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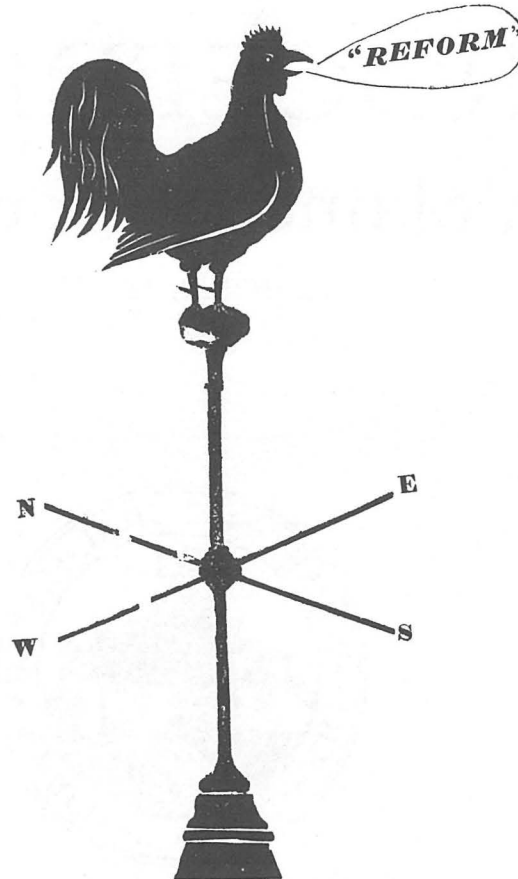
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Articles for the *Proceedings* should normally be sent to the Editor at the Dorset County Museum before 31st October for publication in June the following year.



**THE RIGHT HON:
CANDIDATE
FOR THE COUNTY
OF DORSET.**

It is very doubtful which way he will turn next, but
he is sure to be

**ALWAYS AT THE CALL
OF THE CRAFT.**

ABRAHAM, PRINTER, ETC. WIMBORNE,

COVER

Poster from May 1831 General Election likening one of the candidates, Calcraft, to a weathercock, constantly turning from one direction to another – a satire on his switch from anti- to pro-Reform. See 'The Dorset By-election of 1831' by Richard Morris.

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The Iconography of the Font at Toller Fratrum

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SUMMARY

The bowl of the ancient font in the church at Toller Fratrum is covered with figures for which no explanation has ever been published. It is here suggested that three distinct narratives are represented. The first is Moses enabling the Israelites to defeat the Amalekites (Exodus 17: 8-16). The second represents a conflation of the story of the two serpents attacking a man (a type of the damned in Hell) and that of the worship of the golden calf (Exodus 32). In the last a group of three figures represents, either Christ or St. Michael saving souls from Hell. Finally, reasons are given for thinking that the font is more likely to be 11th century than 12th.

Although the first big abbeys and cathedrals were very plain, we find a tendency in the smaller country churches to favour more elaborate doorways and fonts . . . So wrote Gardner (1935) of English Romanesque sculpture. It is therefore disappointing to find that nearly all later general accounts have concentrated on the larger and more important buildings, with only an occasional nod towards a few well-known parish churches such as Kilpeck in Herefordshire and Barfreton in Kent (Gardner 1951; Rice 1952; Boase 1953; Stone 1955, 1972). The two slim volumes by Zarnecki (1951, 1953) and some articles by him (collected in 1979) take a wider view.

Keyser (1904) published photographs of 166 Romanesque tympana and lintels, mostly richly carved, and discussed their iconography somewhat discursively; he added a few more in a second edition (1927). Bond (1908) illustrated 426 fonts, many of which are Norman and carved. Of doorways, corbels and other forms of decoration there seems to be no general account. Yet where there is a Norman village church there is likely to be at least some trace of sculpture.

The recent survey by Alford (1984) of Romanesque sculpture in Dorset excluded fonts. The Royal Commission on Historical Monuments (1952) describes the very complicated and apparently jumbled figures on the Toller Fratrum font briefly and without explanation, but the general books on sculpture neglect it and Bond (1908) refers to it, without illustration, only as an example of carving which, though crude, is not necessarily Anglo-Saxon. The earliest comment on the iconography is the most perceptive: the third edition of Hutchins' *History of Dorset* (1863) says that it is covered with sculptured figures 'evidently intended to represent some subject of church history'; it is not mentioned in the 1st and 2nd editions of Hutchins (1774; 1796-1815). Newman and Pevsner (1972) and Zarnecki (1951; Fig. 21) do not attempt an interpretation, and the latter, surprisingly says 'the carvings are purely decorative'.

About half the circumference of the bowl is covered with figures with their arms raised (Plate 1). Starting from the observer's left there are: a fluted pillar; a plain cylindrical pillar or rod, with, or standing on, a wider base and ending above in larger bulb-shaped capital; (these two pillars are conflated in the drawing framed on the wall of the church); a full-length man dressed in a shirt-like garment with a frilled hem ending at his ankles; his right hand may hold the plain pillar; his left upper arm (no more is visible) is horizontal and is held by the right hand of a half-length figure whose body from the waist down is apparently sunk into the ground; next comes another full-length figure in a similar shirt to the first except that it is shorter at the front than the back, so that the knees are exposed; both his arms are raised and reach the rim of the bowl of the font. On his right is another half-length figure (Plate 2) which is almost a mirror-image of the first, his left arm supporting the arm of a third full-length man very similar to the first but differing in that his right upper arm only is horizontal and the hand rests on the head of the half-length figure, while his left arm is raised and clearly grasps the cable moulding of the font. These have generally been interpreted as atlantes, and have been compared to a capital in the chapel of Durham Castle (Zarnecki 1951; 28); as he points out, there is not much need for this sort of support for the rim of a font. Bond (1908) figures a font at Stoke Canon (Devon; pp. 46, 180) with somewhat similar supporters which he calls

caryatides, which is a name for female atlantes. There, however, they take the whole weight of the bowl; at Toller Fratrum they support, if anything, the cable moulding just below the rim.

Since the figures support no heavy weight they cannot be atlantes. There seems to be only one possible biblical source for an image of one man's arms supporting another's, and it is, not surprisingly, in the Old Testament (Exodus 17: 8-16). 'Then came Amalek, and fought with Israel in Rephidim . . . And it came to pass, when Moses held up his hand, that Israel prevailed, and when he let down his hand, Amalek prevailed. But Moses' hands were heavy; and they took a stone, and put it under him, and he sat thereon; and Aaron and Hur stayed up his hands, the one on the one side, and the other on the other side; and his hands were steady until the going down of the sun. And Joshua discomfited Amalek and his people with the edge of the sword'. This could be what the scene just described represents. The two heads to the observer's right of the last figure (Plate 2) will be the slain Amalekites.

One of the large figures (on the left in Plate 1) that has his arms supported holds them not fully raised, but spread out horizontally, so that he looks as if he were on a cross. This could be where he is; in fact he represents Christ. Moses was a well-known prefiguration of the Saviour, since he led the Israelites out of captivity. He appears in this capacity in the much later Holkham Bible Picture-Book (BL Add. MS. 47682) for example (Hassall 1954; 80), and Moses with his raised arms was a type of the cross (Hall 1984).

Going further counter-clockwise around the font there is another scene, which appears to have no connection with the first (Plates 2 and 3). Its clearest parts are three fluted columns, each with a base and capital apparently similar to the one already mentioned, so far as that can be seen. The one on the left is rather more than twice the height of the font between the top and bottom mouldings, while on the right are two that are slightly less than this. On the first stands a creature. At first glance it appears to have only two legs, and this presumably led Zarnecki to describe it as a bird. Closer examination shows it to have four (Plate 4), all of its feet being on top of the one column. This is a position that some climbing mammals, such as cats and martens, can achieve. There is a tail that goes forward between the legs, and then rises up on the far side of



Plate 1. Toller Fratrum font. Moses saving the Israelites in the battle against the Amalekites.



Plate 2. *Toller Fratrum font. Moses, slain Amalekites and Golden Calf.*

the body to show above the back. This position is a normal feature of lions in the Bayeux Tapestry and in many English medieval representations, but is less common on the continent (Yapp 1987). A similar animal stands on the other two columns, but here there are obviously four legs, two standing on each column, and the tail, after having gone between the legs, rises on the near side of the body. Both tails are segmented, and look more reptilian than mammalian. The two creatures, whatever they are, appear to share a single human head. The space below this and between the single column and the pair is filled with a rather sheep-shaped beast with the axis of its body vertical, four horizontal limbs, and a human head that has a moustache of the sort worn by the Saxons in the Bayeux Tapestry and by carved heads at Gloucester and Iffley (Plates 3 and 4; Yapp 1987). Space between the beast and the single column is filled with three human heads on their sides, which, like those on the other side of the column, may be slain Amalekites.

It is difficult to give a completely satisfying interpretation of the iconography of all this, but it is possible that whoever commissioned the font told the sculptor to represent two different things: the then well-known motif of two creatures attacking a man and a continuation of the story in Exodus. If this is so, the head that the two creatures standing on the column apparently share is not theirs but that of a man; it is indeed rather more human than animal in appearance. The motif has been exhaustively discussed by Bousquet (1983); he gives very few English examples, but mentions Romanesque tympana at Charney Basset (Berkshire; Keyser Fig. 71) and Leckhamstead (Buckinghamshire; Keyser Fig. 60). Although the creatures are usually serpents (miscalled dragons) as at Leckhamstead, they may be lions as at Downe St Mary (Devon; Keyser Fig. 72), griffins, as they probably are at Charney Basset, or even eagles. Those at Toller Fratrum have several toes, rather more lion-like than reptilian, but they would do for either. The form and carriage of the tails suggest conflation of the two. The explanation, though not certain, is generally taken to be that the scene is a representation of the damned in Hell. There is another possible example of this on the side of the sculptured block recently found at Repton, which Biddle

and Kjølbe-Biddle (1985) date to the 8th century. In this also two mammal-like animals appear to share a human head.

Immediately before Chapter 17 of Exodus and the battle with the Amalekites come the falls of manna and quails in Chapter 16, and of neither of these is there any sign of the font. There follow several chapters dealing with the law, and then, in Chapter 32, when Moses came down from the mount where he had been talking to the Lord, he found that in his absence the people had set up a golden calf on an altar. This could have suggested the placing of the two creatures on the fluted pillars. The animal between the pillars could be the calf after Moses had taken it down (v. 20).

Completing the circle are three full-length figures each of which holds his right hand across his breast. The last of them has alongside him, and possibly holds, a cross with spirally-fluted stem and a head of the type called *patée*, i.e. with the arms expanded towards the ends. This scene probably represents the Harrowing of Hell, where Christ descended into the place to save the righteous (notably Adam and Eve) who died before his coming. The figure with the cross would then be Christ himself and one of the others perhaps St Michael, who is often present in this scene in later manuscripts (Plates 5 and 6).

The sculpture as a whole thus represents the triumph over Evil (represented by the Amalekites) and regeneration through Christ, a wholly suitable theme for the decoration of a baptismal font. The combination seems to be unique, but individual elements are found elsewhere, though not commonly. Eddius Stephanus, writing at the beginning of the 8th century, compared the way in which Bishop Wilfrid saved himself and his companions from shipwreck and the hands of the pagans by prayer, to the way in which Moses saved the Israelites from the Amalekites (Colgrave 1927; Chap. xiii); a similar comparison of the way that we pray with our arms raised in the form of a cross with Moses saving Israel from the Amalekites is made in a bestiary of the 12th century (B. L. Stowe Ms. f. 10v). The story was therefore known and



Plate 3. *Toller Fratrum font. Possibly creatures attacking a man, a fallen Golden Calf, slain Amalekites.*



Plate 4. Toller Fratrum font. Creatures on the pillars, close-up.

used for edification for some centuries, covering all possible dates for the carving. It is rare in illustrations in Bibles, but is shown on f. 95v of Aelfric's *Hexateuch* (BL Cotton MS. Claud A iv), where a simple drawing shows Moses sitting on a stone with Aaron and Hur kneeling on each side to support his arms (Dodwell and Clemoes 1974). The Aelfric *Hexateuch* illustrates also the worship of the golden calf (ff. 102, 103). The pictures have no similarity to the font except that in the first scene the worshippers have one arm crossed over the body like the man with the cross and his two followers. When Moses has thrown down the golden calf he holds it by its hind legs over a faint indication of flames.

The Cotton manuscript was produced in the second quarter of the 11th century, probably at Canterbury (Temple 1971). Dodwell (1971) has shown that many of the illustrations in this manuscript are special to the Anglo-Saxon version of the Bible, and therefore cannot have been taken from classical models. If, then, the artist of this book, or of a preceding Anglo-Saxon text, could have produced new ways of illustrating the Bible, there is no reason why another should not have done so for the font, or whatever its carvings may have been copied from.



Plate 5. Toller Fratrum font. Christ or St Michael, with cross, leading souls from Hell.

Bousquet illustrates many examples of the two serpents (or other creatures) and a human head, but no two are alike. There are many instances, both in sculpture and in manuscripts, of the rescue of souls from Hell, for example the Romanesque font at Eardisley (Herefordshire). Here there are probably both St Michael (with a book) and Christ, recognisable by his triradiate nimbus, who holds a similar cross to that at Toller Fratrum with traces of spiral fluting on the stem.

At first sight an important objection might be that there are too many differences in detail between the font and the words of the Bible (there is no difference in meaning between the text of the Vulgate and that of the Authorised Version from which I have quoted). There seem to be too many figures; one has only his left arm raised; the arms of the man who has both arms stretched up are not supported; Moses is standing, not sitting on a stone, as verse 12 says he should be and as the Aelfric manuscript shows. But in the beginning of the story Moses holds up his *hand* and then lets it down (v. 11). The carving may then be an attempt to show the action in more than one frame, a method well known in medieval art. Moses ought to hold his rod, as he does in the Aelfric *Hexateuch*, but this is absent from other pictures of him in that manuscript. It is not present at Toller Fratrum, unless it is the plain column held by the figure whom I have tentatively called Christ. In any case, medieval artists were often not faithful to the details of their source. A good example of this is found in the representations of Adam naming the animals (Genesis 2: 19-20), where in nearly all he is clothed, although at the time he was still in Eden and therefore naked; this applies both to bestiaries, where he is clothed in 20 out of 22 examples (Yapp 1985) and to some Psalters (e.g. the Theodore Psalter, BM Add. MS 19352). In some, Eve is present, although she was not created until v. 22. The symbols of the evangelists, taken from Revelation 4: 6-8, ought to have six wings each, but in nearly all the Romanesque representations they have only two.

THE DATE OF THE FONT

The Toller Fratrum font was at one time considered to be Saxon, but Kendrick (1949) wrote '... on the Norman font at Toller Fratrum in Dorset we find "dolls" of the same type [as the Mercian figures at Breedon-on-the-Hill] but I do not think that anyone would describe ... the font as a work showing Saxon influence'. Recently the font has been firmly ascribed, without saying why, to the 12th century (Zarnecki 1951; RCHM 1952). In fact we do not know when it was made. Churches can sometimes be dated fairly accurately, if charters, dates of consecration and so on appear in



Plate 6. Toller Fratrum font. Heads of Christ or St Michael and one of the rescued, close-up.

documents or inscriptions, and then any sculpture that is built into the fabric, if it does not appear to be re-used from an earlier building, cannot very well be older than the church. This does not apply to moveable objects such as fonts, which may have been made for an earlier church than the one in which they now are, or have been made later than the building, or even have been transported from a different place altogether. We are therefore left to rely on style, which must be used with great circumspection.

There is nothing like the Toller Fratrum font elsewhere, so since there is no evidence that it has ever been anywhere else than in the village it is worth looking at the general situation in Dorset. At Wynford Eagle, a little over 1 km to the south, there is a displaced tympanum carved with two serpents and with an inscription in lettering very similar to that in the Bayeux Tapestry (Yapp 1987: Fig. 119). The date of the latter is now considered, on good evidence, to be later than 1066 and before 1082 (Wilson 1985), and Alford (1984) attributes the Wynford Eagle carving to soon after 1098. Just under 14 km to the southeast of Toller Fratrum, at Fordington on the eastern edge of Dorchester, is another tympanum, showing Saint George at the siege of Antioch. The church has been rebuilt, but Alford, on good grounds, dates the tympanum to 1098-1100. At Buckland Newton, 13.5 km to the north-east of Toller Fratrum, there is a fragmentary figure sculpture ascribed to the early 11th century (Stone 1972; Pl. 22A). Nearly 9 km north of Toller Fratrum, at Melbury Bubb, is another enigmatic font, of a totally different character. It is a re-used base of a Saxon cross-shaft, carved with beasts, probably lions and a hound (or wolf) and a stag, all surrounded with Saxon interlace style (Stone 1972; Pl. 17). It is usually dated to about 1000. The RCHM illustrates sculptured fragments from Melbury Orchard, Batcombe and Cattistock and ascribes them to the 10th or 11th centuries (1952: Pl. 6). From these examples it is clear the sculpture flourished in West Dorset at least throughout the 11th century. Can the Toller Fratrum font be fitted to this?

The interlace above the upper cable-moulding (Fig. 3) is a feature that occurs in manuscripts as early as the 7th century (e.g. Durham Cathedral MS. A.II.10; Alexander 1978; I11.10) and then persists, with variations, up to the mid-12th century, as on the font at Castle Frome (Herefordshire); in this it has curved edges, less like the Toller Fratrum font, where the outline is angular, than it is like the Durham manuscript. The moulding at top and bottom is similar to that on a capital in the chapel of Durham Castle, which is of 1072 (Zarnecki 1951; Pl. 8) and the spiral moulding of the pillars is paralleled in the Saxon crypt at Repton which is 9th century (Taylor 1979: the spacing there is much wider) and in the choir of Durham cathedral, which was completed before the end of the 11th century. Likewise the interlace spiral moulding persists into the 12th century, as on capitals of the south doorway at Rowstone (Herefordshire). The shape of the human heads, distinctly oval, is found in other early carvings, such as the choir capitals at Bramber (Sussex) which is said to be 11th century, and on the Repton block which may be as early as the 8th century (Biddle and Kjølbye-Biddle 1985). Most 12th century heads, for example those at Kilpeck and Iffley, are rounded, but there are some that are oval, as on the west door at Ledbury and the font at Castle Frome. Shirt-like garments seem to have persisted for several centuries but none is exactly like those on the font.

There are a few detached fragments of Romanesque carving in the neighbourhood, in the church at Toller

Fratrum itself, at Abbotsbury and at Maiden Newton, which are dated on style to the 12th century. None is like the font.

The weight of this evidence brings the Toller Fratrum font into closer relationship with other survivals of the 11th century in the county, and with that century generally, than with the 12th, so that it was probably made in the former, Whether it is contemporary with Wynford Eagle and Fordington, or whether it was carved earlier, cannot be said.

ACKNOWLEDGEMENTS

I thank Dr and Mrs C. N. Smith for adding to my photographs of the font; Plates 2, 3 and 6 are from their prints. The debt of an amateur to my professional predecessors is obvious and great, and I readily acknowledge it, even though I sometimes disagree with their conclusions.

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The Dorset by-election of 1831

RICHARD MORRIS

The Mansel-Pleydell Prize Essay 1987

On Sunday 11 September 1831, John Calcraft, Member of Parliament for Dorset, committed suicide by means of a sharp knife in his London home. *The Dorset County Chronicle*, which relates the sad event in some detail, records that 'The unhappy gentleman appears to have laboured for some time past under a deep-settled melancholy, caused, we believe, in a great measure, by the pointedly cool reception he experienced in the House of Commons after the late election for this county'.¹ Calcraft had only been an MP for a matter of months; the previous General Election had been in May. The May election, in Dorset as in the rest of the country, was fought very much on the issue of reform, and Calcraft, although having served in office under Wellington in 1828, had since changed his views to supporting parliamentary reform, voting for the second reading of the Reform Bill in March 1831. He was thus standing as a pro-reform candidate. There were three candidates in the election, competing for two places. First home was Mr Portman, one of a landowning family from Bryanston, near Blandford, who polled 1,699 votes,² and so the fight for second place was between Calcraft and Henry Bankes, MP for Corfe Castle, who presided over large estates in the east of the county from his home at Kingston Lacy. A study of the Sherborne poll book for the May election³ – and there is no reason to suppose the Sherborne voters uncharacteristic of the county in this respect – reveals that electors voted for Portman and Calcraft, or for Portman and Bankes,⁴ but not for Bankes and Calcraft. It thus seems that, although Portman was a Whig and Bankes an anti-reform Tory, Tory supporters preferred Portman to the 'turncoat' Calcraft. At any rate, John Calcraft came second in the election, thereby winning his place in parliament, by a majority of 276 over Bankes: 1,452 votes to 1,176. What makes the battle between Bankes and Calcraft even more interesting is that Calcraft's home, Rempstone Hall, was a mere two miles from Corfe Castle, land owned by the Bankes family – two neighbours competing in a close-fought and somewhat acrimonious struggle.

Since Dorset had sent two pro-reform MPs to parliament in May, it might have been expected to return another one in the by-election necessitated by Calcraft's death. The Whigs certainly wasted no time in bringing forth a candidate. Their choice was the Hon. William F. S. Ponsonby,⁵ Member of Parliament for Poole, who had excellent Whig credentials: his brother was Lord Duncannon, one of the Whig 'Committee of Four' which had drafted the Reform Bill, while his sister was Lady Caroline Lamb, who had married Lord Melbourne in 1805.⁶ He was the third son of Frederick, the Third Earl of Bessborough. He himself later became Lord de Mauley, in 1838. His Dorset home was Canford Manor, near

Wimborne, rebuilt for him in 1825-36 by Blore.⁷ It appears that he did not at first wish to stand as a candidate, but felt that the Whigs would not have brought the bill into the Lords had he not done so.⁸ 'When he [Ponsonby] left London', wrote Mrs Arbuthnot, 'Lord Grey . . . told him he was the Atlas of the Government and must win this battle for them'.⁹ At any rate, he could not have taken too much persuading, since on 13 September, just two days after Calcraft's untimely demise, he was writing an address 'to the Gentry, Clergy, and Freeholders of the County of Dorset' for inclusion in the *Dorset County Chronicle* (of 15 September) announcing his candidature: ' . . . it is as a Supporter of that Bill [the Reform Bill] and of the general measures of the Government that I now call upon you manfully to come forward and renew the struggle, which cannot fail of being crowned with the same success, and of establishing those principles and that character of independence, of which you so gloriously laid the foundations at the last election'. The Reformers had woken up early to the impending by-election: in the same edition of the *Chronicle* is a report of a meeting of pro-reform committees from Poole, Sherborne, Blandford, Wareham, Wimborne, Shaftesbury and Bridport, on 14 September in Blandford, at which it had been unanimously resolved to support Ponsonby in the election.

Ponsonby's candidature, of course, involved his resigning his seat for Poole, which he had held for three successive parliaments since 1826. His co-representative for the borough was Benjamin Lester Lester who continued to serve, while Ponsonby's place was taken by Sir John Byng.

What were the Tories up to during this spurt of activity from their opponents? 'Whilst the enemy is thus active' declared the *Dorset County Chronicle*, 'we trust that the Constitutionalists will not, by delay, run a risk of diminishing their certainty of success'.¹⁰ A week later, the paper, still unable to announce the Tory candidate, referred to a 'great and unexpected delay in the operations of the conservative party'. The cause of this delay was, in fact, that the Tories had been trying to persuade Henry Bankes to stand for the county again, or, failing that, his son William. Both, however, refused to stand.¹¹ The damage that might be done to the party from an electoral point of view as a result of the Bankes' decision was recognised by many Tories: 'A nice mess we have been making in Dorsetshire' wrote Lady Bathurst, ' . . . thanks to all the bungling of the Bankes we shall be beat'.¹² Some Reformers even began to

¹ *Dorset County Chronicle and Somersetshire Gazette*, 15 September 1831. For further verdicts on Calcraft's suicide, see Appendix I.

² Portman was already sitting MP for Dorset before the May election.

³ Dorset Record Office, document KY 72. Return of votes for Sherborne division, May and September 1831.

⁴ Some voters, of course, only used one of their votes.

⁵ 1787-1855.

⁶ They were separated, however, in 1825.

⁷ Ponsonby owned Canford Manor until he sold it in 1846 to Sir John Guest of Merthyr Tydfil (J. Newman/N. Pevsner, *Dorset*, 1972), p. 126.

⁸ A. Aspinall (ed.), *Three Early Nineteenth Century Diaries* (1953), p. 136. All references to Aspinall in this study are prompted by the notes, pp. 86-7, of G. B. A. M. Finlayson's, *The Seventh Earl of Shaftesbury* (1981).

⁹ *The Journal of Mrs Arbuthnot*, Volume II, 1826-32, Ed. Francis Bamford and the Duke of Wellington (1950), p. 433.

¹⁰ *DCC*, 15 September. The *Chronicle* was consistently anti-reform.

¹¹ Mary Frampton, in her journal (*Journal of Mary Frampton*, Ed. H. G. Mundy (1885)), says that Henry Bankes would not stand because he thought that at 72 he was too old (p. 378). She does not, however, mention his son William's reasons for not standing, and does not even mention him as a possible candidate.

¹² This reference is taken from Finlayson, *op. cit.*, note 22, p. 86. Lady Bathurst was writing to Ralph Sneyd.

think that their candidate would be elected without a contest: an article taken from *The Globe* and printed in *The Times* (Friday 23 September) referred to 'the apprehension of a contest for the county having now been removed'. This, however, turned out to be wishful thinking.

It was not until 27 September that the Tory candidate for the by-election, having eventually been chosen, issued his election address. He was Anthony Ashley Cooper, son of Cropley, the Sixth Earl of Shaftesbury. 'On the report that Mr Bankes had declined to undertake the chances of a canvass', he wrote in his address, 'I was urged alike by duty and inclination to use my humble efforts to regain for the county the important services of his talents and integrity; in this I unhappily failed, but still I hoped that some other gentleman of similar principle might be induced to present himself, and solicit that confidence which his worth and diligence might entitle him to receive'.¹³ Ashley had, in fact, been in close touch with the Duke of Wellington throughout, writing to him on 18 September in some doubt as to whether or not he should stand.¹⁴ His motive in holding back, however, was probably not so much the modest politeness that shines through in his election address, but worry at the cost of the election, since the financing of his campaign would be likely to rest in large part on his own shoulders. The cost for the Tories, it was calculated, would be between £8,000 and £10,000. In fact, the party had, by 26 September, collected £10,000, and later managed to amass £11,000, but by 21 September, only £4,600 had been raised, which might have deterred Ashley from standing.¹⁵ Had he known what the cost would eventually turn out to be, he would almost certainly not have stood.

There is a vast amount written on Lord Ashley,¹⁶ but suffice it to say here that in the 30 years of his life up to 1831, he had shown no out-of-the-ordinary interest in mines and factories. The credentials concerning his education are revealed in an interesting letter to the *Dorset County Chronicle* dated 20 September 1831 from 'A Looker-On', which was, in fact, the first hint that Ashley might be standing in the by-election. 'Should at any time my Lord Ashley be returned with Mr Portman, as the Representative for his native county', the letter read, 'an honour will be conferred on us, of which no other county could boast – namely, that of being represented by two First Class Men. By a reference to the Oxford Calender, it will be seen that Lord Ashley took a First Class in Michaelmas term in 1822, and Mr Portman in Michaelmas term 1820'.¹⁷ Ashley

entered parliament as member for the pocket borough of Woodstock in 1826, but in 1830 was returned for Dorchester. It was this seat that he had to resign in September 1831, in order to stand for the county. His place in Dorchester was taken by his brother Henry, who was elected unopposed in a by-election in October.¹⁸

Ashley lived in Wimborne St Giles in the north-east of the county, which was, and still is, the Shaftesbury family home. It was about nine or ten miles from Ponsonby's residence at Canford. After his candidature in the by-election was secured, however, Ashley stayed at the King's Arms in Dorchester during the contest. The fact that both the candidates in the election lived near each other, however, was by no means the most important link between them, nor was their common interest and connection with the county of Dorset. The two men were in fact connected by marriage, and doubly so: Ponsonby was the husband of Ashley's first cousin, Lady Barbara Ashley Cooper,¹⁹ and, as seen above, was the brother of Lady Caroline Lamb, the wife of Lord Melbourne, the latter being the uncle of Ashley's wife, Lady Emily Cowper! Indeed, Lady Emily, or 'Minnie', as Ashley affectionately called her, was in rather a tricky situation, since, although she was married to a Tory, her closest relations were Whigs – not only, of course, Lord Melbourne, but also her father, Lord Cowper. She, however, 'doated on her husband' according to Mary Frampton (they had only been married a year, which might explain Lady Emily's sentiments!), and was a 'warm Tory'. Indeed, she came to Dorchester to be at her husband's side during the election, and stayed with Mary Frampton at her house in Dorchester from 5-18 October.²⁰ Georgina Battiscombe claims that, 'Minnie's charm was something of an electioneering asset', and it is certainly true that Lady Cowper, her mother, wrote to tell her that 'our William heard today that you had made a great effect among the gentry'.²¹ Mary Frampton describes Minnie as 'pretty, . . . good-tempered, amiable and interesting, and perfectly unassuming, most desirous not to give any trouble, and civil to everyone. Lady Ashley was most anxious for her husband's success'.²⁰ Ashley realised that his wife had made a hit with his supporters and was grateful. On the third day of the election, after polling had ended for the day, he thanked his assembled supporters for having given three cheers for Lady Emily, and announced that she would be with him the next day and that, 'if she had courage enough to do so, and if it were consistent with female delicacy, I am sure she would come to these hustings and there express her gratitude to you'.²² It was a shame for Ponsonby that his wife was to influence the election in a less complimentary fashion, as will be seen later.

Although Bankes had been the Tories' first choice, Ashley was a welcome candidate. It was not just that he was a Dorset man of high social standing, the member of a

¹³ DCC, 29 September. Addressing supporters from the King's Arms inn in Dorchester, Ashley mentioned a Mr James John Farquharson as someone who would have been a worthy candidate in the election. Farquharson later came forward to speak, announcing that if it had been consistent with his connections and habits of life, he could not have resisted, as he had done, the many invitations to him to come forward as a candidate for the representation of the county. But he was sure that none of those before him would wish him to live in London rather than in the county of Dorset. This sounds like altruism, but Farquharson was a great huntsman, with the claim to fame of having hunted with every single pack of hounds in Dorset. Doubtless his main reason for not wanting to have to spend time in London was that the capital was too far from his horse and hounds! Farquharson also later explained (on the seventh day of polling, Friday 7 October) that he was neither Whig nor Tory; this was in response to being accused of changing his politics after having proposed Portman as a candidate for the county in May.

¹⁴ Apsley House, Wellington MSS, 18 September 1831 (taken from Finlayson, *op. cit.*, note 26, p. 86).

¹⁵ Aspinall, *op. cit.*, p. 130-148. Ashley did not have sufficient funds to finance a campaign of this nature.

¹⁶ 1801-1885. The two most recent biographies are by Geoffrey Finlayson (1981) and Georgina Battiscombe (1974). Most references to the Dorset by-election in secondary sources are contained in accounts of Ashley's life.

¹⁷ DCC, 22 September.

¹⁸ A report in *The Times* (Thursday 13 October 1831) discusses this election. A Mr Fisher said in an address that Anthony Henry Ashley Cooper was the fourth nominee of Lord Shaftesbury to be forced on the people of Dorchester in the previous 12 to 18 months, the others having been William Ashley Cooper, a Mr Sturt, and, of course, Lord Ashley. Apparently, Colonel Dawson Damer had wanted to stand against Henry as a pro-reform candidate, but it was discovered that he had never been sworn in as a 'true and loyal burgess' of the borough. As he was at that time still on his way over from Ireland, therefore, it would be impossible for him to be sworn in in sufficient time for the day of nomination.

¹⁹ Mary Frampton, in her *Journal* (*op. cit.*, p. 378) records this connection, but other commentators, such as the *Dorset County Chronicle*, do not. This is odd, since the candidates' mutual connections add an interesting slant to the election.

²⁰ Mary Frampton, *op. cit.*, p. 378.

²¹ See Battiscombe, *op. cit.*, p. 64.

²² DCC, 6 October.

family with much local influence; he was also an impressive character in his own right. Lord Granville once wrote that Ashley 'had those manly good looks and that striking presence which help a man more than we sometimes think'.²³ In a letter, dated 27 September 1831, from one J. G. Read, to 'Thomas Lowman Esquire, Solicitor, Sherborne' (who had been Bankes' agent in the May election), and in a duplicate letter to Thomas Fookes, another Sherborne solicitor, both written 'to request you will have the goodness immediately to commence and prosecute an active and vigorous canvass throughout your district', Mr Read writes that he 'need not add that Lord Ashley is well known as a gentleman of the soundest constitutional principles, and in every respect qualified to be one of our county representatives'.²⁴ The *Dorset County Chronicle* (29 September) tells how, on 28 September, during a race meeting, 'the address of Lord Ashley was profusely circulated on the course, and all interest in the sport immediately ceased. Nearly 200 horsemen, principally freeholders of the county, mustered on the course, and came in procession into the town . . . On reaching the King's Arms, they formed in line, and gave three cheers for Lord Ashley'.

Polling in the Dorset by-election was to begin on 30 September, a Friday, so the Tories had produced their candidate none too soon, with canvassing letters from Ashley's agents, Tinney and Cobb, only being sent out on 29 September.²⁵ The election hustings were held on the morning of the 30th at Poundbury, an Iron Age hill fort and common venue for fairs and suchlike, near Dorchester. The *Dorset County Chronicle* states (supplement, 29 September) that there appeared to be 5-6,000 people present. Proceedings started with Sir William Oglander proposing Ponsonby as a candidate. Mr D. O. Parry-Okeden seconded this, and declared that, 'Important as the last election was, that is but as dust in the balance, but as a feather in the scale, when compared with the present one; which is perhaps the most momentous and extensive in its results of any which England has ever witnessed'.²⁶ (The theme of the election being of vast, immeasurable importance to the whole country was a common one throughout the contest, propagated particularly by the *County Chronicle*. This organ proclaimed on 22 September that the 'eyes of all England' were at that moment on Dorset, and, in its 20 October edition, described 17 October – the fifteenth and final day of the poll – as 'the most important that Dorsetshire has ever known'). William Ponsonby himself spoke after Parry-Okeden, and then it was the Tories' turn. Lord Ashley was proposed as a candidate by John Farquharson and seconded by Sir Edward Baker Baker. Ashley himself then gave a short address to the crowd, having difficulty making himself heard at first on account of the heckling of Ponsonby's supporters – an indication of the tension and rivalry that was to come as the days of the election passed. When the hustings speeches were over, the High Sheriff of Dorset, the Hon H. D. Damer, called for a show of hands for the two candidates, as was customary, and declared it to be in favour of Ponsonby. A poll was consequently demanded by one General Michel and a Mr N. W. Peach, the latter being Chairman of the 27 members of Ashley's committee, and voting began. Fifteen days of polling duly followed.

Before revealing the result of the Dorset by-election – which was far closer than the struggle between Bankes and Calcraft had been in May – there are several facets of the campaign which merit consideration. It is interesting, for

²³ Battiscombe, *op. cit.*, p. 63.

²⁴ Dorset Record Office, document DI/KY 92. Election Agents' Papers, 1831: Ashley interest.

²⁵ Dorset Record Office, DI/4119. Election Agents' papers, 1831: Tinney and Cobb in Ashley interest.

²⁶ DCC, 29 September.

TO THE
Freeholders
OF THE
County of Dorset.

BROTHER FREEHOLDERS,

I have learnt with great surprise and indignation that the Agents of LORD ASHLEY, and others, have taken upon themselves to assert, that "I had changed my opinions on the subject of the Reform Measure," and further, "that I had given my interest to His Lordship."

I therefore consider myself called upon, thus publicly to contradict it, and in doing so, I cannot give a better proof, than in stating, that I this day gave my Vote for MR. PONSONBY

I cannot reconcile the idea of changing one's POLITICAL OPINIONS as one would an Old Coat.

Possessing large Landed Estates, I should be the last Man to advocate the "Reform Measure," did I not know, that it is greatly in favor of the Agricultural Interest; and that the plea of the Anti-Reformers, that the "Reform Bill is opposed that Interest," is not founded in fact.

