as another possible plugged doline.

#### Statistics

The results of measuring 132 of the dolines (marked on Fig. 2) are given on Fig. 5. Those on the hill are almost without exception approximately circular so that diameters were measurable. In order to be able to estimate the volume represented by the doline hollows, a clinometer was used to obtain average angles of rest for the downward slopes into the centre of the hollow and these results are plotted on Fig. 5B. Using the formula for the volume of a cone, an average value for the subsidence hollows is given of 26.6 cubic metres.

Considering only the region underlain by Tertiary Beds (groups 18), that area on Fig. 2 is 0.29 square kilometres. The aerial

photographs reveal that a large number of dolines were missed during the field survey, in part at least due to problems of location and access. For this area 113 dolines were measured but 50 were not. Presuming the average dimensions of the latter corresponds to the average for the former, this gives a total volume represented by the doline hollows of 4332 cubic metres. Were this to represent even dissolution of the Chalk over the area of the Tertiary Beds, this gives an average for removal by solution of 1.47 cm.

This figure will be a minimum, because some dissolution will have taken place over the surface of the chalk not covered by the doline catchment, and the doline hollows probably represent only a small proportion of this. Yet more dissolution will be within porous cavities of the solid rock. In addition there may be actual caves within the Chalk at present which have not yet collapsed. This was illustrated by Sperling *et al.* (1976 p.217) below a hollow at Blackdown which appeared at a point given as 300 m in a direction of 320° from the Hardy Monument.

The Portesham spring is recorded as having a total hardness of 240-270 ppm. (Wilson *et al.* 1958). Using an average of 250 ppm., Sperling *et al.* (1976) calculated a solutional lowering rate for Dorset chalklands of 50 mm per millennium, but this did not take into account the point raised above that much dissolution might be within the solid chalk which would result in no surface lowering at all. Indeed, the dolines only lower the surface around their site and lowering elsewhere may be extremely slight.

#### CHRONOLOGY

The importance of the Bronkham Hill site is that there are ways in which an approach to a chronology over millennia may be established and whilst it is rather imprecise at present there is the possibility of refinement.

#### 4,000 B.P. + 20%

The Bronze Age cemetery on the hill was clearly a ceremonial site of some importance and a burial site for many years. It seems unlikely that such splendid tumuli would have been erected on a site considerably pockmarked by deep solution hollows. Clearly much collapse postdates the tumuli construction, because they are cut by dolines, but the probability is that the surface was relatively smooth at the times of the burials. RCHM (1970) comments on the Bronkham Hill group of tumuli, 'including four bells and one double bowl' but it gives no attempt at dating. There is a lack of scientific excavation of the Bronkham Hill tumuli, but

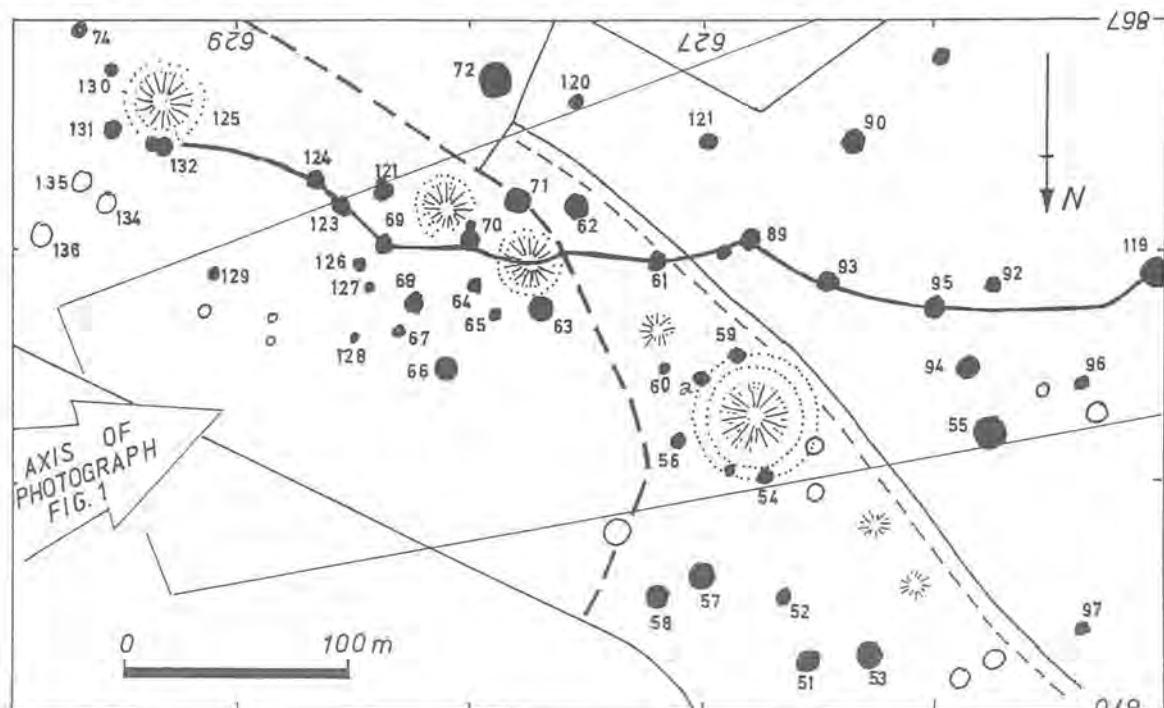
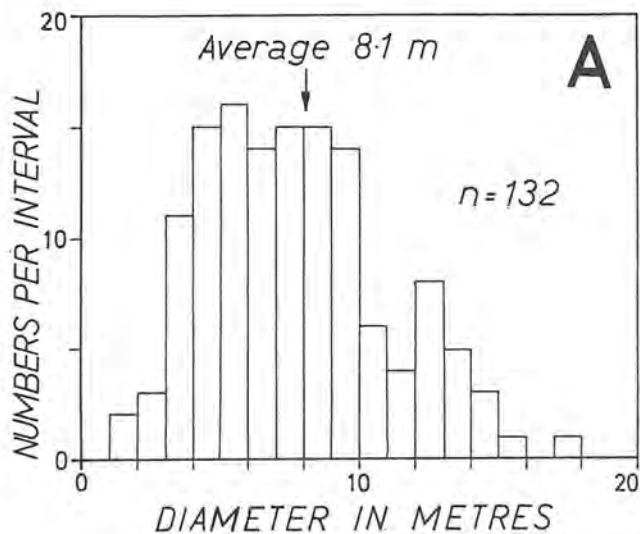


Figure 4. Map of the part of sixth group of dolines on Bronkham Hill showing the direction of view of Fig. 3 and the traversing dyke and boundary systems.

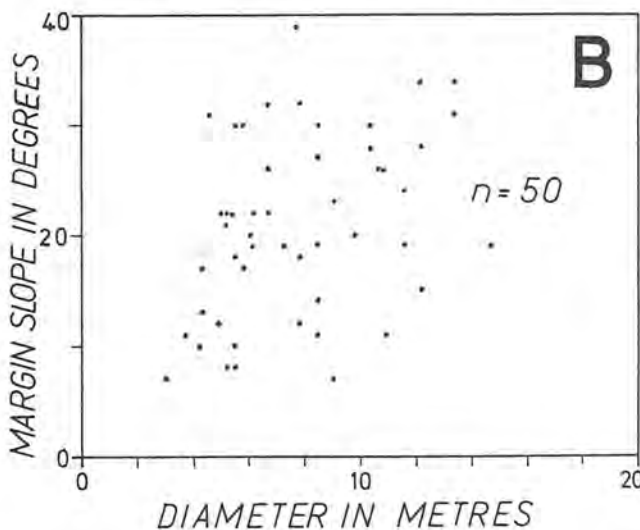
Grinsell (1959) concluded that all bell-barrows 'belong essentially to the "Wessex" Early Bronze Age culture' and were constructed for the internment of male aristocrats. But several tumuli types are present in the group and a

considerable time span may be involved. The dating of the regional early Bronze Age by Richards (1991) is about 2,400-1,700 B.C. We may roughly suggest that dolines on the site were not greatly conspicuous around 4,000 years + 20% before the present (B.P.).



**1,600 B.P. + 25%**

The next evidence on chronology is given by a dyke which crosses doline groups six and seven (Figs 3,4). The dyke changes course to take advantage of the existence of the hollows and appears to have been a defensive line. It passes through doline No. 119 and runs eastward through No. 132 and traces appear farther east towards No. 78. The RCHM (1970 p.519) illustrated the course and described it as 'a single bank, at most 14 ft. across and 1½ ft. high, with a ditch on the north. Short erratic stretches link solution hollows but do not run down them. The dyke crosses the ditched bowl barrow (RCHM tumulus 47) south of doline No. 63 indicating that it clearly postdates that. A Romano-British or, probably, later origin was suggested and attention was drawn to how it disregards the parish boundaries. Since the solution hollows were used as part of the structure of the dyke, those dolines must have preceded the construction of it. The dyke appears to be of one period only for which a very broad time-span of 1,600 years + 25% may be suggested.



**200 years B.P. + 25%**

The next time marker is given by the parish boundary which passes along the crest of the hill. This has at some stage been marked by an impressive line of flagstones (Fig. 7). These are each up to 1.5 m in breadth and, since the exposed height of some exceeds 0.8 m, this suggests vertical heights of at least

Figure 5. Statistical data on Bronkham Hill dolines. A, histogram of doline size based on 132 measurements. B, doline diameter plotted against slope angle in degrees for 50 of the dolines included in 5A.

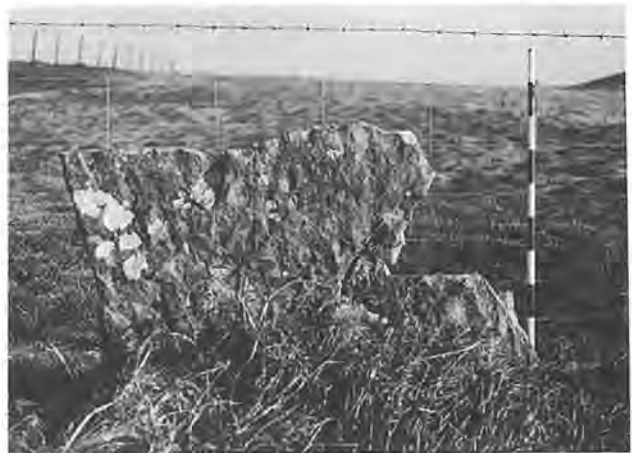


Figure 6. Photograph of Quarry 'A' showing the irregular surface of the chalk and what may be either an isolated 'arm' of chalk from solid rock of an isolated block of chalk within the gravels. Divided scale a metre in length.

Figure 7. Photographs to show the spectacular flags of Lower Purbeck Limestone which mark the parish boundary along the crest of Bronkham Hill 210 metres east-south-east of Quarry 'A'.

one metre. These mark the parish boundary along the hill top and a branch passes in a curved line northward from it (marked as a dashed line on Fig. 4, see also Fig. 3). The quantity and quality of this stone is remarkable, and it seems only likely to have come from the old quarries in the Lower Purbeck Beds less than one kilometre south and north of Little Waddon and Corton Hill (between SY 636857 and SY 626861). Its construction may have been associated with the Enclosure Acts. In several places the flags are collapsed and degraded and later walls, of inferior stone, and later fences today mark the boundary. A rough date for the flagstone wall may be  $200 \pm 25\%$ .

#### Last 60 years

The most recent span is covered by the geological survey of 1931-1946 which resulted in records of current activity (Wilson *et al.* 1948). The available aerial photographs date from the 1940's and subsequently, and there is this work, which has spanned twenty years.

#### CONCLUSIONS ON DOLINE DEVELOPMENT

Since many dolines cut the Bronze Age burrows, at least most must postdate  $4,000 \pm 25\%$  B.P. Since the dyke, at  $1,600 \pm 25\%$  B.P., makes use of a line of dolines, those must date from the intervening time, although that is not to say their full development falls in that period. However, since no entirely new dolines cut the dyke, this suggests that activity was less after the period of dyke formation. This is supported by the evidence of the flagstone parish boundary. This in places runs through previously existing dolines, for example No. 71 (see Fig. 3) which has clearly been stable since the wall was constructed.

An estimate of the material removed by solution, as represented by the space in the solution hollows gave a total of 4332 cubic metres for the area underlain by Tertiary Beds on Bronkham Hill. Were this to have been evenly distributed over the hill, which it is not, that would represent an average lowering of 1.47 cm. But dissolution will also have taken place on the general surface of the Chalk, within the chalk itself, by etching of pore cavities, and there may be large caverns below the surface into which no collapse has yet occurred which cannot be taken into account. Estimates based on the material in solution in the Portesham Spring and others at present gave a calculated solutional lowering rate for

Dorset of 50 mm per millennium. Watton and Barber (in Barber (Ed) 1987) have suggested that Rimsmoor (SY 814922) is a doline that has been filling with sediment and organic debris over the last 8,000 years. There may have been loss by solution, if not considerable collapse, before 4,000 year B.P. on Bronkham Hill. Indeed, they may even be sited on dolines which predate the Bagshot Beds. It has been shown that the Bronkham solution hollows, over four millennia, account for 147 mm, and this is less than the total rate. The remainder may be taken up by other types of solution, as discussed earlier. There is also the fact that the formation of dolines appears to have been greater between  $4,000 \pm 20\%$  and  $1,600 \pm 25\%$  than between the last date and the present. This suggests higher rainfall during the earlier period. Clearly the problems of the chronology of Dorset dolines are not by any means solved. Nevertheless, the Bronkham Hill dolines, in addition to being spectacular in their own right, contribute to the relatively recent chronology of doline development in Dorset.

#### REFERENCES

- Arkell, W.J. 1947. The Geology of the Country around Weymouth, Swanage, Corfe and Lulworth. *Memoirs of the Geological Survey of Great Britain*.
- Barber, K.E. (Ed.), 1987. *Wessex and the Isle of Wight, Field Guide*. Quaternary Research Association.
- Grinsell, L.V. 1959. *Dorset Barrows*. Dorset Nat. Hist. Arch. Soc.
- RCHM, 1970. *An Inventory of Historical Monuments in the County of Dorset Vol. 2, Southeast, Part 3*. Royal Commission on Historical Monuments (England).
- Reid, C. 1899. The Geology of the Country around Dorchester. *Mem. geol. Surv. of Engl. & Wales*.
- Richards, J. 1991. *Stonehenge*. English Heritage.
- Sperling, C.H.B., Goudie, A.S., Stoddert, D.R. & Poole, G.G. 1976. Dolines of the Dorset Chalklands and other areas in South Britain. *Trans. Inst. Brit. Geog.*, NS., 2, 205-223.
- Strahan, A. 1989. The Geology of the Isle of Purbeck and Weymouth. *Memoirs of the Geological Survey of England and Wales*.
- Wilson, V., Welch, F.B.A., Robbins, J.A. & Green, G.W. 1958. Geology of the country around Bridport and Yeovil. *Mem. geol. Surv. GB*.



# Chesil Beach: landward recession 1965-1991

ALAN P. CARR and DENNIS R. SEAWARD

## ABSTRACT

Nineteen sections were surveyed across Chesil Beach and the results compared with earlier data. While the crestline generally appeared to have receded landward along those parts unaffected by sea defence works in the Chiswell area the extent of the change varied, as did the mechanism by which it was brought about.

## INTRODUCTION AND METHOD

A recent paper in these Proceedings (Carr and Seaward, 1991) examined the changes in crest height along Chesil Beach between Abbotsbury in the W. and Chiswell in the E., and thereafter referred briefly to some limited evidence for the apparent landwards recession of the Beach. The purpose of this study is to discuss the latter aspect in more detail, mainly in respect to 19 cross-profiles surveyed between March and October 1991 using a Zeiss 040A self-adjusting level. The most westerly of these transects was at West Bexington while the easterly limit was again Chiswell (Chesilton). (Figure 1 shows the location of virtually all the places referred to in the text).

Evidence for the change in the lateral position of the beach crest is essentially of two types - that from the location of artefacts, and that from topographic surveying. Carr and Seaward (1991) recorded three indications of crestline retreat of the former type, all in the environs of Section lines 4 and 5 (Figure 1). (Sections referred to in the text without a prefix were initially surveyed by the (then) Physiographical Section of the Nature Conservancy in 1965). The examples from man-made structures were the erosion of: (a) the Portland Boundary Stone(s) and (b) the Dorset military obelisk (flagpole base) dated 1911; together with the undercutting of the army firing range lookout buildings erected in 1980-81. From these three

examples it was concluded that recession of the order of 7-10m, perhaps more, had occurred over an 80-year period and that most of this was of a recent date, possibly attributable to the 1989-90 winter storms. (In the Chiswell-Portland Harbour area the storms of 13 December 1978 and the 13 February 1979 'swell event' were far more significant).

While there are some limited data for the position of the beach crest through angles taken between prominent objects landwards of the Fleet lagoon; at Wyke; or on the Isle of Portland (dating from 1965; 1969 and 1979) or by EDM resections (1977), evidence from comparative cross-profiles is far more extensive and, in general, more reliable. Only sectional data is considered further here. Surveys of section lines date from 1852 (Coode); 1965; 1969; 1977 and 1991. (Sections originally surveyed by Sir John Coode are hereafter referred to as 'Coode -', or 'c -' in the Figures). Changes between 1852 and 1969 were considered in Carr and Gleason (1972), while some comparisons between the 1965/1969 and 1977 Nature Conservancy Council survey are recorded in Carr (1983) although the orientation of the profiles is reversed. Minor discrepancies in detail occur between these sections as published and those shown in this paper (Figures 2 and 3). Details of the 19 profiles measured in 1991 are listed in Table 1. All the sections have been measured three times except for

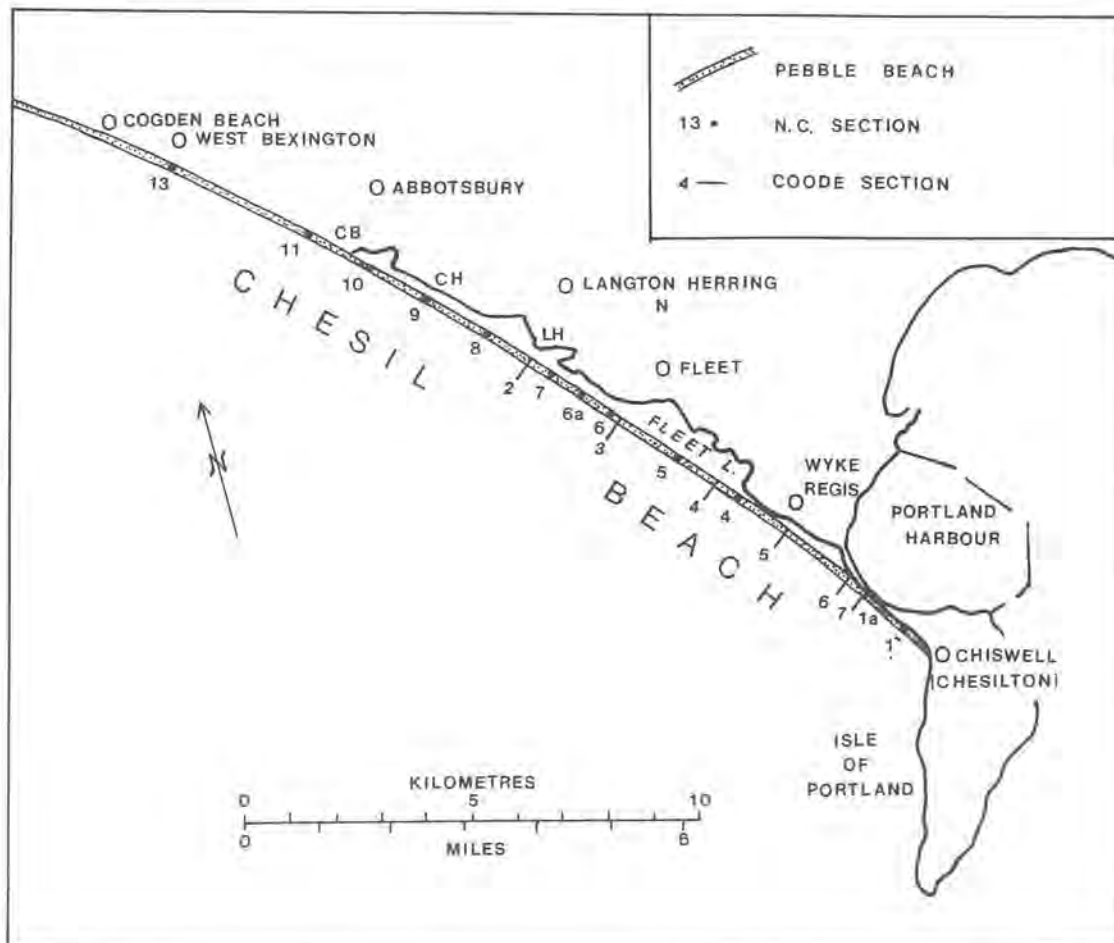


Figure 1. Chesil Beach: site map. N.C. Section: first surveyed 1965 or 1969; Coode Section: first surveyed 1852. (CB = concrete block beach defences; CH - Cloud's Hill; LH - Langton Hive).

Coode 6 (four times) and Sections 3 and 4/4'. The 1977 levelling of Section 4 was wrongly located; in 1991 both the 1965 and the 1977 profile lines were repeated so that there are just two profiles at each position 4 and 4'. In this paper Coode's 1852 survey data is not included in the published figures. Suffice to say that Carr and Gleason (1972) could only find one site (opposite Portland Harbour) where the recession between 1852 and 1969 (17m) was greater than the potential plotting error.

**RESULTS AND DISCUSSION**

Figures 2 and 3 present 11 out of the 19 sections surveyed in 1991 together with their earlier counterparts. These were

selected on the basis that they were approximately evenly spaced along the Beach and/or that both their longshore and transverse positions could be confirmed. In the case of the longshore locations this was by distance measurements while the transverse positions were verified either by the existence of such artefacts as roadside kerbs or by the superimposition of the backslopes over stable areas as evinced by prominent lichen growth. Along some parts of the Beach both crest and backslope detail vary rapidly alongshore so that slight distance errors may produce conspicuous, but probably erroneous, suggestions of change. Profiles were taken nominally at rightangles to the beach crest but on a gently curving feature, and one which

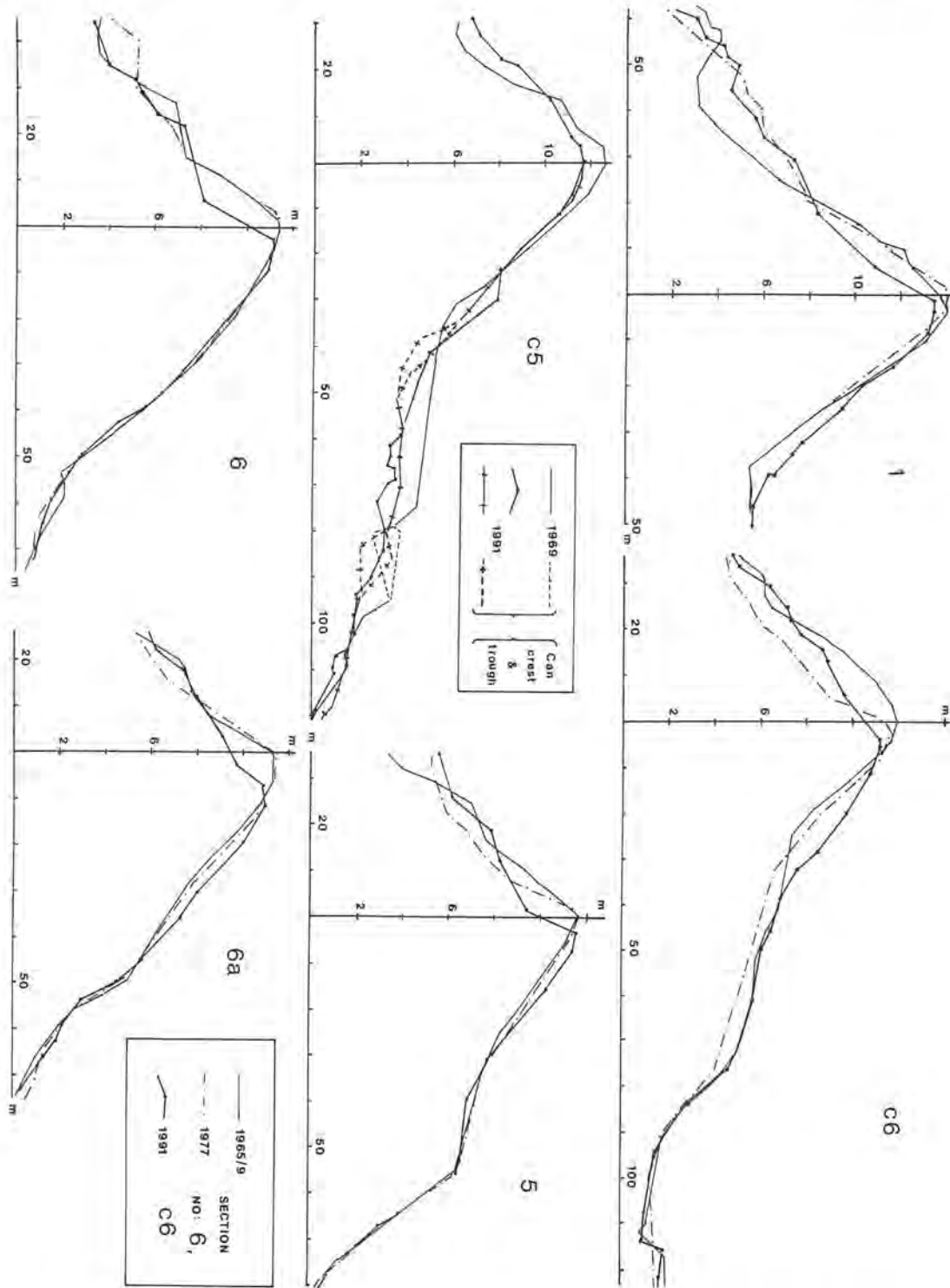


Figure 2. Profiles across the Beach E. of Langton Hive, looking as from the E., i.e. the landward side is to the right of the section. (For explanation, see text. For location, see Figure 1).

curves increasingly towards the eastern end, this is difficult to define. Coode 5 shows the potential problem with two 1991 profiles taken only 7.5m away from each other at the crest and aligned only 1° differently with respect one to the other. Coode 4 and Section 7 (not shown) have substantial differences between the 1969/91 and 1965/91 profiles which may be real but could, especially in the case of Section 7, be the effect of a small longshore positioning error on one of the surveys. The backslopes of the 1965, 1977 and 1991 surveys of Section 10 all differ substantially. This part of the Beach, opposite Abbotsbury swannery, is very dynamic and suffered substantial changes in the 1989-90 winter. However, there is also much longshore variability and it proved impossible to make any meaningful comparison between the different year's profiles. Section 1a is not shown because of the gross alterations brought about by the construction of the 'Monsoon ditch' in 1978 and the interceptor drain in 1985 (Hook and Kemble, 1991). Coode 7 is located immediately NW. of the Portland Harbour end of the interceptor drain. While, in the case of Sections 1 (Figure 2), 1a, and to a small extent Coode 7 the 1991 crest is lower than that of the 1965/69/77 surveys (as applicable, see Table 1) landward recession is negligible.

However, any trend along this stretch of the Beach is unlikely to be meaningful due to the substantial man-made restoration of the crest over the quarter-century period, although most notably in 1978-79. Sections 3 and 4/4' have been excluded from Figures 2 and 3 because they have been surveyed only twice. Both 3 and 4/4' suggest crest 'retreat' of some 5m to 6.5-7.5m between 1965 and 1991, values which agree well with the erosion of artefacts in the same area referred to earlier in this paper.

The second column of Table 1 gives an indication of the

recession of the crest of Chesil Beach between either 1965 or 1969 and 1991. Values vary between zero and a maximum of 17m. In general the apparent landward movement of the crest increases towards the western end of the Beach. The range of values given for any individual section reflects the difficulty of measurement. This, in turn, is due to the changing shape of the crest, e.g. that the highest point was usually to landward of the beach face in the 60's surveys but often coincident with it in 1991. Also, the apparent movement of the crest may differ from the amount of 'retreat' as measured by the erosion of the upper part of the beach face or the accretion on parts of the backslope.

It is clear from many of the sections in Figures 2 and 3 that the extent of the retreat of the crest is illusory and is primarily the result of the erosion of the upper beach face. There were frequent instances in the 1991 survey where the lower beach face was practically identical with, or even occasionally seaward of, the 1965/69 position. Because of space limitations on the Figures this part of the profiles is not represented. In any case, the profiles on the beach face, particularly the lower portion, are transitory by nature. Carr and Gleason (1972) observed that: 'Short-term variations in the position of the beach crest may well exceed the long-term trend as was the case during surveys of the cross-sections in 1965 and 1966'. If variability in the position of the beach crest took place during 1965-66 changes below that height, where wave action was more frequent, were obviously greater.

The unevenness of the apparent recession is determined on a gross scale by the focus of specific storm events on particular lengths of the Beach, and on a smaller scale by the incidence of 'megacusps' of the order of 40-100m. These were particularly prominent between Sections 4 and 7. Where the section lines correspond to the horns of this large-scale scalloping of the beach

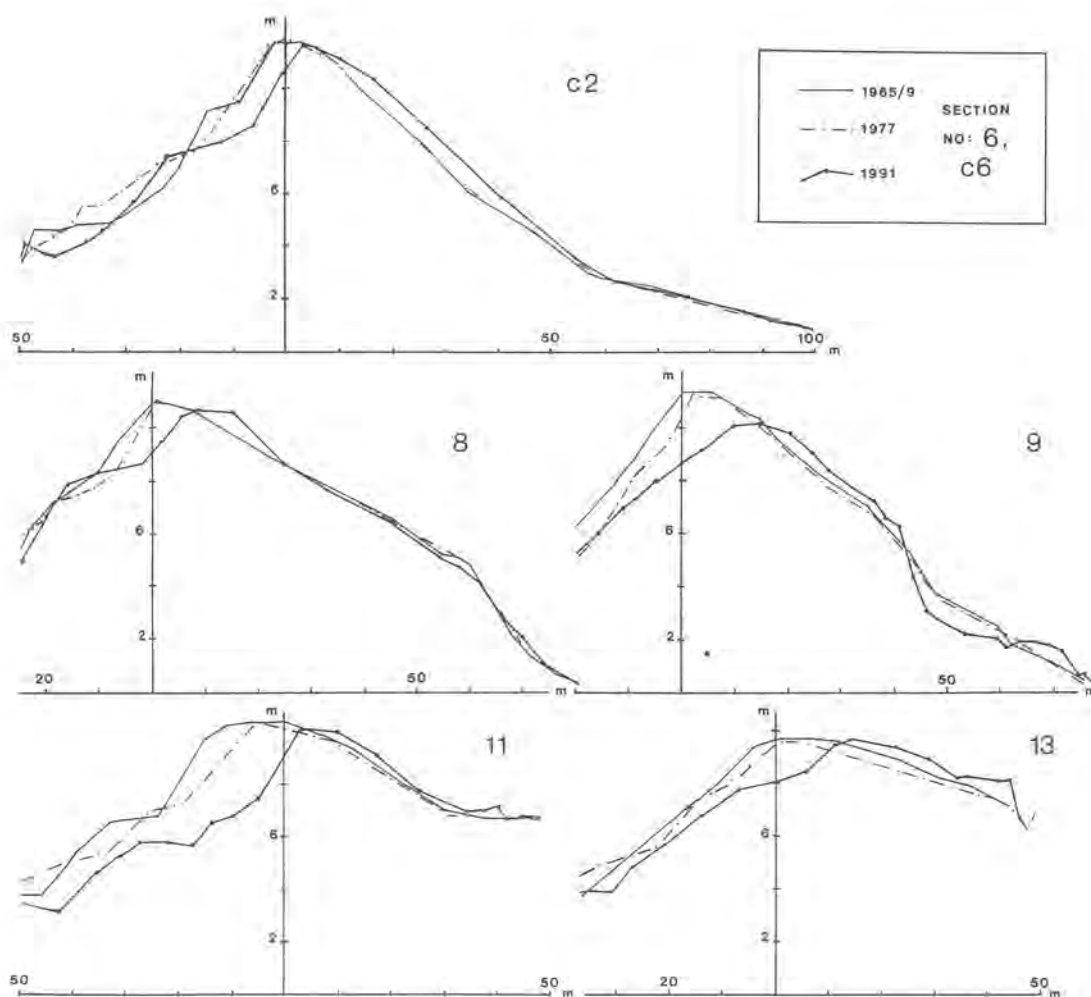


Figure 3. Profiles across the Beach at, and W. of, Langton Hive, looking as from the E. (For explanation, see text. For location, see Figure 1).

TABLE 1: Chesil Beach; Section lines surveyed in 1991. Those labelled 'Coode -' first surveyed 1852; those with number only first surveyed 1965. (a) = Also surveyed by Nature Conservancy Council (NCC) in 1977. (b) = Transverse position verified. (c) = Longshore position verified.

Section No:	Estimated landward movement of crest in metres (approx), 1965/69	Notes
1	0	a,b,c. See Figure 2.
1a	2	a,b,c. Gross backslope changes following 1978-79 winter and construction of sea defence works.
Coode 7	2	b,c.
Coode 6	6	a,b,c. Some discrepancies in 1977 survey. See Figure 2.
Coode 5	-	See text and Figure 2 which demonstrates effect of longshore variability and angle of section relative to beach alignment.
4 (and 4')	5	a(4'). 1977 longshore location in error. Both 4 and 4' surveyed 1991.
Coode 4	6?	Possible locational error; apparent changes in both crest height and rear profile between 1969 and 1991.
5	3-7	a,b,c. See Figure 2.
Coode 3	5.5-7	b,c
6	3-7	a,b,c. See Figure 2.
6a	9-12	a,b,c(?). See Figure 2.
7	8?	a. Longshore position critical; may be correct.
Coode 2	3-6	a,b,c. See Figure 3.
8	8-9	a,b,c. See Figure 3.
9	14	a,b(?),c. See Figure 3.
10	-	a. 1965, 1977, and 1991 backslopes all differ. Dynamic area of beach but longshore position critical also.
11	10-17	a,b,c. See Figure 3.
13	9-14	a,b,c. See Figure 3.

face not only did the remains of the original crest tend to be higher (Carr and Seaward, 1991) but 'retreat' was least, while between the horns erosion occurred to a greater degree. This produced a greater apparent recession and a lower crest level since the new crest was previously a position further down the backslope. In this situation it is conceivable for crest lowering and 'retreat' to occur without any build up of shingle on the rear slope.

The picture presented by the backslope of Chesil Beach is inconsistent and reflects the location along the Beach; the height of the crest; and the nature of the processes prevailing at any specific site. Section Coode 2 is immediately E. of the lifeguard building opposite Langton Hive. The Beach at this position is relatively high and was little affected by the 1989-90 winter storms. However, shingle has clearly been pushed over the beach crest with the result that the upper part of the rear profile has been raised by approximately 0.8m, equivalent to the backslope there moving some 4 m to landward. Yet the shoreline of the Fleet on Coode 2 was unaffected and remained in its 1969 position. Coode 6 and Sections 5 and 6a show very similar relationships yet Section 6, in between, suggests only minor deposition on the upper backslope. Section 8 depicts a moderate amount of deposition on the upper backslope and the results of small-scale seepage on the relatively steep lower backslope. The lower portion of Section 9 is in an area of moderately developed cans and shows a more extreme example of the features indicated in Section 8. Scour from a level of about 3m O.D. is reflected in deposition at some 1.5m O.D. and, at this site, affects the Fleet shoreline.

The two most westerly sections, 11 and 13, show substantial loss of volume, especially Section 11 which is located just E. of the Abbotsbury coastguard cottages and where patches of the

Beach were completely denuded of shingle at the time of the 1991 survey.

Since the paper by Carr and Seaward (1991) one other strand of evidence from artefacts has been added - that from the concrete block beach defences at the E. end of Abbotsbury beach. The number of blocks measured from the Fleet shore, as determined by air photographs, was 52 (21/01/48); 49 (29/07/63); 49 (08/10/70) and 46 (15/09/79). A count on the ground in November 1991 gave 44 remaining. Given that the blocks are 1.05m across and that the mean spacing between them is 1.28m this would infer a recession of some 7m between 1948 and 1963; zero between 1963 and 1970; a further 7m between 1970 and 1979, and 4-5m from 1979 to 1991. This makes a total of about 18m between 1948 and 1991. This value seems substantially more than almost all the other evidence along the Beach suggests.

The results have to be treated with a degree of caution since, firstly, the blocks induce scour around themselves and, secondly, once they have gone any subsequent accretion of the beach face goes unrecorded. In addition, it is possible for blocks down the beach face to be intermittently buried and then re-exposed at a later date. Nevertheless, it was noted earlier in the present paper that the Beach in the neighbourhood of Section 10 appears to be particularly susceptible to change and that it had proved impossible to superimpose the 1965, 1977 and 1991 sections there. It is possible that the surveyed sections minimise erosion of the crest because sites of maximum change either do not coincide with any section line (e.g. a dramatic example of overwash opposite Cloud's Hill) or, where they do coincide, it proved impossible to superimpose them because no points of reference remained. Sections 7 and 10 may be examples of this.

## CONCLUSIONS

What the 1991 cross-profiles do demonstrate, however, is that the apparent retreat of the crest line is not necessarily represented either on the lower foreshore or on the lower backslope, and that there is also substantial variability alongshore on both localised and more general spatial scales. Were sufficient shingle to remain immediately offshore of the Beach it would be comparatively simple for a major accretional event to restore the pre 1989-90 crest level and position to something approximating that shown in the 1965/69 and 1977 surveys. Such occurrences have taken place before. Carr and Gleason (1972) found that between 1852 and 1969 the crest of Chesil Beach had grown in height by some 2.0m between Abbotsbury and Langton Herring and 1.5m between Langton Herring and Wyke Regis. It is more probable, however, that the beach crest levels recorded in the 1960's and 1970's were atypically high and that slow, long-term, retreat and the tendency for wasting of Beach volume through natural processes will prevail. Prior (1919) heralded such a fate, albeit aggravated by aggregate extraction at that time, over 70 years ago.

## ACKNOWLEDGEMENTS

The authors would like to thank Brian Hook of Babbie Dobbie Ltd., consulting engineers; Steve Edge of the Nature Conservancy Council; and Neville Copperthwaite of Abbotsbury Oysters for their assistance in diverse ways. The work has been assisted by the Natural Environment Research Council under grant GR/7711.

## REFERENCES

- Carr, A.P. (1983) 'Chesil Beach: environmental, economic and sociological pressures', *Geogr. Jour.*, 149, 53-62.
- Carr, A.P. and Gleason, R. (1972) 'Chesil Beach, Dorset, and the cartographic evidence of Sir John Coode', *Proc. Dorset Nat. Hist. Archaeol. Soc.*, 93, 125-131. (Volume for 1971).
- Carr, A.P. and Seaward, D.R. (1991) 'Chesil Beach: changes in crest height 1969-1990', *Proc. Dorset Nat. Hist. Archaeol. Soc.*, 112, 109-112. (Volume for 1990).
- Hook, B.J. and Kemble, J.R. (1991) 'Chesil Sea Defence Scheme. Paper 1: concept, design and construction', *Proc. Instn. Civ. Engrs.*, 90, 783-798.
- Prior, E.S. (1919) 'The Bridport shingle. A discussion of pebbles', *Proc. Dorset Nat. Hist. Antiq. Fld. Club*, 40, 52-65.

# Unimproved neutral grassland in Dorset: survey and conservation

R.D. PORLEY and P.F. ULF-HANSEN

English Nature, South West Region,  
Roughmoor, Bishops Hull,  
Taunton, Somerset, TA1 5AA.

## SUMMARY

*There are few accurate accounts of the extent, nature and botanical quality of neutral grassland of conservation interest in lowland England, yet it remains one of the most threatened habitats. Unimproved neutral grassland of botanical interest in Dorset was surveyed using the British National Vegetation Classification. Only 344 ha of neutral grassland of high conservation interest survived. Remaining sites were highly fragmented, with about 50% of fragments less than 5 ha. The loss of unimproved neutral grassland in the last six years was estimated at 60%.*

*A significant area was found to be equivalent in quality to existing Sites of Special Scientific Interest (SSSI). The scarcity and vulnerability of the neutral grassland resource suggests that protection under the Wildlife and Countryside Act 1981 should be extended to all SSSI quality examples. The SSSI series in Dorset would then include 84% of the neutral grassland resource.*

## INTRODUCTION

Agriculturally unimproved, enclosed meadows and pastures of lowland England are characterised by a diverse range of grasses and herbs. Wells & Sheail (1988) estimated that semi-natural grasslands of all types support about one quarter (550 species) of the total British higher plant flora. During the last 50 years the rate of loss of this habitat, particularly neutral (mesotrophic) grassland, has steadily increased (Fuller 1987, Wells & Sheail 1988, Royal Society for Nature Conservation 1989) and today very little unimproved lowland grassland remains. The Nature Conservancy Council (NCC) (now English Nature) made an assessment of grassland losses since the last war (NCC 1984): 95% of all English lowland neutral grasslands were estimated to lack significant wildlife interest and only 3% of the remaining 5% was free of some degree of damage by agricultural intensification. Fuller (1987) separately corroborated this estimate, but further suggested that detailed survey of grassland of conservation interest may reveal that even less survives in an undamaged condition.

Unimproved grasslands are of considerable ecological interest for the presence of rare and declining species (Wells & Sheail 1988) and communities. They are highly valued by conservationists (Ratcliffe 1977, Hopkins 1990) and receive much conservation effort, including financial expenditure on management agreements to conserve them (NCC 1989a). The choice of which areas to safeguard by purchase, statutory protection or by other means should ideally be based on an overall knowledge of the extent and quality of the resource. The distribution and quality of remaining calcareous grassland has been reviewed (Blackwood & Tubbs 1970, Ratcliffe 1977, Keymer & Leach 1990), but there has been little systematic or extensive survey of unimproved neutral grassland. Furthermore, interpretation of the historical extent of neutral grassland has been complicated by differences between agricultural and ecological definitions of grassland types (Fuller 1987).

This paper reports a study of unimproved neutral grassland in the lowland county of Dorset, England. A comprehensive habitat and land use survey in 1982-3 (NCC unpublished) of Dorset was used as a base-line to identify unimproved neutral grassland on which detailed botanical site surveys were carried out, using the British National Vegetation Classification (see e.g. Rodwell 1991). The objectives were: (1) to accurately assess the extent and quality of unimproved neutral grassland, (2) to assess the magnitude of habitat loss, (3) to estimate the extent of important grassland communities and (4) review the extent of statutory protection of the resource.

## METHODS

The 1982/3 field-by-field land use survey of Dorset (NCC unpublished) was used to identify sites categorised as unimproved neutral grassland for detailed botanical survey. Sites refer to individual fields or a conglomerate of contiguous fields separated only by other semi-natural habitat such as a copse or water-course. Other candidates for survey were suggested by Dorset NCC staff. Field work was carried out from June to October 1988 and in August 1989. A number of Sites of Special Scientific Interest (SSSI) containing areas of neutral grassland were not visited, but recent habitat maps based on a standard habitat classification (NCC 1990) were examined to determine grassland type and extent. The cause of habitat loss was noted for unimproved neutral grassland no longer present in 1988/9.

Although neutral grasslands occur predominantly on clays and loams (Tansley 1939), there is considerable intergradation with other vegetation types such as calcareous grassland, fen meadows and grasslands that are occasionally inundated by brackish water. The National Vegetation Classification (NVC) (Rodwell 1991) is a phytosociological scheme which allows greater precision in defining neutral grassland. The NVC places neutral grassland in the mesotrophic grassland section; mesotrophic grassland communities of botanical interest and the component communities forming intermediates between mesotrophic grasslands, mires and swamps in Dorset are shown in Appendix 1. Other habitat types (such as swamp or mire) were sampled if they either showed close affinities to neutral grassland or formed transitional or intermediate community types. Some mesotrophic grassland types were only surveyed when comprising integral parts of larger sites. For example, *Arrhenatherum elatius* grasslands (NVC:MG1) form much roadside verge vegetation, are usually considered to be of low botanical interest (NCC 1989b) and generally excluded from the present survey. Similarly, areas of neutral grassland that show botanical impoverishment, often due to a long history of intensive grazing such as in some deer parks, were also excluded.

Of 133 sites visited, 33 sites were selected for detailed botanical survey. A standard method (NCC 1985) was used at each site: (1) vascular plant species were recorded in each distinct community with a subjective assessment of species abundance, (2) quadrats (1 x 1 m) were placed in visually homogenous communities and species cover estimated using the DOMIN scale (NCC 1985) where % cover classes are allocated a numerical rating from 1 to 10, (3) NVC type was allocated in the field where possible with reference to community descriptions and tables (Rodwell unpublished). Quadrats difficult to allocate to recognised communities were checked for degree of closeness-of-fit with NVC using a computer matching programme (Malloch 1990) similar to that described by Hill (1989). Detrended correspondence analysis (DECORANA; Hill 1979a) and two-way indicator species analysis (TWINSPAN; Hill 1979b) were used to help distinguish nodes within the *Cynosurus cristatus-Centaurea nigra* grasslands (NVC: MG5) and closely related types. Nomenclature follows Clapham *et al.* (1987).

## RESULTS

## Extent and loss

Most remaining neutral grasslands occurred in the west of the county, overlying Jurassic rocks which have weathered to form brown earths. The 10km grid squares SY39 and SY59, comprising the Marshwood Vale and environs, and the Powerstock and Mapperton Vales respectively, contained a significant proportion of neutral grassland (Fig. 1). A small number of neutral grasslands occurred in the east on alluvium deposits in the river valleys. The total area of unimproved neutral grassland in Dorset amounted to 396 ha, with 53 ha of this comprising communities considered to be of lower botanical interest (NCC 1989b). The grassland sites that remain were highly fragmented and small (Fig. 2). Almost half of all grassland occurred as fragments less than 5 ha in extent. Extensive areas of any one type were rare, but one site in SY59 formed an extensive block of over 50 ha (Fig. 1).

The extent of unimproved neutral grassland in the 1982/3 survey (NCC unpublished) was given as 1540 ha. However this survey employed different criteria and habitat definitions, and identified areas such as coastal landslips and a botanically impoverished deer park as unimproved neutral grassland. This accounted for about 540 ha. Furthermore, during fieldwork for the present survey it was clear that limited areas were erroneously recorded as mesotrophic grassland, but were more accurately classified as calcareous or acidic grassland by the criteria employed here. A more realistic estimate of the total area of unimproved neutral grassland present in 1983 was therefore 1000 ha. Compared to the 1988/9 data of 396 ha, a loss of 60% has occurred in the last 6-7 years with changing agricultural practices forming the majority (Table 1).

## Vegetation Communities

National Vegetation Classification communities considered to be of high botanical interest (NCC 1989b) recorded during the present survey were MG5, MG8, MG11 and MG13 (Table 2; Appendix 1). Many intermediates between mesotrophic grasslands and other community types (Appendix 1) such as mire and swamp were recognised (MG5/MG6, MG5/M25, MG10/M22, MG10/M27, MG11/MG13, MG11/M23 and MG13/S22) and were also considered to be of high interest. The total area of unimproved neutral grassland of high botanical interest amounted to 344 ha. The *C. cristatus-C. nigra* community (MG5) accounted for the bulk (214 ha) of unimproved neutral grassland of high interest in Dorset, representing 62% of the resource. This was expected since many of the other high interest community types are much more restricted, for instance to areas of periodic inundation (e.g. MG8), river valleys (e.g. MG13) and coastal situations (e.g. MG11).

Intermediates (or transitional types) between different NVC communities formed almost a third (29%) of the total area of high botanical interest. Even within a geographically small area, such as a county, the grassland types recognised were clearly part of a continuous range of variation in which vegetation types are best described as intermediates and which are often represented on a single site (Table 3).

Of the *C. cristatus-C. nigra* community, five types were recognised in Dorset (Table 3): two match closely with the MG5a and MG5c subcommunities described in the NVC; one type agrees well with the community overall, but is difficult to allocate to a particular subcommunity; one type forms an intermediate with an MG6; and another type is characterised by a high constancy of *O. pimpinelloides*, which gives a distinctive appearance to the vegetation. Preliminary ordination and classification analysis suggested this variant may represent a regional variant. More sampling is required to determine if this variant differs consistently other than by the high constancy of *O. pimpinelloides*. *C. cristatus-C. nigra* (MG5) grasslands with constant *O. pimpinelloides* also occur in Somerset (Edgington, pers. comm.) and it may be present in adjoining areas of Hampshire. *Oenanthe pimpinelloides* is a nationally scarce species with its main locus in Dorset, but does extend into neighbouring counties (Perring & Walters 1976). In Dorset, the variant appeared to be largely restricted to the 10 km grid squares SY39 and SY59 and occupies the greatest area of MG5 grassland.

## DISCUSSION

The 396 ha of unimproved neutral grassland remaining represents 0.1% of the total county land area. As a proportion of all semi-natural habitat in Dorset (39927 ha including woodland, heathland, open water, grassland etc.; NCC unpublished), unimproved neutral grassland accounts for only 1%. Of the 396 ha, 344 ha was considered to be of high conservation interest, with 79% (273 ha) already afforded some safeguard by designation as SSSI in 1990; the remainder was unprotected by statutory conservation designations. No sites are managed as National Nature Reserves, but one site is a county conservation trust reserve.

Sites of Special Scientific Interest are the most extensively applied mechanism available to protect semi-natural habitat in Great Britain. Two approaches to selection of SSSIs have been identified (NCC 1989b). Firstly, the principle of 'minimum

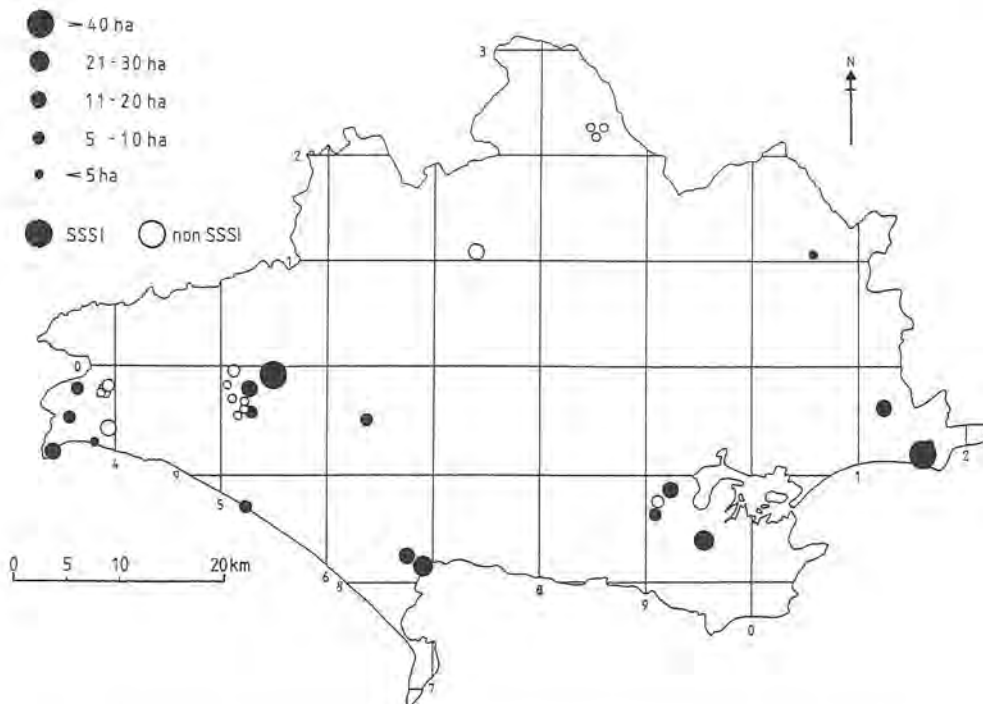


Fig. 1. Distribution, size and status of unimproved neutral grassland in Dorset, 1988/89.

standards' selects sites above a threshold of site quality, where the standard or threshold is determined using recognised conservation criteria (cf. Ratcliffe 1977). For Dorset, unprotected neutral grassland sites meeting this standard for incorporation in the SSSI series comprise an aggregate area of 58 ha (NCC unpublished); in floristic terms these areas are equal or superior to the quality of grassland in existing SSSI. Assuming these sites were designated as SSSI, 96% (331 ha) of the high quality neutral grassland resource or 84% of all unimproved neutral grassland would be given some protection by the provisions of the Wildlife and Countryside Act 1981. A second principle is that as rarity or other special value increases, so does the need to protect a larger proportion of the total remaining area. The small area of unimproved neutral grassland remaining in Dorset, less than 0.1% of the county land area, suggests that this approach is also applicable.

Comparable data on the status of Dorset chalk grassland for 1983-84 showed that about 3030 ha of unimproved chalk grassland remained (Keymer & Leach 1990). The area of chalk grassland within SSSI currently represents about 50% of the total resource, compared to 79% of neutral grassland currently in SSSI. However, the absolute area of chalk grassland in SSSI is over seven times that of neutral grassland within SSSI.

Losses of neutral grassland are probably the most acute of any semi-natural habitat. A resurvey of Good's (1948) plant localities has shown that in the last 50 years to 1986, only 23% of grassland sites in Dorset remain unchanged and that grasslands show the greatest loss of any habitat (Horsfall 1990). The present study has shown that such losses continue in Dorset: 60% has been lost, or the interest damaged, in the last six years and the remaining grasslands are highly fragmented and small. A recent survey of *Molinia caerulea* acidic wet pasture of North Devon found a similar trend: 65% of the area outside SSSI had been lost in the last 5 years, also mainly to agricultural improvement (NCC unpublished). Loss of unimproved grasslands at a national level has also been on large scale (NCC 1984, Fuller 1987, RSNC 1989).

In our opinion, considering the scale of past losses and vulnerability of existing sites, the principle of minimum standards should apply in conserving Dorset neutral grasslands, i.e. all remaining unimproved neutral grasslands which meet the qualifying criteria on floristics and size should be protected by SSSI designation. Without this designation the resource will diminish at a considerable rate: from the data gathered here we can predict that all non-SSSI grassland could be lost within 10 years.

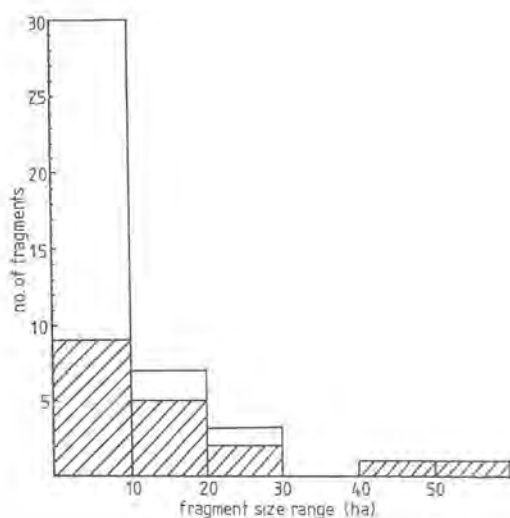


Fig. 2. Size distribution and status of unimproved neutral grassland fragments in Dorset, 1988/89. Hatched areas of bars represent fragments contained within notified Sites of Special Scientific Interest.

A key aspect of the SSSI system is that it provides a framework for consultation with the owner or occupier managing the land. Any activities potentially damaging to the special interest of a site are identified (e.g. ploughing, over- or under-grazing) and consultation must take place over these activities to ensure non-damaging levels of fertiliser application, stocking densities and, in the case of hay-meadows, cutting dates. Changes from less intensive to more intensive management regimes, common with recent trends in agriculture, can lead to the offer of a management agreement which seeks to maintain the conservation interest of the site, often by continuing existing (often traditional) management practices. The farmer is then eligible for financial compensation based on the profit foregone for not agriculturally 'improving' the grassland. The effectiveness of such management agreements can be assessed by monitoring the grassland sward for floristic changes. Damage due to overgrazing, for example, can be initially difficult to detect without detailed monitoring which can act as an early warning. Stocking rates could then be adjusted as part of the agreement, before irreversible damage is done.

TABLE 1  
Causes of Losses of Neutral Grassland in Dorset 1982/3-1988

Reason for loss	Area (ha)	Loss (%)
Agricultural improvement <sup>a</sup>	178	41
Inappropriate management <sup>b</sup>	112	26
Neglect <sup>c</sup>	141	33
Development <sup>d</sup>	0.6	0.1
Total	431.6	

<sup>a</sup> includes ploughing, reseeding, fertiliser and herbicide application

<sup>b</sup> impoverishment of floristic diversity by over- and under-grazing, horse grazing

<sup>c</sup> abandonment resulting in domination by coarse grasses and tall herbs or scrub invasion

<sup>d</sup> housing, road construction etc.

TABLE 2  
Areas of National Vegetation Classification Mesotrophic Community Types and Intermediates Of High Botanical Interest Recorded in Dorset

NVC Community <sup>a</sup>	Total area (ha)	Proportion of total area (%)	Number of sites
MG5	214	62	12
MG5/MG6	14	4	1
MG5/M25	18	5	1
MG8	1	0.3	1
MG10/M22	0.5	0.1	1
MG10/M27	7	2	1
MG11	5	2	1
MG11/MG13	44	13	1
MG11/M23	12	4	1
MG13	25	7	1
MG13/S22	3	1	1
Total	343.5		

<sup>a</sup> See Appendix 1 for community descriptions

TABLE 3  
Areas and SSSI Status of Subcommunities and Related Types of the *Cynosurus cristatus*-*Centaurea nigra* (MG5) Meadow and Pasture

NVC Type	Area (ha)	Area within SSSI (ha)	Proportion within SSSI (%)
MG5a	36	33	92
MG5c	19	5	26
MG5op <sup>a</sup>	82	58	71
MG5/MG6	13	13	100
MG5 <sup>b</sup>	64	59	92
Total	214	168	78

Because the successful operation of the SSSI system ultimately relies on voluntary cooperation, the protection afforded under the 1981 Wildlife and Countryside Act has not always prevented the loss or damage of high-interest unimproved neutral grassland. In Dorset, during the last four years, two SSSI have been damaged by agricultural activities and others are under threat from development. It therefore remains a fundamental problem that there is no more than 70 ha of unimproved, neutral meadows or pastures of botanical interest remaining outside the current SSSI series that could be considered as reserve or replacement sites if grassland SSSI sites are damaged or lost. Few existing statutory or other mechanisms offer such sites protection from destruction or damage. One mechanism is purchase of sites by voluntary bodies or local planning authorities; in practice this has happened on few sites. Another approach is the designation of Environmentally Sensitive Areas (Haigh 1990), but this applies only to specific, small (on a national scale) areas of England and Wales and is a voluntary scheme. A more recent Countryside Stewardship scheme offers financial support for the sympathetic management of, amongst other habitats, 'waterside landscapes' which include hay and water-meadows (Countryside Commission, 1991). Schemes of this nature may be very valuable in safeguarding those neutral grassland sites outside the present SSSI series.

#### ACKNOWLEDGEMENTS

We thank J. Jenkins, P. Chamberlain, J. Davis and J.R. White for field assistance and M.O. Hill, M. Palmer, J.J. Hopkins, F.R. Gomm and an anonymous reviewer for helpful comments.

#### REFERENCES

- Blackwood, J.V. & Tubbs, C.R., 1970 'A quantitative survey of chalk grassland in England', *Biological Conservation* 3, 1-5.
- Clapham, A.R., Tutin, T.G. & Moore, D.M., 1987 *Flora of the British Isles* 3rd. Ed., Cambridge.
- Countryside Commission, 1991 *Handbook for Countryside Stewardship*, Cheltenham.
- Fuller, R.M., 1987 'The changing extent and conservation interest of lowland grasslands in England and Wales: a review of grassland surveys 1930-84', *Biological Conservation* 40, 281-300.
- Good, R., 1948 *A Geographical Handbook of the Dorset Flora* Dorchester.
- Haigh, V.J., 1990 'Environmentally sensitive areas', *Landscape Urban Planning* 18, 235-239.
- Hill, M.O., 1979a *DECORANA - a FORTRAN program for Detrended Correspondence Analysis and Reciprocal Averaging* New York.
- Hill, M.O., 1979b *TWINSPAN - a FORTRAN program for arranging multivariate data in an ordered two-way table by classification of the individuals* New York.
- Hill, M.O., 1989 'Computerized matching of relevés and association tables, with an application to the British National Vegetation Classification', *Vegetatio* 83, 187-194.
- Hopkins, J.J., 1990 'British meadows and pastures', *British Wildlife* 1, 202-213.
- Horsfall, A., 1990 'Some effects of habitat change on the Dorset flora' *Dorset Proceedings* 111, 99-104.
- Keymer, R.J. & Leach, S.J., 1990 'Calcareous grassland - a limited resource in Britain', in Hillier, S.H., Walton, D.W.H. & Wells, D. (eds) *Calcareous Grasslands - Ecology and Management* 9-17.
- Malloch, A.J.C., 1990 *MATCH. A Computer Program to Aid the Assignment of Vegetation Data to the Communities and Subcommunities of the National Vegetation Classification* Lancaster.
- Nature Conservancy Council, 1984 *Nature Conservation in Great Britain* Shrewsbury.
- Nature Conservancy Council, 1985 *Focus on Nature Conservation No. 10: Botanical Survey and Monitoring Methods for Grasslands* Peterborough.
- Nature Conservancy Council, 1989a *Annual report 1989* Peterborough.
- Nature Conservancy Council, 1989b *Guidelines for Selection of Biological SSSIs* Peterborough.
- Nature Conservancy Council, 1990 *Handbook for Phase 1 Habitat Survey - a Technique for Environmental Audit* Peterborough.
- Perring, F.H. & Walters, S.M., 1976 *Atlas of the British Flora* 2nd Ed.
- Ratcliffe, D.A., 1977 *A Nature Conservation Review* Cambridge.
- Rodwell, J.S., 1991 *British Plant Communities. Volume 1: Woodlands* Cambridge.
- Royal Society for Nature Conservation, 1989 *Losing Ground. Habitat Destruction in the UK: a Review in 1989* Lincoln.
- Tansley, A.G., 1939 *The British Islands and their Vegetation* Cambridge.
- Wells, T. & Sheail, J., 1988 'The effects of agricultural change on the wildlife interest of the lowland grasslands', in Park, J.R. (ed) *Environmental Management in Agriculture. European Perspectives* 186-201.

## APPENDIX 1

Summary of NVC Mesotrophic Grassland and Related Types Recorded in Dorset Survey.

NVC Community	Constant species	Subcommunity
MG5 <i>Cynosurus cristatus</i> - <i>Centaurea nigra</i> meadow and pasture	<i>Centaurea nigra</i> <i>Cynosurus cristatus</i> <i>Agrostis capillaris</i> <i>Anthoxanthum odoratum</i> <i>Dactylis glomerata</i> <i>Festuca rubra</i> <i>Holcus lanatus</i> <i>Plantago lanceolata</i> <i>Trifolium repens</i> <i>Trifolium pratense</i>	MG5a <i>Lathyrus pratensis</i> MG5c <i>Danthonia decumbens</i> MG5op <sup>a</sup> <i>Oenanthe pimpinelloides</i>
MG6 <i>Lolium perenne</i> - <i>C. cristatus</i> pasture	<i>Cynosurus cristatus</i> <i>Lolium perenne</i> <i>Festuca rubra</i> <i>Holcus lanatus</i> <i>Cerastium fontanum</i> <i>Trifolium repens</i>	MG6c <i>Trisetum flavescens</i>
MG8 <i>C. cristatus</i> - <i>Caltha palustris</i> flood pasture	<i>Caltha palustris</i> <i>Cynosurus cristatus</i> <i>Anthoxanthum odoratum</i> <i>Cerastium fontanum</i> <i>Festuca rubra</i> <i>Holcus lanatus</i> <i>Leontodon autumnalis</i> <i>Poa trivialis</i> <i>Ranunculus acris</i> <i>Rumex acetosa</i> <i>Trifolium repens</i>	
MG10 <i>Holcus lanatus</i> - <i>Juncus effusus</i> rush pasture	<i>Holcus lanatus</i> <i>Juncus effusus</i> <i>Agrostis stolonifera</i> <i>Ranunculus repens</i>	MG10a <i>Juncus effusus</i> MG10b <i>Juncus inflexus</i>
MG11 <i>Festuca rubra</i> - <i>Agrostis stolonifera</i> - <i>Potentilla anserina</i> inundation grassland	<i>Agrostis stolonifera</i> <i>Festuca rubra</i> <i>Potentilla anserina</i>	MG11a <i>Lolium perenne</i>
MG13 <i>Agrostis stolonifera</i> - <i>Alopecurus geniculatus</i> inundation grassland	<i>Agrostis stolonifera</i> <i>Alopecurus geniculatus</i>	
M22 <i>Juncus subnodulosus</i> - <i>Cirsium palustre</i> fen meadow	<i>Juncus subnodulosus</i> <i>Calliargon cuspidatum</i> <i>Mentha aquatica</i> <i>Holcus lanatus</i> <i>Cirsium palustre</i> <i>Equisetum palustre</i> <i>Filipendula ulmaria</i> <i>Lotus uliginosus</i>	M22b <i>Briza media</i> - <i>Trifolium</i> spp.
M23 <i>Juncus effusus/acuteiflorus</i> - <i>Galium palustre</i> rush pasture	<i>Juncus effusus</i> <i>Holcus lanatus</i> <i>Galium palustre</i> <i>Lotus uliginosus</i>	M23b <i>Juncus acuteiflorus</i>
M25 <i>Molinia caerulea</i> - <i>Potentilla erecta</i> mire	<i>Molinia caerulea</i> <i>Potentilla erecta</i>	M25b <i>Anthoxanthum odoratum</i>
M27 <i>Filipendula ulmaria</i> - <i>Angelica sylvestris</i> tall-herb fen	<i>Filipendula ulmaria</i>	
S22 <i>Glyceria fluitans</i> swamp	<i>Glyceria fluitans</i>	

<sup>a</sup> this variant is not recognised by NVC.



## Dorset Archaeology in 1991

### DEPOSITS OF COLLUVIUM AND BURNT FLINT IN THE FROME VALLEY, FRAMPTON, DORCHESTER

Drainage channels cut on the Frome flood-plain immediately south of the A356 at the east end of the village of Frampton in July 1981 revealed areas of burnt flint sealed by colluvium (centred at SY 63279476). The writer is indebted to Martin Bell for visiting the site and advising on the nature of the exposed deposits. The delay in publication and any shortcomings in the following note are entirely the responsibility of the writer.

The site was in an area of light woodland opposite 3 Dorchester Road and extending eastwards to Peacock Lodge and the driveway leading to Frampton House. The observations were made within an area of 60m east-west and 20 m north-south in the western end of the wood, close to the road. The flood-plain here lies at 75 m OD, approximately 1.5 m below the road level. The present channel of the Frome passes 100 m to the south, the water table at the time of recording lying 0.80 m below the ground surface. The road follows the foot of a steep chalk hillside rising to 129 m OD 600 m to the north, the lower part of this slope now occupied by the row of properties facing onto the road's north side. Traces of a major series of strip lynchets survive within these properties and on the higher ground. Four trenches were observed, trench 1, more than 60 m long, starting at the western end of the wood and running parallel to the south edge of the road and 5 m from it. Trenches 2 - 4 were set at right angles to it and were, respectively, 7, 34 and 60 m from the wood's western end.

At the western end of trench 1 and in trench 2 some calcined flint was observed on the spoil heap but the sections were not clear enough to show their context. In trench 3, between 9 and 16 m from the road, the sequence of deposits recorded consisted of 0.25 m of disturbed soil overlying 0.30 m of iron-stained grey-brown clay or gley and iron stained angular flint nodules. This in turn sealed 0.20 m of dark grey angular sand and some peaty soil sealing clean sand and illsorted gravel in the base of trench. The latter dipped to the south below the present water level.

In trench 1, 44 m from the west end of the wood and opposite the entrance of 3 Dorchester Road, a major concentration of calcined flint had been disturbed apparently associated with the dark organic soil. The clearest section was observed in trench 4 between 8 and 12 m from the road. Here 0.20 m of topsoil and leaf-mould sealed a brown gley 0.25 m thick and containing stained flint nodules in its base. Below this was a 0.05 m thick layer of grey sand, gravel and much calcined flint which also filled a shallow scoop 0.75 m wide by 0.30 m deep penetrating the underlying deposits. The latter consisted of 0.15 m of dark sand, peat, wood and branches overlying clean grey sand and gravel in the base of the trench.

Deposits of calcined flint had been disturbed for some distance further south. The layer of gley and flints had at one point, approximately 12 m from the road, been cut by a feature filled with chalk blocks, possibly a foundation of unknown date. Examination of sections and spoil heaps produced no evidence of cultural material.

These deposits should be viewed in relation to observations on the site of 3 Dorchester Road opposite. Construction of an extension to the rear of the house, 80 m uphill from this site, revealed the natural to be Coombe Rock to a depth of 2 or 3 m. Nearer the valley the lowest of the positive field lynchets, now forming the 2 m high bank on the north side of the road, had been cut by the access ramp to the house revealing the upper stratigraphy of the lynchet. This comprised, below 0.30 m of topsoil, another 0.20 m of grey-brown soil and comminuted flint which sealed more than 0.80 m of closely packed angular flint rubble and some brown soil. Some calcined flint and flint flakes have been recovered by the writer from the upper grey-brown flinty soil and in the past Roman and medieval pottery have been recovered from the garden soil (Farrar 1965).

These observations suggest a sequence commencing with the deposition of wood and other organic material in a waterlogged environment on the valley floor. On this surface three areas, each perhaps 5-10 m in diameter, were thereafter occupied by dumps of calcined flint, presumably from fires at these spots, although in the sections exposed no obvious charcoal deposits were noted. Thereafter an extensive deposit of clay-like colluvium and flint nodules was deposited over this, presumably the result of erosion of the adjacent

chalk hillside. Later waterlogging caused the iron-staining or gleying of this deposit.

Although undated, this event is likely to have fallen in the prehistoric period, preceding the formation of the lynchet system. The latter should belong with the farming activities of the medieval village, although the latter could have masked an earlier Iron Age or Roman period arable field system, such as is faintly visible 500 m to the north on the north-east side of the spur below the line of the Roman road.

Similar finds of colluvium sealing burnt flint deposits have recently been observed elsewhere in Dorset, for instance in a side valley of the Stour at Blandford and on the Stour flood plain at Iwerne Steepleton, below Hambledon Hill (Green 1985; Mercer 1984). The latter site, in particular, shows episodes of river erosion and several phases of human industrial activity. Such deposits seem to have occurred where felling and burning of the native woodland on steep valley sides has been followed by an erosion phase and the deposition of some palaeosol and bedrock as colluvial deposits in the valley below (Fisher 1991, 14).

Various interpretations of the burnt flint scatters have been proposed, from the presence of 'sweat lodges' to cooking or industrial activities; in seeking an explanation such valley-floor deposits near running water should perhaps be distinguished from the downland burnt scatters, as at Chettle (this volume).

Hopefully other observations of such deposits may allow them to be accurately dated and the activities associated with the burnt flint scatters to be more closely defined; perhaps these chronicles of destructive human impact on the natural environment will reinforce warnings about the continuation of such activities in the remaining tropical forests of today's world.

Christopher Sparey-Green

Farrar, R.A.H., 1965, 'Recent Discoveries and Accessions' in *Dorset Proceedings* 87 (1965) 108.

Fisher P.F., 1991, 'The physical Environment of Cranborne Chase' in *Papers on the Prehistoric Archaeology of Cranborne Chase*, Oxbow Monographs 11. Barrett, J., Bradley, R., Hull, M. (Eds).

Green, M. T., 1985, 'A Burnt Deposit at Blandford', *Dorset Proceedings* 107, 153.

Mercer, R., 1984, 'Everley Water Meadow, Iwerne Steepleton, Dorset', *Dorset Proceedings* 106, 110-111.

### A COLLUVIAL DEPOSIT BELOW MELBURY HILL, COMPTON ABBAS

A farm track cut along the south flank of the spur linking Melbury Hill to Compton Down on the east revealed, at some time shortly before the writer's visit in 1988, a section across a shallow gully descending the steep hillside. The feature lay at approximately 180 m OD, 80 m east of and below the south end of the cross-dyke (ST 878195: Monument: Compton Abbas 12; RCHM, 1972, 14-15).

The gully was 6 m wide and had only been exposed in its upper levels to a depth of approximately a metre on the uphill side of the track. The stratigraphy was uniform across the exposure, the layers thicker and dipping towards the centre. The visible fill consisted of 0.25 m of topsoil sealing 0.15-0.45 m of coarse chalk rubble and grey soil which graded into a further deposit of fine grey soil over fine chalk rubble grading into chalky loam, the latter deposits of unrecorded depth and only visible towards the eastern and western ends of the section where they rose above the level of the track.

From the base of the topsoil immediately over the uppermost fill was recovered an unabraded body sherd of coarse pottery. This was in a red brown fabric with black core and moderate angular flint inclusions up to 0.5 mm in diameter. A row of 3 or possibly 4 irregular imprints 3 mm in diameter and 8 mm apart are visible on the exterior, descending at a shallow angle over a slight concavity in the sherd's profile. Such fabric and the decoration, which had possibly been made with a stick or fine bird bone, would be compatible with a date in the Bronze Age, probably early in that period.

The feature did not obviously link with the earthworks of the cross-dyke and is presumed to be a shallow natural gully which, even on such a steep hillside, retained a colluvial deposit of anthropogenic origin dating to the early Prehistoric period.

Christopher Sparey-Green

RCHM, 1972, *An Inventory of the Historical Monuments in the County of Dorset Volume 4, North Dorset*.

### A BURNT FLINT SITE AND FLINT IMPLEMENTS FROM CHETTLE

On a visit in autumn 1990 to the Chettle Long Barrow (Monument Chettle 15, RCHM 1972, 13; Chettle II, Grinsell 1959) an area of dark soil and calcined flint, raised slightly above the level of the ploughed field, was noted approximately 50 m south east of the south end of the barrow (ST 93781352). The east ditch of the long barrow was visible as a soil mark, a slight hollow intervening between its south end and this feature. The thin scatter of burnt flint covered an area 20 m in diameter and from a rapid examination revealed no obvious scatter of charcoal or cultural material other than a flint scraper. This bore no trace of burning and was formed from a discoidal flake c. 50 mm in diameter and 5 mm thick, heavily patinated and with slight iron stains on its edges.

Nearer Chettle House and 250 m north of the Chettle long barrow (Monument Chettle 16, RCHM 1972 13; Chettle I, Grinsell 1959) a flint core was recovered from an eroded pasture area. This was of conical or 'tortoise' form, c. 50 mm in diameter and 25 mm high. The flint was patinated a light grey blue colour, rolled and heavily iron stained on all edges.

Other scatters of calcined flint have been noted on the downland of Cranborne Chase at, for instance, Tollard Farnham, where the burnt material was associated with a flint cairn of uncertain function and a Neolithic flint industry (Bowden and Tingle 1984).

Christopher Sparey-Green

Bowden M. and Tingle M., 1984, 'Hand in Hand Flint Cairn Tollard Farnham, *Dorset Proceedings* 106, 109-110.  
Grinsell L.V., 1959, *Dorset Barrows*.  
RCHM 1972, *An Inventory of the Historic Monuments in the County of Dorset, Volume 4, North Dorset*.

### WEST STAFFORD BYPASS EVALUATION

An archaeological assessment of a 1.2 km stretch of the proposed route of the West Stafford Bypass was carried out in April 1991 (NGR SY 7244 8938 - SY 7358 8937). The proposed route passes to the south of the village where it encroaches on two ring-ditches visible on aerial photographs. West Stafford is situated in an archaeologically rich area 3.5 km east of Dorchester, on the south edge of the valley of the River Frome.

Worked flint occurred throughout the fieldwalking area with two main concentrations: a sub-rectangular spread approximately 20 m across spanning the entire width of the corridor towards the west end, where it corresponded roughly to the position of the ring-ditches; and a less clearly defined spread covering a 90 m length further to the east (Fig. 1). A chisel arrowhead was the only diagnostic tool recovered and the assemblage seems to be mixed later Neolithic/Bronze Age in date.

Only five sherds of Romano-British pottery were recovered, including two sherds of Black Burnished Ware of 3rd/4th century type, together with a small number of fragments from 12th-14th century cookpots and a quantity of post-medieval domestic earthenwares dated prior to c. 1750.

The only other find of note is a copper alloy strap-end formed of two key-hole shaped plates, nominally 44 x 22 mm, soldered around the edges to a 2 mm thick spacer strip. The piece is similar in construction to medieval examples from Exeter and Thetford with given date ranges of 13th/14th century, though the form is quite different.

The work was funded and commissioned by Dorset County Council Transportation and Engineering Department in liaison with the office of the County Archaeologist. Wessex Archaeology are grateful for the assistance and co-operation of Mr Mike Harden, who also negotiated access with the landowner, and to the County Archaeologist Mr Laurence Keen.

Michael J. Heaton  
Wessex Archaeology

### WEST STAFFORD BY-PASS EXCAVATION: INTERIM NOTE

In advance of construction of the West Stafford By-pass, to the south of the village, an excavation was carried out, during September 1991, of a crop-mark site centred on SY 7246589363 (SMR ref: West Stafford 28 and 29). The excavation revealed an incomplete 'ring ditch', interpreted, despite the absence of burials, as the vestiges of a funerary monument of Neolithic or Bronze Age date. An associated length of ditch, possibly part of a further similar monument, was also investigated.

The 'ring ditch' had been considerably truncated by both ancient and more recent ploughing and, in one area, the ditch had been totally removed by an extensive chalk-cut feature, tentatively interpreted as a

quarry.

A full report is being prepared for publication.

Julian Richards  
AC archaeology

### HEWISH DRILL SITE, PORTESHAM

The evaluation of an exploratory drilling site at Hewish was carried out during April 1991. The area investigated comprised a 1 ha SY 643844 site adjacent to the Pucksey Brook and a 450 m section of proposed new access track south to Hewish Hill.

Fieldwalking within the area of the drill site produced 1 flint and 2 chert flakes of uncertain date. Machined trenches were excavated along the track, comprising a 5% sample of the area, and revealed evidence for Bronze Age settlement on the top of Hewish Hill at SY 64308394. A single feature of this location contained 8 sherds of prehistoric pottery, seven flint flakes and three conjoining fragments of a sandstone saddle quern.

A detailed evaluation report is held by the County Sites and Monuments record.

Julian Richards  
AC archaeology

### STAGG'S FOLLY ENGINEER'S TIP A37 ROAD IMPROVEMENT, SYDLING ST. NICHOLAS

A watching brief was carried out during September 1991 to monitor the stripping of topsoil from a field east of the A37 centered on ST60950210. The area stripped was to be used as the engineer's tip where earth removed during road widening could be dumped.

The A37 at this point is presumed to follow the course of a Roman road, although its presence was not detected. The collection of surface finds contained 27 prehistoric flint flakes, and a further 6 flakes were found in association with an area of chalk rubble which appeared to be a natural feature.

A detailed report of the observations made during the watching brief will be deposited with the County Sites and Monuments record.

Philip Bennett  
AC archaeology

### THE STOUR VALLEY GRAVELS PROJECT 1991

#### Interim Report: Strawberry Field

A further 3.5 ha of soils were stripped prior to gravel extraction. This was conducted under constant archaeological supervision and with the co-operation of the minerals operator Drinkwater Sabey Ltd. Observed subsoil features were Bronze age, Romano-British and undated.

Bronze Age: Two pits (SZ 04539742 and 04549742) contained Bronze age pottery and flintwork. A further four pits were associated by proximity but were otherwise undated.

Romano-British: A small pit (SZ 0449 9726) was recorded.

Undated: An isolated pair of pits was recorded (SZ 04499729).

The fieldwork was carried out by the authors, Mr K. M. Moore and Mr C. Couling.

D. R. Watkins and K. W. Collins  
Borough of Poole Museum Service.

### OBSERVATIONS ON A PIPELINE: STURMINSTER MARSHALL TO BLANDFORD ST MARY

An archaeological watching brief was undertaken during construction, by Wessex Water, of a 7.5 km length of water main between February and April 1991. The pipeline route crosses the parishes of Sturminster Marshall, Spetisbury, Charlton Marshall and Blandford St Mary (NGR ST 9365 0029 - ST 8885 0550), broadly following the line of the A350 Poole to Blandford road on its south side and, for much of its length, utilising the disused railway line - either running alongside or within the railway corridor - thus minimising the archaeological impact. However, the route crosses, or passes close beside, several known monuments: the Roman road from Badbury Rings to Dorchester (Dorset SMR 494); traces of medieval strip lynchets around Spetisbury (Dorset SMR 29c); Spetisbury Rings hillfort (Dorset SMR 30, SAM 99); and a Benedictine priory cell (Monks Mulberry House and walled garden; Dorset SMR 7).

A moderate level of archaeological activity was revealed. Small collections of late Neolithic/Bronze Age worked flint were recovered

along most parts of the route with the greatest densities coming from the southern end where the pipeline runs closest to the River Stour. One small pit (ST 8970 0395) produced sherds of a straight-sided Middle Bronze Age urn, containing a cremation, of a type common within the Avon/Stour valley area (Ellison 1975, type 6).

Two ditches located close to Spetsisbury Rings (ST 9135 0218) could not be dated but their profiles and dimensions suggested that they were probably of late Iron Age date and most likely associated with the hillfort.

The main focus of medieval/post-medieval activity was in the area of the Benedictine priory cell. A rectangular structure, 4.80 x 5.0 m

(minimum), c. 30 m north of the priory cell wall survived as a continuous chalk-filled foundation trench 0.80-1.0 m wide, 100-150 mm deep, forming three sides of the structure (ST 9120 0234). It contained mostly post-medieval rubble with a single 12th/13th century sherd from the subsoil layer below. A series of pits and postholes nearby may have been associated. It seems likely that this structure was associated with the priory cell though it cannot be closely dated.

Carrie M. Hearne  
Wessex Archaeology

Ellison, A. 1975. *Pottery and Settlements of the later Bronze Age in southern England* (unpubl. Phd thesis, University of Cambridge).

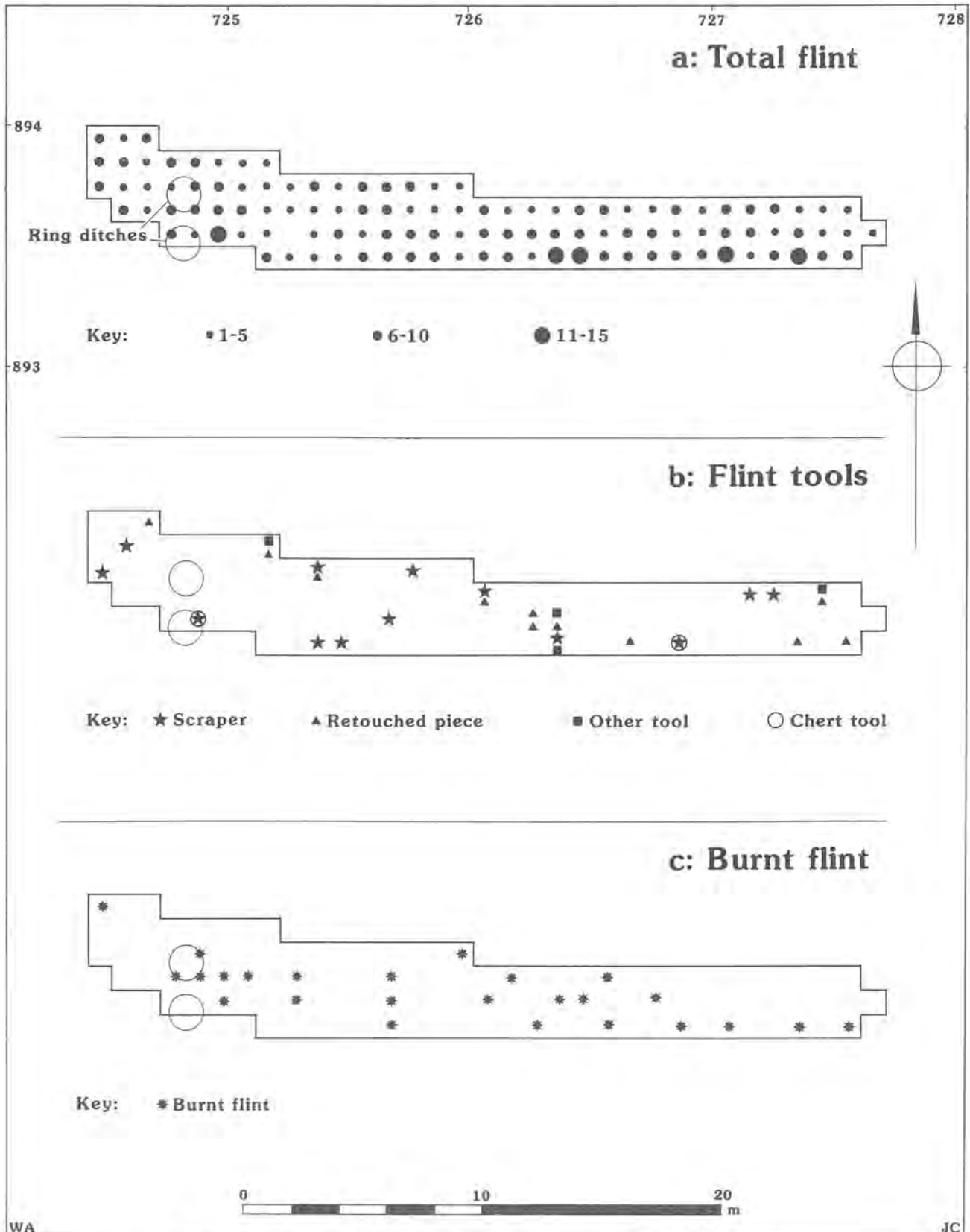


Figure 1. West Stafford Bypass Evaluation: distribution of worked and burnt flint

## ROUND BARROWS AT SQUIRREL'S COTTAGES, EAST HOLME

The evaluation of two round barrows by limited trenching following a contour survey was undertaken prior to the possible excavation of the group of three in advance of ball clay quarrying. Both had been subjected to 19th century excavations which located 'no remains' in Barrow 1 (Fig. 2) and 'only ashes' in Barrow 2.

The barrows (NGR SY 9066 8528; Dorset SMR 698) proved to be in good condition, built of turves capped with a relatively thin skin of sand dug from shallow surrounding ditches. The ditch of Barrow 1 had an external diameter of c. 14 m, was 1.89 m wide and up to 0.55 m deep, with a gently sloping, rounded profile. There was no intervening berm between its inner edge and the barrow mound. The ditch of Barrow 2 was similar to that of Barrow 1, 2.00 m wide, 0.60 m deep, with a very approximate external diameter of 12 m. The positions of the 19th century pits were established. The only finds were a handful of undiagnostic worked flints and some burnt flint.

The barrows had been built on intact, untruncated old land surfaces, the soils of which were well-drained humo-ferric podzols overlying Bagshot Beds, Pollen, abundant and well-preserved in both the old land surfaces and the turf stacks, indicated that the environment in which they were constructed was already one of heathland, dominated by heathers, with hazel scrub but only a very few trees, all of them deciduous.

The project was funded by English China Clays International Ltd.

Frances Healy  
Wessex Archaeology

## STURMINSTER MARSHALL

The Oxford Archaeological Unit carried out exploratory trench digging in fields to the west and north of St. Peter's church ST 950004 between August and November 1991 in advance of the construction of a flood-relief bank by the National Rivers Authority. This revealed flintwork of both later Mesolithic/earlier Neolithic and later Neolithic/early Bronze Age date, the later flintwork coming from pits, postholes and gullies belonging to an extensive settlement beside the river Stour.

A sequence of medieval boundary ditches and smaller features dating to the 12th-13th century was found, and these were overlain by scattered dry-stone walls and a possible building (all demolished to foundation level) dated to the 14th century and later. Amongst the medieval features were one or two that appear to be earlier, dating from the Norman or Late Saxon period.

West-east graves were found west of the present churchyard boundary, most appearing to date from the 12th and 13th centuries. Some human bone was also recovered from the earliest medieval contexts.

The OAU is grateful to the NRA and to the staff of Frank Graham, their consulting engineers, for their support. It is hoped that a full report funded by the NRA will appear in a future volume.

Tim Allen  
Oxford Archaeological Unit.

## BOYNE HOLLOW WATER PIPELINE

ST87452145 to ST87862270 and ST87672318 to ST87502392

The observation of the laying of a water pipeline from Boyne Hollow, Cann, Shaftesbury, to Littledown some three miles to the north in Wiltshire was implemented throughout September and October 1991. Two stretches of the pipeline lay in Dorset. A further note will be written covering observations made in Wiltshire.

During the course of the watching brief, a variety of surface finds were collected ranging from prehistoric worked flint to medieval pottery. Near Boyne Hollow, a feature was observed in the pipe trench (Grid ref ST87422188); this was a layer of an earlier plough soil lying beneath the modern topsoil. The buried soil was visible for 15 m as a grey-brown sandy silt which contained 14 sherds of medieval pottery. Twelve of the sherds can be dated to the 13th and 14th centuries while the remaining two sherds represent finer wares which might belong to the 12th century.

A detailed report of the observations made during this watching brief will be deposited with the County Sites and Monuments record.

Philip Bennett  
AC archaeology

## A SECTION OF COMBS DITCH, CHARLTON MARSHALL

The laying of a water main in July 1988 through the fields bordering

the north-west side of the A354 on the Whatcombe Down, east of Winterborne Whitechurch, provided an opportunity to observe a section across Combs Ditch which here forms the boundary between this parish and Charlton Marshall (ST 85770182; Monument Winterbourne Whitechurch 19, RCHM 1970, 313-314).

The pipe trench crossed the levelled earthwork at the point where a hedge following its course met the hedge along the north-west side of the road. The trench approached from the south-west and then turned at this spot to continue north-north-east; the resultant exposure of the buried ditches was thus in a trench not only roughly cut by machine but at a slight bend in its course. Two buried features were observed in both sides of the trench, the larger Ditch A with its centre 3 m north of the hedge line, the smaller Ditch B centred 1 m south of the hedge. As far as could be judged both features were running parallel to the field-hedge of which the course north-westwards presumably followed the line of the levelled boundary. The contractor's trench was approximately 1 m wide by 1.5 to 1.8 m deep. The pipe was already in place, the upper surface serving as an approximate datum in the measured sketch section made of the south-east side of the trench (Fig. 3).

With the removal of the hedges the upper part of the section was somewhat disturbed, but the upper stratigraphy sealing both ditches appeared to consist of three main deposits. The uppermost, of fine brown slightly sandy silt, 0.25 m thick, was the cultivated soil of the arable field. This sealed a discontinuous spread of small chalk rubble up to 0.10 m thick which coincided approximately with the hedge-line and sealed a band of grey-brown chalky loam 0.35 m thick extending over and beyond both ditches.

Allowing for the angle of the trench Ditch A was approximately 5 m wide, only the upper 1.10 m being visible from a projected total depth of perhaps 2 m. It appeared to be a symmetrical profile. The uppermost fill consisted of a lens of fine light brown loam 0.30 m deep near the centre line to the north of which was a thin deposit of small flint rubble. The main fill below this was up to 0.71 m of fine chalk rubble, homogenous across the width of the ditch except near the western lip where it overlapped a concentration of small flints which extended beyond the limits of this ditch to seal the fill of Ditch B. This upper fill overlay a thinner band of fine brown loam extending down the eastern face of Ditch A to seal the fine chalk rubble forming the lowest visible fill.

Ditch B was completely exposed, being only 1.25 m wide at its top and 0.85 m deep. In profile it was asymmetrical, the north side dipping less steeply than the south to a flat base 0.30 m wide. The upper fill beneath the flint rubble scatter already noted was a lense of fine brown chalky loam. The main fill of fine chalk rubble graded into coarse angular rubble in the base, the latter much looser packed and with frequent air gaps.

Neither ditch produced any occupation debris or dateable finds from examination of the sections. All traces of any associated bank had been removed. The asymmetrical upper fill of Ditch A suggested erosion from its north side, the result perhaps of cultivation rather than erosion of a bank since, to the south east of the road, the bank has been recorded to be on the west side. The asymmetrical profile of Ditch B suggested erosion of its north side but the lower fill indicated erosion into it from the west, perhaps the site of its respective bank.

From comparison with the surveyed earthworks and the one recorded section, the dimensions of Ditch A fall within the range observed elsewhere although slightly narrower than those quoted for the north-west end (RCHM 1970, 313). The width of approximately 5 m and the projected depth of between 1.5 and 2.5 m are comparable to figures for the published section but the upper fill described here coincides with the hollow of the earthwork's profile there. No buried turf line survived in the present section but the lower level of fine brown loam would correspond to the existing turf in the 1965 section.

The present site, close to the road and bounded by arable had been subjected to considerable levelling and erosion, enough to have totally removed the bank which, by analogy with the better preserved sections to the south-east, would have lain to the west of Ditch A. Ditch B would thus have lain at the front of the bank, coinciding with the marked ledge or berm cut into the lip of the ditch and the rampart front in the published section. The present feature is of a totally different character and apparently earlier since the flint layer sealing its levelled top dropped down into the upper fill of A. This stratigraphical evidence would suggest it was not a slot for timber revetment of the front of the bank and no evidence for such was visible in section. Although only a slight feature, it is more likely that this formed part of a pre-existing boundary incorporated in the main earthwork. Any associated bank appeared to have suffered the same fate as the main earthwork.

In the earlier section the complex turf lines in the bank had been interpreted as evidence of a long development, starting in the early

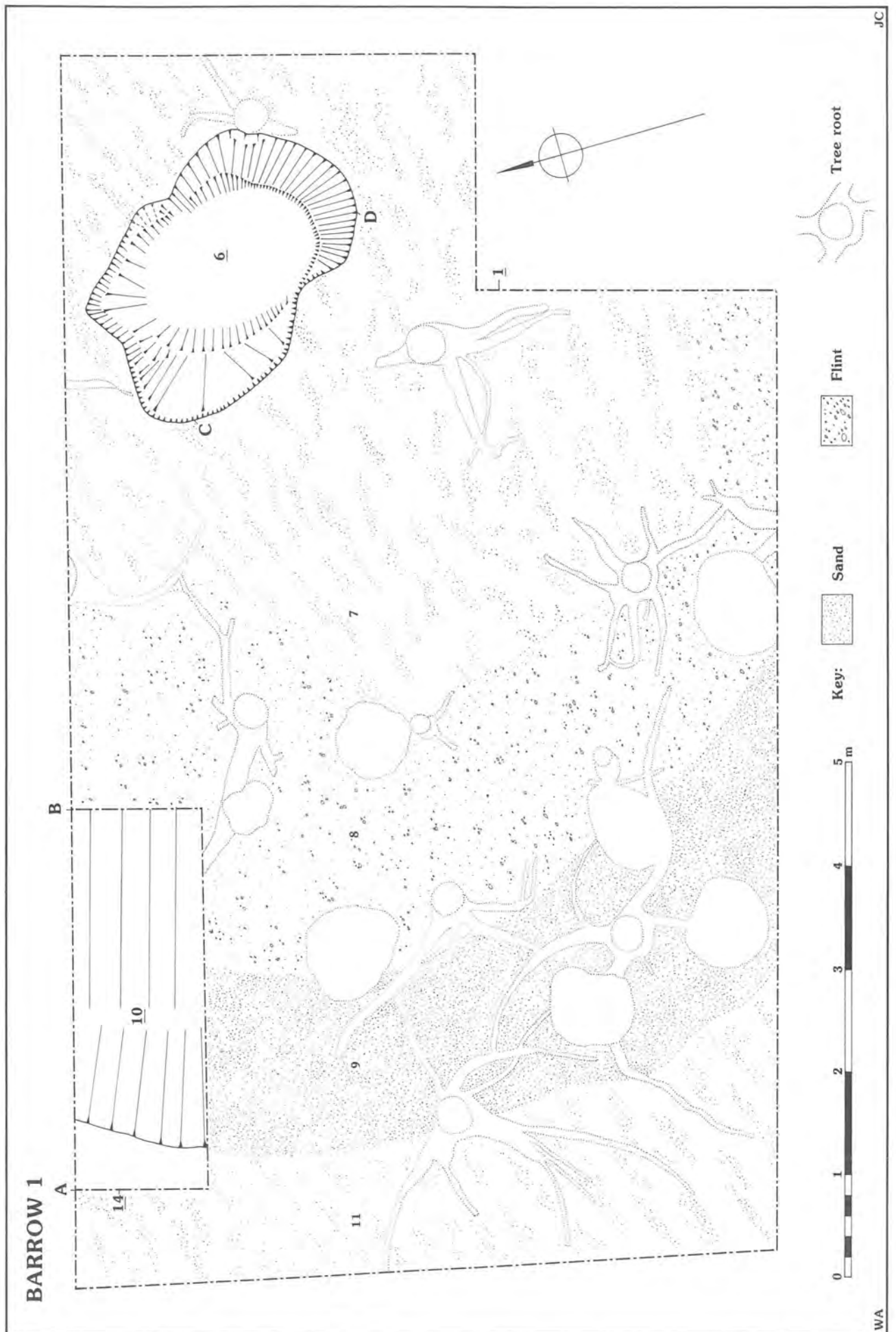


Figure 2. Squirrel's Cottages Barrow 1: part of the south-west quadrant, showing previous excavation (6), evaluation section through ditch (10) and root disturbance.

Iron Age, but until now no preceding ditch had been exposed; presumably any such feature had been dug away by the main ditch to the south-east or by the step in the berm. By analogy, the slighter earthwork here could be an earlier prehistoric linear ditch or 'ranch' boundary. It suggests that Comb's Ditch not only crossed areas of Celtic fields but, in part at least, followed an earlier boundary, just as Bokerly Dyke replaced Grim's Ditch on part of its course (Monuments Pentridge 16 and 17, RCHM 1975; Bowen 1978, 122). However, Ditch B was a much slighter feature than the latter and it could be that its presence here was purely coincidental; further fieldwork and survey might identify its course to the north-west, especially if it diverged from the later boundaries' line. The present record proves again that linear boundaries have a complex structure that varies along their length, no one section ever revealing all.

Christopher Sparey-Green.

Bowen, H.C., 1978, 'Celtic' fields and 'ranch' boundaries in Wessex' in Limbrey S. and Evans J.O. (eds.) *The Effect of Man on the Landscape: The Lowland Zone*, CBA Research Report 21 (1978), 115-123.  
 RCHM 1970, *An Inventory of the Historical Monuments in the County of Dorset, Volume III, Central*.  
 RCHM 1975, *An Inventory of the Historical Monuments in the County of Dorset, Volume V, East*.

### EXCAVATION OF ROMANO-BRITISH BUILDING REMAINS AT SHAPWICK

#### Interim Report

This site was identified following the ploughing of the field in October 1990 (Papworth 1990, 117). A small evaluation excavation was carried out in August 1991 to determine the survival of deposits.

Two trenches 30 m long and 2 m wide were excavated parallel to each other, 110 m apart and aligned with the south-east field boundary. Both crossed concentrations of building debris and the north-west trench (B) was centred on a scatter of tesserae. The plough soil was 0.2-0.24 m deep and the finds within it were abraded indicating that they had been disturbed by the plough on numerous occasions. Both trenches crossed a low ridge and plough damage was most severe on the ridge crest. Stratigraphic survival increased on the lee slopes of the ridge. An abandonment silt up to 0.3 m deep survived here and contained occasional sherds of medieval pottery mixed with Romano-British material. This lay above building debris of the 2nd-4th centuries.

In trench A the flint footings of a wall, 0.6 m wide, were revealed. A

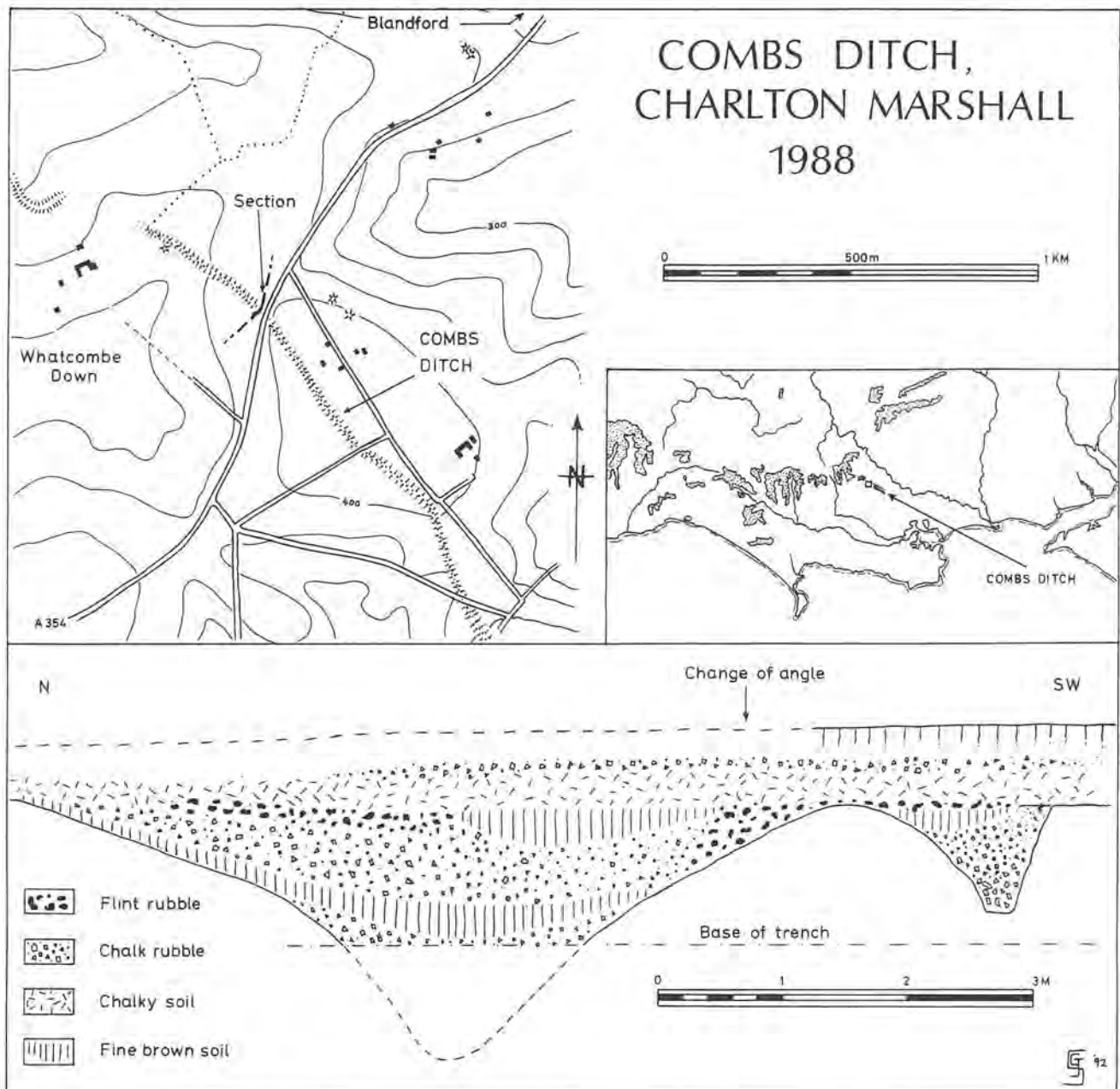


Figure 3. Combs Ditch, Charlton Marshall: location, site plan and section.

nest of Black Burnished ware bowls, truncated by the plough, had been buried on the north-east side of the wall.

Further south-west in trench A were two shallow trenches 0.5 m wide and 0.2 m deep, which converged to form a right angle. They were packed with large blocks of chalk rubble mixed with occasional fragments of Romano-British pottery. The south-western one cut a large Romano-British coarse-ware bowl, 0.6 m diameter, which had been set in the ground and later truncated by the plough.

At the south-west end of the trench A part of a pit was revealed which was 3 m wide and 2 m deep. It contained numerous large fragments of Black Burnished ware of late 2nd-early 3rd century date and also a large quantity of smelting slag.

In trench B, at the north-east end, was the robber trench for another flint wall. This cut a deposit of tesserae and painted plaster. The painted plaster included fragments of red, blue, yellow and black designs.

Numerous large fragments of late 4th century pottery were recovered at the opposite end of the trench. Below this was a gravel surface which covered the top of a pit which was not excavated.

The evidence indicates that the site was extensively robbed in the medieval period. The finds confirm that the occupants of the building in the vicinity of the trench B lived in some style. Industrial activity is indicated by the presence of slag in the vicinity of trench A but numerous tesserae were also found here.

The trenches and small finds were plotted using an EDM as were the scatters of building debris revealed after the autumn ploughing.

The site is affected by metal detector activity and night patrols have been organised by the National Trust to deter such activity. Grid references for the excavations can be obtained from National Trust, Kingston Lacy and Dorset County Council Sites and Monuments Record.

Many thanks to those who helped with excavation and survey which was supervised by Nancy Grace. Thanks are also due to Dr Anna Bennett who identified the slag.

Martin Papworth  
The National Trust

Papworth M, 1990, 'Romano-British building remains at Shapwick', *Dorset Proceedings*, 112.

## EXCAVATIONS IN THE PARISH OF COMPTON VALENCE

### Interim Report

During June and July 1991 excavations were carried out by students of Bournemouth Polytechnic near to the Roman Road in the south-west corner of the parish, at SY 576 937. The excavation was directed by W. G. Putnam, with the kind permission and assistance of Mr T. N. Chick of Manor Farm, Compton Valence, and his Farm Manager, Mr P. Crowter. In the archaeological record the site is known as The Bend, in the absence of any named feature close by.

In *Dorset Proceedings* vol. 87 for 1965, page 81 Jeffrey Radley describes research by the Royal Commission on Historical Monuments leading to the discovery of a 12 acre fortified site presumed to be of Iron Age date, lying astride the Roman road at this point. His figure 1 shows the location and plan of the enclosure, and other features mentioned in this note.

A section cut with local assistance in 1964 west of the apparent entrance indicated the substantial nature of the earthworks, though the bottom of the ditch was not reached. No finds were made here, but five Iron Age sherds were found on the surface inside the entrance a little further east. Another feature was the discovery of substantial quantities of 3rd and 4th century Romano-British pottery in an area east of the dew pond and just beyond the eastern limit of the enclosure.

The 1991 excavation aimed to investigate the nature of the Romano-British occupation, and to examine the relationship of the Roman road to the enclosure.

### The Roman Road

The Roman road is here following the chalk ridge which extends from Dorchester and ends near Eggardon some four kilometres to the west of the excavation site. It stays as close to the high ground as is consistent with following a direct course. This is the road presumably built by Legio II Augusta as the link to its fortress at Exeter, and is likely to have been laid out essentially on military criteria. It is possible that between Dorchester and Eggardon it is following a pre-existing native ridgeway. However, as the route followed is almost certainly that which would have been taken on military grounds in any case, it is difficult to prove a native origin.

The behaviour of the road at 'The Bend' is however puzzling. It approaches on a 1.5 km straight alignment from Dorchester (587 925 to 578 936). At this point it makes a 55° turn to point nearly due west.

Surprisingly it turns in a hollow, rather than on the highest point as it does elsewhere on this stretch. What is more, this takes it on an apparent collision course with the 'Iron Age' enclosure described above, and makes it impossible to see anyone approaching from the west. As a result it was apparently necessary to level the rampart and fill in the ditch, with consequent trouble from subsidence. Had the road continued on its previous alignment for another 200 m, it could have turned on the higher ground and avoided the enclosure altogether.

The first result of the recent excavation was to show that the edge of the flint road survives well in the side of the field to the north. At the point where the enclosure was presumed to have crossed the line, it was entirely clear that no bank and ditch ever existed, ie the road passed through an entrance in the enclosure. This would make sense of the unusual route of the road at this point, if it was following a native track which also passed into the enclosure. It is of course not yet clear what happened at the western end where the road appears to cut the enclosure as it emerges again. However, neat though this explanation of the anomaly is, it must not be forgotten that the date of the enclosure is not proved, and it is also possible that it is later than the construction of the road, deliberately sited to enclose a section of the road in order to control it.

The nature of the enclosure ditch was tested by a part section 10 m west of the dew pond, but the bottom was not reached, and it was abandoned in a flooded state after heavy weather at the end of the excavation.

The dew pond mentioned by Jeffrey Radley (5755 9366) is now seen to lie in the terminal of the enclosure ditch, a natural site for such a pond. It may well have been a natural pond before it was artificially lined.

### The Roman Finds

Some Roman finds were still present, in an area of dark soil centred on a point some 20 m east of the centre of the pond.

Excavation revealed a shallow ditch running north-south draining into the ditch of the Roman road. The shallow ditch was cut by an area approximately 6 x 3 m in size, where the ground had been dug to create a small hollow. There were no structural features in or around this hollow, but it and the adjacent length of north-south ditch had been filled with debris of presumed late Roman date. This included ash and smelting waste, together with quantities of pottery, mostly in large pieces, and with some pots represented by a majority of their sherds. The pottery is as described by Jeffrey Radley, and makes a sizeable and valuable group. It will be published after further work, together with identification of the slag.

In the absence of structures (the ditch could only be traced for about 25 m north from the road) the only practicable interpretation is of rubbish dumped in a disused hollow in the corner of a field.

### Future work

There are no plans for further work at present. The Roman deposit was completely excavated, and any attempt to date or further define the enclosure would require large scale work, which even then might be unsuccessful.

The author is grateful for the invaluable assistance and advice of John Bailey and Dinah Austin, who took part in the original work with Jeffrey Radley.

W. G. Putnam  
Bournemouth Polytechnic.

## THE IRON AGE AND ROMANO-BRITISH SITE AT BUCKNOWLE FARM CORFE CASTLE

In the final season we returned to the first field and the main domestic buildings, where two areas were selected for excavation.

The first of these was the remaining portion of the south wing, largely cleared in the previous three years at the south-west corner of the courtyard, (*Proceedings* 112 (1990), 118, Fig. 8). A small drying room was revealed, constructed not unlike a hypocaust, with 12 *pilae*, the furnace being at its east end. It was set into the north part of Building 12, the isolated structure dating from the courtyard phase of the villa and partly investigated in 1989. An external stone-lined drain contained charred grain, fish-bones and 3rd century pottery. To the east, the adjacent courtyard produced an oval pit, 4.8 m long with a width of 2.8 m and a depth of more than one metre. The fill included a series of burnt layers interspersed with chalk and mortar and capped by a patch of laid chalk and limestone. Nearby were two headless badger burials.

The second major area examined was the bath-block. Past work had shown that water-logging would occur at a lower level, but it was felt the plan should be completed to that point (at extreme north-east

corner of the villa block, *ibid.* fig. 8). The high water-table did indeed cover the tops of the poorly preserved walls of the furnace room and the adjoining 'deep room' or half-cellar on its west. A revetment-wall survived, however, to mark the bounds of a yard, probably connected with fuel storage.

The rest of the season's work consisted of several machine-trenches cut both across the courtyard and outward from the domestic range towards the west and north. Further details were forthcoming on the use of the ground in both Roman and Iron Age times.

Forty-one coins were recovered this year, the highest total in any one of the sixteen seasons, and equally unusual was the excess of Roman pottery over that of the Iron Age.

J. Collins, N. Field and A. Light

## FURTHER ARCHAEOLOGICAL INVESTIGATIONS NEAR CLEAVEL POINT, OWER PENINSULA, CORFE CASTLE, DORSET

### Introduction

During the autumn of 1991 further archaeological investigations were undertaken at the site of the late Iron Age and Romano-British industrial settlement on the Ower Peninsula, Corfe Castle, Dorset. The site, which lies on the southern edge of Poole Harbour, has been the subject of several recent excavations (Farrar 1977, Woodward 1987, Cox and Hearne 1991) which have provided a substantial body of data about aspects of the site's morphology, settlement character and chronology.

During the construction of the Wytch Farm oilfield in 1988 a new water intake pipeline was laid through the site. At this time a temporary running track of stone on geotextile membrane was laid on the existing ground surface, alongside the pipe trench, in order to preserve large areas of the site. Archaeological deposits to be disturbed within the line of the pipe trench were excavated by the Trust for Wessex Archaeology; this work is reported on elsewhere (Cox and Hearne 1991, 10, 70-79).

### Removal of temporary running track

The temporary running track around SZ000860 was used until 1991 when it was removed and the area reinstated back to agriculture. Prior to its removal six trial pits were excavated through and adjacent to the track to assess the effects of its use on the protected deposits.

The broad conclusions of this assessment were that vehicular use of the track over three years had compacted the soil to a depth of 300-400 mm below ground surface. There was, however, no evidence from those areas sampled that this compaction had caused the fragmentation of either underlying structures or artefacts. The information gathered was subsequently used to determine the depth of ploughing necessary to prepare the land to agriculture. This work was closely monitored and no indications of further damage to shallow deposits were noted.

### Cattle grid excavation

As a replacement for the temporary running track, the original farm track to Cleavel Point was upgraded during October 1991 by laying of new stone on the existing surface. This work caused no ground disturbance, except where three new cattle grids were to be installed. The position of each of the grids was investigated prior to their construction. A single 1 m x 1 m trial pit was excavated at the location of Cattle grids 1 and 2. At grid 3 the full area was excavated.

### Grid 1 SY99718578

The trial pit revealed a shallow soil profile of 150 mm of black, humic, sandy soil above gravelly sand natural. No artefacts were recovered.

### Grid 2 SY99948582

The trial pit was excavated by hand to 0.6 m below ground surface and then augered to a final depth of 1.7 m. The deposits encountered consisted of black, humic, sandy soil with a high proportion of ash and fragments of burnt clay. There was no artefactual evidence from these deposits. The trial pit was positioned immediately adjacent to a probable late medieval field boundary bank and might therefore have been located on top of a former ditch, a fact which might account for the great depth of soil. The high proportion of ash may derive from local Romano-British kilns, but this area is outside the zone where previous geophysical survey had found strong magnetic anomalies and in an area where pottery concentrations from fieldwalking are very low (Woodward 1987, 46).

### Grid 3 SY99998592

A trench 3.4 x 1.2 m was excavated on the field boundary south of the centre of the site. A deposit of black sandy soil (context 4) overlaid natural pale sand to a maximum depth of 1.5 m. Two small features, possibly postholes were observed cut into the underlying sand, one of which contained fragments of a waterlogged wooden stake.

Neither feature contained diagnostic artefacts, although context 4 contained four small sherds of possible late Iron Age or Romano-British pottery, fragments of fired clay and clay pipe stems. Two rolled, flint flakes were also recovered from context 4, one of which has been identified by Dr Clive Gamble as being of possible Clactonian type.

Peter W. Cox  
AC archaeology

Cox Peter W. and Hearne Carrie M., 1991, *Redeemed From the Heath - The Archaeology of the Wytch Farm Oilfield*, Dorset Nat Hist Archaeol. Soc. Monograph series No. 9.  
Farrar R. A. H. 1977, 'A Romano-British Black-Burnished Ware industry at Ower in the Isle of Purbeck, Dorset' in Dore, J. and Green, K. (eds), *Roman Pottery Industries in Britain and Beyond*, BAR Supp. Series 30, Oxford, 199-228.  
Woodward, P.J. 1987, 'The Excavation of a Late Iron Age Trading Settlement and Romano-British BBI Pottery Production Site at Ower, Dorset', in *Romano-British Industries in Purbeck*, DNHAS Monograph no. 6, 44-124.

## PIPELINE OBSERVATIONS: WAREHAM TO STOBOROUGH MAIN

An archaeological watching brief was undertaken by Wessex Archaeology during construction of the Wareham to Stoborough water main (NGR ST 9110 8706 - SY 9286 8542) by Wessex Water in May and June 1991. There is a dense concentration of barrows in the area and the pipeline route runs on the western limits of the known extent of a Black Burnished Ware (BB1) kiln site (Hearne and Smith, this volume) and late Iron Age settlement.