I do hope and trust, that all those, who on the occasion of the late Election gave their Votes in support of the REFORM CANDIDATES, will continue true to the Cause.

Brother Freeholders,

I remain with great respect,

Your obedient humble Servant,

J. S. W. S. Erle Drax;

Charborough Park, October 1st, 1831.

Groves, Printer, Wareham.

IN REPLY

To a Statement published by

J. S. W. S. E. Drax, Esq.

Dated October 1st.

LORD ASHLEY's Committee have authority to state, that in an interview which Lord Ashley had at Charborough Park, on Friday the 30th, Mr. Drax stated to him that he would not exert himself in opposition to his Lordship, and that Lord Ashley or any other Person, was perfectly at liberty to Canvass his Tenantry.

The Committee state further that Mr. Drax is mistaken in supposing that he has been represented to have changed his Political Opinions, nor has the unwarrantable liberty been taken with his Name in any instance, of asserting that he had given his Interest to Lord Ashley.

SIGNED,

N. W. PEACH,
CHAIRMAN.

Committee-Room, Dorchester.

Groves, Printer, Wareham.

Two posters which illustrate another aspect of the politics of personalities in the Dorset by-election. The way that a respected local gentlemen, such as Mr Drax, voted was obviously of huge importance to both sides; no doubt many of Drax's tenants would have been influenced by his political sympathies and would have voted accordingly. Indeed, as a Dorset worthy, Drax's prestige and influence may have affected the way other electors, without formal links with him, cast their votes as well.

example, to examine how the arguments for and against reform were put by the candidates and their supporters to the Dorset electorate. There is plenty of material for study here, since Ponsonby and Ashley made speeches after polling had closed on each day of the election, and these are recorded in the *Dorset County Chronicle*. This journal, as has already been seen, was opposed to the Reform Bill: 'A House of Commons reformed on the model of the Bill must speedily succeed in destroying entirely the peace and happiness of the community, by annihilating the nicely-adjusted balance of the Constitution, conflicting with, and soon destroying, the House of Lords, and then making an attack even upon the hereditary monarchy. Evils like these are before us, and they cannot be contemplated without dreading the destruction of the social happiness of every class in the empire'.²⁷ Many of the arguments used in the reform debate in Dorset had a similar approach, scare-mongering to an outrageous degree. 'Those franchises, and privileges and charters, which have existed for more than six hundred years', declared Ashley in his hustings speech, 'are to be overthrown and destroyed by a measure conceived in the space of three short months!'²⁸ The reformers were anxious to refute this allegation. D. O. Parry-Okeden pointed out at hustings that as early as 1780 there had been standing committees in favour of parliamentary reform in England, and he claimed that since 1789 there had been a middle class 'produced and brought into existence, between the higher and lower orders, who are entitled to rights which they are determined to maintain'. As far as Parry-Okeden was concerned, the revolutionaries were on the other side: he claimed that in medieval times, the barons had managed to obtain the nomination of the knights of the Shire and burgesses for boroughs who had originally been sent to the House of Commons to support the people against the great power of those very barons. 'This it was that was the revolutionary measure: and the Reform Bill will put a stop to this really revolutionary measure which has been going on so long'. This was an interesting interpretation of affairs, but did not stop the 'revolutionary' theme running through the Tories' criticism of the Reform Bill; the anti-reformers often referred to themselves as the 'Constitutionalists', for example. 'I foresee the destruction of equipose' declared Ashley in his election address, 'and the consequent, though mistaken, collision of interests; the Corn Laws assailed, and ultimately overthrown; perpetual change taking place of stability; our laws and institutions as variable as the weather; and the final settlement of one day, reversedly the final settlement of the next – in all these changes, in all these conflicts, the British farmer would be the first to suffer'.²⁹

'The British farmer would be the first to suffer' – here we have the Anti-Reformers' favourite theme in the Dorset by-election. The argument was that Dorset farmers would suffer at the expense of the manufacturers of the north. Ashley made the point in his hustings speech, claiming that by the operation of the Reform Bill, no fewer than 113 representatives would be taken from the southern, agricultural district, while only 18 would go from northern, manufacturing district. In response to Ponsonby's argument that 'The manufacturing and commercial interest is one recently risen in this country, and its rise is one of the strongest arguments in favour of the extension of political rights to it', Ashley cleverly responded by claiming that if that were the case, agriculture should have a greater degree of protection; for the very rise of the manufacturing interest was a proof that no further extension of its rights was

necessary for it to prosper.³⁰ Elsewhere, Tories complain of the 'rapacity of the manufacturer': 'Have you not seen how the southern counties of England are shorn and laid bare of their agricultural representatives? Have you not seen how the vast cities of the north have seized upon the Borough Charters, enjoyed hitherto by the land?'³⁰ The two sides also disagreed on the merits or otherwise of the motion that had been proposed by the Marquis of Chandos in the House of Commons.³¹ The Tories claimed it was in the agricultural interest, since it proposed giving the county franchise to farmers renting, at will, land to the amount of £30 a year. In an anonymous piece in the *Dorset County Chronicle* (29 September), however, entitled 'Misrepresentation unmasked and defeated', a sympathiser of reform claims that the object of the Chandos clause was to deprive farmers of the benefit of leases – to keep them in subserviency and vassalage to the landlord, while Ponsonby thought it was 'mere claptrap'. Indeed, he claimed that it was 'by the profuse . . . expenditure, the lavish carelessness of that party [The Tories], their total disregard to the wants and wishes of the lower orders; that the landed interest has been reduced to a state of the most extreme jeopardy'. Here he no doubt had in mind the riots which had swept over Dorset in 1830, only dying down in late January 1831,³² and which were to start anew later in the year (see below).

Attacks on the 'revolutionary' nature of the Bill and its 'anti-agricultural' content formed the brunt of the Dorset Tories' anti-reform stance, but they did not leave it at that. One William Hanham addressed voters at Poundbury with the charge that the Reform Bill by no means solved all the electoral irregularities, asking why Dorchester should be half-disenfranchised while 'so insignificant a place' as Calne would still be allowed to return two members.³³ Ashley was even prepared to depart from the issue of reform on occasion, reminding the voters that the Tories had repealed 'thirty-six millions of taxes since the end of the Napoleonic War', and also pointing out that their last act before leaving office had been the repeal of the Beer Tax (this could certainly have influenced some Dorset voters!). Nevertheless, the Reform debate never stayed in the background of the Dorset by-election for long.

One device commonly used by the Tories during the by-election was to claim that a reaction against the Reform Bill had taken place in the country. 'An opinion has been industriously circulated', Ponsonby warned in his election address, 'that you have relaxed in the enthusiasm by which you were then [that is, in May] actuated, that you see dangers and objections in the Bill brought forward by his Majesty's Ministers'.³⁴ The *County Chronicle* had been active in propagating this opinion: 'We have lately frequently had occasion to assert' that there had been 'a reaction, as well grounded as it is extensive . . . Undoubted evidences of this change in public feeling are daily and even hourly thickening upon us. We have now lying on our table, letters from Weymouth, Portland, Bridport, the Vale of Blackmoor, and from other parts of the country, which fully bear out our statements'.³⁵ Since Ashley was more successful in October than Bankes had been in May, the newspaper's assertions may well have been justifiable, although it should also be recognised that by constantly stressing that 'a reaction' had taken place, voters might have been influenced to contribute to that supposed reaction, and thus to

²⁷ DCC, 29 September.

²⁸ DCC Supplement, 29 September.

²⁹ *Ibid.*

³⁰ Dorset Record Office, DI/LL/33. Copies of various papers relating to elections, 1806-1831.

³¹ The Chandos Agreement was carried by 232 votes to 148 in the Commons in August.

³² Mary Frampton, *op. cit.*, p. 370.

³³ DCC Supplement, 29 September.

³⁴ DCC, 15 September.

³⁵ DCC, 22 September, Editorial.

extend it, or, if the reaction had been purely hypothetical, to create it in reality. How much notice of the Chronicle's viewpoint was actually taken by the Dorset electorate is, of course, a different matter. And *The Times* (22 September 1831) could find no evidence for such a reaction. In a report concerning the town of Shaftesbury, we read that, 'The reform bill seems to have united all parties in this borough . . . The men who were the most violently opposed to each other are now seen standing in the same room to welcome a reforming candidate for the county, and vying with each other in their attentions to him. Lawyers, who never before could be prevailed on to move without a retainer, are now the very first to press around the friends of reform and retrenchment, with offers of gratuitous support'. The paper's correspondent in Charmouth reported that, 'Lord Ashley has just finished canvassing this village, but has not even obtained the support of the clergyman!' (*ibid*, Saturday 1 October). Whatever reaction there had been against the Reform Bill was evidently not universal in the county.

The disagreement between the *Dorset County Chronicle* and *The Times* over the commitment, or otherwise, of the Dorset electorate to reform well illustrates the divergent political views of the two newspapers. While the Chronicle talked of the Tories as the 'Constitutional Party', *The Times* (1 October) referred to them as the 'Borough-Mongering Party'; on one occasion, the paper described the debate on the Reform Bill as 'the great struggle between the people and the borough-mongers'. It is difficult to assess the relative importance of 'media bias' – if it is permissible to borrow this modern phrase – in influencing the Dorset voter. The *County Chronicle* was the only regular local newspaper, being printed once a week on a Thursday, but it did not have a monopoly on news in Dorset thanks to the national press. And it is likely that the pro-Tory bias of the *Chronicle* was 'cancelled out' by the pro-Reform bias of the national papers.³⁶ But did people take any notice of what the newspapers said? And did they even read them in the first place? The answers to these questions are largely a matter for conjecture, but there are indications that the role of the press may have been important in this context. Not all of the voters in the Dorset by-election lived in the county – some only owned property there – and in a number of areas (within Dorset), electors actually living in London, and thus surrounded by Whig publications, show a marked inclination towards Ponsonby rather than Ashley. In the Sturminster Newton division, for example, nine of the ten Londoners listed in the poll book as owning property in that area tendered their votes to Ponsonby (although not all were ratified by the assessor).³⁷ This could be mere coincidence,³⁸ but it is certainly fair to assume that voters living in London would, on the whole, receive whatever news they cared to listen to through pro-reform channels. The importance of this, however, is limited, simply because voters not resident

in Dorset made up only a small fraction of the electorate.³⁹

Of those supporting Ashley in the contest, many were at pains to point out that they were not anti-reform as such. The non-aligned Mr Farquharson, for example, declared in his hustings speech that he was 'not an enemy to a fair and constitutional reform, for I conscientiously declare that I ever have been and ever will be an anxious supporter of such a measure of reform'. And the Reverend Harry Farr Yeatman, who was accused by Ponsonby of having changed sides, as it were, from being pro- to anti-reform, protested that he had only ever been in favour of 'a moderate and constitutional reform'.⁴⁰ This cautious but positive approach to reform, coupled with accusations of the Reform Bill being a 'revolutionary' measure, must have seemed to many to be a very reasonable stance to adopt.

For some Tory sympathisers, however, such arguments were not enough, and they looked for other ways of attracting support away from Ponsonby. A campaign of defamation was launched. Ponsonby was accused of being an Irishman and a Catholic, with many satirical pamphlets being composed. We read of 'The Advantages to be gained by sending Mr Ponsonby to Parliament': 'First – We shall have what no other English County ever before enjoyed; an Irish representative. Second – From his interest with the Pope, we may all hope for the Indulgence of kissing his Holiness' great toe'.⁴¹ In a mock-Biblical piece of satire, we read of 'one Ponsonby, a stranger in the land, who came from a far country, where murder and rapine walked abroad at noon-day . . . This man Ponsonby was a Papist, a worshipper of images, the work of men's hands, and he also followed the sect of the radicals, the destroyers of real liberty'.⁴² An account is given of a fictional meeting in the Catholic Chapel in Poole, in which it was resolved, 'That we do elect the Honourable F. W. Papisticus [i.e. Ponsonby] to succeed the late John Turn-Coat [i.e. Calcraft] in the county of Dorset', and that, 'we do procure a number of crucifixes and rosaries to be distributed among our friends as holy tokens of Papisticus's principles'.⁴³ This makes very entertaining reading but such pamphlets should not be treated lightly. In the wake of Catholic Emancipation, enacted only a couple of years earlier, in 1829, there was a very real sense of Catholic phobia in many parts of the country, together with an intense dislike of the Irish and their 'Catholic Association' which had pressurised the Duke of Wellington into inaugurating the policy. Accusing Ponsonby of being an Irish Catholic was no mild jest. The idea caught on, and the *Dorset County Chronicle* records that when Ponsonby came forward to speak at hustings on 30 September, there were shouts of 'No Popery' and 'No Irishman' from his political opponents. In all fairness to Ashley, he appears to have done nothing to encourage this trend, and after polling on the seventh day of the election (Friday 7 October), he took the opportunity to declare that his opponent was 'a staunch and true Protestant'.⁴⁴ Needless to say, the Reformers had already tried to put the facts straight: 'The Hon. W. F. S.

³⁶ For the state of the national press, see A. Aspinall, *Politics and the Press, 1780-1850* (1949), p. 330. *The Times* had finally been converted to the 'popular cause' after Peterloo in August 1819. Wellington had neglected the Press when he was Prime Minister. Production of the *Morning Journal* had ceased in May 1830, and the *Courier* had deserted the Tory camp: 'The Tory party had been left almost without a channel of communication with the public' (Aspinall). In November 1830, Lord Lowther claimed that, of all the London newspapers, only the *Morning Post* continued to uphold the 'unalloyed' Tory stance.

³⁷ Dorset Record Office, Poll Book for 1831, D399/8/I.

³⁸ Five of the seven Londoners who owned sufficient property to vote in Weymouth or Wyke Regis, for example, voted for Ashley.

³⁹ In the Sturminster division, only 56 of the 430 or so voters lived outside Dorset, and many of these were from Somerset, where, of course, the *Chronicle* was also circulated. There were obviously many other influences at work on the Dorset voter apart from newspapers, and these will be considered later in this study. It is reasonable, however, to assume that voters living outside the county would also not have been particularly affected by the content of handbills or by the personalities or electioneering skills of the two candidates.

⁴⁰ This was said on the eighth day of the by-election, Saturday 8 October (DCC).

⁴¹ Dorset Record Office, DI/LL/33. Some of these pieces still survive in handbill form, but a comprehensive collection was written down in a single book by a local vicar.

⁴² DCC, 13 October.

DIALOGUE

BETWEEN A

Lawyer, and a Dorsetshire Freeholder.

LAWYER. I wait on you Sir, to request the favor of your vote and influence on behalf of Mr. BANKS, at the ensuing Election.

FREEHOLDER. Sir, you are *too late*, I have promised my vote to Mr. PONSONBY *several days since*,---does Mr. BANKS then intend to offer himself?

LAWYER. Hem---why if he does not Lord ASHLEY, I believe will, for you know---hem--- it will never be borne that an Irishman should---hem---represent our County.

FREEHOLDER. Sir, you astonish me! Is not Wellington an Irishman? Were not your idolized Castlereagh, and the eloquent Canning, Irishmen? What Sir, do you wish for the Repeal of the Union, like O'Connell.

LAWYER. Oh no! but---hem---you see Mr. PONSONBY's religion---the Catholics you know Sir---the Catholics---

FREEHOLDER. Well what of the Catholics?

LAWYER. Why you see these Catholics,---they would *rob our Alms Houses*; they would *plunder our Charity Schools*,---they would dishonestly apply the sacred possessions of our Apostolic Church, *I mean the Tythes* [here the Lawyer gave two nods and three winks to their own private use, and they would pull down our protestant places of worship; now you know neither Mr. BANKS, Lord ASHLEY, nor any of his family could act thus without entailing on themselves lasting infamy!]

FREEHOLDER. Stop, stop, Of *robbing alms houses, plundering Charity Schools, and pilfering the Tythes*, I say nothing NOW; but Sir, I do mean to say that a near relative of one of these parties *has pulled down a Protestant place of worship*. I know the spot where the humble temple stood, I have seen the simple pulpit, which a Wesley would not have been ashamed to fill, lying among the lumber in his timber yard, and Sir, I know him to be as great a persecutor as any Irish Catholic you can name, for he does all he can, to prevent men from worshipping God according to the dictates of conscience. It is vain for persecuting Peers, and pampered Priests to raise the "*No Popery*" cry; the men of Dorset are not Children to be frightened with "*Raw-head and bloody bones*."

Mr. PONSONBY is a consistent Protestant.

--that you know---

Mr. PONSONBY is a REFORMER,

--that you hate--

**Mr. PONSONBY has the confidence of the County,---
that you shall see.---**

How Mr. BANKES and LORD ASHLEY are regarded, "that you shall feel."

J. TOMKINS, REFORM PRESS, CONSTITUTION ROW.

A clever approach by Reform Bill supporters, aimed at exposing the weakness in the various Tory defamations of Ponsonby. But the Whigs seem to have spent too much time on the defensive, countering specific Tory allegations rather than capturing the initiative on the propaganda front and launching their own attacks against the Tories on their own chosen ground.

Ponsonby was born and bred a Protestant – educates his children as Protestants – is supporting a Protestant school at Canford – is now building a Protestant Church at Parkstone – and was a member of the British House of Commons before the Catholic Relief Bill was brought forward by the Duke of Wellington and Sir Robert Peel.⁴³ It is true, of course, that the Whig candidate was married to a Roman Catholic, but since she was Lady Barbara Ashley, cousin of his Tory opponent, Ponsonby's religious connections seem no more suspect that Ashley's! Nevertheless, there were many Tory supporters who took the Catholic issue in the by-election very seriously. One correspondent in the *County Chronicle* (29 September) tried to damn Ponsonby by pointing out that his house used to be a nunnery, while 'his very barns and stables [are] cruciformed after the Popistical

manner' and an anti-reform pamphlet calls on 'Freeholders of the county of Dorset' to 'rise to assert the value of your calling, and endeavour both by word and by deed, to press back the foul stream of blasphemy and unbelief, which threatens to deluge this favoured land . . . Come forward and forbid them to submit any longer to the dictations of a Catholic demagogue!'⁴⁴ It is hard to assess just how great an influence Ponsonby's supposed pro-Papist views had on the voters in the election. What we can say is that due to letters in the newspaper, pamphlets and posters and heckling during speeches, few could have been ignorant of the rumours.

The 'gutter press' type campaign against the Whig candidate did not end here. Pamphlets referring to him as 'Poisonboy' poke fun at his ability – or lack of it – at speech making, and at his supposed policy of paying those who voted for him: 'Be firm, be resolute, and you will get the shilling, the whole shilling, and nothing but the shilling!'⁴⁵ A song was composed satirising the Reformers' 'homage' to their Bill:

'It's [the Bill] to change in a minute one guinea to ten;

It's to marry our daughters to handsome young men;

It's to make me a singer of science and skill;

If you trust all the rest, don't you trust that it will?'⁴⁶

The Reformers do not seem to have responded in kind to this treatment to any great extent, except that Ashley does refer, in his speech after the thirteenth day of polling (Friday 14 October) to 'a handbill put forth by my honourable opponent, in which he speaks of a number of my friends in no very respectful manner, and in language little consistent with the political principles he professes . . . The rest of the handbill contains some expressions not very comely, which apply more particularly to myself' (*Dorset County Chronicle*, 20 October). One's curiosity is instantly aroused, but the handbill does not seem to have survived. It is likely that Ashley suffered less lampooning than his opponent on account of his own personality and skill as a politician; he does not appear to have been deterred by his inferiority, compared to Ponsonby, in age and experience. There can be no doubting that Ashley was an excellent orator. On occasion, this skill allowed him to turn insult to advantage. *The Times* (12 October 1831) reported that one day after polling, Ashley announced that on the previous Saturday, as he was going home, a man had called him a long-nosed rascal: 'Now he did not mean to dispute the length of his nose because that was a matter of fact (laughter), but with respect to his being a rascal, that was a matter of opinion. Now, as far as the length of his nose was concerned, he would tell them that he should be perfectly satisfied, if he, at the termination of the election, were as far ahead of his honourable opponent as there was difference in the lengths of their noses (laughter)'.⁴⁷ This little anecdote well illustrates Ashley's knack at public speaking, a skill which, judging by the reports of his speeches in the *County Chronicle*, Ponsonby was unable to match. The impression given is definitely that the Whig was outclassed by Ashley's forceful personality. We are almost left wondering why Ponsonby was chosen as a candidate if the by-election were thought to be of such crucial importance, especially in the light of a contemporary claim that he was 'reckoned an ass and a jackanapes by everybody'.⁴⁷ Presumably his family's

⁴⁴ Dorset Record Office, DI/LL/33. This particular pamphlet was printed in London, by W. Glindon, of 51 Rupert Street, Haymarket.

⁴⁵ DI/LL/33. This is a pun on the Whigs' catch-phrase, 'The Bill, the whole Bill, and nothing but the Bill'.

⁴⁶ DI/LL/33.

⁴⁷ This quotation is cited in Philip Ziegler's biography of Melbourne (*Melbourne*, 1976), p. 81, but its source is not given; are we, then, to believe that this is Ponsonby's own brother-in-law, Melbourne, speaking?

⁴³ DCC, 29 September. It was also pointed out that, although Ponsonby's family had Irish connections, he himself was English. The family had come over with William the Conqueror, and had been landowners in Britain ever since.

Whig credentials and his connections with Dorset were thought to be sufficient compensation for his own failings as an inspiring politician.

Personal attacks on the two candidates were probably simply a result of the contest being so closely fought; when the final vote was announced, both sides claimed victory! All available resources had been mobilised for the election by one side or the other. 'There is scarcely a horse in the county that has not been completely knocked up', *The Times* declared on 11 October. Indeed, many have died from being over-ridden, and in some cases the mail horses have been put in requisition'. The paper also carried a report that the Reformers had to go as far afield as Salisbury and Exeter in order to find enough carriages to take their votes to the poll (*The Times*, 3 October). The suspense and tension regarding the outcome of the contest was prolonged by virtue of the poll lasting for fifteen days, an unusually long period for the early 19th century (the May 1831 election in Dorset had lasted just six days, for example). On the fifth day, Ashley was ahead, overall, by a single vote; on the sixth day, Ponsonby was ahead by the same margin! Thereafter, there were never more than 70 voters for each candidate per day, so their total tallies crawled up very slowly, and the suspense must have been terrible.⁴⁸ Each day, the two candidates had to address those who had come to vote, and to either rejoice at, or else to put a brave face on, the day's voting figures. In such a prolonged and close-fought contest in the atmosphere of the 1820s and 30s, violence of some sort was more or less inevitable. The first indication that trouble was brewing was given by Ashley in his speech after voting had finished on the tenth day (11 October), when he reported that stones had been thrown the night before, one striking one of his friends.⁴⁹ When polling was over in the thirteenth day, Ponsonby denied allegations made by Mr George Bankes in *The Times* that Ashley's success on the election would be certain were it not for the fact that voters were being deterred from going to the poll on account of 'a fear of incendiarism'; he declared that there was no such spirit of incendiarism anywhere in the county.⁵⁰ His words rang rather hollow in the face of some of the violence which was to come. Even before any rioting had actually occurred, *The Times* (11 October) noted that, 'very few elections have taken place where so much acrimonious feeling has been manifested as by the agents and partisans of the two candidates . . . A Blandford attorney received a visitation on the eye from a Devonshire attorney, which cut the upper part of the cheek open, and was followed by a copious flow of blood'. Trouble on a larger scale started when the result of the election was announced at Poundbury. By about midday on 17 October, several thousand people (according to the *Chronicle*) had gathered at Poundbury to hear the result (the poll was due to close at 3.00 pm). Ashley had had a gross majority of 27 after the voting on the fourteenth day of the poll on the previous Saturday, and now, on the following Monday (voting did not take place on Sundays), the balance of votes cast still seemed to be going in his favour. 'As the poll proceeded steadily, though slowly, in favour of Lord Ashley', the *Chronicle* reported, 'the irritated feelings of the lower orders of the Reformers could no longer be restrained, and a large body of them, armed with sticks, rushed to the vallum which crowns the hill, and dislodged the band of Lord Ashley from the position it had there occupied; the supporters of his Lordship were compelled in self-defence to resist, and a general conflict ensued between the two parties'.⁵¹ Needless to say, *The Times* (22 October) had a

different version of events, claiming that although many of the Reformers had initially been equipped with walking sticks, they had, when asked, agreed to give them up and put them in Ashley's booth nearby. Then, however, a group of pro-Tory Portlanders had attacked them with sticks, and so they were compelled to rush over to Ashley's booth to recover their sticks and so to beat off their assailants. At any rate, before long one of the booths had been broken up so that its wooden planks could be used as weapons, while 'stones of an appalling size' were hurled about, and bludgeons were so effectively used that 'broken heads and serious bruises were of the commonest occurrence'.⁵² 'Marked physiognomies soon became plentiful', *The Times* reported. The situation was only temporarily calmed when over 200 of the Yeomanry arrived and separated the two bodies of supporters. Everyone managed to restrain themselves for a while, and settled down to wait for the result of the poll. At about 3.30 pm, it was announced: Lord Ashley, 1,847 votes; Mr Ponsonby 1,811 votes. The Tory had scraped home by a mere 36 votes, an incredibly narrow majority for such a large poll. The victorious candidate was escorted into Dorchester (a mere half mile away): 'Lord Ashley rode as usual, bare-headed', wrote Mary Frampton; 'his brother John on foot, leading his horse, and preceded and followed by from 300 to 400 horsemen, chiefly gentlemen and farmers – a very handsome and respectable cortege'.⁵³ It proved to be a mistake, however, for the Yeomanry to go off the ground with Ashley, since, back at Poundbury, the 'Ponsonby mob' started to pull down the booth in which the High Sheriff, Mr Damer, and his assessor of disputed votes, Mr Williams,⁵⁴ had been left unprotected, and to attack their carriage. But the Yeomanry were alerted, and came back to disperse the mob and save the beleaguered sheriff and his unpopular assessor.⁵⁵ The rest of the day apparently passed relatively quietly, but the rioting in the county was by no means over.

'We regret to find by the account of different parts of the county', the *County Chronicle* reported, 'that the termination of the election has not passed off so quietly in other towns as it did in Dorchester'. If the election had passed quietly in Dorchester, with all the trouble at Poundbury, how much worse were the disturbances elsewhere? The first sign of trouble was at Blandford, where there were 'tumults of an alarming nature' on the Monday and Tuesday evenings (17 and 18 October), with the houses of Lord Ashley's agents being attacked 'by a mob of many hundred persons'. This mob attacked the home of a Mr Moore in

⁵² This is corroborated by Mary Frampton in her *Journal* (p. 379): 'broken heads were beginning to be numerous'. She was an eye-witness.

⁵³ Mary Frampton, *op. cit.*, p. 379-80.

⁵⁴ Philip Williams had been the object of Reformers' anger on an earlier occasion, the evening of 10 October, the ninth day of the election. On that evening, he was, in his role as assessor, in County Hall judging how many disputed votes in the election were valid, when, together with the candidates and their respective counsel, he had to leave, since, 'the table was immediately crowded by declaimers, among whom were conspicuous Mr Taunton and Mr Rutter, commenting in no measured terms on what they called the partiality of the assessor, and the conduct of Lord Ashley's counsel and agents. The uproar rose to a tremendous height' (*DCC*, 13 October). The *County Chronicle* knew, however, that, 'the talent, the experience, the discriminating judgment, the high character, and upright integrity of Mr Philip Williams are so universally admired as to render superfluous a word in refutation of calumnies so uttered'. Since this was only the verdict of the rather partial *Chronicle*, it could well be the case that Mr Williams' judgment was slightly suspect! (See below.)

⁵⁵ Mary Frampton, *op. cit.*, p. 380. According to the *Dorset County Chronicle*, Ponsonby was doing his best to restrain the mob, by standing between them and their prey (*DCC*, 20 October).

⁴⁸ For the full voting figures, see Appendix II.

⁴⁹ *DCC*, 13 October.

⁵⁰ *DCC*, 20 October.

⁵¹ *DCC*, 20 October.

Salisbury Street, demolishing windows and pulling down part of the wall in front of the house. They also destroyed his greenhouse.⁵⁶ They then moved on: 'The house of S. Smith Esq. was particularly marked out for devastation; the mob gained access to the interior, and obtained possession of a great quantity of valuable papers and documents which they destroyed or dispersed'.⁵⁷ Before long, the military arrived, and managed to calm the crowd somewhat.⁵⁸ But when they had gone again, the violence resumed. *The Times* reports that at 10.30 pm, Mr Portman MP (who lived near Blandford; see above) addressed the mob, imploring them to stop. 'They seemed to listen to him with attention and respect: his speech was productive of its intended effect upon some of the people, for their numbers were much diminished at 11.00'.⁵⁹ Four men were arrested the next day.⁶⁰

There had also, apparently, been disturbances in the neighbourhood of Poole, and at Sherborne and Wareham the houses of Ashley's agents had been attacked and many windows broken. Mary Frampton gives more detail about the troubles at Sherborne: 'A considerable mob assembled. They proceeded to Sherborne Castle – Lord Digby's – where they broke every pane of glass which they could get at, and tried to force the great gates leading into the court of the castle'. A troop of Yeomanry, however, soon arrived to sort the matter out; 'a yell was heard, and a volley of stone shivered the glass about the room, and put them to flight'. Mary Frampton's own brother was Colonel of the Yeomanry, and he subsequently rode up from Dorchester to check that things had settled down. 'He had an escort with him; but although some murmurs and cries of "Ponsonby for ever!" pursued him in two or three of the villages through which he passed, no efforts were made to detain him'.⁶¹ Mr Frampton might have found it possible to ride to Sherborne unhindered, but not everyone involved in the election was so confident. The High Sheriff, Mr Damer, had been intending to return home to Milton Abbey on 18 October, the day after the close of the poll, but decided to stay in Dorchester that day instead, fearful of being attacked in passing through Milborne. He returned home safely on the 19th. Even more likely targets of a pro-reform mob were Lord and Lady Ashley. When they left Dorchester on 19 October, they went via Moreton and Wimborne, 'as a route which it would not be thought likely they would take'. They also travelled with a pair of loaded pistols in the carriage – a fact that was kept secret from Lady Emily!⁶² The turmoil died down after 20 October, but, wary of the possibility of trouble on 5 November, Bonfire Night, the guard at the Dorchester gaol was increased, and special constables were sworn in and organised for the town, ready to be called upon if required. The evening, however, passed peacefully.⁶³ Nevertheless, in some parts of the county, the Reformers burnt effigies of Ashley instead of Guy Fawkes on their bonfires.⁶⁴ The only consolation that the *County Chronicle* (20 October) could think of in regard to all the troubles was that, 'the ebullitions of disappointed feeling have invariably emanated from the lowest classes of the Reformers, and they have not been countenanced by any persons occupying a respectable station in society'.

Reformers occupying 'a respectable station in society', however, were equally unhappy with the result of the election, claiming that in reality, the winner of the contest was Ponsonby, not Ashley. The bone of contention was the large collection of votes tendered to one or other of the candidates which had been objected to by either Ponsonby or Ashley and hence subjected to examination by the assessor, Mr Williams. A considerable number of votes fell into this category. When *The Times* (11 October) declared that, 'The contest for this county is kept on with a most astonishing activity', the paper also noted 'a determination of polling, not only every voter who has on any occasion voted before, but of bringing up such persons as, until now, have never entertained the slightest idea that they were possessed of the privilege'. After the poll had closed on 17 October, and the result had been announced, there were still 434 undecided votes in front of the assessor. Ponsonby pointed out that if these were to be included in the final poll, he, not Ashley, would be the victor, with a majority of 32.⁶⁴ He had, 'in an early stage of the election', requested the Sheriff to appoint a second, or assistant, assessor, but Ashley had withheld his assent, and therefore Mr Damer did too. 'I persevered in my request that every freeholder might be allowed to record his vote on the poll, but I again received the same answer'. Ponsonby then announced his intention to petition against the result. The Anti-Reform lobby, needless to say, strongly attacked their opponents' reasoning, claiming in one account that, 'coach loads of individuals who had no shadow of a franchise were brought to the poll to tender for Mr P'.⁶⁵ *The Times* hit back at this allegation by asserting that it was the Tories who had been resorting to the 'poll packing' technique, and that the assessor had been ratifying votes cast by paupers. 'Many of these men are upwards of 80 years of age, some blind, others imbecile, and numbers unable to walk. By the introduction of these voters, the anti-reform party alone have been enabled to hold the station they do on the poll. Yesterday, on the day's poll, Lord Ashley obtained a majority of six over Mr Ponsonby. These six voters were six alms-house men, who, until now, had never even dreamed of voting. In addition to these, the same party have polled such parish clerks as could prove their appointment to be for life. In the same manner has the assessor permitted them to pass the masters of the parish schools'. *The Times* declared that it was only after this provocation that Ponsonby and his supporters had been constrained to adopt a similar tactic.⁶⁶ Essentially, the dispute boiled down to a disagreement over the conduct of the assessor, Mr Williams.⁶⁷ In the first clause of the Whigs' petition, which was published in December 1831, we read that, 'the appointment of the said barrister [Mr Williams] was objected to by, and on behalf of, William Francis Spencer Ponsonby'.⁶⁸ Hardly very surprisingly, the Tories praised Mr Williams to the skies. It is hard to tell whether or not the assessor's assessing was sufficiently impartial (although it is worth noting that the Williams family was definitely inclined towards the Tory side of politics in this period.⁶⁹) What we can say is that Ponsonby's petition was rejected in parliament. On 18 January 1832, Sir Henry Hardyng wrote to Charles Arbuthnot's wife, Harriet; 'Lord Ashley is very sulky and cross, but will keep his seat'.⁷⁰ On 19 March, he was proved right.

⁵⁶ *The Times*, Thursday 20 October.

⁵⁷ DCC, 20 October.

⁵⁸ They were the Third Dragoon Guards, and were called out by a Mr Chard (*The Times*).

⁵⁹ See footnote 56.

⁶⁰ Mary Frampton (*op. cit.*) also refers to the disturbance in Blandford, saying that a house was destroyed and the windows of several others broken (p. 380).

⁶¹ Mary Frampton, *op. cit.*, p. 381.

⁶² Mary Frampton, *op. cit.*, p. 381.

⁶³ Battiscombe, *op. cit.*, p. 65.

⁶⁴ DCC, 20 October.

⁶⁵ Dorset Record Office, DI/LL/33.

⁶⁶ *The Times*, Tuesday 11 October.

⁶⁷ See footnote 64, concerning complaints against Mr Williams.

⁶⁸ Dorset Record Office, DI/LL/33. For Ponsonby's petition in full, see Appendix IV.

⁶⁹ The Williamses were a prominent Dorset family in this period. There were, in fact, two branches of the family, and still are, and the information on the Williamses' allegiance in the nineteenth century comes from the present heads of the two branches.

⁷⁰ Battiscombe, *op. cit.*, p. 65.