The northern and central sections of the route had been badly damaged by the construction of an army camp, including the area of the kiln site, though vestiges of some features including ditches, were recorded here. Most finds were recorded in this vicinity. Black Burnished Ware found, including possible 'wasters', covers the whole of the Romano-British period. Small amounts of 12th/13th and 15th/16th century pottery were recovered elsewhere along the route. Low densities of Late Neolithic-Early Bronze Age worked flint were also recorded at various points and other finds include a 19th century clay pipe bowl decorated with a moulded harp design, a fragment of a slate pencil and a small unworked piece of Purbeck Limestone.

Carrie M. Hearne  
Wessex Archaeology

## HEATHCOTE HOUSE, ICEN WAY, DORCHESTER

The evaluation of a proposed development covering c. 0.35 ha in the grounds of Heathcote House, Icen Way, Dorchester SY698903 was carried out in August 1991. Two trenches, running north west to south east across the area, were excavated by machine, comprising a 1.6% sample of the proposed development.

The investigation revealed that a broad trend of soil accumulation had occurred on the site, ranging from 0.33 m (south east) to 1.25 m (north west) above the underlying chalk bedrock. The density of subsoil features was very low; several were post-medieval in date, one contained a single fragment of probable medieval pottery, and one, a single small sherd of probable Romano-British pottery. Only single sherds of medieval and Black Burnished ware pottery, and seven fragments of worked flint, were recovered from the soil overburden.

A detailed evaluation report is held by the County Sites and Monuments record.

Peter W. Cox  
AC archaeology

## TRINITY STREET CAR PARK, DORCHESTER

The Trinity Street car park (NGR SY 6930 9055) occupies the grounds of a former garage, and surrounds, on three sides, a terrace of four listed buildings. A proposal for refurbishment and new development was preceded by an evaluation. The expectation of Roman levels lying near to the surface was especially high since part of a mosaic floor is preserved under glass in the former car sales showroom.

Two trenches were excavated, one on either side (north and south) of the standing buildings, at right-angles to the street frontage, to a depth of c. 1.5 m. Both trenches revealed substantial modern disturbance and, with exception of a single sherd from a late 3rd or 4th century Black Burnished Ware dish from the backfilling of a sewerage pipe trench, all finds were post-medieval. It is likely, though, that remains

of greater antiquity lie at greater depths.

Thanks are due to Peter Bolton and his family for financing the work and for co-operating in many ways, including the supply of personnel and plant.

Susan M. Davies and A. V. C. Jenkins  
Wessex Archaeology

### JOSEPH WELD HOUSE, DORCHESTER

Development work on a proposed hospice on the outskirts of Dorchester (NGR SY 6884 8908) has been preceded by an archaeological assessment, in September 1991. A small area of c. 100 m was examined by fieldwalking and test-pits. The site lies approximately mid-way between Maiden Castle and the Roman town of *Durnovaria* on land sloping steeply up from a small coombe in the south-west to a slight terrace running diagonally across the site in the north-east.

A few flint flakes and a small amount of Bronze Age pottery add to the growing evidence for an apparent absence of prehistoric settlements and fields between Maiden Castle and Maumbury Rings. A few sherds of Romano-British pottery, including a single fragment of Black Burnished Ware, were recovered but the bulk of the finds were post-medieval and modern.

The test-pits revealed no features cut into the natural bedrock, but three test-pits lying on the slight ridge, contained colluvial subsoil, presumably of agricultural origin, and containing a few post-medieval artefacts.

Duncan Coe  
Wessex Archaeology

### OBSERVATIONS AT THE MAGISTRATES' COURTS, COUNTY HALL, DORCHESTER

An evaluation was carried out by Wessex Archaeology in advance of the building of an extension to the Magistrates' Court on the south wing of County Hall, Dorchester (NGR SY 6895 9082). Industrial activity of the 4th century AD has previously been identified in this area.

Only one area of Roman deposit was revealed, producing some large, unabraded sherds of 3rd-4th century Black Burnished Ware. Otherwise the only feature observed was an area of terracing, probably of 1930s origin and associated with the building of County Hall.

Michael J. Heaton  
Wessex Archaeology

### MOTOR PROJECT BUILDING, DORCHESTER

A watching brief was carried out by Wessex Archaeology on behalf of Dorset County Council during the excavation of foundation trenches and a vehicle inspection pit for the Motor Project Building, Little Keep, Dorchester (NGR SY 6861 9074).

Four machine strip trenches and a 3 m x 1.5 m inspection pit revealed no archaeological features or finds. In each case mixed topsoil, hardcore and demolition waste overlay clean chalk with some signs of disturbance relating to power and drainage pipes. A brick-lined soakaway, probably of 19th century date was also identified.

Karen Walker  
Wessex Archaeology

### EXCAVATIONS AT CORFE CASTLE 1991

#### Interim Report

During 1991 an EDM survey of Corfe Castle was undertaken and excavations took place within the fourth tower of the Outer Bailey, at the Inner Ward gate and within the Inner Ward.

The information from the EDM survey includes heights above Ordnance Survey datum and a computer programme enables plans and sections to be reproduced on a data-plotter to any scale. The survey includes the tops and bottoms of walls as well as details of the collapsed rubble blocks which are scattered within the Castle, on the slopes and at the foot of the Castle mound.

Excavation work continued in the fourth tower and great ditch. Part of the ditch filling was removed to the 17th century level revealing the medieval curtain wall which once linked the fourth tower to the south-west gatehouse. The ditch on the south-west side of the south-west gatehouse bridge appears to have been recut in the 17th century.

The ground surface on the north side of the tower was reduced by 0.4 m to the level of the mortar floor uncovered in 1989 (Thackray and Papworth 1989). A black silt containing numerous slate fragments

and 14th-15th century pottery lay above the mortar floor.

The original construction of the fourth tower was found to be the same as the third tower with three arrow-loop embrasures entered via two curving steps. In the fourth tower, the north embrasure was demolished in the late medieval period but the bottom embrasure step survived below the black silt layer.

Two lines of postholes were found to cut the mortar floor. They were aligned parallel with and spaced at 2 m intervals from the curtain wall. Sets of four stakeholes had been cut between each posthole in the eastern line. The plan indicates the site of a wooden building post-dating the mortar floor and the demolition of the north embrasure. The northern postholes are cut by the ditch as is the line of the threshold stones forming the late medieval entrance to the tower. One of the postholes was backfilled with deer leg bones and beside it, on the mortar floor, a group of seven leg bones had been laid side by side to form a 0.15 m square which was covered and surrounded by a scatter of knuckle bones.

The Inner Ward gateway had been buried in rubble since 1646 when the Keep west wall was demolished and collapsed against it. The access to the Inner Ward at this point is narrow and as part of the attempt to solve the access problem the Inner Ward gateway was partly uncovered.

The excavation revealed a gateway with at least three building phases. The earlier gateway was 5.0 m wide and constructed of rough ashlar. It resembled the ashlar which survives in the Inner Ward curtain wall dated to the late 11th century (RCHM, 58). The gateway was narrowed to 3.2 m wide in the later medieval period and faced with fine ashlar. The west side of the gateway was cut away and refaced at a later date when two chamfered jambs were introduced. This narrowed the entrance to 2.3 m and is probably the entrance shown on Treswell's plan of 1586.

Within the Inner Ward two small trenches were excavated to determine the depth of rubble above the 17th century occupation surface. This proved to be between 0.8 m - 1.0 m.

Trench (A) was 3.0 m long and 2.0 m wide and lay 3.0 m south of the Inner Ward north curtain wall and 5.0 m west of the entrance to the garden. The demolition rubble contained numerous fragments of slate and glazed ridge tiles. The south-east corner of a room was uncovered with a fireplace and doorway in the east wall and remains of white plaster surviving on the interior wall faces.

Below the rubble a series of floor levels were visible in plan. Thin layers of olive-green clay and cream lime mortar lay on a packed irregular surface of limestone lumps in a black silt. These layers were not excavated but surface pottery finds indicated a late medieval-16th century date.

Trench B was 3.0 m long and 2.5 m wide and was located at the east end of the south side of the kitchen range. The wall had a pebble-dash exterior applied to a regular lattice of raised mortar bands. Remains of limestone paving were found below the demolition rubble. This covered a drain which had been cut along the foot of the wall face.

The exterior curtain wall face linking the third and fourth towers had become leached of mortar and was in danger of collapse. During 1991 this length of wall facing was photographed taken down and reconstructed. During this work it was noted that the wall face had been largely rebuilt probably in the post-medieval period using mortar of inferior quality. Fragments of brick and a block of arrow-loop jamb were found within the wall.

Other consolidation work carried out in 1991 included the capping of this length of curtain wall and the repointing and capping of the first tower. Within the third tower the three arrow-loop embrasure floors were capped with pitched stone and the flagstone floor was partly relayed.

The excavations were carried out with the help of local and National Trust Acorn volunteers, supervised by Nancy Grace and with grant aid from HBMC.

David Thackray and Martin Papworth  
The National Trust

RCHM(E), 1970, *Dorset Vol II South-East pt 1* Thackray D. & Papworth M., 1989, 'Corfe Castle Excavations 1989 Interim Report', *Dorset Proceedings* 111, 114.

### WOOLCOMBE

Archaeological excavation and survey continued in 1991 at Woolcombe, a medieval hamlet and post-medieval farm in Toller Porcorum parish (SY553954). Attention was concentrated in three areas:

- all standing buildings were recorded in detail, with the exception of the cottage which was recorded in 1986 (Subsite X; Hunt 1986, 186);
- an archaeological assessment was carried out in the kitchen

garden (Subsite VI); in the Lower Bottom, a field lying south-west of the farmhouse, two subsites were partially reopened and extended.

### Buildings

Woolcombe farmhouse (SB1; Periods D and E). The structural history of the house, and its underlying predecessors, is summarised in Hunt 1984. Numerous details were added to the record in 1991, but these broadly confirmed the existing outline history of this building, which contains work of the 16th to 19th centuries.

An outbuilding immediately north-west of the farmhouse (SB3; Periods D and E), of mixed stone and brick construction, was variously used in the past as a store and privy. On closer internal examination it incorporated stonework of the 16th or 17th centuries, and was clearly part of a higher-status building, but without excavation these structural elements cannot be reconciled with the development of the adjacent farmhouse.

The mid-19th century mill house (SB4; Period E) stands very close to the farmhouse on the north side. It was built after c. 1840, but may stand on the site of an earlier structure. It has rubble walls with openings reinforced by brickwork. Earlier in the present century it was a cider mill, and more recently it has been used successively as a pigsty and a store. An irregularly-planned mill pond, now substantially reduced in size by landscaping, lay to the north-west. The wheelpit is on the north side of the mill house; its arrangement suggests that a breastshot wheel was used.

An 18th century threshing barn (SB5; Periods D and E), measuring 23.5 by 7 m, stands on a terrace to the south of the farmhouse and about 100 m distant from it. About half of the initial structural phase, which may date from c. 1700, survives; it comprises chalk ashlar internally and dressed sandstone on the outside. The present north and south porches were added (or reconstructed) in Phase 2, and the south wall was rebuilt. In the 19th century a threshing machine had been installed in the west end. The east end wall has been demolished in the present century. Numerous graffiti of the 18th century, to the present day, are cut into wall faces. They include names or initials, some of which are identified with owners or tenants of the farm, tally marks and circular designs which may be interpreted as 'charms'.

Two ranges of loose boxes (SB6; Period E), partly enclosing a small yard, are attached to and later than the threshing barn SB5. These are of rubble construction and may date to the later 18th or 19th centuries.

Two small 18th or 19th century outbuildings (SB7 and SB8; Period E) of indeterminate function on the south side of the farmhouse, were also recorded.

### The Kitchen Garden

The kitchen garden (Subsite VI) was an area not previously explored archaeologically, although gardening activities had indicated the presence of a wall or walls at no great depth (Dinah Austin, pers comm). Earthworks immediately to the north-east, in the Old Orchard and Barns Mead, represent a 16th-17th century farmyard and associated buildings.

One trench and five test pits were dug. The earliest features (a posthole and a pit or ditch) contained flint debitage of the later Bronze Age or Iron Age, and represent the first settlement evidence of this period in the Woolcombe valley bottom. A later soil deposit included a few sherds of late Saxon pottery. This is the first stratified occupation evidence of this period (Period AA) at Woolcombe. A late medieval or 16th century ditch was probably a drain associated with Period D farm buildings to the north-east. Some very early 20th century garden features, mainly a metal surface and a very slight masonry wall, were also found.

### The Lower Bottom

The Lower Bottom contains the sites of two successive hamlet settlements of the 12th to the early 14th centuries, and a farmyard of the later 14th - 15th centuries. A plan of earthworks and excavated areas is given in Hunt 1990, fig. 12. Subsite VIIN was extended to the north by an area of about 20 square metres, and an area of about 30 square metres was added to the north side of Subsite IX. Re-excavation of waterpipe trenches was also continued. Results are summarised below. Period divisions are broadly as outlined in Hunt 1989, but recent modifications are given below and in Fig. 4.

In Subsite VIIN a small building (EB1) was excavated in 1985-87, and was interpreted as a cottage. A single wall, of similar construction and on a parallel alignment, lay at the north edge of the excavated area, and an extension was made in order to examine the rest of the building and a yard area expected to the west of it. The metal surface was indeed present, in a predictably good state of preservation. Its construction was marked by the now-familiar lines of larger, regularly arranged

stones which seem to serve as 'bonding courses'. Flanking the metal surface, in the area where further evidence of a building was expected, was the base of a broad stone-built boundary bank (BK2). This bank probably belongs to the latter part of Period B or to Period C; it may seal further structural remains, but time did not allow further investigation.

Two interrupted earthwork banks (BK3 and BK4) lie across the site in this area, but on the surface they terminate either side of the excavated area. The extended excavation showed that BK3 had been truncated; its base, and a shallow flanking ditch, were clearly visible in the north extension of VIIN, where it was stratigraphically later than all other features. This focussed renewed attention on these banks, and since the west terminal of BK4 was badly eroded by trampling cattle the opportunity was taken to excavate and subsequently reinstate it more securely. The excavated evidence suggests that these banks belong to Period C, when this area was used as a farmyard, after the depopulation of the hamlet settlement in the early 14th century and before the final abandonment of this part of the site in the 16th century. The banks evidently subdivided the yard and its associated paddocks.

In Subsite IX the intention was to concentrate on deposits and features of Period A (12th - early 13th centuries), but in the event much time was spent in excavating Period B material of unexpected complexity. A clearly-defined stony horizon, exposed in previous years and then interpreted as a lightly metal surface of Period B, was excavated and re-interpreted as a product of worm-sorting. This area is now seen as a grass paddock in this period, bounded to the east by a broad stone-built bank (BK2, the S end of which was encountered in VIIN). In the west part of this paddock part of a rather crudely metal surface, also of Period B, was exposed. Resting on this yard surface was a sparse scatter of building rubble, raising the possibility that a building of this Period stood up-slope a little to the west of the excavated area. In the excavation extensions later 14th and 15th century pottery was recovered from the loam sealing the Period B features, suggesting that domestic rubbish - presumably from the farmhouse - was dumped in this area when it continued in use as a paddock in Period C.

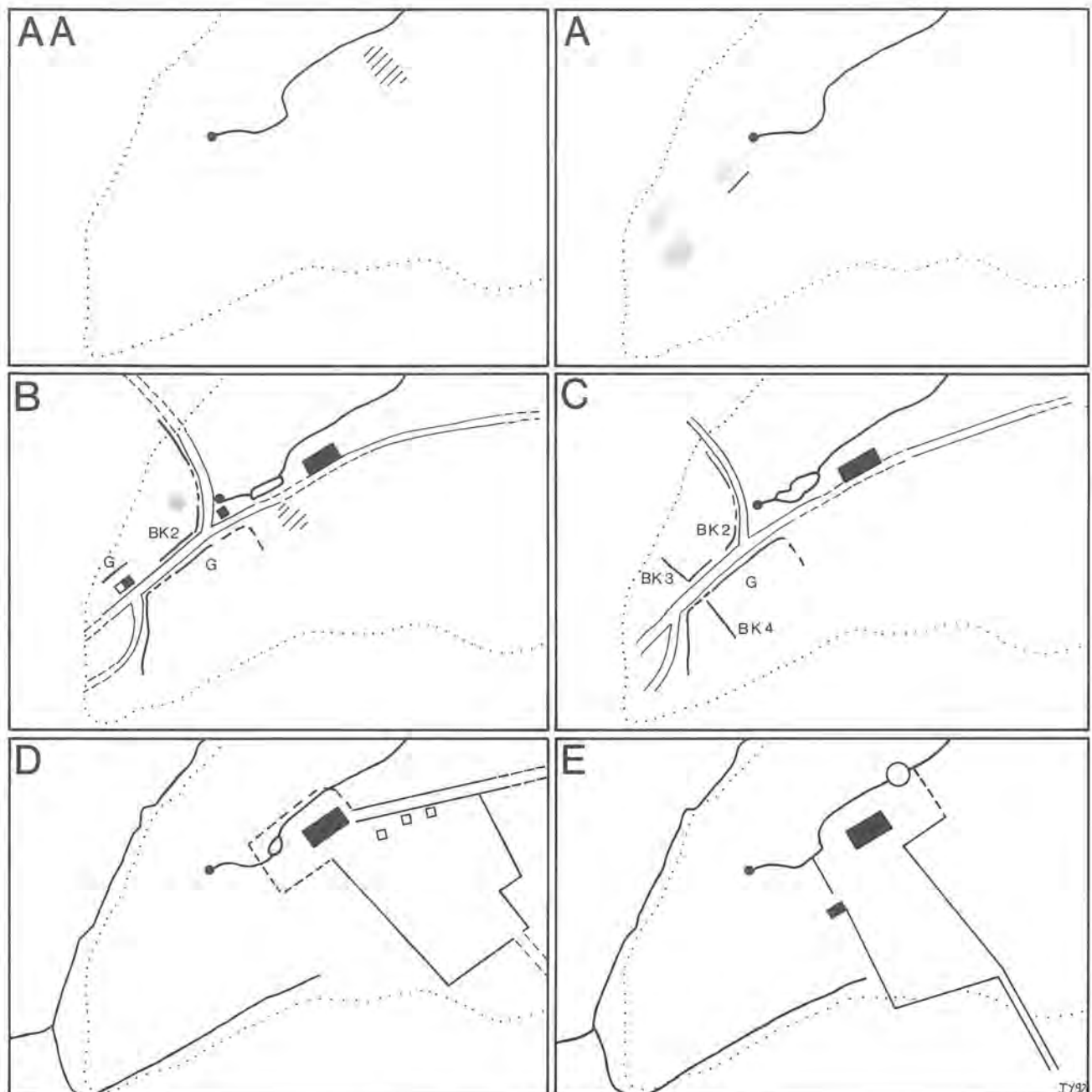
Sealed by the metal surface at the west end of IX was the rubble foundation of a building assigned to Period A. Most of this structure lay under the west bank of the excavation, so its extent and nature could not be determined. A further feature of Period A appeared in the re-excavation of pipe-trench PT11 immediately to the north of IX. Here numerous sherds lay upon a metal surface, all being sealed by the Period B paddock soil which was particularly deep in this area. This is now one of several isolated components of the Period A hamlet settlement, which cannot be articulated until the excavation of Period B material is completed.



Further re-excavation of pipe-trench PT1 cut across a particularly well-preserved building platform in the angle formed by the junction between two metal surfaces towards the north-east end of the settlement. Parch-marks on this platform, observed in the dry summer of 1989, seemed to indicate the presence of a small rectangular building (comparable in size to EB1 in VIIN) and a small adjacent circular structure. The pipe-trench sections confirmed the presence of substantial masonry structures in this area, almost certainly of Period B.

A number of problems were raised by these excavations. Boundary bank BK2 has now been identified in VIIN and in IX, and also in very slight discontinuous earthworks running along the north side of the road. Fig. 4, C summarises the arrangement of these banks. The slight earthworks beside the road were originally interpreted as the sites of small houses (cf Hunt 1989, fig. 5, C) but the excavated evidence now seems to overturn this. Four cottage tenancies are recorded in 1303, when the manor of Woolcombe was at the height of its medieval development and prosperity. Archaeological evidence suggested a single-row linear plan of cottages and other buildings, until the reinterpretations brought about by excavation of the boundary banks in 1991. In consequence, more details of the settlement plan in Period B, and of plan changes at the beginning of Period C, are required. These issues will be the principal focus of attention in the 1991 excavation season.

### Acknowledgments

The 1991 excavations at Woolcombe were overshadowed by the impending sale of the farm, and consequently the end of our working arrangement with Dinah Austin and her family. I am very glad of this opportunity to acknowledge our longstanding debt of gratitude to Dinah, Simon and Michael Austin, not only for allowing us to excavate and survey their land - often at the cost of some inconvenience to them - but for their active interest, advice and encouragement. I cannot envisage an archaeological excavation more wholeheartedly supported by landowners, and all concerned with our project are



-  183m CONTOUR
-  SPRING
-  STREAM
-  FISHPOND
-  CATTLE POND
-  ROAD/INFERRED
-  BOUNDARY/INFERRED



0 90m







-  G GARDEN
-  EVIDENCE OF OCCUPATION
-  STRUCTURAL EVIDENCE
-  COTTAGE
-  FARM BUILDING
-  PRINCIPAL HOUSE

Figure 4. Woolcombe: medieval and post-medieval settlement development. AA: ? Late Saxon; A: c. 1100 - c. 1250; B: c. 1250-1320; C: later 14th and 15th centuries; D: 16th and 17th centuries; E: 18th and 19th centuries. Drawn by Jenny Yates.

enormously grateful to them.

I also wish to thank the Dorset Archaeological Committee for their continued financial assistance. My colleagues in this year's work were as follows: Jenny Yates (site manager; archive manager; illustrations); Ian Hewitt (finds manager; metalwork research); Robert Cleary and Steve Membery (supervisors); Robert Waterhouse (building surveys); Mark Brisbane and John Gale (finds research); Julian Fox (discussion of project management); Bill Putnam (accommodation; catering; transport); Sally Jones (catering; transport); John Beavis (advice on soils); Mark Maltby (advice on animal bones); Graham Dumas and George Macleod (equipment and transport); Linda Poulsen (organisation of schools' programme). Students of Bournemouth Polytechnic took part in the excavations; they were joined by pupils from several Dorset schools and by other volunteers. I am very grateful to each one for their important contributions.

Alan Hunt  
Bournemouth Polytechnic

## Bibliography

- Hunt, A.M.,  
1984, 'Woolcombe Farm', *Dorset Proceedings* 106, 155-159  
1986, 'Woolcombe', *Dorset Proceedings* 108, 186-187  
1989, 'Woolcombe', *Dorset Proceedings* 111, 114-117  
1990, 'Woolcombe', *Dorset Proceedings* 112, 125-127

## TOLLER PORCORUM EXCAVATIONS 1991

### Interim Report

During June and July 1991 excavations took place on the site of Church Mead, in the village of Toller Porcorum in West Dorset. Church Mead (SY 56159794) lies approximately 80 m south-west of the parish church of St. Peters on moderately sloping ground which has been under pasture for living memory. The field itself has in recent years been significantly altered due to two episodes of housing development. This has resulted in a reduction in size of the field from 2.5 acres in 1955 to approximately 1 acre today. The mead forms part of the southern slope of a Greensand ridge at the foot of the chalk escarpment to the east of the village.

### A Brief Historical Background

The earliest documentary reference to *Tolre* (Porcorum) occurs in Domesday whereby the manor is held by Ogier a subtenant of Waleran the huntsman. In this period Toller seems to represent a very small manor and it is likely that the estate was limited to the area around the village. Domesday records nine dependent peasants with a single plough team. Manorial descent from this point can not be continuously traced, and little evidence is forthcoming in historically advancing the status of the manor. By 1586 the manor was known as 'the manor of Toller Porcorum and Frogmore', whether this is an historical pairing or a recent amalgamation is not clear.

### Excavations 1990

A small excavation at the adjacent village post office garden undertaken in the summer of 1990 by students from Bournemouth Polytechnic, revealed a promising series of archaeological deposits dating from the 12th century (Hunt, 1990). Some *in situ* structural remains were recorded along with significantly large quantities of 12th - 14th century coarse wares. The area evaluated was insufficient in size to determine the nature and origin of medieval settlement (8 square metres) at the western end of the modern village, but did suggest that further work in the area would prove to be more illuminating. This view was substantiated by the presence of slight earthworks visible in the post office garden which continued into Church Mead.

### Survey

During the spring of 1991 a programme of landscape and geophysical survey was commenced at Church Mead, with the kind consent of the owners, West Dorset District Council. This programme of work was not solely instigated through research criteria, but was undertaken in the face of impending development proposals to turn the remainder of the mead over for housing development.

### Earthwork Survey

This work revealed a series of banks and platforms (Fig. 5) which suggested an earlier period of settlement and/or agriculture, possibly an extension of the present Lower Road to the east of the site. Three platforms were visible within the confines of the mead, all of which seemed to lie to the east of a linear feature running north-south across the field. This linear feature was the most prominent of the earthworks within the mead and survived to a height of approximately 0.5 m and ran in a straight line for about 50 m. Topographically it is consistent

with a field boundary of a type common in the parish and in West Dorset as a whole. Further to the west approximately 90 m away was the short stub of a similar boundary which seemed to be on the same alignment, and was therefore presumably the western boundary of the same field unit. Both of these linear boundaries had been severely truncated, the smaller western one by the railway and agricultural changes, the eastern by the railway and housing department. At the time of the survey it was considered that this represented a phase of land allotment turned over to agriculture at a time of shrinkage within the morphology of the settlement.

Of the three platforms, two in the northern half of the field were generally rectangular on slightly different alignments. The more northerly of the two was more substantial as an earthwork and seemed to predate the main linear boundary discussed above. Only a few metres to the south of this platform lay a small irregular sub-circular platform which appeared to butt up to the linear boundary. Unlike the previously described platform this feature seemed to impose itself on the boundary and therefore was likely to have post dated it.

Generally the field contained much in the way of disturbed ground but most of it can probably be associated with the insertion and ultimate removal of the railway line lying at the southern end of the field.

### Geophysical Survey

Following the earthworks survey the site was subject to a geophysical evaluation using both resistivity and magnetometry. Work was undertaken during March and April, with a view to identifying areas of potential interest which could be used in conjunction with the earthwork survey to maximise the site's potential for excavation. The survey was carried out on the whole of the available area, although technical restrictions did reduce this somewhat in regard to the magnetometry survey. The following is a brief summary of the results of the geophysical assessment; a full account will be published along with the final report in due course.

The resistivity survey revealed a series of anomalies most of which could be interpreted as geological phenomena. The ambient soil water balance on the site was not particularly good for this type of survey (Clarke 1990), in the main due to a lengthy period of rainfall in the days preceding the survey. However, certain features were observed whose nature could possibly be explained archaeologically.

The north - south linear boundary described above failed to reveal itself, but an attendant ditch on its eastern flank did. The reasons for this are in part probably associated with the climatic conditions at the time of the survey, but more importantly suggest that the material content of the bank itself was not significantly different from the residual pedology. The resulting excavations later confirmed this point (see below). At the southern end of the boundary an anomaly coincided with the sub-circular platform recorded in the earthwork survey, although no further detail was produced.

On the extreme eastern margin of the mead a Y-shaped feature was recorded covering an area of approximately 60 square metres. Due to its unusual configuration it was not thought to be geological in origin and therefore was put forward as an area that may be worth evaluating through excavation.

The magnetometry survey was conducted at the same time as the resistivity survey and therefore under the same survey conditions. The results of the survey were fairly disappointing with no structural features evident. The ditch for the linear boundary, once again appeared as a slight anomaly but little else of archaeological relevance was forthcoming.

### Excavations 1991

During a five week period from 17th June an excavation was undertaken, the excavation personnel being largely drawn from Archaeology and Heritage Conservation Students currently studying at Bournemouth Polytechnic, but several volunteers were also welcomed, both local and from further afield.

A total area of 278 square metres was excavated consisting of one main trench (Trench A), and six test pits (TP 1-6 Fig. 5). The research objective was to determine the presence, location, type, and chronology of settlement in an area which has obviously been subject to change. The areas evaluated were located on the basis of the known earthworks and the data supplied from the geophysical survey.

The following interpretive summary of the 1991 excavations is based upon uncompleted work and therefore may be subject to change in the final report:

#### Trench A.

Trench A measuring 5 m x 40 m, was laid out with its long axis orientated east - west. Its position was intended to examine the

relationships between the extant north - south linear boundary earthwork, the two platforms to its east and any activity on what seemed to be fairly undisturbed ground to the west.

The removal of the turf revealed a well worm sorted soil, representing a fairly long period of inactivity on the site. The depth of this deposit varied according to the topography but seemed to be at its greatest depth on the eastern end of the trench. The finds from this layer represented material from a wide range of chronological periods spanning 3000 years, with the great majority comprising pot sherds of medieval date. This layer was also recorded in all test pits with the exception of TP1, see below.

Directly below lay a plough soil which contained very high concentrations of medieval pot sherds, principally 12th - 14th century coarse wares. The 12th century wares were generally very well abraded, unlike the 14th century material, at least two phases of ploughing of different intensities, the greater occurring shortly after the earlier material was deposited. The unabraded nature of the 14th century material may reflect little later agricultural activity on the site beyond the occasional turning of the soil.

In addition, there were clear differences in the plough soil in both its pedological and artefactual content on either side of the linear boundary. To the west there was a greater quantity of abraded material with a stonier and sandier soil matrix. To the east of the boundary the soil was loamier, confirming the intensive nature of agricultural activities in the field to the west. This is confirmed by the findings from the excavation of test pits TP1 - 6.

This medieval agricultural activity on the west of the excavated area had bitten fairly deeply into the sub soils and may have destroyed all but substantial earth fast features. Only two features were recorded in this area, both of which pre-date the earliest ploughing horizon. The more substantial of the two was a shallow v-shaped gully, 0.3 m deep,

at the extreme western end of Trench A, running diagonally across the natural slope in a NE/SW direction. Only 3 sherds of very abraded pottery, one a possible fragment of Black Burnished ware were found. No trace of an attendant bank or fence was recorded, which if present at all must have been ploughed away. The second feature recorded was the base of a small post hole approximately 0.1 m deep and 0.25 m in diameter, which also pre-dated the ploughing horizon.

Activity on the eastern half of Trench A, however, proved to be far more intensive, and because this area was only returned to agriculture sometime after the 16th century, and was not then subject to intensive ploughing pre-boundary activity has survived to some extent.

Two ditches were located, both truncated by the north/south boundary ditch. The precise dating of these ditches proved to be difficult with only the northern most having any artifactual remains. This ditch was approximately 0.4 m in depth with a very precise V-shaped profile and ran in a NE/SW direction. Within its backfill was a deposit of slag and ash from some industrial process as yet unidentified. The ditch would seem to have been deliberately backfilled because a narrow band of packed flint lying in an arc was constructed on top of the backfill. The function of this band of packed flint is unclear but it would not seem to be anything structurally substantial.

To the south of these features lay a curvilinear V-shaped ditch, also truncated by the main field boundary. Once again precise dating proved to be illusive with no dateable material being recovered from it. This ditch was approximately 0.7 m in depth and also seems to have been deliberately backfilled in a single event. The total absence of pottery from its backfill, particularly in an area which contained a mass of medieval ceramic refuse suggests a pre-12th century date for this feature but only a small proportion of this feature has so far been excavated.

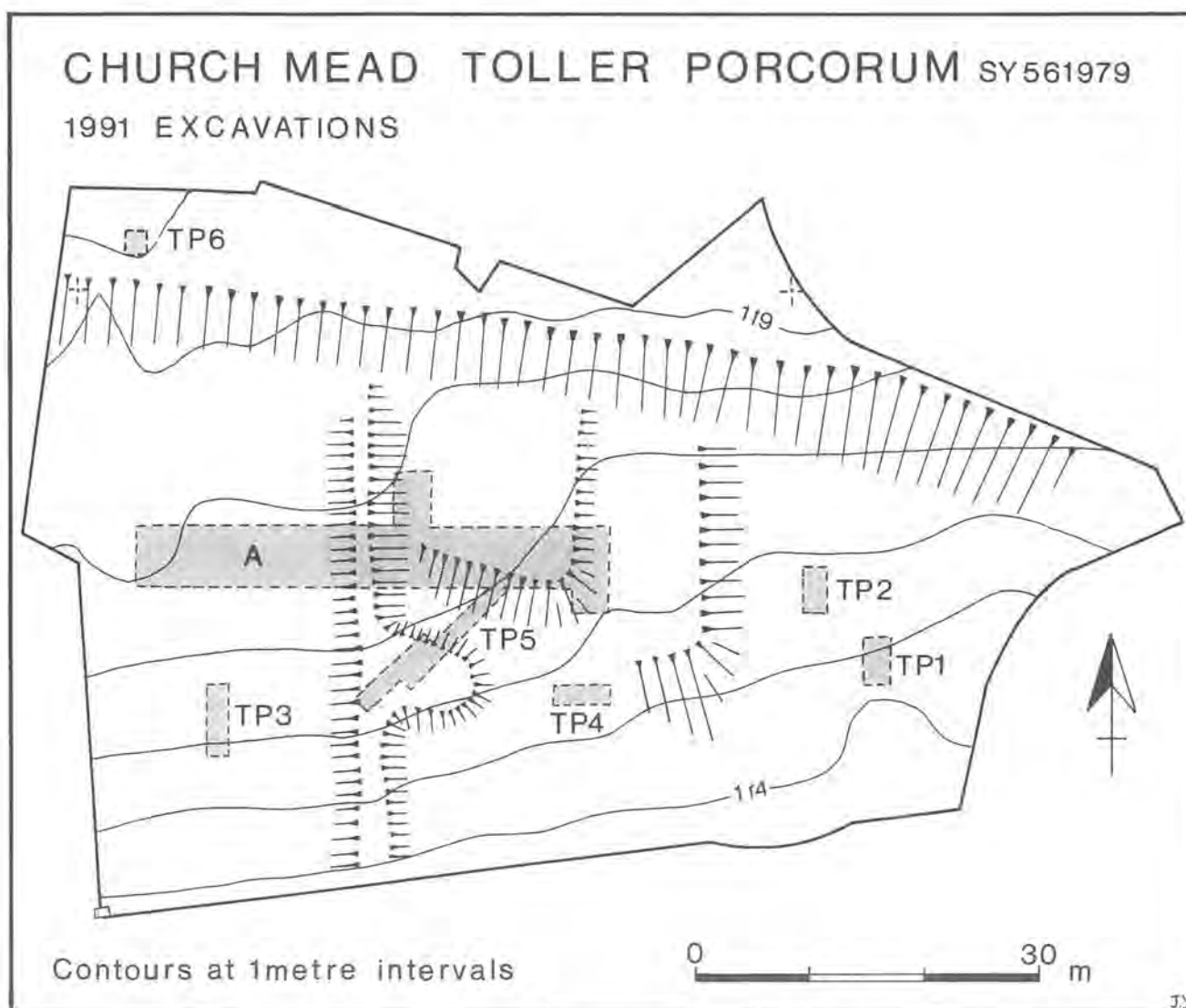


Figure 5. Toller Porcorum: interim plan of 1991 excavations.

All the activity so far discussed has pre-dated the north/south boundary, which was central to the excavation's initial design and proved to be critical in the unravelling of the stratigraphic sequence of events. The boundary was constructed of flint and earth and had been ploughed, severely truncating its profile. The resultant spread of bank material covered an area extending over 4 m east and west of the core of the bank. A section through the bank and ditch revealed a substantial boundary whose ditch had been cleaned out on more than one occasion. Within the bank was 12th century pottery, but none of 14th century date. Its construction date is therefore clearly post-12th century. The ditch fill was virtually devoid of artefacts although some small fragments of possible 14th century sandy wares were recovered. If this is so, the boundary and its field were established between the 12th - 14th centuries. What was happening on the outside of the field at this time is less clear as there is little evidence for activity within the excavated area, but it may have been held as common ground.

It has not been possible to identify when the field system went out of use precisely, but it was certainly no longer of relevance in the landscape by the 16th century when a structure was built over it (see TP5 below).

#### The Test Pits

Test pits 1 and 2 were located on the eastern edge of the site and were designed to examine a shallow scoop in the landscape, and the Y-shaped anomaly recorded in the resistivity survey (see above). The shallow scoop in TP1 was revealed to be a depression caused by the scraping away of solid for the construction of the railway bridge abutment. TP2 failed to reveal any archaeological deposits, but did clarify the identification of the Y-shaped anomaly, which turned out to be geological, a curved pebble bed lying on top of the underlying greensand sub-soils.

Test pits 3 and 4 in the southern half of the site were designed to examine the geological predictions of the geophysical surveys. A long east-west anomaly approximately 9 m wide, running the whole breadth of the field was recorded and was interpreted during the geophysical work as differing strata deposits in the sub soils. This was confirmed by the excavation, with the anomalies being caused by pebble bands within the upper layers of the greensand sub soils. The A horizon soils artifactual content was broadly similar to the findings from the main trench although the quantity of material recovered was far less. TP 4 revealed no archaeological features, but TP 3 however contained a narrow, undated drainage gully cut into the sub-soil which was sealed by the ploughsoils.

Test pit 5 proved to be one of the more interesting aspects of the site particularly in relation to the later medieval/post medieval developments. The excavation of this area was intended to investigate the sub circular platform recorded in the earthwork survey (see Fig. 5) which also showed up as an anomaly on the resistivity survey. Two buildings were uncovered one superimposed over the other; the earlier consisted of a length of rubble foundation laid on one course deep, possibly for a sill beam. On top of this building lay the remains of a small dwelling built of flint and cob, with a rammed chalk floor. Within its demolition rubble was a earthenware bowl, tentatively dated to the 16th/17th century.

Test pit 6 was located in the extreme north-west of Church Mead and was designed to discover whether the upper slopes of the field were in fact the remains of a medieval lynchet, largely destroyed by the housing development. The deepest deposits of the excavation were recorded in this test pit with an A horizon up to 0.7 m deep. The accumulation of soils here is due to agricultural terrace formation of medieval date, similar to the well known examples on the flanks of chalk hillsides to the east of the village. Below these deposits was a ditch or gully 0.4 m wide and 0.15 m deep running east/west. No dating evidence was recovered from this test pit.

#### Preliminary Summary of Phasing

Period 1	Pre 12th Century activity. Ditch/boundary at western edge of Trench A and ditch below terrace in TP6?
Period 2	12th - 13th Century ? Curvilinear ditch and linear ditch in central area of Trench A1
Period 3	13th Century. Backfilling of period 2 ditches and construction of structure/wall above the northern ditch.
Period 4	Late 13th - 14th Century New field system (main N/S boundary constructed)
Period 6	Late 14th - 15th Century. Pottery being dumped on site. Western half of site only under agriculture. Large building constructed in the vicinity of TP5.

Period 7	Late 15th - 16th Century. Period 6 building replaced by smaller flint and cob construction structure. Field system goes out of use.
Period 8	16th Century - ? Period 7 building demolished/abandoned. Whole area reverts to pasture with occasional ploughings.

#### Future Work

The excavations at Toller Porcorum are part of the much larger Woolcombe Project and as such are subject to an extensive landscape survey and evaluation (Hunt 1990). Earthwork and Building survey continues in the village of Toller Porcorum, and it is hoped that a final season of excavations will be possible at the site of Church Mead in the summer of 1992.

#### Acknowledgements

I am very grateful to Alan Hunt for allowing me a substantial 'slice' of his research project and for his continued support and encouragement. Logistically Toller is very closely linked with the seasonal excavations at Woolcombe Farm and as such a great number of personnel are due my express thanks. I would particularly like to thank all my colleagues involved in this years work: Tim Sutherland (Assistant Director); Sasha Barnes and Robert Butler (Supervisors); Ian Hewitt (Finds Manager); Jenny Yates (Illustrations and administration) Sally Jones (Catering and Gofer); Dr John Beavis; Mark Brisbane and Bill Putnam. Many thanks must be given to the villagers of Toller Porcorum who warmly welcomed a large number of temporary residents to their community. In particular Chris and Audrey Russell for unflagging enthusiasm and Ted Bugler the tenant of Church Mead.

Finally I must express my thanks to all those participants in the excavation not already mentioned, students from Bournemouth Polytechnic and volunteers from both far and near.

John Gale  
Bournemouth Polytechnic

#### Bibliography

- Clarke A.1990 *Seeing Beneath the Soil*.  
Hunt A.M.1990 *The Woolcombe Project 1990 Bournemouth Polytechnic Archaeology Unit Reports. Second Series, No 2*

## ST LEONARDS CHAPEL, BLANDFORD FORUM An Archaeological Evaluation of the Structural Foundations (Interim Statement)

During December 1991 an archaeological evaluation was carried out at the site of St Leonards Chapel in Blandford Forum, which is situated on the eastern boundary of the parish approximately a quarter of a mile from the town centre (ST890064). It is now totally enclosed by recent housing development and is completely hidden from view. Originally it stood only a few yards away from a stream which fed the River Stour to the south-west, but this stream has long since been culverted and no visible trace of it can be seen within the immediate environs of the chapel. Prior to the housing development in the early 1980s the chapel formed part of a range of buildings associated with St Leonards Farm. Evidence of its incorporation within farm buildings can easily be seen on examination of the present exterior elevations. The chapel was probably not a chapel at all, rather an infirmary possibly for lepers, constructed in the 15th century. The fabric of the building is chiefly flint and squared rubble alternating in courses, with ashlar dressings and quoins at the north east and south east corners.

The chapel is a "Grade 1 Listed Building," and is currently in the care of North Dorset District Council, who in recent years have undertaken remedial steps to stop the building from completely collapsing. Such is the condition of the building that the north wall is currently pitched at an angle of 18 degrees out of perpendicular. This wall was braced in 1975 by the insertion of two concrete buttresses which undoubtedly have saved the building so far, but do little to enhance it aesthetically or historically. A shallow pitched slate roof was also laid on the building to further halt its decline. Recently the District authority have engaged Weymouth College and sought the advice of English Heritage in a programme of restoration and consolidation. In November 1991 Bournemouth Polytechnic was invited by Weymouth College to undertake a small archaeological excavation at the site of the Infirmary, to examine the type and condition of the buildings structural foundations as part of the consolidation programme.

A small trench (2 m x 2 m) was located alongside the north wall of the building, with the south east corner of the trench positioned in the angle formed by the western concrete buttress and the north wall close to the north door.

Removal of a layer of very stony sandy loam, probably associated with the demolition of the farm buildings prior to the commencement of the housing development in the early 1980's, revealed a substantial trench 1.5 m wide running north-south throughout the excavated area, apparently continuing under the north wall of the building. Excavation of the trench fill revealed a glazed service pipe which was jointed into a brick built structure, the greater proportion of which lay under the northern baulk. The trench was only excavated to a depth of approximately 0.6 m to assess the depth of modern disturbance in this area. The brick built structure, constructed in alternate courses of stretcher and header bonds, the top two of which were corbelled, would seem to be an inspection chamber for the service pipe which was likely to have been installed in the latter years of the farm's life. Inspection of the floor in the interior of the building revealed that the floor had indeed been disturbed in a line running from the excavated area right through the building and out under the south wall. Unfortunately this has resulted in a great deal of modern disturbance which has truncated any archaeological deposits in the area of the northern doorway. The concrete buttress however, which had been expected to have caused severe damage seems to have had a minimal impact on the underlying archaeological deposits.

The service trench had cut through two deposits which contained a great deal of mortar and broken flint. The buttress lay on the uppermost of these deposits which had partially been removed for its construction. The broken flint was extensive in quantity and clearly represented *in situ* knapping of flint for insertion into the wall. There is no evidence to suggest that this is a phase of repair to the north wall, and the flint therefore must represent a deposit associated with the original 15th Century construction.

Excavation of this knapping debris mixed with sandy loam and mortar revealed an undisturbed layer of sandy silt loam on which was also lain uncoursed chalk rubble. This rubble was directly underneath the lowest courses of the north wall and therefore represents the footings for it. Because of the amount of disturbance already discussed, 0.5 m of this foundation was visible in section. The footings as recorded were very insubstantial, being only a maximum of 0.18 m deep, and if this is consistent throughout the structure it represents a minimal foundation.

During the excavation it was also noted that an underpinning or repair had been made underneath the lowest moulding of the northern door opening, evidenced by the insertion of brick at this point. It is possible that this was done because of the service trench works already discussed above.

John Gale  
Bournemouth Polytechnic

#### Bibliography

RCHM 1970 *Inventory of Historical Monuments in Dorset Vol III Central Pt 1*

### GODWIN'S ORCHARD, KINGTON MAGNA, DORSET

The evaluation of a proposed new parsonage in land formerly known as Godwin's Orchard, off Cart Road Hill, Kington Magna (ST764231) was carried out in July 1991. Four trenches were excavated by machine, comprising a 9% sample of the proposed development area.

The investigation produced a substantial quantity of generally 12th to 13th century Medieval pottery (c. 4kg), the majority being derived from a sealed lower soil horizon, apparently undisturbed by later ploughing. Although no substantial subsoil features or structural remains were found associated with this horizon, the size and freshness of the pottery sherds indicates that settlement activity may have existed close by.

A detailed evaluation report is held by the County Sites and Monuments record.

Julian Richards  
AC archaeology

### THE VINES, LONG STREET, SHERBORNE

Evaluation of a single vacant plot on the street frontage of Long Street (ST64271667) was carried out by means of two machine-excavated trenches, totalling c. 20 m in length. Removal of a deep humic garden soil revealed a small number of shallow gullies and ditches dating from the 12th/13th centuries onwards. These appear to pre-date any urban expansion along the line of Long Street and may represent either field boundaries or drainage features.

A detailed evaluation report is held by the County Sites and Monuments record.

Julian Richards  
AC archaeology

### HARPER HOUSE, HOUND STREET, SHERBORNE

Evaluation of an area of the street frontage of Hound Street (ST64191683) was carried out by means of a single hand excavated trench, 7 m long and 1 m wide. Modern topsoil and other superficial deposits overlay a series of layers and unstructured stoney spreads which contained almost exclusively medieval finds with very few (probably intrusive) later items. Removal of these spreads uncovered a limestone and sandstone courtyard or pavement and a single pit, both of which on the basis of associated pottery date to the late 12th or 13th century. The amounts of pottery (7.7kg) and of well-preserved animal bone (7.0kg) are considerable given the small area examined.

A detailed evaluation report is held by the County Sites and Monuments record. A full report will be prepared for publication.

Julian Richards and John Hawkes  
AC archaeology

### SHAFTESBURY ABBEY

Investigation of a single nave pier within Shaftesbury Abbey (ST861228) demonstrated an absence of below ground structural remains associated with its present assumed and marked position. Below the rectangular dry stone pier marker lay recent deposits containing quantities of decorated tile fragments. It is uncertain how these deposits relate to episodes of past destruction and more recent archaeological investigation. A more limited investigation revealed apparently *in situ* deposits at a depth of c. 0.80 m from the present ground and evidence for a robber trench, possibly for a wall supporting the pier bases.

A further pier base will be investigated in 1992, following which a full report will be prepared for publication.

Julian Richards  
AC archaeology

### THE RECTORY, CANFORD MAGNA

An archaeological assessment was carried out, prior to the building of a Parish Room, c. 55 m south-west of the Parish Church of Canford Magna (SZ03149875). Three trenches were dug in the same positions as three of the proposed foundation trenches. Extensive modern disturbance was evident. Archaeological material was limited to two fragments of Saxo-Norman pottery residual in backfilled soils of modern deposition date.

The work was commissioned by Canford Magna P.C.C. The site archive is deposited with Poole Museum Service under the reference PM054/DR4.

D.R. Watkins  
Borough of Poole Museum Service

### 14 WICK LANE, CHRISTCHURCH

An archaeological assessment was conducted in January 1989. The site (SZ15849261) consisted of a nearly rectangular area, approximately 26 m x 28 m, within the confines of both the Saxon burgh and the medieval town. The assessment consisted of three machine dug trenches and a hand excavated test hole. These were positioned so as to duplicate part of the groundwork of the proposed housing development.

A trial trench parallel to, and c. 6 m from, Silver Street uncovered several features cut into natural sand. Two angular features intruded from the side of the trench and contained medieval pottery. Five probable postholes were also present but were undated.

Excavations on the Wick Lane frontage indicated considerable post-medieval disturbance, to a depth of c. 2 m; some medieval pottery was also present.

Extensive post-medieval disturbances were also encountered towards the centre of the site, perhaps caused by sand extraction.

The assessment was followed by a watching brief that confirmed the disturbed nature of the Wick Lane frontage. Care was taken with the groundwork, in the trench parallel to Silver street, to ensure it did not intrude into the archaeological level.

The work was commissioned by the developers, Priory View Properties Ltd. The archive is lodged with Hampshire Museum Service under their reference HCMS No A 1990-30.

D.R. Watkins  
Borough of Poole Museum Service

### TWYNHAM SCHOOL, CHRISTCHURCH

An archaeological assessment was conducted in the playing fields of the school prior to the construction of a water tank (SZ 1523 9255) and

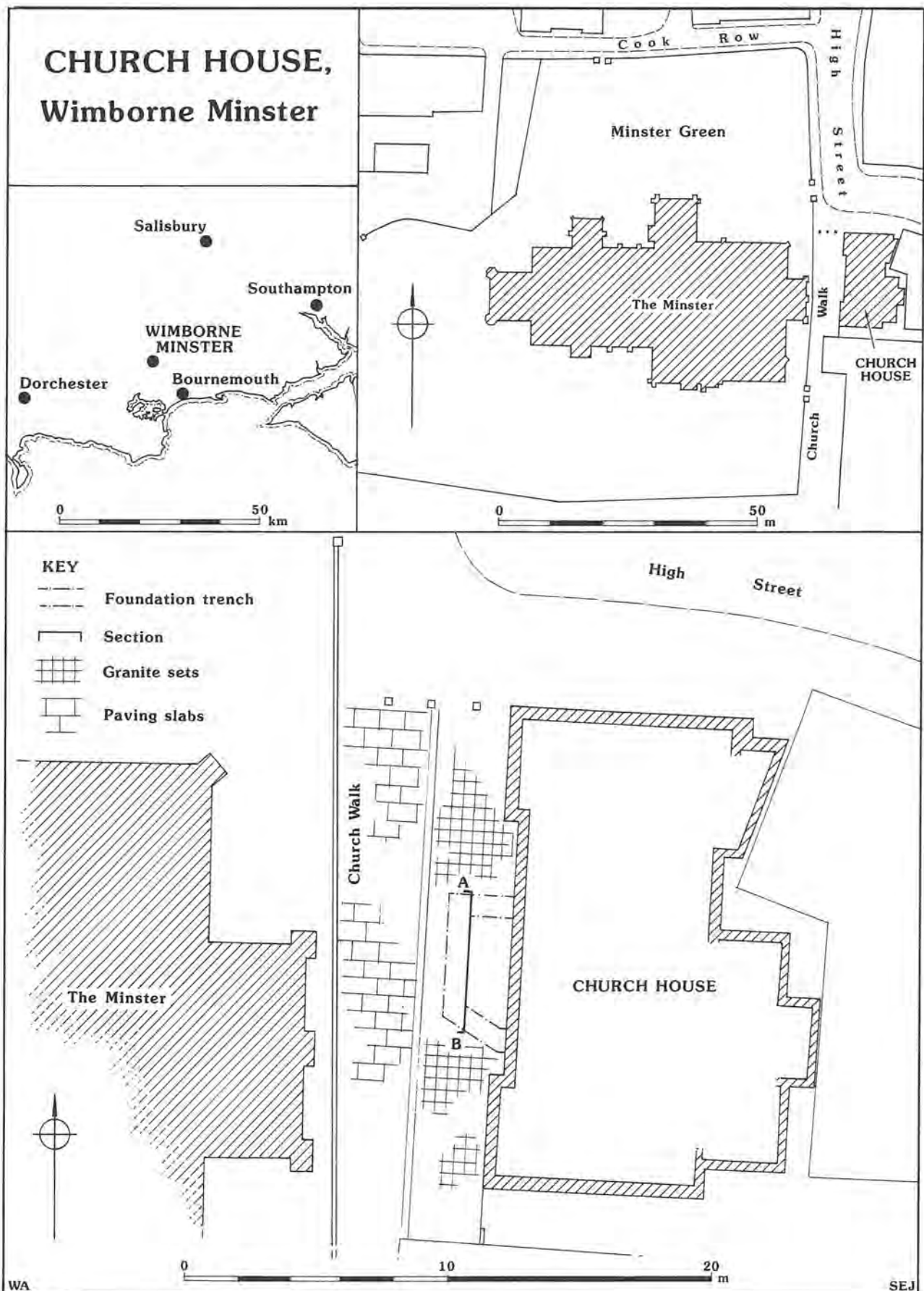


Figure 6. Church House, Wimborne: site location.

sewers. The work consisted of two hand-dug test holes and the pre-excitation of the tank site to the archaeological level. No features were encountered and a subsequent watching brief confirmed that the project had not damaged any discernible archaeological material.

The work was commissioned by Wessex Water via their agent, Christchurch Borough Council. The archive is lodged with Poole Museum Service under the reference PMO 48.

D.R. Watkins  
Borough of Poole Museum Service

#### ST CATHERINE'S HILL, CHRISTCHURCH

A watching brief was conducted in the vicinity of the oval earthworks (Scheduled Ancient Monument: Dorset No 827). A shallow trench was excavated between SZ 1427 9557 and SZ 1441 9545. This work was closely monitored for c. 50m near the earthworks (between SZ 1428 9556 and SZ 1433 9552). No damage to archaeological material was observed.

The work was commissioned by West Hampshire Water Company and the archive is lodged with Poole Museum Service under the reference PMO 61.

D.R. Watkins  
Borough of Poole Museum Service

#### WIMBORNE FORMER MODEL TOWN

A small-scale excavation was undertaken in an area occupying some of the highest land of the medieval town, to the north west of the Minster, in a plot of land previously occupied until the 1980s by the Wimborne Model Town SZ008999. Unstratified prehistoric finds consisted of worked flint and a sherd of Bronze Age pottery. A single sherd of possible Saxon pottery was recovered in a later pit. A small group of medieval and early post-medieval features was recorded, including rubbish pits and possible boundary ditches. A generally low density of medieval finds was retrieved, indicating that the area was not intensively occupied during this period.

A full report is being prepared for publication.

Peter W. Cox  
AC Archaeology

#### EXCAVATIONS AT CHURCH HOUSE, WIMBORNE MINSTER

The foundation trench for an extension to Church House (NGR SZ 016 998), a building immediately adjacent to Wimborne Minster and therefore in an archaeologically sensitive area (Fig. 6), was stratigraphically excavated by Wessex Archaeology to comply with the conditions of planning permission in April 1991.

Church House stands only 7 m from the east end of the Minster, on a site formerly occupied by an inn, later an ironmongers. A trench 0.8 m wide was dug by hand down into the natural gravel, to a depth of 1 m.

Two graves were encountered but neither could be fully excavated or closely dated. One had been disturbed by a later rubbish pit and only the bones of the lower part of the body of an adult female remained in place. The western end only of the second grave was revealed; a number of skull fragments of a mature individual were recovered. Documentary evidence shows that this must have been earlier than the 17th century, since a house was standing there in 1617.

Three bowl-shaped rubbish pits, each c. 0.8 m deep but of uncertain diameter, contained fragments of animal bone, oyster shells, sherds of glazed pottery, and the stems of clay tobacco pipes. A fourth feature, probably a posthole, was of roughly square (1.4 m) outline and 1.1 m deep. It had been cut into and through the fill of one of the rubbish pits and contained a slab of stone in the bottom with a fill of sandy clay, clayey sand, broken bricks and mortar. No other possible structural features were recorded. Finds were few but included 12th-14th century and 18th-19th century pottery and fragments of 17th-19th century clay pipes.

The project was financed by the Parochial Church Council and commissioned through Pantlin and Bradbury, Architects, whose guidance in the field was much appreciated. Photographs and documents relating to previous occupiers of the site were made available by Stephen Price of the Priest's House Museum, Wimborne.

A.V.C. Jenkins  
Wessex Archaeology

#### EXCAVATIONS AT 39 - 69 EAST BOROUGH, WIMBORNE MINSTER

Limited excavation was undertaken ahead of development at the rear of 36-69 East Borough, within the presumed extent of the medieval town of Wimborne Minster (NGR SU 0095 0036). A low density of medieval pottery and prehistoric worked flint was recorded within a topsoil containing modern materials. No datable archaeological features were revealed.

The project was financed by the East Borough Housing Trust via their Architect and Planning Consultant, Robert C. Tutton.

Michael J. Heaton and Julie Lancley  
Wessex Archaeology

#### A MEDIEVAL STONE MORTAR FROM SANDFORD ORCAS

This object (Fig. 7) was found by Mr S. Rose at GR 62392074 and was reported by Mr G. Cooper. The mortar appears to be made of Isle of Purbeck stone from the Upper Purbeck beds, known as Purbeck 'marble': it has a maximum overall diameter of 355 mm and a base with a maximum diameter of 240 mm. The top has been broken off but a maximum height of 170 mm may be suggested. There is one complete pierced handle on one side, facing another which survives only at the base. The exterior face of the bowl has tooling marks.

Purbeck marble mortars usually have two opposed ribs and two opposed lugs. This example, with two pierced side handles, is not a common form because of the liability of this fissile stone to fracture (G.C. Dunning, 'Mortars', in H. Clarke and A. Carter, *Excavations in King's Lynn 1963-1970*, Society for Medieval Archeology, Monograph Series 7(1977), 320-47, at 324): it is the more unusual as it has only pierced handles, which normally occur with opposed ribs (I.P. Horsey, *Excavations in Poole 1973-1983*, DNHAS Monograph 10 forthcoming). Dating evidence from archaeological contexts suggests a date in the 13th or 14th century.

Mortars of Purbeck marble are known from many sites in England, with a wide distribution covering the southern counties and East Anglia. Trade by sea is demonstrated by examples in Plymouth, Sussex, Kent, East Anglia, the Channel Islands, Belgium, the Netherlands, north Germany and Denmark (during *op. cit.*, 323-9). an example in Dorset, of course, is not unexpected.