The election turned out to be a phenomenally expensive one. In the final part of Ponsonby's petition, Clause Eight, the Whigs accused Ashley of bribing people to vote for him with money and food – that, 'he was guilty of various corrupt acts of bribery and illegal practices, and used various threats and promises, and employed undue influence, and other illegal and improper means . . .'.⁷¹ Ponsonby does not elaborate upon what the 'various threats' were, but certainly the rest of his accusation seems a little hypocritical since he was almost undoubtedly doing the same thing himself (see below). Even if he was not, the bribing of potential voters was a commonplace occurrence in elections of the period – it was quite usual to pay a voter's travelling expenses and to refresh him with a drink in an inn. Nevertheless, the candidates in the Dorset by-election seem to have shown particular liberality. Georgina Battiscombe notes that, 'the three or four thousand Dorset electors must have enjoyed a splendidly drunk election'.⁷² (This probably explained some of the riotous behaviour.) Ashley's election expenditure makes entertaining reading. He spent hundreds of pounds on drink and, presumably, on accommodation for his voters in each of 'The Anchor', 'The Chequers', 'The Green Dragon', 'The Mariners', 'The New Crown', 'The Old Crown', 'The Phoenix', 'The Plume of Feathers', 'The Queen's Arms', 'The Red Lion', 'The Ship' and 'The Wood and Stone'; not to mention, of course, in 'The King's Arms', where he himself was staying. And this list only deals with alehouses in Dorchester! He also found time to visit inns in Weymouth, Portland, Maiden Newton, Winfrith, Corfe Castle, Milborne St Andrew, and Gillingham. His trip to Gillingham did not do him much good (see Appendix II), but then he managed to get away with only spending two pounds and threepence on that occasion!⁷³ Faced by such lavish expenditure, Ponsonby seems to have been equally active. We have already seen the Tory lampoon of his supposed policy of paying voters a shilling each for their voting favours, and there must have been grounds for the satire. Several letters pertinent to Ponsonby's financial outlay during the election campaign survive, in the form of reminders of payment owed but not paid up.⁷⁴ John Godwin, of Sherborne, was writing a letter of complaint as late as 14 February 1834 because his election expenses had not been paid. The letter was sent to Ponsonby's agent, George Easton. Another letter to Mr Easton from Sherborne, written by a Mr Allford on 11 February 1834, informs him of 'the ungracious manner in which I feel my exertions now treated'. If a rich man like Ponsonby was in trouble paying his debts, one can imagine how great they must have been. So far as Ashley was concerned, meanwhile, he found himself himself with expenses totalling more than £15,000.⁷⁵ The two parties had managed to mobilise support for their candidates reasonably well; both Whigs and Tories had set up election

⁷¹ *Dorset Record Office, DI/LL/33.*

⁷² *Battiscombe, op. cit.*, p. 65.

⁷³ For Ashley's expenditure in public houses, see Edwin Hodder, *The Life and Work of the Seventh Earl of Shaftesbury KG*, (1886).

⁷⁴ Dorset Record Office, D793. Papers concerning the Dorset By-election of 1831, including receipts, bills, travel and election expenses for W. F. S. Ponsonby.

⁷⁵ Edwin Hodder (*Ibid.*), estimated Ashley's expenses at £15,600, and this figure is used by Battiscombe. M. St J. Fancourt in *The People's Earl* and J. L. and Barbara Hammond in *Lord Shaftesbury* also agree with Hodder. Finlayson, however, claims that this is far too low a figure, and that £28,000 is a more realistic sum. But Finlayson says that some £11,000 had been raised by subscription (see earlier in this study), whereas Battiscombe (p. 65), quotes a figure of £1,900 from a party fund controlled by Charles Arbuthnot, and £500 from local subscription. At any rate, it is clear that Ashley was left out of pocket to a considerable degree.

Dorsetshire Freeholders.

Important Questions?

1st.---Is Dorsetshire so poor in Men of Talent and Worth, that we must needs have an Irishman to represent the County?

2ndly.---Is Mr. PONSONBY, being closely entangled with Roman Catholic connexions, likely to strenuously protect our Interests as Protestants?

3rdly.---Will Mr. PONSONBY be a fit Member for an Agricultural County, when he consents to give Householders of £10 per Annum in Towns a Vote for Representatives in Parliament, but denies the same Privilege to Farmers renting £50 per Ann. in the Country?

4thly.---Are a widely scattered rural Population to be ruled by a few self-elected Committees in two or three of the principal Towns?

5thly.---Is it wise to depute Mr. PONSONBY to speak for us in the House of Commons, where he has hitherto never given more than a silent Vote?

6thly.---Will the Independent Freeholders of this County submit to such an everlasting disgrace?

A RUSTIC FREEHOLDER.

September 19, 1831.

Watson, Simonds, and Sydenham, Dorset County Chronicle Office, Cornhill, Dorchester.

The Tories' case in a nutshell. This poster contains all the main Tory propaganda planks: (a) the accusation that Ponsonby was foreign and a Catholic; (b) the challenge that the Whigs' Reform proposals were rash, inconsistent, unfair and ill-conceived; (c) the suggestion that Ponsonby was an inadequate politician.

committees in London where contributions towards the cost of the election could be made, and Ponsonby's London committee had received £1,900 in subscriptions for helping out with the costs of the election by as early as 3 October. Much of this money, however, was immediately swallowed up in catering for the London voters; Ashley's committee announced that, 'Carriages will be provided to convey the electors in the interest of Lord Ashley to the poll, upon application to the committee; and they will be glad to receive any communication from the freeholders resident in London'.⁷⁶ For the vast bulk of his election expenses, Ashley was not remunerated. His tavern bills would, therefore, in themselves be difficult enough to pay off, let alone the

⁷⁶ *The Times*, Friday 7 October. It was announced that Lord Ashley's committee was sitting daily at Morley's Hotel, Cockspur Street, Charing-Cross, with Alexander Baring as its chairman. Two days earlier, the paper had revealed that the Whig committee was convened daily, under the chairmanship of The Earl of Uxbridge, at the British Coffee-house. This too was in Charing-Cross. The close proximity of the two committees does not appear to have led to any trouble!

DORSET ELECTION.

FREEHOLDERS,

Will you allow a few self-elected Committees composed principally of Dissenters to dictate to you who are to be your Representatives!

LORD ASHLEY steps forward to free you from this thralldom.

Are you willing that the Church Establishment of this Country shall be destroyed and the Conventicle take its place?

LORD ASHLEY will do his utmost to prevent this.

Are you for a safe, moderate and temperate Reform or for Revolution?

LORD ASHLEY is a supporter of the former but not of the latter.

Are you willing that the part of England in which you reside shall be robbed of more than 100 of its Representatives, (nine of which are from this County) and that they be transferred to the North of England and to Ireland?

Lord Ashley is opposed to this.

In short are you willing that the Agricultural Interest, the main, the only support of this part of England shall succumb to the Commercial or that both shall go hand in hand together.

If you wish for this Union then Vote for

LORD ASHLEY.

Shipp, Printer, Blandford.

A slightly more measured, less xenophobic poster from the Tory camp, but even here, there is the wild prediction of the collapse of the English Church if the Reform Bill is passed. The Tories played considerably on voters' fears for the future, exaggerating the radical nature of the Reform measures.

additional expense of contesting Ponsonby's petition. Even though he thought the case against him 'an uncommonly bad one',⁷⁷ Ashley was unwilling to incur the extra expense. Nevertheless, the petition was opposed, because the Tory party managed to find the necessary money for doing so, a fact which angered Ashley's wife, Lady Emily: 'What a shabby thing for the Tories that they can fork out for the petition but not to help your expenses!'⁷⁸

The election had been fought and, at least officially, won by the Tories, and whether Ashley was most helped by a general reaction against the Reform Bill, by his own qualities as a candidate and his assiduous canvassing, by the charm of his wife, by the religious beliefs of his cousin, or by the partiality of the assessor, is hard to say. We can definitely establish, however, that the result of the election was never a complete certainty, and could not have been calculated in advance by working out the political allegiance of the great landowners and assuming that their tenants

would vote the same way.⁷⁹ Many men had changed from voting for a pro-Reform candidate in May to voting for an anti-Reform one in October; Ashley could not otherwise have won. In the town of Sherborne, for example, four men who had voted for Calcraft, not Bankes, in May switched to voting for Ashley in October.⁸⁰ Many would argue that the slight swing in favour of the anti-Reform candidate was entirely due to the supposed reaction taking place all over the country: Mrs Arbuthnot pointed out in October 1831 that the Tories had carried every by-election since the General Election.⁸¹ But those who are inclined to discount the 'human factor' and the question of personalities in the Dorset by-election cannot escape from the nagging fact noted at the beginning of this study that in the May 1831 election, Tory voters were quite prepared to vote for Portman, the Whig, as well as for their own candidate, Bankes, but would not, in nearly every case, countenance voting for the 'turncoat' Calcraft. This, surely, was due to bitter feeling against the 'traitor'. If the credentials of the candidate were so important a factor in determining the voting in the May election, why should we discard the importance of the candidates as individual people, not just as representatives of the Whig or Tory parties, in the October by-election? Of course personalities were important in this respect. By no means all the Dorset voters felt constrained to vote along party lines; take, for example, Ashley's friend Mr Farquharson (see above). Otherwise, what was the point in the candidates canvassing, producing handbills, or spending vast amounts of money on alcohol to please their voters? There were definitely floating voters and they were there to be grabbed. Why else should the *Dorset County Chronicle* and Lady Bathurst have thought that the Tories' chances of taking the seat were diminishing as a result of their delay in producing a candidate? Why else should the Tories have spent so long in trying to persuade a 'suitable' person such as Bankes to stand, and why, when he refused, were they so anxious to secure Ashley as their man⁸² if the quality of the candidate was of little importance? If we accept that Ashley was the superior politician in most respects, projected as such to the Dorset electorate through the newspapers and through his own speeches and canvassing, and that he was helped to some extent by the smear campaign against his opponent, we have a very feasible explanation for his success in the contest. This is not to say that the question of Reform was a mere side-line in the election, but it is important to realise that many Dorset voters would have formed their views on this issue by listening to the way in which Ponsonby and Ashley presented their cases, and thus would have been affected by personalities to some extent.

No one is pretending that the by-election was a freak result and that the Tories did wildly better than they would have done if Ponsonby and Ashley had not been the candidates. Dorset was clearly split between the two great

⁷⁹ There is, sadly, no complete record of landowners and tenants in Dorset prior to 1871. (This was confirmed by the County Archivist, July 1986). It is indisputable, however, that some voters did not feel constrained to fall in line with their landowner's politics. A quick glance at the Return of Voters for the Sherborne Division, for example (see below), shows that one James Percy, of Sherborne, voted for Ashley even though he was the occupier of a Whig's voter's residence.

⁸⁰ The full voting figures for the town of Sherborne are as follows. 19 electors sided with both Bankes and Ashley; 51 voted for the Reforming candidate on both occasions; four switched from Calcraft to Ashley; three, interestingly enough, switched the other way, from Bankes to Ponsonby. None of the freeholders in Sherborne neglected to vote in the by-election. Votes for Portman have been ignored in compiling the figures for Sherborne in this note (Record Office KY 72. Return of voters for Sherborne division, May and September 1831.)

⁸¹ *The Journal of Mrs Arbuthnot, op. cit.*, p. 432.

⁸² Battiscombe, *op. cit.*, p. 63.

⁷⁷ Battiscombe, *op. cit.*, p. 65. Hodder quotes Ashley saying, '... I do not intend to resist it [Ponsonby's petition], however feeble, nay, despicable, may be his claim... I have before me... the prospect of debts and incumbrances which no economy or exertions on my part will enable me to discharge. Under such circumstances, it would be dishonourable in me to incur any further expenses (Ashley to the Duke of Wellington, Panshanger, 30 November 1831).

⁷⁸ Broadlands Papers, 27/M/60.

parties and was to remain so for many years to come. In the election of 1837, for example, Dorset returned seven Reformers and seven Tories to the House of Commons as representatives for its various boroughs, thereby reflecting again just how split the county was on the question of reform.⁸³ Ponsonby himself succeeded in his aim of becoming a Member of Parliament for Dorset, in 1832,⁸⁴ and could not have been electorally so undesirable. But the crucial point is that, since Ashley won the by-election by a mere 36 votes, his own attributes and his opponent's deficiencies were very probably the clinching factor in the Tory victory.

The Dorset by-election, as had been seen, was a very colourful and, at certain stages, a dramatic event. So what of the *County Chronicle's* claim that 'the eyes of all England' were on Dorset during these few action packed weeks? (*DCC* 22 September). There were certainly regular bulletins on the election included in *The Times* and several diarists of the time – such as Mary Frampton and Mrs Arbuthnot – refer to it. On the other hand, others do not,⁸⁵ while the reports in *The Times* were always short and generally spartan. It seems, in fact, that the *Chronicle* was suffering from delusions of grandeur, though it cannot be denied that England had half an eye on the county. The result of the election was proved not to have been of crucial importance in the Reform struggle, because the great Bill was passed anyway. Most of the books that have been written on the subject of Reform in the 1830s do not bother mentioning the Dorset by-election. But it is not often that Dorset occupies the centre stage in the country, or what its inhabitants think to be the centre stage, and the county's freeholders were doubtless determined to enjoy it.

ACKNOWLEDGEMENTS

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I am indebted to my tutor, Dr L. G. Mitchell of University College, Oxford, for his assistance and interest in the project.

Appendix I: Views on John Calcraft's Suicide

The verdict given by the *Dorset County Chronicle* on Calcraft's suicide may or may not be a fair judgment. It is worth noting that, since the political sentiments of the journal were anti-Reform, it was particularly bitter at Calcraft's 'treachery' in the Reform debate. Geoffrey Finlayson, in his biography of Ashley, suggests that other accounts portray Calcraft as having long been in a despondent mood (note 15, p. 66). Mary Frampton, however, in her *Journal*, agrees with the *County Chronicle* that Calcraft 'had never been happy since his reception in London, after he had been returned for Dorsetshire. A gloomy melancholy never left him . . .' (p. 378). Tory sources leave no doubt as to the reason for the MP's decision to take his own life: Mrs Arbuthnot declares that Calcraft 'had behaved in a most ungentlemanly way about politics and, I suppose, he could not bear the contempt which he felt he deserved and fancied his old associates treated him with' (p. 432 of her *Journal*). Many writers have taken it for granted that Calcraft had only been really depressed after the May election (e.g. Cecil N. Cullingford, in *A History of Dorset* (1980) p. 105).

⁸³ Dorset Record Office, Photocopy 479, Notes on Bridport elections.

⁸⁴ Ponsonby was MP for Dorset from 1832 to 1837. (The Holland House Diaries, 1831-1840, Ed. Abraham Kriegel (1977), p. 441, footnote).

⁸⁵ Harriet, Countess Granville, for example, makes no reference at all to the by-election.

Electors OF ENGLAND,

You are to decide by YOUR VOTES between

OLD ENGLAND. NEW ENGLAND.

The Institutions of your forefathers.

A system under which, by God's blessing, you have been the happiest, richest, and freest nation under Heaven.

Your English Constitution which has stood the test of Ages

A system which secures to every individual in the Kingdom, every right he ever possessed.

English Ascendancy.
Church of England.
Peace,
A Monarchy.
Security.
Prosperity.
Freedom.

Those who are on
this side will Vote
AGAINST THE
REFORM BILL.

The Institutions which a French-hearted MINISTRY would cram down your throats

A system which wherever it has been tried, has brought confusion and desolation.

A new Foreign Constitution, of which the little that is known is evil.

A system which begins by depriving 150,000 Voters of their undoubted right.

Irish Ascendancy.
No Church.
Civil War.
A Republic.
Spoliation.
Ruin.
Military Despotism.

Those who are on
this side will Vote
FOR THE
REFORM BILL.

Skipp, Printer, Blandford.

Tory poster aimed at appealing to voters' national pride, but this time the foreign influence to guard against comes from the continent, not from Ireland. The reader was meant to connect the idea of Reform and constitutional change with the chaos of the French Revolution, which many voters would have been able to remember, and of which still more had firm, fearful images entrenched in their minds.

Appendix II: Statement of the Poll

Days of polling	Candidates		Daily Majority		Gross Majority		No. polled daily
	Ashley	Ponsonby	Ashley	Ponsonby	Ashley	Ponsonby	
1. 30 Sept	243	271	–	28	–	28	514
2. 1 Oct	449	245	204	–	176	–	694
3. 3 Oct	433	483	–	50	126	–	916
4. 4 Oct	211	309	–	98	28	–	520
5. 5 Oct	137	164	–	27	1	–	301
6. 6 Oct	93	95	–	2	–	1	188
7. 7 Oct	55	67	–	12	–	13	122
8. 8 Oct	41	35	6	–	–	7	76
9. 10 Oct	49	34	15	–	8	–	83
10. 11 Oct	24	22	2	–	10	–	46
11. 12 Oct	13	16	–	3	7	–	29
12. 13 Oct	29	18	11	–	18	–	47
13. 14 Oct	26	12	14	–	32	–	38
14. 15 Oct	20	25	–	5	27	–	45
15. 17 Oct	24	15	9	–	36	–	39
Gross Total:	1847	1811					3658

(Ponsonby explained the seeming anomaly of his poor showing on 1 October by saying that because it was a Saturday, and most of his voters lived a long way from Dorchester (many outside the county), they did not come to vote since it would entail being away from their families on the Sunday. *The Times* supported Ponsonby's claim: 'Saturday is the market-day at Dorchester, where the poll is held, and Mr Farquharson, the fox-hunter, brought up all his tenants and friends who attend the market to vote for Lord Ashley. Mr Ponsonby's friends, on the contrary, reside principally in the

different towns and villages which are scattered about the county, and it was inconvenient for the voters to leave their homes at the end of the week' (*The Times*, Monday 3 October).

Appendix III: Voting by Regions

(*Dorset Poll Book* 1831, Dorset Record Office D399/8/1)

N.B.: The table includes slight inaccuracies; the figures do not quite tally with the gross total of 3658 votes cast.

	Ashley	Ponsonby
Blandford Forum:	16 (38%)	26 (62%)
Rest of Blandford division:	54 (49%)	59 (51%)
Bridport:	54 (49%)	56 (51%)
Lyme Regis:	18 (22%)	64 (78%)
Wells:	61 (86%)	10 (14%)
Rest of Bridport division:	366	333
Cerne Abbas:	12	15
Poole:	24 (13%)	156 (87%)
Rest of Cerne division:	69	40
Dorchester:	35	10
Fordington (and Mill Street):	30 } (81.5%)	7 } (18.5%)
Melcombe Regis:	34	15
Portland:	115 (45%)	139 (55%)
Weymouth:	23	16
Rest of Dorchester division:	196	98
Gillingham:	2 (5.5%)	34 (94.5%)
Shaftesbury:	10 (15%)	56 (85%)
Rest of Shaftesbury division:	82	176
Sherborne:	29 (33%)	59 (67%)
Rest of Sherborne division:	38	58
Sturminster Newton:	54 (84.5%)	11 (15.5%)
Rest of Sturminster division:	165	130
Swanage:	22 (39%)	34 (61%)
Wareham:	9	15
Rest of Wareham division:	102	69
Wimborne Minster:	49 (67%)	24 (33%)
Rest of Wimborne division:	176	126

According to John Cannon in *Parliamentary Reform, 1640-1832* (1972), p. 279, some 22% of the voters in Dorset in 1831 were urban.

None of the regional voting figures are unduly surprising when compared to other Dorset elections of the same period. But note the strong Tory vote in Ashley's old seat of Dorchester, and, likewise, the vast Whig majority in Ponsonby's old seat of Poole.

Appendix IV: The Content of Ponsonby's Petition

(i) The sheriff had appointed a barrister as his assessor, even though he was objected to by Ponsonby.

(ii) On the sixth day of the election, upwards of 150 votes for Ponsonby and upwards of 120 votes for Ashley were undecided. An application was made by, and on behalf of, Ponsonby to the sheriff and his assessor to appoint an additional assessor, in order to determine the cases of the voters as objected to. This was repeated on the next day, but Ashley and his agents and committee refused to consent to such an appointment, and so the sheriff and assessor declined to accede to the application.

(iii) From the seventh to the final day of the election, the number of votes for Ponsonby which were objected to, and which were undecided, gradually increased, and on the thirteenth day of the poll, amounted to upwards of 230. A similar application was made as before, but was again rejected. An application was made on the next day and on the day after that.

(iv) When the sheriff adjourned the poll on Saturday 15 October (the fourteenth day of the poll) to Monday 17 October, he adjourned it to 9.30 am on the Monday, not to 8.00 am, even though the poll was by statute required to be kept open for seven hours, and to close at 3.00 pm.

(v) At the end of the election, there was a majority of undecided votes for Ponsonby of 71 (279 to 208).

(vi) Much unfairness and partiality was exercised by the officers of the sheriff and the persons employed on that occasion, in preparing lists of the undecided voters for the decision of the assessor; and on calling them before the assessor, many of the voters for Ponsonby were passed by and altogether omitted, or otherwise unfairly postponed and dealt with. And a great number of persons were admitted to poll by the sheriff and his assessor and poll clerks for the said Lord Ashley, who were not entitled to vote in the election.

(vii) Many of the poll clerks selected by the sheriff or his under sheriff were the clerks of the professional agents of Lord Ashley, and were otherwise objectionable, and should not have been appointed.

(viii) Lord Ashley bribed people to vote for him with money and food, and used various threats and promises, employing undue influence.

N.B. According to the account of the Dorset by-election in *The Pride of Poole* by D. Beamish, J. Dockerill and J. Hillier (1974), Ponsonby accused the under sheriff (mentioned in clause 6 of the petition), one Thomas Fox of Beaminster, of being an undisguised supporter of Ashley. It is also claimed that the assessor, Mr Williams, had employed as his clerk an attorney who was employed by Ashley. It was also alleged that squatters encroaching on land at Charmouth had been wrongly allowed to vote for Ashley, as had inmates of almshouses at Weymouth and Wimborne.

Bovington – Before The Tanks Arrived

G. E. LANNING

Bovington is acknowledged throughout the military world as the 'home' of the Royal Armoured Corps. In fact, the name has become so associated with tanks that many people believe that the camp originated during the First World War following the invention of the tank. The Army, however, arrived at Bovington some years before then.

Towards the end of the 19th century the War Office decided to build a number of rifle ranges around the country in order to improve the skill of the infantry in the use of the Lee Metford rifle, Britain's first magazine rifle, which had been introduced in 1888. In Dorset they approached the Frampton family with a view to purchasing part of the Moreton Estates and converting it into a military training area on which they might construct one of these ranges.¹ That such a range was needed was stressed in *The Southern Times* when it reported, on 14 August 1897, that 'There has of late been talk of the authorities constructing a rifle range at Wool for the use of the troops at Portland and Weymouth and also for the Dorset Militia Battalion . . . Good range accommodation is the most pressing requirement in Dorsetshire; for regulars, militia and volunteers all suffer from the drawback of want of suitable ranges in the district'.

Negotiations were eventually completed on 16 February 1899. Then the War Office agreed to pay Mrs Louise Mary Featherstonhaugh Frampton £4,300 for just over 1,000 acres of the 'Heathland in the Parishes of Bovington, Turnerspuddle, Affpuddle, Wool and Elsewhere in the County of Dorset', which land 'shall be used as a Rifle Range or for any military use or purpose or any other use or

purpose of the Government or any Department thereof'.²

Building the range involved considerable work in excavating, trenching and levelling tons of earth. The work began in earnest on 21 September 1899. The local contractors were Messrs Bakers and Jesty of Portland. At one time as many as 112 men were employed, working under the direction of Captain Skey of the Royal Engineer Department at Weymouth. When completed, the range measured from 150 to 200 yards wide and 1,000 yards long. It contained 20 butts and employed the most modern techniques, similar to those in use at the national range at Bisley. A former lance corporal in the Dorset Regiment, Mr Woodrow of Bryantspuddle brickyards, was appointed as caretaker of the range.³

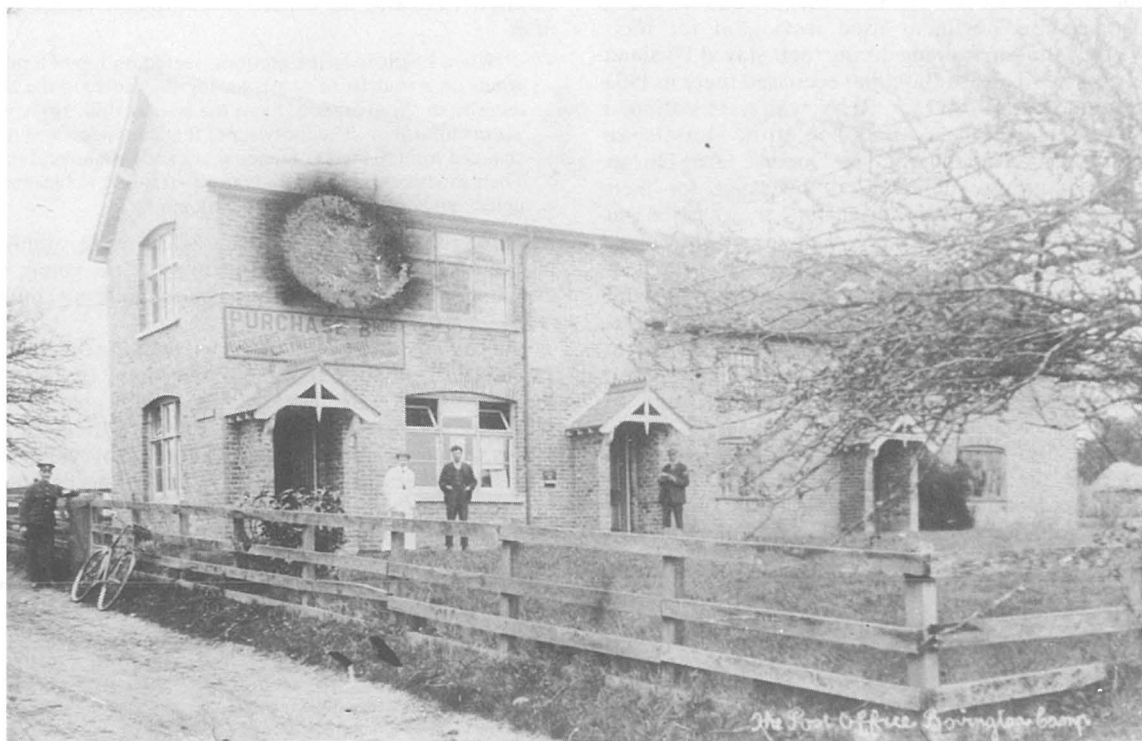
The camp itself, simply a collection of tents, was sited one mile to the south of the butts. The only permanent building on the heath at this time was the estate keeper's cottage.⁴ Close to this cottage, the Army proceeded to build a low, brick bungalow for the use of the range warden. The cottage

² The conveyance: W. O. Land Agent's File, 'Dorchester 11/129'. Letter 21/3/69 from MoD (Lands 2f) quoting this file which has been destroyed. DRO photocopy 760.

³ *Dorset County Chronicle* 14 June 1900, p. 6.

⁴ This was the cottage which Thomas Hardy explained in a letter to Professor Windle on 7 November 1901 was the one he used as the setting for Clym and Eustacia's home in *The Return of the Native* (1878). Hardy complained in the same letter that the army were changing the area: 'I noticed government poles & War-office stones, fixed thereabout for a permanent camp (*The Collected Letters of Thomas Hardy*: Volume 2, 1893-1901 (1980) ed. Richard Little Purdy and Michael Millgate, p. 302).

¹ Dorset Record Office, D29/E24.



The original estate keeper's cottage which, enlarged, became the camp Post Office and shop. Photograph courtesy F. Smith, Bovington village.

itself was then let to the local provision merchants, Purchase Brothers, for use as a shop for the sale of refreshments, groceries and other useful commodities.⁵ Later, two extra rooms were added to the cottage and used as a post office and a canteen. Originally the cottage was let for three years at £40 per annum. However, the lease was obviously extended because in 1907 Purchase Brothers were listed in Kelly's *Directory* as 'Officers' Mess caterers, general providers and tent kit suppliers'.

To ensure that civilians did not stray into the danger areas, sentries were posted at Gallows Hill, Clouds Hill and other entrances to the camp area when firing was taking place.⁶ There seems, however, to have been little contact between the military and the local civilian population. This is not surprising considering that the population of Wool, the nearest village to the camp, was less than 500. The only reference to the camp in the Wool Parish Council Minutes of that time concerns the illegal dumping of rubbish on the camp area by Mr R. Short, the village rubbish collector.⁷

The first troops to use the camp were 1,114 men of the 1st Battalion of the Royal Southern Reserves who arrived for six weeks' military training and musketry practice on 4 June 1900. On that same day the first firing was carried out on the range by men of 'B' (Wareham) Company, 1st Volunteer Battalion, Dorset Regiment.⁸ Later in that year, in September, the annual meeting of the Dorset Volunteer Rifle Association was held on the new range. In previous years it had been held at Maiden Castle but henceforth it was to be held at Bovington. Between 350 and 450 marksmen took part in the event. They included members of the 4th Battalion Dorsetshire Regiment, the Queen's Own Dorset Imperial Yeomanry and the Officers' Training Corps of Sherborne and Dorchester schools. Whichever regular battalion was encamped at Bovington that summer supplied the necessary register keepers and markers whilst the range warden and his staff provided the 60 required targets. Meanwhile the Sergeants' Mess provided thirsty competitors with unlimited refreshments.⁹

There is no official record of which regiments used the camp each summer but the local newspapers always commented on the presence there of local regiments. From their reports it is known, for instance, that the 2nd Battalion of the Dorsetshire Regiment used Bovington for their musketry and battalion training during their stay at Portland from 1901 to 1903. The 3rd Battalion exercised there in 1904 in co-operation with 'H' Battery, RHA, who were stationed at Dorchester. In 1907 the 1st Battalion of the Dorsetshire Regiment trained at Bovington. The Queen's Own Dorset Imperial Yeomanry frequently used the range for their annual musketry competitions and in 1904 they carried out their annual 16 days' training there. They found, however, that Bovington was not really suitable for cavalry exercises, recording that 'Wool was found to be a bad training ground, owing to the numerous bogs.'¹⁰ The last troops to use Bovington Camp before the outbreak of the First World War were undoubtedly the men of the 2nd Battalion Royal Welsh Fusiliers who were quartered at Portland until 13 August 1914.¹¹

By that time the area of the camp had been extended twice. In 1907 the War Office purchased 290 acres of Chamberlayne's Heath from Colonel Mansel-Pleydell. In 1910 they bought a further 15 acres.¹² Before long the camp

was extended southwards in order that a military hospital could be built on land which was requisitioned from the Moreton Estates.

At the outbreak of war in 1914 Bovington was immediately converted into an initial training camp for infantrymen. On 6 September 12,000 recruits from the north of England, forming the 17th Division, were posted to Dorset. Of the three brigades making up this division, two, the 51st and 52nd Brigades, were posted to Bovington whilst the third, the 50th Brigade, was posted to Worgret, one mile to the west of Wareham. On 13 September 4,000 more recruits, mainly from Manchester and Stockport, arrived at Bovington, bringing the number of soldiers in the camp to 11,000. One military historian considered that the men of the 17th Division were fortunate to have been posted to Dorset. He explained that, 'In a happy moment the War Office turned an eye on Dorset and sent 12,000 men to invade the windy, sunlit spaces round Bovington and Wareham. It might be a distant journey but here was ideal ground for training; wide hills, great heaths and tracts of pinewoods'.¹³

The new arrivals, however, were not at all fortunate. When they arrived at Bovington they found that no preparations had been made to receive them. One regiment, the 10th Lancashire Fusiliers, spent their first night in Dorset on the verge of the road, no tents or rations having arrived.¹⁴ Another regiment, the 9th Northumberland Fusiliers, found that 'little preparation had been made, and the sky was the extra blanket for the night'.¹⁵ Two weeks later the situation was still so bad that the *Dorset County Chronicle* carried the headline, 'Kitchener's Army Stranded With No Food Or Covering'.¹⁶

Conditions slowly improved. The first tents arrived on 9 September, but only enough for half of the troops. The first uniforms were issued on 20 September, but they had been worn previously and were threadbare. The first consignment of rifles arrived on 1 October, but they had been issued initially in 1890 and were suitable for drill purposes only.

To make matters worse, the weather was atrocious. There was insufficient drainage on the camp. Men and their belongings got soaked. One visitor to the Northumberland Fusiliers described his experience to the *Newcastle Evening Mail*.

'When I arrived at the grounds, seated on top of a pile of goods on a tradesman's cart, having thus covered the three miles from Wool Station, I saw the boys at drill. None were yet in uniform . . . The footwear of the Quaysiders was much changed from the days of fancy shoes and ornamental socks. Their shoes now are - well - entirely strangers to blacking or polish, and are mostly covered with mud.'¹⁷

Many recruits reported sick. Many were admitted to hospital with pneumonia or pleurisy. One young soldier even died of pneumonia and was buried in Wool churchyard on 26 October.¹⁸

The recruits spent eight hours a day doing drill, musketry and physical training. In the evenings many of them retired to the YMCA tent where they were able to obtain refreshments, write letters and play a variety of indoor games. Almost nightly there was a concert provided by local artists or by the camp's own brass band. This band was the first to be formed in Kitchener's Army. It was raised as a result of the efforts of the Reverend P. A. Butler, the vicar

⁵ Moreton Estate Diary, 1900.

⁶ Recollections of Captain V. A. Nobes, RTR.

⁷ DCRO PC/Wool, Wool Parish Council Minutes, 8 June 1910.

⁸ *Dorset County Chronicle*, 14 June 1900, p. 7.

⁹ *Dorset County Chronicle*, 18 June 1914, p. 13.

¹⁰ M. F. Gage: *Records of the Dorset Imperial Yeomanry (1894-1905)*, 1 (Sherborne, 1906), p. 54.

¹¹ *Dorset County Chronicle*, 23 July 1914, p. 13.

¹² Southern Command Files 8/79 and 8/1181 or Loose Minute, d. 21/3/69, to MoD (Lands 2f) letter, 15/3/69.

¹³ *The History of the Dorsetshire Regiment (1914-1919)* (Dorchester, 1932), p. 102.

¹⁴ J. C. Latter: *The History of the Lancashire Fusiliers*, 1949, Vol. 1, p. 92.

¹⁵ *The Historical Records of the 9th Battalion Northumberland Fusiliers* (Newcastle, 1928), p. 2.

¹⁶ *Dorset County Chronicle*, 17 Sept 1914, p. 10.

¹⁷ *The Historical Records of the 9th Battalion Northumberland Fusiliers*, App. 1.

¹⁸ *Dorset County Chronicle*, 29 Oct 1914, p. 7.

of East Stoke, who had acted as chaplain to the camp for many years. Finding that among his new flock of north countrymen there were a number of brass band enthusiasts who had been unable to bring their instruments into the army with them, he himself bought a set of instruments for £40 and then appealed through the columns of the local newspapers for subscriptions to pay for them. This band, consisting of 21 skilled musicians, played not only in the YMCA but also at church services at East Stoke, on route marches and at the camp's church parades.¹⁹

Church parades were held every week. Whilst there were facilities for all denominations to hold their own services on the camp, the Roman Catholics organised an historic service on the 20 September when 1,170 servicemen from Bovington and Worgret celebrated Mass in the ruins of the old church at Bindon Abbey. This was the greatest number of worshippers to have gathered together at the abbey since the Reformation.²⁰

The weather remained wet and mud became a very serious problem. One fusilier wrote home, 'It is pouring in torrents, parade ground is in floods – our tent is not particularly comfortable, 15 men, 15 kitbags, 30 blankets, 15 great coats – men coming in and out in large wet boots . . .'²¹ The military authorities decided to act. They promised that by the end of October all the troops in Dorset who were under canvas would be accommodated in wooden huts. Unfortunately for the men of the 52nd Brigade which was by then the only brigade at Bovington, the 51st having moved to Lulworth, the authorities seriously underestimated the strain such a project would impose on the local labour force and timber resources. 400 carpenters and ancillary tradesmen were employed in the Wareham area and they managed to construct the necessary huts at

Worgret camp before the end of the year but the programme at Bovington fell well behind schedule. Consequently the authorities decided to move the men of the 52nd Brigade into civilian billets for the winter whilst the building programme was being completed.

At the beginning of December the troops marched from Bovington to their civilian billets in places as far away as Wimborne and Ferndown. It was not until the end of March that they marched back to the newly-constructed wooden huts. The emergence of a hatted camp marked a significant point in the history of Bovington. Previously it had been a vaguely defined military area; henceforth it could be pinpointed as a definite place on a map.

The layout of the huts comprised a long rectangle stretching east-west across the southern edge of the originally purchased area of land. The huts were laid out in 'lines', each set of 'lines' being designated to a battalion, each battalion consisting of 1,100 men. The 'lines' were lettered 'A' to 'H' from the west, with the Wool to Clouds Hill road running northwards through the camp between 'C' and 'D' lines. Each hut was designed to accommodate 30 men. In addition to the sleeping accommodation there were also huts for a variety of normal military purposes such as guardrooms and canteens. There were also huts for recreational purposes, including a large YMCA hut and a Church of England Institute.