Laurence Keen

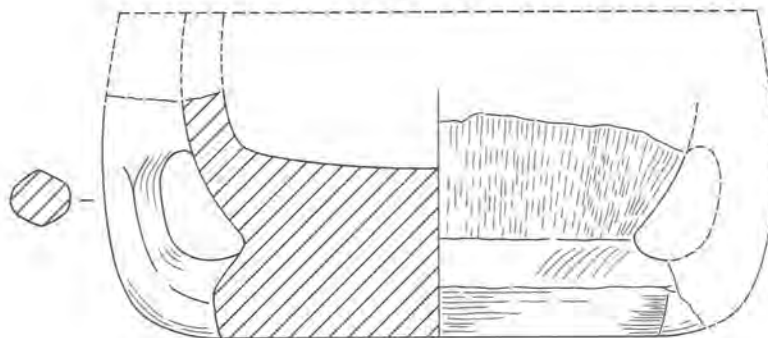


Figure 7. Medieval stone mortar from Sandford Orcas. Scale 1:4.

### TWO FIFTEENTH CENTURY GOLD RINGS FROM HOLDITH COURT, THORNCOMBE

These two rings were found by Mr M. Maber in March and April 1991. They were considered at a Coroner's Treasure Trove inquest on 13 June 1991 and declared not to be Treasure Trove. The finder sold the rings at auction to a private buyer at Lawrences, Crewkerne. The plate illustrating this note (Plate 1), taken by Colin Jeffrey, is reproduced by kind permission of Lawrences.

1. (Plate 1, right) a gold finger-ring, broken and twisted, weight 6.24g. The band is 4.5 mm wide, 1.5 mm thick and the outer edges are slightly rounded: the original diameter would have been about 18 mm. The ring has been broken (whether before or after deposition is impossible to tell) in the middle of a circular hole cut through the band for a gem setting, about 3.5 mm diam. On the opposite external face there is a small square cut emerald slightly rounded on its upper surface and about 3 mm square, set into the band. Between the two settings is lightly engraved stylised leaf decoration originally contained in a rectangle 3 mm wide, defined by a thin engraved line. On the inside of the band is an engraved Black Letter inscription, with letters approximately 2 mm high: <sup>[\*]</sup>tetra <sup>[\*]</sup>agramatan <sup>[\*]</sup> This is one of the names of God (J Reichelt, *Exercitatio de Amuletis* (1676), pl. lvi, fig. 2, quoted by O.M. Dalton, *Franks Bequest Catalogue of the Finger Rings* (British Museum, London 1912), 137). The ring dates to the fifteenth century.

2. (Plate 1, left). A complete gold band, weight 2.18g. The band has been squashed together: the original external diameter would have been about 15 mm. The band is 3 mm wide, 1 mm thick and rectangular in section. The external face is divided into three shallow grooves, the centre one pecked to take a narrow band of white enamel, of which only four pieces remain - the largest 6 mm long. Attached to the central band is a small loop, now broken, 2 by 2 mm externally. On the inside of the band is engraved a French Black Letter inscription with letters about 2 mm high: fans retourner ailles - ? to return without wings. The object is probably too small to be a finger-ring. The attachment loop suggests that it may have been an elaborate leg-ring for a bird - the inscription may confirm this. The lettering suggests a date in the 15th century.

Laurence Keen

### A NINTH-CENTURY MOUNT FROM BOWLEAZE COVE, WEYMOUTH

This small gold mount was found in March 1990 on the beach at Bowleaze Cove. It is the same type of object as the Minster Lovell and Alfred Jewels. Exhibited in the exhibition 'The Making of England' at the British Museum (November 1991 to March 1992) the object is illustrated and described in L. Webster and J. Backhouse (ed.), *The Making of England Anglo-Saxon Art and Culture AD 600-900*, British Museum Press (1991), no. 258, 281-2).

Laurence Keen

### CAROLINGIAN MOUNT FROM WAREHAM

This important 9th century item has been described briefly (*PDNHAS*, 110 (1988), 154). It is now illustrated and described further in L. Webster and J. Backhouse (ed.), *The Making of England Anglo-Saxon Art and Culture AD 600-900*, British Museum Press (1991), no. 256, 280).

Laurence Keen

### OBSERVATIONS ON A PIPELINE IN THE VALE OF MARSHWOOD

An archaeological watching brief was undertaken during construction of the Ryall to Charmouth water main by Wessex Water between March and May 1991. The overall length of the route was c. 5 km, running roughly east from Catherston Manor (NGR SY 3686 9427) across the heavy soils of the Middle and Lower Lias clays and pleistocene deposits associated with the River Char, to the Ryall reservoir (SY 4035 9500).

Overall a low level of archaeological deposits and finds was recorded. A number of shallow stone-filled trenches were encountered. These represent a common method of providing field drains before the introduction of ceramic pipes in the mid 19th century, and indicate local attempts at improving ground conditions.

A series of low earthworks were visible across the field close to Berne Farm (SY 394 944), the site of a former Manor House, later the seat of Sir George Somers, founder of the Colony of Bermuda in the late 16th-early 17th centuries. Two raised, roughly parallel, ridges



Plate 1. Fifteenth century gold rings from Thorncombe. Photograph by courtesy of Lawrences, Crewkerne.

aligned north-south from the southern field boundary ran towards the area of Berne Farm and may represent the line of a former track between it and Berne Cottage. Associated with these appeared to be a low 'terrace' in the west-facing slope of the small knoll in the east corner of the field.

Finds along the route included a single sherd of probably Bronze Age grog-tempered pottery; a general scatter of Late Neolithic/Early Bronze Age flintwork; a small amount of 11th-13th century coarse, gritty potsherds and some 14th/15th century fine sandy pottery. The majority of the pottery is of post-medieval date, consisting largely of coarse red earthenwares, probably 16th-19th century, and some English and German stonewares.

Carrie M. Hearne  
Wessex Archaeology

#### OBSERVATIONS ON THE STOKE WAKE TO ANSTY WATER PIPELINE

A watching brief was undertaken during construction of 1.74 km of water pipeline, by Wessex Water, between Stoke Wake and Higher Ansty (NGR ST 7590 0650 - ST 7560 0500). The route runs south-west across Upper Greensand and Gault Beds then due south across Kimmeridge Beds. The pipeline lies within view of the late Iron Age hillfort of Rawlsbury Camp, but the only other known monuments in the locality are isolated barrows along the chalk ridges. The area is notable for its sparse settlement pattern, closely linked to the extensive use of the heavy gleyed soils for pasture and dairying. Archaeologically, the area has been poorly explored.

Overall a low level of archaeological deposits was recorded. The main areas of interest comprised two localised dense scatters of medieval and post-medieval pottery revealed after topsoil stripping. The first (ST 7554 0535) comprised 12th/13th century pottery in both flint-gritted and sandy fabrics characteristic of the early medieval period in Dorset and Somerset. Sherds were generally unabraded suggesting that the scatter was probably associated with a former building, perhaps representing the remains of a midden deposit, rather than the result of manuring. The second scatter comprised a spread of late medieval/post-medieval pottery located on the highest part of the field from which it was recovered (ST 7572 0631), extending some 40 m along the pipeline route and across the full (11 m) corridor width. Nearly all of the sherds were in a fine, soft, slightly sandy fabric, firing orange, with a much abraded glaze apparent on many sherds. A date somewhere in the 15th century is appropriate and the homogeneity of the fabric suggests that all the vessels are from a single (unknown) source.

Carrie M. Hearne  
Wessex Archaeology

#### WYKE ROAD, GILLINGHAM

The evaluation of a proposed housing development covering 0.36 ha on land between Wyke Road and Wavering Lane, Gillingham (ST799269) was carried out during August 1991. Three machine-excavated trenches were located across the site, comprising a 5% sample of the area.

A hollow way running north to south along the western edge of the area is undated, but possibly post-medieval in origin. Two parallel ditches, each 0.5 m wide and 0.15-0.20 m deep were observed in the centre of the area (ST79922693). One ditch contained a single sherd of colour-coated grey ware, probably New Forest, and a small fragment of an oval-sectioned rod, possibly of jet.

A detailed evaluation report is held by the County Sites and Monuments record.

John Hawkes  
AC archaeology

#### 1 CHURCH LANE, LOWER BLANDFORD ST MARY

The evaluation of a proposed house extension (ST892054) was carried out in November 1991, consisting of two one-metre square hand-dug trial pits. Within one pit was located a deposit of compacted chalk and a portion of a gully containing several large chalk blocks. These have been interpreted as a floor and wall foundation trench from a post-medieval building. Although one sherd of medieval pottery was recovered from the base of this wall trench all finds above the floor were of 18th century date or later.

A detailed evaluation report is held by the County Sites and Monuments record.

Peter W. Cox  
AC archaeology

#### WAREHAM HOSPITAL PHASE 2 EXTENSION

A watching brief was undertaken in September 1991 during the preparatory groundworks for an extension of Wareham Hospital (SY91848751). The only archaeological deposit revealed contained material of probable 19th century date.

Peter W. Cox  
AC archaeology

#### PONY DRIVE, UPTON, LYTCHETT MINSTER

The evaluation of approximately 2.7 ha of land was carried out during April 1991 prior to housing development. Machined trenches were excavated across the site (SY987932), amounting to approximately 2% sample of the area. Apart from the occurrence of occasional fragments of modern pottery, no features or other finds were made.

A detailed evaluation report is held by the County Sites and Monuments record.

Peter W. Cox  
AC archaeology

#### MANOR FARM, TARRANT MONKTON

The observation, during August 1991, of the construction of a new dwelling on land at Manor Farm, Tarrant Monkton (ST946084) revealed no evidence for subsoil archaeological deposits. A few non-diagnostic flint flakes were observed, but not recovered.

Peter W. Cox  
AC archaeology

#### CANFORD HEATH MIDDLE SCHOOL, POOLE

A watching brief was conducted, to record any archaeological material encountered, during the construction of playing fields. The area was c. 2 ha (SZ 0235 9405). Subsoil features were limited to the remains of a 20th century brickworks.

Despite the scale of the earth moving observed no worked flint was in evidence. This contrasts with comparable watching briefs in the Stour Valley where worked flint appears to be ubiquitous.

The work was commissioned by Dorset County Council and the archive is lodged with Poole Museum Service under the reference PMO 56.

D.R. Watkins  
Borough of Poole Museum Service

#### SELDOWN SCHOOL, POOLE

Cartographical research and trial excavation were carried out to assess the risk to archaeological material posed by a planned large scale development. The site (SZ01729078) was an irregular, low-lying area of approximately 1.1 ha to the east of the old town of Poole.

Sir Peter Thompson's plan of 1751 places the site in an area annotated "The Sand Pitts" on "the Common of Cell Down". It also locates the south-west corner of the site as near the 18th century shoreline.

Machine excavated trial trenching confirmed the cartographical evidence. Sand extraction to the level of the water table was apparent and backfilled soils contained 19th/20th century materials.

The work was commissioned by Poole Borough Council and the archive is lodged with Poole Museum Service under the reference PMO 51/DR3.

D.R. Watkins  
Borough of Poole Museum Service

#### WESTON ROAD, WORTH MATRAVERS

Archaeological observations were made in November 1991 on an infill construction site immediately to the south of Weston Road in the village of Worth Matravers (SY97277734). The site, which slopes slightly to the south away from the road, had been extensively disturbed, particularly to the north. It was covered by a clay loam soil which contained randomly distributed sherds of pottery from the 13th/14th to the 20th centuries. No structural features were found apart from two apparently recent fence post-holes.

Tim Sutherland  
Bournemouth Polytechnic

## Shorter Contributions

### TWO BRONZE FIGURINES OF IRON AGE DATE FROM DORSET

Martin Henig

There is not much figural art in Britain before the Roman conquest, and most of what there is comprises small images of animals, notably boars, of which a bronze from Duncliffe Hill, Motcombe (Henig and Keen 1984, pl. 11 and fig. 12) is a typical example. There are human images too, although all too often the archaeological record of their finding is less than adequate.

Best known is the nude female figure from Aust-by-Severn, which has been regarded as displaying Iberian features (Cunliffe 1978, 155, pl. 22b) but is much better considered as a product of the later British Iron Age derived from Italian art (see below). There is in fact a similar bronze from Henley Wood temple, Yatton (Wilson 1970, 296, pl. xxxv D). A third 'mother goddess' figurine comes from Culver Hole Cave in Gower, Glamorgan (*JRS* xxxv, 1935, 201-2, pl. xliii, 2, c). Male equivalents to these 'mother goddesses' are also known; I have noted examples from the Isle of Jersey and from Dartmoor (Henig and Wood 1990, 240 with references). Of especial interest is an iron figurine from Poundbury in the Society's own collection (Sparey Green 1987, 98-100, fig. 70, no. 6) which as Anne Ross points out (in *Ibid.* Mf 2, C13 and C14) is certainly of Iron Age date. This note serves to bring attention to two other figures one probably, the other certainly, from pre-Roman Dorset.

The first (Pl. 1) is in the County Museum and has been thought to be from Maiden Castle.<sup>1</sup> The bronze, if really a Dorset find, would not be out of place in the context of this important site. The bronze is 73mm in height, with a projection of a further 4mm below the feet for adfixure to a support. The body, which is shown two dimensionally - it is only 3mm thick - measures 15mm across the shoulders. The subject is a woman, wearing a long robe, with a diagonal fold from the left shoulder to the right arm and two horizontal bands indicating a hemline above the feet. The right arm seems to have been indicated as an afterthought by means of a simple vertical cut. The head which is presented in the round, is approximately ovoid, 14mm in height by 11mm in breadth and 10mm in depth. The physiognomy is simplified with almond-shaped eyes and slit mouth and the hair is worn short with a fringe. It can be compared with renderings of female votaries from northern Italy dated to the third or second centuries BC (Franzoni

1980, 76-7, nos 57 and 58; Adam 1984, 206 no. 326; Galestin 1987, 94-8). Similar figures are recorded from Gaul (compare especially Boucher 1970, 102 no. 90; cadem 1976, 31-2) and like them the 'Maiden Castle' bronze attests links across the Alps.

Another figurine (Pl. 2, A and B) has been submitted to the County Museum recently. This is said to have been found close to a Roman road at Roke Farm, Bere Regis recently. The bronze is now 69mm in height (though the feet are lacking) and it evidently portrays a male figure wearing a tunic of Italic type and perhaps holding some indeterminate object in his left hand, though the modelling is poor here; his right arm appears to be broken off at the wrist. His head is mask-like with hair brushed forward above small eyes; he has a snout-like nose, below which is a very short, narrow slit serving as a mouth. Projections on either side of his head presumably represent ears. The back of the figurine is without detail apart from the ridge of the tunic continuing round and it was clearly intended that the bronze should be viewed from the front. The tunic is much less well modelled but of similar type to one worn by Mars on Italic figurines (Adam 1984, 176 no. 263). A Mars figurine of this sort is said to come from Mount Batten, Plymouth (Henig in Cunliffe 1988, 70-71 no. 128) and there is a comparable figure in Corinium Museum (Royce Collection 1984/58/287) which is said to have been found at Swell in Gloucestershire though there is no corroborative evidence for the finding of this bronze either. Amongst the figurines in the Southbroom (Devizes) cache is a Mars-like figure (Henig 1984, 66 pl. 23, fourth from left). Despite the record of Roman coins of the third century AD with the find, I take these figurines to date from shortly after the Roman conquest (see Henig 1991, 122) when Roman art was beginning to be absorbed by the bronzesmith while the Bere Regis figurine belongs to an earlier stage, when classical influences were still indirect. It too may be an import, but the stylisation of the face and the simplification of the tunic suggest to me that this is a Celtic adaptation of an Italic prototype made in Gaul or Britain. Although in other ways a figure wearing a tunic from the pre-Roman Neuvy-en-Sullias cache is finer and better modelled, the treatment of the pleats is similar (Boucher 1976, 41, pl. 12 no. 56).

Although all too often the archaeological record of their finding is less than adequate, it does seem that anthropomorphic figurines, ultimately derived from Etruria and neighbouring regions of north Italy, did reach south-western England before Caesar's Gallic War



Plate 1 The 'Maiden Castle' figurine at life size.



Plate 2 The Bere Regis figurine at life size.

altered the main trade routes. Along with the wine amphorae of Hengistbury Head and other trading stations on the south coast, came 'art' from Italy which was frequently modest in nature but could, nevertheless, act as inspiration to native craftsmen long before AD 43 and may even have had some influence thereafter. The bronzes discussed here exemplify two aspects of Iron-Age figurative art from Britain; one is a foreign import, if a genuine find and the other the native response to that influence. The number of figurines certainly imported or made in Britain during the Iron Age is not large but the fact that there are three from south Dorset suggests that others may be found in the area.

#### References

- Adam, A. M., 1984 *Bibliothèque Nationale. Bronzes étrusques et italiennes* (Paris)  
 Boucher, S., 1970 *Bronzes grecs, hellénistiques et étrusques des Musées de Lyon* (Lyon)  
 Boucher, S., 1976 *Recherches sur les bronzes figurés de Gaule pré-romaine et romaine* (École Française de Rome)  
 Cunliffe, B., 1978 *Iron Age Communities in Britain* 2nd edn  
 Cunliffe, B., 1988 *Mount Batten Plymouth. A Prehistoric and Roman Port* (Oxford University Committee for Archaeology Monograph No. 26)  
 Franzoni, L., 1980 *Collezioni e Musei Archeologici del Veneto Bronzetti etruschi e italici del Museo Archeologico di Verona* (Rome)

1. In the collections of the Dorset County Museum, accession number 1935.15.6 and one of a group of six in the accession 'Objects from Maiden Castle, formerly in Genl. Pitt-Rivers collection'. Accession 1935.15.1 is a bone weaving comb; 1935.15.2 fragment of bone with insised pattern; 1935.15.3 - 1935.15.5 three boar's tusks and 1935.15.6 bronze figurine. The group was donated anonymously. Two of the boar's tusks have the pencil number 2349, and the bone comb 2345, and are marked 'found at Maiden Castle, Dorchester, May 1868' and 'BT Sothebys March 3 1898, lot 528'. The pencil numbers correlate with page numbers in the *Catalogue of Objects Collected by General Pitt-Rivers* (9 vols, manuscript; Cambridge University Library) vol 9 list of objects by material. The same information is given in the Pitt-Rivers catalogue as is written on these bone objects.

The only object under the bronze section of the catalogue which appears to correlate with the bronze figurine (DCM 1935.15.6) is 'Female figurine in low relief found in the neighbourhood of Dorchester Oct 1868, lot 528 5 1/8". If the last figure is a size in inches, which seems likely from those given for the tusks and bone, it is either incorrect, perhaps a slip of the pen for 3 1/2 or this is not the figurine (which measures about 3 inches). However, the phrase 'low relief' is highly suggestive when referred to a figure. The item under discussion is certainly in low relief - see below.

Lot 528 in the Bryce Wright sale at Sotheby's on March 3 1898 contained many Dorset and Dorchester finds, but unfortunately they are only listed in vol 9 of the Pitt-Rivers catalogue, not illustrated. The figurine has a paper label including the number 1820, but this does not correlate with any number in the catalogue. A reasonably thorough search through vols 5-9 which cover 1898-9 revealed no other entry which could be a figurine. Certainly when it was given to the Dorset County Museum in 1935 it was believed to have been from Maiden Castle, but this cannot now be proved.

We thank Clare Conybeare of Salisbury Museum for bringing our attention to the Pitt-Rivers catalogue, Lord Renfrew of Kaimsthorn, for agreeing access for research and publication, and Dr. Zutshi at the Cambridge University Library for making access arrangements.  
 Jo Draper and Peter J. Woodward.

- Galestin, C. 1987, *Etruscan and Italic Bronze Statuettes* (Warfhuizen)  
 Henig, M. 1984, 'A bronze Vulcan from North Bradley', *Wiltshire Arch. and Nat. Hist. Mag.* lxxxiv, 120-122.  
 Henig, M. and Keen, L. 1984, 'Figurines from Duncliffe Hill, Motcombe, Dorset'. *PDNHAS* cvi, 147-8.  
 Henig, M. and Wood, M. 1990, 'A cast bronze figure of Iron Age date from the Channel Island of Jersey', *Oxford Journal of Archaeology* ix, 237-40.  
 Spary Green, C. 1987, *Excavations at Poundbury, vol. 1. The settlements* (DNHAS, Monograph Series 7).  
 Wilson, D.R. 1970, 'Roman Britain in 1969', *Britannia* i, 268-305.

Acknowledgement: I would like to thank Roger Peers FSA for bringing the Bere Regis figurine to my notice as well as for providing photographs of both bronzes, and to Jo Draper FSA and Peter J. Woodward for their work trying to sort out the context of the 'Maiden Castle' figurine.

## WORTH MATRAVERS

David A. Hinton and D. P. S. Peacock

The archaeology of the Isle of Purbeck has been benefited from the efforts of many fieldworkers during the past fifty years, and the Department of Archaeology, University of Southampton, has begun a project to enhance understanding of the data that have been collected. Work in 1990-91 concentrated on the farm at Worth Matravers owned by Mr David Strange, where two important sites have recently been found by the archaeologically unorthodox method of falling into them. In both cases, substantial limestone slabs covered subterranean voids which in most other regions would have filled when covers of wood or other less permanent materials decayed. At some Purbeck sites, the covers have not given way until the weight of modern machinery has become too much even for solid limestone to bear.

At *Compact Farm* (SY 975778: RCHM 1970, 621, site 41), to the north of the present village, the feature discovered when a tractor fell into it in 1989 was a stone-lined structure, recognisable as either a grain-drier or part of a hypocaust system. In October 1990, systematic field-walking was done as part of the University's student training programme. The results showed a concentration of Roman pottery around the visible feature, but there were also discrete areas of Iron Age material; the patterns were complicated by the dumping of material from elsewhere in Worth during the 1950s (reported by Farrar 1964, 118), but it is fairly clear that some at least of the Iron Age material was original to the site. In the north of the field, a probable Mesolithic site has been identified. As well as surface collection,

geophysical prospection was undertaken.

English Heritage gave a grant for evaluation through excavation of the structure and its surroundings, to enable a long-term strategy for the preservation of the site to be developed, and Mr Strange made the field available for this work to be done in late September/early October 1991 as a further part of the student training programme. The English Heritage grant made it possible to obtain additional supervisory staff from Wessex Archaeology, and the University is grateful to Michael Heaton and Rebecca Montague for their enthusiasm and hard work.

It very soon became apparent that the subterranean feature is the lower part of a grain-drier. The use of driers has been much debated recently: although they were probably not used to dry whole ears of grain brought in from fields before threshing as used to be thought, they may have been used to parch grains before pounding or threshing, to make them more brittle; or after threshing, to reduce the likelihood that the grain would rot in store; or before milling, to harden it so that it would not clog the stone; or to roast grain to be used for malting to prevent further germination after it had sprouted; or to roast the malt (Van der Veen 1989, 303-4). During the excavation, a number of samples were taken, and are being processed by Sorrel Pennington-Dobbs, then a student of the University: her preliminary results suggest that roasting germinated grain was one function of the drier.

The drier (Fig. 1) is of the 'reversed tuning' fork type in plan (Morris 1979, 20 and Fig. 11); it has a surviving floor over the west side flue, with a vent at its south end. This flue was not excavated, to preserve the deposits that it contains; its opposite partner, whose covering slabs had cracked and given way, has at its south end a stone-covered filling sloping at about 45 degrees up to where the vent had been. The internal and side walls of the drier were neatly laid,

partly in herring-bone and partly in flat courses, without mortar but in places with sticky clay being used instead. The stoke-hole was carefully made, albeit in what can best be described as a crude reverse-corbelled technique which gave only restricted access to the opening of the flue. The most unusual feature, however, was the survival of the bottom of a small opening onto the floor of the oven, recognisable from vertically set stones in the side wall. This opening was about 0.1 m above the level of the top of a large limestone slab built into the walls of the oven and spanning the flue. At a higher level were other slabs, some also built into the walls; this might suggest that the oven had a double floor, allowing hot air to circulate between the two layers of slabs, but as there were also smaller packing stones between the two layers, the construction may simply have been designed to stop sparks from the flues getting up into the grain; nor was there surviving evidence of an 'upper floor' throughout the structure, for instance above the vents. The drier is contained within a rectangular building, not yet fully excavated, which has an uneven and incomplete floor of limestone paving slabs, and a quernstone, many shattered, presumably by heavy usage (Fig. 1). Two courses of drystone walling partly survive in the north wall, and a single course of the south wall, in which the outstanding feature is the doorway, composed of a large, well-worn stone still with central slots presumably to receive bolts fitted onto double doors, and two jamb stones, both rebated and slotted for doorframe posts. On the outside, narrow walls and paving indicate a porch. The barn was probably timber-framed since the sill walls are unmortared, but there is no daub, cob or other evidence of the wall filling.

Although much of the space in its flues had survived as a void, the drier had fallen into disuse before the site was abandoned; its stoke-hole had been deliberately infilled and surfaced with a packing



Figure 1: The grain-drier at Worth Matravers.

of small cobbles. Some of the drier's floors had also been cobbled over, though part of the internal wall between it and the rest of the building still stood slightly proud of the new surface, which was flush with the upper floor slabs in the north-east corner. Presumably because its paving stones had become so broken and uneven, small-stone cobbling was also packed all over the original floor of the remainder of the building, up to the level of the top of the door sill in the south wall. This inserted cobbling was fairly even, and had not been dug into to put up temporary posts, or otherwise been intruded upon; its use may therefore have been fairly brief.

Dating of the building is problematical. Throughout the site, nearly all the pottery is local Black Burnished ware, an Iron Age ceramic tradition which persisted into at least the 4th century AD. The pottery associated with the drier and its building has types recognisable as late in the sequence: but it is not possible to say precisely how late. There are also 4th-century coins, though none in a particularly significant context, and of those that can be identified, none was necessarily minted after the middle of the century. The absence of later 4th-century coins may suggest abandonment well before the century's end, but may merely reflect the withdrawal of 'low-status' Purbeck sites from the monetary economy (Woodward 1980). There were very small amounts of non-local pottery, but not enough to assist with the dating.

Around the drier and its containing building were spreads of stones, soil and broken pottery which are interpreted as yard surfaces. The field-walking and geophysical plots had suggested further activity to the north of the drier, and this area was therefore excavated to a deeper level. Consequently one corner of a structure has been located, but fuller investigation must await future work. The pottery above it, however, although including 4th-century material, appears to have more 2nd-century products than the grain-drier area. It seems likely therefore that the site had a long history of use, perhaps back into the Iron Age, since much pottery of that period was collected both in the field-walking and in the excavation. Cultural continuity has already been demonstrated once on a Purbeck occupation site, at Woodhouse Hill, Studland (Field 1965, 145-52), where the huts were dated to the 1st century AD.

The 1991 excavation results suggest that the site was primarily agricultural. Cereal growing is, of course, shown by the existence of the grain-drier and the seed remains. The domestic animal bones include some with butchery marks: relative paucity of vertebrae, skull fragments and pelvis girdles may suggest slaughter off-site, however, which makes assessment of the importance of pastoralism difficult (analyses undertaken by second-year students). Evidence of other activities is slight. Although there was shale - both unworked and a few cores and bits of broken rings - it was not in ratios to the pottery to suggest manufacture in the immediate area (cf. ratios at the Rope Lake Hole manufacturing site, Woodward 1987a, fig. 96), and, although there was no lack of flint, all of it is cores and flakes, with none retouched and recognisable as shale-working tools. No briquetage from salt-making was found. Stone working is attested by an unfinished limestone mortar, and the north wall has two stones which could be interpreted as preliminary rough-outs of mortars or querns, abandoned when they broke; there were also a few broken roof-tiles and quern stones. Another piece of debris was part of a flue-tile, in the rubble overlying the paving in the drier's building.

The range of contacts that the site's users enjoyed was fairly limited, insofar as can be judged from their rubbish - which was plentiful but not munificent. Copper alloy was sparse - eight coins, a 2nd-century brooch and a broken toilet implement. The ironwork was unremarkable, and only a single piece of Roman glass has so far been found. Apart from the ubiquitous Black Burnished ware, there is a 1st-/early 2nd-century Spanish amphora sherd, and several fragments of samian, but only one had moulded decoration. There is a very small amount of New Forest ware, and slightly more Oxfordshire - as at the nearest villa site, Bucknowle (Woodward 1980, 102), but in contrast to the manufacturing site at Ower (Woodward 1987b, 82). The only truly surprising element in the pottery is an early Roman brown-glazed sherd; rare anywhere in Britain, this seems to be the first to be reported from Purbeck despite the range of finewares at Ower (Timby 1987); further afield, there was none at Poundbury, outside Dorchester (Davies 1987), and the two glazed sherds from Greyhound Yard, Dorchester, were both green (Seager Smith and Davies, forthcoming).

In June 1991, detailed surveying was begun, again as part of the University's training programme, of the well-known strip-lynchet system in the fields south of Worth extending to East and West Man. This work is being carried out in conjunction with the Royal Commission on Historical Monuments. Although it is almost certainly correct that the lynchets are medieval, probably created during 'land-hunger' in the 12th and 13th centuries, it seems possible that vestiges of an earlier, 'Celtic', field-system may underlie them, and

have partly affected their lay-out. An estate map and survey of 1772 by Samuel Donne has recently been deposited at the Dorset Record Office with the Rempstone papers, and this shows the strips and parcels then in use: features recognisable on the ground will be compared to what is shown on the map, and will be a measure of land-use and change. (The map and survey have been the topic of a third-year undergraduate student dissertation, and we are grateful to the Dorset County Archivist, Dr Hugh Jacques, and his staff for allowing access and other help).

At *St Aldhelm's Head* (SY 966 761), another tractor discovery was of an Iron Age storage pit (Beavis *et al.*, 1982), subsequently excavated by Dr Peter Reynolds and Mr Rodney Alcock with the aid of a grant from the Dorset Archaeological Committee. To refine the assessment of the site's extent and duration given by the RCHM (1970, 621, site 43), field-walking with students was undertaken in October 1991. This suggests a fairly widespread site, mostly intensively used before the 2nd century AD. It is hoped to undertake geophysical work here.

The Department is grateful to Mr David Strange for allowing access to land which holds, on a single modern farm, evidence of such a range of agricultural periods and pressures. It is a happy coincidence that the *St Aldhelm's Head* pit provides an example of below-ground cereal storage, a system replaced in the Roman period by above-ground barns from which grain could be taken more readily to mill and market. The Compact Farm drier indicates both larger quantities being produced and the need to process grain or to brew beer for market sale when external pressures such as rent payments forced farmers to adopt practices which in more subsistence-based or kin-directed economies were unnecessary. Similarly, external pressures were to be responsible in the Middle Ages for the terracing for ploughland of the lynchets on the inhospitable, mist-swept slopes of East and West Man. As has been noted elsewhere (RCHM 1970, 413-15), lynchetting is almost confined to the boundaries of the Worth estate, and is much less extensive on the land of its neighbours in the parish, Renscombe, Weston and Eastington. Clearly one land-owner caused or permitted his tenantry to break up grazing land, where other owners foresaw little benefit to themselves from such a process.

The piece of flue-tile at Compact Farm may imply a substantial Roman building within closer carting distance than the nearest known villa, Bucknowle. That villas should be few on Purbeck has sometimes been taken to mean that it was an imperial estate. Its agriculture may not have produced enough wealth to enable villas to be built from local resources, however (Sunter 1987, 43), and its remoteness from towns and its poor inland communications may have given it little attraction for outside investors. Its inhabitants, of course, have always had more than just agriculture as a source of income; fishing, quarrying, pot-making, in the Iron Age and Roman periods shale-working, and perhaps smuggling when Roman imperial tolls were charged on commercial trade, and money permeated the economy (Murray 1978). Until demographic growth depressed the market, free tenants and wage-earners at least had some choice of activity, which would have caused a wider spread of wealth than in most areas, militating against its concentration in a few families, and fostering a less hierarchical and probably more dispersed settlement pattern than in many other areas of Roman Britain.

The effect of these factors on Worth Matravers may perhaps be visible in the known Iron Age and Roman sites on the north side of the limestone ridge, which suggest at least four nodes of activity: not only at Compact Farm and *St Aldhelm's Head*, but also at Weston, the source of the dumped material at Compact Farm (RCHM 1970, 621, site 42), and at Gallows Gore (*ibid* 621-22, sites 39-40). It is a constant frustration of such sites that 5th- and 6th-century use is so difficult to affirm or to deny.

That Purbeck as a whole may have retained a Romano-British cultural tradition for longer than other parts of Dorset has been argued cogently on the basis of the cemetery recently found at Swanage (Cox 1988, 46-47). Intriguing therefore are the 19th-century reports of cist burials in the churchyard of Worth Matravers (RCHM 1970, 620); this church is a 12th-century building, but its date of foundation is unknown. Cist burials, including a 'decapitation' of non-Christian type, have been found at Studland Church (Calkin 1952, 51-54): could these burials represent continuity of cemetery use, around which the medieval settlement developed?

Although the first post-Roman settlement sites in Worth parish are not known to archaeology, documents show estate units established by the tenth and eleventh centuries (RCHM 1970, 413-15). Furthermore, linear boundaries running north from the sea may well perpetuate at least two and perhaps four of those estates' boundaries. There has been much speculation about the relationship of Roman

villas and medieval parishes; in Dorset, some areas may show consonance even between lesser Roman settlements and later land units (e.g. Bailey 1980). It is interesting, therefore, that each of three of the four medieval estate units defined by linear boundaries in south Worth has one of the four known significant Iron Age and Roman sites within it: from the west, the St Aldhelm's Head site is in Renscombe; the dumped material at Compact Farm came from Weston; and the excavated site at Compact Farm is in Worth itself. Furthermore, if the boundary between Worth and Eastington were extended northwards, the Gallows Gore concentrations would fall into the latter. Exact continuity of boundaries is unlikely, since the western boundary of Rempstone partly over-runs the edge of the 'Celtic' field system on Kingston Down, but some general outlines may be discernible, and it is at least demonstrable that the Purbeck landscape has much further information to yield.

#### BIBLIOGRAPHY

- Bailey, C.J., 1980, 'Settlement patterns in the Bride Valley', *Dorset Proceedings* 102, 104-6.  
 Beavis, J., Cox, P. and Woodward, P.J., 1982, 'An Iron Age storage pit near St Aldhelm's Head, Worth Matravers', *Dorset Proceedings* 104, 179.  
 Catlin, J.B., 1954, 'Some archaeological discoveries in the Isle of Purbeck', *Dorset Proceedings* 74, 48-54.  
 Cox, P.W., 1988, 'A seventh century inhumation cemetery at Shepherd's Farm, Ulwell near Swanage, Dorset', *Dorset Proceedings* 110, 37-47.  
 Davies, S.M., 1987, 'The Romano-British finewares', 120-1 in Green 1987.  
 Farrar, R.A.H., 1964, 'Recent discoveries and accessions', *Dorset Proceedings* 86, 114-14.  
 Field, N.H., 1965, 'Romano-British settlement at Studland, Dorset', *Dorset Proceedings* 87, 142-207.  
 Green, C.S., 1987, *Excavations at Poundbury, Dorchester, Dorset 1966-1982. Volume 1: The Settlements* D.N.H.A.S. monograph.  
 Morris, P., 1979, *Agricultural Buildings in Roman Britain*, Brit. Archaeol. Rep. Brit. Ser. 70 (Oxford).  
 Murray, A., 1978, 'Money and robbers, 900-1100', *J. Medieval Hist.* 4, 55-94.  
 R.C.H.M. 1970, Royal Commission on Historical Monuments (England), *Dorset, Volume Two, South-East* (London).  
 Seager Smith, R., and Davies, S.M., forthcoming, 'The Roman pottery', in Woodward *et al.*, forthcoming.  
 Sunter, N., 1987, 'Excavations at Norden', 9-43 in Sunter and Woodward 1987.  
 Sunter, N., and Woodward, P.J., 1987, *Romano-British Industries in Purbeck*, D.N.H.A.S. monograph 6.  
 Timby, J., 1987, 'First century imports and native fine wares', 73-81 in Woodward 1987a.  
 Van der Veen, M., 1989, 'Charred grain assemblages from Roman-period corn driers in Britain', *Archaeol. J.* 146, 302-19.  
 Woodward, P.J., 1980, 'A comparison of coin groups from Romano-British settlements in Purbeck - a reflection of their contrasting status', *Dorset Proceedings* 102, 102-4.  
 Woodward, P.J., 1987a, 'The excavation of an Iron Age and Romano-British settlement at Rope Lake Hole, Corfe Castle, Dorset', 125-80 in Sunter and Woodward 1987.  
 Woodward, P.J., 1987b, 'The excavation of a late Iron Age trading settlement and Romano-British BBI pottery production site at Ower, Dorset', 44-124 in Sunter and Woodward 1987.  
 Woodward, P.J., Davies, S.M., and Graham, A.H., forthcoming, *Excavations at the Old Methodist Chapel and Greyhound Yard, Dorchester*, D.N.H.A.S. monograph.

## RECENT ARCHAEOLOGICAL WORK AT CHANTRY FIELDS, GILLINGHAM.

Michael J. Heaton

### Introduction

Construction of the new relief road and proposed adjacent residential and commercial developments at Gillingham, have provided the opportunity for archaeological examination of an area of approximately 4 ha on the south-western edge of the town. Between October 1990 and December 1991, three adjacent areas within Chantry Fields (centred ST 806 263) were examined by Wessex Archaeology (Site codes W301, W465 and W475) and deposits of early and later medieval date were recorded. A full report on the relief road excavations (W301) has been prepared for the *Journal of the British Archaeological Association* (Heaton forthcoming). Subsequent assessments on the adjacent sites have placed the earlier results in a more secure context, and this short note attempts to synthesise the results and significance of the site as a whole. Other work by A.C. archaeology, directed by Peter Cox and on-going at the time of writing, is not referred to here.

### Background

Chantry Fields is - at the time of writing - an area of low-lying permanent pasture spanning the southern edge of the floodplain of the River Stour on the south-western edge of Gillingham, bisected by a footpath leading to the village of East Stour. The area of current interest encompasses three fields; two on the west of the footpath, and a larger one to the east, all now traversed by the relief road, and bordered to the north and east by the river (Fig.2). The land was endowed to St Katherine's Chantry in 1330 and passed to Sherborne School at the Dissolution (Penn 1980). The area to the east of the path was still at the time of evaluation owned by Sherborne School, that to the west had passed into private ownership by the middle of the last century. There are few documentary references to Chantry Fields

known to the author, and none pre-dating 1330.

The potential importance of Chantry Fields was brought to the attention of Wessex Archaeology by members of the Shaftesbury and District Archaeological Group who commented on the presence there of hitherto unrecorded earthworks, whilst the Unit was undertaking assessments of other parts of the relief road route (Smith 1989, Heaton 1990). Test-pits opened in October 1990 revealed cut features, pottery of 12th-14th century date, slag and fragments of fired-clay. Full excavation proceeded immediately, ahead of road construction which began in January 1991. Once the importance of the site had been demonstrated (see below), the County Archaeologist advised the County and District planning committees that determination of all large scale planning applications on land within Chantry Fields should be preceded by archaeological assessment. Subsequently, two such exercises have been commissioned by private developers, and both have revealed extensive archaeological deposits to the east and west of the new road line (Heaton and Smith 1991a, 1991b).

### Results

Exhaustive trench and artefact descriptions are available in the respective site archives (currently housed at Wessex Archaeology, but to be deposited at the County Museum). For the purposes of this essay, trench and feature dispositions, and earthwork layout are illustrated on Figure 2, and a crude comparison of artefact densities is presented on Table 1. The deposits comprised two chronologically separate groups: a pair of identical grain-drying ovens (280 and 416) of mid-Saxon date surrounded by a broad ash-filled ditch (153) of indeterminate earlier-medieval date; and an extensive group of ditches and gullies delineating raised platforms and rectangular enclosures, dated to the 12th-14th century. Aspects of both groups of deposits were, and to an extent still are, represented in the earthworks as surveyed by the Royal Commission on Historical Monuments for England (reproduced with permission on Fig. 1).

The layout of the ditches and earthworks is best described by Fig. 2. Suffice it to say that, in general, depths were proportionate to width, most were filled with undifferentiated greyish-brown, heavily mineralised, silty clay-loams, and few contained artefacts. Notable exceptions were the narrow gullies and ditches in W465 trench 4 (east of the road) which were filled with relatively large quantities of pottery, slag and charcoal. Some recutting and realignment was evident in the larger ditches such as ditch 300. Apart from a handful of solitary postholes (W465 trenches 3 and 4, W475 trenches 5 and 6) and the solid-looking square earthwork enclosure at the north end of the site behind Chantry Cottage, there was no evidence of domestic structures.

The nature of the grain driers 280 and 416 is not so immediately evident from the illustration. They were 'T'-shaped, both comprising shallow, flat-bottomed, rectangular pits, 5.7 m long and 2.2 m wide, aligned N-S, with long narrow flues running E-W all lined with clay-rendered coursed stonework. They were positioned 8 m apart with the flues extending outwards, presumably to stoikepits which had been cut away by the later ditch 153. The clay rendering on the inside faces of the stonework had extended upwards into a covering superstructure which, judging from twig impressions in the fragments of fired-clay lining, was supported by a wicker framework. It was hard-fired but not vitrified, and archaeomagnetic dating pinpointed the last firing to the 8th century AD. Both ovens went through three similar phases of use and redesign which progressively reduced their internal areas and replaced the flues with simple openings at the southern ends. All phases contained charcoal, predominantly coppiced oak which produced a radiocarbon date of cal AD 641-680, and carbonised seeds, of which processed cereal grains were the most abundant. A final structure (459, not illustrated on Fig. 1) superimposed across the collapse of the ovens, contained similar seed and charcoal assemblages but was of cist, or orthostat, construction with no evidence of the clay-and-wicker superstructure.

The oven complex was surrounded by a broad, flat-bottomed ditch (153) filled with a black mixture of ash, charcoal, large slags, immense quantities of fired-clay, and loam, and had cut through components of the ovens, including their stoikepits. No datable artefacts, other than one or two abraded Romano-British sherds, were recovered from either the ovens or ditch 153. It is possible that it had formed or incorporated the stoikepits, but later recutting and cleaning had removed any clear evidence of this relationship.

Apart from pottery, fired-clay and slag, the total quantities of finds from Chantry Fields were small, and numbers vary considerably between the different areas (Table 1). The pottery, examined by Lorraine Mephram, was of a predominantly coarse, sandy fabric, of the sort produced at Laverstock (near Salisbury, Wiltshire) in the 13th century. The rest, although of unknown source, is likely to be of local

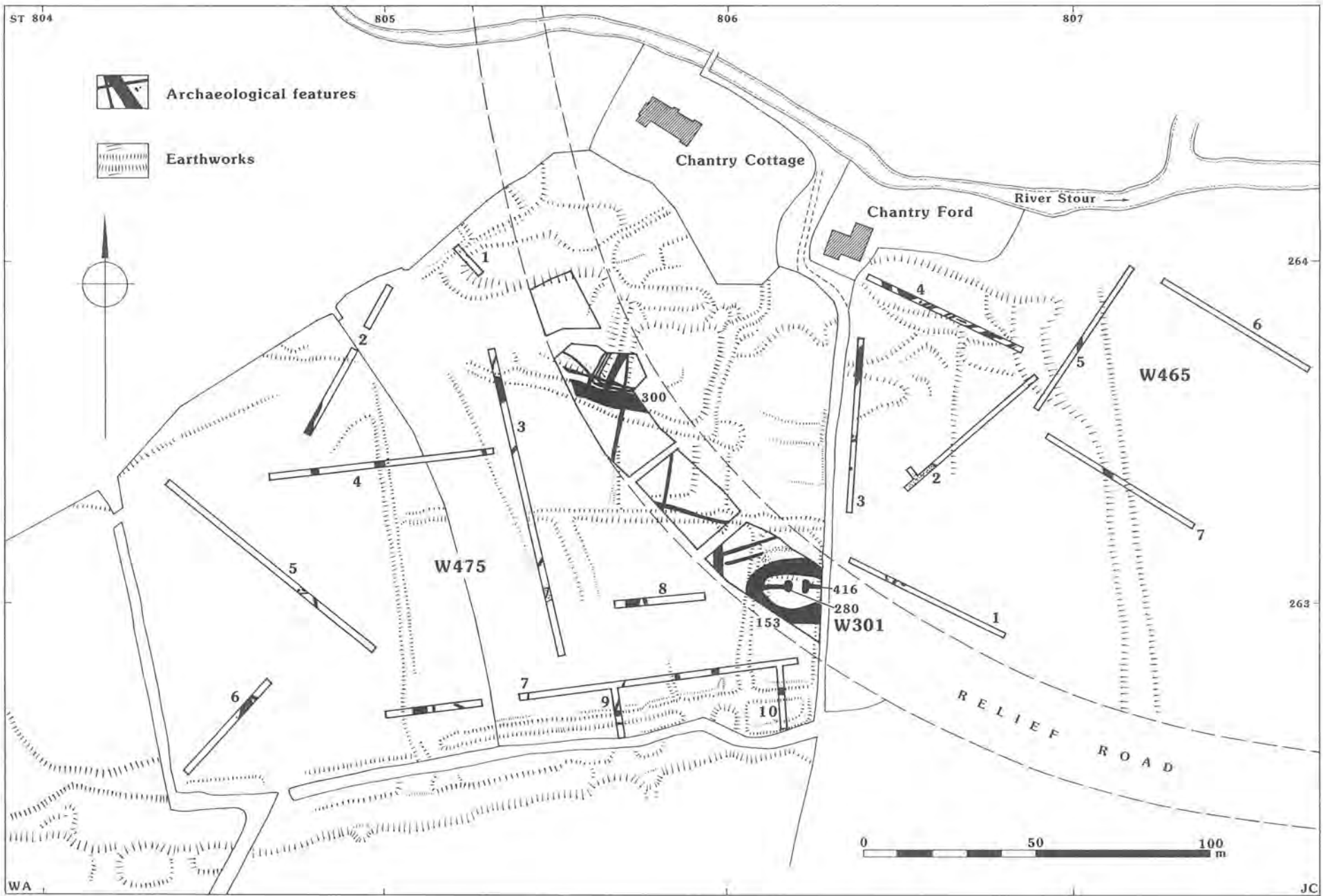


Figure 2: Chantry Fields, Gillingham.

origin and fall within the 12th-14th century date range. Small quantities of residual Romano-British wares were also recovered.

The fired-clay, examined by Julie Lanley, was all of a single fabric, probably derived from the local clay, and varied in colour from red to black. Many fragments bore twig impressions of a consistent thickness but there was no conclusive evidence of wattle. An original total of one cubic metre of unfired clay per oven has been estimated.

Table 1: Comparison of artefact densities from sites in Chantry Fields.

	Chantry Farm	Relief Road	Waitrose Site
Development area	2 hectares	0.4 hectares	1 hectare
Trench area	813 sq m	2,600 sq m	525 sq m
Total Medieval pottery	18/145g	216/1,954g	74/566g
Average sherd weight	8.05g	8.96g	7.64g
Number/weight per sq m of trench	0.02/0.17	0.08/0.75	0.14/1.07
Slag (wt)	0	57,701g	2,852
fired-clay	135g	97,841g	81g

The above is a crude calculation of comparative pottery densities based only on area of trench and not on volume of archaeological deposits examined. However, as the medieval ditch features revealed in the Relief Road excavations were not excavated entirely, but in narrow sample segments, the data from the three sites are broadly comparable.

Dr Gerry McDonnell established that the slag was the product of iron smelting, uncharacteristic of Roman or medieval material, and therefore likely to be Saxon. However, none was associated directly with the ovens, the majority having been recovered from the fills of ditch 153 and from the ditches in W465 trench 4 (Fig. 1).

### Discussion

To the best of local knowledge, the western part of Chantry Fields has never been ploughed, and the eastern areas only once. Certainly the remarkably well preserved deposits would corroborate this. The lack of artefact dispersal evident in the restricted distribution of the charcoal, fired-clay and ash, and the survival of masonry components of the oven beneath only a few centimetres of turf, suggests that the ovens, at least, were recorded virtually complete. They are, therefore, the earliest recorded structures from Gillingham and the first reliable archaeological evidence for a pre-Conquest origin. Their unparalleled size and layout, and isolated setting certainly indicate the existence of developed trade, and possibly the Royal presence in pre-Conquest Gillingham alluded to by the *Anglo-Saxon Chronicles* and other documentary sources (Keen 1984).

The later medieval earthwork and ditch complex, the limits of which appear to have fallen entirely within Chantry Fields, are almost certainly the remnants of a drained field system around a small domestic site of some sort, perhaps a manor or farmstead. The higher artefact density of the W465 features suggests it was centred towards the central northern perimeter of the site to the rear of Chantry Ford and Chantry Cottage, probably around the large rectangular earthwork platform formed by ditch 300 (Fig. 1). The large quantities of slag recovered (Table 1) indicate that iron was being smelted in the immediate vicinity.

The assessments, surveys and excavations at Chantry Fields have together recorded elements of a well preserved and probably complete, early and later medieval rural site. Hitherto, research into the origins of Gillingham - one of Dorset's fastest growing small towns - has remained an archaeological backwater, apart from passing references in the standard survey texts (Penn 1980, Keen 1984). This is partly due to Gillingham's geological and geographical isolation from the rest of Dorset and its similarities to the adjacent areas of eastern Somerset. In any case, the origins of medieval settlement in north Dorset and Somerset have received comparatively little attention (Aston 1985) with few excavations to corroborate the documentary and aerial photographic evidence. The current and on-going work at Chantry Fields will be a significant addition to the study of rural settlement in the South West and national research into Saxon trade and industry.

### Acknowledgements

The majority of the documentary research was undertaken by Merry Ross, who also first appreciated the potential of the site, and other members of the Shaftesbury and Gillingham societies. The fieldwork was financed by the Dorset County Council (W301), Kinfield (Management) Ltd (W465) and Mrs L. C. Martin (W475).

### References

- Aston, M.A., 1985, 'Rural settlement in Somerset: some preliminary thoughts,' in Hooke, D., (ed) *Medieval Villages*, Oxford University Committee for Archaeology, Monograph series, No. 5.  
 Heaton, M. J., 1990, *Gillingham Relief Road, Gillingham, Dorset: Archaeological Assessment*, Wessex Archaeology Report W301, Wessex Archaeology (1990).  
 Heaton, M. J., in prep., 'Two mid-Saxon grain driers and later medieval features at Chantry Fields, Gillingham, Dorset.'  
 Heaton, M. J., and Smith, R. J. C., 1991a, *Waitrose Site, Gillingham, Dorset: Archaeological assessment*, Wessex Archaeology Report W465, Wessex Archaeology.  
 Heaton, M. J., and Smith, R. J. C., 1991b, *Chantry Farm, Gillingham, Dorset: Archaeological assessment*, Wessex Archaeology Report W475, Wessex Archaeology.  
 Keen, L. J., 1984, 'The towns of Dorset', in Haslam J. (ed.), *Anglo-Saxon Towns in Southern England* (1984), 203-47. (London and Chichester, Phillimore).  
 Penn, K. J., 1980, *Historic Towns in Dorset* (Dorset Natural History and Archaeology Society, Monograph Series, 1 (1980), 65-9.  
 Smith, R. J. C., 1989, 'Gillingham Relief Road', *Proceedings of the Dorset Natural History and Archaeology Society*, 111 (1989), 111.

### SIR WILLIAM MARTYN:

the true history of the builder of Athelhampton Hall.

Amanda Colbourne

The earlier wings of Athelhampton Hall were built in about 1495, when a licence was issued "to William Martyn, gentleman, and his heirs, to enclose and fortify their manor at Adlampston, co. Dorset, with walls of stone and lime, and to build towers within the said manor and crenellate the same."<sup>1</sup> Thus it is known that Martyn, later Sir William (d. 1504), was responsible for the building of the older parts of the house, including the Great Hall. However, little has been written about him apart from this. The guidebook to the house and various works of architectural and local history inform the reader that Sir William was a London skinner, and Lord Mayor of that city in 1492-3, and this description has been taken as undisputed fact. However, a close inspection of the sources has revealed much more about Sir William's life, and has disproved previous assumptions.

A William Martyn was indeed Lord Mayor of London in those years, but an error has been made in assuming that he and William Martyn of Athelhampton, his contemporary, were one and the same. It would have been difficult for one man to lead such a busy life as William Martyn would have done. In London, he was a mayor, alderman, skinner, and collector of customs and subsidies for the port,<sup>2</sup> all duties which involved him in considerable activity. Meanwhile, in Dorset, William Martyn was not only a considerable landowner, but also at various times a Commissioner of the peace, active on behalf of the government at a local level, and collector of customs and subsidies for the port of Poole.<sup>3</sup> To have achieved all this would surely have been well nigh impossible for one man. Further considerations will prove beyond doubt that there were in fact two Sir William Martyns.

Firstly, it seems strange that separate general pardons should have been granted for offences previous to the first of March 1502, to "William Martyn of Athelamston, co. Dorset, knight", then later to "William Martyn, knight and alderman", a citizen of London.<sup>4</sup> This could be viewed as a possible administrative error, but further information adds fuel to doubts.

Another pardon roll refers to one Richard Martyn, gentleman, skinner or merchant of the Staple as "son and heir of William Martyn, knight, late alderman of London".<sup>5</sup> However, the heir to the Athelhampton estate was called Christopher Martyn. William Martyn's second son was called Richard, so this might have been him, but the 1623 *Addenda to the Visitation of Dorsetshire* refers to him as Richard Martyn of Exeter, not London. Also, according to the Dorset historian, John Hutchins, the father of William Martyn was called Thomas Martyn.<sup>6</sup> However, elsewhere it is stated that the father of William Martyn, Lord Mayor of London, was Walter Martin of Hertford.<sup>7</sup> This certainly suggests that there were two Sir William Martyns, but more information is required in order to be certain.

There are various other discrepancies which cast further doubt on the previous assumptions. According to the *Chronicles of London*,

(*Cal. P. R.* = *Calendar of the Patent Rolls*; *Cal. F. R.* = *Calendar of the Fine Rolls*; *Cal. Inq. P. M.* = *Calendar of Inquisitions Post Mortem*; *Proc. D.N.H.A.S.* = *Proceedings of the Dorset Natural History and Archaeological Society*.)

1. *Cal. P. R.*, 1494-1509, p. 43

2. *Cal. F. R.*, 1471-1485, pp. 103, 255.

3. *Ibid.* pp. 64-5, 103-5.

4. *Cal. P. R.*, 1494-1509, pp. 276, 284.

5. *Letters and Papers of Henry VIII*, I, i: 438.

6. J. Hutchins, *The History and Antiquities of Dorset* (1863 ed.) ii, 582, 586.

7. W. Herbert, *The History of the Twelve Great Livery Companies of London*, cited in the notes to C. L. Kingsford, *Chronicles of London* (1905), p. 323.

William Martyn, alderman, was knighted in 1494,<sup>8</sup> yet William Martyn of Dorset continues to be referred to as "gentleman" rather than "knight" until 1501.<sup>9</sup> Also, although there are many mentions of places in Dorset in the will of Sir William Martyn of Athelhampton, nowhere in London appears to be mentioned.<sup>10</sup>

Important corroborative evidence is provided in the *Index of Wills Proved in the Prerogative Court of Canterbury*. Here one finds that a will was proved in 1504 of a Sir William Martyn of Puddletown, Dorset, and a further will was proved in 1505 of Sir William Martyn of St. Christopher's London.<sup>11</sup> The final confirmation that there were in fact two Sir William Martyns comes through the differing dates of their deaths. Sir William Martyn of Athelhampton died on 24th April 1504.<sup>12</sup> Yet according to the *Great Chronicle of London*, in its description of the events of 1505: "In the beginning of the month of October died Sir Henry Colet ... And shortly after died Sir William Martyn skinner and late mayor ..."<sup>13</sup> Since the two men died eighteen months apart, it seems certain that there were two Sir William Martyns, not just one. Sir William Martyn was not a skinner, alderman or Lord Mayor of London.

So how has this wrong information continued to be accepted for so long? Hutchins never reported it, and it seems to have been an assumption of rather more recent origin. Apparently the earliest publication to state such an idea is S. Heath and W. de C. Prideaux's *Some Dorset Manor Houses* of 1907, for which a degree of research using primary sources was done, presumably leading the authors to make a wrong assumption, subsequently accepted by others.<sup>14</sup>

Sir William Martyn of Athelhampton may not have been a Lord Mayor of London, but within Dorset he was a figure of considerable importance. His family had long been established in the county, and was among the most significant gentry families in the locality, along with others such as the Trenchards, Turbervilles, and Stangways, who all worked together in local affairs and frequently intermarried. William Martyn's father held manors in Somerset, as well as the Athelhampton estate.<sup>15</sup> William Martyn's mother was Thomas Martyn's first wife, a daughter of Sir John Clevedon, and he himself married Isolda Faringdon, who bore him a son and heir, Christopher. Through her, William Martyn gained estates at Winterbourne Faringdon and Tincton.<sup>16</sup>

He is first mentioned in the records in 1470,<sup>17</sup> and it was in the 1470s that he began to hold positions of responsibility, as collector of customs and subsidies at Poole in 1473 and 1476,<sup>18</sup> a position held before by his father in 1449,<sup>19</sup> and later by his son, Christopher in 1499.<sup>20</sup> William Martyn possessed property in Poole at the time of his death,<sup>21</sup> and might well have been involved in some trade, judging by a licence to import wine granted to a William Martyn of Dorset in 1486.<sup>22</sup> It was probably at about the time that he was collector of customs and subsidies, c. 1471-5, that the tomb ascribed to him in St. Mary's Church, Puddletown, was made,<sup>23</sup> revealing in its collar of suns and roses the Martyns' Yorkist loyalties in the political struggles going on at the time.

It was in 1482 that he first served as a commissioner of the peace,<sup>24</sup> the year after his father served in this capacity for the last time,<sup>25</sup> suggesting that at this point he was taking over his father's responsibilities. He fulfilled many demands of service of the government in the local community from then onwards. On 14th September 1485, Thomas Martyn died, and William Martyn inherited the manor of Athelhampton and, in Somerset, "the manors of Forham and Wandstree, with their appurtenances in Shepton Mallet and

Wandstree".<sup>26</sup> It was from these and other estates which he acquired that the bulk of his income would have come, especially through sheep farming. Such farming brought prosperity to many in the region at this time, including other Dorset gentry families, for example the Trenchards at Wolfeton,<sup>27</sup> and this also seems to have been the case with the Martyns, whose interests are shown by frequent legacies of pasture and sheep in Sir William's will.<sup>28</sup>

He frequently served as a commissioner of the peace,<sup>29</sup> and joined with other local gentlemen in making enquiries; ensuring the assessment and collection of subsidies;<sup>30</sup> summoning nobles to musters;<sup>31</sup> and carrying out numerous other administrative, judicial and law enforcement duties, including several times having to deliver the gaol at Dorchester,<sup>32</sup> and enquiring into escapes of felons.<sup>33</sup> Despite the Martyn's apparent support for the Yorkist cause in the past, he continued to serve loyally under the Tudor kings, and, like most of those from prominent Dorset families, held aloof during the risings in support of Perkin Warbeck in 1497.<sup>34</sup> His loyal service and important position were recognised when he was made sheriff of Somerset and Dorset in 1489 and 1500.<sup>35</sup> These qualities were also reflected when he was one of the men chosen to escort Katharine of Aragon for part of the way on her journey through the west country and on to London for her marriage to Prince Arthur in 1501.<sup>36</sup> It was probably in that same year that William Martyn was knighted, a reward for almost thirty years of service to the Crown in his local capacity.

Isolda, his first wife, was still alive at the time of Thomas Martyn's death.<sup>37</sup> The fireplace in the State Bedchamber at Athelhampton displays her arms with those of her husband, so it was probably towards the end of his life, after the house was built, that he married Christina, daughter of Sir Amias or Sir William Paulet - no Paulet arms exist in the heraldic glass at the house. She and Sir William had two children, Richard and Elizabeth,<sup>38</sup> and Sir William left his second wife a part of his property, "in satisfaction of her dower of the manor of Athelhampton"<sup>39</sup>, to go after her death to their son.

Athelhampton Hall itself is testimony to its builder's character and social status. Though it is quite small and not at all showy, Sir William's wealth is clear in the expensive yet subtle detail in the Great Hall, with its elaborate beamed roof and impressive full-height bay window, for which the heraldic glass must have been extremely costly. Though eschewing vulgar display, Sir William built a house which would have shown that he was a man of importance and with taste. In the heraldic arms of the hall windows are recorded the important marriage alliances of the Martyns, in a colourful display. His conservatism is shown in the traditionalism of his home, with its battlements and turret, ineffective for defence and a picturesque legacy of medieval tradition, like the armour-clad knight on the tomb believed to be his. It is quite likely that Sir William was a major contributor to rebuilding at St. Mary's, including the Athelhampton aisle, which was probably being carried out during his lifetime.<sup>40</sup>

Sir William died in 1504, leaving considerable provisions for his afterlife in his will, made the previous year.<sup>41</sup> He took many precautions in order to ensure the safe passage of his soul, even by the standards of his day, leaving gifts to six local Possessor monastic communities; to the friars; to many of the local parish churches of the areas in which he owned land, as well as to his own parish church at Puddletown and the Martyn's chapel there; and personal legacies, including even one to his brother, Henry Martyn, leaving him forty sheep so that he would pray for him. With characteristic care and caution, Sir William made sure that all efforts were made for him after his death.

8. ed. C. L. Kingsford, *op. cit.*, p. 200.

9. *Cal. P. R.* 1494-1509, p. 286.

10. *Will of Sir William Martyn*, Public Record Office reference PROB 11/14.

11. *Index of Wills Proved in the Prerogative Court of Canterbury, 1398-1558*, ii:358.

12. *Inq. P. M.*, Henry VII, ii:607.

13. ed. A. H. Thomas, *The Great Chronicle of London* (1937), p. 329.

14. S. Heath & W. de C. Prideaux, *Some Dorset Manor Houses* (1907), pp. 11-12.

15. *Cal. Inq. P. M.*, Henry VII, i:48.

16. *Ibid.*, ii:242.

17. *Cal. P. R.*, 1467-77, p. 211.

18. *Cal. F. R.*, 1471-85, pp. 64-5, 103-5.

19. *Cal. F. R.*, 1445-52, pp. 98-9.

20. *Cal. F. R.*, 1485-1509, p. 283.

21. *Cal. Inq. P. M.*, Henry VII, ii:242.

22. ed. Rev. W. Campbell, *Materials for a History of the Reign of Henry VII* (1873), i:381.

23. Viscount Dillon, "An Effigy to a Member of the Martin Family in Puddletown", *Proc. D.N.H.A.S. XIX* (1898), p. 153.

24. *Cal. P. R.*, 1476-1485, p. 559.

25. *Ibid.*, pp. 558-9.

26. *Cal. Inq. P. M.*, Henry VII, i:48.

27. *Wolfeton guidebook* (1976), p. 3.

28. *Will of Sir William Martyn*, see note 10.

29. *Ibid.*, p. 559; *Cal. P. R.*, 1485-94, p. 485; *Cal. P. R.*, 1494-1509, p. 636.

30. *Cal. P. R.*, 1476-1485, p. 394; *Cal. P. R.*, 1485-94, p. 240.

31. *Cal. P. R.*, 1485-94, p. 278.

32. *Ibid.*, pp. 392, 393; *Cal. P. R.*, 1494-1509, p. 146.

33. *Cal. P. R.*, 1494-1509, p. 357.

34. *Victoria County History of Dorset*, ii:142.

35. *Cal. F. R.*, 1485-1509, pp. 132, 133.

36. ed. J. Gairdner, *Letters and Papers Illustrative of the Reigns of Richard III and Henry VII* (1861), i:407.

37. *Cal. Inq. P. M.*, Henry VII, i:48.

38. J. Hutchins, *op. et loc. cit.*

39. *Cal. Inq. P. M.*, Henry VII, iii:241-2.

40. Canon A. L. Helps, *St. Mary's Church, Puddletown* (1972 ed.).

41. *Will of Sir William Martyn*, see note 10.



# Natural History Reports

## GEOLOGY

MICHAEL HOUSE

### Oil Company Exploration

In December 1990 British Petroleum Co. Ltd announced that it had abandoned its plans to build an artificial island in Poole Bay, east of the Sandbanks entrance to Poole Harbour. The statement indicated that it would no longer seek legislation to do this. Such legislation is currently before parliament, and it is to be presumed that this will be withdrawn. In doing so it said that it will use new technology of wells starting vertically and turning horizontally to penetrate the eastern oil reservoir. An estimated cost of some 80 million pounds was given. The oil is to be piped to Fawley beside Southampton Water for refining. Reserves in the new field were stated to be 100 million barrels.

Also in December a new deep well was commenced by Brabant Petroleum Ltd in the Weymouth area north-west of Hewish Hill, 4 km north of Chickerell, and immediately south of the old Weymouth to Abbotsbury railway line. No indication of the purpose of the well has been given or the depths of any possible reservoirs. In the 1950's BP drilled some shallow wells in the Weymouth Lowlands, seeking especially for oil in the Bridport Sands but none led to production and deeper prospects are likely.

### HALITE PSEUDOMORPHS FROM THE CHERTY FRESHWATER MEMBER (PURBECK LIMESTONE FORMATION) OF LULWORTH COVE, DORSET

J.D. RADLEY

Museum of Isle of Wight Geology, High Street, Sandown, Isle of Wight PO36 8AS

The Cherty Freshwater Member of the Purbeck Limestone Formation in Dorset comprises a sequence of shelly carbonates and mudstones. It occurs approximately halfway up the Dorset Purbeck sequence (Clements 1969). Wimbledon (1987) places it in the *lampughii* biozone, although there is no direct ammonite evidence. Wimbledon & Hunt (1983) tentatively suggest that this zone may be of post-Jurassic, early Berriasian age.

These beds in Dorset have long been renowned for their well-preserved gastropod faunas, which occur especially in the cherty beds near the top, throughout Dorset. For reviews of previous research on Purbeck Limestone gastropods, see Arkell (1941) and Clements (1973). For stratigraphy of the Dorset Purbeck Limestone Formation see Clements (1969) and Wimbledon (1987); important works on Purbeck palaeoenvironments include West (1975), El-Shahat (1977) and Francis (1984, 1986).

The cliff section on the east side of Lulworth Cove (NGR SY 828 798) displays two thick beds (beds C1 and C3 of Clements 1973) of cherty biomicrite (respectively 20-40 cm and 75 cm thick) which sandwich a thin (3-7 cm) calcareous pebbly mudstone (bed C2 of Clements 1973). The highest of the two biomicrites occurs approximately 55 cm below the base of the Cinder Bed (bed E of Clements 1973).

Both biomicrites are richly fossiliferous; the higher in particular contains a rich gastropod fauna (notably *Viviparus sp.*, *Valvata helicelloides*, *Huckriede*, *Hydrobia chopardiana* (de Loriol), *Physa bristovii* (Forbes M.S.), *Phillips* and *Planorbis fisheri* (Forbes M.S.) Arkell. Additionally, bivalves (*Neomiodon sp.*) are common, together with ostracods and charophyte debris. Analogies with modern faunas (see Boycott 1937 and Yen 1951 for examples) indicate that the gastropods were low-salinity forms (also see Clements 1973).

More significantly, the top half of the higher bed also contains calcite-filled desiccation vugs ("birdseyes") and halite pseudomorphs which are now preserved as external moulds. These appear to have been first documented from the Cherty Freshwater Beds by Meyer (1872) who recognised at Durlston Bay, Swanage "Siliceous pseudomorphs of crystals of salt" in strata "Crowded with fossils of purely freshwater genera (*Unio*, *Physa*, *Valvata*, *Paludina*, *Planorbis*, besides innumerable valves of *Cypris* and seed-vessels of *Charae*)". The halite pseudomorphs have sometimes been later distorted and the moulds are empty, spar-lined or filled with brecciated micrite. This seemingly anomalous association of low-salinity fossils with high-salinity evaporite relics requires some explanation.

These two micrite units seem to be closely analogous, both in lithology and biota to some Recent lacustrine lime muds described from Littlefield Lake in central Michigan by Murphy & Wilkinson (1980). This modern temperate region lake has an area of 0.7 km and is developed in an area of calcareous glacial drift. Here sediments are encountered which include charophytic, gastropod and ostracod-rich micrites. Where found in recent low-salinity water-bodies, micrite is considered to be partly of organic and partly of inorganic origin (Dean & Fouch 1983). Organic micrite is the product of skeletal breakdown (charophytic algae, molluscs, ostracods, see for instance Murphy & Wilkinson 1980) and processes of organic precipitation. Amongst the calcareous biogenic contributors, charophytes appear to be especially important (Tucker & Wright 1990). It seems likely that the Purbeck micrites described above are at least partly of organic origin.

Birdseyes within the higher biomicrite must have been formed by subaerial desiccation after deposition as verified experimentally by Shinn (1968). Such features are common in many marginal marine/lacustrine micrites, through the rock record. Halite crystals (now found as the pseudomorphs described above) would have precipitated in evaporating pools on the emergent mud flats.

The pebbly clay (bed C2) which occurs between the two similar biomicrites in the Lulworth section resembles the fossil soils described from the very basal Purbeck Limestone Formation in Dorset (Francis 1986), especially in its dark carbonaceous appearance and pebbly nature.

West (1975) infers a seasonal origin for associations of gypsum pseudomorphs and low-salinity fossils in the basal Purbeck Limestone Formation at Portesham, Dorset (also see Barker *et al.* 1975) and Francis (1984) suggests that a seasonal mediterranean-type climate was responsible for irregular growth rings in basal Purbeck tree remains. Whether the alternations of low-salinity transgressive with subaerial regressive events documented above were climatic or tectonic in origin is unclear however.

Halite pseudomorphs and birdseyes also occur at the same level nearby in Bacon Hole (NGR SY 840 797), 1.5 km to the east of Lulworth Cove (also see El-Shahat 1977), and Ensom (1985) has recorded similar halite replacements (here sometimes replaced by chert and possible celestite) in a cherty biomicrite (bed 114 of his account) 4.5 km to the east of the Cove at Worbarrow Tout (NGR SY 869 796). These are also at the same stratigraphic level as this Lulworth Cove pseudomorph bed. At Worbarrow Tout the base of Ensom's bed 114 bears in addition casts of tridactyl dinosaur footprints (Ensom 1984, 1985). This further substantiates a subaerial or extremely shallow-water origin for the immediately underlying sediments.

Halite pseudomorphs also occur in earlier members of the Dorset Purbeck Limestone Formation (see Brown 1964 and House 1966 for examples).

- Arkell, W.J., 1941, 'The gastropods of the Purbeck Beds', *Q. Jl. geol. Soc. London*, Vol. 97, pp. 79-128.
- Barker, D., Brown, C.E., Bugg, S.C. & Costin, J., 1975, 'Ostracods, land plants, and charales from the basal Purbeck Beds of Portesham quarry, Dorset', *Palaeontology*, Vol. 18, pp. 419-436.
- Boycott, A.E., 1937, 'The habitats of fresh-water mollusca in Britain', *J. anim. Ecol.*, Vol. 5, pp. 116-186.
- Brown, P.R., 1964, 'Petrography and origin of some upper Jurassic beds from Dorset, England', *Journ. sedim. Petrol.*, Vol. 34, pp. 254-269.
- Clements, R.G., 1969, 'The Purbeck Beds', pp. A57-A64, in Torrens, H.S. ed., *International Field Symposium of the British Jurassic*, Excursion No. 1. Guide for Dorset and south Somerset, pp. A1-A71.
- Clements, R.G., 1973, *A study of certain non-marine Gastropoda from the Purbeck Beds of England*. Unpublished PhD thesis, University of Hull.
- Dean, W.E. & Fouch, T.D., 1983, 'Lacustrine Environment', pp. 97-130. In: Scholle, P.A., Bebout, D.G., & Moore, C.H. (Eds), *Carbonate depositional environments*, AAPG.
- El-Shahat, A., 1977, *Petrography and Geochemistry of a Limestone-Shale Sequence with Early and Late Lithification; the Middle Purbeck of Dorset, England*. Unpublished PhD thesis, University of Southampton.
- Ensom, P.C., 1984, '*Ichneutes* spp. in Durlston Bay and on Worbarrow Tout'. *Dorset Proceedings*, Vol. 105, pp. 166-167.
- Ensom, P.C., 1985, 'An annotated section of the Purbeck Limestone Formation at Worbarrow Tout, Dorset', *Dorset Proceedings*, Vol.

- 106, pp. 87-91.
- Francis, J.E., 1984, 'The seasonal environment of the Purbeck (Upper Jurassic) fossil forests', *Palaeogeogr., Palaeoclimatol., Palaeoecol.*, Vol. 48, pp. 285-307.
- Francis, J.E., 1986, 'The calcareous palaeosols of the basal Purbeck Formation (Upper Jurassic), southern England', pp. 112-138. In: Wright, V.F. (Ed.), *Paleosols, their recognition and interpretation*, Blackwell.
- House, M.R., 1966, 'Dorset Natural History Reports: Geology', *Dorset Proceedings*, Vol. 87, pp. 33-34.
- Meyer, C.J.A., 1872, 'On the Wealden as a Fluvio-Lacustrine Formation, and on the relation of the so-called "Punfield Formation" to the Wealden and Neocomian', *Quart JI geol. Soc. London*, Vol. 28, pp. 243-255.
- Murphy, D.H., & Wilkinson, B.H., 1980, 'Carbonate deposition and facies distribution in a central Michigan marl lake', *Sedimentology*, Vol. 27, pp. 123-135.
- Shinn, E.A., 1968, 'Practical significance of birdseye structures in carbonate rocks', *J. sedim. Petrol.*, Vol. 38, pp. 215-223.
- Tucker, M.E. & Wright, V.P., 1990, *Carbonate sedimentology*, Blackwell.
- West, I.M., 1975, 'Evaporites and associated sediments of the basal Purbeck Formation (Upper Jurassic) of Dorset', *Proc. geol. Assoc.*, Vol. 86, pp. 205-225.
- Wimbledon, W.A., 1987, 'Rhythmic sedimentation in the Late Jurassic-Early Cretaceous', *Dorset Proceedings*, Vol. 108, pp. 127-133.
- Wimbledon, W.A. & Hunt, C.O., 1983, 'The Portland-Purbeck junction (Portlandian-Berriasian) in the Weald, and correlation of latest Jurassic-early Cretaceous rocks in southern England', *Geol. Mag.*, Vol. 120, pp. 267-280.
- Yen, T.C., 1951, 'Fossil freshwater molluscs and ecological interpretations', *Bull. geol. Soc. Am.*, Vol. 62, pp. 1375-1380.

## THE OCCURRENCE OF MEGALOSAURS IN THE PORTLANDIAN OF DORSET

J.B. DELAIR

Wootton, Boar's Hill, Oxford

*Megalosaurus*, the first dinosaur ever to be scientifically described (Buckland 1824, Delair & Sarjeant 1975), is Europe's best known Mesozoic terrestrial carnivore - at least in name. The abundance of Jurassic and early Cretaceous remains which have been referred to it, however, are generally very incomplete, and, seldom consisting of associated material, often comprise non-comparable units such as detached teeth or isolated vertebrae. Such remains are not diagnostic.

Down the years several species of *Megalosaurus* have been founded upon decidedly slender evidence. Despite two monographic studies of these and related forms (Huene 1926, 1932), the consensus of modern opinion is that, except for the type species (*Megalosaurus bucklandi*), most other species are so insecurely based as to be of dubious validity, (Seinton 1954) and the generic name, *Megalosaurus*, when applied to the varied and fragmentary material just alluded to, is ostensibly no more than a convenient 'umbrella' heading.

Nevertheless new records of occurrences of megalosaurs, no matter how spotty, are welcome, if only to emphasise their stratigraphic and geographic ranges during the Mesozoic. The present note constitutes a new Jurassic record for them in Dorset.

Previous surveys of Dorset's fossil reptilia Mansell-Pleydell 1888, Delair 1959) recorded megalosaurs from the Oxford Clay near Weymouth and the Purbeck Limestone near Swanage (Delair 1959, p. 78, 9), while more recently part of a megalosaurid maxilla has been described and figured from the Kimmeridge Clay of the seabed at West Bay (Powell 1988). Thus, of the county's Upper Jurassic strata, only the Portlandian formation has hitherto apparently been devoid of megalosaur remains.

Preserved in the 'new' gallery of the Portland Museum, however, are characteristic megalosaurid metatarsals from the 'Whit' bed (Portland Stone) of the Bath & Portland Stone Co's quarry, and an incomplete though otherwise typical megalosaurian vertebra from the same horizon in Parkfield Quarry, both on the Isle of Portland. Regrettably these specimens, like the other fossils in this museum, are presently unregistered but rectification of this situation is planned for the near future. Nonetheless they represent the first firm evidence of megalosaurs in the Portlandian of Dorset.

Although these specimens appear to be 'quite old' finds, their precise history is not documented and is, therefore, unclear. The writer's earlier (1959) survey of Dorset's Mesozoic reptilia occurred when access to the Portland collection was not possible, hence the omission

of these specimens from that report. A printed record of megalosaurs in the Portlandian of Dorset - even though their occurrence was evidently established some time ago - has thus been unavoidably delayed.

The present specimens are not wholly unique, however, for megalosaur teeth, now in the British Museum (Natural History), were obtained late last century from the Portland Stone at Hartwell, in Buckinghamshire (Lydekker 1905, Woodward 1895). Detached teeth are not, of course, osteologically comparable with similarly isolated vertebrae or metatarsals, and more than one megalosaurian species may conceivably be represented by this scattered material.

### Acknowledgements

The writer is much indebted to Dr Jane Francis for first drawing his attention to the specimens noticed here, to Mr. J.A.C. West (former curator) for permission to examine them, to Dr J. Aldridge-Goult (curator) for providing helpful information, and to Mr. J.N. Carreck for kindly making his independent MS notes on the fossils available for study.

- Buckland, W. 1824. "Notice on the Megalosaurus or Great Fossil Lizard of Stonesfield", *Trans. Geol. Soc. London*, Ser. 2, Vol. 1, p.390.
- Delair, J.B. 1959. "The Mesozoic Reptiles of Dorset: Part II", *Proc. Dorset Nat. Hist. & Arch. Soc.*, Vol. 80 (1958), pp. 52-90.
- Delair, J.B., and W.A.S. Sarjeant. 1975. "The Earliest Discoveries of Dinosaurs", *Isis*, Vol. 66, No: 231, pp. 5-25.
- Huene, F.F. von. 1926. "The Carnivorous Saurischia in the Jura and Cretaceous, principally in Europe", *Revista Mus. La Plata*, Vol. 29, pp. 35-167.
- Huene, F.F. von. 1932. "Die Fossil Reptile Ordnung Saurischia 'Ihre Entwicklung und Geschichte'", *Berlin Monogr. Geol. u. Pal.*; ser. 1, Heft 4.
- Lydekker, R. 1905. "Victoria County History of Buckinghamshire" (London), Vol. 1, art. 'Palaeontology', pp. 25-26: see p. 26.
- Mansell-Pleydell, J.C. 1888. "Fossil Reptiles of Dorset", *Proc. Dorset Nat. Hist. & Antiq. Fld. Cl.*, Vol. 9, p. 1-40.
- Powell, P.H. 1988. "A Megalosaurid Dinosaur Jaw-bone from the Kimmeridge Clay of the Seabed of West Bay, Dorset", *Proc. Dorset Nat. Hist. & Arch. Soc.*, Vol. 109 (1987), pp. 105-108.
- Swinton, W.E. 1954. "Megalosaurus: the Oxford Dinosaur", *Rep. Brit. Assoc. Adv. Sci.* (Oxford), pp. 130-134.
- Woodward, A.S. 1895. "Note on Megalosaurian teeth discovered by Mr. J. Alstone in the Portlandian of Aylesbury", *Proc. geol. Assoc.*, Vol. 14, pp. 31-32.

## A FURTHER EXAMINATION OF THE SUBFURCATUM ZONE (MIDDLE JURASSIC; UPPER BAJOCIAN) OF NORTH DORSET

JOHN HUXTABLE

21 Mountway Lane, Bishops Hull, Taunton

### Introduction

The *Strenoceras subfurcatum* Zone is possibly the poorest represented in the British Bajocian and has been positively identified at only a few isolated areas of Southern England. This Zone, together with the *Stephanoceras humphriesianum* Zone, straddle the Lower and Upper Bajocian boundary (See Table 1). A series of temporary sections were excavated near Sherborne, to obtain additional stratigraphical and faunal details on the important Dorset Bajocian deposits, including a section excavated in the grounds of College Farm, Upper Clatcombe (ST639194) which revealed a deposit of the *subfurcatum* Zone.

### Discussion

The area to the north and east of Sherborne (Dorset) is a classic area for the occurrence of the *subfurcatum* Zone and the importance of any exposure of this Zone must be emphasised. The deposition of the British Bajocian rocks, in common with much of the rest of the Jurassic, was controlled by pre-existing structural features, which influenced the distribution of sediment and resultant thicknesses of lithified strata.

The extremely restricted occurrence of the *subfurcatum* Zone ('notiense' beds of earlier authors), has prompted explanations that they represent the relicts of more extensively deposited beds (Buckman 1923; Parsons 1976) or that the isolated patches of *S. subfurcatum*-bearing sediment were laid down at the beginning of Upper Inferior Oolite times in restricted areas sufficiently depressed to receive sediment yet avoid subsequent erosion (Morley-Davies 1930; Arkell 1933).

The only known recorded reference of another similar section in the vicinity of this temporary excavation was made by Richardson (1930),

		ZONES	SUBZONES	NORTH DORSET OBORNE	NORTH DORSET UPPER CLATCOMBE
BAJOCIAN	UPPER	Parkinsonia parkinsoni	P. bomfordi	CRACKMENT LIMESTONES (pars) 116m	
			Strigoceras truellei	RUBBLY BEDS 13.0m	
		Strenoceras (Garantiana) garantiana	P. acris		
			St. (Garantiana) tetragona		
			St. (G) subgaranti		
			St. (Pseudogarantiana) dichotoma		
	Strenoceras subfurcatum	St. (G) baculata	CADOMENSIS BEDS 0.5-0.56m	CADOMENSIS BEDS 0.59m	
		Caumontisphinctes polygyralis			
		Teloceras banksi			
	LOWER	Stephanoceras humphriesianum	T. blagdeni	OBORNE ROAD-STONE BED 0.9-1.0m	ROAD-STONE BED EQUIVALENT
			S. humphriesianum		
			Dorsetensia romani		
Emileia (Otoites) sauzci				? ?	
Wichellia laeviuscula		W. laeviuscula	SPISSA BED 0.0-0.15m	BLUE BED =	
			BLUE BED 0.30-0.50m		
	Sonninia (Fissiloboceras) ovalis	3.5m	? ?		
Hyperlioceras discites		c. 0.5m			

Table 1. Middle Jurassic correlation based on Cope et al. (1980). Dark hatching indicates absence through non-sequence. Light hatching indicates absence through lack of exposure or modern erosion.

but no mention was made of beds higher than the *blagdeni* subzone, yet this record is only some 80m east of the temporary excavation here recorded. Similarly, a temporary section opened circa 1 km to the south and recorded by Buckman (1893) showed only beds from the *blagdeni* to *discites* subzone, and were re-affirmed by a now obscured road cutting near to Sherborne Golf Course (ST636184) (Parsons 1976). The thickest known deposit of the *subfurcatum* Zone rocks was recently recorded east of Sherborne at Osborne Wood (Parsons 1976) were they reach a maximum thickness of about 0.6m. Hudleston (1886) had named these deposits the 'cadomensis' beds, in order to highlight the faunal difference to the subjacent bed.

In view of the opposing views as to the conditions which resulted in the restricted occurrence of the *subfurcatum* Zone, the nearest exposure of any importance was visited (Frogden Quarry, Osborne) and account taken of the temporary section at Osborne Wood (now obscured) (Parsons 1976). The College Farm section has provided much useful information on both the *subfurcatum* and subjacent beds and the abundant ammonite fauna reinforces the subzonal scheme now in use.

Buckman's original concept, which he proposed in 1893, was based upon an acceptance of the *subfurcatum* Zone being originally widespread, but suffering extensive erosion at the outset of deposition of the *garantiana* Zone.

However, where these beds occur, they are thin, highly condensed and extremely fossiliferous deposits suggesting a slow rate of deposition and most likely of no great thickness after lithification. In addition to these observations the present site provided an abundant indigenous ammonite fauna from the *polygyralis* to *dichotoma* Subzones which conform to the faunal content of the beds of these subzones recognised at other sites in this area and elsewhere. It is the affinity of ammonite species from the *subfurcatum* Zone to those in higher (i.e. younger) beds, rather than those in the subjacent rocks, and the equally important fact that no evidence can be found of a deposit which, in its ammonite content, reflects both the erosion of the *subfurcatum* Zone and the incoming of a new ammonite fauna, which promotes the explanation of Morley-Davies (1930).

The following total section was measured at 1.58m seen, the working of the trench to a lower level proving impractical (See Table 2):

Bed 11. Comprising primarily subsoil clays containing a brash of orange-brown limestone lumps displaying a coarse surface, the result

of weathering. No epifaunal or contained fossils, nor any loose fossil evidence to be found. 0.20m

**STRENO CERAS (GARANTIANA) ZONE/ST. (G) DICHOTOMA SUBZONE**

Bed 10. A stiff clay containing occasional lumps of light brown non-oolitic limestone. A number of indeterminate turritellid gastropods see, and the occasional poorly preserved ammonite, heavily eroded with an infill of marly, sparsely ironshot limestone. *Cadomites* aff. *deslongchampsii* or *C. psilocanthus* *Strigoceras* sp. 0.25m

Bed 9. Rubbly and nodular buff sandy limestone. Occasional gastropods as Bed 10, but most noticeable was the abundance of belemnite guards. 0.02m

Bed 8. Somewhat tabular non-oolitic crystalline limestone. Extremely hard and having an oxidised yellowish surface and a pale grey centre. No macro-fossils noted. 0.03m

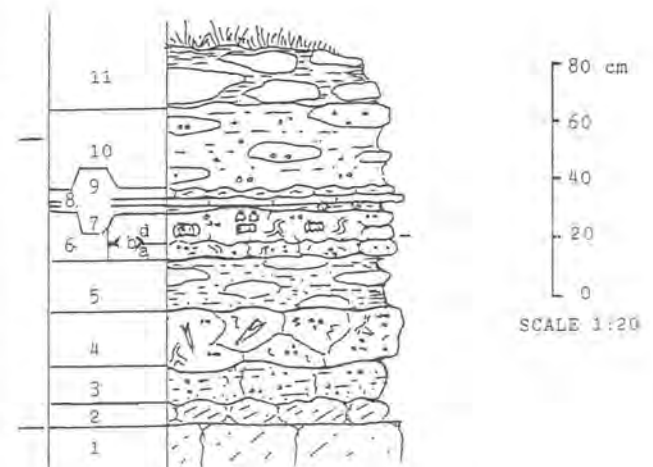


Table 2. Section at College Farm, Upper Clatcombe

## EROSION SURFACE

An erosion surface is suggested by numerous *Leptosphinctes* spp. with one side planed. Due to the presence of large quantities of clay sized material it was difficult to determine whether these ammonites appeared only in the absence of Bed 7.

## SUBFURCATUM Zone (The 'CADOMENSIS Beds').

Bed 7. A lenticular, soft and sandy limestone of a yellowish buff colour and containing shell fragments and sporadic echinodermal plates. This bed is possibly the representative of the *baculata* Subzone. *Leptosphinctes* sp., *Caumontisphinctes cf. polygyralis*. 0.00-0.05m.

Bed 6. Divided into four horizons on account of changes in both lithology and ammonite species. 0.18m.

## POLYGYRALIS SUBZONE

6(d). Toward the top of this horizon appeared the greater concentration of fossils. A creamy, soft limestone with a high proportion of clay and large limestone casts of oolitic material, the ooliths being red and larger than those lower down. Together with abundant ammonites were numerous brachiopods and small bivalves plus occasional gastropods. Toward the bottom of the bed the limestone becomes harder with fewer macro fossils but an increase in other shelly material. At the base of this part of the bed appeared thin lenses of a bluish centred, crystalline limestone containing abundant brachiopods - 'Sphaeroidothyris Bed' - with an abundance of *S. sphaeroidalis* (J. de C. Sowerby), *Cadomites septicosatus* (S.S. Buckman), *Garantiana* sp. aff. *densicostata* (Quenstedt), *Caumontisphinctes polygyralis* (S.S. Buckman), *C. cf. phaulus* (S.S. Buckman), *Oppelia* aff. *flexa* (S.S. Buckman), *Lissoceras* sp., *Strigoceras symplectus* (S.S. Buckman); and *Poecilomorphus primiferus* (S.S. Buckman); *Acanthothiris* sp.; 0.05m

6(c). *Sphaeroidothyris sphaeroidalis* (L. de C. Sow); *Holcothyris cf. subovalis* (S.S. Buckman). 0.00-0.01m.

6(b). A dark cream coloured limestone, coarsely ironshot with a high admixture of clay-sized matter. A large number of small *Teloceras* sp. cf. *banksii* were found which showed a complete fracturing of the fossil but without actual displacement, the lines of fracture being infilled with the surrounding clayey material. This condition and the matrix would indicate some re-working of the deposit and suggests a shallow, inshore environment. All specimens collected were macroconchs but small for this species, which could indicate that the high concentration of sediments had resulted in a dwarfing of the shells to be found in the area around Upper Clatcombe. All specimens seen lay parallel to the bedding. *Teloceras* cf. *banksii* (J. Sowerby). 0.06m.

## BANKSII-SUBZONE (pars)

6(a). A similar lithology to the horizon above but with the limestone showing a redder appearance of small ooliths of brownish red due to a denser concentration. This bed becomes progressively sandier towards the base and shows evidence of intense bioturbation, which is accompanied by an increase in red clay sized matter with large clasts of rotted limestone. *Teloceras* spp., *Teloceras* cf. *banksii* (Sow.), *Stephanoceras kreter* (S.S. Buckman), *Cadomites septicosatus* (S.S. Buckman), *Normannites cf. orbigny* (S.S. Buckman), *Sphaeroceras brongniarti* (A. D'Orbigny), *S. tuttham* (S.S. Buckman), *S. gervillei* (Sowerby), *Strenoceras cf. subfurcatum* (Zieten), *Garantiana* sp., *Caumontisphinctes aplous* (S.S. Buckman), *C. aff. aplous* (specimen retains lappets); *C. sp.*, *Oppelia* aff. *flexa* (S.S. Buckman), *O. (Oppellina) pulchra* (S.S. Buckman), *Strigoceras* sp. and *Poecilomorphus angulinus* (S.S. Buckman). 0.06m.

## BANKSII SUBZONE

Bed 5. A sandy clay with lumps of brownish partially rotted limestone. *Caumontisphinctes aplous* (S.S. Buckman). 0.18m.

## HUMPHRIESIANUM ZONE, ?BLAGDENI SUBZONE

Bed 4. A bed of much broken-up limestone, of an overall greyish appearance and with concentrations (clouds) of red ooliths in a micritic matrix. Abundant belemnite guards were observed. *Mascheites?* cf. *densus* (S.S. Buckman), *Normannites* spp., *Teloceras* cf. *blagdeni* (*coronatum*) (Zieten et auct.), *Teloceras (Expalkites)* sp., *Stephanoceras* aff. *humphriesianum* or *pyritosum*, *Stephanoceras* sp., *Stemmatoceras* sp., and *Poecilomorphus* cf. *cycloides* (D'Orb.). 0.18m.

## CYCLOIDES SUBZONE

Bed 3. Unconsolidated brown sands occupied the basal 5cm. of this bed, followed by a marly sand which was capped by a sparsely ironshot limestone in which most of the macro fossils were to be found.

However, a number of specimens of *Chondroceras gervillei* (Sowerby) were discovered in the basal sands, but not fossils at all were seen in the intervening marly sand. *Poecilomorphus cycloides* (D'Orb.), *Sphaeroceras brongniarti* (D'Orb.), *Chondroceras gervillei* (Sow.), *Stephanoceras (Normannites)*, sp., *S. sp. indet.*, nautiloid and *Sonninites* aff. *tecta* or *pinguis* (? derived). 0.10-0.15m.

## LAEVIUSCULA ZONE AND SUBZONE

Bed 2. A soft marly limestone, bluish in colour but with a hard centre, and very similar to Bed 1. Possibly the equivalent of the green grained marl of Osborne (Buckman 1893). The base displayed an exceedingly flat surface indicating a hardground. *Witchellia* sp. 0.08m.

Bed 1. Bluish coloured limestone, consistently extremely hard and very splintery, with patches of glauconitic marl. Ammonites lay parallel to the bedding, but found mainly at the top of the bed, as seen. *Witchellia ruber* (S.S. Buckman) and, *Shirburnia* sp.? Seen to 0.08m.

## Conclusions

Whilst not an extensive section, the ammonite fauna collected agrees well with the faunal horizons recognised at other sections in comparable beds. It is of interest to note the presence of *Poecilomorphus*, two species other than *cycloides*, confirming that this genus ranges upwards in the *Humphriesianum* Zone. It is here proposed that the evidence provided at this site gives additional support to the 'original deposition' proposal for the origin of the *subfurcatum* Zone, both in showing well-bedded rocks which the writer believes would be proved over an extensive area of College Farm; in no visible signs of any post-depositional disturbance, and in its constituent ammonite fauna from *blagdeni* to *garantiana* subzones.

## Location of Material and Acknowledgments

The bulk of the material recorded here is in the author's collection, identified by bed numbering. A few specimens, notably the *Poecilomorphus* and some *Sphaeroceras* have been retained by Prof. Callomon in view of their stratigraphical significance. I should like to thank Prof. J.H. Callomon for the identification of almost all the ammonites listed (any errors in identification or in stratigraphical location of specimens, being the writer's alone) and for his permission to reproduce his section format. I am grateful to R.B. Chandler for helpful suggestions on the preliminary draft of this paper, and to Dr. H.S. Torrens my appreciation for providing much of the reference works used; also to C.W. Wright for long-standing encouragement to record my findings. I thank my wife for her tolerance in typing the many drafts. Finally, my sincere appreciation of their enthusiasm and acceptance of my efforts in the grounds of College Farm, to Toni and Leslie Bentham-Green.

Arkell, W.J., 1933, *The Jurassic System in Great Britain*. Clarendon Press, Oxford, xii cf. pp. 41 pls.

Buckman, S.S., 1887-1907, A Monograph of the Ammonites of the Inferior Oolite Series. Palaeontographical Society. 262 + 456 pp. 127 pls.

Buckman, S.S. 1893, The Bajocian of the Sherborne District; Its relation to subjacent and superjacent strata. *Quart. Journal Geol. Soc. London*. Vol. 49, pp. 479-522.

Buckman, S.S. 1909-1930, *Yorkshire Type Ammonites*, (continued as) *Type Ammonites*. 7 Vols. 790 pls. Published by author. London & Thame.

Cope, J.C.W. et al., 1980. A correlation of Jurassic rocks in the British Isles. Part Two: Middle and Upper Jurassic. *Geol. Soc. Special Report No. 15*. Blackwell Scientific Publications, Oxford. 109 pp.

Kellaway, G.A. & V. Wilson., 1941. An outline of the Geology of Yeovil, Sherborne and Sparkford Vale. *Proc. Geol. Assoc.*, Vol. 52, pp. 131-174.

Morly-Davies, A.M., 1930, The geological life work of S.S. Buckman. *Proc. Geol. Assoc.*, Vol. 41, pp 231-234.

Parsons, C.F., 1974, The sauzei and 'So-called' sowerby Zones of the Lower Bajocian. *Newsl. Strat.* Vol. 3. 153-180.

Parsons, C.F., 1975, Ammonites from the Doulling Conglom Bed (Upper Bajocian, Jurassic) of Somerset. *Palaeontology*. Vol. 18, 191-205, 1 pl.

Parsons, C.F., 1976, A stratigraphic revision of the humphriesianum/subfurcatum Zone rocks (Bajocian Stage, Middle Jurassic) of Southern England. *Newsl. Strat.* 5, 114-142.

Richardson, L.R., 1932, The Inferior Oolite and contiguous deposits of the Sherborne district, Dorset. *Quart. J. Geol. Soc. London*, Vol. 24, 35-85, pls. 6-11.

Whicher, J. & C. Palmer, 1971, Preliminary description of a temporary exposure in the Middle Inferior Oolite, near Sherborne, Dorset *Dorset Proceedings*, Vol. 92, 110-119.

## A SPHENODONTID JAW (REPTILIA: LEPIDOSAURIA) FROM THE UPPER JURASSIC OF DORSET.

SUSAN E. EVANS

Department of Anatomy and Developmental Biology, University College London, Gower Street, London WC1E 6BT; and NICK C. FRASER, Virginia Museum of Natural History, 1001 Douglas Avenue, Martinsville, Virginia 24112, USA.

### Introduction

The living Tuatara, *Sphenodon*, now confined to a few isolated islands off New Zealand, is the sole survivor of a once widespread and diverse reptilian group. Sphenodontians were relatively abundant in the early Mesozoic but were gradually replaced by lizards. The British Triassic record of the group is good (Fraser, 1982, 1986, 1988; Fraser and Benton, 1989; Whiteside, 1986), but apart from the early Jurassic *Gephyrosaurus* (Evans, 1980), the Jurassic record consists only of rare fragmentary specimens. Cretaceous sphenodontian remains are restricted to North America, and there is no Tertiary record of the group at all.

The Upper Jurassic beds of the Purbeck Limestone Formation of Dorset have yielded a diverse tetrapod assemblage including dinosaurs, pterosaurs, lizards, turtles, and mammals. Sphenodontians are represented by two partial maxillae (Whiteside, 1986) and several fragmentary specimens (dentary, maxilla and premaxilla) from a new small vertebrate assemblage (Ensom, 1988; Ensom *et alia*, 1991). These specimens have been referred to the genus *Homoeosaurus*, first described from the late Jurassic (Kimmeridgian) of Solnhofen, Germany. However, the small size of the Purbeck specimens and the strongly alternating tooth size suggest that most represent juveniles. Since the dentition of juvenile sphenodontians differs from that of the adult (Hoffstetter, 1953; Robinson, 1976), attribution of the existing Purbeck specimens to *Homoeosaurus* awaits confirmation.

In 1989, a virtually complete sphenodontian dentary was found at Durlston Bay, near Swanage, Dorset, by an amateur collector, Mr G. Neil. Judged from the extent of the tooth wear, the jaw is considered to be that of an adult or subadult and therefore shows the mature dentition.

### The Material

The sphenodontian dentary was found in a small boulder on the beach at Durlston Bay. Unfortunately, the specimen was not found *in situ*, and it is not clear whether the boulder came from the beach outcrop or from inland quarry material dumped on the beach during coastal protection

work. Ostracod analysis by Dr Roy Clements (Leicester University) suggests that the rock came from the upper part of the Cherty Freshwater Limestone series, 1-2m below the Cinder Beds - the base of which has been taken to mark the Jurassic/Cretaceous boundary. If this is so, then the jaw is of Tithonian (latest Jurassic) age.

### Description

The specimen is a left dentary and is preserved in medial view. It has been cleared of adhering matrix but no attempt was made to remove it from the block. Figures 1-3 show the principal features of the bone. It is deep and robust, with a strong postdentary process and a well-developed coronoid process. Both processes bear facets for the surangular bone, separated by a notch which marks the position of the nadibular foramen. A slender facet for the angular extends along the lower border of the postdentary process and onto the inferior border of the shallow Meckelian sulcus (Figure 1). The symphyseal surface is slightly damaged.

The dentition is complete and well-preserved. As is typical of sphenodontians, a remnant of the hatchling dentition remains at the anterior end of the jaw ramus (Figure 3C). This has been worn down at its extreme anterior end to leave an edentulous ridge which is followed by a short series of small hatchling teeth. There is no trace of a caniniform tooth. Behind the hatchling series are the additional teeth which are typically added to the rear of the tooth row throughout life. The first five of these teeth are intermediate in structure between the hatchling teeth and the mature additional teeth. They have both anterior and posterior flanges (Figure 3B). Behind them is a series of twelve more mature additional teeth which have an essentially pyramidal form - with a squared off anterior face and a conical posterior portion (Figure 3A). There is a small degree of wear on the posterior face.

### The systematic position of the Purbeck dentary

Comparison of this dentary with those of other known sphenodontians reveals a close similarity with the genus *Opisthias* from the late Jurassic (Tithonian) beds of the Morrison Formation at Quarry 9, Como Bluff, Wyoming, USA (Gilmore, 1910; Simpson, 1926b). The general shape of the jaw and the precise form of the teeth are identical in the Como and Purbeck jaws. Gilmore (1910, Pl.1) illustrated *Opisthias* with a single caniniform tooth in the symphyseal region of the type specimen (USNM 2860). This region is damaged, but a recent examination has confirmed the presence of a very small remnant of a large caniniform at the anterior extremity of the jaw ramus. In the paratype, however, which is complete anteriorly, there is no trace of a caniniform tooth, nor is there any trace of it

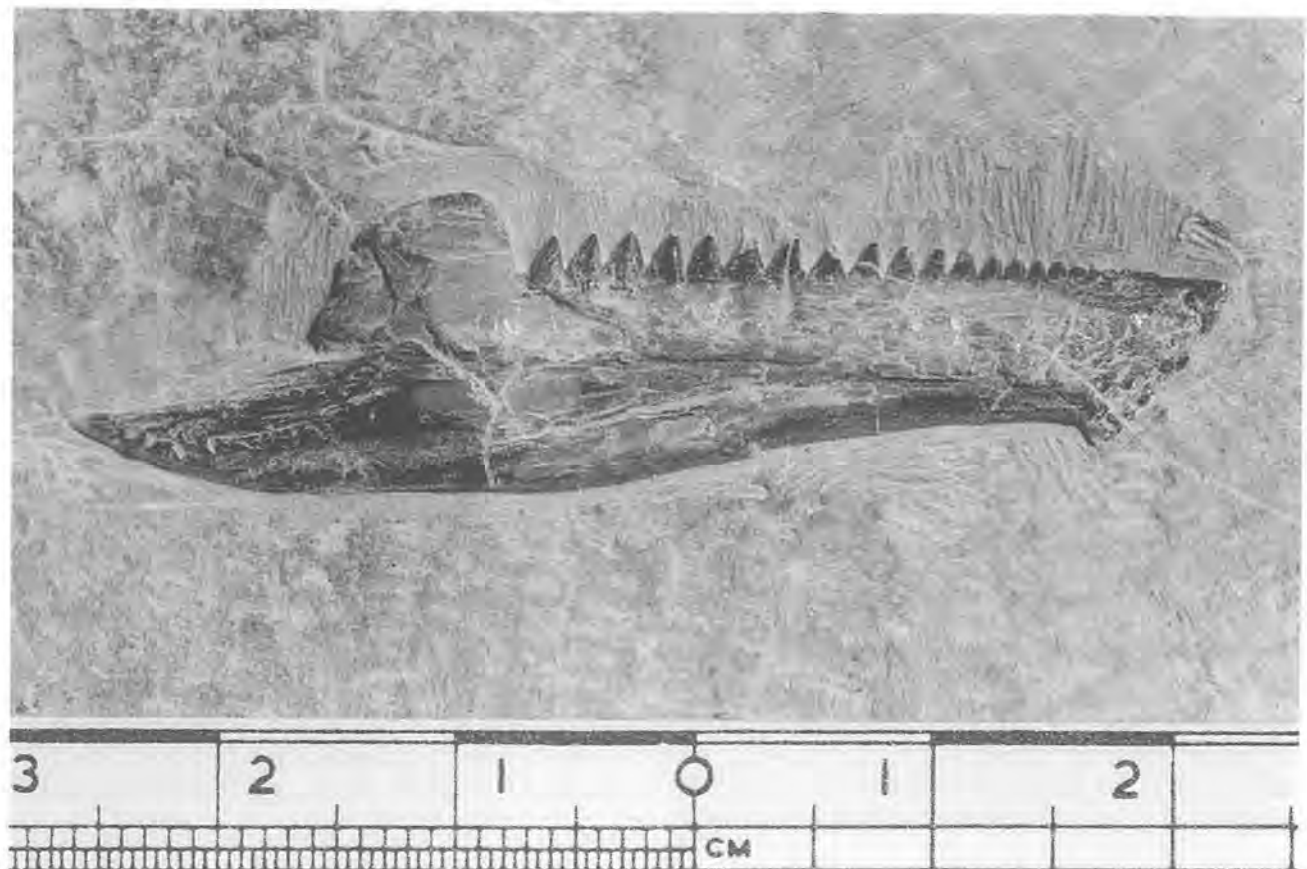


Figure 1: Left dentary of the sphenodontian reptile *Opisthias* from the Upper Jurassic of Dorset, medial view.

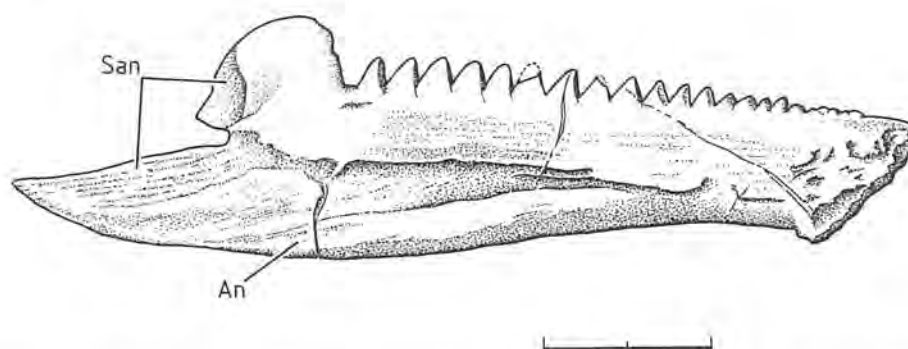


Figure 2: Left dentary of the sphenodontian reptile *Opisthias*, medial view. Abbreviations: An - facet for angular bone, San - facets for surangular bone. Scale bar = 10mm.

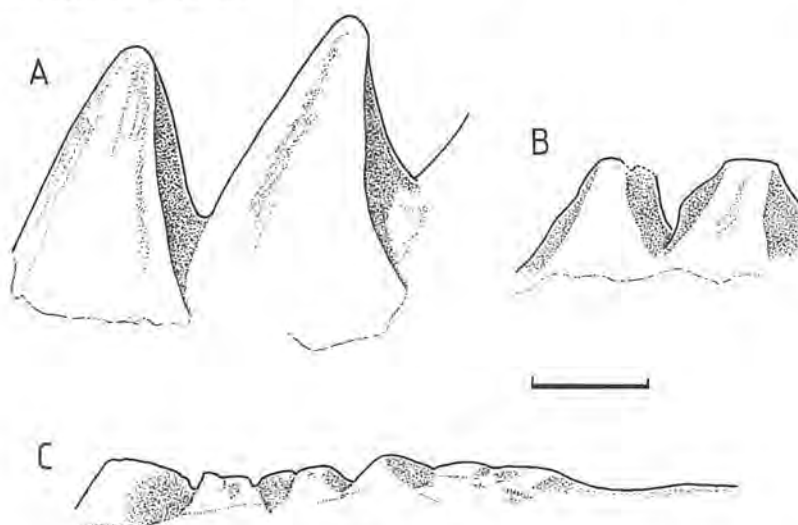


Figure 3: Details of the dentition with A, mature posterior additional teeth; B, anterior additional; and C, remnant hatchling dentition. Scale bar = 1mm.

in any of the more fragmentary specimens from Quarry 9. On balance, it seems probable that *Opisthias* usually lacked an enlarged caniniform. The dentary of *Homoeosaurus*, which is known from a number of Upper Jurassic localities in Europe, is very similar to *Opisthias* and the new Purbeck specimen, but the tooth flanges on the additional teeth are apparently more extensive in *Homoeosaurus*. Accordingly, the new Purbeck jaw is assigned to the genus *Opisthias*.

#### The significance of the specimen

Other authors (e.g. Colbert, 1973; Simpson, 1926a) have commented on the general similarities between the nearly contemporaneous faunal assemblages of Como and of Purbeck. Genera recorded in both assemblages include the crocodile *Goniopholis*, the turtle *Glyptops*, the lizards *Paramecelloodus* and *Dorsetisaurus*, and the mammals *Trioracodon*, *Ctenacodon* and *Amblotherium*. The recovery of the sphenodontian *Opisthias* at Purbeck provides another link, and strengthens the view that Europe and North America were still contiguous at the end of the Jurassic.

#### Acknowledgements

We would like to express our thanks to Dr Mike Taylor of the Leicestershire Museums, Arts, and Records Service for drawing our attention to this specimen, organising the loan and arranging the ostracod analysis (conducted by Dr Roy Clements of Leicester University). We would also thank Dorset County Museum for agreeing to the loan. Drs Nick Hotton and Hans Sues kindly provided access to specimens of *Opisthias* in the U.S. National Museum of Natural History. The photograph in Plate 1 was taken by Mr Chris Sims of University College London.

Colbert, E.H., 1973, 'Continental drift and the distribution of fossil reptiles' in Tarling, D.H. and Runcorn, S.K. eds, *Implications of Continental Drift to the Earth Sciences*. New York, Academic Press, NATO Advanced Study Institute, 1, pp. 395-412.

Ensom, P., 1988, 'Excavations at Sunnydown Farm, Langton Matravers, Dorset: amphibians discovered in the Purbeck

Limestone Formation' *Dorset Proceedings*, Vol. 109, pp. 148-150.

Ensom, P., Evans, S.E. and Milner, A.R., 1991, 'Amphibians and reptiles from the Purbeck Limestone Formation (Upper Jurassic) of Dorset' *Contr. Palaeontol. Museum, Univ. Oslo*, Vol. 5, pp. 19-20.

Evans, S.E., 1980, 'A new eosuchian reptile from the Lower Jurassic of South Wales' *Zool. J. Linn. Soc.*, Vol. 70, pp. 203-264.

Fraser, N.C., 1982, 'A new rhynchocephalian from the British Upper Triassic' *Palaeontology*, Vol. 25, pp. 709-725.

Fraser, N.C., 1986, 'New Triassic sphenodontids from South West England and a review of their classification' *Palaeontology*, Vol. 29, pp. 165-186.

Fraser, N.C., 1988, 'The Osteology and relationships of *Clevoosaurus* (Reptilia: Sphenodontida)' *Phil. Trans. Royal Soc. London, Ser. B*, Vol. 321, pp. 125-178.

Fraser, N.C. and Benton, M.J., 1989, 'The Triassic reptiles *Brachyrhinodon* and *Polysphenodon* and the relationships of the sphenodontids', *Zool. J. Linn. Soc.*, Vol. 96, pp. 413-445.

Gilmore, C.W., 1910, 'A new rhynchocephalian reptile from the Jurassic of Wyoming, with notes on the fauna of "Quarry 9"' *Proc. U.S. National Museum*, Vol. 37, pp. 35-42.

Hoffstetter, R., 1953, 'Caractères dentaires juvéniles chez des Rynchocephales Jurassiques, *Theretairus* et *Leptosaurus*', *Bull. du Muséum*, 2e Series, Vol. 25, pp. 213-220.

Robinson, P.L.R., 1976, 'How *Sphenodon* and *Uromastix* grow their teeth and use them' in Bellairs, A. d'A and Cox, C.B. eds, *Morphology and Biology of Reptiles*, *Linn. Soc. Symposium Series*, Vol. 3, pp. 43-64.

Simpson, G.G., 1926a, 'The age of the Morrison Formation,' *Amer. J. Science*, (5) Vol. 12, pp. 198-216.

Simpson, G.G., 1926b, 'American terrestrial Rhynchocephalia,' *Amer. J. Science* (5) Vol. 12, pp. 12-16.

Whiteside, D., 1986, 'The head skeleton of the Rhaetian sphenodontid *Diphydontosaurus avonis* gen. et sp. nov. and the modernising of a living fossil,' *Phil. Trans. Royal Soc. London, Series B*, Vol. 312, pp. 379-430.

## SMALL REPTILES AND AMPHIBIANS FROM THE FOREST MARBLE (MIDDLE JURASSIC) OF DORSET.

SUSAN E. EVANS

Department of Anatomy and Developmental Biology (Rockefeller), University College London, Gower Street, London WC1E 6BT.

### Introduction

Rocks of Bathonian (Middle Jurassic) age crop out in a belt across southern England from south west to north east. They were laid down in and around a shallow epicontinental sea but terrestrial and freshwater vertebrates have been found at several localities. The first such assemblage known was that of the Stonesfield Slate, Oxfordshire, and included mammals, the tritylodont *Stereognathus*, pterosaurs, crocodiles and dinosaurs. Stonesfield is no longer productive, but a number of new localities - most notably Kirtlington Cement Works Quarry, also in Oxfordshire, have been adding to our knowledge of Middle Jurassic small vertebrates (microvertebrates) including frogs, salamanders, turtles, lizards, crocodiles, small dinosaurs and mammals (e.g. Evans 1989, 1990; Evans and Milner 1991; Evans, Milner and Mussett, 1988, 1990; Freeman, 1976a; Kermack, Lee, Lees and Mussett, 1987).

Two of the Bathonian localities - Watton Cliff (West Cliff) and Swyre - are in Dorset and a preliminary account of their microvertebrate assemblages is presented here.

### Watton Cliff (West Cliff) SY 451901-SY 453907

The Forest Marble at Watton Cliff comprises roughly 26m of predominantly argillaceous sediments divided into upper and lower parts by a central block of hard, flaggy massive shelly limestone. According to Holloway (1983), this thick horizon of shell detritus (calcirudites) is suggestive of an offshore shell bank. Channels cut into the shell bank during storms became filled with terrestrial material including wood and the remains of small vertebrates.

There are two previous records of terrestrial vertebrates from the shelly limestone at Watton: the tooth of a possible multituberculate mammal (Freeman, 1976b) and that of the tritylodont, *Stereognathus* (Ensom, 1977). In the late 1970's, however, a team from University College London collected from Watton as part of a wider project on Middle Jurassic assemblages. The material has yielded mammal teeth (Kermack, 1988) and the bones and teeth of many other small vertebrates (Table 1). Overall, the tetrapod assemblage from Watton Cliff is similar to that of Kirtlington, and includes the discoglossid frog, *Eodiscoglossus* (Figure 4A); salamanders (Figure 4B,C), and a range of small archosaur teeth (Figure 5).

### Swyre, SY 525868

The cliff-top quarry at Swyre exposes roughly 15m of Forest Marble, comprising cross-bedded calcirudite sequences with fine seams (1-2 cm) of grits and clay grits. Holloway (1983) has interpreted the palaeoenvironment as a tidal delta with channels and shell shoals.

In 1976 and 1977, the University College team collected and acid-prepared a small quantity (around 100 kg) of the calcirudites. This material has yielded shark teeth and relatively abundant, but fragmentary, tetrapod bone. The microvertebrate assemblage is comparable to that of Watton and Kirtlington, but only the more common faunal components have been recovered (see Table 3).

### Discussion

Allowing for the different depositional environments, the Upper Bathonian microvertebrate assemblages of Dorset are closely similar to those of Oxfordshire and of other, as yet unpublished (Evans, pers. obs.), localities including Tarlton (Somerset) and Leigh Delamere (Wiltshire). They are also broadly comparable to the assemblage emerging from the early Bathonian horizon at Hornsleasow in Gloucestershire (Vaughn, 1988, 1989; current work by Dr M.J. Benton, Bristol University).

These new Middle Jurassic assemblages are extending our knowledge of the evolution and radiation of small vertebrates to a significant degree. They provide the earliest records, to date, of true salamanders, crown-group lizards, goniopholidid and atoposaurid crocodiles, pterodactylid pterosaurs and choristoderes, and the earliest British records of frogs and cryptodiran turtles.