Back at Bovington the men of the 52nd Brigade could at last begin their war training in earnest. This included a number of 'Field Days' which brought them into contact again with the other two brigades of the division. These do not appear to have been particularly arduous to judge from one account which records that, 'It was by Seven Barrows that twenty-four hours were spent in trenches . . . It was safe to sleep in the open and easy to raid across No Man's Land for material, for there was no enemy or wire.'²² At the beginning of May 1915 the troops were, at long last,

¹⁹ *Dorset County Chronicle*, 8 Oct 1914, p. 13 and 25 Nov 1914, p. 16.

²⁰ *Dorset County Chronicle*, 1 Oct 1914, p. 10.

²¹ *The Historical Records of the 9th Battalion Northumberland Fusiliers*, p. 4.

²² *The History of the Dorsetshire Regiment (1914-1919)*, p. 105.



Among the first soldiers to arrive at Bovington in September 1914 were the men of the 10th Battalion The Sherwood Foresters. At the end of the month there were still some men without uniforms. Photograph courtesy the Curator, Tank Museum.

equipped with modern service rifles. At the end of that month they completed their training at Bovington and moved off to various centres prior to sailing for France – in July.

On 28 May the 7th Battalion of the Dorsetshire Regiment moved into Bovington. This battalion had been formed the previous November with the task of finding recruits locally and training them as reserves for those battalions of the Regiment which were fighting overseas, particularly the 5th and 6th Battalions. At Bovington the recruits' course lasted 13 weeks. Training was rigorous and included route marching and night operations. The route marches must have seemed comparatively easy to some of the recruits from Dorchester. On Sundays they used to walk home for lunch after church parade, returning to camp in the evening – a round journey of some 20 miles.²³

The 7th Battalion carried out recruits' training until the 25 August when it was disbanded. Its place at Bovington was taken by the newly-formed 2nd (Home Service) Garrison Battalion of the Dorsetshire Regiment. This battalion's stay, however, was very short; on the 18 September it moved to the Verne Citadel, Portland.

Meanwhile the Australian Army had begun to use Bovington as a 'Command Depot'. In this unit men who had spent some time in hospital after being wounded were toughened up before being sent back to France.²⁴ Following the Battle of the Somme the number of wounded Australians arriving in Dorset increased so considerably that the camp at Worgret had to be used as an overflow. By October Worgret had completely taken over as the 'Command

Depot' because by then new plans were being made for Bovington.

Following the successful introduction of the tank to the battlefields of France during the summer of 1916, the War Office had decided to increase the size of the existing tank establishment and move it from its existing small base at Elvedon in Norfolk to the much larger camp at Bovington. Consequently, on 20 October 1916, Bovington ceased to be an infantry camp and became 'The Tank Training Centre'.

On arrival in Dorset the tank personnel found that Bovington was 'a simple wooden hutted camp with no frills'.²⁵ It still had its drainage problems; one technical instructor found, for instance, that his classroom was 'a canvas hut, carefully sited in the bed of a stream'.²⁶ The camp was still isolated; indeed one of the properties of the area that made it suitable for tank training was that 'the rolling downs, the woods and the small streets are very similar to and as equally deserted as the battlefields of France'.²⁷ Finally, the countryside in the immediate vicinity of the camp was still, to use the words of a contemporary 19-year-old soldier, 'a glorious, unspoiled stretch of Dorset heathland, carpeted in summer with purple heather'.²⁸ No soil erosion, no scarred landscape. That, of course, was Bovington before the tanks arrived.²⁹

²⁵ G. H. Brooks: 'Bovington Camp, Winter 1916-17', *The RTR 50th Anniversary Souvenir Book* (1967), p. 30.

²⁶ W. A. Stack: 'The Travails of a Tank Engineer, 1916-18', *The RTR Anniversary Souvenir Book* (1967), p. 61.

²⁷ 'The History of "E" Battalion', *Tank Corps Journal Vol. 2 No. 14* (June 1920), p. 48.

²⁸ A. B. Churchill, *ibid.*, p. 55.

²⁹ A copy of the complete thesis – *From Rifle Range to Garrison – An Essay on Bovington Camp 1889-1925* is in the library of the Dorset County Museum.

²³ A. B. Churchill: 'Where are the Bhoys of the Village Tonight?', *Dorset Year Book* (1960-61), p. 66.

²⁴ C. E. W. Bean, *The Official History of Australia in the war of 1914-1918*, Sydney 1921, Vol. 3.

The Medieval Family of Forsey

An Essay in Local History, Genealogy and Heraldry

JOHN CAMPBELL-KEASE

HISTORY AND GENEALOGY

The family of Forsey originated in that name in 13th century Dorset, and to this day there are branches of it in the county, particularly in the villages of the Marshwood Vale where it first arose. There are also cadet lines in many other English counties, as well as Newfoundland, mainland Canada, the USA and the Antipodes. The family appears in the records for the first time in the year 1305, and its name has been spelt in a wide variety of ways over the centuries, but the 'modern' form occurs on at least two occasions in the 15th century, the first being in 1411/12.

So far as tracing both the etymological basis of the name and its quite precise place of origin are concerned, the key member of the family is Andrew, a burgess of Bridport who flourished in several offices between the years 1392 and 1414. During this period his patronymic was spelt Forsey,¹ Forshey, Forsshey, Forshay, Forteshegh, Forstereshey and Forsteresheigh. The last three are most especially valuable in the investigation of the family's earliest history for they aid the recognition of a number of anterior forms: de Fortereshaye (1332), de Forstershegh (1327), de Forsteresheye (1310) and de Forstereshegh (1305).

The French preposition *de* (of, from) in these instances is an important pointer to an English place name, and hence to the identification of an estate in the Marshwood Vale the name of which was written as *Forestarehege*² in 1240 and as *Forstershey*³ in 1325. Records described below show the Forseys held this property from a date earlier than 1305 to another later than 1398. In medieval times the Marshwood Vale comprised large tracts of boggy ground, was late in being settled, and it was not until the 12th and 13th centuries that place names began to appear in any quantities in the records. By the middle of the 13th century it comprised a number of scattered farms, mills and agricultural holdings, one of which was called *Forestarehege*.

The distinct linguistic components in this word, and they are most pronounced in the record of 1240, as they are in the family name in 1310, are *forestarias* and *hey*. The first, Latin *portion*, 'forester',⁴ was employed as a place name element and also (separately and in combination) as a family name in Dorset during the relevant period. The second, Middle English, *hey* (similar to the Old English *haeg*) is interpretable as 'enclosure' or even 'a fenced-in piece of ground'.⁵ The word *Forestarehege* may, therefore, be quite reasonably rendered as 'the forester's holding'. However, the precise location of the estate is unknown.⁶

The Forsey family which took its name from this place is mentioned first in 1305. On May 3 of that year (33 Edw I) an inquest⁷ was held in Dorchester at which the king's escheator this side Trent (Walter de Gloucestre) took evidence as to whether it would be to the damage or prejudice of the king if he permitted John de Maudevill to enfeof Robert le Fitz Payn and Isabella his wife with the manor of Merchswode (Marshwood) which John held of

'the king in chief by barony'.⁸ The second witness called to swear that day was Laurence de Forstereshegh. In 1310 Laurence (de Forstersheye) is again mentioned,⁹ this time as being in formal disputation with John Basset of Bradeford over the tenancy of one messuage and one carucate of land in Heremereshaye (*sic*) (Harmshay in Marshwood), and La Rode (unidentified).¹⁰ In 1311 the two men were seemingly again at odds, and in this record Laurence's name appears to be spelt 'de Fabereshaye'¹¹ (a form which can safely be ignored). A few years later, in 1318/19, Laurence (de Forstershegh) and William his son are named in a fine concerning property transfer.¹² At York in the octaves of St Michael (September) of that year William and Katerina his wife agreed to rent, for the annual payment of a rose on the feast of the Nativity of St John the Baptist, (24 June), certain land and buildings from Laurence and his spouse Isabella. This holding was also in Harmshay and La Rode. If the younger couple died 'without heirs of their bodies' the tenancy reverted to 'Laurence and the heirs of Laurence quit of the other heirs of William and Katerina. To hold of the chief lords [unidentified] of that fee by the services [unspecified] which belong to those tenements for ever'. It is interesting to note that a few months later¹³ (in the Hilary and Trinity terms of 12 Edw II) William had recourse to law for license to concord with his parents on a plea of covenant for the property, which was defined as one messuage, 18 acres of meadow and 10 acres of wood. In the same regnal year,¹⁴ Laurence de Forstereshegh and his wife leased to Stephen de Northwode 'vicar of the church of Wytthechurche (Whitechurch) a messuage, land, and one penny rent' in Forstereshegh itself. After their deaths title to the holding reverted to their son William. The fine recording of the transaction again makes reference to the services due to the overlords but no clue is contained in this or any other document so far found as to whether the Forseys were fee foresters, verderers, or such and their tenancy went with that office, or whether they were totally unconnected with arboreal duties. Nor is there certainty that the Laurence and William de Forstershegh named in a tax return for 1327 for Mershwode are the individuals mentioned above, but it seems reasonable to suppose that they were.¹⁵ The same applies to the William de Fortereshaye who figures in a roll of 1332¹⁶ and quite possibly to the man named as Laurencio [le] *Forester* in the same return for the same *decenna*. From these rolls a little can be learnt of the family's prosperity relative to its neighbours and, from one of them, some slight

⁸ *Ibid.*

⁹ De Banco roll, Hilary term, 3 Edw II, Dorset no. 180, m 101.

¹⁰ *Ibid.*

¹¹ De Banco roll, Hilary term, 4 Edw II, Dorset no. 184, m 262. In the transcription available, Laurence's name is written as Farbereshaye, but it may be supposed that at some stage a copyist has read *o* as *a* and *t* as *b*, from a difficult original of Fortereshaye.

¹² Fry, A. E., and G. H., 1896, *Abstracts of the Feet of Fines Relating to Dorset*, pp. 300-301.

¹³ De Banco roll, Hilary term, 12 Edw II, Dorset no. 226, m 134d and De Banco roll, Trinity term, 12 Edw II, Dorset no. 330, m 43.

¹⁴ Fry, A. E., and G. H., 1896, *Abstracts of the Feet of Fines Relating to Dorset*, p. 301.

¹⁵ Rumble, A. R., 1980, *The Dorset Lay Subsidy Roll of 1327*, p. 129.

¹⁶ Mills, A. D., 1971, *The Dorset Lay Subsidy Roll of 1332*, p. 53 (see also Willard, J. F., 1929, *Parliamentary Taxes on Personal Property*).

¹ The sources of the variant spellings are given at the points in the text at which they arise.

² Fägersten, A., 1933, *The Place Names of Dorset*, p. 288.

³ *Ibid.*

⁴ Latham, R. E., 1965, *Revised Medieval Latin Word List*, p. 197.

⁵ Smith, A. H., 1970, *English Place Name Elements*, Vol. I, pp. 214-6.

⁶ Fägersten, A., 1933, *The Place Names of Dorset*, p. 288.

⁷ Fry, A. E., 1916, *Inquisitions* No. 421 (*vide* C. D. Drew's medieval card index *Marshwood*, DCM).

information about William. The taxes to which the written statements refer were of the kind levied in the Middle Ages which have come to be known as 'lay subsidies'. The imposition in both years cited was on the basis of the value of the 'moveable' goods of members of the laity, as assessed by the collectors, these being defined in rural areas as consisting of such things as horses, cattle, sheep, pigs, grain, hay, honey, and agricultural produce. Goods excepted in the case of the nobility and the 'gentry' were armour, riding horses, jewels, clothing and vessels in gold, silver and brass, and in the case of the common people their household goods, tools of trade and the contents of their larders.

In 1327 the rate of tax was one-twentieth of the value of the moveables concerned and, in 1332 (in rural areas) one-fifteenth. Men of substance were appointed in each county as chief taxers – in Dorset in both years they were Sir John Peverel and Richard le Guldene – who were responsible for selecting from the 'best men' in each division the necessary number of sub-taxers. In 1332 one of these officers was William de Fortereshey who, with a colleague was responsible for the Whitchurch Canonorum hundred and an amount gathered of £21 7s. 6d. out of a county total of £771 1s. 11³/₄d.¹⁷ The details of these subsidies show that the Forsey family was moderately well-off. Members were not in the class of Robert FitzPayn (*Roberto filio Pagani*), who contributed 10s., but by paying a total of 3s. in 1327 they were, nevertheless well into the top 25 per cent of those prosperous enough to pay tax. Much the same situation prevailed five years later if it is allowed that Laurencio Forrester of Marshwood was Laurence de Forstereshegh.

The next record of the family name occurs after a break of 68 years, a not inconsiderable gap but, given the circumstances, not of over-great significance.

In the Bridport archives, now in the custody of the Dorset Record Office, are two ancient volumes called Dome (or Doom) books¹⁸ containing financial accounts of the bailiffs and cofferers of the town from the thirteenth year of the reign of Richard II (1389/90). Also included in the books are sundry other records such as those for the election of various officers, and for the year 1400/01 one of the two bailiffs chosen was Andrew Forteshegh.¹⁹

Andrew (Forshey) was appointed again in 1405/6, in 1408/9 (Forshay), and in 1413/14 (Forshey).²⁰ In the next year, the second in the reign of King Henry V, Andrew (Forshey) was elected to represent the borough in parliament at Westminster.²¹ This man, who could have been William's grandson (allowing a conventional 35 years for each generation of descent down the male line), was by this time a person of considerable standing, for it was laid down by an indenture of 1333 that the right of choice of Members of Parliament to sit for Bridport was with the male inhabitants at large. The bailiffs of the town chose their delegates with the consent of the whole community – *per ballivos, per assensum communitatis* are the actual words used in the document.²²

Andrew Forsey also had a positive involvement in the family estate, his name being mentioned in connection with it on three separate occasions: 1392/3, 1398/99 and 1410/11. In the first case he and a family member Robert (Forstereshey) were concerned in a transaction involving two messuages, one carucate and 40 acres of land, 24 acres of meadow, 10 acres of wood (say 194 acres in all), plus one

penny rent in Fortereshey, Hermenneshey and La Rode.²³

At the time the holder of the land and premises was Robert (about whom nothing is known apart from this one entry in the rolls), and he transferred title to Andrew for 100 marks of silver (£68). It would seem that this arrangement was designed to create a new line of descent for the holding. Without going into long and tedious detail about the legal devices of the period, it would appear that the two men agreed that the estate which at that point had belonged to Robert and his heirs, should henceforth 'remain wholly to Andrew and his heirs'. Such bargains between kinsfolk were not unusual, sometimes agreement was reached between a father and a younger son, sometimes between brothers or cousins, the purpose being to give the 'purchaser' an inheritance he might not otherwise have received although, on occasion, there were other reasons. There is no information regarding the relationship between Robert and Andrew – perhaps they were brothers, cousins, or father and son – and no useful suggestions can be made.

What is known is that in 1392 the estate was held for term of life by Richard de la Lynde and his wife Christina, and that in 1398/99 Andrew (Forsteresheigh) purchased the reversion (to himself and his heirs) from Richard and Christina for £20.²⁴

The third time Andrew's name is mentioned with regard to estate matters is in 1411/12 when he (as Andrew Forsey) and Florence his wife are noted as holding 30 acres of land and 2 acres of meadow for life in Symondesburgh²⁵ (Symondsbury – contiguous with both Marshwood and Bridport).

Mention may now be made of John Forsey who, given the dates at which his name occurs, could have been Andrew's son. There was, in Bridport, a chapel of St Andrew. It was of ancient foundation and from the time of King Edward I (1272-1307) a number of fraternities and guilds had been established in it. One of these was the Lights of the Holy Cross. This fraternity was founded in the 22nd year of the reign of King Richard II 'on Sunday next after the feast of the Epiphany of our Lord in the year of our Lord one thousand three hundred and ninety-nine' with the object of 'the sustenation of the lights in the before-named church in honour of our Lord Jesus Christ, and of his Blessed mother Mary and all the saints'. A number of parchment books²⁶ relating to this worthy organisation have survived, and for the year 1436/37 one of them has an entry recording that there were elected 'new *custodes* for the ensuing year, *viz* Edward Vyncent [and others] by pledge of Edward Tracy and John Forsey' – this being the second known record of the 'modern' spelling of the family name.

Around 1444²⁷ the haven of Bridport was found to be in need of 'reparation and sustinence', and the document recording the work done notes that John (Forshey) was a

²³ It is difficult to put a value on the family estate, but in 1305 during the enquiry conducted by the king's escheator (ref. 7 above), arable land was declared at 4d. an acre, and meadowland at 18d. an acre. There may be thought to be a great disparity between these sums but they almost certainly reflect the true situation in which meadowland was worth much more than arable. (See Postan, M. M., 1972, *The Medieval Economy and Society*, pp. 66-67, for similar instances and commentary). Thus, on that basis, at that time Fortereshey (together with the holding in Harmshay and La Rode) was worth 53s. 4d. for the arable land, 36s. for the meadow, plus, say, half a mark (6s. 8d.) for the wood, giving a total of 96s. 2d., to which must be added any rents appropriate to the 'messuages'. It is known that in 1392 title changed hands for £68, which seems to be the right order of magnitude for such a holding.

²⁴ Fry, A. E. and G. H., 1910, *Abstract of the Feet of Fines Relating to Dorset*, p. 215 and p. 232.

²⁵ *Ibid.*, p. 243.

²⁶ Dorset Record Office, Bridport Archive, *Dome Book*.

²⁷ *Ibid.*, ref. B3/M1.

¹⁷ *Ibid* pxii and p. 53.

¹⁸ Dorset Record Office, Bridport Archive, ref. B3/M1.

¹⁹ *Ibid.*

²⁰ Hutchins, J., 1983 (3rd Edn), *History and Antiquities of the County of Dorset*, Vol. II, p. 9.

²¹ Hansard, publishers, 1806, *Parliamentary History of England from the Earliest Period to the Year 1803*.

²² As 20.

'collector of alms for the same work within the town'. The records also show that during this same period John was one of the masters and overseers (*magistri et supervisores*) of the rebuilding work undertaken. John had, in fact, been mentioned some 14 years before this time, in 1431,²⁷ as having bound to him and his wife Emma an apprentice, one 'John Pelet, late of Paris in France', the young man being articulated for a period of five years. In 1451 John (Forshay) was promoted to the office of bailiff of Bridport²⁸ thus following in the footsteps of Andrew. He died in 1458/9 and the record kept by the brothers and sisters²⁹ of the Lights of the Holy Cross note that the 'wardens received of John Sterre iiijd, and of John Dunne iiijd, for the missal money, to wit, for the souls of [three men] and John Forsy'. John had made his will the previous year, and it read as follows:³⁰

'In the name of God, Amen. 22 December 1457. I John Forsay of Bridport being of sound memory make my will in this manner. First I bequeath my soul to Almighty God and my body to be buried in a grave in the cemetery of St Mary of Bridport. Item, I bequeath to the building of the Cathedral church of Salisbury 12d. Item, I bequeath to the parish church of Bridport a wine bottle and an altar cloth. Item, I bequeath to the Rector of Bridport 2d. Item, I give and bequeath to Ema my wife all my burgage with its appurtenances situated in West Street in the town of Bridport on the south side of the street between the tenement formerly William Marchall's on the east and the tenement formerly William Bowley's on the west. To have and to hold the said Burgage with its appurtenances to the said Ema and her heirs [and assigns] forever. To hold [of the King] for a rent and services as is the custom, under such conditions that it shall return and pay an annual rent of 6s. 8d. of legal English money for the support and charge of one [trental] for the souls of John Mankyswill, Joan and Emote his wives, maintaining and administering it annually in the parish church of Bridport on the feast of St Agatha virgin and martyr during the term of 22 years next following and completed. Item, I give and bequeath to the said Ema my wife one piece of land or moiety of a burgage lying next to St Michael's Lane in the town of Bridport on the east side of the said lane with the land of the chantry of St Michael, Munden's Chantry on the west side and the land or garden of William Fontell and the land or garden of Munden's Chantry of St Michael on the north side, also the land formerly of Robert Stalbrygg on the south side, which piece of land or moiety of a burgage I hold in the gift and feoffment of Isabelle Hayward. To have and to hold the said piece of land or moiety to the said Ema my wife, her heirs and assigns for ever. To hold of the King for a rent and services as is the custom. Item, I give and bequeath to Robert Scarlett and John Bytesgate of Bridport all that burgage and moiety of a burgage with all their appurtenances which likewise are situated in East Street in the town of Bridport on the south side of the same street between the land of the Chantry of St John the Baptist on the east and the tenement of William Tracy on the west. To have and to hold the said burgage and moiety of a burgage to Robert Scarlett and John Bytesgate, their heirs and assigns for ever, to hold of the King for a rent and services as is the custom. Item, I give and bequeath to Robert Scarlett 6s. 8d. Item, I bequeath to John Bytesgate 6s. 8d. The residue of my goods not bequeathed above I give and bequeath to Ema my wife for her to dispose of in the best way and for the good of my soul. Finally I ordain, make and constitute Ema my wife, Robert Scarlett and John Bytesgate my executors. Dated the month, day and year aforesaid.'

The document ended:

'The above will was proved [?] in the office of the Archdeacon of Dorset by his provincial deputy by his commission. The administration of all the goods of the said will was granted to

Ema the executrix [?] to be administered in a form allowed by the law and the power of administration was granted to Robert Scarlett and John Bytesgate the executors named by the above in the same form of law. Dated as Childfrome (Chilfrome) 4 February the year abovesaid. Afterwards they prepared [?] and it was dismissed saving the law.'

Six of the people mentioned by John Forsey have been identified Marchall, Stalbrygg, Scarlet and Bytesgate were bailiffs in Bridport, this last being, also, one of the *custodes* of the Lights of the Holy Cross. William Bowley represented Bridport in the Westminster parliament of 1427/8, and two of Tracy's relatives were bailiffs in the town.

John Forsey was, then, a fairly prosperous man but, since there is no mention of the family's land in Forstershey, Harmshay or La Rode in his will, he may have been of a collateral line from Andrew or, if in direct line of descent not the heir. The comparative smallness of his own possessions appears to preclude any suggestion that he sold the tenancy and reinvested the income. At this point the records of the medieval family run out. There appear to be no further mention of them in contemporary documents until early Tudor times. At those later dates there were branches still resident in the Marshwood Vale and other locations in Dorset. The spread of the family from its place of origin had begun.

HERALDRY

In the light of all the events so far outlined, it seemed reasonable to suppose the early Forsey family would have been armigerous. One member had represented his borough in parliament, two had been bailiffs in that town, another had been called to give evidence about an important manor, one had been in charge of gathering funds towards a royal subsidy, and the family held a substantial estate (from which it took its name) for several generations and upwards of a hundred years.

Searches were made in the Department of Manuscripts of the British Library and in the collections of the College of Arms. Two important references were found. The first was in an original holographic collection of arms made in 1584 by Robert Glover³¹ (*Somerset Herald*, 1570-1588). This showed a shield carrying the charges of three bearded heads, in profile, wreathed with torsos, and capable of being blazed *argent three bearded mens heads sable with wreaths or and azure*, that is to say a shield of silver with three bearded heads (painted black) with torsos knotted round the brows in gold and blue. The arms were recorded as those of *Andrew Forteryshey de Com Dorset*. The second reference was an entry in an armory dated 1599 compiled by William Smith³² (Rouge Dragon Pursuivant) showing arms almost exactly the same as those already described and conforming to the blazon *argent three bearded mens heads erased in profile sable wreathed or and azure*. Above the shield was written *Andrew Forterishey de com Dorc*.

There were a number of secondary sources. Harley MS 1429 is a copy of Glover's Ordinary made in 1628 by John Withie (Withy) herald painter to Edward (later Sir Edward) Bysshe, (Garter c. 1643-1660). Arms ascribed to *Forsterishey* (County) *Somer(set)*³³, appear on page 199 but with differences from Glover in that the heads are beardless and coupéd at the neck rather than erased. An anonymous volume from the 18th century³⁴ includes a description of the arms of a Dorset family named *Forstisha* or *Forterysheye* as *argent, three negroes heads coupéd proper wreaths and ribons in ye necks argent and azure*.

²⁸ As 20, but p. 23.

²⁹ As 26.

³⁰ It may be of interest to note that the will is confirmed by means of a small vesica-shaped seal bearing, as a border, the legend *Sigillum Officialitatis Dorsetie*, there being a fleuron between each word. The seal is charged with a double-headed eagle displayed, with in chief (between the heads) a crescent. It has not been possible to identify this device. It appears to have a 'Roman' connection and may thus hark back to the reign of John in the 12th century.

³¹ Cotton, MS Tiberius D.X., folio 81 verso (pencil foliation).

³² Smith, W., *Arma per Concordantes Rerum Formas & Distributa* (Autograph Collection, The College of Arms, London).

³³ Harley, MS 1495, p. 199, an Ordinary copied from 31 above in 1628 by John Withie a herald painter.

³⁴ In the private collections of the Officers of Arms.

Further references to the arms of Forsey appear in *Papworth*³⁵ and *Burke*³⁶ *argent three Moor's heads side-faced couped at the neck proper wreathed about the temples or and azure*³⁷ (Forterishey, county Somerset); *argent three Saracens heads sable with wreaths of the field* that is to say silver wreaths, (Fortryshey, Co. Dorset);³⁸ and *argent three Saracens heads couped at the shoulders sable* (Foderingshey, co. Dorset).³⁹

If it is allowed that these various descriptions of arms apply to one family (and there are adequate linguistic grounds for doing so) there are, nevertheless several minor problems:

1. Does the presence or absence of beards on the heads shown on the shields represent true differences adopted by collateral lines of the family?

2. By omitting beards from the heads when copying Glover did Withie mislead later compilers of ordinaries causing them to use the terms *negroes'* and *moors'* heads when describing the charges, rather than the more usual *saracens'*, thus assigning incorrect arms to Forsey?

3. By showing the heads *couped* at the necks rather than *erased* as in Glover, did Withie cause further problems by thus initiating confusion between Forsey arms and those of other families, for example those confirmed in the 17th century to Canning?

4. How much notice should be taken of the variations – differences in tinctures of the wreaths or torsos, tinctures of the

³⁵ *Papworth's Ordinary of British Armorial* 1985 Edn.

³⁶ *Burke's General Armory* 1984.

³⁷ As 35, p. 935.

³⁸ As 36, p. 369.

³⁹ *Ibid*, p. 364.



The arms of Andrew Forterishey de com. Dorc. From *Arma per Concordantes Rervm Formas &c. Distribvta. The Book of Sutes or Ordinaries Collected and finished in Ano 1599* (by Wm Smith Rouge Dragon).

heads (*sable* and *proper*), in one case the inclusion of the shoulders, and in another *ribons in ye necks*. Do these represent genuine differences or are they mere licence by successive generations of artists? The official registers of the College of Arms yield no clues.

Too much must not be made of these points, of course, they may merely represent careless copying. In any case, even the earliest drawing, being made so long after his death, may not show the arms exactly as Andrew Forsey bore them.

To sum up: a man named Andrew Forterishey (who may well have been the Andrew Forshey⁴⁰ who was summoned to parliament at Westminster on 19 November 1414)⁴¹ was recorded as armigerous by several officers of arms. Other versions of the designs on the shield borne by this man may point to arms of collateral, or even direct, descendants, but so far no proof has been forthcoming.

Two further points remain. Bearded heads such as those depicted in *Glover* and *Smith* have, at different times, been described as *Saracens* (the most usual) but also as *Greenmen* and *Woodsmen*. Given that the etymological base of the name *Forsey* is, in fact, *forestarius* and *hey/(ge)haeg*, it is also possible that the heads represent those of *foresters* which were originally adopted by the family in canting reference to their name or, perhaps even more likely, their original duties as foresters or verderers.

On the other hand, the fact they are bearded and *black*, may even point to a connection between the family and the export of rope from Bridport to Spain where the Moors were in the 15th century.⁴² However the first of the alternatives has been accepted by the present Kings of Arms who, in 1987, granted arms to a living member of the Forsey family in the form of a silver shield carrying charges blazoned as *three Foresters' Heads Sable wreathed about the temples with a Torse knotted at the back the ends flying Or and Azure*,⁴³ and properly differenced from the ancestral bearings by the addition of a voided chevron carrying two briar roses slipped and leaved proper.

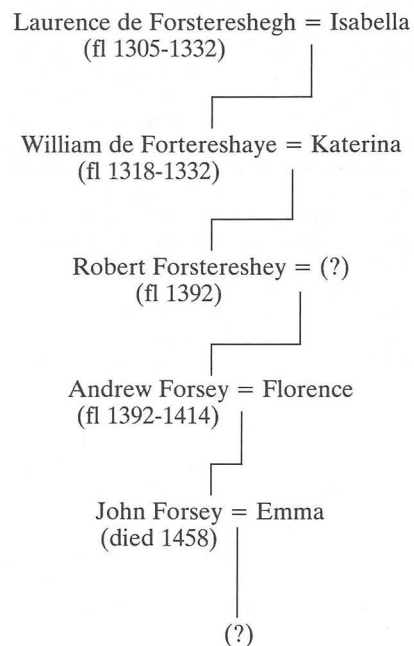
⁴⁰ As 20.

⁴¹ As 21.

⁴² The author is grateful to Mr G. D. Squibb, Norfolk Herald Extraordinary, for this suggestion.

⁴³ Letter from Norroy and Ulster King of Arms to the author, 3 February 1987.

THE FAMILY



Medieval Salt-working in Dorset¹

LAURENCE KEEN

Although it is now well established that salt production formed a significant element in the Iron Age and Romano-British industries of Purbeck and the shores of Poole Harbour (Farrar 1975; Sunter and Woodward 1987, 6-7, 67, 145), there has been no recent review of the evidence for salt-working in later periods, despite a preliminary assessment published in 1908 (Crick 1908, 327). This is no doubt because archaeological work has so far failed to locate medieval sites, in contrast to the large amount of archaeological material and identified sites for the earlier periods.

For this review it is necessary, first of all, to establish to what uses salt was put in the medieval period. In Ælfric's *Colloquy*, the well-known early 11th-century dialogue between schoolmaster and student, perhaps written at Cerne (Garmonsay 1947), the importance of salt is neatly summarised: 'salt-worker, what does your art profit us?'. The salter's answers refer to salt as flavouring food, and that butter and cheese would perish without the presence of salt. The salter stresses the importance of salt by using Anglo-Saxon words for butter and cheese in their unfinished state (*ibid.*, 35-6). One may presume that butter and cheese-making techniques change little. Bridbury records that on one of the bishop of Winchester's estates in 1305 one pound of salt was needed for the production of every 10 pounds of butter or cheese (Bridbury 1955, xv). If this comes as a surprise, it may be too easy to forget that without chemical preservatives and refrigeration salt had to be used extensively in the medieval period to preserve meat and fish. Large numbers of animals were slaughtered every autumn and salted. In the 16th century Thomas Tusser writes for the month of November 'Pur barlie to malting, lay flitches a salting' (Tusser 1984 (ed.), 47). All kinds of meat were salted for keeping. In 1205 the sheriff of Dorset and Somerset had to account for what he had spent in salting and curing the king's venison that September (Barnes 1895, 137). In August 1225 the king sent instructions to the constable of Corfe Castle to hunt for 40 bucks, which were to be salted (Hutchins, i, 467). In 1250-1 the sheriff accounted for salting eight bucks taken in Purbeck Forest, five of them to be sent to the king at Glastonbury, three to the queen at Marlborough. A further 21 bucks, taken in the forests at Mendip, Bere and in the warren at Corfe, were salted and taken to Westminster ready for the feast of St Edward (*ibid.*).

An inventory of stores in Corfe Castle, made in 1346, gives some idea of how much salted meat was needed for a large household: it includes half a carcase, two quarters and five carcasses of salt beef, 60 carcasses of salted mutton, of which 30 were rotten, and eight quarters of coarse salt ready for use (*ibid.*, 494). On the edge of Cranborne Chase, it is interesting to note that the physical evidence of salting has been found in Lodge Farm, Pamphill, an early 15th-century hunting lodge. Here the ground floor room beneath the first floor hall and solar has original plaster impregnated with salt, above the level of natural efflorescence.

Besides meat, fish was consumed in enormous quantities by medieval households, both great and small. The fish were mostly herring and more often than not were salted within 24 hours of being caught, as they soon lose their quality. Large quantities had to be cured ready for Lent. Curing was carried out by preliminary salting; the herring then was either packed in salt or smoked. Salted herring produced a white flesh, and smoked a red. Both sorts are found in mid-15th-century accounts of Munden's Chantry, Bridport (Wood-Legh 1956, *passim*). During Lent Lord Percy, then aged eleven, breakfasted daily on three white herring or a dish of sprats, besides a piece of salt fish, bread and butter, and beer (Bridbury 1955, xvii).

Without even the benefit of eggs, which were forbidden (Labarge 1965, 82) Lent must have been rather tiresome, particularly to a 15th-century schoolboy:

Thou wylt not beleve how wery I am off fyshe, and how moch I desir that flesh wer cum in ageyn, for I have ate non other but salt fysh this Lent, and it hath engendyrde so moch flewme within me that it stoppith my pyps that I can unneth speke nother brethe (Nelson 1956, para. 30, quoted Labarge 1965, 79).

It was to these household uses that salt was largely put. But it had other purposes too: 'for heaviness of mind, give to eat radish with salt and vinegar' (Cockayne 1866, 50-1); for toothache, 'take pepper and aloes and salt and seed of leek and honey, and mingle all together. Then take the salve and rub the teeth therewith, and the salve putteth to flight all the mischief from the teeth' (*ibid.*, 104-5). In the countryside salt was used as a charm against fiends and blastings; 'stryax, fennel and hallowed soap and salt and seed' were put into a hole in a plough (Cockayne 1864, 402-3).

It is for its inherent preservative qualities and its symbolic characteristics of eternity and immortality that salt was used for ecclesiastical purposes, in baptism (Daniel 1905, 408), in the eucharistic bread (Scudamore 1876, 859), and in holy water (Woods 1987, 68). This last use is illustrated in a grant of land in 1571-2 to Crewkerne, Somerset, for the maintenance of salt to put into the holy water for the church - . . . *salis ad conficiendum aquam sanctam pro ecclesia* (Pulman 1875, 290).

This ecclesiastical use gives rise to the first documentary evidence for salt-working, not only in England but also on the Continent. In Dorset King Cynewulf, in 774, granted to Æthelmod, bishop of Sherborne, a small parcel of land on the west bank of the river Lym for salt-working, to provide salt for flavouring food, for use in the divine services and other daily religious uses (Keen 1984, 215 for text and references). Glastonbury Abbey held land at Lyme too; the bounds of the grant to Æthelstan by King Æthelstan in 938 include the boundary point *Saltford* (*ibid.*, 229). From the 8th century, therefore, salt was being processed at Lyme.

King Æthelstan, in 934, granted several properties to Milton Abbey also. These included three hides at *Fromemouth*, two on an island and the other at Ower, and at Weymouth twelve acres, water-rights and a saltern by the weir (BCS 738, 739).

These grants are typical of a trend which had become common in the 8th century when Saxon kings granted land for salt-working to monastic houses and thegns (see for example BCS 137, 148, 158 and 247). Hocquet, in considering the role of monasteries in salt production, has noted that, besides royalty, the aristocracy or members of the middle classes granted salt-works which they had created to the monasteries which they had founded: salt production, however, was still carried out by the laity (Hocquet 1984, 58).

Besterman (1974) has examined the evidence for salt production in the western Netherlands during the Carolingian period and has shown that salt was probably obtained by *darinck bernen*, salt-peat burning; the same method was used in the later Middle Ages. Here too, the grants of land specifically for salt-working date back to the 8th century and the recipients are monastic communities: in 776 the abbey of Lorsch, and in 877 the monastery of Nijvel (*ibid.*, 172).

In Gaul too, at the mouth of the Loire, at Batz, in the Guérande peninsula, in the bay of Bourgneuf and on the Île de Noirmoutier, there are grants of land to monasteries for salt-working in the 9th and 10th centuries (Latouche 1967, 160; Hocquet 1984, 61-2). On the Mediterranean coast there is documentary evidence for salt production in the Narbonnais from the 9th century, while in Provence salt-working is attested in the 11th century (Latouche 1967, 160).

This continental evidence shows that there is nothing exceptional about the documentary material for salt-working in Dorset from the 8th century. The grants may be seen as testimony of royal patronage towards monastic communities, providing the resources for an essential commodity, not only for day-to-day life but for specific religious purposes.