### Acknowledgements

I would like to record my thanks to Professor Kenneth Kermack who coordinated the work at Watton and Swyre; and to both Frances

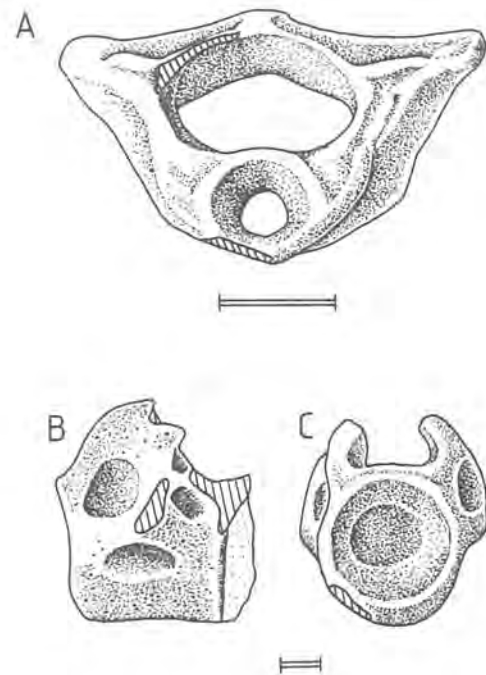


Figure 4: Middle Jurassic amphibian remains from the Forest Marble (Upper Bathonian) of Watton Cliff, Dorset. A, sacral vertebra of the discoglossid frog *Eodiscoglossus* in anterior view; B, C, trunk vertebra of the salamander *Marmorerepeton* Evans, Milner & Mussett 1988, in B, left lateral and C, anterior views, showing the large lateral pits and porous bone typical of the genus. Scale bars = 1mm. All specimens are currently held in the collections of the Department of Anatomy and Developmental Biology, University College London.

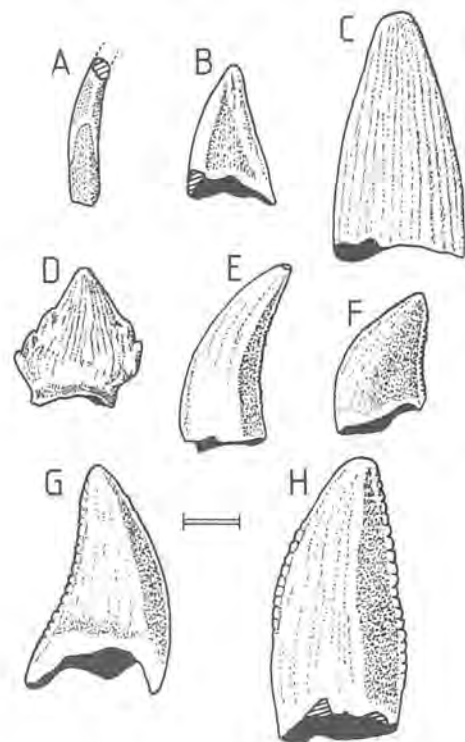


Figure 5: Middle Jurassic archosaurian teeth from the Forest Marble (Upper Bathonian) of Swyre Farm (A) and Watton Cliff (B-H), Dorset. A-B, Pterosauria, A, Rhamphorhynchidae, B, Pterodactylidae; C, Crocodylia, Goniopholididae; D, Ornithischia, "Fabrosauridae"; E-H, Theropoda. Scale bar: 1mm. All specimens are currently held in the collections of the Department of Anatomy and Developmental Biology, University College London.

Table 2: Comparison of the tetrapod assemblages of Kirtlington (K), Watton (W) and Swyre (S).

	K	W	S
<b>AMPHIBIA</b>			
ANURA: Discoglossidae:	X	X	X
<i>Eodiscoglossus</i>			
CAUDATA: Albanerpetontidae	X	X	X
CAUDATA: <i>incertae sedis</i> :	X	X	X
<i>Marmorerpeton</i>			
CAUDATA: Kirtlington Salamander A	X	X	X
CAUDATA: Kirtlington Salamander B	X	.	.
<b>REPTILIA</b>			
CHELONIA: Cryptodira: cf.	X	X	.
Pleurosternidae			
CHORISTODERA: <i>Cteniogenys</i>	X	X	.
LEPIDOSAURMORPHA:	X	X	X
Kirtlington Reptile A			
LEPIDOSAURMORPHA:	X	X	X
Sphenodontida			
LEPIDOSAURMORPHA: Squamata	X	X	.
CROCODYLIA: Goniophoridae	X	X	X
CROCODYLIA: Teiosauridae	.	X	.
CROCODYLIA: Atoposauridae	X	.	.
SAURISCHIA: Theropoda:	X	X	.
"Coelurosauria"			
SAURISCHIA: Theropoda:		X	.
"Megalosauridae"			
ORNITHISCHIA: "Fabrosauridae"	X	X	X
PTEROSAURIA:	X	X	.
Rhamphorhynchidae			
PTEROSAURIA: Pterodactylidae	X	X	.
<b>THEROPOSIDA</b>			
TRITYLodontidae: <i>Stereognathus</i>	X	X	X
MAMMALIA: <i>incertae sedis</i>	.	.	X
MAMMALIA: Triconodonta	X	X	.
MAMMALIA: Docodonta	X	X	.
MAMMALIA: Multituberculata	X	X	.
MAMMALIA: Symmetrodonta	X	.	.

Mussett and Patricia Lees who were members of the team and have been generous in providing background information.

- Ensom, P.C., 1977. 'A therapsid tooth from the Forest Marble (Middle Jurassic) of Dorset' *Proc. geol. Assoc.* Vol. 88, pp. 201-205.
- Evans, S.E., 1989. 'New material of *Cteniogenys* (Reptilia: Diapsida) and a reassessment of the systematic position of the genus' *Neues Jb. Geol. Paläontol., Mon.* 1989, pp. 577-589.
- Evans, S.E., 1990. 'The skull of *Cteniogenys*, a choristodere (Reptilia: Archosauromorpha) from the Middle Jurassic of Oxfordshire'. *Zool. J. Linnean Soc.*, Vol. 99, pp. 205-237.
- Evans, S.E. and Milner, A.R., 1991. 'Middle Jurassic microvertebrate faunas from the British Isles,' *Contr. Paleontol. Museum, Univ. Oslo*, Vol. 364, pp. 21-22.
- Evans, S.E., Milner, A.R., and Mussett, F., 1988. 'The earliest known salamanders (Amphibia, Caudata): a record from the Middle Jurassic of England' *Geobios*, Vol. 21, pp. 539-552.
- Evans, S.E., Milner, A.R. and Mussett, F., 1990. 'A discoglossid frog (Amphibia, Anura) from the Middle Jurassic of England' *Palaeontology*, Vol. 33, pp. 299-311.
- Freeman, E.F., 1976a. 'Mammal teeth from the Forest Marble (Middle Jurassic) of Oxfordshire, England' *Science*, Vol. 194, pp. 1053-1055.
- Freeman, E.F., 1976b. 'A mammalian fossil from the Forest Marble (Middle Jurassic) of Dorset' *Proc. geol. Assoc.*, Vol. 87, pp. 231-236.
- Holloway, S., 1983. 'The shell-detrital calcirudites of the Forest Marble Formation (Bathonian) of South West England' *Proc. geol. Assoc.*, Vol. 94, pp. 259-266.
- Kermack, K.A. 1988. 'British Mesozoic mammal sites' *Spec. Pap. Palaeontology*, Vol. 40, pp. 85-93.
- Kermack, K.A., Lee, A.J., Lees, P.M. and Mussett, F., 1987. 'A new docodont from the Forest Marble' *Zool. J. Soc.*, Vol. 89, pp. 1-39.
- Vaughn, R.F., 1988. 'Cotswold dinosaur excavation' *Geology Today*, Vol. 4, pp. 150-151.
- Vaughn, R.F., 1989. *The excavation at Hornsleasow Quarry: an interim report prepared for the Nature Conservancy Council, City Museum and Art Gallery, Gloucester.*

## PREDATION AMONGST JURASSIC MARINE REPTILES

JANE CLARKE 65 Oakmount Road, Chandler's Ford, Hants. SO5 2LJ and STEVE ETCHES, 3 Colborne Avenue, The Vineries, Wimborne, Dorset. BH21 2PZ

Three plesiosaur propodials, two from the *eudoxus* Zone and one from the *Pavlovia rotunda* Zone of the Kimmeridge Clay in Dorset and Wiltshire exhibit teeth marks. The marks have characteristics which give an indication of the nature of the predator. The specimens are held in the Steve Etches Kimmeridge Collection (SEKC) and have been assigned "K" numbers.

### The first propodial (SEKC.K92)

The first specimen is the right propodial (humerus/femur) of an immature plesiosaur (SEKC.K92) recovered from slipped clay from the *eudoxus* Zone in the Kimmeridge Clay at Osmington Mills, Dorset. The bone has lost its distal end and measures 152mm long, 105mm wide and 70mm thick (Figs 6a, & b). There is no indication of subaerial weathering or compression by compaction.

### Observations

There are thirteen teeth marks on the ventral surface of the bone. The largest incision is conical with an oval opening with the long axis measuring 15mm, the short axis 9mm and a depth of 10mm; it passes through the cortex of the bone and has penetrated the inner cancellous zone; the direction of penetration is at an angle of about 45 to the surface and is pointing forward. Two other incisions are apparently paired. They are nearly tangential to the shaft with grooves across the surface leading to the holes penetrating the cortex of the bone (Fig 6a). The other 10 indentations are minor. None of the indentations show any signs of regrowth or healing.

The dorsal surface has four teeth marks as well as signs of "bruising". The largest incision is conical with an oval opening with a long axis of 20mm, a short axis of 12mm and a depth of 12mm. This incision also penetrates the inner cancellous zone of the bone. The angle of penetration is similar to that of the top surface being about 45 to the surface and pointing forward. There is a deep scour in the cortex leading to the incision (Fig. 6b). The other three incisions are about 9mm in diameter and 3mm deep and have only penetrated the cortex. There are also shallow depressions which did not break the surface of the bone which do not appear to be the result of overburden pressure. There is no apparent pattern associated with the indentations, the distribution of marks is random.

The two main teeth marks are situated on opposite sides of the bone which has split longitudinally through the short axis of the oval incisions (Figs 6a, & b). The split on the upper surface is 89mm and that on the lower surface is 76mm.

### Discussion

Various teeth in the Etches collection were used to try and establish a "best fit" with the incisions. Crocodile teeth of the general *Machimosaurus* were too narrow; but a pliosaur tooth (indet. genus) recovered from the Lower Kimmeridge Clay at Westbury, Wiltshire (SEKC.K821) (Fig. 6c) was a good fit. The tooth measures 87mm long and has a base diameter of 43mm; it is trihedral in cross section and has carinations approximately 1mm apart on the inner two surfaces.

The angles of penetration of the two main incisions seem to be consistent with imprisonment by a pliosaur jaw, penetration being made by one tooth from the premaxilla and an opposing tooth from the region of the mandibular symphysis. We suggest a pliosaur approached the plesiosaur from the front and grabbed it by the paddle, the force of the snap of the jaws cracking the bone. The pliosaur then repositioned the paddle in its jaws, causing the paired incisions, the smaller indentations and the "bruising".

Three genera of the Plesiosauridae, family Elasmosauridae are found in the Kimmeridge Clay. The largest, *Colymbosaurus* grew up to 6m in length (Brown 1981); *Muraenosaurus* grew to approximately 5m in length (Brown 1981); not enough of *Kimmerosaurus* is known to estimate its size. There were gigantic reptiles with long necks, up to 76 cervical vertebrae (Carroll 1988), and relatively small heads (Fig. 7a). They "flew" through the water propelled by strong paddles.

Of the Pliosauridae, three Kimmeridgian species are known: *Liopleurodon macromerus*, *Pliosaurus brachydeirus* and *P. brachyspondylus*. These were also gigantic reptiles which also grew up to 12m long (Romer 1945) and were very powerful swimmers. However they differed from the plesiosaurs in that the pliosaurs had short necks, as few as 13 cervical vertebrae (Carroll 1988), and massive skulls (Fig. 7b).

### The second propodial (SEKC.K147)

The second specimen is an incomplete plesiosaur propodial (humerus/femur) (SEKC.K147) and was recovered in situ from the Pavlovia Rotunda Zone of the Kimmeridge Clay at Chapmans Pool, Dorset. The distal end is crushed but the shaft is not. The specimen measures 320mm long, 230mm at the widest distal end and the shaft is 87mm in diameter (Fig. 6d-g).

There are elongated indentations on both the upper and lower surfaces of the propodial which have only penetrated the cortex and show no signs of subsequent growth or healing. These indentations have longitudinal grooves. An indentation on one of the horizontal surfaces is 51mm long, 17mm wide and 11mm deep (Fig. 6d), the grooves being about 1mm apart (Fig. 6e). There are a further 6 indentations, all about 9mm diameter and all at oblique angles to the bone surface and parallel to the main indentation. The indentation on the other horizontal surface is 40mm long, 12mm wide and 8mm deep. It has one major groove running along the axis of the indentation. There are 5 other clongate indentations, all at oblique angles to the

surface and parallel to the main indentation (Fig. 6f). The distance between the long axes of the two main indentations is 71mm and the overall shape of the indentations are consistent with penetration from the front of the paddle (Fig. 6g).

### Discussion

The plesiosaur tooth SEKC.K821 exactly fits the incisions in the propodial, the carinations perfectly matching the grooves.

A mandible from the plesiosaur *Liopleurodon macromerus* measuring 2m long from the Autissodorensis Zone in the Kimmeridge Clay at Kimmeridge Bay (SEKC.K1) (Fig. 8) was used to estimate the distance between the teeth at the front of the symphysis. The distance between the centres of the cavities of the front pair is 75mm.

The similarity of the features of the tooth with the nature of the indentations and grooves and the similarity of the distances between the tooth marks and the spacing of the front teeth in the mandible lead to the following conclusion. We suggest that a plesiosaur grabbed the plesiosaur paddle from the front, the propodial becoming lodged

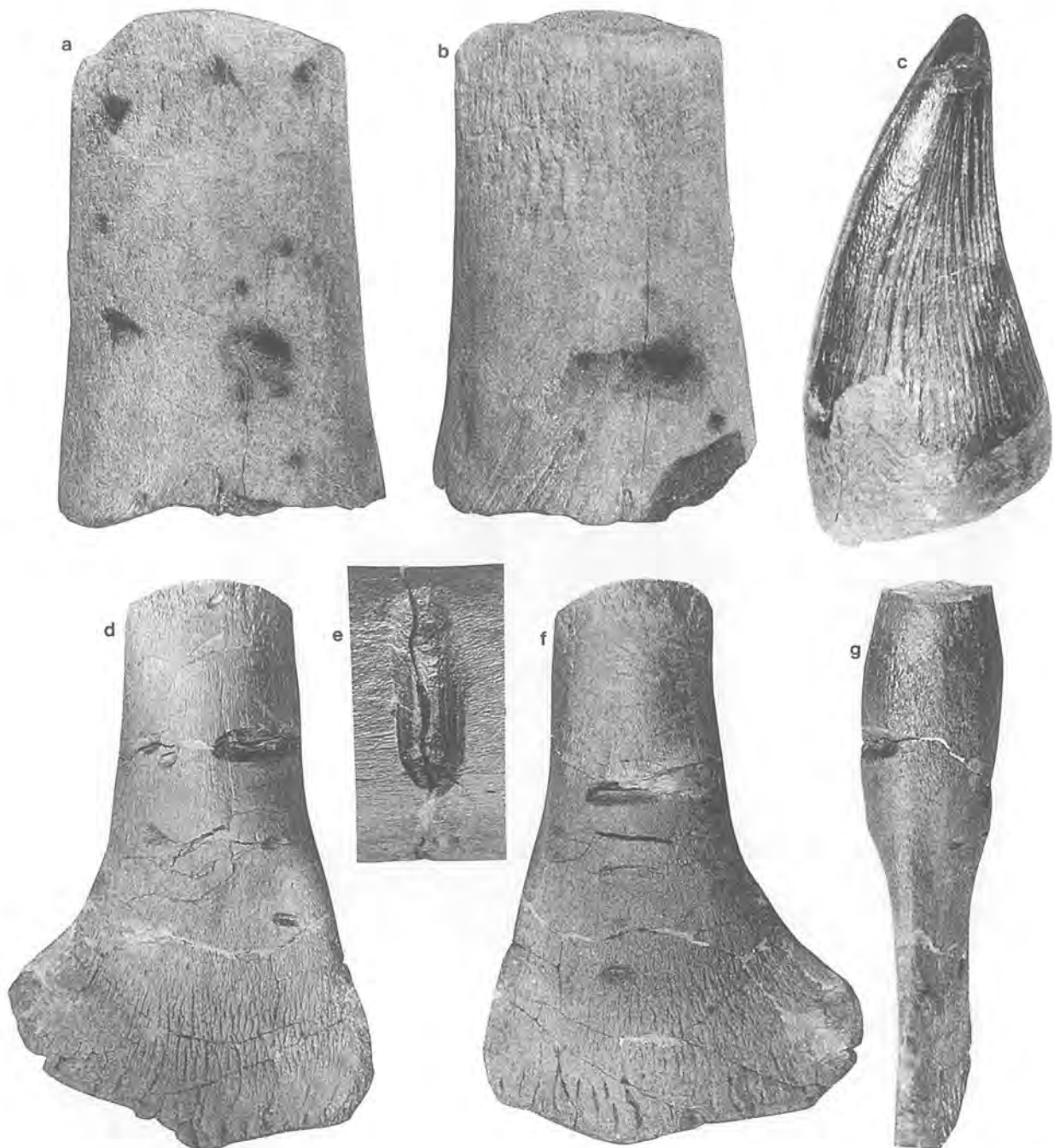


Figure 6a) Immature plesiosaur propodial (SEKC.K92) (152mm long), dorsal surface, b) ventral surface, c) plesiosaur tooth (SEKC.K821) (87mm long), d) plesiosaur propodial (SEKC.K147) (320mm long), first surface, e) detail of indentation and grooves, f) second surface, g) leading edge.

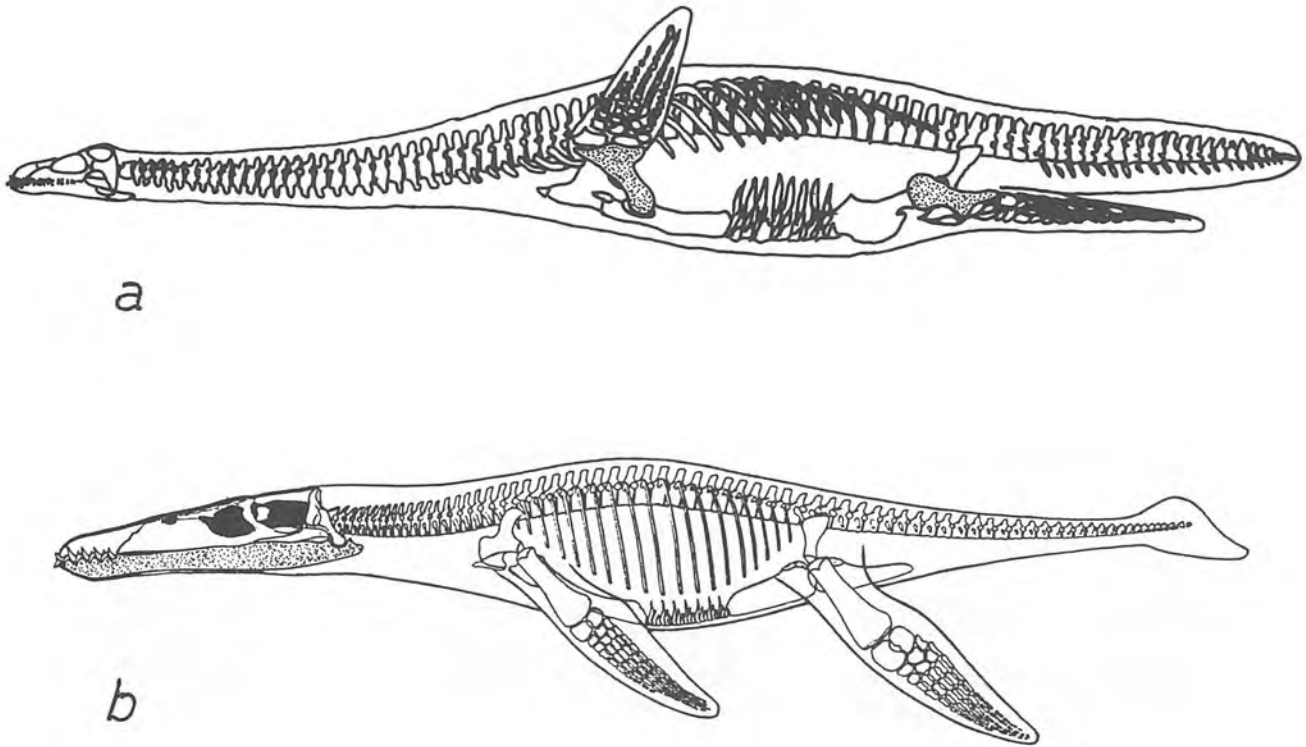


Figure 7a) Sketch of plesiosaur with the propodials (humerus and femur) stippled. b) Sketch of plesiosaur with the mandible stippled.



Figure 8. Pliosaur mandible (2m long) SEKC.K1).

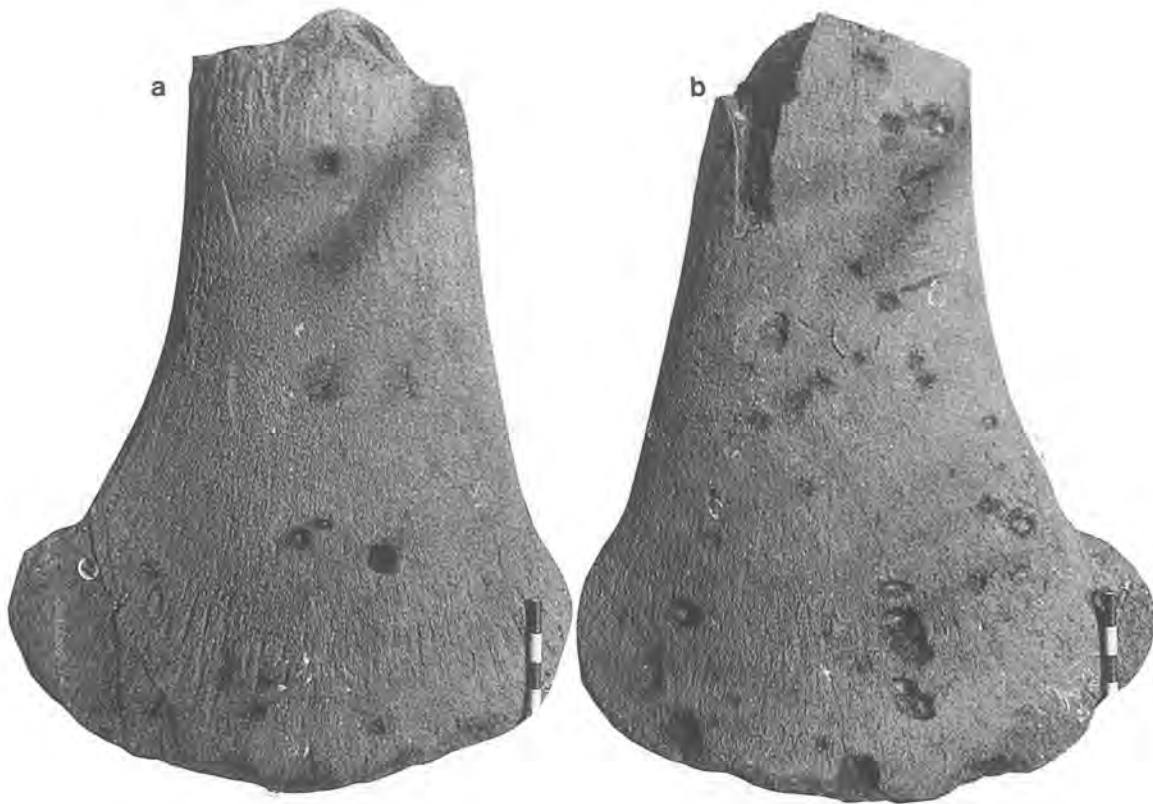


Figure 9. Plesiosaur propodial (SEKC.K220) (scale in cms). a) first surface, b) second surface.

sideways between the lower front teeth which produced the grooved indentations. There is no indication as to whether the plesiosaur was alive or dead, but as the features of the indentations suggest that they were made when the bone was still plastic, we suggest that the indentations were made just before, or just after the death of the prey.

#### The third propodial (SEKC.220)

The third specimen is an incomplete plesiosaur propodial (humerus/femur) (SEKC.K220) and was found *in situ* after being exposed by a mechanical digger from the Eudoxus Zone of the Kimmeridge Clay at Westbury, Wiltshire. The proximal end is missing leaving a bone 260mm long, 200mm wide at the distal end with a proximal shaft 85mm in diameter (Fig. 9). There is no evidence of crushing but the presence of serpulid tubes on the surface of the bone indicate a period spent under aerobic conditions.

One of the horizontal surfaces has 12 teeth marks, most of which are circular incisions ranging from 3-10mm in diameter and up to 3mm deep (Fig. 9a). The other horizontal surface has 30 teeth marks (Fig. 9b). The two largest are conical incisions, one 19mm diameter and 12mm deep, the other 15mm diameter and 10mm deep; both have penetrated through the cortex of the bone and into the inner cancellous zone. The two central teeth marks are 11mm diameter and 7mm deep. The remaining indentations range from 3-6mm in diameter and 1-3mm deep. Most of the indentations have penetrated the bone at right angles to the surface, but on the second surface there are four scour marks, tangentially aligned to the surface.

#### Discussion

Crocodile teeth were too slender to fit the incisions but the plesiosaur tooth SEKC.K821, and several smaller plesiosaur teeth from the collection, fitted very well. We suggest these marks on the plesiosaur propodial are consistent with predation by plesiosaurs.

#### Conclusion

Previous research indicates the plesiosaurs preyed on fish and cephalopods as hooklets and possible fish teeth have been found in the stomach content of Oxfordian plesiosaurs (Martill 1991 and in press). This paper indicates that plesiosaurs were also opportunists and possibly hunters of other large marine reptiles. Taphonomic evidence of this kind has only recently been recognised and many more specimens in museum collections may exhibit similar evidence of predation in the Jurassic seas.

Brown D.S. 1981. *The English Upper Jurassic Plesiosauridae (Reptilia) and a review of the Phylogeny and Classification of the Plesiosauridae*. *Bulletin of the British Museum* 35(4). 253-347.

Carroll 1988. *Vertebrate Palaeontology and Evolution*. Pub. Freeman. 698pp.

Martill D.M. 1991. Marine reptiles. pp. 226-243. In: D.M. Martill and J.D. Hudson (Eds). *Fossils in the Oxford Clay*. Palaeontological Association. 286pp.

Romer A.S. 1966. *Vertebrate Paleontology*. University of Chicago Press. 468pp.

## DORSET BOTANY IN 1991

D. Pearman

Twenty people met in February 1991 and agreed to start recording for a new Flora of the county by the year 2000. In August the Dorset Environmental Records Centre (DERC) appointed their first full time surveyor and hope to have another in the field for the 1992 field season. Between these two initiatives almost 400 site and tetrad cards were completed, giving a substantial impetus to a more up to date botanical knowledge of the county. Progress was made too on the information required for the proposed county Red Data Book. This again added to our knowledge on scarcer species.

The records below are of the rarer species in the county; further records of less uncommon but still notable species are in *Recording Dorset*, published by DERC.

So far as the records for the year are concerned, it was particularly noteworthy in the heathland districts. Two years of severe drought had opened up much bare habitat, thus allowing flowering and seeding of plants that have become progressively rarer since the last war. There were more records and plants seen of *Cicendia filiformis*, *Potentilla argentea*, *Lotus subbiflorus*, *Crassula tillaea*, *Anagallis minima*, *Hypochaeris glabra*, *Trifolium glomeratum* and *T. suffocatum* than for many years.

Away from the heaths, by far the most notable record was the re-finding of *Polycarpon tetraphyllum* at Ferrybridge. It has been recorded here spasmodically since 1750 but not seen since 1972 or so. *Fallopia dumetorum* is the first certain record since the early ears of this century; *Festuca heterophylla* is a new v.c. record, as all *Holoschoenus vulgaris* and *Pulsatilla vulgaris*. The precise status of the last two is not quite certain.

The names used are as in CTW third edition. Those in the New Flora by Professor Stace will be used next year. Records have been received from

HJMB	Dr. H.J.M. Bowen	DP	D. Pearman
AJB	A. J. Byfield	CDR	Dr. C. D. Reston
BE	B. Edwards	RS	R Surry
SE	Dr S Eden	RW	R. Walls
AH	Miss A Horsfall	FW	Mrs F Woodhead
JO	J. Ounsted	DERC	Dorset Env. Record Centre

*Acinos arvensis* - Basil Thyme

Muckleford, D. Allen; Bincombe Tunnel, BE This plant was not uncommon in bare areas on chalk in Prof. Good's time but, apart from one record near a set-aside field, these are the first records for some years.

*Adonis annua* - Pheasant's Eye

W of Seacombe, AH The only part of the county where this plant is still seen, within a mile of the more permanent site.

*Alisma lanceolatum* - Narrow-leaved Water Plantain

Burton Mere, SE

*Allium oleraceum* - Field Garlic

Near Ashmore, AJB The sixty's post-war record in a new locality.

*Alopecurus bulbosus* - Bulbous Foxtail

West Bay, DP The colony is much more extensive than initially thought, extending for over ten acres south of the river, and also scattered to the north.

*Bromus madritensis* - Compact Brome

Abbotsbury, DP, AJB, CDP On two more walls in addition to the Church Lane site. Ferrybridge, HJMB

*Bupleurum tenuissimum* - Slender Hare's-Ear

Lanton Hive, AJB and, separately, M. Blower. A completely new site for this coastal plant, re-recorded in 1989 from Portland, and formerly known from Lodmoor and Tilly Whim. A few plants only.

*Carex curta* - Pale Sedge

N of St. Leonards, RW, confirming a report from some years back from AJB A few plants in two places in a partly-felled wood. On the same drainage system as the sites on the Moors River.

*Carex divisa* - Divided Sedge

West Bay, DP. N of the river confirming an old record. By far the largest site in Dorset.

*Carex humilis* - Dwarf Sedge

Durweston Bridge HJMB confirming a record from Linton in 1904.

*Carex lepidocarpa* - Long-stalked Yellow Sedge

Wimborne St. Giles, DP; Turnerspuddle, DP/RW, both confirmed by R. W. David. Two good records, doubling the number of the confirmed sites - both in excellent fens.

*Carex punctata* - Dotted Sedge

Arne, AJB. A major colony in recently cleared woodland in a new site. This species responds well to clearing, viz. the Brownsea record from 1988.

*Chenopodium glaucum* - Oak-leaved Goosefoot

Upton CP, HJMB. The first certain county record.

*Cicendia filiformis* - Yellow Centaury

Gotham, V. Scott and DP. The six plants reported last year had increased to over 5000, together with much *Radiola* and some *Anagallis minima*. Since only one plant was seen at Arne, and none at Threshers Heath, this is a very important site

*Crassula tillaea* - Mossy Stonecrop

Recorded from at least 13 sites.

*Cyperus longus* - Galingale

Turners Puddle, AH. The colony seems definitely native and is a very welcome addition to the well-known site in Ulwell. Just before Christmas Dr. D. E. Coombe from Cambridge wrote to say he had seen the plant near Langton Herring in 1949, in the site where Prof. Good recorded it in the early 1930's. The site was searched in 1987 and 1990, but will now be investigated again.

*Cynodon dactylon* - Bermuda Grass

Middle Chine, Bourmemouth, AJB.

*Deschampsia setacea* - Bog Hair Grass

Hartland Moor, near the old Isolation Hospital, about 50 plants, AJB. A new site for a plant now only known from Winfrith Heath, although there are other older records.

*Desmazeria marina* - Sea Fern Grass

Moreton Church, DP. An interesting inland record.

*Draba muralis* - Wall Whitlow Grass

Near Chart Knowle, DP, confirming an older record from J. Keylock and others.

*Elatine hexandra* - Six Stamened Waterwort

Little Sea and Eastern Lake, AJB, confirming older records.

*Epipactis purpurata* - Violet Helleborine

Piddles Wood, AH; Horseclose Copse, AH. Two new records for this very rare woodland orchid.

*Erodium maritimum* - Sea Storksbill

Bats Head, DP; Tyneham Gap, AH; Holton Heath, BE. The last is another inland record to add to those noted last year.

*Eryngium maritimum* - Sea Holly

Burton Mere, Dr. J. Pyett. A few plants.

*Fallopia dumetorum* - Copse Bindweed

Near Alderholt, JO. Found in a small quantity in a newly cut hedge and an adjacent wood margin, these are the first confirmed records for very many years. Mansel-Pleydell gave one site, and another was recorded in Proc. D.F.C. in 1926, but no specimen was retained. It is known just across the Hampshire border.

*Festuca heterophylla* - Various-leaved Fescue

Bryantspuddle, HJMB. A new county record for this grass which was probably introduced with seed mixes last century, but has now become thoroughly established, especially in the south of England.

*Gastridium ventricosum* - Nit Grass

Near Burton Mere, CDP/DP. In small quantity on ant-hills in a patch of unimproved bare clayey turf, and in vast numbers in two set-aside fields to the east and west, where it was the dominant plant, with much *Centaurium pulchellum*.

*Gentiana anglica* - Early Gentian

Melbury Hill, AH.

*Holoschoenus vulgaris* - Clustered-headed Club-rush

Holes Bay, BE. One large clump. Although common on the continent, in Britain it is only known from dune slacks at Braunton and Burnham. It is now known how long the plant has been here - the clump is quite large, suggesting a number of years.

*Hyoscyamus niger* - Henbane

Friar Waddon, BE; Swyre Head, in arable, DP; Renscombe, DERC; Chamberhayes HJMB.

*Juncus ranarius* - a Toad rush

Ringstead, DP, confirmed by AJB.

*Limosella aquatica* - Mudwort

Wick, RW. In fair quantity in bare, muddy, seasonally flooded pits, across the river from the only other site in the county.

*Lotus subbiflorus* - Hairy Birds-foot Trefoil

In at least ten sites around Poole Harbour and east to the county boundary at Chewton Bunny. In one site near Godlingston Heath there were several hundred plants in a bare field.

*Lycopodiella inundata* - Marsh Clubmoss

Povington, near China Clay pit, DP etc.; Cranborne Common, a second site, BE; Alderholt, BE. These very welcome new records of this declining species - there do not seem to be many more than 10 remaining sites.

***Moenchia erecta*** - Upright Chickweed

Stonebarrow, RS; Hengistbury Head, FW. The first record from the west of the county for very many years.

***Myosurus minimus*** - Mousetail

Near Throop, in considerable abundance, FW; Hurn, FW; Near Pig Oak, AJB. The only recent records have been from near Wareham, so these are very welcome.

***Nepeta cataria*** - Catmint

Friar Waddon, 1 plant, BW; Breach Common, Shaftesbury, DP. This plant seems only to appear as a casual in the county.

***Orobanche maritima*** - Sea Broomrape

Ferrybridge, BE & AH.

***Papaver argemone*** - Prickly Poppy

Hurst Heath, BE.

***Papaver lecoqii*** - Yellow-juiced Poppy

Cerne Abbas, M. Galliot; Winterborne Stickland, HJMB; Blandford, HJMB.

***Parapholis incurva*** - Sea Hard Grass

West Bay, AH.

***Parentucellia viscosa*** - Yellow Bartsia

Eight heathland sites. It has been ventured before that this species is increasing. It certainly seems much more frequent, and is often found in scruffy remnants of heath or overgrazed leys.

***Poa bulbosa*** - Bulbous Meadow-grass

Mudford Quay, FW. The new site reported last year at South Haven may have been destroyed by road widening.

***Polycarpon tetraphyllum*** - Four-leaved Allseed

Ferrybridge, SE; Sandbanks, AJB. The Ferrybridge record is the latest in a very long history since c. 1750. It has often been reported lost, indeed Dr. Coombe saw it in 1949 and has looked for it again for over 40 years. A Mediterranean annual, it is now only found in the Scilly Isles, where it is abundant, and at one site in Cornwall. Oddly enough it was expected that it would be in flower in spring, as in Europe. In fact it was in full flower at the end of October.

Although the plant was recorded before 1980 at Sandbanks, it is now in at least three gardens there.

***Polygonum minus*** - Small Water-pepper

In the Morden area, BE; Dewlands Common, AJB.

***Polygonum mite*** - Tasteless Water-pepper

In the Morden area, BE; Three Legged Cross, BE; Hurn Airport, BE.

***Potamogeton trichoides*** - Hairlike Pondweed

Chickerell, CDP.

***Potentilla argentea*** - Hoary Cinquefoil

Near Greenland, DP/AH; Hurn Airport, BE; Fitzworth, BE; near Bovington, BE. Another plant of heathy sandy soils that had an excellent year, with more records than in all the years since the war. In the Bovington site there were a few plants on a road verge, with hundreds more in an adjacent abandoned field, which is over-run with Ragwort. A wonder show.

***Puccinellia fasciculata*** - Borrer's Saltmarsh-grass

North Haven, as a pavement weed, HJMB.

***Puccinellia rupestris*** - Stiff Saltmarsh-grass

West Bay, 1 plant N of river, DP.

***Pulsatilla vulgaris*** - Pasque Flower

Bokerley Dyke, P. Toynton, confirmed by HJMB. This one plant has apparently been known for about ten years and complements a very few over the border in Hampshire. Although the plant is the wild form, the nearest colonies are on oolitic limestone in Gloucestershire and chalk in Berkshire. Its true status is unknown.

***Salsola kali*** - Saltwort

Hengistbury Head, FW. Apparently the only record for Dorset for some years.

***Saxifraga granulata*** - Meadow Saxifrage

Garston Wood, RS. France Firs, HJMB. The only other recent records are from Edmondsham and Hambledon Hill.

***Scirpus maritimus*** - Sea Club-rush

Sutton Bingham, M. Galliot. A most interesting inland record, the only other being on the upper Stour near Stalbridge. Apparently known inland in Somerset too.

***Silene noctiflora*** - Night-flowering Catchfly

Ackling Dyke, adjoining cornfield, plentiful, G. Field.

***Silene nutans*** - Nottingham Catchfly

Just to the W of Bat Head in quantity, DP.

***Stellaria palustris*** - Marsh Stitchwort

Dudmoor Farm, R. Avon, JO; Sopley Cemetery, FW. These are apparently the only recent records, although DERC has various optimistic sightings, none of which appear to be correct.

***Teesdalia nudicaulis*** - Shepherd's Cress

Avon Causeway, JO; 1988. Apparently the first record for some years.

***Thelypteris thelypteroides*** - Marsh Fern

Mount Skippet, RS. A seventh Dorset site for this rare fern. It is odd that six of these have been discovered in the last few years, although there are a couple of old records that have not been refound.

***Trifolium glomeratum*** - Clustered Clover

Near Bovington, BE; Stokesford, BE; near Keyworth, DP; Arne, DP; South Haven, on lawn of new offices, DP; Mudford Quay, RW. Studland to Old Harry, HJMB. A very good year for this rare annual clover.

***Trifolium squamosum*** - Sea Clover

West Bexington, 2 sites, SE. These are the most westerly recent sites for this rare coastal plant.

***Trifolium suffocatum*** - Suffocated Clover

South Haven, on lawn of new offices, DP; Mudford Quay, FR. These are very few post-war records.

***Typha angustifolia*** - Lesser Bulrush

Northbestwalls, DP/AJB/CDP, a good clump in an old pond by estuary of R. Piddle; E. Lake, Little Sea, AJB. Two certain records of this uncommon species.

***Viola lactea*** - Pale Dog-violet

Trigon, two places, P. Study; Naked Cross, 1 plant, AJB; Old Ram Plantation, in four places, AJB/DP. Upton Heath, HJMB. Good records for this heathland species which is now reduced to a very few sites.

***Viola tricolor*** - Wild Pansy

Gallows Hill, HJMB.

***Vulpia ciliata*** - Bearded Fescue

South Haven, on lawn of new offices, DP; Rockly Sands, A. Leftwich.

***Vulpia fasciculata*** - Dune Fescue

South Haven, 1 plant, DP. The colony was almost destroyed by road widening, and the plant is still at its other Dorset site, at Ferrybridge.

***Wahlenbergia hederacea*** - Ivy-leaved Bellflower

Still on a garden lawn in Broadstone, where it was noticed when the house was built, and where it was shown to Prof. Good in the early 1970's, J. V. Boys.

## Aliens and Adventives

***Apera spica-venti***

Charminster, R. C. Palmer.

***Bromus rigidus***

Holes Bay, HJMB; Sandbanks, HJMB.

***Ornithopus compressus***

Holes Bay, BE, confirmed by HJMB.

***Potentilla recta***

Matchams, JO., Holes Bay HJMB Corfe Castle HJMB.

***Sisymbrium orientale***

Lulworth Castle, AH.

## A SECOND EXTANT DORSET LOCALITY FOR *GASTRIDIMUM VENTRICOSUM*

C.D. Preston & D.A. Pearman

***Gastridium ventricosum*** in Britain

Nit-grass, *Gastridium ventricosum* (Gouan) Schinz & Thell., is a winter annual, which is at the northern limit of its European distribution in the British Isles. Its past and present distribution and ecology in Britain are reviewed by P.J.O. Trist (1983, 1986) in two fascinating papers. It was formerly widespread but local in southern England and Wales, usually growing as a weed of arable fields but also occurring as a casual in habitats such as woodland rides. The intensification of arable farming since the Second World War has enabled crops to be grown at a much higher density than was formerly possible. This has virtually eliminated *G. ventricosum* as an arable weed, as it is unable to compete with the vigorous growth of a modern cereal stand. In a survey in the early 1980s, Trist (1983) was only able to locate a single locality where *Gastridium* still grew in arable fields, near Lymington in S. Hampshire.

During the period when *G. ventricosum* occurred primarily as an arable weed, botanists paid little attention to the few persistent populations which grow in semi-natural habitats. Only at one site, the Avon Gorge, is there a continuous record of its presence in such a locality, extending from 1789 to the present day (Lovatt 1981). The importance of these populations was, however, appreciated following the decline of *G. ventricosum* as an arable weed. Trist (1986) was able to document 24 populations in nine 10-km squares where the species grows in semi-natural habitats. At all the sites described by Trist it grows over limestone, usually near the sea. It characteristically occurs on very shallow, free-draining soil on rocky, often S-facing slopes. The plants inhabit an open sward of short calcicolous grasses and herbs,

areas of bare soil created by the activities of rabbits or areas of burnt *Ulex* scrub - all places where competition from perennial species is low. Many of the populations described by Trist (1986) are small: at 12 of the 24 sites he counted less than 100 plants, and only 2 sites (in Devon and Dorset) supported over 1000 plants. Populations of *G. ventricosum* do, however, vary greatly in numbers from year to year and can be particularly numerous in years when a hot summer is followed by a wet autumn (Lovatt 1981). Plants then colonize gaps created by the death of perennial competitors.

Since Trist completed his accounts of *G. ventricosum*, the grass has been discovered in semi-natural habitats in further localities. Most of these have been in Somerset, particularly at inland sites in the Polden and Mendip Hills (Roe 1989, 1990). Three Somerset populations have 1000 or more plants, at least in favourable seasons. The known distribution of *G. ventricosum* in the British Isles, based on records since 1980 and incorporating the newly discovered Dorset site described below, is reproduced as Fig. 10.

*Gastridium ventricosum* is usually thought to be native in the semi-natural habitats described above. Trist (1983) suggests that it spread from these native habitats to arable fields, using records from Dorset to illustrate how this could have happened. This is a very plausible hypothesis, but in the absence of fossil evidence or of more detailed historical records it cannot be proved. It is possible that populations could have moved in the opposite direction, if *G. ventricosum* was initially introduced to Britain as an arable weed and subsequently colonised semi-natural habitats; or the situation could be more complex if *G. ventricosum* is native in some sites but a colonist from arable populations elsewhere.

#### *Gastridium Ventricosum* in Dorset

The history of *Gastridium* in Dorset closely resembles that already outlined for Britain as a whole. Mansel-Pleydell (1895) described it as a rare plant of "cultivated ground, near the sea"; similarly Linton (1900) knew it from "cultivated and waste ground; rare, and only near the coast". The species was also recorded as a casual from habitats such as brickyards, railway banks and walls. Good (1948) described it in somewhat contradictory terms as "an uncommon but well-established casual in the coastal zone". Past and recent records of *G. ventricosum* in Dorset are mapped in Fig. 11.

*Gastridium* survived as an arable weed in Dorset until 1972, when it was recorded from the edge of a cornfield on the cliff top between Preston and Osmington. (This is an area where *G. ventricosum* had long been known - Mansel-Pleydell (1874) cites G.S. Gibson's record from a site 'near the Preston Preventive Station'). There have been no subsequent records in arable habitats. However, by the 1970s the

presence of the grass in native habitats had been recognised. Trist (1983, 1986) described the complex of sites at Durston, the only native localities in Dorset he was able to find in his survey. Lady Rosemary FitzGerald and D.A. Pearman confirmed the continued presence of *G. ventricosum* in this area in 1988, but failed to find it elsewhere despite thorough searches of other localities where the species had been recorded since 1950. Nevertheless, Ro FitzGerald recommended, perceptively, that botanists continued to look for it on the Dorset coast. On 18 July 1991 we discovered a large population of *G. ventricosum* above the sea on the slopes above Burton Mere in the parishes of Burton Bradstock and Swyre. This site possesses several features of interest, details of which are outlined below.

#### The New Dorset *Gastridium ventricosum* Locality

The soils on the SW-facing slopes above Burton Mere are mainly derived from Fullers Earth and slumped Forest Marble Debris. *G. ventricosum* grew in semi-natural vegetation in two adjacent fields, grid reference SY512880, and very abundantly in two set-aside fields which bordered them, SY511880 and 514879.

The fields of semi-natural vegetation contained turf surrounded by scrub. Some of the turf was closed, herb-rich *Brachypodium pinnatum* grassland with abundant *Genista tinctoria* and herbs such as *Centaureum erythraea*, *Cirsium acaule*, *Galium verum*, *Lotus corniculatus*, *Pilosella officinarum* and *Thymus polytrichus*; elsewhere this gave way to a very short, heavily grazed community with frequent *Carex flacca*, scattered *Brachypodium pinnatum*, a lower cover of the same herbs and much bare ground. After rain, water could be seen seeping down these areas of *Carex flacca*, but they soon dried out. In these fields of semi-natural vegetation *G. ventricosum* was confined to areas where the turf was broken, and occurred in 10-12 small groups totalling 100-200 plants. These small groups were found in three principal habitats: on rutted tracks or the sides of paths, on the top of low mounds in the turf and on active ant-hills. It was absent from the areas where *C. flacca* predominated, despite the fact that there was much bare ground in these areas.

We recorded the vascular plants associated with *G. ventricosum* in seven 25 x 25cm quadrats in this semi-natural vegetation. The small size of these quadrats was determined by the small area covered by the *G. ventricosum* colonies, which were surrounded by more densely vegetated ground. The percentage of bare ground in the quadrats ranged from 5% to 50%. The species recorded are listed below: the first figure represents the number of occurrences in five quadrats on low mounds or on tracks or pathsides; the second is the number of occurrences in two quadrats on the tops of active ant-hills. Nomenclature follows Stace (1991).

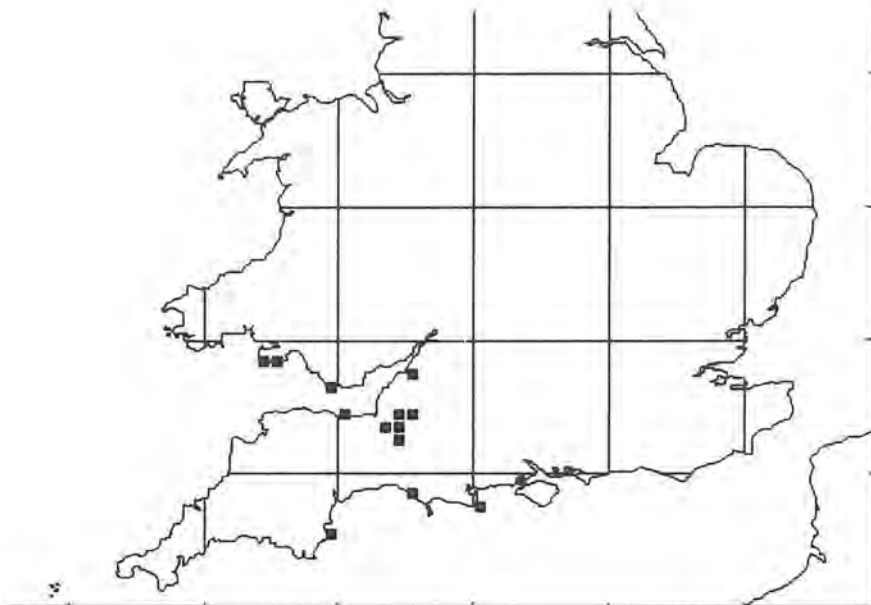


Figure 10. Recent records of *Gastridium ventricosum* in the British Isles. Squares represent 10-km squares in which the species has been recorded since 1980 in semi-natural habitats; the circle represents the one square where the species is only known from arable fields. Casual occurrences are omitted. This map updates the distribution map published by Trist (1986).

<i>Agrostis stolonifera</i>	5,0	<i>Leontodon autumnalis</i>	1,0
<i>Anagallis arvensis</i>	1,0	<i>L. saxatilis</i>	1,1
<i>Bellis perennis</i>	2,0	<i>Leucanthemum vulgare</i>	0,1
<i>Blackstonia perfoliata</i>	1,0	<i>Linum catharticum</i>	0,1
<i>Brachypodium pinnatum</i>	3,2	<i>Lolium perenne</i>	2,0
<i>Bromus hordeaceus</i>	2,0	<i>Lotus corniculatus</i>	2,1
<i>Carex flacca</i>	3,1	<i>Medicago lupulina</i>	3,1
<i>Catapodium rigidum</i>	4,0	<i>Ononis repens</i>	0,1
<i>Centaurea nigra</i>	2,1	<i>Picris echioides</i> (seedlings)	2,0
<i>Centaureum erythraea</i>	1,0	<i>Pilosella officinarum</i>	1,0
<i>C. pulchellum</i>	2,0	<i>Plantago lanceolata</i>	4,1
<i>Cirsium arvense</i>	1,0	<i>Poa annua</i>	0,1
<i>Dactylis glomerata</i>	1,0	<i>Prunella vulgaris</i>	3,0
<i>Euphrasia cf nemorosa</i>	0,1	<i>Sanguisorba minor</i>	1,0
<i>Festuca ovina</i> agg.	3,2	<i>Sonchus oleraceus</i>	2,0
<i>F. rubra</i>	1,0	<i>Thymus polytrichus</i>	2,1
<i>Galium verum</i>	1,0	<i>Trifolium campestre</i>	2,1
<i>Genista tinctoria</i>	2,2	<i>Ulex europaeus</i> (seedling)	1,0

Total number of species: 32,17

The set-aside fields in which we also recorded *G. ventricosum* have been ploughed relatively recently; they had not been cultivated after ploughing but the colonizing vegetation had been cut at a height of 10cm. Thousands of plants of *G. ventricosum* grew in the western of the two fields, being particularly abundant in the areas of shorter vegetation where there was a higher proportion of bare ground. In the eastern set-aside field, there were at least 100,000 *G. ventricosum* plants growing in large drifts in similar vegetation. In this field plants grew at densities of up to 7500 per square metre. The following species were recorded in five 25 x 25cm quadrats in these fields - the number of quadrats in which each species occurred is given after its name:

<i>Agrostis stolonifera</i>	5	<i>Lolium perenne</i>	1
<i>Anagallis arvensis</i>	3	<i>Medicago lupulina</i>	3
<i>Centaurium pulchellum</i>	2	<i>Picris echioides</i>	5
<i>Cerastium fontanum</i>	1	<i>Plantago lanceolata</i>	1
<i>Cirsium arvense</i>	3	<i>P. major</i> ssp. <i>intermedia</i>	1
<i>Convolvulus arvensis</i>	1	<i>Potentilla reptans</i>	1
<i>Geranium dissectum</i>	2	<i>Prunella vulgaris</i>	2
<i>Holcus lanatus</i>	1	<i>Sonchus arvensis</i>	5
<i>Leontodon saxatilis</i>	1	<i>S. oleraceus</i>	1

Total number of species: 18

Although it was not recorded in the quadrats, one of the species which grew with *G. ventricosum* in the set-aside fields was the nationally scarce *Vicia tenuissima*.

DISCUSSION

The new Dorset locality for *Gastridium ventricosum*, a SW-facing slope near the sea, is typical of the localities in which this species has been discovered in recent years. Unlike many of these sites, however, the slope is not rocky. *Gastridium* is clearly confined to microhabitats in the semi-natural turf where the soil is well drained and competition reduced, eg by trampling or by the active growth of ant hills. In this the species is behaving in a similar way to that reported from other sites. Twenty-two of the 36 species recorded in the quadrats in semi-natural habitats at the new Dorset site are listed by Trist (1986) as associates of *G. ventricosum* in quadrats he recorded in semi-natural habitats. These 22 include 7 of the 8 species included in more than half the quadrats above Burton Mere. The only species occurring in over half the Burton quadrats which is not listed by Trist is *Genista tinctoria*; other species recorded at Burton which Trist does not list include *Centaurea nigra*, *Centaurium pulchellum*, *Picris echioides*, *Prunella vulgaris*, *Sonchus oleraceus* and *Trifolium campestre*. Several of these are species of heavier, more mesic soils than the limestone sites described by Trist.

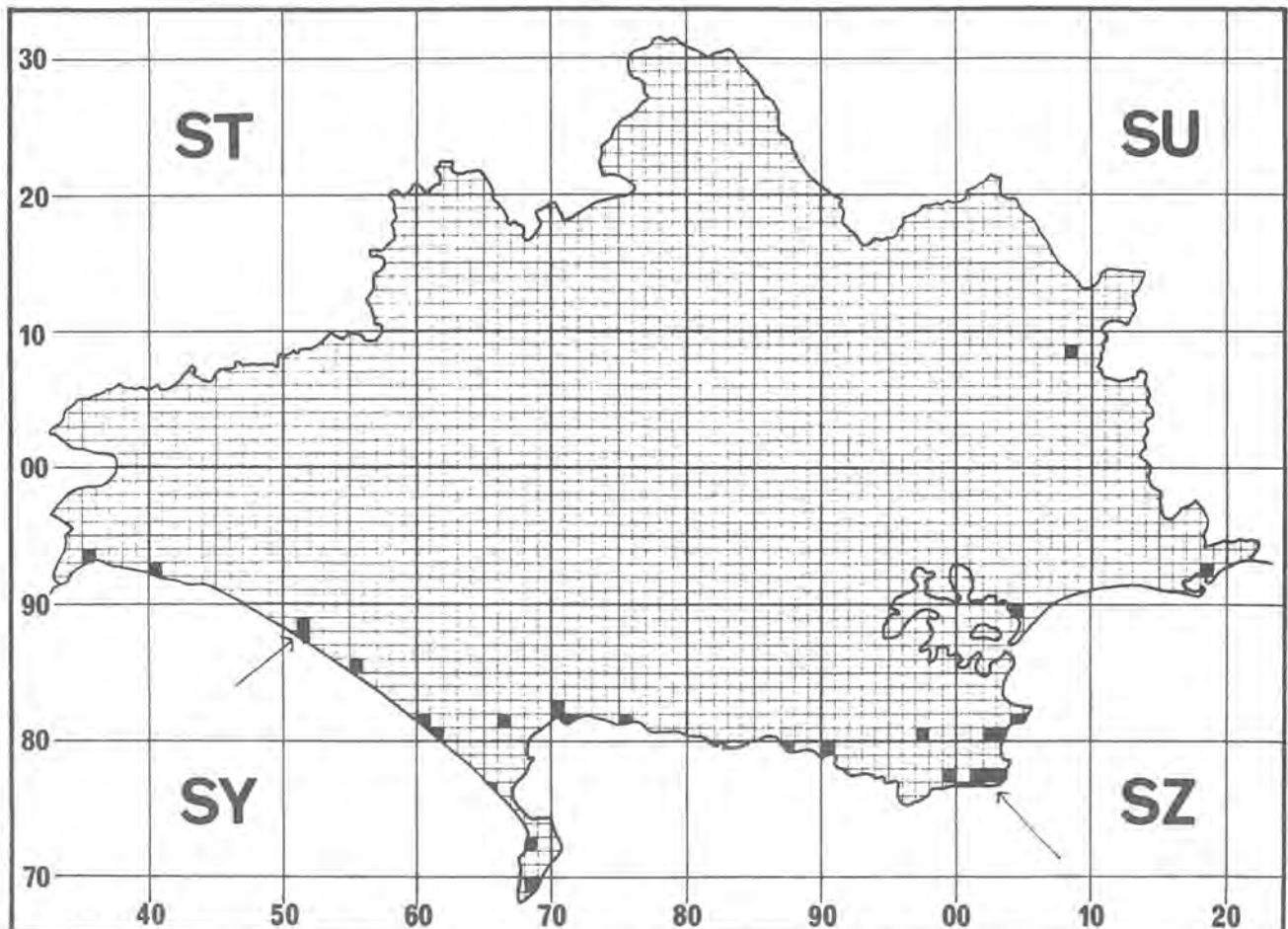


Figure 11. The distribution of *Gastridium ventricosum* in Dorset. The two extant localities are arrowed.

The most remarkable feature of the new Dorset site is the presence of very large populations of *G. ventricosum* in set-aside fields. These open habitats clearly favour the species (at least in the short-term), presumably combining open ground such as the species formerly colonised in arable habitats with the absence of competition from a cereal crop. The number of plants at the Dorset site greatly exceeds any of the populations reported by Trist (1986) or subsequently; as far as we know it is the largest British population. The associated flora is less rich than in semi-natural habitats: the 18 associates recorded in 5 set-aside quadrats compares with 32 in the same number of quadrats in semi-natural habitats. Most of the 18 species recorded with *G. ventricosum* in the set-aside quadrats are common weeds. Only 7 are recorded by Trist (1986) as associates of *G. ventricosum* in his quadrats from semi-natural habitats.

It seems likely that ruderal species like *G. ventricosum* which have been gradually eliminated as arable weeds by more efficient agriculture might be the main short-term botanical beneficiaries of the set-aside system. In Cambridgeshire, for example, significant new populations of the declining weed *Scandix pecten-veneris* and the moss *Weissia rostellata* have been recorded in set-aside fields (Crompton & Wells 1990; Preston & Whitehouse, 1992).