Salt production in the 11th century has received particular attention by historians because of the large number of references to it in the Domesday Survey. However, many studies have tended to under-value the importance of the Anglo-Saxon documents. These provide not only a basis for a greater understanding of the Domesday estates but serve also as evidence to show that salt-working in Dorset recorded in the Survey is not a new Norman phenomenon but a continuation of an Anglo-Saxon industry already well established in certain areas.

In addition to the evidence for salt production associated with the inland brine springs of Cheshire and Worcestershire, the Survey records over 1200 *salinae* along the coast from Lincolnshire to Cornwall. The majority are recorded in Lincolnshire, Norfolk and Sussex, with smaller numbers in Kent, Devon and Essex. There are 44 recorded in Dorset, 26 in Hampshire, 18 in Suffolk and 10 in

¹ This article is a shortened and amended version of a paper given in the Dorset County Museum on 8 November 1986.

Cornwall (Bridbury 1955, 19). The large numbers recorded on the east coast is surely a reflection of the importance of the local fishing industry. However, it is doubtful if these numbers are a complete record since place-names and documents demonstrate the existence of salt-working not mentioned in the Survey (Darby 1977, 265).

The major problem in understanding the Domesday evidence is the variety of meanings put forward for *salina*. Ellis translated the word as 'salt works', 'ponds and pans for procuring Marine salt by evaporation' (Ellis 1833, 126). Darby prefers 'salt-pans' (Darby 1977, 260), while in the recent Phillimore edition of the Domesday Book 'salt-house' is used throughout the county volumes. The lack of consistency in the renders due from the *salinae* (*ibid.*, 263; Ellis 1833, 126-9) may imply that the variations result from the different numbers of boiling-pans in each salt-works, and hence reflects the differing amounts of salt produced. It seems unlikely that the varying renders indicate different sized boiling-pans. Furnaces were obviously necessary to heat the boiling-pans, and there may have been more than one boiling-pan to each furnace. The number of furnaces, therefore, may also account for the variations in renders. Certainly the number of furnaces in each salt-producing centre could have varied considerably. King Ethelbald's grant of 716 × 717 to the church of Worcester, for example, mentions a plot of land *in qua sal confici solet* for the construction of three houses and six furnaces, *ad construendos tres casulos et sex caminos*, in exchange for six other furnaces and two houses (BCS 137).

In addition to the *salinae*, salt-workers, *salinarii*, are mentioned in Devon and Dorset. In Devon eight are referred to in the entry for Kenton, two at Honiton, 33 at Otterton, 11 at Seaton (*Fluta*), three at Hollowcombe and four at Lower Holcombe; a total of 61. In Dorset 56 are mentioned; 27 at Lyme, 13 at Ower and 16 at Charmouth.

DOMESDAY SURVEY			<i>Salinae</i>	<i>Salinarii</i>	Rendur	Manor	Total
DORSET		Tenant					
f.77v	Glastonbury Abbey	(Wulfgeat)	LYME	13	13s	£3	
f.78r	Milton Abbey		OWER	13	£1		
f.79r	Count of Mortain	(Admund)	WAI	12		£4	
f.80r	Count of Mortain	(Hamo)	STUDLAND	32	£2	£8	
f.80r	Count of Mortain	(Robert)	CHARMOUTH	16		£3	
f.85r	William Belet		LYME	14		£3	
			total	44	56		

DEVON							
f.184	Horton Abbey (Exon)	SEATON (<i>Fluta</i>)	11*	11†	11d	£2	
f.104	(Exch)						

*Exchequer. †Exon.

The Survey entries for Dorset show that salt production was being carried out on the estates of Glastonbury Abbey at Lyme, of Milton Abbey at Ower, where all the recorded population was engaged in salt-working, of the Count of Mortain at Weymouth, at Studland, where the salt-workers accounted for a quarter of the manor's total value and at Charmouth. There were fourteen salt-workers on William Belet's manor at Lyme. It is interesting to note that the Dorset abbey of Horton, which was to become annexed to Sherborne Abbey in 1122 (Dugdale, i, 333), had salt-works at Seaton in Devon.

The Domesday entries are especially important since it has been shown above that Glastonbury Abbey's interest in Lyme goes back to the 10th century when it held land which the Domesday information suggests was probably even then used for salt production. Milton Abbey had been granted Ower by King Æthelstan in 943. The Domesday entry for the manor of Ower records that it was assessed at three hides in the times of King Edward, but there was no plough there at the time of the Survey, only salt-workers. This must surely illustrate a change from arable farming to salt production, especially as only salt-workers are mentioned.

A surprising fact is that Sherborne Abbey had no *salinae* or salt-workers recorded at Lyme, since land had been granted specifically for that purpose in 774. The Survey records that William Belet's one hide at Lyme, with fourteen salt-workers, had been held by Ælfeva before 1066, so it seems unlikely that there was any connection between Sherborne Abbey and William Belet's holding. However, the cathedral of Sherborne had been transferred to Salisbury in 1084 and the Survey records that the bishop had land at Lyme, held by fishermen who paid the monks 15s. for fish (f.75v).

Horton Abbey had held land at Seaton (*Fluta*) long before the Conquest. The Sherborne Cartulary contains a grant dated 1005, in which King Æthelred gives to Eadsige *unam mansam . . . aet fleote* (K 1301). Even though the distance between Sherborne and the salt-works at Seaton is fairly considerable, it appears that after Horton was annexed to Sherborne Abbey in 1122 Sherborne relied on these salt-works. They are the only salt-works recorded in lists of the abbey properties drawn up in 1145 and 1163 (Dugdale, i, 339).

It is also surprising that Shaftesbury Abbey has no reference to salt-working recorded among its Domesday manors. Certainly the community would have needed salt in large quantities. The only property of this well-endowed nunnery which could have produced salt was the estate at Corfe, where land had been given in the 10th century (BCS 868, 910; K, iii, 433). This estate of 16 hides is recorded in the Survey under Kingston (f.78v). The bounds of the 10th-century charters present problems, but it would appear that the northern boundary of the estate was the river Corfe. If this is correct then Arne is excluded. However, the cartulary of Shaftesbury Abbey (BL Harl. 61) fortunately includes three surveys of the abbey's property made in the 12th century. One of c. 1170 includes not only Kingston, in which fifteen hides are mentioned (f.61v), but also Arne, where there was one hide. It would appear, therefore, that for the Domesday Survey, Kingston and Arne were combined.

The 12th-century survey for Arne contains important evidence about the organisation of salt production and so is printed here in its entirety.

f.60v Arñ in Purbik

- 1* In Hern est una hida et partitur in xvj^{mm} unde Benegarus tenet unam partem pro xxxta d. de Gablō et habet iij plumba et reddet inde viijto s. de gablo et iij wikeworc salis et unum wikeworc de terra sua
- 2 Randulphus de una crofta reddet unum soc et tenet partem et dimidiam pro iiijs. et ijd. de gablō et de terra sua ij wikeworkes et iij^{or} plumbum (*sic*) pro xiijs. et iij^{or} wikeworkes
- 3 Rogerus tenet unam partem et unum plumbum pro xxxiiij^{or} d. de gablō et de terra sua unum wikeworc et unum plumbum pro xxxd. et unum wikeworc
- 4 Hunfredus tenet unam partem et unum plumbum pro xxxiiij^{or} d. et unum wike et unum plumbum pro xvijid. sine sale. Et unum d. acquietat domini de Kinghesberia aduersus ecclesiam sancte Marie de Warfham (*sic*) et de Corf
- 5 Herlewinus tenet unam partem et unum plumbum pro xxxiiij^{or} d. de gablō et unum wike
- 6 Aluredus palmerus unam partem et unum plumbum et facit ut Herlewinus
- f.61r 7 Baldewinus unam partem et unam plumbum pro xxxiiij^{or} d. et unum wikeworke et ij plumba pro vijs. et vjd. de gablō et ij wikes et de una crofta unum soc
- 8 Herlewinus filius Radulphi pro una parte et uno plumbo xxxiiij^{or} d. et i wike
- 9 Sericus unam partem et dimidiam et ij plumba pro iij^{or} s. et ijd. et ij wikeworkes worke (*sic*)
- 10 Willelmus filius Rogeri unam partem et dimidiam et ij plumba pro iij^{or} s. et ijd. et ij wikeworkes et ij plumba pro vs. et ij wikeworkes
- 11 Seman Scoria ij plumba pro vijs. et ij wikeworkes pro una crofta vjd.
- 12 Willelmus filius Wlmar unam partem et dimidiam et ij plumba pro iij^{or} s. et de gablō ijd.
- 13 Editha uidua unum plumbum pro iijs. et unum wikeworke et ij wikeworkes et de gablō unum wikeworke
- 14 Sewardus tenet unam partem et unum plumbum pro xxxiiij^{or} d. et unum wikeworke et de uno plumbo reddidit iijs. et unum wikeworc
- 15 Aluredus de Auauila unam partem et unum plumbum pro xxxiiij^{or} d. et unum wikeworc et idem Aluredus et Herl(ewinus) et Bald (ewinus) et Sewardus tenent unum plumbum pro uno wike et idem Aluredus tenet unam croftam pro uno soc
- 16 Adwardus unam partem et unum plumbum pro xxxiiij^{or}d. et unum wike et unum plumbum pro iijs. et unum wike et eidem Adwardus, Rogerus, Herlewinus et Aluredus tenent unum plumbum pro uno wikeworc
- 17 Walterus tenet unum plumbum pro iij^{or}s. et unum wike
- 18 Aluricus hore unum plumbum pro iijs. et unum wike
- 19 Bern unum plumbatum pro iij^{or}s. et unum wike
- 20 Sampson iij plumba pro ix. et duo wike
- 21 Fuca unum plumbum pro iijs. et unum wike
- 22 Stephanus unum plumbum similiter
- 23 Aluredus unum plumbum similiter

*The numbers are not included in the manuscript; they are used here for editorial convenience.

The survey contains the names of 22 men and the widow Edith (13), all of whom appear to have been free-men. The one hide was divided into sixteen parts held by fourteen individuals in units of one part in ten entries, or one and a half in four instances: only three holdings had rent (*gablum*) due from them. In addition four crofts are mentioned, one with sixpence rent, the others with a due of one plough-share. The majority of people listed had one

plumbum. Two groups of four, Aluredus, Herlewinus, Baldewinus and Sewardus (15), Adwardus, Rogerus, Herlewinus and Aluredus (16) held one jointly. Rogerus (3), Hunfredus (4), Sericus (9), Semañ Scoria (11), Willelmus (12), Sewardus (14) and Adwardus (16) each had two, Benegarus (1), Baldewinus (7) and Fuca (21) each had three, while Randulphus (2) and Willelmus (10) had four. In all 44 *plumba* are recorded. The rent for one *plumbum* varied. Two shillings and ten pence was the usual amount, though it was sometimes less (e.g. (9), (10) and (12) at 2s. 1d. and (4) at 2s. 4d.), and sometimes as high as 3s. or 4s. (e.g. (16), (18), (20), (21), (22), (23) at 3s. and (17), (19) at 4s.): the total rental was £6 16s. In addition to the rent the majority had to provide a *wikeworc*, or load of salt for each *plumbum*: the total number of *wikeworkes* was 46.

Darby notes the use of the word *plumbi*, 'leaden vats', in the Domesday Survey entries for Bromsgrove and Tardebrigge, and a reference to *fabrica plumbi* in the entry for Northwich and Tibberton, 'which could be the lead works for making the vats' (1977, 261). Lead pans were certainly used for boiling brine in Droitwich before the introduction of iron pans in the 17th century. Here at Arne the 12th-century survey may be simply recording their numbers. However, it cannot be assumed that *plumbum* refers to a boiling-pan; it may refer to the furnace on top of which the pan was placed. As one *wikeworc*, or load of salt, was due to Shaftesbury Abbey for each *plumbum*, it would be necessary to assume that if a furnace were implied the number of pans to each furnace was the same for each one referred to. This would account for the consistent render of salt.

There can be little doubt that lead boiling-pans were used at Arne. Although descriptions of the technical processes used for the production of salt from the inland brine springs are available from 16th- and 17th-century sources, description of salt production on coastal sites are rare. A 19th-century description of salt-working in the bay of Mont Saint Michel, therefore, may provide a useful indication of the methods used at other coastal sites during earlier periods (Le Héricher 1845, 342-3: abridged translation, Keen).

The salt-house is a cabin or rather a hut. Four walls often of clay, carry a timber roof covered with thatch. The roof has two vents through which the smoke escapes. The salt-worker is blackened with smoke like a savage. There is only one door. The salt-worker's hut is only two paces from the heaps of sand. The sand-heaps consist of two parts: sand washed and set aside, and virgin sand. The virgin sand is heaped up on a floor of clay, pressed with wooden spades, and often covered by a clayey layer. A wooden trough receives the virgin sand, over which is poured from buckets the water which washes out the salt. This water, or brine, is led along a wooden channel or hollowed-out tree branches into casks which serve as reservoirs. There the water is tested by a primitive instrument. The more the brine is saturated with salt, the more the balls of lead and wax which this instrument contains float and swim. The brine is drawn off from the casks by bucket. The lead vats are set on earthen furnaces over which the wood that feeds the furnaces is allowed to dry. The drawn-off water is poured into the vats, where evaporation reduces it to salt. When the salt water boils and froths, the froth is taken off. The salt is removed from the vat with a wooden spade and laid aside in a corner of the salt-house. When the vats overflow onto the fire, or when their rims break down, there is a flat stone on which the rims are put back into place. An iron poker is used for breaking the blisters on the bottom of the vats, which form when the lead starts to melt. In one of the corners is the vat-mould: in the other two beds, all in straw and bound with withies, where the watchmen sleep.

If this description gives some idea of how salt was produced at coastal sites in Dorset, one is still faced with the interpretation of *wikeworc* in the 12th-century survey. The surveys of Fontmell and Iwerne in the same document may provide a clue. Fontmell and Iwerne were the estates closest to the Shaftesbury Abbey, and it is not surprising that the tenants there had particular manorial services to perform. The following entries contain references to salt.

(Fontmell)

f.65r Omnes homines de Funtamel debent afferre xx summas de Allettiis de Warham et de hern xx summas de sale et debent inuenire xx falces in prato iuxta Sanctum Adwardum et xx Carros propter fenem de Cumba et habebunt uictum et habebit (sic) xvd. et unum Cuillard et unum Caseum ad pratum falcandum et habebit (sic) alium Caseum quando oues tonduntur.

(Iwerne)

f.67r Oswi habet unam uirgam pro vs. de gablō et xd. de lignagio et facit opus autumpni et portat sal de Hern et Allech de Warham . . . Aluredus filius Garmundi tenet unam uirgam pro eodem seruicio quod facit Oswi Ricardus Child similiter sicut Oswi Wazo sicut Oswi Baldwinus similiter Admund filius Garmundi similiter Adelilms facit sicut Oswi de una uirga.

f.67v Galfridus Bene tenet dimidiam uirgam pro xxxd. de gablō et vd. de lignagio et facit opera sicut Oswi excepto quod facit dimidium seruicium Carri in autumpno quod facit Oswi et de equo similiter.

Then 17 others with same services as Galfridus.

f.68v Godman tenet dimidiam hidam excepto una acra et dimidia pro ixs. et vijd. de altera uirgata de Archet debet portare unam summam alleti et alteram summam salis . . .

The survey records that all the men of Fontmell had to carry 20 loads of herring from Wareham (*xx summas de Allettiis*) and from Arne 20 loads of salt (*xx summas de sale*). In the survey of Iwerne it is recorded that Oswi carried salt from Arne and herring from Wareham. Six other men owed the same service, but the quantity of salt is not specified. Galfridus and seventeen other men did the same work as Oswi, except that the carrying done was half that expected of Oswi (*sicut Oswi excepto quod facit dimidium seruicium Carri*). Finally, Godman carried one load of herring and another of salt. Unfortunately the details are not precise enough to work out how the 46 *wikeworkes* due to the abbey from Arne were divided among the men from Fontmell and Iwerne. If one *summa salis* was the same as one *wikeworc* the closest total, of 46 *wikeworkes*, is arrived at by the men of Fontmell carrying 20, Oswi and six others one and a half each (10½ total), Galfridus and 17 others three-quarters each (13½ total), and Godman one.

This possible arrangement may be satisfactory enough to suggest that one *wikeworc* was the equivalent of one *summa salis*. If this is correct, the suggestion that a *summa* generally consisted of eight level bushels, equivalent to a quarter (Zupko 1968, 140, 153), may provide not only an indication of the amount of salt carried to Shaftesbury, *i.e.* 46 quarters, but also of the output of the salt-works at Arne. Assuming that the amount due to the abbey was a fifth of the total production, the total output would be 460 quarters.

However, a grant by Patrick, earl of Salisbury (1142-67), who gave to the church of St Michael of Breamore, Hampshire, and to the prior and convent of the church '4 wicwertes of salt, to wit 8 quarters of salt out of his salt-marsh' at Canford (Fry 1916, 85), if a correct indication of local measures, may indicate that the Arne *wikeworc* consisted of two quarters, not one. In which case Shaftesbury Abbey received 92 quarters of salt from a possible total production of 920 quarters.

In either case it is impossible to establish if the amount of salt received from Arne provided the abbey's total annual requirement. One may note, however, that it was the practice on the bishop of Winchester's estate at Bishop's Waltham to keep an annual stock of about 160 quarters (Bridbury 1955, 112).

The information about Shaftesbury Abbey's salt-working arrangements is remarkably informative. During later centuries there are references to salt-works in Dorset managed by other monasteries, but the data is rather slight. The Canford manor salt-works referred to above (see also Smith 1948, 117-8; Cochrane 1970, 65), from which the prior and convent of Breamore had been granted eight quarters of salt by the Earl of Salisbury in the 12th century, also produced six quarters of salt for the prior and convent of the Carthusian house at Witham, Somerset (Fry 1916, 85). A salt-pan *apud Waldefletam* in Canford, granted by his father, Walter, to Bradenstoke Priory, Wiltshire, was confirmed by Patrick, Earl of Salisbury in the middle of the 12th century (London 1979, 5, 549, 567).

Between 1100 and 1135 Robert of Lincoln granted to the church and monks of Montacute, Somerset, 'one tribute of salt from my salt-cotes adjoining my manor of Langeton' (Langton Matravers) (SRS 1894, 160-1). This grant was confirmed by Robert's son Alured, but the deed refers to 'salt-cotes in Purbike' (*ibid.*, 161-2).

Purbeck is mentioned also in an inquisition held in 1348 on the death of Roger Bavent, when a fee of nine quarters of salt a year from tenants in Purbeck is recorded (Fry 1916, 62). Roger's son Roger granted to the king in 1362 a salt-house (*domus salina*), with a croft and two acres of meadow worth 4s. a year (*Cal. Inquis. Misc.*, iii, no. 487).

Bindon Abbey had salt-works on the moor called *Hymore*, outside Wareham. These had been granted to the abbey by Robert de Newburgh and the grant was confirmed in 1313 (Dru Drury 1932, 55).

The abbess of Wilton held the manor of *Phelpiston*, in the hundred of Wimborne St Giles, by the service of 12 quarters of salt a year (Fry 1916, 17).

Other salt-works are recorded: the manor of Langton in Purbeck, with salt-works in Middlebere, was valued at £12 4s. a year in 1376/7 (*Cal. Inquis. Post Mort.*, xiv, no. 291). This manor with two salt-works was occupied by Henry Yevele, the king's mason, in 1377/8, by a grant of Edward III (*Cal. Inquis. Post Mort.*, xv, no. 64). Henry Yevele is recorded as having the same manor with the salt-works in Middlebere in 1390/1 (*Cal. Inquis. Post Mort.*, xvi, no. 1046).

Cerne Abbey had purchased one messuage and 71 acres of land in Middlebere by a king's licence of 1317-18. The land may well have included the several salt-works at Wytch which were granted in 1544-5 to Thomas Goodwin (Hutchins, iv, 19: i, 578).

On the other side of Poole Harbour, fifteen salt-works in *Hamme* (Hamworthy) are mentioned in 1275 (Fry G1, 34).

A very clear picture of intense salt-working activity, practically all the way around Poole Harbour, emerges for the whole of the medieval period. To what extent salt from this area was exported is uncertain. Because of cheaper production costs England exported large quantities in the 14th century; an export which expanded in the mid-century (Bridbury 1955, 24, 30-3). With the rise of England's 14th-century 'textile revolution', salt-workers in East Anglia were to turn to the cloth industry; the established salt-making centres in England, the Baltic and the Low Countries were no longer able to supply the needs of western Europe (*ibid.*, 38-9).

The Bay of Bourgneuf in southern Brittany had a virtual monopoly in supplying French salt from the start of the Hundred Years War until the mid-15th century, when the war ended (*ibid.*, 80): Bay salt was the cheapest salt obtainable in northern Europe (*ibid.*, 94). Bay salt, however, was poor in quality, in contrast to white salt from England or Lüneberg, even though it was half the price. In medieval records Bay salt is referred to as 'great', 'gross' or 'rough'. It would appear that coarser salt was used for preserving. The frequent payments *in sale grosso* found in the mid-15th-century accounts of Munden's Chantry, Bridport (Wood-Legh 1956, *passim*), contrast with the occasional sums spent *in sale minori* (*ibid.*, 79), *in sale pro mensa* (*ibid.*, 22) and *in sale albo* (*ibid.*, 27).

The finer English salt was still required, and this may explain two records of ships leaving Poole with supplies of salt, perhaps made locally. In 1466 *Le Typhan* of Cherbourg carried 40 quarters of salt worth £4 4s., and in 1467 the *Mary* of Poole, bound for the Channel Islands or the French coast, carried 25 quarters of salt worth 2s. the quarter (Crick 1908, 327). Most of the salt used in England, however, came from the Bay, Spain or Portugal (Bridbury 1955, 115).

With the move of the staple from Melcombe Regis to Poole in the 15th century, Poole's prosperity increased. This is reflected in the building of numerous houses from the 1520s to the early 1540s, and the construction of a windmill and a water conduit (Tittler 1985, 97 and n. 14). But the 'chief business of Poole was business itself' (*ibid.*, 100): this relied on the shipping coming in and going out of the port, which, like Southampton, had four tides a day.

Tittler has shown that between c. 1550 and 1600 salt from Bourgneuf Bay, Spain or Portugal was a frequent incoming cargo (*ibid.*, 105 and n. 71). But while Poole was importing salt from the Continent, local centres were continuing to produce it. Thomas Goodwin was no doubt operating the salt-works at Wytch, which had once belonged to Cerne Abbey. On Middlebere one can be certain that salt production was extensive. Treswell's 1585-6 Survey of Purbeck contains a map of Middlebere which shows 'salte pitts' and 'saltes' (DCRO D/BKL f.33v-34r). On Studland the place-name 'Saltorne' - 'Salterne' was first recorded here in 1454 (Mills 1977, 45) - appears on another of Treswell's maps as it does today (*ibid.*, map f.23v-24r and f.26r, 26v, 27v, 28r, 28v). The salt-works, no doubt those mentioned in the Domesday Survey, had long ceased to operate. The accompanying survey shows that quantities of salt were to be paid yearly to the castle of Corfe, to be collected by the governors of the Isle of Purbeck (f.15v): Godlingston supplied two bushels worth 12d., Whitworth six worth 3s., 'Philpes in the fearne' in Studland (Mills 1977, 45) two worth 12d., and Middlebere two worth eight shillings.

It must be a matter of regret that to date no salt-works have been identified on the ground, despite the presence of salt place-names, for instance 'Salterne' on Studland and 'Salterns Copse' on Arne. The most obvious candidates for salt-working earthworks are over 70 circles on Studland Heath; detailed examination of them, however, proves neither their use nor indeed their date (RCHM, iii, 504; Bowen and Fowler 1963).

With the evidence put forward in this review it is hoped that the increasing amount of archaeological work being carried out in Purbeck and around Poole Harbour will be directed towards the identification of the medieval salt production centres. Should this be achieved it would be fitting complement to the modern exploitation of another natural resource.

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Land Usage in Morden with special Reference to the Heathland

BARBARA KERR

If George Eliot's dictum that the happiest nations are those without a history is true, then the heath folk of East Dorset must have been a singularly favoured race. Their good fortune cannot always have been apparent to them since their attempts at tillage, as Thomas Hardy observed, 'after holding on a year or two receded again in despair, the ferns and furze-tufts stubbornly reasserting themselves'. As bracken and furze soon overspread the plots of humble men, whose efforts were seldom recorded, it is not easy to trace their spread or decline. More ambitious attempts at reclamation have sometimes found a place in lawsuits and in assessments for tithes and other levies, but have left few traces on the heathland itself. Information concerning attempted reclamation can be often gleaned from the down-to-earth records of manorial courts; but these, if extant, have not been accessible for Morden. The history, therefore, of the usage, whether for subsistence, profit or division, of the Morden heathland has to be pieced together from references in official documents, from written accounts, from the memories of old inhabitants, from place and field names and, above all, from the terrain. The activities of the heath folk, of sportsmen and of Arthur Young's 'spirited improvers', whose incursions were often short-lived and unprofitable, can only be understood in the light of the development of the parish of Morden as a whole.

The development of the first scattered settlements in the woodlands of Morden into a large and over-populated parish in the mid-19th century was largely influenced by the large variety of soils within the area. Formerly the parish of Morden stretched from the Winterborne, flowing through the south-east edge of the Chalk uplands, to the Piddle which traversed the intractable soils derived from the Tertiary deposits of the Poole Basin. Travellers throughout the ages regarded this area as the blot on the Dorset landscape. John Claridge spoke for them all when he dismissed the heathland of East Dorset as 'a most dreary waste' only able to offer 'the support in summer of a few ordinary cattle and sheep, and the heath which is pared up by the surrounding villages for fuel'.¹ This unpropitious area Claridge estimated covered 36,000 acres out of the total 775,000 acres of the whole county. Arthur Young did envisage possible ways, which were adopted two centuries later, of reclaiming this waste. He advocated the planting of Cobbett's 'trashy fir tribe' and the raising of rents which were as low as 1s. an acre.²

Young's 'vast tracks of waste land' included just under half the parish of Morden³ which, like Bere Regis, had a pedological personality split between good soils and bad. South of the Sherford lie the podsols, or acid, freely drained sands and the light loams with a raw humus topsoil and a hard pan at about 3 feet. Between these unprofitable soils and the Chalk-derived rendzina soils in the north of Morden lie the agriculturally desirable brown earths which give place in low-lying areas to gleys, or heavy loams with impeded drainage. The good soils were more than offset by the podsols on which stretched East Morden Heath comprising

Morden Heath, Great Open Heath, Decoy Heath (which contained 139 acres of bog) and Gore Heath.⁴ According to Thomas Pearce, vicar of Morden 1853-1882, this whole area had been called 'for ages' Black Heath. As a sportsman and naturalist Pearce knew the heath intimately; and as a zealous pastor he was familiar with the local folk names. Throughout this account the heathland lying between the Sherford and the Piddle will be described as Black Heath. No better introduction to this area can be found than Pearce's description:⁵

'This wild tract of land, which has been called for ages the "Black Heath" (probably from its sombre colour under the influence of winter), supplies the labouring poor with turf (not peat) for their winter fire, and affords the sportsmen the best (because the most varied) shooting I know. It is a rare field for the naturalist, too, abounding in summer with rare birds (such as the Dartford Warbler), and with hawks, which hunt it like so many spaniels; and day and night it is haunted by innumerable gaily coloured flies and moths and creeping things, lizards and vipers in profusion, and the very finest snakes I ever saw.'

The early settlers on the slopes north of the Sherford were not so enthusiastic. They shunned, but could not ignore, the heathland which stretched like a threatening sea at their feet. The two worlds of the upland and the heath named the parish: the *dūn*, hill, on the *mōr*, barren waste.⁶ Place names also indicate some of the difficulties which faced the settlers on the favoured hillside soils. The element *cēto*, British for wood, which appears in the Lytchetts and Chitten Hill (I.T. 1775, Chetten Hill)⁷ tells of woodland widespread enough to be termed forest. Settlements could only be made after intensive assarting, or clearing. The back-breaking nature of this work even on the more lightly-wooded grey rendzinas is shown by field names: *Elder Stub*, *Cut Hedge* and *Blackthorn Shard*⁸ (all in I.T. 1775; T.A. 1847). These were the names of fields which lay to the north of the broken slope which stretches south-westward from the uplands of Charborough to the Sherford. In sheltered dips in this slope and at the junction of the rendzinas and brown earth soils were established the Saxon settlements of West Morden and East Morden. In time outpost colonies on the site of the hamlet now named East Morden, at Whitefield and at Sherford (see Fig. 1) were established. At the end of the eleventh century, separate Domesday returns were made for the five settlements and also for a holding abutting on Charborough which was a separate and royal manor. In the next century the building of a church at East Morden (now

¹ J. Claridge, *General View of Agriculture of the County of Dorset*, 1793, pp. 44 and 5.

² A. Young, *The Farmer's Tour Through East England*, 1771, Vol. III, pp. 258 and 274.

³ *Tithe Award*, 1847, shows, in round figures, 2,885 acres of heath and 152 acres of bog out of the total 6,574 acres in Morden parish.

⁴ At the time of the Morden Tithe Award, 1847, Organford lay within the parish boundary. It seems likely that 'Great Open Heath, should read 'Great Ovens Heath'.

⁵ *The Idstone Papers*, 1874, pp. 180-188. 'Our Black Heath'. Under the pseudonym Idstone, Thomas Pearce wrote articles in the 1860s on shooting and life in Morden (which was not named) for *The Field*, *The Farm*, *The Garden*, *The Country Gentleman's Magazine*. These articles were collected in the *Idstone Papers*. In future references the periodical will be named by its short form: *The Field*.

⁶ Unless otherwise stated the place-name elements have been derived from Old English (Anglo-Saxon).

⁷ All information taken from Isaac Taylor's Maps of the Drax estates will be indicated by I.T. and the date of the map in question; information from maps accompanying the Tithe Awards will be shown by T.A. and the date.

⁸ The Old English *sceard* a gap, long remained in usage in Dorset as 'shard', see W. Barnes, *A Glossary of the Dorset Dialect*, 1886.

Morden) established the hegemony of this settlement, already favoured by its propinquity to a highway and water power and by the terrain. West Morden lacked all these assets; and though water mills were established at Whitefield and Sherford, the terrain was unfavourable to the expansion of these smaller settlements. Whitefield was enclosed in the *wiht*, or bend, of the river; while Sherford was shut off from the northern settlements by Chitten Hill and from expansion southward by the heath.⁹ Only violent

pressures would have induced the Sherford settlers to leave the familiar world for the wilderness over the river.

So long as woodland and scrub were accessible, settlers had no incentives to move into this wilderness; and the new masters of England had no interest in land unlikely to provide profit or hunting. In the whole Domesday survey *bruaria*, or heath, is only mentioned in a return for Boveridge near Cranborne in Dorset.¹⁰ Nevertheless, in the mid-12th century when tenants-in-chief could still afford to be prodigal with land, Walter de Claville who held the manor of East Morden endowed a priory he had established at Canonsleigh in Devon with, *inter alia*, rights over

⁹ In am indebted to the late Mr R. Jenkins of Morden for having sent information concerning Higher Mill at Whitefield, the site of which can still be traced at SY 99/903943. Downstream was Low Mill on the site of the present Morden Mill; from Taylor's map, 1775, it appears that Osiers Mill was situated about a mile upstream from Sherford Bridge.

¹⁰ *The Domesday Geography of South-West England*, 1967, ed. by M. C. Darby and R. Welldon Finn, p. 126.

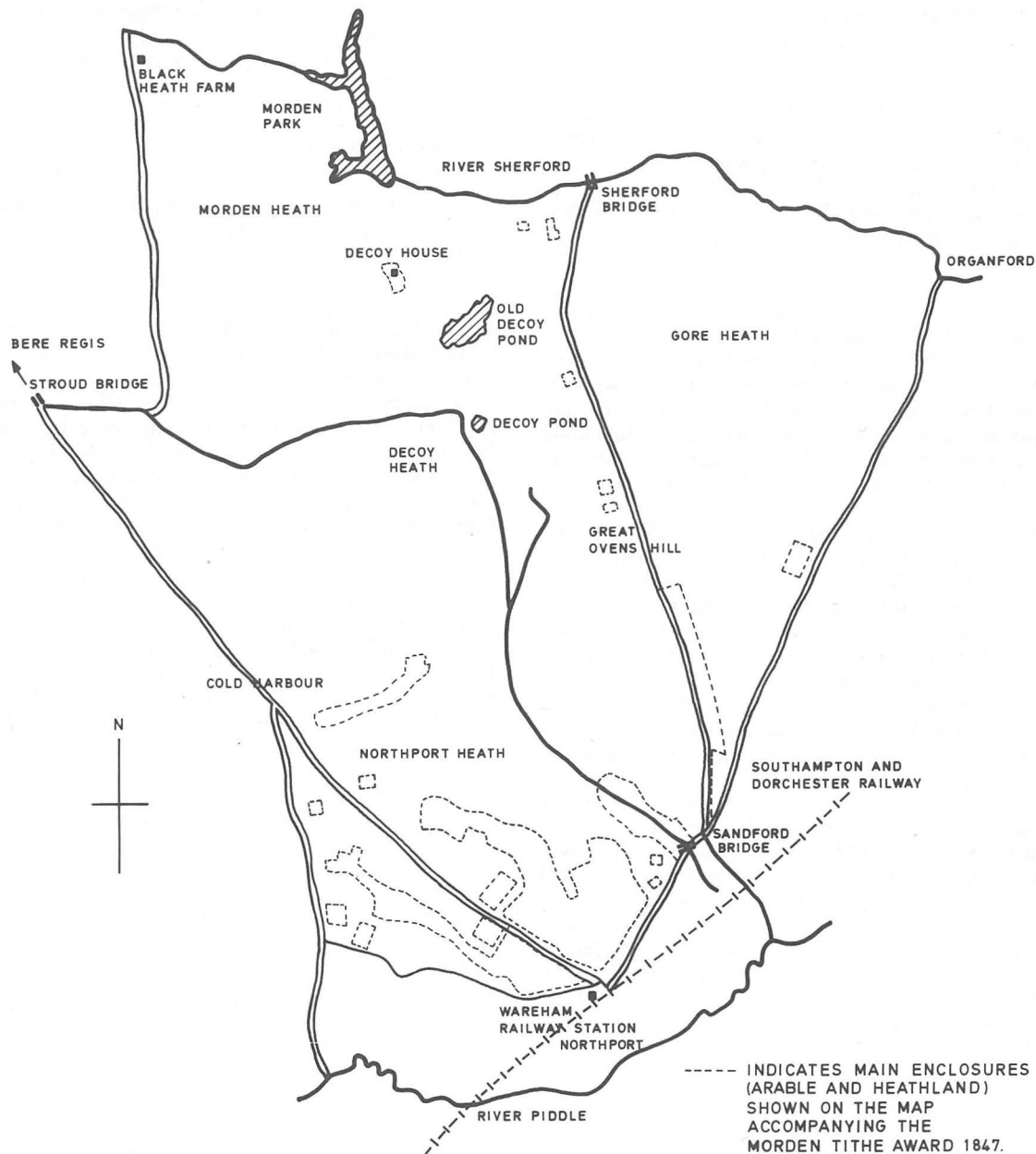


Figure 1. The development of early Morden settlements north of the River Sherford, based on Ordnance Survey and Taylor's estate map of 1775.

Morden Heath.¹¹ At the time the heath could only have been of value to the 'heth-croppers', or grazing ponies, wildfowlers and sheep which were then prized for their milk rather than their wool.¹² The fear of impoverishing their descendants was common among those endowing foundations, so de Claville may have overcome his anxiety by making over to the priory rights which had a possible future, rather than a present value. Save de Claville's endowment, no indication of land utilisation on Black Heath has been found for the 12th century. Towards the end of the succeeding century official documents echo, if only faintly, the population explosion that was driving villagers throughout England into the wilderness.¹³ In Morden they breached even the woods favoured by kingly patronage. The *Bodle Fields* (I.T. 1775; T.A. 1847) were established in a woodland clearing, *lēah*, on a hill, *bor*, (now High Wood). After the axe the assarters' most useful auxiliaries were his pigs. The slopes of the 31-acre *Hoggen Field* in Charborough (I.T. 1776; T.A. 1849 absorbed in Charborough Park) were not cleared by the axe alone; and the assarting of the then widespread Lousley Wood owed something to the *hlōse*, or sty, into which the errant herds were collected. Even today pigs stalk the hilltops of Morden with a lordly air, and their activities in areas of scrub show that the centuries have not diminished their assarting powers.

The widespread clearings in the woodlands encouraged an agricultural expansion that was not to be sustained. When the woods of Morden were first breached, cultivation was confined to the areas immediately surrounding the settlements. The lie of the land surrounding West and East Morden suggests that the most easily cleared rendzinas to the north were communally cultivated as an infield; while clearings on the more heavily wooded areas to the south gradually developed into an outfield for grazing. In this field a system of controlled shifting cultivation, whereby small areas were tilled for a year or two before returning to grass, resulted in a gradual extension of grazing land. This expansion, which was a key factor in the development of early settlements, made it possible to increase the arable land so that in time three open cultivated fields took the place of the infield. In the working of these fields all the settlements of Morden were able to share. A reconstruction of the open fields has been attempted from a study of the terrain and from Taylor's Map (see Fig. 1). Each of the three fields was divided into parcels of strips, or furlongs, the names of which, such as *Dirty Furlong* (I.T. 1775; T.A. 1847), were long retained. The arable strips within the furlong were generally named after the occupiers and only occasionally did a name, like *Moses Lease* (I.T. 1775; T.A. 1847), survive.

The holding of land in the open fields generally conferred rights of pasturage. The common grazing grounds varied between the roughly cleared *Brimland Sheep Slight* (I.T. 1775; the name implies the bramble-covered sheep walk) and the lush grasslands bordering on the Winterborne and the eastern reaches of the Sherford. Immediately south of the open fields was enclosed, possibly in the sixteenth century, a large stretch of grazing land which included the favoured *Honeyblood* (I.T. 1775; T.A. 1847; name used within the memory of Mr Graham Crocker; presumably a corruption of *Honeyblade*) and also the large area of scrub

and rough grazing later known as West and East Morden Commons.

The expansion of arable and of pasture towards the end of the 13th century could not satisfy the land hunger of the age. In the woodlands and waste on the periphery of the open lands, and so not immediately under the eye of the hayward, or open field overseer, tenants made small closes to supplement their open-field holdings and to cultivate crops which could not conveniently be grown under a system of communal husbandry. Despairing of increasing their holdings on the fertile soils, the well-to-do started to cross the Sherford. In this onslaught on the northern and high-lying areas of Black Heath, it is probable that small tenants participated but, as was to be the case through the centuries, their efforts were not recorded. In a post-mortem Inquisition of 1297 reference was made to 'a plot [*placam*] of heath containing 20 acres held of Thomas Peverel by service of 16d. yearly and a plot of heath held of John Sifrewast by service of 3d. yearly'. A reference to a holding even more extensive than Peverel's occurs in the Assize Roll of 1298. The widow of a Morden landowner claimed, *inter alia*, a hundred acres of heath and part of a clay pit and of a sheep walk. These three holdings indicate the shape of things to come in Morden. When the survival of the community ceased to be the prime concern of husbandry, enterprising individuals began to widen the scope of their activities to include sheep farming for the production of wool, the working of natural resources such as the clay pits of Morden,¹⁴ and the amassing of open-field holdings. In view of these developments the widow's holding was far from being a mite; but it is hard to estimate the value of the hundred-acre stretch on Black Heath which could have provided nothing but rough grazing for sheep or for ponies. Only Sifrewast's small plot was likely to have been cultivated. The crop most likely to grow, if well tended, on a heath soil was hemp. That in the 13th century Dorset was a leading flax and hemp producing county was due to cultivation of numberless plots reclaimed from waste.

The population increase which created the situation of 'too many persons chasing too few acres'¹⁵ and which forced men over the Sherford was checked by the Black Death. Whether the bubonic plague first struck the south of England in the late summer of 1348 through Weymouth or Southampton, Dorset was the first county in England to be ravaged by the visitation. As Poole was 'particularly badly affected' and the disease also erupted in Wareham,¹⁶ Morden is unlikely to have escaped. The assarter's axe was silenced and, though rough grazing continued on Black Heath, the tillage was soon overrun. The humans retreated and 'the old heath', as Pearce wrote in another context, 'seemed ten times as desolate as before'.

The Black Death and the social unrest which succeeded it in the 15th century accounted for the fall of many old families and the rise of new ones. The manor of West Morden passed to the servant of a man whose family had been manorial tenants, and a new star appeared in the firmament of East Morden: the Erles of Charborough. The ascent of the Erles and of many other rising families was favoured by the Tudors who dreaded the over-mighty power of the old nobility even more than mediaeval monarchs had done. In the late 17th century before enclosing, engrossing, planting and field sports became their prevailing interests, many landowners were looking to Holland not only for a

¹¹ J. Hutchins, *The History . . . of Dorset*, 3rd ed, 1868, Vol. III, p. 509. Hutchins translated 'in redditu Broiherae de Mordona' as rights over Morden Heath, but *redditus* suggests a rent rather than a right.

¹² *The Agricultural History Review*, 1964, Vol. XII, pt. 1, pp. 1-12. M. L. Ryder, 'The History of Sheep Breeds in Britain'.

¹³ For an account of this early population crisis see *The Agricultural History Review*, 1962, Vol. X, pt. 1, pp. 1-13. J. Z. Titow, 'Some Differences between Manors and their effects on the condition of the Peasant in the Thirteenth Century.'

¹⁴ One of the Morden clay pits was situated at Whitefield and the other was in East Morden at the foot of Quarr Hill. No record has been found to show if the pockets of clay on Black Heath were worked as was the case on Arne Heath. As two large clay pits existed north of the Sherford it seems unlikely that efforts would have been made to work pockets on the heath.

¹⁵ *The Agricultural History Review*, Vol. X, pt. 1, p. 2.

¹⁶ P. Ziegler, *The Black Death*, 1969, Pelican ed., 1970, p. 127.

monarch but also for guidance on land management, particularly as regards drainage. That attempts were made to drain the main area of bog in Black Heath was asserted by Thomas Pearce; and it seems probable that the plans were originated by General Thomas Erle (1650-1720). The general may be said to have picked his way to fame through bog and fen. Erle's skill in conducting his men through peat bog contributed towards the fall of Aughrim and of Stuart hopes in Ireland; while in Flanders his drainage operations were of considerable service to Marlborough.¹⁷ Though primarily concerned with snipe shooting over 'the large sheets of mud and ooze' of Morden Bog, Pearce observed:

'The whole is mapped out by these wide ditches into fields, perhaps twelve or fourteen acres in extent, and one, the last, is full of little pools and ponds, which . . . generally hold teal or duck, or perhaps some valuable wader . . . Many acres of this flat have been drained without success, and mapped out into squares; but they are breast high in grass and reed and as the winter comes on they harbour duck and wildfowl of all kinds, whilst in some of them snipe and starlings drop in at the dusk of evening literally in clouds.'¹⁸

The draining of 170 acres of bog demanded more engineering skill, capital and labour than the Erles could command in the early 18th century. Had a shortage of wood in preceding centuries enforced the widespread cutting of peat for fuel, then the peat cutter's heart-shaped spade might have succeeded where drainage failed. The long depressions of the disused peat beds, or 'moss rooms' could in time have been cultivated, as they were in Cheshire.¹⁹ As it was, gorse invaded the embankments and purple moor-grass choked the dykes.

Though the Erle-Drax family showed considerable skill and independence in the management of their estates, they were not entirely impervious to the enthusiasm of landed proprietors in the early 19th century: enlarging and planting the parkland, throwing farms together, enclosing and creating an environment favourable to field sports. *Hoggen Field* was absorbed into Charborough Park and part of the slopes which the pigs had cleared centuries earlier was replanted to endow the rolling landscape with a tree-studded grace. The Park was enlarged but engrossing in Morden had not proceeded far by 1847. Of the 120 occupiers of land under John Erle-Drax 45 held between 2 and 5 acres while only six occupiers (including James Watt who rented the shooting of Decoy Heath) held over 100 acres. Engrossing was a shadow over the future when Francis Kilvert, the country-loving parson, was to exclaim: 'What a pity these ancient humble farms should be destroyed and thrown into the great farms, thereby taking away all the poor man's prizes and the chance of his rising in the world'.²⁰ Enclosing was a grievance of the past, for the open fields of Morden had been unofficially enclosed before the mid-18th century. The Enclosure Award of 1769 followed the familiar pattern of enclosing waste land, which included a triangular area north of the new enclosure farm at Sherford, and adding new roads, generally at the expense of the Erle-Drax family, to the already intricate pattern of thoroughfares in Morden.

If John Erle-Drax (1800-1887) omitted engrossing from his calendar of landowners' duties he gave particular attention to fashioning the countryside in the interests of foxhunting. To achieve this he kept in hand 2,221 acres of heath, bog and woodland in which the fox, once an outcast

as vermin, was king. One of the principalities in this kingdom was Black Heath. Here reynard was wooed by 'fox coverts of gorse laid out in squares' and by the undisturbed wilderness near the Decoy Pond, 'a favourite place with foxes after a rough, wet night, when (as we know) they will not go to ground'.²¹ This waterlogged and rough ground was not altogether popular for, though belief in the old legend of a man, cart and horse disappearing into Morden Bog was waning, only the most intrepid riders could enjoy galloping through the treacherous pools and tussocks.

Amidst these 'shaking quagmires' many, like Pearce, preferred the less nerve-racking sport of shooting. Wildfowl had been attracted to Black Heath by two decoy ponds. The Old Decoy Pond, covering 17 acres, which was probably used in the late 17th century, had been superseded by the mid-18th century by a smaller decoy, about 4 acres in extent, shown, complete with nets, on Taylor's estate map of 1775. The silent remoteness of this pond which was used as a decoy until 1856,²² impressed Pearce who wrote:

'Here we can gently open the reed screen with one finger and see the colony of ducks . . . all confident of safety for no gun has been shot off within a mile of that decoy for centuries past. All around there are hassocks of grass and tangled reeds and briars where there is good lying for fox or otter'.²³

Looking at this pond in winter it is easy to understand why Pearce envisaged the whole area as having been 'reclaimed from the ocean'. The tawny tufts of purple moor-grass, the absence of strong colour and the twisted alders give the impression of a strand from which the outgoing tide has just retreated. Though he was both fascinated and repelled by this landscape, Pearce had no divided feelings in his pursuit of wildfowl. When he first came to Morden, the vicar was particularly anxious to visit the Decoy Pond and its keeper: 'I hear it's the best in England. I heard something of his taking £300 worth of duck in one year'.²⁴ The vicar's net income was £200 a year and, as in the case of the decoy man, a house was supplied. Nevertheless Pearce managed to rent the shooting over a considerable area of Black Heath.²⁵ He was out shooting during the 'Crimean' winter of 1855 when during the month of February the temperature never rose above freezing. Driven by the relentless cold, birds and humans desperately made their way to the heath: the birds sought water and the humans fuel. Accustomed to inland parishes, Pearce was amazed at the vast numbers of birds winging their way in from the coast:

'Wild geese, black ducks, pintails, smews, shovellers, mergansers, sheldrakes, golden eyes, mallards, pochards, teal, widgeon - all these were to be seen - some of them in profusion when our soldiers were in the Crimea . . . on a little frozen pond the teal were sitting on the ice as thick as sparrows at a barn door'.²⁶

The soldiers in Crimea were hardly colder than the agricultural labourers at home. In 1851 the population of Morden had reached a peak of 1,108 souls. The settlements at Cockett Hill, Frogmore and on Gore Heath, established with such high hopes by the early assarters, had become the dwelling places of labourers earnings 9s. a week, of paupers

¹⁷ Admiral Sir R. P. Erle-Drax, *Charborough 1066-1956*, c. 1958, pp. 11 and 15.

¹⁸ *The Field*, 19 January 1867, Idstone on 'Snipe-Shooting' and *The Idstone Papers*, 1874, pp. 180-5, 'Our Black Heath'.

¹⁹ C. S. Davies, *The Agricultural History of Cheshire, 1750-1850*, 1960, pp. 10-11.

²⁰ *The Diary of Francis Kilvert 1870-1879*, ed. W. Plomer, 1944, p. 288.

²¹ *The Idstone Papers*, 1874, pp. 180-186, 'Our Black Heath'.

²² Admiral Sir R. P. Erle-Drax, op. cit., p. 88, quoting from Sir Ralph Payne-Gallwey, *The Book of Duck Decoys*, 1886.

²³ *The Idstone Papers*, 1874, pp. 100-106, 'Our Black Heath'.

²⁴ *The Field*, 13 February 1867, Idstone on 'Beating for Wild Fowl'.

²⁵ *The Field*, 9 February 1867. Pearce referred to 'a large stretch of water of which I had the shooting'. From his description of the surrounding countryside, this large stretch seems to have covered the ponds in Morden Park; but from some of Pearce's other articles in *The Field* it appears he was shooting over the whole of Black Heath.

²⁶ *The Field*, 9 February 1967, Idstone on 'Beating - Wild Fowl'.

and of shirt-button makers working day and night to help hold the home together. The inhabitants of these stricken communities suffered as much from the lack of fuel as of food and, as men had done some five hundred years earlier, they turned to the heath. Their quest was chiefly for fuel, as half a century of low wages and submission had rendered the agricultural labourers apprehensive and apathetic with little energy for sustained effort after their day's work. Little plots, like those which can still be seen around the decoy man's house, dug in a springtime flush of energy soon reverted, as Pearce observed to 'a ruinous and weedy state'. The search for fuel filled the few leisure hours of the agricultural labourers. Before considering these efforts, however, something must be said of a short-lived flowering of small allotments in the southern tip of Black Heath (see Fig. 2).

When in the 1840s Wareham station was established at Northport, then in the parish of Morden, it seemed as if the attempts at heath reclamation which had failed south of the Sherford would succeed north of the Piddle. Although the higher railway officials were seldom local men – in 1851

the Wareham station-master came from Warwick – manual workers were often drawn from the neighbourhood. A small colony of these men grew up south west of the station; and beyond the houses straggled the lines of small fields which stretched almost to the bog in the heart of Black Heath. Even this more determined onslaught on the heath was shortlived. When he described Wildeve's Patch in *The Return of the Native*, Thomas Hardy wrote the history of most small holdings on heathland: 'The man who discovered it died of labour, the man who succeeded him in possession ruined himself in fertilising it.'

The efforts of those who sought fuel, whether turf or peat, on Black Heath were more productive than those of the cultivators who aspired to raise a crop. According to Pearce turf, not peat, was burned by the poor. In one cottage fireplace he observed: 'a large pot or cauldron was nearly boiling on the turf fire which was cheered up with two sticks to keep the other sluggish fuel blazing'. For the right to cut 1,000 turves the cottager had paid 2s. 6d.²⁷ The turf

²⁷ *The Idstone Papers*, 1874, pp. 1-8, 'Agricultural Labourers'.

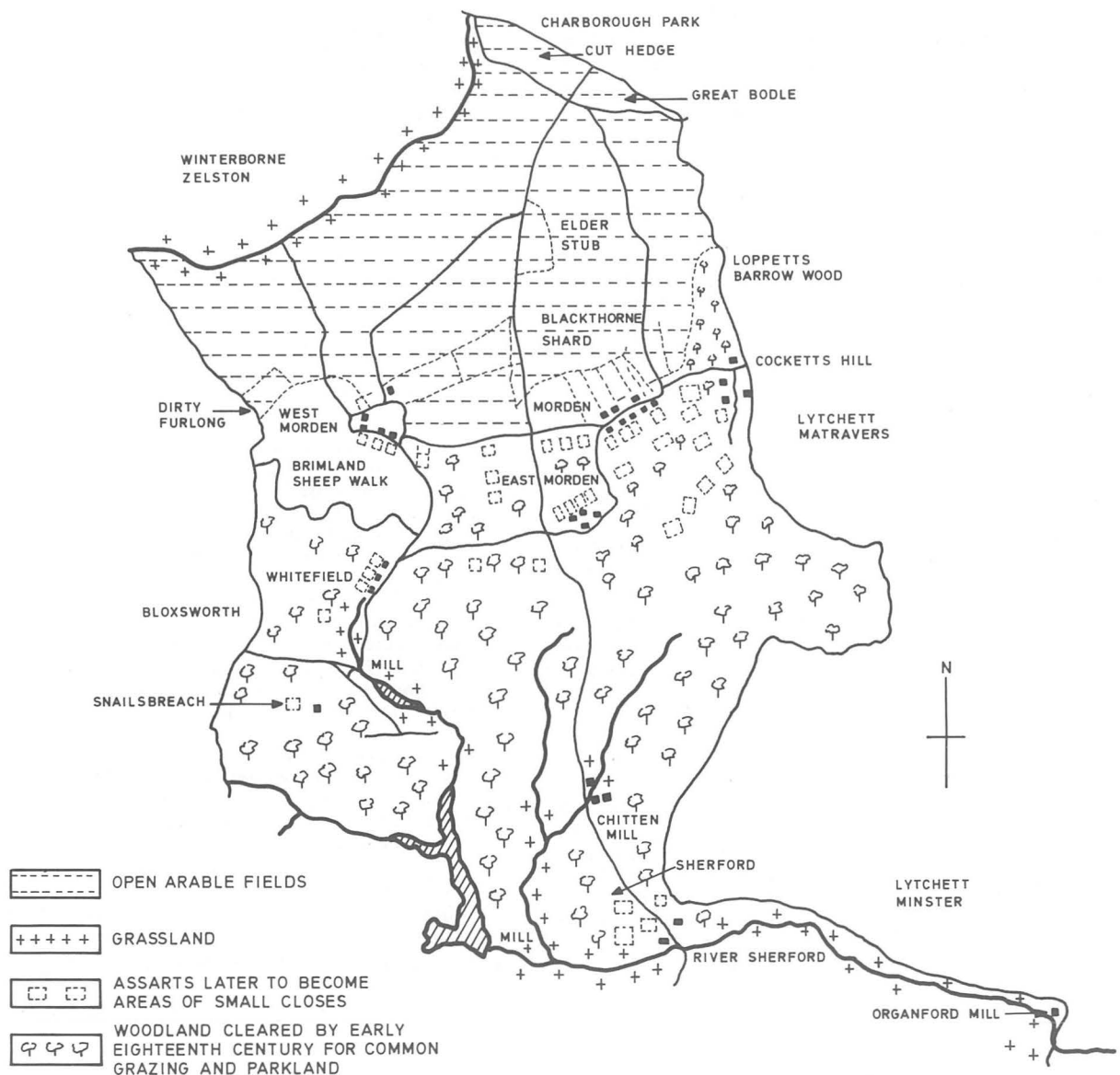


Figure 2. Sketch map of Morden south of the River Sherford, based on Ordnance Survey with main enclosures (arable and heathland) shown on the map accompanying the Morden Tithe Award 1847.

was cut in summer; and the process has been described by Mr F. Browning, who moved over half a century ago from the New Forest to East Bloxworth. In his youth they 'cut a square and spared a square'; the cut square of heather-covered turf was turned back and left to dry before being carted home. Here was another rub as farmers seldom carried free for their labourers. At Arne, a heathland manor south east of Morden, the poor-rate expenditure in 1802-3 soared as a result of the payment made for carting turf and rushes to the poor. In 1831 tenants on this manor were paying 12s. for cutting 4,000 turves.²⁸

As well as turf, peat was cut on the heath for more ornate fireplaces. Sometimes Pearce returned home from shooting on Black Heath so exhausted that 'the wood fire with peat upon the top . . . the bright lamp, the fragrant cup . . . failed to give their wonted pleasure after our weary walk'.²⁹ The vicar was insistent that Black Heath supplied 'the labouring poor with turf (not peat) for the winter fire'; but his daughter told a different tale: 'Peat was the sole cottage fuel of old days; cut on the spot, dried in hillocks and carted home by farmers and their labourers'. This discrepancy can be explained. In his articles Pearce described, often with the postboy waiting in the hall, the happenings of the day; his daughter was looking back over half a century to the golden days of her youth when 'no discontent was heard', when wild daffodils abounded at Snailsbreach, and Lousley Wood was 'famous for dormice!'.³⁰ In his account of the peat beds Pearce was concerned to describe a well-loved spot rather than to indicate its exact position:

'Well, leaving the decoy, the ground is broken with hills and valleys, and the soil is drier. As we rise [over] a line of hills beyond, we find the basins beneath dry also, and the gorse growing well and thick . . . Here the soil is deeper, and partially reclaimed; and soon we come to peat beds, where, in the season (say about October), the borders of the turf walls are covered with dark blue gentian, and in the more moist localities with some yellow flower I cannot put a name to.'³¹

If Pearce had inspected the peat beds on a still day he could have heard the hiss of trains as they drew in at Wareham station. This sound heralded changes which were to put an end to turf and peat cutting on Black Heath and to the isolation of Morden. Railway transport enabled whole families to seek in the towns the livelihood which could no longer be found in the villages. The forerunners of these family flittings were often the daughters who went into service in the towns. Leah Johnson left the over-crowded cottage of a Morden agricultural labourer to work as a domestic servant in South Lambeth. In the same London parish was a member of an old copyholding family in Bere Regis; he was reduced to selling cat's meat.

²⁸ Poor Rate Book for Arne and Manorial Records in the Dorset Record Office.

²⁹ *The Field*, 9 February 1887, Idstone on 'Beating - Wild Fowl'.

³⁰ E. K. Pearce, *Morden*, 1932, typescript in the Dorset County Museum. Snailsbreach Farm was established in a clearing made at the turn of the 18th century. Today the cultivators have retreated, but a fine growth of periwinkle is colonising *Heron Wood* (I.T. 1775, *Hern Wood*; T.A. 1847 *Hernes Wood*). The old versions are probably correct as the wood is in a *hyrne*, corner, of the parish boundary.

³¹ *The Idstone Papers*, 1874, pp. 180-188, 'Our Black Heath'.

In the mid-14th century the Black Death emptied the villages; in the mid-19th century rail transport whisked villagers to the cities where they faced health hazards quite as great as those of the great plague. In the half century between 1851 and 1901 the population of Morden was halved and the need for an overspill on Black Heath no longer existed. The incursions which had taken place left unaffected the contours and vegetation which remained as they were when the first settlers in Morden looked over the Sherford to the *mōr* or barren waste. The sombre and monotonous stretches of conifers planted by the Forestry Commission have changed the face of the heath and rendered large areas of it truly black. If the bog and surrounding heathland had not become a National Nature Reserve, it would be impossible for future generations to envisage the scenery, the wild life and the sporting activities which Pearce has preserved on paper.

NOTES ON SOURCES PRINCIPALLY CONSULTED FOR LAND USAGE IN MORDEN WITH SPECIAL REFERENCE TO HEATHLAND

Unpublished Sources

Census Returns for 1841, 1851, 1861.

Enclosure Award, 1769.

Isaac Taylor, Estate Map for Morden, 1775.

Tithe Apportionments and Maps:

Charborough 1849

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General:

M. Bloch, *French Rural History*, lectures in Oslo 1929, English trans. 1966. Many of Bloch's remarks on early agricultural settlements in France also apply to England.

A. H. Smith, *English Place-Name Elements*, 1956, 2 Vols.

Soil and Natural Vegetation:

R. Good, *A Geographical Handbook of the Dorset Flora*, 1948.

D. Kubišna, *The Soils of Europe*, 1953.

A. G. Tansley, *Britain's Green Mantle*, 1949.

Morden

Great use has been made of Colonel Drew's Manorial Index in the Dorset County Museum for early land ownership in Morden and Charborough; and also of *The Victoria County History*, 1968 Vol. III, ed. R. B. Pugh, for details of the Domesday Returns for Morden and Charborough.

J. Hutchins, *The History . . . of the County of Dorset*, 1868 (3rd ed.), Vol. III, pp. 508-516.

Idstone Papers, (T. Pearce) 1st ed. 1872, 1874 ed. used. As issues of *The Field*, in which Pearce's articles first appeared, were consulted before the collected *Idstone Papers*, some references are given to *The Field* rather than the collected works.

E. K. Pearce, *Morden*, estimated date 1932, typescript in the Dorset Country Museum.

As in all questions of land usage, the impressions of those who have long inhabited, or been connected with, Morden have been of great value. I am very grateful for much help from: Mrs Margaret Billett, Mr F. Browning, Mr G. Crocker, Mr J. Keevil, Mr A. H. Webb and Mrs A. E. Yarde.

This article was written in 1972, for the Nature Conservancy's Morden Bog plan of management, and is printed here by kind permission of the Nature Conservancy Council. Barbara Kerr died in 1987 (obituary this volume).

A Group of early 19th century Pottery from Shaftesbury, Dorset

JO DRAPER

with a contribution from Elizabeth Watkins

At Easter 1971 excavations took place on the north-east side of High Street, Shaftesbury opposite Tout Hill. The trench was on the back of the plots. One pit produced a large quantity of post-medieval pottery, which this author was asked some years ago to write up. Since there seem to be difficulties in publishing the complete report, the pottery report is issued here on its own.

The pottery comes from one pit (layers 14 and 15). The finewares are not illustrated, as they are of standard types, but the earthenwares are since they are a useful, closely dated group. The material has been deposited in the Dorset County Museum, Dorchester.

The pottery

All vessels represented in layer 15, some layer 14 also. All (except no. 11) are local earthenwares, with a hard, pale terracotta, regular fabric with fine sand and occasional small dark red inclusions. The glaze is fairly good and wet looking. Unless otherwise stated the unglazed (usually external) surfaces are very pale orangy brown and the glaze orangy yellow with tiny brown flecks.

1-4 Pancheons: 2 with three short lines incised on the rim before firing; 3 has some larger brown flecks in the glaze.

5-11 dishes: 5 and 6 fire-blackened externally, 7 and 8 greeny glaze and greyish fabric; 11 is unlike all the others, having a red fabric and orange glaze with brown flecks, probably from the Midlands.

12: Commode liner, glazed overall.

13-20: Chamber pots: 13-17, 19 and 20 greeny glaze, 17 glazed overall, 18 and 20 perhaps a little heavy for chamber pots.

21: Possibly a small commode liner.

22: Spout, probably from a dish, diameter uncertain.

23: Bowl, greeny glaze, diameter uncertain as it is oval.

24: Bowl, greeny glaze internally with many brown flecks and smears.

25, 26, 28 greeny glaze, all could be earlier than the group.

27: Dry looking orangy tan glaze ? earlier.

29: Plate.

30: Much brown flecking: ? earlier.

31: Very red fabric, white slip coated externally glazed yellowish spotted brown, ? earlier.

32: Apparently triangular dish, much of the internal glaze has come off, probably due to being used for soaking hams.

33-36: bread bins; 33 mottled dark olive glaze with intense brown freckling; 35 olive glaze with patches of orange, all with brown flecks.

1 layer 15 not illustrated; fine earthenwares.

Plain 'white' creamware: Slightly finer and whiter than 'classic' creamware but without the bluey glaze of pearlware. Flat rimmed 'soup dishes' at least 3; similar but deeper bowls at least 2; a small bowl, a strainer and a handle from a large jug.

Decorated creamware: Mug with a coarse leaf-moulded base to a handle, decorated with dark brown slip line below the rim, tan slip lines below in a chequer effect; bowl decorated with thin dark brown and tan slip lines; ? mug base with tan slip; small mug rim with intricate 'mosaic' slips in browns; and a mug with incised lines below the rim touched with green, mottled brown below.

Pearlware decorated with blue: Plate rim, moulded feathers painted blue; mug with marbled blue externally; underglaze blue printed; jug with a prominent spout and elaborate borders; saucer similar; small mug similar. All printed in underglaze blue with elaborate, intricate chinoiserie/Indian borders and patterns.

Two slop bowls printed in underglaze blue with rather more European flower patterns externally and elaborate chinoiserie borders internally. Small sherd painted with thick bright underglaze blue.

Other Pearlware: Pearlware ? jug sherd printed in dark brown with a leafy pattern.

Miscellaneous: tiny stoneware jar with a metallic sheen ? Nottingham or Derbyshire and sherd from the base of a thick ? bowl of yellow earthenware.

Glass: base and neck of a bottle as Noel-Hume type 21, c. 1770-1800 (Noel-Hume 1961, p. 105).

Layer 14 finewares

As layer 15 apart from a rather more finely printed underglaze blue decorated tea bowl; a small pearlware bowl with a blue line inside the rim and green ?leaves externally; the base of a crude delft vessel; and parts of an onglaze black printed mug with a rather crude portrait of Nelson in admiral's uniform with 'England expects every . . .' above, and ADMIRAL LORD NEL . . . 1758-Died Oct. . . /aged 47 Nelson died at Trafalgar on 21 October 1805, and this mug was probably made quite soon after that; when it was broken and discarded is less certain.

Stoneware: sherds of a bellarmine: sherds of a large storage jar.

Unglazed earthenware: sherd of a flower pot and saucer.

Glass: green sherds, part of the base of a bottle like that from layer 15: neck of a clear small bottle and short neck of squat bottle in green metal.

CLAY TOBACCO PIPES

Elizabeth Watkins

Layers 14 and 15 produced two pipes of the mid 17th century: one base of a thick bowl with a wheel or star mark (bore $\frac{7}{64}$ ") and a stem impressed GREN/LAND (bore $\frac{6}{64}$ ") probably made by Richard Greenland of Marlborough c. 1650-1670 (Oak Rhind 1980, 352).

Illustrated pipes

1: layer 14 and 2; layer 15: identical pipes with Prince of Wales' Feathers and flower decoration. Large square spur. Decoration mould imparted and rather blurry. Virtually illegible lettering on either side of bottom of feathers. The front part of another identical bowl with only flower decoration from layer 6. Bore $\frac{4}{64}$ ".

Information from Adrian Oswald suggests these pipes date from c. 1800-1840, and as the mould line on the base of the spur has not been removed, after c. 1820 is likely as the practice of trimming and smoothing this joint seems to have been abandoned about 1820.

2 and 3: Fragments from three identical bowls, fluted, mould imparted decoration. Stem diameter 7 mm, bore $\frac{5}{64}$ ". Layer 15.

Not illustrated: Layer 14 unmarked stem fragments 1 bore $\frac{7}{64}$ "; 15 bore $\frac{5}{64}$ " and 1 bore $\frac{4}{64}$ ". Layer 15 stem 50 mm long diameter 6 mm, bore $\frac{4}{64}$ ", broken at junction of bowl and stem, letter I in relief. Unmarked stem fragments 1 bore $\frac{7}{64}$ "; 2 bore $\frac{6}{64}$ "; 23 bore $\frac{5}{64}$ " and 14 bore $\frac{4}{64}$ ".

A report on all the clay pipes will be found in archive.

DISCUSSION

There are only a few 19th century groups published from Dorset. However, luckily they are all of different dates: Dorchester has one from the 1850s (Draper 1978) and others from 1810s and 1830s (Draper forthcoming). This group slots in between the two latter, as it almost certainly dates from the 1820s. The clay pipes here suggest that date, and this is confirmed by the finewares: basically a mixture of developed creamware, and pearlware (much of it printed in blue). The Nelson commemorative was obviously made after 1805, but we do not know how long it survived before being broken. The glass bottles are a little earlier than the ceramics, a common phenomenon probably due to bottles spending more time in careful storage (e.g. a cellar) than ceramics.

The finewares have little intrinsic interest, but the coarsewares they date are a useful sample. By the 19th century one would expect local kilns (in this case Verwood) to have been badly affected by the growth of the Staffordshire industry. That area (and indeed others)

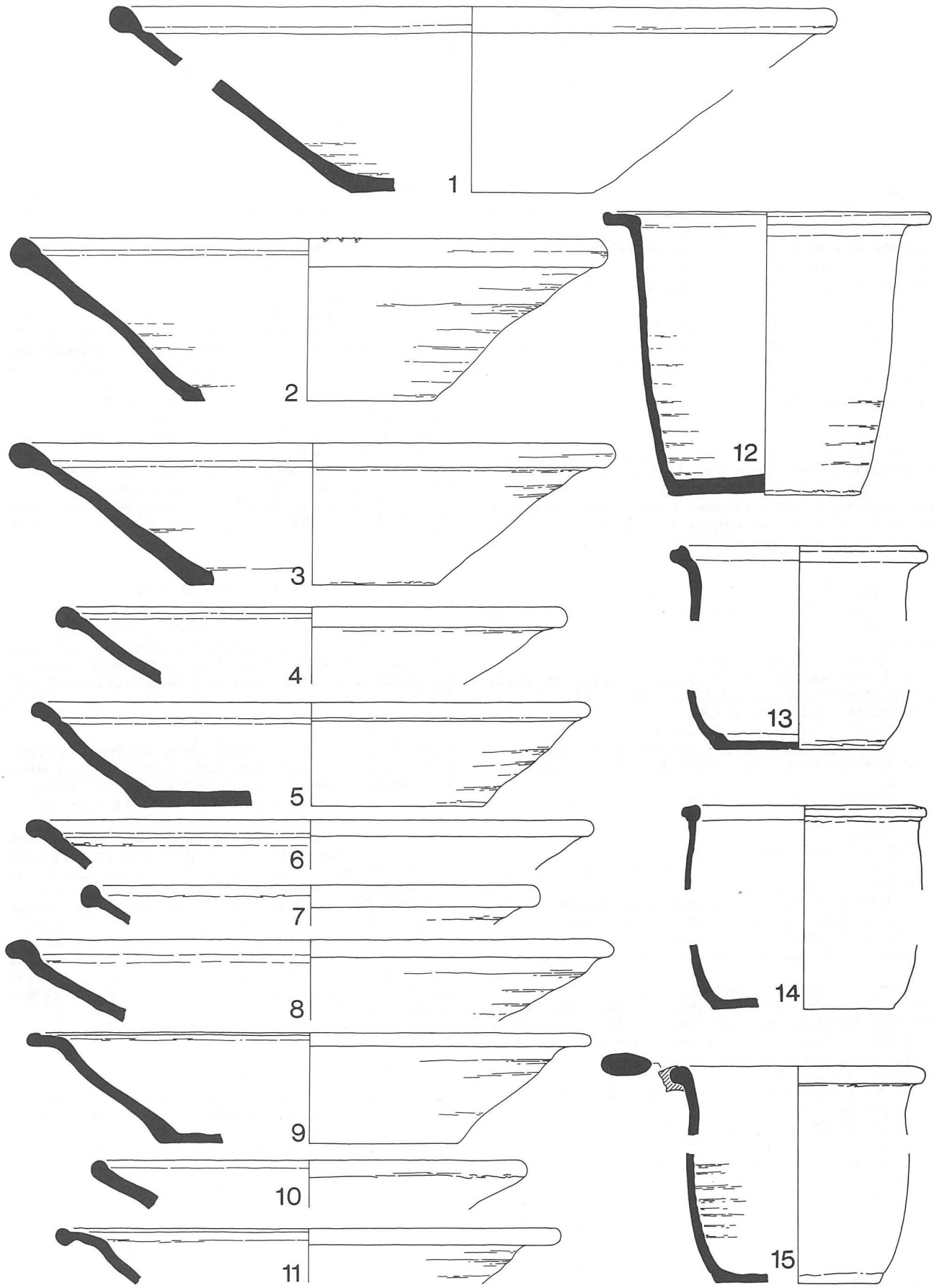


Figure 1. Shaftesbury pottery at 1/4 life size. Nos 1-4 pancheons; 5-11 dishes; 12 commode liner; and 13-15 chamber pots.