#### ACKNOWLEDGEMENTS

We are grateful to A.J. Byfield, Mrs A. Pearman and Miss A. Stewart for joining us on visits to the new *Gastridium ventricosum* locality. It is a pleasure to dedicate this brief note to John Trist, with thanks for the help he has given to us (and to many other botanists in recent years) as BSBI grass referee.

#### REFERENCES

- Crompton, G. & Wells, D.A., 1990, Vascular plant records. *Nature in Cambridgeshire* no. 32, 77-80.
- Good, R., 1948, *A geographical handbook of the Dorset Flora*. Dorchester.
- Linton, E.F., 1900, *Flora of Bournemouth including the Isle of Purbeck*. Bournemouth.
- Lovatt, C.M., 1981, The history, ecology and status of *Gastridium ventricosum* (Gouan) Schinz & Thell. in the Avon Gorge, Bristol. *Watsonia*, 13: 287-298.
- Mansel-Pleydell, J.C., 1874, *Flora of Dorsetshire*. London.
- Mansel-Pleydell, J.C., 1895, *The Flora of Dorsetshire*, 2nd edition. Dorchester.
- Preston, C.D. & Whitehouse, H.L.K., 1992, Bryophyte records. *Nature in Cambridgeshire*, no. 34.
- Roe, R.G.B., 1989, Vascular plants 1988. *Somerset Archaeology and Natural History*, 132: 341-346.
- Roe, R.G.B., 1990, Vascular plants 1989. *Somerset Archaeology and Natural History*, 133: 247-255.
- Stace, C.A., 1991, *New flora of the British Isles*. Cambridge University Press.
- Trist, P.J.O., 1983, The past and present status of *Gastridium ventricosum* (Gouan) Schinz & Thell. as an arable colonist in Britain. *Watsonia*, 14: 257-261.
- Trist, P.J.O., 1986, The distribution, ecology, history and status of *Gastridium ventricosum* (Gouan) Schinz & Thell. in the British Isles. *Watsonia*, 16: 43-54.

## LAND ARTHROPODS

N R Webb

As in previous years, I have compiled this report mainly from records sent to the Dorset Environmental Records Centre and I am grateful to Richard Surry for his help in abstracting them. Some records have been sent directly to me while others have been obtained by abstracting the entomological journals. This report includes records from J. Braithwaite, C. R. Bristow, J. R. Cox, C. Elliott, R. S. George, J. M. Hinton, D. Leadbetter, M. H. Lock, A. Mahon, E. D. V. Prendergast, S. Swain, T. Sweeney, J. F. Teagle, W. F. Teagle, R. M. Walls, N. R. Webb, and P. White.

#### Orthoptera

A good number of records continue to be received for this Order, of which the identification of the various species is relatively straight forward.

Oak Bush-cricket (*Meconema thalassinum*). Piddles Wood and Moors

Valley Country Park.

Great Green Bush-cricket (*Tettigonia viridissima*). Grimstone, Stratton, Townsend, Durlston, Tolpuddle Ball, Eggardon Hill, Newlands Batch, Askerswell, Two Gates, Lodmoor, Two Mile Coppice, Lorton, Toller Porcorum, Whitesheet Hill and Bestwall.

Wart Biter (*Decticus verrucivorus*). No records received this year.

Dark Bush-cricket (*Pholidoptera griseoaptera*). West Holme, Bindon Abbey, Giddy Green, East Burton, Winfrith Heath, White Cliff Swanage, New Swanage, East Knighton, Corfe Common, Okeford Hill, Sturminster Newton, Fiddleford, Fontmell Down, Sherford Bridge, Owermoigne, Ringstead, Two Mile Coppice, Clift, Barrowlands Farm, Pipestrings, Upton Country Park, Hackthorn Hill, Whitesheet Plantation, Spetisbury, Woolcombe, Bothenhampton, Keynston Mill, Crawford Bridge, Charlton Marshall, Home Plantation, Higher Woolcombe, Charlton on the Hill, Lorton Valley and Leigh.

Grey Bush-cricket (*Platypleis denticulata*). Portland (Church Ope, Gore Cliffs and Broadcroft), Durlston Country Park and Lodmoor.

Bog Bush-cricket (*Metrioptera brachyptera*). Pinesprings, Corfe Hills, Winfrith Heath, Whitcombe Vale, Holt Heath and Cranborne Common. Short-winged Conchhead (*Conocephalus dorsalis*). Tadnoll, Wareham Forest and Upton Country Park.

Long-winged Conchhead (*Conocephalus discolor*). Upton Country Park, Lodmoor, Pinesprings, Corfe Hills, Holt Heath and Spetisbury.

Speckled Bush-cricket (*Leptophyes punctatissima*). Herston and Sherford Bridge. Wood and Girdler Coppice.

Lesser Marsh Grasshopper (*Chorthippus albomarginatus*). Upton Country Park and Moors Valley Country Park.

Common Ground Hopper (*Tetrix undulata*). Washers Pit.

Slender Groundhopper (*Tetrix subulata*). Powerstock Common.

#### Odonata

J. R. Cox has continued with his intensive transect recording at Studland Heath National Nature Reserve for a fourteenth season. This is now a very impressive body of data. During 1991 he noted that of the seventeen species routinely recorded in the survey, four had increased in abundance and two had decreased. The detailed observation follow.

Beautiful Demoiselle (*Calopteryx virgo*). Not routinely recorded on the transect. This species is a vagrant at Studland; however, a mating pair was recorded on 21 August in a clearing in Twelve-Acre Wood.

Small Red Damselfly (*Ceragrion tenellum*). A small increase this year which brought numbers back to about the average for the fourteen years of counting. First seen 19 June; last seen 12 August.

Azure Damselfly (*Coenagrion puella*). A decrease of more than 30% from last year was noted to below the fourteen year average. First seen 6 May; last seen 10 July.

Common Blue Damselfly (*Enallagma cyathigerum*). Showed an increase of about 25% on the figure for last year bring the abundance for 1991 to about the fourteen-year average. First seen 12 May; last seen 25 September.

Large Red Damselfly (*Pyrrhosoma nymphula*). A small rise in numbers from last year, but still below the average for the fourteen years. First seen 7 April; last seen 22 July.

Common Blue Damselfly (*Ischnura elegans*). Numbers slightly more than double those in 1990 to give the fifth highest count since 1976. First seen 10 May; last seen 29 August.

Emerald Damselfly (*Lestes sponsa*). Numbers were more than double those for 1990, but the total recorded is still very low. First seen 28 June; last seen 17 September.

Hairy Dragonfly (*Brachytron pratense*). A slight fall in numbers bring it to what might be called an "average" year. First seen 12 May; last seen 12 August (a very late date).

Southern Hawker (*Aeshna cyanea*). Much larger numbers than last year but still below the fourteen-year average. First seen 10 July; last seen 13 September.

Common Hawker (*Aeshna juncea*). A small increase on last year but still low and never as numerous as the Southern Hawker. First seen 12 August; last seen 20 October.

Migrant Hawker (*Aeshna mixta*). A slight fall in numbers after two excellent years bringing it to near average numbers. Overall there has been an increasing trend for this species over the fourteen years. First seen 16 August; last seen 6 October.

Brown Hawker (*Aeshna grandis*). One seen on 17 September at the north end of the Little Sea. These odd records seem to be occurring with increasing frequency on recent years. On 26 August an individual was seen hawking over a small garden pond in Studland village.

Gold-ringed Dragonfly (*Cordulegaster boltoni*). Not recorded on the transect but single individuals noted on 20 July and 21 September.

Emperor Dragonfly (*Anax imperator*). Only recorded once on the transect on 12 August. Other single sightings on the Reserve were 20 July, 27 and 30 August.

Downy Emerald Dragonfly (*Cordulia aenea*). More than a 50% increase on last year bringing numbers to above average. First seen 23 May; last seen 20 July.

Black-lined Skimmer (*Orthetrum cancellatum*). Slight fall in numbers but still above average. First seen 8 June; last seen 21 September (a very late date).

Keeled Skimmer (*Orthetrum coerulescens*). A slight increase but numbers still very low. First seen 29 June; last seen 21 September.

Four-spotted Chaser (*Libellula quadrimaculata*). A big drop in number - at least 50% from last year - to the lowest number since 1978. First seen 20 May; last seen 10 July.

Black Darter (*Sympetrum danae*). Although normally recorded in very small numbers (with the highest count for the last five years being nine), this year the count was forty-four, the highest recorded so far. First seen 12 August; last seen 6 October.

Ruddy Darter (*Sympetrum sanguineum*). A two-fold increase to bring numbers to the highest recorded and exceeding the peaks in 1983 and 1984. First seen 29 June; last seen 25 September.

Common Darter (*Sympetrum striolatum*). A slight increase brought numbers up to the highest since 1981. First seen 28 June last seen 24 November (when seven were seen).

## Coleoptera

### Coccinellidae (Ladybirds)

There continues to be a good number of records for this easily identified family of beetles.

Water Ladybird (*Anisocicta 19-punctata*). Wick and Bestwall.

16-spot Ladybird (*Micropsis 16-punctata*). Wick, Overmoigne, Bestwall, Wareham Common, Worgret and The Moors.

2-spot Ladybird (*Adalia 2-punctata*). Dorchester, Maiden Newton, Southover, Stoborough, Corfe Castle, Bestwall and Wareham.

10-spot Ladybird (*Adalia 10-punctata*). Shell Bay.

7-spot Ladybird (*Coccinella 7-punctata*). Southover, Fryer's Bridge, Weatherby Castle, Bere Regis, Ashley Barn, Carey Heath, Wareham, Worgret, Stoborough Green, Creech Bottom, Holme Heath, Mintern, The Moors and Binnegar.

Orange Ladybird (*Halyzia 16-guttata*). Well Bottom.

22-Spot Ladybird (*Psyllobora 22-punctata*). Corfe Castle and Bere Regis.

Cream-spot Ladybird (*Calvia 14-guttata*). Southbourne.

14-spot Ladybird (*Propylea 14-punctata*). Sturminster Newton, Stoborough and Wareham.

Eyed Ladybird (*Anatis ocellata*). Broadstone.

### Other Beetles

Rose Chafer (*Cetonia aurata*). Bournemouth, Bourne Valley and Upper Parkstone.

Stage Beetle (*Leucanus cervus*). Richmond Park Bournemouth.

Glow Worm (*Lampyrus noctiluca*). Bagber, Godlingston Heath, Studland and Ware Fields.

Green Mint Beetle (*Chrysolina menthastri*). Moors Valley Country Park and Stoborough.

### Hymenoptera

Hornet (*Vespa crabro*). Furzebrook and Stoborough.

### Diptera

Robber Fly (*Asilus crabroniformis*). Wareham Common, Carey and East Holme.

### Araneae (Spiders)

Raft Spider (*Dolomedes fimbriatus*). Pinesprings.

Argiope bruennichi. Chickereil, Upton, Pinesprings and Corfe Hills.

## LEPIDOPTERA

Alan T Bromby

Records were received from the following field workers:

D N Arnold, A T Bromby, R Burt, D Fieldend, R Plowman and M Rogers

Dorset Environmental Records Centre have kindly supplied records of the migratory species and Mr Plowman and Mr Rogers have submitted details of catches from light traps at Durlston Country Park (RP) & Portland Bird Observatory (PBO)

*Plutella xylostella* L Diamond-back Moth. Portland 27 between 10.7. & 21.9. with maximum of 8 on 27.8., 2 on 16.10. one 27.10. (PBO) Swanage 11.7., 50 in August, 15.9. (RP).

*Sitochroa palealis* D & S. Swanage 31.7. (RP).

*Ostrinia nubilalis* Hb European Corn-borer. Portland 17.7. (PBO).

*Psammotis pulveralis* Hb Powdered Pearl. Portland 1.8. (PBO).

*Udea ferrugalis* Hb Rusty Dot Pearl. Portland 3 between 3.7. & 10.7., 6

between 30.7. & 5.8.; 19.8., 166 between 26.8. & 28.10. with maximum of 18 on 14.9. (PBO). Swanage 3.8., 4 on 15.7. 2.9; 10.9; 6 on 22.9., 9 between 10.10. & 15.10; 27.10. (R.F.) Woolgarston 6 between 26.8. & 25.9., 8.10., & 2 on 14.10. (R.B.).

*Nomophila noctuella* D & S Rush Veneer. Very scarce this year; Radipole 21.7. (DNA). Portland 27.8; 11.9. & 29.10 (PBO) Swanage 2 on 2.9. (RP).

*Palpita unionalis* Hb. Swanage 11.10 & 13.10 (RP).

*Aphomia sociella* L Bee Moth. Radipole 16.7. (DNA)

*Colia croceus* Geoff. Clouded Yellow. Scarce this year; Portland 10 between 7.9. & 8.10. (PBO). 7 recorded between 10.8. & 31.10. (DERC).

*Pieris brassicae* L Large White. Portland a large scale immigration noted 8.8. (PBO).

*Vanessa atalanta* L. Red Admiral. Bere Regis 11.1., Broadstone 12.1., Badbury Rings 5.5., many records from 4.7., until late October last at Broadstone 18.12 (DERC) Portland 3 between 14.4. & 17.4., 12 on 4.7. Then daily until late October & 5 between 1.11. & 16.11. (PBO).

*Cynthia cardui* L. Painted Lady. No spring immigrant reported. Earliest 2.7., (D.E.R.C). Portland 10 on 4.7., then regularly until 5.11., a marked influx 7.8. - 9.8. (PBO).

*Trichiura crataegi* L. Pale Eggar. Portland 10.9. (PBO).

*Pavonia pavonia* L. Emperor Moth. Studland, several flying in May & larva in August (J.R.C.). Upton, larvae pupating 10.9. (R.F.).

*Cilix glaucata* Scop. Chinese Character Holton Heath 3.8. (R.F.) Radipole 24.7 (DNA).

*Idaea vulpinaria* H-S. Least Carpet. Radipole 16.7. (DNA) Also recorded again this year at Portland Bill (PBO).

*Rhodometra sacraria* L. The Vestal. Portland 9.10. (PBO).

*Scotoperyx chenopodiata* L. Shaded Broad-bar. Radipole 15.7. (DNA).

*Anticlea badiata* D & S. Shoulder stripe. Radipole 21.4. (DNA).

*Thera cypressata* G. Cypress Carpet. Swanage 28.11., 30.11. (RP).

*Acasis viretata* Hb Yellow-barred Brindle. Radipole 20.5. (DNA).

*Epione repandaria* Hufn. Bordered Beauty. Holton Heath 20.7. (D.F.).

*Cleora cinctaria* D & S. Ringed Carpet. Holton Heath 3 on 11.5., (D.F.).

*Lomographa temerata* D & S. Clouded Silver. Swanage 8 on 11.7., 25 on 30.7., 3 on 14.8., (R.F.).

*Agrius convolvuli* L. Convolvulus Hawk-moth. A good year, with numerous autumn records (DERC). Studland 22.9. (J.R.C). Portland 2.9., 3.9., 23 between 11.9. & 29.9. with maximum of 5 on 11.9., 4 on 10.10 & 11.10 (PBO). Swanage 6.9., 10.9., 35 between 15.9. & 26.9., 12.10., & 15.10. (R.F.) Woolgarston 22.9., 11.10., 14.10., (R.B.).

*Acherontia atropos* L. Death's Head Hawk Moth. Studland 31.7. (DERC) Portland 16.9. (PBO) Swanage 9.10 & 10.10. (R.F.).

*Macroglossum stellatarum* L. Humming-bird Hawk Moth. Maiden Newton 30.3., Broadstone 15.4., 9 between 21.7. & 8.10 (DERC) Portland 30.3., 10.4., 19.9., 27.9., & 2.10 (PBO) Swanage 21.1.; 5 between 10.7. & 16.7.; 10.8. (R.F.).

*Clostera curtula* L. Chocolate-tip. Radipole 3 between 4.5., & 11.5. (DNA) Portland 28.5. (PBO).

*Dicallomera fascelina* L. Dark Tussock. Canford Heath larvae on 31.5. & 6.6. (D.F.).

*Euplagia quadripunctaria* Poda. Jersey Tiger. Swanage 1.9. (R.F.).

*Meganola albula* D & S. Kent Black Arches. Swanage 27.7., 11.8., 2 on 14.8., 15.8. (R.F.) Woolgarston 1.8., 2.8. & 14.8. (R.B.).

*Agrotis vestigialis* Hufn. Archer's Dart. Portland 20.8. (PBO).

*Agrotis ipsilon* Hufn. Dark Sword Grass. Not common this year: Portland 27 between 1.8. & 14.9., 22.9., 5 between 10.10. & 17.10; 24.10. Swanage 25.1. 19.5., 26.5., 3 on 16.7., 2 on 10.8., 15.8., 9.10., 10.10., 15.10. Woolgarston 16.8., 3 between 12.9. & 15.9., 14.10 (R.B.).

*Agrotis crassa* Hb. Great Dart. Portland 2.8. (PBO).

*Peridroma saucia* Hb. Pearly Underwing. Portland 1.8., 13 between 28.8. & 14.9., 15 between 22.9. & 10.10; 9 between 15.10 & 29.10 (PBO). Swanage 30.7., 3 on 10.8., 26.8., 9 between 10.10 & 15.10; 16.12. (R.F.) Woolgarston 1.9., 10.10., 3 on 11.10 (R.B.).

*Anaplectoides prasina* D & S. Green Arches. Holton Heath. 4.8. (R.F.).

*Lacanobia s-latinum* Hufn. Light Brocade. Radipole 3 between 16.6. & 4.7. (DNA).

*Mythimna albipuncta* D & S. White Point. Portland 1.6., 1.8. & 2.8., 10 between 26.8. & 22.9. with max 3 on 14.9. (PBO) Swanage 17.7., 10.8., 14.8., 9 between 3.9. & 15.9., 14.10 (R.F.) Woolgarston 16.8., 28.8., 29.8., 9 between 1.9. 4.9., then 13 between 10.9. & 15.9., with maximum of 4 on 11.9., (R.B.).

*Mythimna vitellina* The Delicate. Radipole 5 between 12.10 & 15.10 (DNA) Portland 29.6., 30.6., 13.9., 158 between 20.9. & 1.11. with maximum of 25 on 14.10 (PBO) Swanage 27.9., then 82 between 7.10 & 22.10 (R.F.) St Aldhelms Head 2 on 8.10 (ATB) Woolgarston 16 between 31.8. & 16.10 (R.B.).

*Mythimna straminea* Treit. Southern Wainscot. Radipole 15.7. & 23.7. (DNA) Portland 14.8. (PBO).

*Mythimna unipuncta* Haw. White Speck. Portland 3.10., 9.10., 10.10., 21.10., 1.11., (PBO) Swanage 10.10 (R.F.) Woolgarston 11.9. & 14.10. (R.B.).  
*Mythimna obsoleta* Obscure Wainscot. Radipole 24.6. & 6.7. (DNA).  
*Cucullia umbratica* L. The Shark. Radipole 8 between 5.7. & 23.7. (DNA).  
*Cucullia verbasci* L. The Mullen. Radipole 4 between 3.5 & 30.5. (DNA).  
*Lithophane semibrunnea* Haw. Tawny Pinion. Portland 20.10. (PBO).  
*Lithophane hepatica* Cl. Pale Pinion. Portland 1.6. (PBO).  
*Lithophane ornitopus* Hufn. Grey Shoulder-knot. Radipole 18.3. (DNA).  
*Trigonophora flammea* Esp. Flame Brocade. Portland 10.10. (PBO). Swanage 11.10., 12.10., 15.10., (RP).  
*Conistra rubiginea* D & S. Dotted Chestnut. Portland 23.4. (PBO)  
*Acronicta alni* L. Alder Moth. Portland 20.8. (PBO).  
*Rusina ferruginea* Esp. Brown Rustic. Holton Heath 14.6. & 16.6. (R.F.).  
*Enargia paleacea* Esp. Angle Striped Sallow. Portland 30.7. (PBO).  
*Apamea ophiogramma* Esp. Double Lobed. Portland 28.7. (PBO).  
*Photedes fluxa* Hb. Mere Wainscot. Portland 29.7. (PBO).  
*Gortyna flavago* D & S. Frosted Orange. Radipole 13.9. & 24.9. (DNA).  
*Celaena leucostigma* Hb. The Crescent. Holton Heath. 4.8. (R.F.) Radipole 27.7. (DNA).  
*Archanaera geminipuncta* Haw. Twin spotted Wainscot. Radipole 6.9. (DNA).  
*Spodoptera exigua* Hb. Small Mottled Willow. Portland 16.10. (PBO).  
*Heliothis armigera* Hb. Scarce Bordered Straw. Portland 8 between 10.10. & 24.10 with maximum of 3 on 16.10. (PBO).  
*Heliothis peltigera* D & S. Bordered Straw. Swanage 22.9. (R.F.).  
*Chrysodeixis chalcites* Golden Twin-spot. Portland 4.9. (PBO).  
*Diachrysis chrysiis* L. Burnished Brass. Radipole 5 between 3.7. & 20.7. (DNA).  
*Autographa gamma* L. Silver Y. Exceptional numbers occurred in the late summer. Portland 4 between 16.5. & 29.6., 8185 between 9.7. & 29.10 with maximum of 1457 on 28.8. (PBO) Swanage 6 in June, 59 in July; 399 in August; 1922 in September; 143 in October; 16.11 last record 16.12. A huge influx 1.9. when some 10,000 estimated on the Centre walls around M.V. trap (R.F.) Woolgarston 47 in July, 92 in August, 784 in September; 46 in October, last recorded on 30.11. (R.B.).  
*Autographa jota* Plain Golden Y. Radipole 18.7. (DNA).

## DORSET HOVERFLY RECORDS 1991

E. T &amp; D. A Levy

No new species were recorded this year, but a total of 89 were identified within the county and 126 site records were added to our site register. Once again good lists were provided for Oakers Wood by M. J. Parker and for Troublefield Nature Reserve by R. S. George (malaise trap specimens 5th to 12th August). As we have been working elsewhere during the year we are most grateful for these records.

Regretfully one of our special hoverfly sites was destroyed during work on the A35 near Dorchester and we hope that some of the scarce species that were found, will be rediscovered in neighbouring woodland.

SPECIES	SITE	GRID REF.	RECORDER	DATE
Smooth Newt	Bagber	ST7615	ED V Prendergast	27 May
Palmate Newt	Warry's Plantation	ST693097	ED V Prendergast	26 April
Crested Newt	Winterborne Kingston	SY8497	H J M Bowen	3 January
	Winterborne Kingston	SY8497	H J M Bowen	1 December
Common Frog	Broadstone	SZ003955	K Clarke	19 Jan - 26 Feb
	Dorchester	SY692907	D Pearman	26 February
	Woolcombe	SY550959	A Mahon	30 June
	Ringmoor	ST811084	ED V Prendergast	2 June
	Deadmoor Common	ST749109	ED V Prendergast	3 August
	Bagber	ST7615	ED V Prendergast	3 August
	Povington	SY877848	ED V Prendergast	4 August
	Bracket's Coppice	ST515074	EM Keats	9 November
	Winterborne Kingston	SY8497	H J M Bown	17 November
	Common Toad	Burton Bradstock	SY487896	R J Surry
Woolcombe		SY550959	A Mahon	16 March
Woolcombe		SY550959	A Mahon	17 July

Our thanks once again to English Nature and Dorset Trust for Nature Conservation for Access and permits to their reserves in 1991.

Noteworthy species as follows.....

*Platycheirus occultus fulviventris* Warmwell Heath 24th July (MJP)  
 Troublefield NR August (RSG)  
*Scaeva selentica* Oakers Wood 12th May (MJP) Troublefield NR August (RSG)  
*Ferdinandea ruficornis* Oakers Wood 21st April (MJP) (2nd Dorset Record)  
*Melangyna arctica* West Compton 25th July (MJP) (3rd Dorset Record)  
*Parasyrphus malinellus* Oakers Wood 5th May (MJP)  
*Xanthogramma festiva* Ashley Chase 25th May (MJP)  
*Cheilosia honesta* Oakers Wood 21st May (MJP)  
*Criorhina asilica floccosa* Oakers Wood 19th May (MJP) West Compton 23rd May (MJP) Bingham's Melcombe 19th June (MJP) Studland 18th May (ETL)  
*Xyloa florum xanthocnema* Troublefield NR August (RSG)  
 Chedington Wood 10th July (ETL)

## AMPHIBIANS

Robert V Skinner

The amphibian reports received by the Dorset Environmental Records Centre during 1991 are included in tabular form at the end of this section.

Smooth Newt. *Triturus vulgaris* - L.

Present in garden ponds in the Parkstone area but not in large numbers. (R V Skinner).

Palmate Newt. *Triturus helveticus* - Razoumowski.

Very common in garden ponds in the Parkstone area throughout the year. (R V Skinner). One seen in a garden pond in Corfe Mullen on 13 March and on 28 May. (A H Dunn). Only one record for Studland Heath NNR on 12 June, SZ0384. (J R Cox).

Crested Newt. - Razoumowski.

Very common in garden ponds in the Parkstone area throughout the year. (R V Skinner). One seen in a garden pond in Corfe Mullen on 13 March and on 28 May. (A H Dunn). Only one record for Studland Heath NNR on 12 June, SZ0384. (J R Cox).

Crested Newt. *Triturus cristatus* - Laurenti.

See DERC report at the end of this section.

Common Frog. *Rana Temporari* - L.

Earliest record of spawn was in a garden pond at Broadstone on 3 February. Two individuals found under a piece of limestone in a Corfe Mullen garden on 10 February and many frogs in three ponds in the same garden on 25 February. A pair seen in amplexus on 1 March. On 5 March over 17 frogs were counted and 2/3 clumps of spawn. By the 13 March 24 adults were counted and on 28 June there were still many frogs in the garden. (A H Dunn).

Common Toad. *Bufo bufo* - L.

Three or four present in a Corfe Mullen garden throughout the year but did not breed. (A H Dunn). The species was heard calling at the south end of Little Sea on 8 April, SZ0284. (J R Cox).

The following table lists the amphibian records for 1991 received by the Dorset Environmental Records Centre, Dorchester.

REPTILES

Robert V Skinner

The reptile reports received by the Dorset Environmental Records Centre during 1991 are included in tabular form at the end of this section.

Slow-worm. *Anguis fragilis* - L.

One very small specimen found in a Corfe Mullen garden at the bottom of a flower pot containing a dead plant on 10 April. An adult seen at Upton Park on 20 June. (A H Dunn). Earliest date for Studland Heath NNR was the 10 March. There were no more sightings until 21 March from when observations were regular.

The last date recorded was the 29 August, which was earlier than usual. The numbers involved this year were slightly less than for the last four seasons, sixteen adults and four juveniles but this is no doubt a nonsense as in reality there must be scores within the Reserve. The 1Km squares involved were SZ0284, 0285, 0383 and 0385. (J R Cox).

Viviparous or Common Lizard. *Lacerta vivipara* - Jaquin.

Three seen on a footpath between Holm Bush and Upton on 8 August and one seen on the Decoy Heath on 9 August. (A H Dunn). The first dates for Studland Heath NNR were 26 February for one juvenile and 1 March for two adults. No more recordings were made until the 22 March after which several were seen regularly. Sightings included some 22 adults and at least four juveniles, which was a similar number to last year. However, the species was still seriously under-recorded. The 1Km squares involved were SZ0283, 0284, 0285, 0383, 0384 and 0385. (J R Cox).

Sand Lizard. *Lacerta agilis* - L.

The earliest date for Studland Heath NNR was 31 March for one adult seen near the Observation Centre. The next sighting was not until 14 April. During the season only about 18 individual sightings were made. The last date was for two females seen by Tim Brodie-James and Howard Avery on 26 September. The 1Km squares covered were SZ0083, 0282, 0384 and 0385. (J R Cox).

Grass Snake. *Natrix natrix helvetica* - Lacepede.

The first date for the Studland Heath NNR was 27 February for a recently killed specimen that had a neck injury. The next date was 21 March when three more individuals were recorded. The last date was the 18 November when one specimen, which was blind in one eye, was found under a tin. Just over 30 individuals were recorded, which is less than last year. The area covered was 1Km squares SZ0183, 0283, 0284, 0285, 0383, 0384 and 0385. (J R Cox).

Adder. *Vipera berus* - L.

The first date for Studland Heath NNR was for four individuals seen on 26 February. On 20 May one specimen was watched devouring a

fledgling Wren, whose family was just scattering from a nest. The last date for the Reserve was for a single specimen seen on 30 September. During the year 44 individuals were noted, a number slightly down on last year. No significance can be attached to such a result because it is dependant on the amount of recording undertaken. The 1Km squares involved were SZ0284, 0285, 0383, 0384 and 0385. (J R Cox).

Smooth Snake. *Coronella austriaca* - Laurenti.

The first record for Studland Heath NNR was on 12 April. (Stephen J Morrison). The last was for a very small juvenile on 21 September. (J R Cox, Nick Hull and a YOC group). The 1Km squares included SZ0283 and 0284. The species was very under-recorded as only four individuals were seen. (J R Cox).

The following table lists the reptile records for 1991 received by the Dorset Environmental Records Centre, Dorchester.

MAMMALS

E M Keats

Mammal records have been submitted by a number of contributors both to the Dorset Environmental Records Centre and to me. I am grateful to all contributors and the records are filed at DERC. Records help to build up a picture of mammal distribution in Dorset. Please submit details of identification with the rarer species as well as grid references and details of behaviour are also of interest. I am grateful to Mr. R. Surry Keeper of Records for DERC for preparing the maps which include records up until the end of 1991.

The Scientific names are as listed in *Finding and Identifying Mammals in Britain* 2nd edition 1989 by G. B. Corbet, British Museum (Natural History) and for marine mammals in *British Whales Dolphins and Porpoises* 1976 by F. C. Fraser, British Museum (Natural History). In addition to species mentioned elsewhere in the report the following species were reported in 1991: Hedgehog *Erinaceus europaeus* Mole *Talpa europaea* Pygmy Shrew *Sorex minutus* Serotine *Eptesicus serotinus* Brown Hare *Lepus europaeus* Rabbit *Oryctolagus cuniculus* Grey Squirrel *Sciurus carolinensis* Bank Vole *Clethrionomys glareolus* Field Vole *Microtus agrestis* Wood Mouse *Apodemus sylvaticus* Yellow-necked mouse *Apodemus flavicollis* House mouse *Mus domesticus* Dormouse *Muscardinus avellanarius* Fox *Vulpes vulpes* Stoat *Mustela erminea* Weasel *Mustela nivalis* Badger *Meles meles* Fallow deer *Cervus dama* Roe deer *Capreolus capreolus* Seal species not identified with any certainty but one possibly Common Seal *Phoca vitulina*.

Common Shrew *Sorex araneus* Col. E. Prendergast watched one

SPECIES	SITE	GRID REF.	RECORDER	DATE		
Slow-worm	Ridge	SY934864	J M Bowcott	May-Aug		
	Corfe Mullen	SY9897	N Field	3 June		
	Swanage	SZ039810	WG Teagle	21 August		
	Common Lizard	Kingcombe	SY547986	N Spring	30 March	
		Stones Common	SY550976	N Spring	30 March	
West Weares		SY6872	H J M Bowen	27 April		
Bestwall		SY933876	MH Lock	4 May		
Sand Lizard	Kilwood clay-pits	SY937825	MH Lock	20 May		
	Race Down	SY9208	H J M Bowen	27 June		
	Branksome	SZ054929	J G Smith	1 July		
	Holt Heath	SU047037	E M Keats	28 July		
	Powerstock Common	SY5396	N Spring	10 August		
	Swanage	SZ026791	WG Teagle	2 September		
	Sherford Bridge	SY9292	H J M Bowen	12 October		
	Grass Snake	Bagber	ST7615	ED V Prendergast	7 June	
		Mare Pond	SY899835	ED V Prendergast	8 June	
		Mare Pond	SY899835	ED V Prendergast	14 June	
Brickyard Pond		ST755133	ED V Prendergast	5 July		
Brickyard Pond		ST758125	ED V Prendergast	5 July		
Wareham		SY921872	MH Lock	18 August		
Mare Pond		SY899835	ED V Prendergast	28 August		
Smooth Snake		Black Heath	SY895930	CR Bristow	11 September	
		Adder	Townsend Reserve	SZ02287824	WG Teagle	25 Mar - 16 Apr
			Middlemarsh	ST662084	A Mahon	16 May
	Worgret		SY907870	MH Lock	17 May	
	Middlemarsh		ST663078	P Hinton	1 June	
	Ballard Down		SZ043814	D Leadbetter	20 July	
	West Moors		SU0903	ED V Prendergast	14 August	

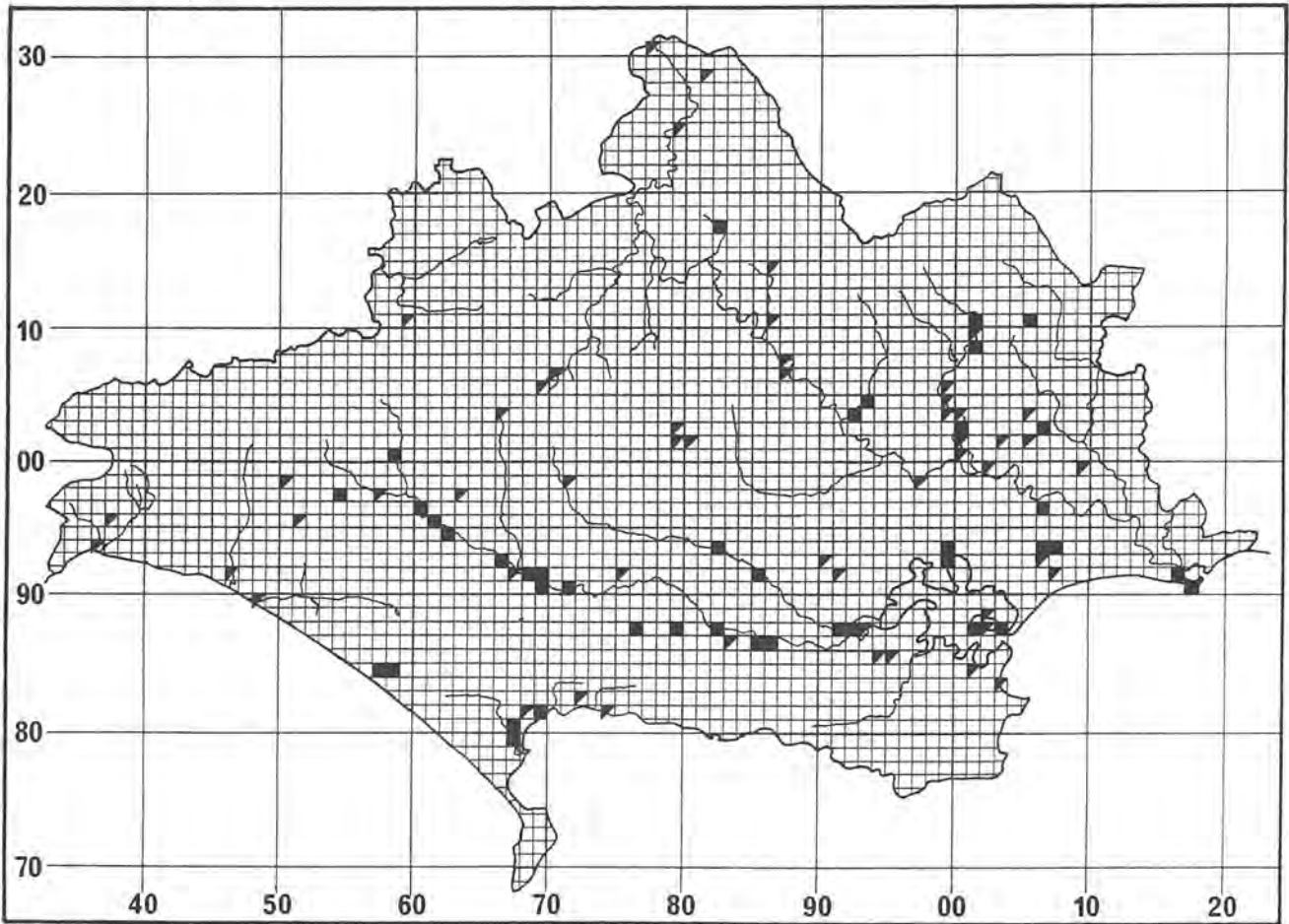


Figure 12 Water Vole *Arvicola terrestris*. Half-filled squares - Pre 1980 records. Filled squares - Post 1980 records.

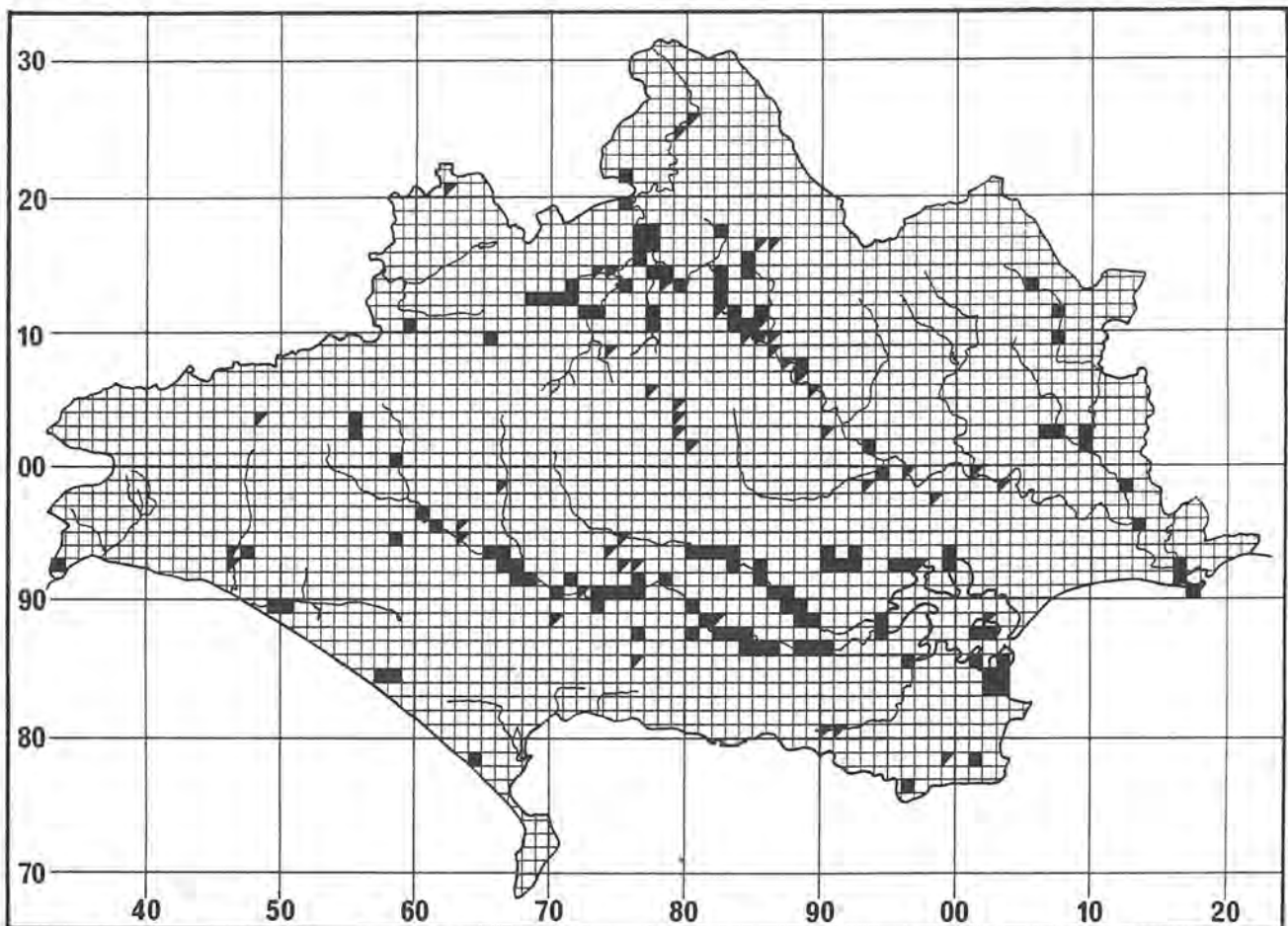


Figure 13 Mink *Mustela vison*. Half-filled squares - Pre 1980 records. Filled squares - Post 1980 records.

feeding on a small slug in short grass at Bagber, it nipped his hand, then moved on searching for food.

**Lesser Horseshoe bat *Rhinolophus hipposideros*** Two new breeding roosts were found in North Dorset and one bat was recorded in a central Dorset roost in December, the most south easterly record in Dorset. This roost also had one Barbastelle *Barbastella barbastellus*, two Natterer's bats *Myotis nattereri*, two Brown Long-eared bats *Plecotus auritus*, one Daubenton's bat *Myotis daubentonii*, four Pipistrelle *Pipistrellus pipistrellus*, 27 Greater Horseshoe bats *Rhinolophus ferrum-equinum* in a tight cluster in a man made cave extension and one Grey Long-eared bat *Plecotus austriacus* ringed in 1990, was recaptured in the same roost. Over 1000 fresh bat droppings were found in the cave previously dug as a winter roost. Greater Horseshoe in a winter hibernation roost were disturbed by the public and they moved out of this roost in the December 1991/January 1992 period. A female Barbastelle with a young one was found in the east of the County and a female Noctule *Nyctalus noctula* being cared for in captivity because of wing damage has produced a young one which is thriving.

**Brandt's bat *Myotis brandtii*** A female of this species was found in a garden at Osmington Mills, it was unable to fly and died four days later. It was identified and separated from the Whiskered bat species by its teeth.

**Red Squirrel *Sciurus vulgaris*** An interesting study on competition between Red and Grey Squirrels done by R. E. Kenward, T. Parish and J. L. Holm with a summary in the *Institute of Terrestrial Ecology Annual Report 1991* emphasises the need for hazel nuts and not acorns for Red Squirrels as they do not seem to digest acorns as well as Grey Squirrels do and where there are Oak trees the Grey Squirrels thrive. On Brownsea Island the Red Squirrels seem to feed on the Beech Mast and Pine cones as well. Mrs K. B. Parkyn has reported a good year for Brownsea sightings with a total of 627 sightings, 152 of these were made by voluntary wardens staying at Rose Cottage and recording squirrels seen on their walks from the cottage. The following groups of squirrels were reported 73 groups of 2, 16 groups of 3, 6 groups of 4 and 1 group of 9. 4 dead squirrels were found.

**Water Vole *Arvicola terrestris*** Work done on this species by Robert Strachan with the Vincent Wildlife Trust suggests there has been a considerable decline in number of this species and mink may be a major

factor. Other factors such as bank maintenance in rivers and canals and metal sheet piling to support banks are probably contributing to the decline. Where the habitat is good the Water Vole may be able to complete with the mink. Water voles need good vegetation cover and steep banks. The map of their recorded distribution in Dorset should be compared with the map for mink and it shows the distribution largely associated with the rivers and streams in Dorset. More observations on these two species would be useful, J. Powne recorded this species on the Frome at Stinsford and this is the first record submitted for this square.

**Mink *Mustela vison*** The map prepared from the DERC records shows the main distribution of this species along the rivers Frome, Piddle, Stour and streams in the north of the County. There are many more records shown than on the distribution map published by DERC in 1980 and it seems that this species has spread considerably in Dorset, where ever the habitat is suitable.

**Common (Brown) Rat *Rattus norvegicus*** The map for this species shows a number of records before 1980 which have not been reported since in these squares and only a small number of records reported since 1980. I suspect this species is widely distributed and would encourage all to send in their observations for the DERC records.

**Dolphins.** The staff at Durlston Country Park have coordinated many observations from fisherman and others from outside the Park as well as from the park along the Isle of Purbeck Coast and with field sketches have been able to identify a number of individuals. The species identified during the year are Common Dolphin *Delphinus delphis*, Bottle-nosed Dolphin *Tursiops truncatus* and Pilot Whale *Globicephala melaena*. There has been an increase in Common Dolphin sightings, seen in January, October and November. A detailed post mortem has been carried out on a specimen found on 27.10.91 on Swanage Beach. It was an adult female, no lesions on the carcass seemed serious enough to have caused its death. However the lesions on the skin and subcutaneous tissue may have resulted from the animal being caught in an object consisting of lines, perhaps a fishing net. An increased number of lone Bottle-nosed dolphins were reported between 26.4.91 and 12.5.91 whereas a large group of 12 - 15 were reported on 21.4.91. This species was recorded in all months except June and August. 18 were reported on 24.3.91 and possibly 20 on 1 and 2.7.91. Pilot Whales were recorded in May, October and November.

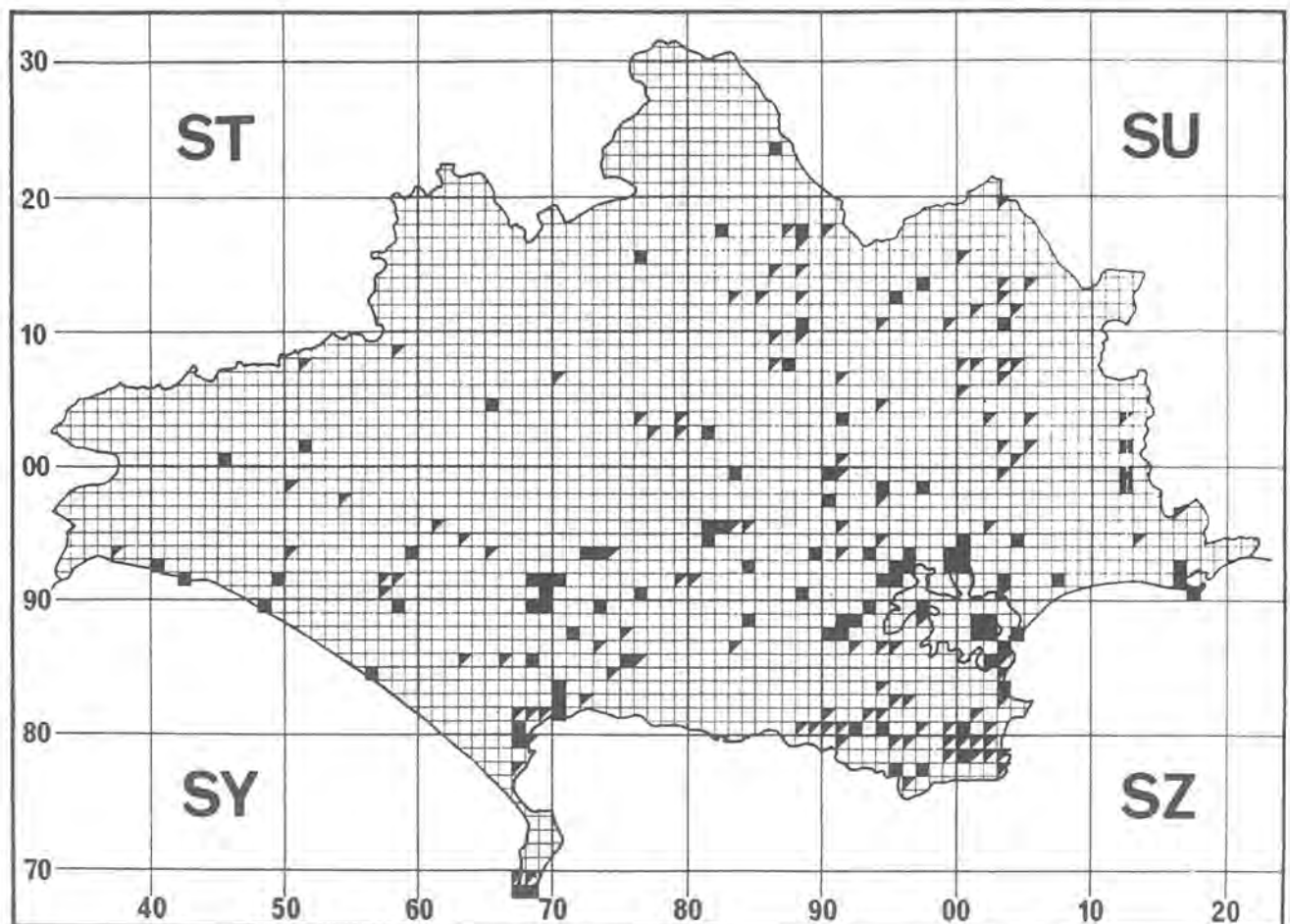


Figure 14 Common (Brown) Rat *Rattus Norvegicus* Half-filled squares - Pre 1980 records. Filled squares - Post 1980 records.

## BIRD REPORT 1991

P. M. Harris

As usual, the year began with a few left-overs from the previous year, in this case the semi-resident Iceland Gull in Weymouth and several scattered Little Auks along the coast, remnants of December 1990's mini-invasion. There were also several reports of Red Kite in the county, probably involving one wandering bird. Of a more exotic nature were an unseasonable Pomarine Skua on the Fleet in January and a Waxwing in a Poole garden.

The undoubted event of February was a huge movement of winter thrushes and woodcock in the cold snap, involving thousands of the former and hundreds of the latter, many people adding woodcock to their garden lists during this period.

The signs of the spring looked promising with several very early migrants, eg Garganey, 5th March; Cuckoo, 13th March and Osprey, 24th March, but the spring turned out very disappointing. Numbers of common breeding migrant birds were estimated to be at 50% of normal levels, due maybe to drought in the Sahel, the Gulf War or both.

Rare bird highlights were few, with the now annual Short Toed Lark, Woodchat, Golden Oriole, White Stork, Bee-cater and Red Rumped Swallow all being seen in the county. Of greater note were a Black Kite on Portland and a Caspian Tern at Radipole.

Several singing Marsh Warblers appeared briefly, but none stayed to breed.

Sadly the year did not brighten up with the onset of autumn but highlights were an adult Caspian Tern feeding a young bird on the Fleet, a Desert Wheatear on Portland, the only county first of the year, and a dead Yellow-billed Cuckoo. Also worthy of mention were 18 Aquatic Warblers trapped at one site in Poole Harbour, Olive Backed Pipit on Portland, and a minor influx of Long Tailed Skua and a Blue-winged Teal on the Fleet.

The only real surprise of December was a wintering Kentish Plover, first found at Studland, but later moving to Weymouth for the rest of the winter.

## RAINFALL 1991

D J Paxman

Dorset's general rainfall in 1991 was 856 millimetres, 6 per cent below the 1951-80 average of 915 millimeters.

## MONTHLY SUMMARY:

	Rainfall (mm)	Average 1951-80	% of average	Number of days with thunder
January	114	97	118	2
February	48	73	66	0
March	110	70	157	0
April	69	50	138	3
May	12	62	19	2
June	120	55	218	2
July	67	56	120	4
August	25	73	34	1
September	93	85	109	2
October	102	87	117	0
November	67	103	65	1
December	29	102	28	1

Rainfall at individual stations ranged from 1119 millimetres at Frome St Quintin to 583 millimetres at Portland Bill.

## GENERAL REPORT

1991 had the driest May since 1896, but this was immediately followed by a June rainfall exceeded only twice this century (in 1971 and 1980).

On September 28th there was a fall of 95.5 millimetres of rain at Lilliput, while in Poole the fall was 109 millimetres (4.29 inches). This is the largest fall in a single day since the memorable storm of July 18th 1955 when 279 millimetres (11 inches) fell at Martinstown.

1991 was the fifth successive year of below average rainfall. The significance of this is discussed elsewhere in this volume.

## HEAVY FALLS OF RAIN

## April 29th

A depression had formed off the North American coast by midday on 26th. Having moved ENE across the Atlantic it turned SE across Northern Ireland, the centre crossing the English midlands on 29th. Much of Dorset had over 25 millimetres of rain (35 mm at Lyme Regis). By 30th the centre was over north Germany and filling.

## June 23rd

The second half of June saw locally heavy rain somewhere or other in the British Isles on almost every day. Dorset's turn came on 23rd. A slack pressure gradient, a cold front just to the south and an unstable air mass gave the county its second wettest day of the year. Almost everywhere except over the Poole basin there were over 25 millimetres of rain. More than twice this amount fell along a band of country five miles wide and extending from Bridport to Wimborne (Puddletown 56 mm, Bridport and Dewlish 54 mm). Dorchester, Dewlish and Milton Abbas reported a thunderstorm. At Bridport and Swanage this was the wettest day of the year. The localized nature of the heavy rain is shown by its paucity at Trigon (6 mm) and Lilliput (12 mm).

## September 28th

From September 21st to the end of the month weather over Britain was dominated by depressions. At midday on 27th a deepening depression of 986 millibars was moving south-eastwards towards the British Isles. The centre crossed south-west Ireland and was off the Brest peninsula by midday on 28th, by which time its pressure was 974 millibars. Rain fell steadily across southern Britain, but most heavily in Dorset where it was intensified locally by thunderstorms. It was on this occasion that 109 millimetres of rain were recorded in Poole and 95 at Lilliput. Further west over 90 millimetres fell at Puddletown and Milton Abbas. In sharp contrast Swanage, though less than seven miles from the heaviest rain, had only 16 millimetres. For most Dorset stations this was the wettest day of the year. In some places the previous day had also seen some heavy rain and this gave 48-hour totals in excess of 100 millimetres in a few areas (114 mm at Lilliput, 103 at Frome St Quintin, 102 at Puddletown and 100 at Wraxall).

## RAINFALL STATIONS

New or resited stations:-

Name	NGR	Height ASL
Blandford (Tarrant Monkton)	ST943091	57 m
Broadwindsor (Netherhay)	ST415053	99 m
Yetminster (Church Street)	ST595108	61 m

Cattistock (Lankham House) closed at the end of 1990. Yetminster (Kenyon) was a temporary station. The gauge was moved to the new site in Church Street early in 1991.

## RAINFALL AT NETHERHAY, 1985 - 1990

	1985	1986	1987	1988	1989	1990
	mm	mm	mm	mm	mm	mm
January	90.5	151.3	35.3	170.5	55.5	184.0
February	27.5	3.0	98.5	135.0	125.0	227.5
March	65.3	66.6	77.5	102.0	145.5	16.0
April	69.7	71.5	95.0	27.0	89.0	36.0
May	41.4	128.0	15.0	96.5	12.5	20.5
June	61.5	57.0	128.5	31.0	47.5	67.5
July	69.0	56.0	27.0	143.5	29.0	54.0
August	93.0	184.0	25.5	51.5	65.7	40.5
September	36.0	36.5	56.0	63.0	74.5	45.5
October	55.0	84.0	208.0	80.0	138.0	78.6
November	45.6	197.5	87.5	34.0	48.0	60.8
December	209.0	175.7	84.0	25.5	232.5	81.4
Year totals	863.5	1211.1	938.0	959.5	1062.7	912.3

## CORRECTION TO VOLUME 112

Page 164. The second column of the table gives averages for the standard reference period 1951-1980 (not 1941-1970).