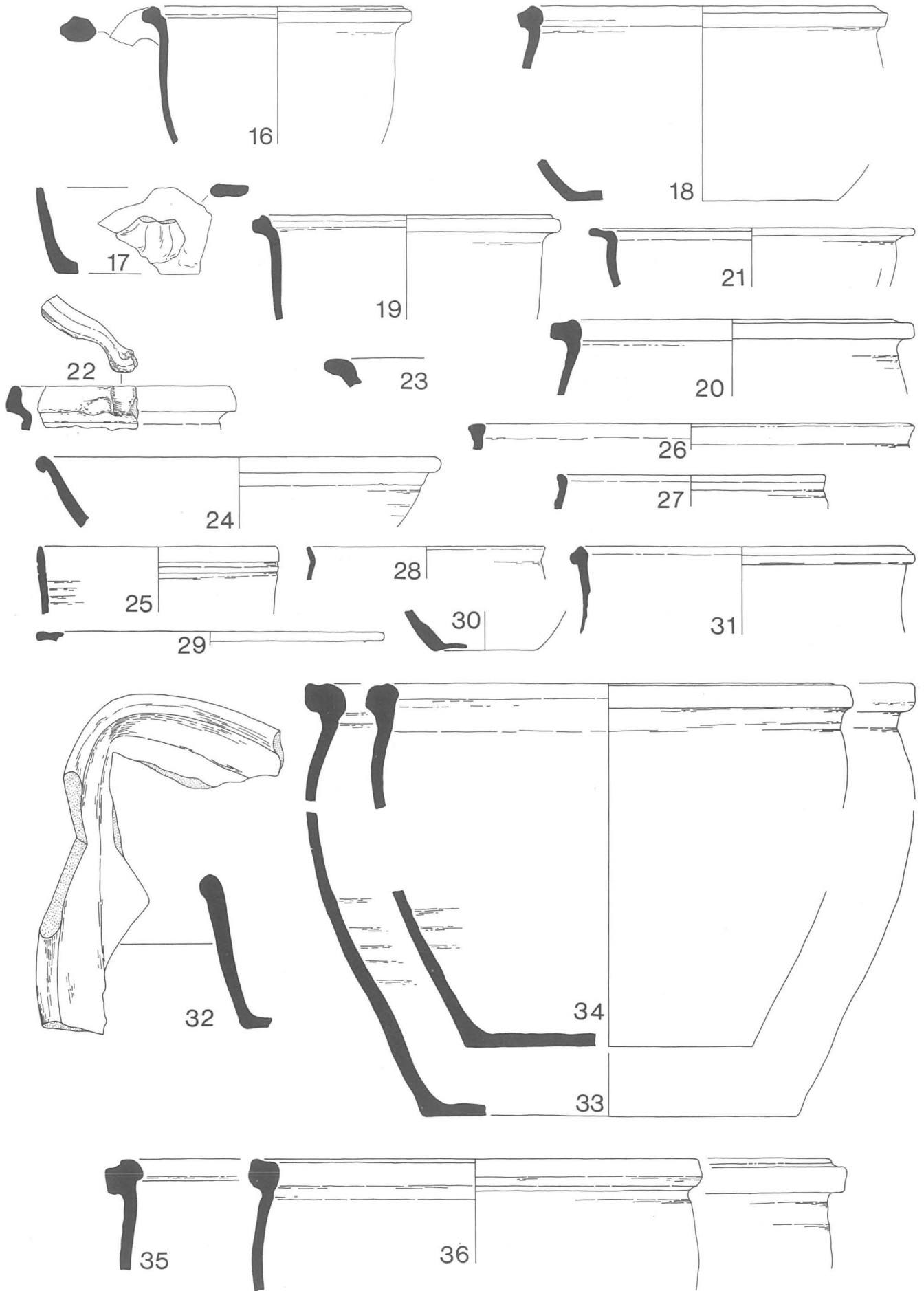


Figure 2. Shaftesbury pottery at 1/4 life size. Nos 16-20 chamber pots, 21-31 miscellaneous, 32 ham pan; and 33-36 bread bins.

were producing huge quantities of cheap fine earthenwares like creamware, and marketing them all over the country. This had been going on for at least 60 years by the time this group was deposited, and Verwood was reduced to supplying heavy vessels such as the bread bins (nos 33-36), pancheons (nos 1-4) or ham pans (no. 32) where transport costs were a consideration, or other utilitarian wares such as dishes (nos 5-11) which were presumably used in kitchens, or chamber pots (nos 13-20) which were, one assumes, also not for display.

To a large extent this selection of forms matches those found in other 19th century groups from Dorset, apart from the lack of jugs in this group. This is surprising because jugs, along with bread bins, bowls and pancheons, were the useful forms in production until the end of the Verwood industry this century (Young 1979). The lack of ceramic lids for the bread bins is also notable: there are four bread bins and no lids. The limited sample known from excavation suggests that lids were less common than the bins; presumably wooden lids or simply cloths were used.

Since it is not clear whether all the pottery is preserved from this group or whether the whole pit was excavated, weights for the various forms and fabrics have not been recorded. However there are 28 vessels in the finewares, 29 local earthenware and one earthenware from further afield. This is a much higher proportion of earthenware than groups from Dorchester. At Greyhound Yard (Draper forthcoming) a large group from the 1780s or 1790s had only five local earthenware vessels (and two non-local) against 60 fine earthenwares, etc. A group of c. 1810s had nine local earthenware and 89 fineware vessels. Finally a small 1830s group had four local vessels with 31 others. Clearly as represented by this group the amount of local earthenware in use in Shaftesbury was greater than in Dorchester. This is partly because all the chamber pots found in Dorchester groups are fine earthenware, whereas all the Shaftesbury ones are local earthenware. Bread bins and pancheons are less common in Dorchester, and overall Verwood seemed to have retained a far greater share of the market in the early 19th century in Shaftesbury.

Nos 25-27, 30 and 31 are more likely to be 17th century, of similar date to the earlier clay pipes from the group.

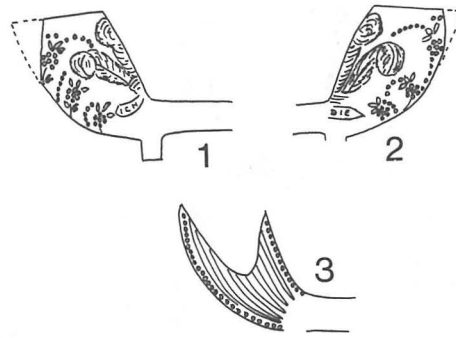


Figure 3. Shaftesbury clay tobacco pipes at life size.

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East Holme Pottery

JOHN A. TERRY

SUMMARY

In 1974/75 pottery, including wasters, mainly of a white fabric was discovered near East Holme (Purbeck) by the late Donald Young. Further research, and analysis of the sherds has led to conclusive evidence for a Post-Medieval kiln in the immediate area, which appears to have been in production during the 17th to early 18th century.

INTRODUCTION

The original fieldwork for this report was carried out by the late Donald Young and John Beavis in 1974/75. It resulted in the collection of some 2,000 sherds (50 kg) of a predominantly white-bodied Post-Medieval ware. The uniform nature of these sherds and the presence of wasters suggested a nearby kiln site. After the death of Donald Young in April 1980 the collection, along with some preliminary notes, was deposited in the Dorset County Museum.

THE SITE IN ITS LOCAL CONTEXT

Background

The area of fieldwork (Fig. 1) was centred about two fields just south of the small hamlet or shrunken village of East Holme (SY896859). This lies in the north of the parish of the same name, within the Isle of Purbeck, 3 km south-west of Wareham, 15 m OD, on the south side of the River Frome. This small hamlet is all that now remains of the original Medieval settlement for the parish. The rest of the parish (about 1,000 acres) is roughly rectangular, consisting of Holme Heath and the flood plains of the River Frome, which in the past were subject to tidal flooding. Most of the heathland area is now taken up with the army's gunnery ranges.

Little is known of the history of the settlement, although mention is made in the Domesday Book under the spelling of *Holne*. A Cluniac priory was established about 1107 (VCH 1908, 80-82) as a dependant cell of Montacute in Somerset, and this lasted until the Reformation, being dissolved on 20 March 1539. On the site now stands Holme Priory House.

It seems possible that East Holme was also once the site of a Romano-British pottery kiln, since in 1971 a small shallow pit with signs of burning was discovered at SY89618593 (Fig. 2). It contained badly-fired examples of three types of black Romano-British coarse ware. In association with these finds was a small bowl-shaped clay structure, which appeared to be burnt on the underside. Near this was another area of burning which contained pottery of a Medieval date. Also in 1971 a small excavation took place at SY89818601 on part of a Medieval graveyard, believed to be associated with the priory (Beavis 1971).

Geology

This site is on the Eocene Bagshot Beds (BGS 50,000 sheet 328). These strata consist of gravels and variously coloured sands and clays. The clays have been extensively exploited since the Roman period (Legg 1972, 41), and the landscape is scarred by clay extraction pits. Ten years ago there was a total of 23 operational ballclay works in the area (HMSO 1975), and two of these, Holme Priory, an open pit, and East Holme, a mine, are just west and south respectively of the postulated kiln site position (Fig. 2). This area is also the source of the white clay used by the present Poole pottery industry.

DOCUMENTARY EVIDENCE

A potter by the name of William Dover was living at East Holme in 1701, for it was in this year that he took on as an apprentice Thomas Dover, a nine-year-old from the poor house at Wareham (DCRO, P 63/OU9). It is possible that

this Thomas Dover may have been a poor relation. There is no mention of this Dover family in the East Holme parish registers of 1742-1800, but there is a Thomas Dover in the Hearth Tax returns of 1662-4 (Rawlinson 1951), and a Thomas Dover appears in the 1642 Protestation Returns (Fry 1912). With the exception of William Dover there is no evidence that any of these were potters, but it may be worth speculating that William Dover was perhaps the last in a family line of potters at East Holme. His will of 1718 (DCRO, D367/T1) does not mention a pottery, although his wealth may suggest that he had already sold the business, or abandoned it in favour of other interests.

Certainly the estate map of 1811 (DCRO, D367/P3) and Tithe Award of 1841 (DCRO, T/EHO) do not show or mention a pottery industry, and there is no mention of the Dover family, but the field known as Potter's Field is recorded. However, it is presumably the Dover family that has given its name to the stream that runs north-south through East Holme, or, of course, the family name may be derived from the stream. Also the estate and Tithe maps name the small plantation just west of Potter's Field as

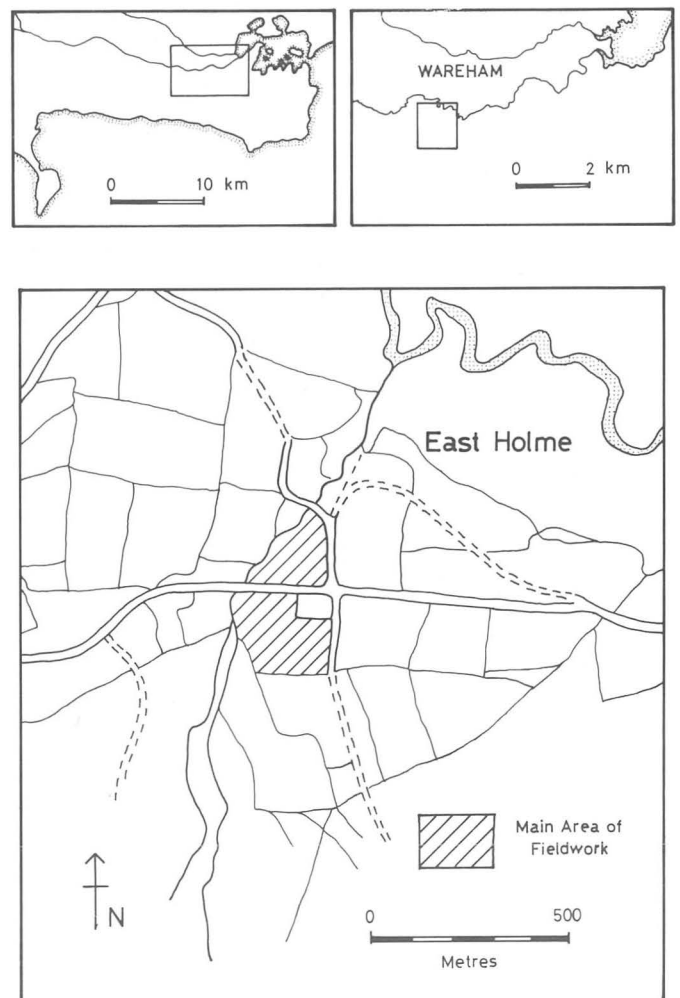


Figure 1. East Holme: location map.

Dover's Mead. The field names of Buttons Cowslease and Brick Kiln Close for the fields immediately north and south of Potter's Field also appear on these maps.

Local tradition states that Dover the potter lived at the old farmhouse by the ford; this is now known locally as Dover's Cottage (pers. comm. J. Goldsack).

FIELDWORK

Fieldwalking in 1974/75 produced pottery, including wasters, from two freshly-ploughed fields, Buttons Cowslease and Potter's Field, just south of East Holme village. Among Donald Young's original notes there is also mention of pottery recovered from a field at SY898587 to the east of Priory Farm (Fig. 2), although it has not proved possible to locate these finds, or to walk the area.

Buttons Cowslease produced approximately 30 kg of pottery including 42 waster sherds, in three distinct scatters (Fig. 3). The two main concentrations were at the south end of the field SY89478577 and SY89568577, while the third occupied the north corner SY89618588. Donald Young noted a small area of limestone fragments, vitrified bricks and gravel near the present gate (Fig. 2). There is also a curious disturbance now covered in trees jutting out from the south field boundary. This may well have some connection with the pottery industry: the trees and undergrowth suggest it to be about 150 years old, which would mean it became overgrown after the suspected demise of the pottery.

Below this field and across from an ancient trackway, now the modern road called Holme Lane, is Potter's Field. Since the original fieldwalking the boundaries of the field have

somewhat changed, and a fence dividing Potter's Field from the field to the south known as Brick Kiln Close was removed in 1981; a small area to the west site has been lost to a recent ball-clay extraction pit. Fortunately, however, the area in the north of Potter's Field containing the recorded pottery scatter has remained unaffected. One fairly uniform scatter of pottery, approximately 20 kg with 22 waster sherds, was collected from this field SY89538564 (Fig. 3).

The notes from the original fieldwork record observations of the surrounding fields mention the absence of any surface pottery or mole hill finds. The field to the east of Buttons Cowslease was observed by the writer during the uprooting of some large trees, and no pottery was present in the upcasts. In Potter's Field during the autumn of 1984 extensive deposits of the white ball-clay were exposed by recent ploughing in the south of this field, and a red terracotta clay was also exposed in small patches. Ploughing extended into the field of Brick Kiln Close, where tile and brick could readily be retrieved.

The present farmer at Priory Farm, Mr J. G. Goldsack, operates a three-year ploughing cycle on these fields, and Buttons Cowslease is to be ploughed again around September, 1988.

DISCUSSION

From the study of the sherds and the available documentary evidence, it would seem reasonable to conclude that a small country pottery was in operation at East Holme during the 17th century to early 18th century. Certainly all the raw materials were readily available, clay, fuel and fresh water from the stream.

It has been unfortunate that the main area of fieldwork, necessitated by ploughing, has been confined to the two fields of Buttons Cowslease and Potter's Field. However, the spread of finds to date over the two fields may suggest movement of the kilns around the fields. This perhaps means that the pottery industry was simply playing second fiddle to the local agricultural economy, having to fit in with field rotation. Certainly the potter William Dover had substantial farming interests by 1718, for his will of that year gives directions concerning divisions of pasture land and livestock (DCRO, D367/T1).

Indeed the demise of the pottery may have come about due to the squeezing out of this industry in favour of the greater profitability of agriculture in the 18th century. For it was early in this century that the East Holme property was acquired by the Bond family, who were very active in local agriculture and the enclosure movement (RCHM 1970). It therefore seems quite likely that this family would have wished to clear up a small and somewhat unremunerative local industry at this time, especially when agriculture was producing such high returns.

It might also seem quite natural for a small rural industry to go out of production in the 18th century, with the onset of the Industrial Revolution, as the improvements in transport would lead to a less reliance on small local industries of the East Holme type. Brears (1971, 78) suggests that this competitive disadvantage may account for the demise of the English country pottery.

It would be convenient to see the demise of the East Holme pottery coinciding with the beginning of the present Poole pottery industry (Hawkins 1975). However this is not the case, since the present Poole industry has only been in existence for just over a hundred years, and produces a different type of pottery. Competition need not necessarily have come from the new industrial potteries, but from large scale nearby country potteries like Verwood (Algar *et al.* 1979, Young 1979).

But in the case of East Holme there is the neighbouring brick and tile kiln site, represented by surface scatter in Brick Kiln Close to the south of Potter's Field. No work has

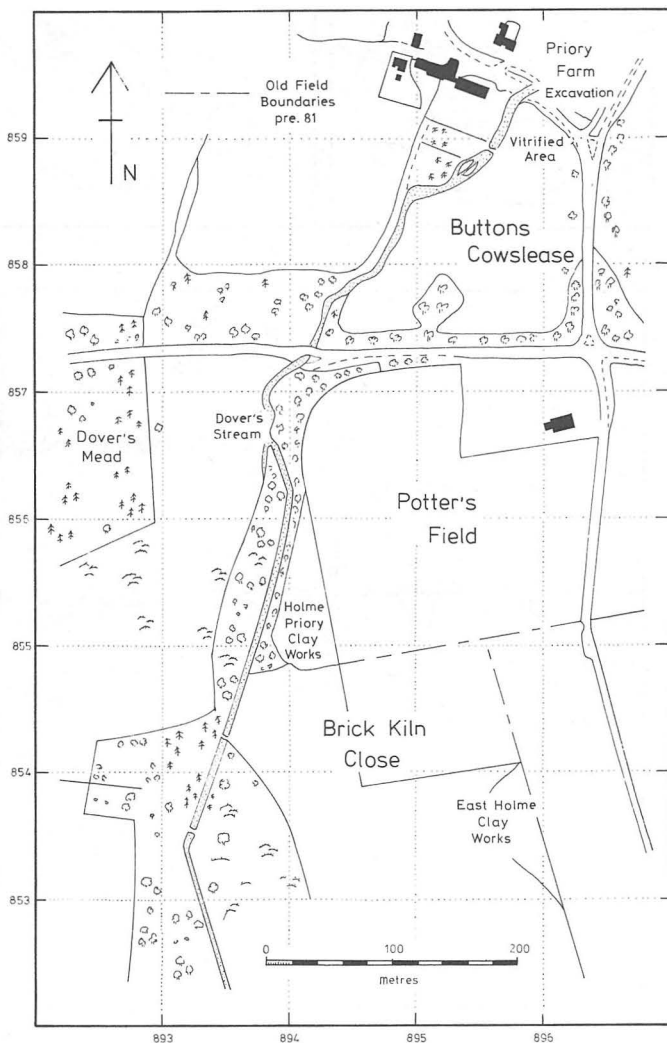


Figure 2. East Holme: field names.

been carried out on this site, and a precise date is not available, but the finds are definitely Post-Medieval. It is possible that the pottery was eclipsed by the brick works, as brick making was certainly an important industry in the Purbeck area during the 18th century (Young 1971, 218). Further work on the brick and tile kiln site would help to elucidate this point.

Additional field-walking is also needed in the surrounding fields, when ploughed, to ascertain the full extent of the site, and more finds would serve to give greater information regarding the output of this kiln. A magnetometer survey has been undertaken by the author through the kind services of Dorset Institute of Higher Education, with the aim of identifying the precise location of the kilns. This mapped the magnetic anomalies at both Buttons Cowslease and Potter's Field, unfortunately various technical difficulties suggest that the results may be unreliable. Therefore it is intended to repeat the survey, and publish the results later.

THE POTTERY

Introduction

East Holme pottery is a coarse wheel-thrown earthenware, in a white sandy fabric often with a yellowish-green internal glaze. This white ware made up 90 per cent of the sherds recovered from the site. Alien sherds found at the site totalled about 10 per cent of the collection, and are described separately.

The analysis of the East Holme ware suggests that it is firmly in the local tradition of the period, as typified by the Verwood Industry (Algar *et al.* 1979; Young 1979).

In the descriptions of the fabric and glaze the writer has used the guidelines suggested by Blake and Davey (1983), albeit with some modifications to suit this material. The analysis has been carried out at Blake and Davey's Scientific Aids Level A, which essentially

involves the use of a binocular microscope and such implements as iron nails to help describe hardness, etc. The observations are then related to a series of keywords, in an attempt to standardise terminology. Here the writer found that a greater detail could be described by making use of a similar series of keywords drawn up by the DUA (Orton 1979). This perfectly complements the appropriate guidelines of Blake and Davey, but greatly expands the range of recorded detail.

Fabric

The pottery for the most part is hard and rough to the touch and of a reduced firing (as demonstrated by the refiring experiments: Appendix I). The colour is a tempered off-white or pale creamy-buff throughout; in Munsell notation it corresponds to a range of 5YR (where value is usually greater than 7 and chroma less than 4) to 10YR (where value is usually greater than 6 and the chroma less than 4).

Matrix inclusions are based on close-up visual examination using a binocular microscope (10x, 20x). Newly-broken clean fractures and old washed breaks were tried as well as filed surfaces. The best results were obtained by gentle cleaning with a soft brush across the old weathered fractures. In this way minerals were allowed to protrude from the surface, and it became easier to describe size and shape.

The clay matrix consisted of iron minerals and quartz bonded together in kaolinite (Table 1). The iron deposits appear sorted and oxidised in moderate pellets of up to 2 mm in size. The sand grains are ill-sorted in a mixture of colours, clear, white and green. All are sub-rounded, although the larger grains can be more sub-angular. The size varies from 1 mm or less; however the green grains appear much finer and only reach a maximum size of about 0.5 mm. Voids are present at a sparse frequency, and although some examples can be larger, most are no bigger than 1.5 mm in size. A newly-broken fracture was finely-irregular, and the sand could be seen to form ridges or laminations.

Investigation of minerals present in East Holme ware is not yet complete, but the results shown (Table 1) are all that can be detected using Scientific Aids: Level A, described by Blake and Davey (1983). However, it can be safely assumed that this white ware was manufactured from the local ball clay. The small amount of Kyanite detected in the fabric is consistent with the derivation of other Bagshot Beds (see Geology).

The high quantity of sand tempering seen in this ware would have been added to give a greater strength and stability to the plastic qualities of the local ball clay.

TABLE 1. Inclusions in Fabric.

Inclusion name	Percentage area
Iron Compounds	5%
Clear	17%
Quartz White	10%
Green	5%
Kyanite	<1%

Percentage area calculations based on Robinson (1979). Figures are averaged. Number of sherds studied 40.

Glaze

The colour of the glaze falls into a range of yellow to green. This yellowish-green range in Munsell notation varies from 2.5YR (where value is greater than 4 and chroma greater than 2) to 5Y (with value greater than 5 and chroma greater than 3). There is a wide use of colour tones, although there is little variation in colour over individual sherds.

The glaze is patchy and was usually applied only to the inner surface of the vessel, where it would act as water-proofing. About 15 per cent of the East Holme sherds were glazed on both inner and outer surfaces. Unglazed sherds were almost as infrequent.

Glaze finish is not uniform, and in some cases is too thin to obscure any irregularities in the body surface. However, the glaze has adhered well to the surface, and although sometimes crazed, little has flaked off.

It is common lead based glaze, presumably made with lead sulphide (galena). This was probably just added straight to the fabric clay and suspended in water to produce a true glaze of the adhesion quality previously noted. It appears to have been applied by pouring the true glaze mixture onto the vessels while in a leather-hard state.

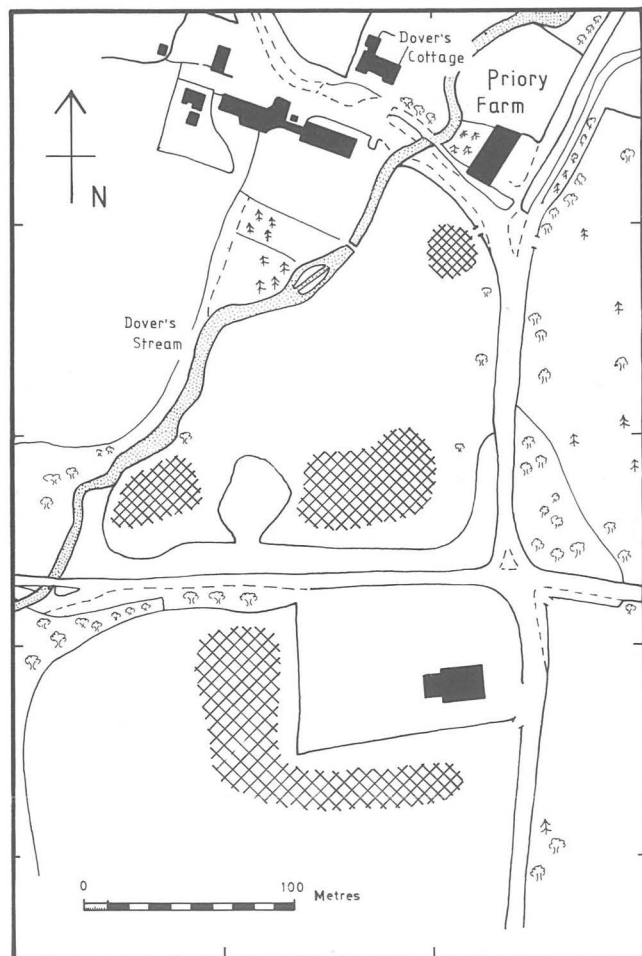


Figure 3. East Holme: pottery scatters.

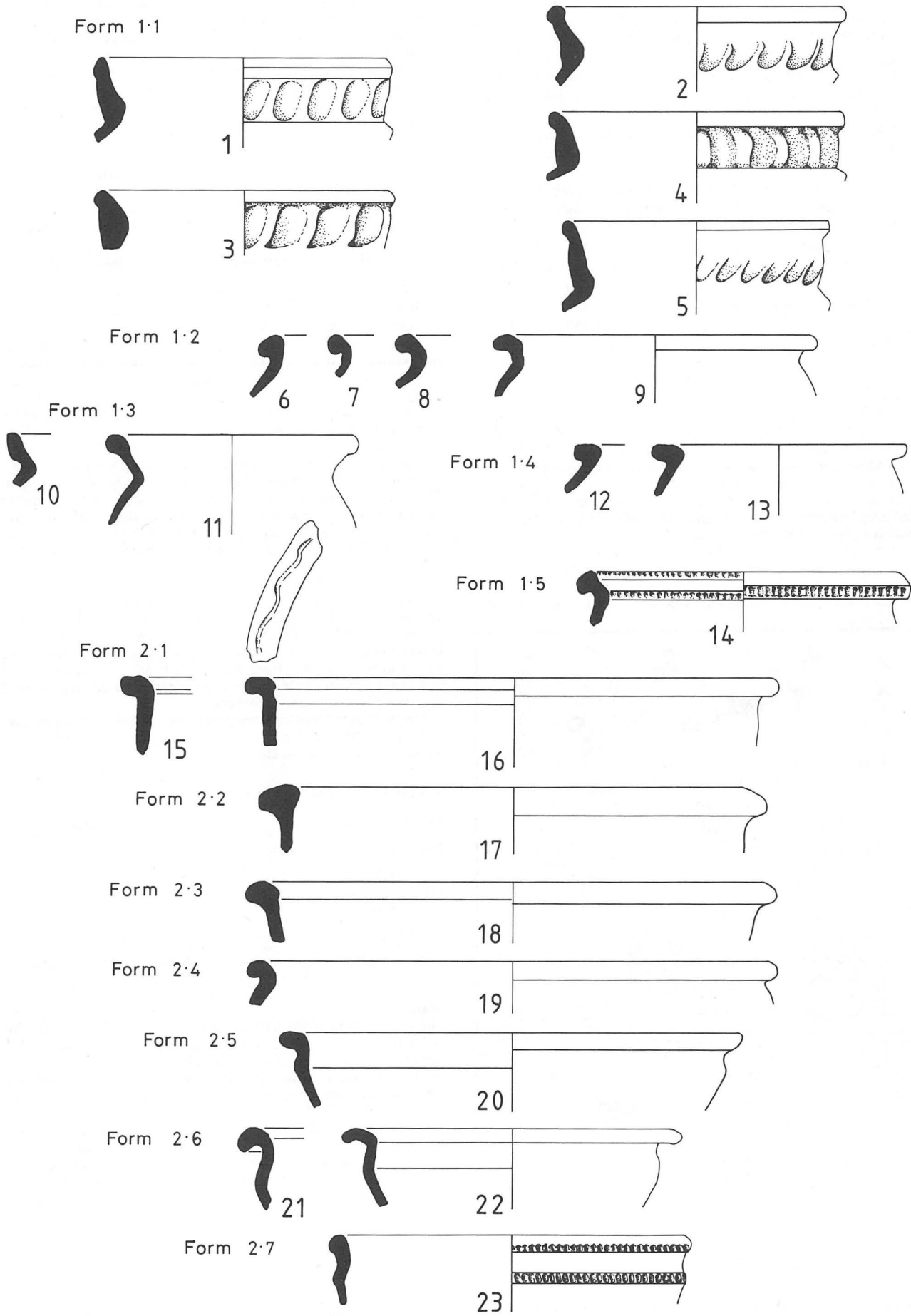


Figure 4. East Holme: the pottery. EHVT1 Jug/Jar Nos. 1-14, EHVT2 Bowl Nos. 15-23. Scale 1:4.

A slip could be detected on some of the sherds, but the glaze colour was determined by the iron content, and its reaction with the body clay when fired. The iron may well derive from the clay of the fabric, or from iron present in the sand if this was used as the silica content of the glaze mix. Further colouring of the glaze was noted from the clay matrix inclusions, in the form of the occasional dark red/brown spots; these were caused by the iron pellets on the surface producing a staining when fired.

Firing

Experiments were conducted on the East Holme sherds to ascertain their original firing temperature and conditions (see Appendix). It was found that this ware was originally fired at approximately 1000°C, and was a reduced firing.

Among the finds from the fieldwalking was a small amount of kiln furniture, in the form of broken clay tiles. Nearly all were roughly glazed and had fragments of pottery adhered to their surfaces. These must have served as props and separations during the firing.

Many of the waster sherds showed a blistering of the glaze, and this would have occurred as a result of over-firing, or the glaze not having sufficient time to smooth out before setting in the kiln.

Some of the glaze stains have run, confirming that the jug/jar forms and bowls were fired inverted. Consequently the rims of these vessels can be quite rough, and some of the bases show sign of rim scars outlined in glaze.

Decoration

Very few sherds show signs of any decoration, apart from single or double incised lines. The only other decorations were thumb cordons on the jug/jar forms 1.1 and small irregular impressed designs on jug/jar forms 1.4 and bowl form 2.1

Vessel Types and Forms

The classification of the East Holme pottery into a vessel type series has proved awkward, since no reconstruction of a complete vessel profile has been obtained, except in the case of one small bowl. However, it is possible to identify eight vessel types, based on rim size and profile, except in the case of the footed vessel and ridge tile. The writer has adopted the classification given by Musty (1966), which is based on complete vessel shape and function, although three additional types of footed vessels, platter and small bowl have been introduced, and are not described by Musty. A further subdivision into form has been established by comparison of shape, particularly of rim profile.

The layout of the classification system is based on a decimal numbering code after Freke (1979), as this will allow the easy addition of further data at a later date. In this system each type is given an initial number, and variations in the form are expressed by numbers to the right of a decimal point. In addition each vessel type is given an abbreviated code EHVT1 (standing for East Holme Vessel Type 1), etc.

EHVT1, Jug/Jar; Forms 1.1, 1.2, 1.3, 1.4, 1.5 (nos. 1-14)

High sided vessel of an ovoid or rather globular-shape, the rim diameter varied from 22-25 cm. Using the classification system suggested by Musty (1966) it has proved impossible, from such fragmentary sherds, to distinguish between the jug and jar classes. Hence the two types have been grouped together under the above jug/jar label. There is considerable variation in shape and decoration; the form 1.1 has a thumb cord round a collar and there is further decoration in the case of form 1.5, which has a series of small irregular impressions arranged around two internal and one external bands.

The glaze is always internal: no. 1 green; nos. 2, 3, & 8 yellow lightly speckled with iron staining; no. 4 pale yellow; no. 5 yellowish green, blistered and running over the rim; nos. 6, 10 and 13 yellowish green; no. 7 yellow, thicker on the top of rim; nos. 9 and 14 dark green; no. 11 yellowish green, only around inside of neck; no. 12 pale yellow, with scar on top of rim from inversion in kiln.

EHVT2, Bowl; Forms 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7 (nos. 15-23)

This type is distinguished by the larger diameter of forms 2.1, 2.2, 2.3, 2.4, this being 35 cm or greater. While forms 2.5, 2.6, 2.7 are of a simple shape, but smaller diameter. Forms 2.1., 2.2 have a pronounced rim flange, and are straight-sided vessels; the others were curved sided with club and rolled out rim forms. Form 2.7 was the only one with decoration; this was in the form of a collar around the neck, with two bands of external impressed decoration.

The glaze for the most part was only applied internally: no. 15 green patchy thin present below lines; no. 16 yellowish green overall; nos. 17 and 18 yellowish green extending over top of rim; no. 19 unglazed except top of rim scarred from firing; nos. 20, 21, and 22 yellowish green; no. 23 green.

EHVT3, Dish; Forms 3.1, 3.2, 3.3 (nos. 24-31)

Large shallow vessels with maximum diameter around the rim of 37-41 cm, and steeply sloping sides, could also be described as pancheons. There appears to be two distinct forms, 3.1 and 3.2, the latter with a deep incised internal line just inside the rim, and the former with only a slight indent a little further inside the rim. Form 3.3 takes in a much smaller group of square to horizontal club rims.

The usual pattern for glazing seems to be internal: nos. 24 and 25 traces of a brown slip, dark yellowish glaze; no. 26 light brown slip and yellow glaze; no. 27 dark green lightly speckled with iron staining; no. 28 yellow in a large patch, well below rim; nos. 29 and 30; green overall; no. 31 unglazed.

EHVT4, Platter; Forms 4.1, 4.2 (nos. 32-36)

A rare type; can be sub-divided into two forms of 30 cm diameter. Form 4.1 has a club rim, and form 4.2 a slightly thickened rim.

The glaze is very patchy, and there appears to be no standardisation in the areas of application: no. 32 patches of glaze overall; no. 33 yellow green internal, with traces of dripped glaze underneath; nos. 34 and 36 dripped glaze underneath only; no. 35 yellow overall.

EHVT5, Bottle; 5.1 (nos. 37-38)

This type was defined by the small diameter of neck and base; the rim is slightly thickened and rounded. The body sherds are also readily recognisable by the pronounced internal throwing marks, which the potter has been unable to remove due to the small neck size.

Glazing appears to be overall or not at all: no. 37 yellowish green; no. 38 yellow but absent from underside of base.

EHVT6, Small Dish; Form 6.1 (no. 39)

The only type where it has proved possible to reconstruct a complete vessel profile. The single example has a diameter of 17 cm, with vertical sides to a depth of 3 cm; there appears to be attachment of some kind of handle. The yellow glaze is internal only.

EHVT7, Footed Vessel; Form 7.1 (nos. 40-41)

The classification of this type came about by the discovery of a number of base sherds with foot attachments, and a number of odd feet. It has not proved possible to distinguish what kind of footed vessel or vessels is represented by these base sherds. Therefore the whole group has been assigned under the single name of 'footed vessel', and represented by the single form 7.1. In all examples the foot manufacture is a pulled design, and attachment is by means of smearing, not necessarily well finished.

These base sherds are either glazed internally or not at all: no. 40 yellowish green; no. 41 yellow.

EHVT8, Ridge Tile; Form 8.1 (nos. 42-43)

These are of a 'bivouac-shape' with a decorated ridge of triangular cox-comb design, knife trimming has been used in the shaping. Some examples are glazed all over the exterior surface, while others are glazed probably more by accident than design, due to dripping in the kiln. The adhesion of clay remnant is a common factor on the underside. No. 43 with a single patch of dripped glaze on exterior surface, and no. 42 dripped glaze exterior, underside green glaze with adhered clay remnant.

Bases (nos. 44-49)

The design of the bases falls approximately into two categories: those with foot rings or beading, and those without. Sometimes in the case of foot ring bases, this has been added after the initial throwing of the vessel, and the join can be clearly seen on the underside. The only other noticeable regular occurring feature is a slight concaving of the base, normally applicable to those base sherds of a smaller diameter (less than 12 cm) and with foot rings or beading.