STATION	OBSERVER OR AUTHORITY	GREATEST FALL IN 24 HOURS		DAYS WITH 0.2 mm OR LESS	DAYS WITH 25 mm OR MORE	DEPTH OF RAINFALL IN MILLIMETRES												
		Depth	Date			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total for year
Blandford (Tarrant Monkton)	B G Hart	40.5	28/9	166	5	135.8	36.9	92.9	70.5	9.3	114.4	80.6	26.5	64.9	90.0	59.1	38.5	819.4
Blandford (Tarrant Rawston)	J H Cossins	59.2	28/9	150	5	138.9	40.6	104.6	73.4	12.4	122.4	75.9	27.2	86.6	98.8	65.8	35.3	882.1
Broadwindsor (Netherhay)	J A Barnard	-	-	-	-	137.8	60.4	129.1	109.6	19.1	115.9	57.6	43.5	91.5	104.7	106.5	21.4	997.1
Bournemouth (Hurn Airport)	Met. Office	43.1	28/9	151	3	97.1	35.7	96.9	44.2	10.7	111.5	78.2	12.1	65.6	96.4	51.4	35.2	735.0
Bridport (Bradpole)	G R Smith	53.6	23/6	122	3	92.3	47.7	116.4	75.9	14.3	142.0	80.8	28.6	93.8	108.4	60.1	26.2	886.5
Cerne Abbas (Abbot's Walk)	D H Paul	79.8	28/9	158	7	149.1	69.5	127.3	84.8	12.3	147.9	68.6	32.0	107.2	135.5	120.8	27.0	1,082.0
Charminster (Hill View)	Mrs Eveleigh	72.6	28/9	-	-	109.4	59.3	139.0	67.0	6.7	146.7	64.3	49.7	120.4	114.4	71.0	24.8	972.7
Dewlish (Parconage Farm)	Mrs Britton	70.0	28/9	107	7	152.0	57.0	108.0	57.0	8.0	140.0	63.0	34.0	121.0	118.0	70.0	32.0	960.0
Dorchester Bridport Road)	Wessex Water	-	-	-	-	120.6	62.7	132.8	63.0	5.7	153.5	69.0	36.5	103.2	111.6	66.5	27.1	952.2
Dorchester (Weatherbury Way)	J R Oliver	51.9	28/9	149	5	118.4	60.4	137.4	64.6	4.6	145.8	67.5	29.6	97.1	110.5	64.7	26.2	926.8
Durlston Country Park	M Turnbull	28.4	28/9	151	2	100.8	34.6	88.3	47.8	8.8	122.7	80.8	8.2	56.3	94.6	71.4	40.4	754.7
East Stour	R Brown	35.4	28/9	165	4	87.6	21.8	75.8	85.7	11.4	97.7	83.0	11.8	64.4	72.5	55.0	37.6	704.3
Evershot (Melbury House)	S Rayner	69.9	28/9	168	7	150.4	74.8	125.2	85.1	35.1	181.5	73.3	27.3	108.4	121.3	76.0	20.5	1,078.9
Forde Abbey	M Roper	52.8	28/9	147	3	121.8	45.2	106.2	92.1	18.2	93.5	50.4	32.1	89.4	115.7	64.9	18.5	848.0
Frome St Quintin	D Pearman	78.5	28/9	164	6	140.0	73.9	148.8	95.0	30.2	150.1	89.2	29.7	127.5	108.7	94.2	31.8	1,119.1
Langton Matravers (Leeson House)	D Kemp	-	-	176	-	119.7	43.4	104.1	54.4	10.5	137.5	80.0	7.8	44.2	112.2	74.4	46.1	834.3
Leigh (Denbury House)	Lt-Col Barlow-Poole	56.1	28/9	125	2	103.1	49.8	94.0	64.5	13.7	78.7	60.2	16.5	81.3	88.1	65.5	20.6	736.0
Lyme Regis (Pinhay), Devon	J D Allheusen	56.9	28/9	149	5	93.9	36.5	122.8	95.8	19.0	133.0	80.4	33.7	100.9	112.0	51.8	26.7	906.5
Maiden Newton (Wraxall, Manor Farm)	Lt-Col Wilson	72.2	28/9	152	6	121.7	75.5	147.6	88.4	20.9	143.4	86.0	29.9	121.9	100.4	71.2	18.9	1,025.8
Milton Abbas	K Battrick	94.0	28/9	-	-	153.0	52.5	132.5	68.0	8.0	134.3	73.7	43.7	132.0	121.5	73.0	37.0	1,029.2
Minterne	The Lord Digby	70.1	28/9	-	-	166.3	74.8	112.0	88.3	7.3	148.5	60.5	30.2	103.3	85.9	108.8	30.5	1,016.4
Osmington Mills (Coastguard House)	J Hadwin	42.0	28/9	122	4	81.0	38.8	118.5	59.5	11.1	98.5	64.1	25.5	87.7	113.5	66.0	31.0	795.2
Parkstone (Lilliput)	R J O Crew	95.5	28/9	167	2	80.8	33.3	81.0	45.7	6.9	74.2	60.7	15.2	130.8	83.1	44.4	36.8	692.9
Portland Bill	B Gilvear	24.2	28/9	134	0	81.5	21.9	60.1	42.4	3.1	83.7	51.1	19.3	47.1	88.3	55.2	28.9	582.6
Puddletown (Bardolf Manor)	H G Wood-Homer	90.0	28/9	155	8	146.8	64.9	139.1	76.1	12.2	135.1	52.5	32.0	124.9	113.3	67.9	24.7	989.5
Swanage	K Moore	24.7	23/6	148	0	104.8	36.2	85.6	45.6	7.2	115.6	69.0	5.6	43.8	82.1	65.9	44.9	706.3
Wareham (East Stoke River Lab.)	J Morgan	55.1	28/9	161	3	103.7	46.3	113.9	50.4	5.7	117.0	58.2	13.7	89.7	109.6	68.9	26.2	803.3
Wareham (Trigon)	G P Sturdy	57.4	28/9	139	2	97.6	39.0	81.0	50.7	6.9	88.7	47.1	12.0	91.9	91.7	60.9	23.6	691.1
Weymouth (Cranford Avenue)	H F Middleton	48.2	28/9	139	2	84.2	36.0	117.2	56.3	7.9	92.8	66.4	22.2	71.1	103.3	56.6	26.0	740.0
Weymouth (Westham)	A J Coe	49.6	28/9	136	2	86.2	33.0	93.7	56.1	6.1	93.8	60.1	19.3	75.7	93.9	49.2	23.9	691.0
Wimbome (Corfe Mullen, Central Avenue)	A H Dunn	75.2	28/9	171	4	99.6	41.7	107.4	60.2	9.7	138.4	69.3	24.4	105.2	94.5	69.1	25.4	844.9
Winfrith (Atomic Energy Establishment)	M Rodgers	56.8	28/9	140	3	106.1	23.6	124.4	54.9	9.0	119.6	56.7	22.0	100.7	115.8	60.4	22.8	816.0
Yetminster (Church Street)	J M Bosworth	58.5	28/9	163	3	110.0	53.7	97.1	92.2	18.7	87.4	57.5	21.1	79.7	97.6	68.7	25.1	808.8
Yetminster (The Mill House)	R M Clarkson	-	-	131	-	124.0	71.9	89.1	93.5	16.5	77.2	54.1	17.3	73.7	86.4	64.3	18.0	786.0
AVERAGE FOR THE COUNTY				147	4	114.3	48.4	109.9	68.6	11.8	119.7	67.3	24.7	92.7	102.4	67.5	28.5	855.7

## A DOWNWARD TREND IN RAINFALL

D J Paxman

There is currently much interest in rainfall statistics. Articles in newspapers speak of falling water tables, dry wells and increasing restrictions on use of water. In Britain the worst affected zone extends from mid Hampshire eastward to Kent and northward into Yorkshire. Dorset may be said to lie on the outer fringe of these areas, but in eight of the last ten years our rainfall has been below average, and 1991 was the fifth successive year to be relatively dry. 'Global warming' is a catch-phrase heard when any new and undesirable climatic trend is detected, and blame is laid, if possible, on avoidable atmospheric pollution. The purpose of this article is to determine the scale of any downward trend in Dorset rainfall; to view it against the perspective of the Dorset rainfall records; and to enquire concerning ascertainable meteorological causes.

## DORSET RAINFALL AVERAGES

The rainfall of individual years is always compared with a 'recent average'. For this purpose the Meteorological Office has designated successive standard reference periods. Dorset's averages for these periods are shown in Table 1. As will be seen, the 'recent average' is now a 30-year moving average which is updated every ten years. These averages in themselves give some indication of trends in rainfall over the medium term. To assess these trends in so variable quantity as rainfall it is desirable to have also a less volatile long-term average. The evolution of such an average for Dorset has become possible only recently because no rainfall records are known earlier than those which began at West Bucknowle, Purbeck, in 1848. Not until 1856 was this station joined by five others so that a general county average could be calculated. The first provisional general average was proposed by Henry Storks Eaton (Eaton 1896) and was really a recent average covering the years 1856-19=895, a period of rapid changes in rainfall as can be seen in Fig. 15.

Ronald Good was on much surer ground when he proposed a long-term average a whole inch higher (Good 1941). This was after 86 years' observations. Good's figure, which he rounded up to 35 inches (889 mm), was in fact not reached until 1960, the wettest year in Dorset's records. Since then a high point of 893 mm was reached in 1982. The present (1856-1990) average is 890 mm, and this will be distinguished as the Dorset long-term mean (LTM). This evolution of the LTM is summarized in Table 2.

Period	Average	Period/Years	Average	
			ins.	mm
1881-1915	856 mm	1856-1895 40	34.02	864
1916-1950	914 mm	1856-1941 86	34.68	881
1941-1970	924 mm	1856-1982 127	35.16	893
1951-1980	915 mm	1856-1990 135	35.04	890

Table 1. Dorset average annual rainfall for the standard reference periods. Table 2. Development of a Dorset long-term Mean.

## THE RECENT TREND

That there has been a recent downward trend is evident from both Tables 1 and 2. The 1951-1980 average is 9 mm below that for 1941-1970, though the fall is of only 1 per cent.

We find the trend further developed if we consider the gross rainfall of the ten most recent years, 1982-1991. Although 1982 and 1986 were relatively wet years the gross fall was 858 cm, 6 per cent below the recent (1951-1980) average and 4 per cent below LTM. It was the driest ten year period since 1917-1921.

The graph of 10-year moving averages of gross rainfall (Fig. 15) confirms the message of the figures. There has been continuous decline since the decade 1977-1986, and this could possibly be seen as part of a long period decline dating back to the last notable peak of 1951-1960. The moving average fell below the LTM in 1989 and is now exploring levels unknown since the first decade of this century.

## THE TREND IN PERSPECTIVE

To see the recent rainfall trend in perspective it must be remembered that even in Dorset's comparatively short records covering only 136 years there are periods when shortage of rainfall was considerably more severe than during 1982-1991. A glance at the graph of moving averages (Fig. 1) shows them below the 1991 level continuously from

1889 to 1911. In the driest ten years, 1884-1893, the gross yield was only 784 cm, 12 per cent below LTM. Ten-year comparisons are summarized in Table 3.

Period	Gross Rainfall	Anomaly	
	cm	cm	(%)
1884-1893	784	-106	(-12)
1902-1911	855	-35	(-4)
1982-1991	858	-32	(-4)

Table 3. Summary of dry 10-year periods. (Comparisons are with LTM).

The five consecutive years 1987-1991 all with less than average rainfall have only one precedent in our records, in 1904-1908. The gross rainfall then was less than in the recent period. There have, however, been five-year periods containing one or even two wet years yet significantly drier than 1987-1991. Five-year comparisons are summarized in Table 4.

Period	Gross Rainfall	Anomaly	
	cm	cm	(%)
1867-1871	410	-35	(-8)
1883-1887	399	-46	(-10)
1889-1893	381	-64	(-14)
1898-1902	385	-60	(-13)
1904-1908	397	-48	(-11)
1917-1921	396	-49	(-11)
1969-1973	410	-35	(-8)
1987-1991	410	-35	(-8)

Table 4. Summary of dry 5-year periods. (Comparisons with LTM).

Turning now to the graph of ten-year moving averages, Fig. 1, two features immediately catch the eye:-

- (1), The rainfall 'trough' that reached its lowest point in the ten years 1884-1893, and was preceded by a rapid descent from a peak only twelve years earlier;
- (2), the much longer period from the decade 1905-1914 to the decade 1961-1970 during which all the averages were above the LTM. This period includes the wettest decade of the whole Dorset series, 1922-1931.

Since 1970 the ten-year averages have hovered around LTM, mostly on the positive side of it, with minor wet peaks in 1983 and 1986, since which the decline in rainfall has been continuous and steady. However, when compared with the trough of a century ago the rate of descent is less rapid, and we are still nearer to LTM than to the low levels experienced then.

## SEASONAL CHANGES IN RAINFALL

Thus far only the rainfall of whole years or groups of years has been considered. This fails to show the marked seasonal aspect of the current downward trend. J C Mayes (1991) showed that in the decade 1981-1990 summer rainfall in the far north-west of the British Isles was typically up to 15 per cent higher than during the standard reference period 1951-1980, but decreased eastwards and southwards so that along the Sussex and Kent coasts the fall was as much as 30 per cent below the 1951-1980 level. Table 5 shows that in Dorset there has been a 19 per cent decrease in summer rain. A further breakdown of Dorset's autumn rainfall shows that the 8 per cent decrease is attributable entirely to September. Thus the overall reduction of rainfall in the period 1981-1990 is found wholly in the four months from June to September.

Period	Spring	Summer	Autumn	Winter	Annual average
	(MAM)	(JJA)	(SON)	(DJF)	
	mm	mm	mm	mm	mm
1951-1980	183	184	275	273	915
1981-1990	191	149	252	276	868
	(+4%)	(-19%)	(-8%)	(+1%)	(-5%)

Table 5. Average Seasonal Rainfall in Dorset, 1951-1990, with percentage change.

Table 6 shows the total rainfall for the four months from June to September in Dorset in each year of the decade 1981-1990, comparing it with the 269 mm average for 1951-1980. After eight successive summers with rainfall well below the recent average some comfort may be taken from the fact that in 1991 there was a positive anomaly of 13 per cent!

Year	Rainfall		Anomaly	
	mm	mm	mm	(%)
1981	274	+5	(+2)	
1982	276	+7	(+3)	
1983	188	-81	(-30)	
1984	171	-98	(-36)	
1985	262	-7	(-3)	
1986	230	-39	(-14)	
1987	191	-78	(-29)	
1988	234	-35	(-13)	
1989	152	-117	(-43)	
1990	155	-114	(-42)	

Table 6. June to September Rainfall in Dorset 1981-1990, compared with the recent average.

GENERAL CONCLUSIONS

(1) There is a well established downward trend in Dorset rainfall,

particularly in the summer months.

(2) There is consensus that the immediate cause of the drier summers in southern England is the increased incidence of blocking anticyclones, which deflect depressions approaching from the Atlantic, with consequent loss of frontal and other associated rain.

(3) If we ask why there should be this change in atmospheric circulation patterns there is no certain answer.

(4) Recent trends fall well within the fluctuation range known over the past 136 years. This suggests that no new factors are necessarily involved. Nor can they be ruled out.

A note of warning should perhaps be attached to the use made of moving averages. The graph in Fig. 1 looks remarkably like those used by chartists to monitor and forecast Stock Market prices. Even in that context the monitoring is greatly superior to the forecasting. In the case of climatic trends moving averages are purely a monitoring tool. They are a way of presenting history. They say positively nothing about what may happen next.

Abbreviation

LTM, Dorset Long-term Mean Rainfall

References

Eaton, H. S. (1896) 'Dorset Monthly Rainfall, 1856-95', *Dorset Proceedings*, 18, pp. 153-168.  
 Good, R. (1941) 'The Rainfall of Dorset', *Dorset Proceedings*, 63, pp. 112-133.  
 Mayes, J. C. (1991) 'Recent Trends in Summer Rainfall in the United Kingdom', *Weather*, 46, pp. 190-196.

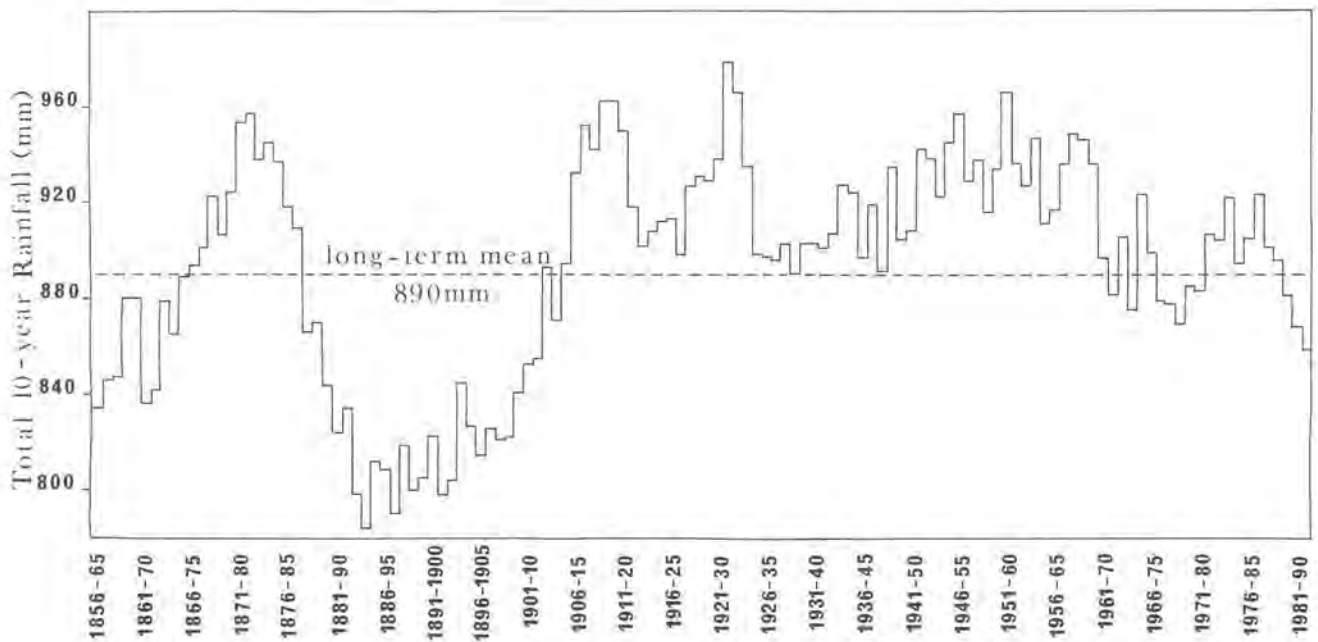


Figure 15. Ten-year moving average of Dorset Rainfall, 1856-1991.



## OBITUARY

### RONALD NORMAN LUCAS 1920 - 1991

In August 1958 an excavation took place at the deserted medieval village of Holworth under the auspices of the Society and the direction of Philip Rahtz. This was the first excavation to be undertaken by the Society since pre-war work at the Roman House, Colliton Park, Dorchester, and was made possible by a very generous donation from two of our members, Mr. & Mrs. Ashton Hill. Seventy-five people helped at one time or another, with an average attendance of about twenty per day; amongst the members of the Society who cut their archaeological teeth at that excavation were Ron and Joan Lucas. Philip Rahtz at the time wrote 'Very few (volunteers) had any experience of archaeology, and they did a good job under adverse weather conditions; the work of digging, recording, drawing, and the washing, marking and sorting the finds was shared between several volunteers'.

Philip Rahtz was an admirable exponent of the art of excavation and, ever since Holworth, the Society has had good reason to be grateful to him for the tuition he gave, which Ron went on to develop in the succeeding 33 years, devoting a great part of his spare time, and holidays, to aspects of archaeology in Dorset.

Ron was born in Birmingham. He went to King Edward's School, Aston, but left at 16 when his father died. Joining the Fleet Air Arm in 1939 he remained in the service until 1952, retiring as a Chief Petty Officer. A keen sportsman, he boxed and played rugby and water-polo for the Navy, for a short time even contemplating a professional boxing career. Whilst serving at Tor Point, Plymouth, his work involved training young officer cadets, a skill he put to good use in his second professional career in the Probation Service. In 1942 he married



*Ron Lucas in 1951*

Joan whom he had known since his grammar school days; four days after his marriage Ron was sent to the States where he spent two years as an Instructor in New York, Rhode Island and Norfolk, Virginia. Ron later enjoyed recounting how he 'played rugger for Harvard', even though it was only one game!

When he came out of the Fleet Air Arm in 1952 Ron joined the probation service in south Dorset and for three years came to live on Portland, before finally settling in Weymouth. Of his years as a Probation Officer Elizabeth, Lady Williams writes:

'Ron Lucas was almost the first Probation Officer I met on joining the Bench 32 years ago and he set a standard very difficult to follow. He contributed 28 years of tireless work for the Dorset Probation Service. Reports from Ron were greeted with relief and joy by Courts, high and low. Factual, caring, forthright, we knew they were the result of careful assessment and sound common sense, and never meaningless flannel or jargon.

All connected with the Courts and Prisons in Dorset, from Judges to delinquents, respected this fearless, dedicated man, who never spared himself in working for others.'

As a Senior Probation Officer he was the first to work in prisons - for seven years at the Verne and Dorchester, where his gift for making the right relationship stood him in good stead. He retired in 1980, on doctor's orders, having had five coronaries between 1960 and 1973. Archaeology became a life-saver since it enabled him to cut off from his work and relax.

Visitors to any excavation in Dorset in the '60s and '70s, as often as not, would find Ron at work. And to Ron many people turned when help was needed at short notice, almost anywhere in the county: Waddon Hill, Stoke Abbot with Graham Webster, Walls, Puncknowle with John Bailey, at Woolcombe and Eggardon with George Rybot, Radipole with Bill Putnam, and Wadham House in Dorchester with Jo Draper, are only some of the many. His work with the Probation Service provided invaluable links with, for example, the Guys Marsh Borstal whose boys constructed high scaffolding towers for photography at Halstock, and hundreds of yards of fencing for the Open Days at the Roman Baths in Dorchester; at Halstock he also took on board a number of men doing community service.

It was at Halstock, in the lengthy campaign of excavation of the Roman villa, that Ron and Joan Lucas built up a band of loyal workers for their own excavation between 1971 and the final season's work in 1985. Ron worked on the site from the start of the excavation in 1967, directed by Ted Large; following Ted's illness and death Ron took over as Director. For a month each summer, from 1971 to 1985, Ron and Joan lived on the site in a caravan but also spent a week each Whitsun, and every weekend between the beginning of May and the end of September. The Lucases and their volunteers became very much a part of Halstock life, and Ron's annual lecture at the end of each season was a popular social and money-raising event. Furthermore he attracted to the excavation not just local volunteers but at least one Dutch visitor who came for seventeen years, and a number of students starting an archaeological career. It was Ron's enthusiasm that led the Parish Meeting to purchase part of the villa site to safeguard its protection. The Parish Meeting was awarded a Runner-up Award in the Dorset Archaeological Award of 1988 for this purchase.

Ron was determined not just to excavate the residential part of the villa, but the whole of it. He succeeded in this, excavating all the buildings which comprised the villa, and its complex water supply and drainage system. The buildings extended over an area of four acres. Interim reports and plans were published in these Proceedings every year from 1967 to 1985, with longer reports on the mosaics in 1971 and 1972.

From 1985 until his death Ron was working on the final report for the site, and had virtually completed the finds sections, working with many specialists. The report is being completed by the Dorset Natural History and Archaeological

Society and will be published in the Monograph series.

In the great tradition of amateur archaeology in Dorset Ron and Joan Lucas gave generously not only of their time but also of their resources, with some support from the Society, and directed the work with painstaking care and meticulous recording. The excavation was a model of neatness at all times.

Ron joined the Society's Archaeological Committee and the Dorchester Excavation Committee in 1972, and the Dorset Archaeological Committee in 1977; he barely missed a meeting even when far from fit. If a volunteer was needed Ron would take up the task willingly, and dependably. He acted as an archaeological correspondent for planning applications in Weymouth and Portland District, providing archaeological comment and advice which was much valued.

For a number of years he organised the monthly meetings of the Society's Archaeology Group, and was responsible for the marking and re-bagging of the immense collection of coarse-ware from the pre-war Colliton Park excavation, handing them over to Professor Mike Fulford's team. He continued the work of the group, started by John Bailey, where topics of current importance could be discussed and new findings presented.

With the demise of the Dorchester Excavation Committee and the birth of the Dorchester Association, as a member of that Committee Ron was highly active in raising the profile of archaeology in the county town, in particular for the 1984 excavations in the town centre at Greyhound Yard. There he not only helped with fund-raising, street stalls and the organisation of volunteers, but was also an active participant, with his wife Joan, in the very basic processing, washing and marking of the many thousands of finds from the excavations. Ron served as Chairman from 1986 to 1989, and under his leadership organised lectures, seminars, and volunteer teams (at, for example, the Fire Brigade HQ excavations at County Hall), actively campaigning for archaeology, with letters to the press. Ron was always both a participator and a link between active archaeological groups, professional and amateur.

In the 1980s, with Joan, he assisted with the all important task of finds processing, and together both must have washed, marked and bagged more finds from excavations than most in the county, working on finds from sites such as Wareham by-pass, Dorchester by-pass and many others.

In recent years he had been in charge of the Dorset Archaeological Committee's exhibition held annually at the NFU's farm open days at Longbredy, Hammoon and Bincombe, where his wonderful ability of getting on with people was invaluable. He saw good in everybody and thus got



*Ron Lucas at Halstock in 1985, the last year of the excavation*

the best out of young and old, whatever their skill, or lack of it. To him, above all, people were important.

In 1981 he was elected a Fellow of the Society of Antiquaries of London in recognition of his stalwart work for archaeology in Dorset.

Ron Lucas never did a thing by halves. If he took a job on he felt he had to give of his best, at whatever cost to himself, and in this he was always supported by Joan. Together they had a good life.

R.N.R.P.

# INDEX

- A303 trunk road between Wincanton, Somerset and Mere, Wiltshire, geology of route, 139-143
- Alfred, documentary evidence for the role of King Alfred in the foundation of Shaftesbury Abbey, 23-32
- Allen, Tim, *Sturminster Marshall*, 170
- Amphibia*, 212-213
- Ansty to Stoke Wake pipeline, archaeological observations, 185
- archaeomagnetic dating; Chantry Field, Gillingham. ?Saxon grain drying ovens, 190. Worgret, Arne. Iron Age/Romano-British kilns, 64, 66, 68, 101
- architectural fragments from excavations; ashlar blocks, 97: marker stone, 95-97: padstone, 95-97: re-used in construction of Romano-British kiln, 71, 95-97
- Arne: archaeological excavations on earthwork of possible Roman road, 102-103: archaeological observations on Warcham to Stoborough water main, 174; Worgret Heath and Dykes. archaeological work in advance of pipeline construction, 33-40
- arrowheads: barbed and tanged, 116-118: Conygar Hill type, 116-118; flint, 116-118, 168-169
- Arthropoda*, 210-211
- Athelhampton Hall, history of Sir William Martin d. 1504, 192-193
- barrows: bell, 107-132; Bronkham Hill, relationship to doline system, 149-155; Chettle Long Barrow, 167-168; long barrows, 167-168; radiocarbon dates, 116; ring-ditches, 58-60, 168; round barrows, 107-132, 170; Squirrel Cottage, 170
- Bartlett, The Rev. Thomas Oldfield, Rector of Swanage 1807-1841, his role in the provision of education in the parish, 7-8
- bead, glass, sixth-century, from Worgret, 73
- Bectun, Abbot of Shaftesbury, documentary evidence for his role in the foundation of Abbey, 23-32
- Bell, The Rev. Dr. Andrew, Rector of Swanage 1801-1809, his role in provision of education in the parish, 5-7
- Bellamy, John, of Benville, his account of the finding of a mosaic at Halstock in 1817, 133-138
- Bellamy, Peter S, *The Excavation of Fordington Farm Round Barrow*, 107-132  
*Observations at Merchant's Garage, High West Street, Dorchester*, 1983, 41-54
- The Bend, Compton Valence, archaeological excavations on line of Roman road, 173
- Bennett, Philip, *Boyne Hollow Water Pipeline*, 170  
*Stagg's Folly Engineer's Tip A37 Road Improvement, Sydling St Nicholas*, 168
- Bere Regis Iron Age bronze figurine from Roke Farm, 186-187
- Berne Farm, Whichchurch Canonicorum, archaeological observations during construction of a pipeline, 184-185
- Bird Report for 1992, 216
- Blandford Forum; St. Leonard's Chapel, archaeological evaluation, 180-181
- Blandford St Mary; archaeological observations on a pipeline, 168-169; 1 Church Lane, archaeological evaluation, 185
- bone, worked, Bronze Age awl, 119
- Botany; *Gastroidium ventricosum*, Nit-grass, a second extant Dorset locality, 207-210; Report for 1991, 206-207
- Bowlaze Cove, Weymouth, medieval gold mount, 184
- Boyne Hollow, Cann, archaeological observations on a pipeline, 170
- brick; brickworks, 17-22; medieval, 73; post-medieval, 17-22
- Bristow, C.R.B.M. Cox, M.A. Woods, H.C. Prudden, D. Sole, M. Edmunds and J.H. Callomon, *The geology of the A303 trunk road between Wincanton, Somerset and Mere, Wiltshire*, 139-143
- Bromby, Alan T., *Lepidoptera*, 211-212
- Bronkham Hill, Winterborne St Martin, doline system, 149-155
- bronze, See Copper Alloy
- Bronze Age; arrowheads, 115-118; awl, 119; barrows, 107-132, 170 burials, 58-60, 114-115; collared urn, 116-118; copper alloy, 115; cremation, 168; fintwork, 92-93, 115, 168-169, 170, 174, 176, 185; grave goods, 116-119; knife dagger, copper alloy, 115-118; pits, 168; pottery, 58-60, 73-74, 116-119, 167, 168, 175, 183, 185; ring-ditch, 58-60; settlement, 168, 170
- brooches, Romano-British, copper alloy, 91, 189
- Bucknowle, Corfe Castle, archaeological excavation of Iron Age and Romano-British site, 173-174 burials; Bronze Age, 168, 107-132; cremation, 58-60, 121, 168; grave goods, 116-119; inhumation, 114-115, 170, 107-132, 183; medieval, 170; Romano-British, 115
- burnisher, stone, Romano-British, from Worgret, Arne, 95-96, 98
- Butterprint Lane Brickworks, Motcombe, 17-19, 22
- Callomon, J.H., C.R. Bristow, B.M. Cox, M.A. Woods, H.C. Prudden, D. Sole and M. Edmunds. *The geology of the A303 trunk road between Wincanton, Somerset and Mere, Wiltshire*, 139-143
- Canford Heath Middle School, Poole, archaeological observations during construction of playing fields, 185
- Canford Magna, Poole, archaeological assessment at The Rectory, 181
- Cann, archaeological observations on a pipeline at Boyne Hollow, 170
- Carolingian, gold mount from Wareham, 184
- Carr, Alan P., and Dennis R. Seaward, *Chesil Beach; landward recession 1965-1991*, 157-160
- Chantry Fields, Gillingham, archaeological work in advance of development, 190-192
- Chartlton Marshall; archaeological observations on a pipeline, 168-169; Combs Ditch, archaeological observations, 170-172
- Charmouth to Ryall main, archaeological observations, 184-185
- Chesil Beach, landward recession 1965-1991, 157-160
- Chettle Long Barrow, burnt flint deposits and flint implements, 167-168
- Christchurch; St. Catherine's Hill, archaeological observations, 183; Twynham School archaeological assessment, 183; 14 Wick Lane, archaeological assessment, 181
- Church House, Wimborne Minster, archaeological excavations during building work, 182-183
- Church Mead, Toller Porcorum, archaeological excavation of medieval settlement remains, 178-180
- Clactonian type flint flake from excavations at Cleavel Point, Corfe Castle, 174
- Clarke, Jane, *Predation Amongst Jurassic Marine Reptiles*, 102-205
- clay pipe, post-medieval, 73, 174, 183
- Cleavel Point, Corfe Castle, archaeological investigations of Iron Age and Romano-British industrial site, 174
- Coe, Duncan, *Joseph Weld House, Dorchester*, 175
- Coe, Duncan and John Hawkes, *Field Survey and Excavation on Worgret Heath*, 33-40
- coins; Roman, 58, 66, 91, 174, 189; silver, 91
- Colbourne, Amanda, *Sir William Martyn; the true history of the builder of Athelhampton Hall*, 192-193
- Coleoptera*, 211
- Collins, J. N. Field and A. Light, *The Iron Age and Romano-British Site at Bucknowle Farm, Corfe Castle*, 173-174
- Collins, K.W. and D.R. Watkins, *The Stour Valley Gravels Project 1991 Interim Report, Strawberry Field*, 168
- colluvium; Frome Valley, 167; near Melbury Hill, Compton Abbas, 167
- Combs Ditch, archaeological observations during work on a pipeline, 170-172
- Compact Farm, Worth Matravers, archaeological excavation of a Romano-British grain dryer, 187-190
- Compton Abbas, colluvial deposit, 167
- Compton Valence; The Bend, archaeological excavations on line of Roman road, 173; dew pond, 173
- Conygar Hill type arrowhead from Fordington Farm, 116-118
- copper alloy, worked objects from archaeological sites; Bronze Age, 115; brooches, 91, 189; coins 58, 66, 91, 174, 189; figurines, 186-187; fragments, 45; hooked tag pendant, 91; Iron Age, 186-187; knife dagger, 115-118; medieval, 91, 168; punched sheet, 91; Romano-British, 91, 189; strap end, 168; toilet implement, 189
- Corfe Castle; Bucknowle, archaeological excavation of Iron Age/Romano-British site, 173-174; Cleavel Point, archaeological investigations of Iron Age/Romano-British industrial site, 174; Corfe Castle, archaeological excavations, 175
- Cox, B.M., C.R. Bristow, M.A. Woods, H.C. Prudden, D. Sole, M. Edmunds and J.H. Callomon, *The geology of the A303 trunk road between Wincanton, Somerset and Mere, Wiltshire*, 139-143
- Cox, Peter, *1 Church Lane, Lower Blandford St Mary*, 185  
*Further Archaeological Investigations near Cleavel Point, Ower Peninsula, Corfe Castle, Dorset*, 174  
*Heathcote House, Icen Way, Dorchester*, 174  
*Manor Farm, Tarrant Monkton*, 185  
*Pony Drive, Upton, Lytchett Minster*, 185  
*Wareham Hospital Phase 2 Extension*, 185  
*Wimborne Former Model Town*, 183
- dating techniques used on material from archaeological sites; archaeomagnetic, 64-68, 101, 190; radiocarbon, 116, 190
- Davies, Susan M. and A.V.C. Jenkins, *Trinity Street Car Park, Dorchester*, 174-175
- Delair, J.B., *The Occurrence of Megalosaurus in the Portlandian of Dorset*, 196
- dewpond, Compton Valence, 173

- doline system on Bronkham Hill, Winterborne St Martin, 149-155
- Dorchester: County Hall, archaeological observations on proposed site of new Magistrates' Court, 175; Fordington Farm, archaeological excavation of round barrow, 107-132; Heathcote House, Icen Way, archaeological evaluation, 174; Icen Way, archaeological evaluation at Heathcote House, 174; Joseph Weld House, archaeological evaluation on site of hospice, 175; Magistrates' Court, County Hall, archaeological observations, 175; Merchant's Garage, High West Street, archaeological excavations in advance of development, 41-54; Roman town, 41-54; Motor Project Building, archaeological observations, 175; Trinity Street Car Park, archaeological evaluation, 174-175
- Durlston Bay, Swanage, a geological map of the Purbeck Beds, 145-148
- dykes, undated, on Worgret Heath, Arne, archaeological work in advance of pipeline construction, 33-40
- East Borough, Wimborne Minster, archaeological excavations in advance of development, 183
- East Holme, archaeological evaluation of round barrows at Squirrel Cottage, 170
- Edmunds, M.C.R., Bristow, B.M., Cox, M.A., Woods, H.C., Prudden, D., Sole and J.H. Callomon, *The geology of the A303 trunk road between Wincanton, Somerset and Mere, Wiltshire*, 139-143
- enclosures; Iron Age, 60-62, 173; Romano-British, 55-105
- environmental evidence from archaeological sites; buried landsurface, 108, 170; molluscs, 123-127; phosphate analysis, 38-40; pollen, 170
- Emms, Margaret, *Education in Swanage 1787-1902*, 5-16
- Evans, Susan E., *Small Reptiles and Mammals from the Forest Marble (Middle Jurassic) of Dorset*, 201-202  
*A sphenodontid jaw (Reptilia; Lepidosauria) from the Upper Jurassic of Dorset*, 199-201
- Field, N.J., Collins and A. Light, *The Iron Age and Romano-British Site at Bucknowle Farm, Corfe Castle*, 173-174
- field systems; field boundaries, 115-116, 178-179, 181; medieval, 73, 167, 178-179, 181, 189; Romano-British, 115-116; strip lynchets, 73, 167, 189
- figurines, copper alloy, Iron Age, from ?Maiden Castle and Bere Regis, 186-187
- fish bones from archaeological excavations, 173
- flint; barbed and tanged arrowhead, 115; chisel arrowhead, 55, 168-169; Bronze Age, 92-93, 168-169, 170, 174, 176; burnt flint, 92-93, 167-168, 170; Clactonian type flake, 174; Conygar Hill type arrowhead, 116-118; cores, 92-93, 168; debitage, 111, 176; flakes, 33, 35, 55, 92-93, 168, 174, 175; hammerstones, 92-93; implements, 167-168; Iron Age, 176; Mesolithic, 35, 170; Neolithic, 35, 168-169, 170, 174; prehistoric, 55, 170, 174, 183; Romano-British, 35, 93; scraper, 92-93, 168; worked, 168-169
- Fordington Farm, Dorchester, excavation of round barrow, 107-132
- fossils; megalosaurus, 196; Jurassic marine reptiles, predation, 202-205; small reptiles and mammals from Forest Marble (Middle Jurassic), 201-202; sphenodontid jaw from Upper Jurassic, 199-201
- Frampton, deposits of colluvium and burnt flint in the Frome valley, 167
- furniture, shale, Romano-British, from Worgret, Arne, 93-95
- Gale, John, *St Leonard's Chapel, Blandford Forum, An Archaeological Evaluation of the Structural Foundations*, 180-181
- Gale, John, *Toller Porcorum*, 178-180
- Gastridium ventricosum*, Nit-grass, a second extant Dorset locality, 207-210
- geology; A303 trunk road between Wincanton, Somerset, and Mere, Wiltshire, 139-143; Chesil Beach, landward recession 1965-1991, 157-160; doline system on Bronkham Hill, 149-155; Jurassic marine reptiles, predation, 202-205; megalosaurus in the Portlandian, 196; Purbeck Beds in Durlston Bay, 145-148; Purbeck limestone formation, halite pseudomorphs, 195-196; sphenodontid jaw from Upper Jurassic, 199-201; subfurcatum zone of North Dorset, 196-198
- geophysical survey; Church Mead, Toller Porcorum, medieval settlement remains, 178
- German Hussars, nineteenth-century, as portrayed in the novels of Thomas Hardy, 104
- Gillingham; brickmaking in the post-medieval period, 17-22; Chantry Fields, archaeological work in advance of development, 190-192; Wyke Road, archaeological evaluation of proposed development site, 185
- glass bead, sixth-century from Worgret, 73, 92; Romano-British, 92, 189; vessel, 92
- Goodwin's Orchard, Kington Magna, archaeological evaluation on site of proposed new parsonage, 181
- gold worked; Carolingian mount, 184; medieval finger rings, 184
- graffiti, eighteenth-century to modern, Woolcombe, Toller Porcorum, 176
- grassland; *Gastridium ventricosum* Nit-grass, a second location in Dorset, 207-210; unimproved neutral grassland in Dorset, survey and conservation, 161-165
- Gurney, The Rev, Thomas Alfred, Rector of Swanage, his role in provision of education in the parish, 12-13
- halite pseudomorphs from the Purbeck limestone formation of Lulworth Cove, 195-196
- Halstock, discussion of accounts of the finding of a mosaic in 1817, 133-138
- Hardy, Thomas, portrayal of German Hussars in his novels, 1-4
- Harper House, Hound Street, Sherborne, archaeological evaluation, 181
- Harris, P.M., *Bird Report 1991*, 216
- Hawker's Hill Brickworks, Motcombe, 19-22
- Hawkes, John, *Wyke Road, Gillingham*, 185
- Hawkes, John, and Duncan Coe, *Field Survey and Excavation on Worgret Heath*, 33-40
- Hawkes, John, and Julian Richards, *Harper House, Hound Street, Sherborne*, 181
- Hearne, Carrie M., *Observations on a Pipeline; Sturminster Marshall to Blandford St Mary*, 168-169  
*Observations on a Pipeline in the Vale of Marshwood*, 184-185  
*Observations on the Stoke Wake to Ansty Water Pipeline*, 185  
*Pipeline Observations; Wareham to Stoborough Main*, 174
- Heaton, Michael J., *Observations at the Magistrates' Courts, County Hall, Dorchester*, 175  
*Recent Archaeological Work at Chantry Fields, Gillingham*, 190-192  
*West Stafford by-pass Evaluation*, 168
- Heaton, Michael J., and Julie Lancelley, *Excavations at 39-69 East Borough, Wimborne Minster*, 183
- Henig, Martin, *Two Bronze Figurines of Iron Age Date from Dorset*, 186-187
- Hewish, Portesham, archaeological work at drill site, 168
- hillforts; Spetisbury Rings, section through associated ditches, 168
- Hinton, David A., and D.P.S. Peacock, *Worth Matravers*, 187-190
- Holditch Court, Thorncombe, medieval gold rings, 184
- House, Michael, *Geology*, 195
- House, Michael R., *Dorset Dolines; Part 2, Bronkham Hill*, 149-155
- Hoverfly Record for 1991, 212
- Hunt, Alan, *Woolcombe*, 175-178
- Huxtable, John, *A Further Examination of the Subfurcatum Zone (Middle Jurassic; Upper Bajocian) of North Dorset*, 196-198
- industrial activity, evidence from archaeological excavations; ash deposits, 65; bloomery slag, 92 brickmaking, 17-22; clay extraction, 98; copper alloy working, 91; iron working, 60-62, 91-92, 190-192; kilns, 55-105; kiln firing techniques, 98-99; kiln furniture, 68, 89-91, 98-99; pottery manufacture, 55-105; quarry pits, 71; querns used for temper production, 98; re-firing of pottery sherds, 101-102; sand extraction, 60; shale working, 93-95, 101; slag, 60-62, 65, 92, 173, 179, 190-192; smelting waste, 173, 190-192
- infirmary, medieval, 180-181
- Iron Age; enclosure, 60-62, 72, 173; flintwork, 176; hill-fort, 168; industrial site, 55-105, 174; ironwork, 91-92, 98; kilns, 60-62; occupation, 60-62; pottery, 55-105, 173, 174; sand extraction 60; slag, 60; storage pit, 189
- Iwerne Steepleton, colluvium sealing burnt flint deposits, 167
- Jenkins, A.V.C., *Excavations at Church House, Wimborne Minster*, 182-183
- Jenkins, A.V.C., and Susan M. Davies, *Trinity Street Car Park, Dorchester*, 174-174
- Jet, worked rod, 185
- Joseph Weld House, Dorchester, archaeological evaluation on site of hospice, 175
- Keats, E.M., *Mammals*, 213-215
- Keen, Laurence, *Carolingian Mount from Wareham*, 184  
*A Medieval Stone Mortar from Sandford Orcas*, 183  
*A Ninth-Century Mount from Bowleaze Cove, Weymouth*, 184  
*Two Fifteenth Century Gold Rings from Holditch Court, Thorncombe*, 184
- kiln; archaeomagnetic dating, 101; firing techniques, 98-99; furniture, 68, 89-91, 98-99; Romano-British, 55-105

- Kimmeridge Shale, *See Shale*  
 Kingscourt Brickworks, Gillingham, 21-22  
 Kington Magna, archaeological evaluation on site of proposed new parsonage in Godwin's Orchard, 181
- Lanning, George, *Thomas Hardy and the German Hussars*, 1-4  
 Lancley, Julie, and Michael J Heaton, *Excavations at 39-69 East Borough, Wimborne Minster*, 183  
 lead objects from archaeological excavations, 73  
*Lepidoptera*, 211-212  
 Levy, E.T. and D.A., *Dorset Hoverfly Records 1991*, 212  
 Light, A.J. Collins and N. Field, *The Iron Age and Romano-British Site at Bucknowle Farm, Corfe Castle*, 173-174  
 long barrow, Chettle, deposits of burnt flint and flint implements, 167-168  
 Long Cross Brickworks, Shaftesbury, 27-22  
 Lucas, Ronald Norman, obituary, 221-222  
 Lucas, R.N., *The Halkstock Mosaic found in 1817*, 133-138  
 Lytchett Minster, archaeological evaluation at Pony Drive, Upton, 185
- Maiden Castle, Winterborne St Martin, Iron Age bronze figurine, 186-187  
 Mammal Report for 1991, 213-215  
 Marshwood Vale, archaeological observations on a pipeline, 184-185  
 Martyn, Sir William, d. 1504, builder of Athelhampton Hall, 192-193  
 Medieval: boundary ditches, 183; brick, 73; buildings, 175, 181; burials, 170; copper alloy, worked, 91, 168; Corfe Castle excavations, 175; courtyard, 181; field systems, 73, 178-179, 180, 181, 189; finger rings, 184; floors, 175; gold, worked, 184; hooked tag/pendant, 91; industrial activity, 179; infirmary, 180-181; Laverstock pottery, 192; mortar, 183; occupation, 73, 170; pits, 181, 183; ploughsoil, buried, 170; pottery, 73, 168, 170, 174, 175, 176, 179, 179-180, 181, 183, 192; priory cell, archaeological work in vicinity, 168-169; roof tile glazed, 73; St Leonard's Chapel, Blandford, 180-181; settlement, 175-178, 178-180, 190-192; Shaftesbury Abbey, 181; stone worked, 183; strap-end, 168; town, 183  
 Melbury Hill, Compton Abbas, colluvial deposits, 167  
 Merchant's Garage, High West Street, Dorchester, archaeological excavation in advance of development, 41-54  
 Mesolithic flintwork, 35, 170  
 Monks' Mulberry, Spetisbury, archaeological work in vicinity of priory cell, 168-169  
 Mortars: medieval, 183; Purbeck Marble, 183; Romano-British, 95-96, 98, 189; stone, 95-96, 98, 183, 189  
 Motcombe, post-medieval brickmaking, 17-22  
 Motor Project Building, Dorchester, archaeological observations, 175  
 Murphy, Elinor, *Anglo-Saxon Shaftesbury-Bectun's Base or Alfred's Foundation*, 23-32
- Natural History  
*Amphibia*, 212-213; *Arthropoda*, 210-211; Bird Report for 1991, 216; Botany Report for 1991, 206-207; grassland, the survey and conservation of unimproved neutral grassland in Dorset, 161-165; Hoverfly Record for 1991, 212; *Lepidoptera*, 211-212; Mammal Report for 1991, 213-215; Nit-grass, *Gastridium ventricosum*, a second extant Dorset locality, 207-210; *Reptilia*, 213  
 Neolithic: flintwork, 35, 168-169, 170, 174, 185; settlement, 170  
 Nit-grass, *Gastridium ventricosum*, a second extant Dorset locality, 207-210  
 Nunn, R.F., *A geological map of Purbeck Beds in the northern part of Durlston Bay*, 145-148
- obituary; Ronald Norman Lucas, 221-222  
*Odonata*, 210-211  
 Organic remains from archaeological excavations; animal bone, 97, 121-123, 173-174, 181, 189; carbonised grain, 173, 190; carbonised plant remains, 97, 190; charcoal, 190; fish bone, 173; human bone, 119-121; mollusc, 109, 113, 123-127; pollen, 170; plant remains, 97, 170, 173, 174; worked wood, 174  
*Orthoptera*, 210  
 Ower Peninsula, Corfe Castle, archaeological investigations of Iron Age and Romano-British industrial site near Cleavel Point, 174
- Papworth, Martin, *Excavation of Romano-British Building Remains at Shapwick*, 172-173  
 Papworth, Martin, and David Thackray, *Excavations at Corfe Castle 1991*, 175  
 Paxman, D.J., *A Downward Trend in Rainfall*, 218-219  
*Rainfall 1991*, 216-217
- Peacock, D.P.S., and David A. Hinton, *Worth Matravers*, 187-190  
 Pearman, D., *Dorset Botany in 1991*, 206-207  
 Pearman, D. and C.D. Preston, *A Second Extant Dorset Locality for *Gastridium Ventricosum**, 207-210  
 pestle, stone, Romano-British, from Worgret, Arne, 95-96, 98  
 Plaster, painted, from Romano-British building at Shapwick, 173  
 Pony Drive, Upton, archaeological evaluation of a proposed development site, 185  
 Poole; Canford Heath Middle School, archaeological observations during construction of playing fields, 185; Canford Magna, archaeological assessment at The Rectory, 181; Seldown School, archaeological assessment of proposed development site, 185  
 Strawberry Field, archaeological work in advance of mineral extraction, 168  
 Porley, R.D., and P.F. Ulf-Hansen, *Unimproved neutral grassland in Dorset; survey and conservation*, 161-165  
 Portesham, archaeological work at Hewish drill site, 168  
 Post-medieval brickworks, 17-22; building, 17-22, 185; clay pipe, 73, 174, 183; farm, 175-178; pits, 183  
 Pottery;  
 Prehistoric, 73-74, 119, 167, 168; Bronze Age, 58-60, 119, 167, 168, 175, 183; Iron Age, 173, 174  
 Romano-British, 44, 55-105, 119, 168, 172-173, 173, 173-174, 174, 175, 179, 189; amphorae, 75, 189; Black Burnished Ware, 44, 55-105, 168, 172-173, 174, 175, 179, 189; brown glazed, 189; Corfe Mullen Ware, 74, Gallo-Belgic, 74; New Forest Ware, 66-74, 189; Oxfordshire Ware, 66, 74, 189; Samian, 74; Terra Nigra, 74; waster, 83, 84-88  
 Saxon, 176, 183  
 Saxo-Norman, 181  
 Medieval, 73, 168, 170, 174, 175, 176, 179, 179-180, 181, 183, 185, 192; Laverstock, 192  
 Post-medieval, 19, 119, 168, 180, 183, 185  
 Verwood, 19  
 Prehistoric burnt flint scatters, 167; colluvial deposits, 167; ?field boundary, 44; flintwork, 55, 58-60, 167-168, 168, 168-169, 170, 174, 183; occupation, 183; pottery, 58-60, 67, 73-74, 119, 168, 183; quern, 168; settlement, 168  
 Preston, C.D., and D.A. Pearman, *A Second Extant Dorset Locality for *Gastridium Ventricosum**, 207-210  
 Prudden, H.C., C.R. Bristow, B.M. Cox, M.A. Woods, D. Sole, M. Edmunds and J.H. Callomon, *The geology of the A303 trunk road between Wincanton, Somerset and Mere, Wiltshire*, 130-143  
 Purbeck Beds in Durlston Bay, a geological map, 145-148  
 Purbeck marble mortar, medieval, from Sandford Orcas, 183  
 Putnam, W.G., *Excavations in the Parish of Compton Valence*, 173
- Querns: prehistoric, saddle, 168; Romano-British, 67, 71, 95-96
- radiocarbon dating; Chantry Fields, Gillingham, grain drying ovens, 190; Fordington Farn Barrow, 116  
 Radley, J.D., *Halite Pseudomorphs from the Chery Freshwater Member (Purbeck Limestone Formation) of Lulworth Cove, Dorset*, 195-196  
 rainfall; discussion of downward trends, 218-219, 216-217  
 The Rectory, Canford Magna, archaeological assessment, 181  
*Reptilia*, 213  
 Richards, Julian, *Goodwin's Orchard, Kington Magna, Dorset*, 181  
*Hewish Drill Site, Portesham*, 168  
*Shaftesbury Abbey*, 181  
*The Vines, Long Street, Sherborne*, 181  
*West Stafford By-Pass Excavation; Interim Note*, 168  
 Roads; droveway, 115-116; hollow way, 185; Roman, 102-103, 168, 173  
 ROKE FARM, Bere Regis, Iron Age bronze figurine, 186-187  
 Romano-British: amphorae, 75, 189; architectural fragments, 71, 95-97, 101; ashlar blocks, 97; bathhouse, 173-174; Black Burnished Ware, 44, 55-105, 172-173, 174, 175, 179, 189; brooches, 91, 189; brown glazed pottery, 189; buildings, 44-49, 172-173, 173-174, 188-189; burial, 115; burnisher, stone, 95-96, 98; clay extraction, 98; coins, 66, 91, 174, 189; copper alloy objects, 91, 189; Corfe Mullen Ware, 74; counter/gaming piece, 93-95; droveway, 115-116; drying room, 173; Durnovaria, 41-54; field system, 115-116; flint, 93; furniture, shale, 93-95; Gallow-Belgic ware, 74; glass, 92, 189; grain dryer, 187-190; industrial activity, 173, 174; ironwork, 91-92, 98; kilns, 55-105; kiln furniture, 64, 68, 89-91, 98-99; marker stone, 95-97; mosaic, 133-138; mortar, 95-96, 98; New Forest Ware, 66, 74, 189; Oxfordshire Ware, 66, 74, 189; pestle stone, 95-96, 98; pits, 71, 168, 173; plaster, 173; potter's stamp, 74; pottery, 55-105, 119, 168, 172-173, 173-174, 174, 175, 179, 189; property boundary, 45; quarry pits, 71; quern, 67, 71,

- 95-96; road, 102-103, 168, 1173; Samian, 74; settlement, 41-54, 55-105; shale, 67, 93-95, 101, 189; silver coin, 91; slag, 173; smelting waste, 173; Southern Gaulish ware, 74; spindle whorl, 93-95; stone, worked, 95-98; table/plaque, shale, 93-95; Terra nigra, 74; tesserae, 97, 101, 133-138, 172-173; tile, 189; toilet implement, 189; town, 41-54; villa, 133-138, 173-174; wasters, 83, 84-88
- Ross, M.S., *Brickmaking at Gillingham and Motcombe, Dorset*, 17-22
- Ryall, Whitechurch Canonorum, to Charmouth main, archaeological observations, 184-185
- St Aldhelm's Head, Worth Matravers, archaeological excavation of an Iron Age storage pit, 189
- St Catherine's Hill, Christchurch, archaeological observations, 183
- St Leonard's Chapel, Blandford Forum, archaeological evaluation, 180-181
- Sandford Orcas, medieval stone mortar, 183
- Saxo-Norman pottery, 181
- Saxon; charter evidence for origins of Shaftesbury Abbey, 23-32; gold, worked, 184; grain drying ovens, 190-192; iron smelting, 190-192; mount, 184; pottery, 176, 183
- Seaward, Dennis R., and Alan P. Carr, *Chesil Beach; landward recession 1965-1991*, 157-160
- Seldown School, Poole, archaeological assessment of proposed development site, 185
- Shaftesbury Abbey; charter evidence for origins of Abbey, 23-32; nave pier, archaeological investigation, 181
- Shale, worked; counter/gaming piece, 93-95; debris used as fuel, 97; furniture, 93-95; Romano-British, 67, 93-95, 101, 189; spindle whorl, 93-95; tablet, 93-95
- Shapwick, excavation of a Romano-British building, 172-173
- Sherborne; Harper House, Hound Street, archaeological evaluation, 181; The Vines, Long Street, archaeological evaluation, 181
- Skinner, Robert V. *Reptiles*, 213
- silver coin, Roman, from Worgret, Arne, 91
- Sole, D.C.R., Bristow, B.M., Cox, M.A., Woods, H.C. Prudden, M. Edmunds and J.H. Callomon. *The geology of the A303 trunk road between Wincanton, Somerset and Mere, Wiltshire*, 139-143
- Sparey-Green, Christopher, *A Burnt Flint Site and Flint Implements from Chettle*, 167-168  
*A Colluvial Deposit Below Melbury Hill, Compton Abbas*, 167  
*Deposits of Colluvium and Burnt Flint in the Frome Valley, Frampton, Dorchester*, 167  
*A Section of Combs Ditch, Charlton Marshall*, 170-172
- Spetisbury; archaeological observations on a pipeline, 168-169; flood alleviation scheme; archaeological work, 170; Monks' Mulberry, archaeological work in vicinity of priory cell, 168-169; Spetisbury Rings, section through associated ditches, 168
- Spetisbury Rings, Spetisbury, sections through ditches associated with Iron Age hill-fort, 168
- spindle whorl, shale, Romano-British, from Worgret, Arne, 93-95
- Squirrel Cottage, East Holme, archaeological evaluation of round barrows, 170
- Stagg's Folly, Sydling St Nicholas, archaeological work in advance of A37 road improvements, 168
- Stoborough, Arne  
 archaeological excavation of earthwork of possible Roman road, 102-103  
 archaeological observations on route of water main, 174
- Stoke Wake to Ansty pipeline, archaeological observations, 185
- Stone, worked; architectural fragments, 71, 95-97; ashlar blocks, 97; burnisher, 95-996, 98; marker stone, 95-97; medieval, 183; mortar, 95-96, 98, 183; padstone, 95-97; pestle, 95-96, 98; Purbeck marble, 183; prehistoric, 168; querns, 67, 71, 95-96, 168; re-used, 95-97; Romano-British, 67, 71, 95-98; saddle quern, 168; tesserae, mudstone, 97
- Stour Valley Gravels Project, archaeological work in advance of mineral extraction, 168
- Strap-end, medieval, copper alloy, 168
- Strawberry Field, Poole, archaeological work in advance of mineral extraction, 168
- Sturminster Marshall, archaeological observations on a pipeline, 168-169
- Sutherland, Tim, *Weston Road, Worth Matravers*, 185
- Swanage; Durlston Bay, a geological map of the Purbeck Beds, 145-148; education 1787-1902, 5-16
- Sydling St Nicholas, archaeological work in advance of A37 road improvements, 168
- tablet, shale, Romano-British, from Worgret, Arne, 93-95
- Tarrant Monkton, archaeological observations during development at Manor Farm, 185
- Thackray, David, and Martin Papworth, *Excavations at Corfe Castle 1991*, 175
- Thorncombe, medieval gold rings from Holditch Court, 184
- Toller Porcorum; Church Mead, archaeological excavation of medieval settlement remains, 178-180
- Travers, The Rev. Robert Duncan, Rector of Swanage 1854-1887, his role in provision of education, the parish, 8-12
- Treasure Trove inquest on two gold finger-rings from Holditch Court, Thorncombe, 184
- Trinity Street, Dorchester, archaeological evaluation, 174-175
- Twynham School, Christchurch, archaeological assessment, 183
- Ulf-Hansen, P.F., and R.D. Porley, *Unimproved neutral grassland in Dorset survey; survey and conservation*, 161-165
- Upton, Lytchett Minster, archaeological evaluation of a proposed development site at Pony Drive, 185
- The Vines, Long Street, Sherborne, archaeological evaluation, 181
- Walker, Karen, *Motor Project Building, Dorchester*, 175
- Wareham  
 Carolingian gold mount, 184  
 hospital extension, archaeological observations, 185  
 Stoborough water main, archaeological observations on route, 174
- Watkins, D.R., *Canford Heath Middle School, Poole*, 185  
*The Rectory, Canford Magna*, 181  
*St Catherine's Hill, Christchurch*, 183  
*Seldown School, Poole*, 185  
*Twynham School, Christchurch*, 183  
*14 Wick Lane, Christchurch*, 181
- Watkins, D.R., and K.W. Collins, *The Stour Valley Gravels Project 1991 Interim Report; Strawberry Field*, 168
- Webb, N.R., *Land Arthropods*, 210-211
- Weld; Joseph Weld House, Dorchester, archaeological evaluation on site of hospice, 175
- West Lulworth, geology - halite pseudomorphs from the Purbeck Limestone formations, 195-196
- West Stafford, archaeological work on by-pass, 168
- Weston Road, Worth Matravers, archaeological observations during building work, 185
- Weymouth, ninth-century gold mount from Bowleaze Cove, 184
- Whitechurch Canonorum, archaeological observations on the Ryall to Charmouth water main, 184-185
- Wick Lane, Christchurch, archaeological assessment, 181
- Wimborne Minster  
 Church House, archaeological excavations during building work, 182-183  
 39-69 East Borough, archaeological excavations, 183  
 Model Town site, archaeological excavation, 183
- Winterborne St Martin; doline field on Bronkham Hill, 149-155; Iron Age bronze figurine from Maiden Castle, 186-187
- Winterborne Whitechurch, Combs Ditch, archaeological observations during work on a pipeline, 170-172
- Wood, evidence from archaeological excavations; stake, 174
- Woods, M.A., C.R. Bristow, B.M. Cox, H.C. Prudden, D. Sole, M. Edmunds and J.H. Callomon, *The geology of the A303 trunk road between Wincanton, Somerset and Mere, Wiltshire*, 139-143
- Woolcombe, archaeological excavation and survey of medieval hamlet, 175-178
- Worgret Heath and Dykes, Arne, archaeological work in advance of pipeline construction, 33-40
- Worth Matravers;  
 Compact Farm, archaeological excavation of a Romano-British grain dryer, 187-190  
 St Aldhelm's Head, archaeological excavation of an Iron Age storage pit, 189  
 Weston Road, archaeological observations during building work, 185
- Wyke Road, Gillingham, archaeological evaluation of proposed development site, 185