Glazing internal unless otherwise stated: no. 44 and 46 yellowish green heavily speckled with iron staining; no. 45 yellowish green with a drip of glaze on bottom of base; no. 45 pale yellow external; no. 48 brown slip overall, yellow glaze, rim scar of glaze on bottom of base; no. 49 unglazed, but rim scar of glaze on bottom of base.

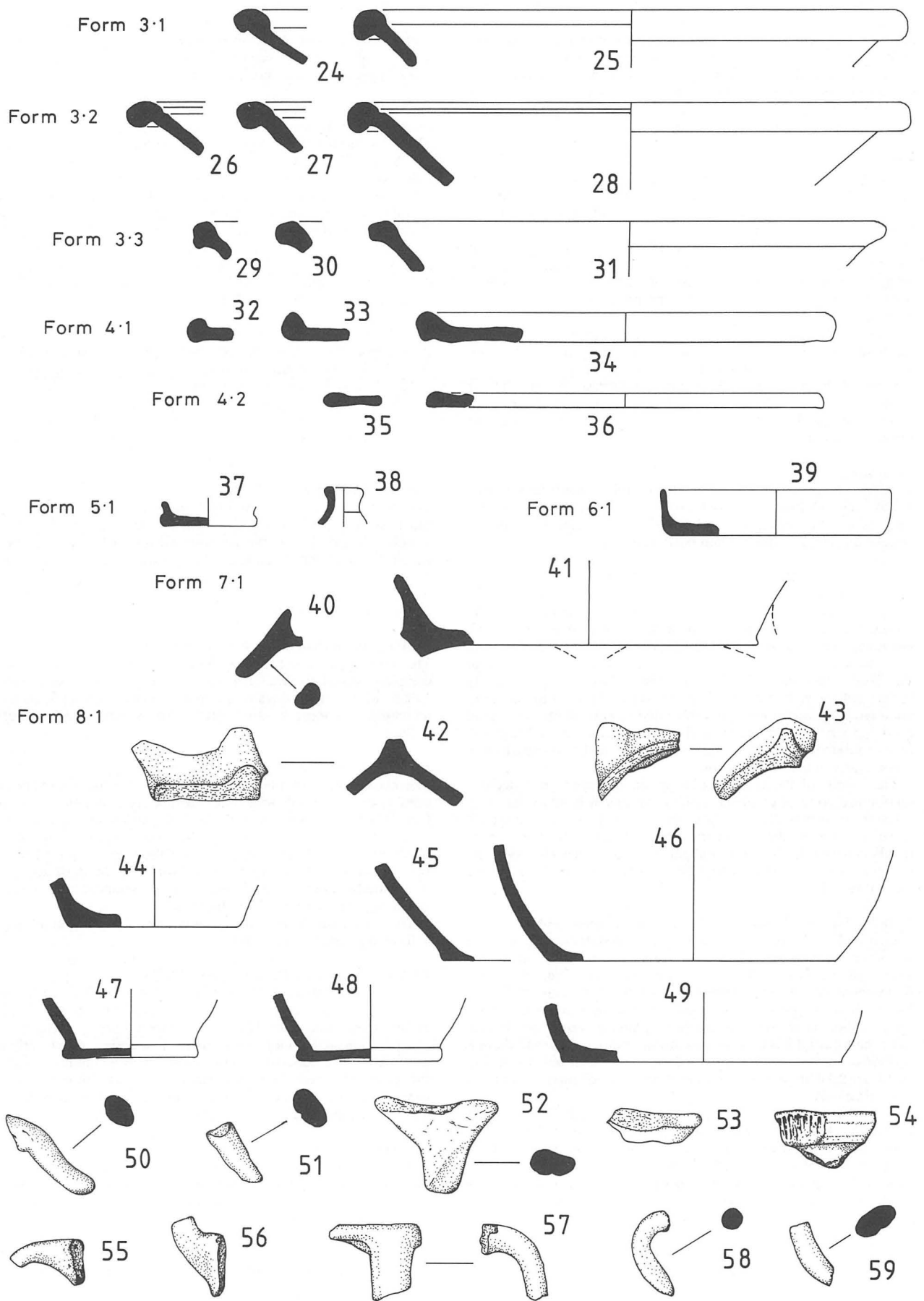


Figure 5. East Holme: the pottery. EVHT3 Dish Nos. 24-31, EHVT4 Platter Nos. 32-36, EHVT5 Bottle Nos. 37-38, EHVT6 Small Dish No. 39, EHVT7 Footed Vessel Nos. 40-41, EHVT8 Ridge Tile Nos. 42-43, Bases Nos. 44-49, Miscellaneous Nos. 50-59. Scale 1:4.

Miscellaneous Handles, etc. (nos. 50-59)

There are very few handles. Most of these are of the strap variety, and were manufactured by pulling the clay; some were then folded to give a more robust construction. There are a few examples of 'loop handles', being much smaller and circular in cross-section. From the evidence available the method of attachment is mainly by smearing, although one waster sherd shows clearly where the potter has scored the rim, presumably for a handle that was never attached (no. 54). It would seem logical to assign all these handles to the jug/jar forms; however, the small dish may also have been handled.

Similarly with the feet the method of manufacture is by pulling, and then sometimes the clay was also folded in on itself.

There is no evidence for spouts of any description, but it is possible that simply to date none have been recovered.

Unglazed except no. 53 traces of blistered internal glaze; nos. 55 and 56 yellowish green internal glaze. No. 52 has slight traces of brown slip.

Frequency of the types

The frequency of the recognisable types of East Holme ware present in the collection is shown by fig. 6; the count was based upon the number of rim sherds.

It should however be pointed out that quantification of forms present on a kiln site is naturally based only on wasted material. This therefore may not necessarily bear any relationship to the true output figures from a kiln. Such an argument has been expanded by Musty (1974, 59). Nevertheless in the same paper he also shows that rare forms on kiln sites are scarce on settlement sites, although from the kiln experiments in Leeds (Mayes 1967) it could be demonstrated that waste factors were actually proportional to the output figures.

However, on talking to experienced present-day potters some doubt must be cast on such calculations. Also in the case of East Holme ware sherds exist with definite throwing faults, which were subsequently glazed. If these are classified as wastage, why then did the potter continue to the trouble of glazing and firing? Archaeological defined wasters, presumably sold as 'seconds', do occur as finds on settlement sites.

Dating

On the basis of documentary evidence a picture emerges of a country pottery in East Holme, which was in operation during the 17th and early 18th centuries. As far as the sherds themselves are concerned, parallels can be drawn with the Verwood potteries, which also suggest a 17th century date range (Algar *et al.* 1979).

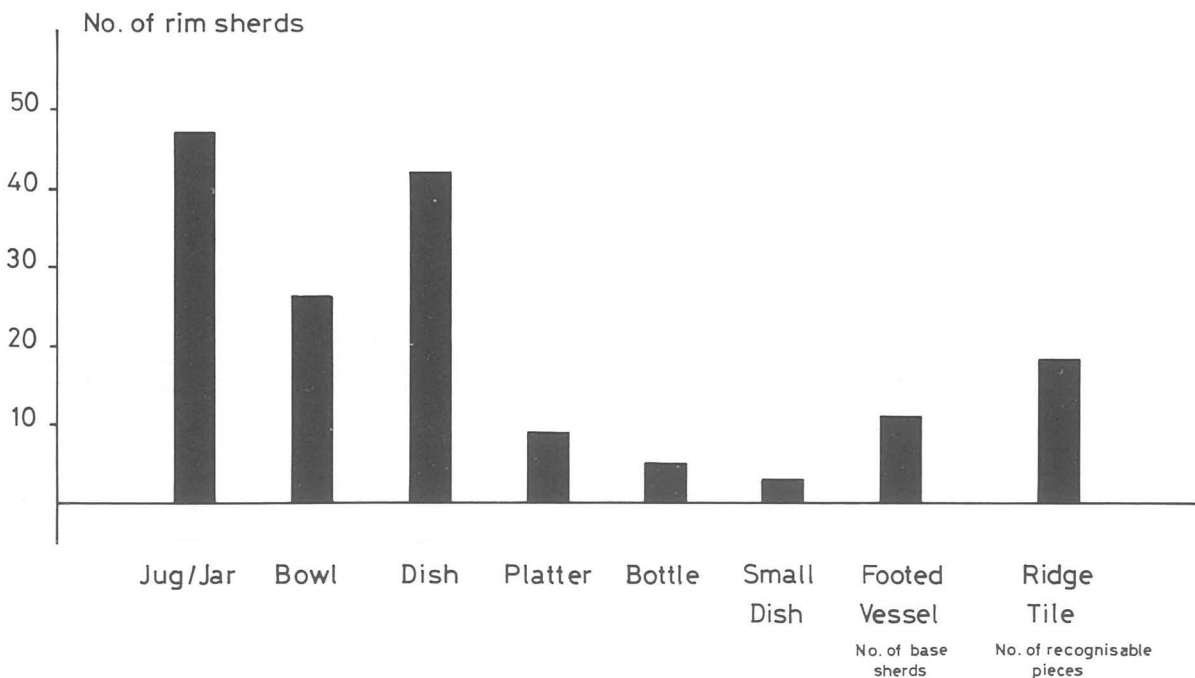


Figure 6. East Holme: graph: absolute frequency of pottery types.

Distribution

The entire collection of Post-Medieval pottery from excavations deposited at the Dorset County Museum, has been examined. East Holme ware was only identified from one of these excavations, at St Martins House, Wareham (Hinton and Hodges 1977). Here three sherds occurred in loosely identified Post-Medieval contexts.

Trench 1	piece of body sherd
Trench 2 Layer 1	rim sherd of platter, form 4.2
Trench II	rim sherd of jug/jar, form 1.2

On a more promising note the Poole Museum collections confirm that East Holme ware was reaching this port. Of course it could be shipped further, but there is no evidence of a wider distribution at present. Preliminary analysis of Post-Medieval pottery in Poole Museum, established that East Holme ware constituted about 1 per cent of their total collection (pers. comm. Keith Jarvis).

Alien sherds

The alien sherds represent about 10 per cent of the total collection from both fields, and were otherwise described as a 'normal field scatter of the 18th and 19th centuries' (pers. comm. Jo Draper). A full list may be found in archive.

A large number of these sherds (about a third) were from the Verwood industry (Algar *et al.* 1979; Young 1979) located in an area some 15 km north-east of East Holme. Some of these sherds, particularly a jug strap handle, were severely deformed, and would under normal criteria be classified as wasters. However pottery of this sort frequently found its way onto the market, especially during the later days of Verwood (pers. comm. Jo Draper).

APPENDIX

Refiring experiments

The aim of these experiments was to obtain a reasonable estimate of the original firing conditions and temperature. Previous work in this field has required specialist equipment and training. This method simply requires the use of a normal electrically fired muffle kiln and a range of potter's 'cones'. A similar procedure to the one adopted here has been described by Hodges (1981, 200).

Sherds are refired in oxidised conditions, and a careful record is kept of the temperature. The refired sherds are then compared visually with the originals for signs of further vitrification. The fabric of oxidised sherds remains unchanged visually, while the originally reduced sherds change colour due to the oxidation of the iron compounds.

The original temperature can be judged by examining the glaze. If a sherd is refired to a higher temperature than its original firing, then the glaze will appear shinier, and the iron content will produce a deeper colouring effect. Also the adhesion of the glaze improves with a higher temperature, so the interface of glaze and clay body can be studied.

Thus a series of sherds were refired at temperatures carefully controlled by the use of potters 'cones', which give an accurate temperature measurement ($\pm 10^\circ\text{C}$). The original firing temperature is therefore given by the maximum temperature at which a sherd may refire without the glaze showing signs of further vitrification.

Sherds were refired in groups of three and a temperature of 700°C was taken for a starting point. Additional firing temperatures were then increased by increments of 50°C . In this way it was ascertained that the original firing was under reduced conditions at a temperature of about 1000°C .

To verify this result a group of five sherds was then refired at this temperature.

The procedure may appear crude, and the results unspecific, but it should be noted that any higher degree of accuracy is insignificant, as temperatures inside a medieval kiln may vary up to $30\text{-}40^\circ\text{C}$ depending on the positioning of the vessels inside the kiln (Bryant 1977). Nevertheless the experimentally obtained temperature does conform to that expected for the firing of such earthenwares (Hodges 1981, 53).

Acknowledgements

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Excavations at the Church of St Martin, Wareham, 1985-86, and 'Minsters' in South-East Dorset

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SUMMARY

Excavations on a limited scale demonstrated the original length of the nave of St Martin's church, Wareham, Dorset. Details of the subsequent constructional phases are difficult to reconstruct. It is argued that Wareham and its surroundings were an important bloc of royal estate in the ninth century, of great significance to the Wessex kings.

PART I: EXCAVATIONS AND RECORDING

by D.A.H. and C.J.W.

Because of dampness problems, it was decided to provide new drainage arrangements at St Martin's church, Wareham, and in December 1985-January 1986 the Department of Archaeology, University of Southampton undertook the digging of a half-metre wide soak-away all round the exterior of the building (Fig. 2). Inside the nave, a strip of the concrete floor laid in the 1930s was removed so that paving slabs could be laid, and this gave the opportunity to do a little investigation of the interior. The small quantity of finds, the field records and an extended summary have been placed in the Dorset County Museum. This report records the salient facts and attempts interpretation. Fuller description of the standing building will be found in RCHM, III 1970, 312.

Pre-Saxon, Saxon and Early Norman periods

Two Romano-British sherds were found on the north side of the church, but the only place at which the building is not founded upon undisturbed ground is on the south side of the nave. Here there is a layer of bright yellow mortar, at least 150 mm deep and containing some large (200 mm plus) pieces of stone, which appears to underlie the church: the limited width of the trench meant that it could not be investigated any further. No dating evidence was recovered from it: it could have been a mason's mixing floor; it might have been laid down to build up and strengthen the ground at that point; or it may even be the remains of an earlier, though at least partly stone-built, church.

The ground against the foundations of the nave and chancel on the south side had been much disturbed in modern times, but the north side showed clearly that the footings were well constructed of yellow mortar and stones, some diagonally set (Fig. 3). These footings were surprisingly narrow, that is to say their external face was more or less in line with the face of the first plinth course above: consequently the other plinth course oversails the foundations and rests simply on loose earth. It may be noted that two plinth courses are visible above ground level on the south side of the nave and round the chancel, but there is in most places a third, and sometimes even a fourth of very irregular sizes of stone.

Inside the nave, it was possible to investigate the west end. Although in the narrow strips cut along the north and south walls the traces of foundations and robber trench for a west wall were far from clear, the footings of both the north and south walls (which do not have internal plinths) change character just west of the south door, and there is good evidence that there was a west wall here, its footings c. 1 m wide. The precise line of its internal face cannot be seen because of the wall plaster. This observation of the previous existence of a west wall is consistent with the plinth still visible in the north aisle, on what was originally the exterior of the nave's north wall: there are up to four plinth courses here, one of which projects c. 200 mm westwards of the top, visible, course. This gives a nave originally c. 7.5 m long internally. It was very useful to be able to demonstrate this, because it was possible to argue from what was seen outside

the west end of the church in 1979 that the nave had actually been much longer (Keen 1979, 141).

Because of recent work on the significance of measurements in churches, showing that they were often laid out systematically (e.g. Fernie 1985), it is interesting to note that St Martin is another case where the Old English perch of 5.03 m (16½ modern feet) seems to have been used. The internal width of the nave measures 5.04 m at its east end at present floor level; that of the chancel measures 3.38 m: two-thirds of the perch is 3.36 m. The internal length of the chancel, 3.63 m, does not seem to relate to the perch, though it may be relevant that it is nearly half the length of the nave (which cannot be more exactly measured than c. 7.5 m). The internal height of the nave's south wall, measured with a theodolite from the present floor, is 6.56 m; 1⅓ perches would be 6.71 m, and, to judge from the south door cill, the original floor was a little lower. The chancel wall has unfortunately had its upper courses removed. Nevertheless, there is enough surviving at St Martin to suggest that the first phase of the present church was built to a coherent programme that respected precise measurement and mathematical proportion.

Nothing was found that provided further information about the date of the first phase of the church. Pottery on the north side of the chancel conformed with the 10th-/12th-century part of the sequence established nearby at St

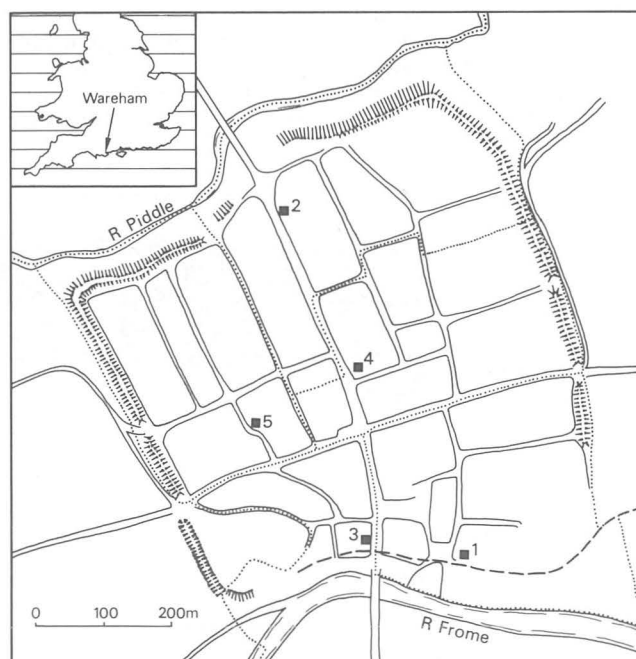


Figure 1. Location Plan of Wareham, and town map showing medieval churches and parishes (dotted lines). Key: 1, St Mary; 2, St Martin; 3, Holy Trinity; 4, St Peter; 5, St Michael. Dashed line: approximate edge of river terrace, based on RCHM, III 1970.

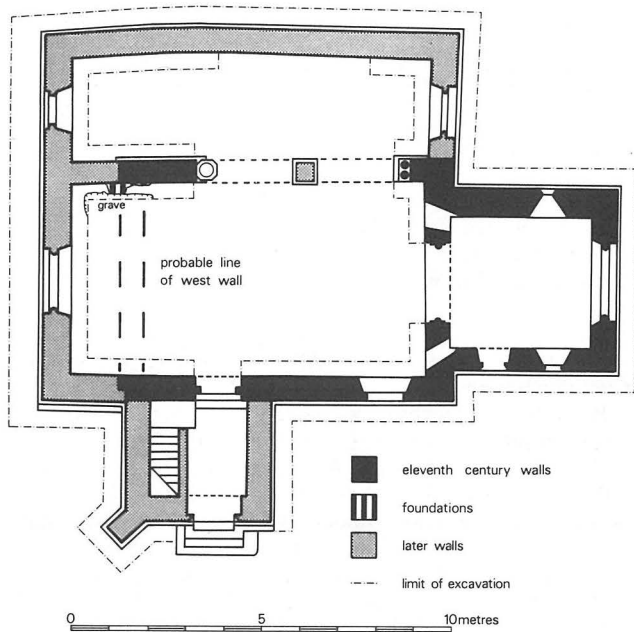


Figure 2. Ground plan of *St Martin, Wareham* showing exterior area excavated for drainage in 1985-86, and indicating approximate line of the west wall.

Martin's House, North Street (Hinton and Hodges 1977), but even if the sherds could be precisely dated, they could not be said to be directly associated with the foundations of the building. Although unsurprising, this is disappointing because there is some uncertainty about the precise date of the church. It has usually been ascribed to the Anglo-Saxon period because of its scale and proportions, the long-and-short work in its quoins and the double-splay window in the chancel. Dr Richard Gem considers, however (*in litt.* 7 Sept. 1987), that the chancel arch has Romanesque detail unlikely to have been used in a lesser English church like *St Martin's* before the last quarter of the 11th century. Such a date seems suitable for the fragment of arched niche that survives above the original north door (Lynam 1898, fig.

VIII); it may be possible to say more about the date when conservation work on the wall-paintings in the chancel is complete. The occurrence of features ascribed to Anglo-Saxon traditions of construction, such as the chancel window, is to be expected in a church dating to soon after the Norman Conquest, on which native masons would have been employed.

It is relevant to note in relation to the Anglo-Saxon period that the trench on the exterior of the north aisle did not show any trace of the bank of the defences, so the church would not seem to have been built directly up against or over the tail of the interior of the earthworks. Keen has rightly pointed out that the church is physically within the defences, not on their line, and that it should not therefore be assumed that it was part of a gate structure (1984, 239).

The 'Early English' period

The north aisle was added in a different style of masonry, reflected at the east end in the very different foundations, of roughly dressed and coursed stone, quite unlike the earlier mortar and stone. The north wall proved to have almost no foundations at all as it descends westwards; if there was a trench originally, it has been entirely dug away, and in the centre, the bottom courses as now visible rest on undisturbed natural clay. The west end of this wall is very difficult to interpret: it is just possible that it originally terminated east of its present end, but there is no clear-cut building line, nor did the foundations give any evidence of a break, except immediately beside the present west corner. Inside the aisle, the foundations of the north wall also seemed continuous, and the nave's north wall had been extended westwards with foundations in a style like that of the aisle's east end.

The west wall of both nave and aisle is butted up against the aisle's north and south walls and is clearly later. This wall is continued round the south side of the nave, eastwards to the porch. Its footings here lie on undisturbed ground; if the nave's south wall were extended at the same time that the aisle was added, there is no trace of this extension remaining, and it must have had very slight foundations, obliterated when the present wall was built. This itself has very shallow footings where it joins the porch, steadily deepening westwards. The north wall of the aisle has virtually no foundations at its west end, where it rests on natural clay of the same sort that exists around the porch area. It is, however, unlike the foundation below the nave's

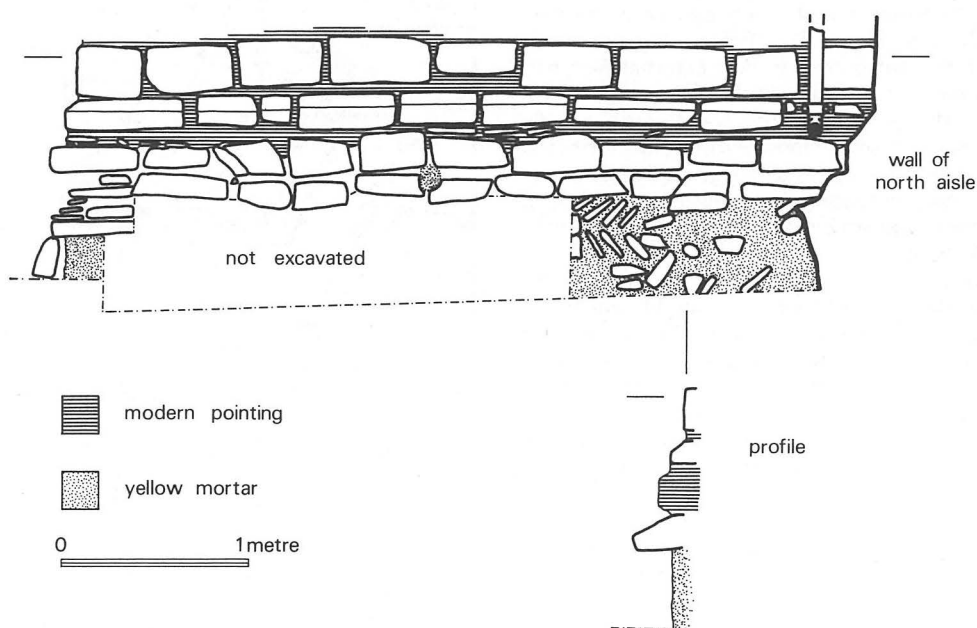


Figure 3. Elevation and profile of the lower part of the exterior of the north wall of the chancel and its foundations.

north wall extension, so another interpretation is that the nave was not lengthened at the time that the aisle was added, and this would explain why the wall between the two was not pierced by an arcade for its entire length. To have an aisle longer than a nave would be unusual, however.

The 15th century and later

Most authorities have attributed the west wall of St Martin's to the 15th century, on the basis of the windows (e.g. RCHM, III, 1970, 312). A close inspection of these shows, however, that they do not provide reliable dating evidence, for the stones or their lintels and jambs do not always match, which strongly suggests, not that they have been repaired, but that they were originally used elsewhere and were re-assembled without too much regard for appearances. The remarkable series of stepped plinths below the west wall recorded by Keen (1979, 142) and seen again in 1986 is not out of keeping with a date later than the 15th century. The excavation of the exterior demonstrated another unremarked feature of this end of the church, which can in fact be seen in the above-ground fabric, that the eastern end of the nave extension's south wall butts against the west wall of the porch, so that the latter must have been standing when the south wall was built.

There is a major conundrum here, for the porch exterior has in it an inscribed stone 'Richard Cook, Edward Benet, Chorch Ward [ens], An [no] 1712', and on the third floor inside is another 'John Morton An 1712'. Although RCHM ascribes the ground floor stage to the 16th century, it gives no reason (III 1970, 312; I am very grateful to Mr D. Ball for his search in the archives to see if the field notes gave supporting data), and the masonry appears to be all of one period up to roof level. Hutchins, writing in Wareham in 1774, stated firmly that the 'high porch was built in 1712' (1774, 29). The plan of Wareham in 1746 as redrawn by Clift (1908, 42 and opp. 44) from tenement surveys shows the plan of St Martin as it is today. The implication should therefore be that the west wall and the nave extension date to between 1712 and 1746, yet their construction went unrecorded by Hutchins. This is difficult to believe. Did Hutchins fail to check the St Martin's records? The buttress on the south-west corner of the porch is an integral part of its south and west walls, so the first two storeys must be contemporary. Above the buttress is an off-set, and despite

the similarity of the masonry and of the slit-light openings to what is below, the top storey could be an addition, so that it might be this work that is recorded by the inscriptions. If so, the sequence here might be: (i) construction of lower storeys of porch (and considerable rebuilding of the wall of the nave, as both the east and west walls of the porch are keyed into it), perhaps by 1550 when the church had two bells (Hutchins 1774, 29) which could have been accommodated in the space above the entrance passage; (ii) lengthening of the nave; (iii) heightening of the porch in 1712.

ARTEFACTS

Pottery: Romano-British (Fig. 4, 1). Report by D. F. Williams Body and handle sherd from a black-burnished ware category 1 (BB1) so-called 'fish-dish' (Williams 1977, fig. 3, no. 4), produced in the Wareham-Poole Harbour area in the late third and fourth centuries. This type of vessel seems to have had a more limited distribution than other Dorset BB1 forms, being found only in the south, south-west and Midlands.

From outside the north aisle.

Pottery: Medieval (Fig. 4, 2-6)

2. Base sherd, reduced, unglazed, St Martin's House Fabric A, 10th-12th century (Hinton and Hodges 1977, 60-62 and cf. fig. 15, 3). From north side of chancel. A few other Fabric A sherds were found.

3. Rim sherd, reduced, unglazed, Fabric B, 10th-12th century (*Ibid.* fig. 15, 7). From south side of nave.

4. Rim sherd, oxydised, unglazed, Fabric B (*Ibid.* fig. 15, 9). From south side of nave. Other Fabric B sherds were found.

5. Rim sherd, reduced, heavily sooted inside rim, unglazed, Fabric C, 11th century and later (*Ibid.* 61: cf. fig. 16, 45). From north side of chancel.

6. Rim sherd from bowl, mainly reduced, unglazed, Fabric C. (*Ibid.* fig. 16, 57). From north side of chancel.

Fabric C predominated amongst the medieval sherds, but included only one glazed sherd.

Not illus.: Body sherd in Fabric E (*Ibid.* 63), scratch-marked. From north side of chancel.

Tile (Fig. 4, 7)

7. Fragment of ridge tile with knife-cut triangles on crest, with slashed sides; glazed. Roughly made interior. 13th/14th century. From south side of chancel.

No floor tile fragments were found.

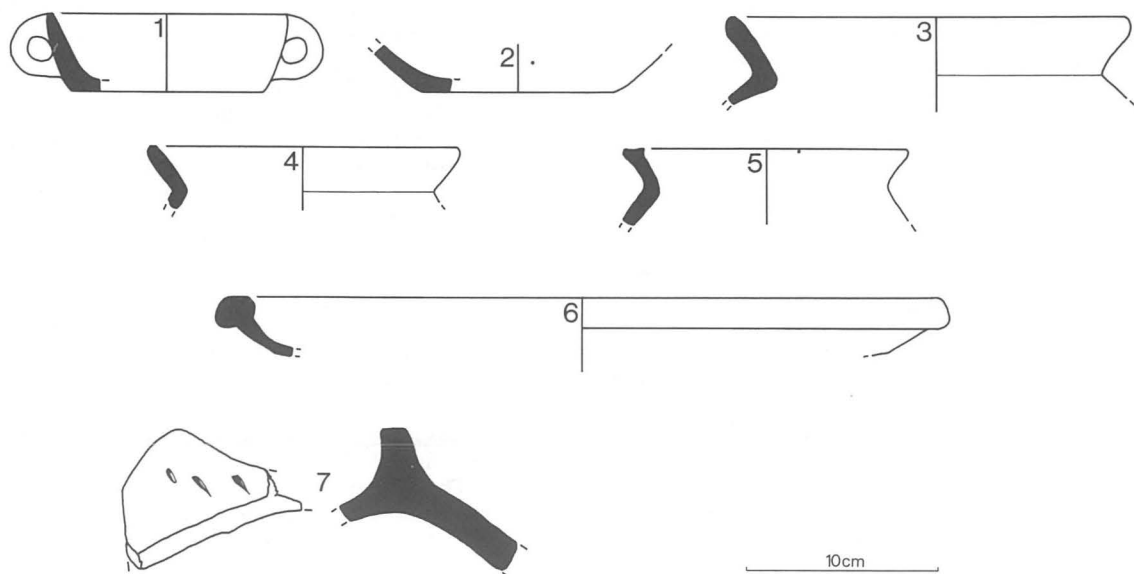


Figure 4. Ceramic from 1985-86 excavations. 1, Roman; 2-7, Late Saxon and later medieval. Scale 1:4.

Window fittings

Not illus.: Glass, broken quarry with painting. Found on the spoil-heap. Probably 14th century.

Not illus.: Lead window comes, hammered into an 'ingot'. As last.

PART II: 'MINSTERS' AND ROYAL ESTATES IN SOUTH-EAST DORSET

by D.A.H.

Although the 1985 excavations did not provide any direct dating evidence for St Martin's church, they did raise the possibility that there is an earlier building below the present one. So, even if the surviving structure all dates from after the Norman Conquest, it is still likely that the church was a Saxon foundation. Its relationship during the Middle Ages with its surrounding area has been discussed recently, particularly because of the possibility that the boundaries of its parish delineate part of the territory originally dependent upon the older church at Wareham, St Mary (Keen 1984, 218, 220, 224-27). St Mary's is one of a number of churches in Dorset which can be claimed to have had a superior status. They are referred to as 'secular minster churches' or 'mother churches': some were places which at one time had not only regular communities of monks or nuns, but also communities of priests responsible for the pastoral care of the laity in a wide area round the church; others were 'colleges' of such clerks, associated with no monastic institution. An informative paper on the rôle and recognition of such churches was published as part of the celebrations of the ninth century of Domesday Book (Blair 1985).

From the 10th century onwards, if not earlier, the 'minsters' *parochiae*, the areas over which they had charge, were reduced by sub-division into smaller parish units. Many of the new churches achieved complete independence, but sometimes ties between the newly-promoted church and its 'minster' were not entirely severed: dwellers in the new parish might have to be taken back to the 'mother' church for burial, for instance. It seems likely that this was true of Wareham St Martin's parishioners, for the church seems never to have had a grave-yard attached to it (Hutchins II, 104; the parish churches within Southampton provide a parallel case, for their parishioners had to be buried at the old 'minster', St Mary, outside the town walls: Platt 1973, 65). Occasionally such procedures led to disputes, and thus to court, and so to an entry in a surviving document. The tithes of the chapel of King's Winterborne were confirmed to Bere in 1242 (Macray 1891, 277), thus proving the latter's ancient superiority, but in general the printed Salisbury diocese registers do not seem very informative about South-East Dorset. Four documents are fundamental to any study of *parochiae*, however: Domesday Book, 1086 (Thorn and Thorn 1983) the Taxation of Pope Nicholas IV, 1291 (Astle 1802), the Inquisition of the Ninth, 1340 (Vanderzee 1807), and Henry VIII's *Valor Ecclesiasticus* of 1539 (1810). For Dorset, there is also the evidence assembled by Hutchins (3rd ed., 1861-70).

Domesday Book records, albeit fitfully, some of the churches that can be treated as 'superior' because they had two or more priests, had at least a hide of land specifically attributed to them, etc. (Blair 1985, 106). In South-East Dorset, this provides evidence for important churches at Bere, held by Bristward in his own right, and at (East) Chaldon and at Winfrith, both held by Bollo: both Bristward and Bollo were priests, described as 'King's almsmen' and presumably clerks in the royal service (Thorn and Thorn 1983, 24, nos. 1-3). In Wareham, the alien St Wandrille had succeeded to the property of St Mary's church (*Ibid.* B, 3). The minster at Wimborne is revealed in the entry for Hinton Martell, with priests holding land independently (*Ibid.* 1, no. 31). The potential significance of royal and other estates that Domesday lists will be discussed later. Meanwhile, it should be pointed out that the (Church) Knowle entry '*Ibi est presbyter - There is a priest*' (*Ibid.* 28,

no. 5) is not an indication of a high-status church, as the cleric was merely listed with other villagers (Blair 1985, 105).

The 1291 Taxation and 1340 Inquisition can be discussed together. Firstly, they list parish churches at those dates, and the former also records many of the dependent chapels. They give the taxable values of churches (and fail to explain discrepancies such as why Sturminster Marshall was valued at £20 in 1291, but £40 in 1340 (Astle 1802, 178; Vanderzee 1807, 56)). They under-represent some places, such as Bere which had been linked with Charminster to form a prebend and so was exempt; Wimborne, recorded fully only in 1340 (Vanderzee 1807, 56); and Wareham St Mary, which was exempt (*Ibid.* 52). They are not always consistent: in 1340, Bloxworth is shown as an independent church (*Ibid.* 54), whereas in 1291 it was correctly entered as a chapel (Astle 1802, 182) - the *Valor* shows that it was dependent upon Bere (1810, 258). They also reveal that even at this late date, the parochial system was subject to fluctuation: Charborough is not in the 1291 list, but its church is entered in 1340, although not yet taxed (Vanderzee 1807, 55). By the 16th century, it seems to have become accepted as a normal parish (*Valor* 1810, 259). None of the sources reveal to which church Charborough owed its dues before achieving complete independence. That makes even more valuable the record in the 1291 tax of payments made by certain churches to the advowson-holders of others: some of these are unlikely to result from very ancient ties, as they are payments to relatively recent foundations, and must result from unrecorded gift. Others, however, are quite likely to be relics of ancient dependence, as is borne out in some cases by other records: payments owed to Wimborne by Shapwick are mirrored in the *Valor*, for instance (Astle 1802, 178; *Valor* 1810, 270). The map, Figure 5, is an attempt to show the parishes as they were in 1291/1340; even so, there are many uncertainties, not only over the exact boundaries, but in more major details; the post-medieval parish of East Holme, for instance, has been assigned to East Stoke, following Hutchins (II, 551), but the evidence is extremely slim.

The *Valor Ecclesiasticus* gives the state of affairs at the end of the Middle Ages. It is interesting that most of the pensions being paid in the 13th century had lapsed by the 16th, though some new ones had been added. Presumably there had been some similar changes during the two centuries before 1291. From all this information, it becomes obvious that there is every reason to ascribe 'minster' status to a number of churches in South-East Dorset. High value is one factor: on Figure 5, all those taxed at £20 or over in 1291 and/or 1340 are starred since high income is often associated with the old 'minsters', which had managed to retain a proportion of the assets that had originally belonged to them. This is not invariable, for Shapwick (no. 2) was, as already described, a dependent of Wimborne, although worth £20. Wimborne itself is a certain example. Because of their status, the old 'minsters' often had much larger parishes than the churches around them.

Another factor to consider is the known size of a medieval church: although particular benefactions might lead to a building being larger than its parish might seem to merit, the fabric of a church usually mirrored its wealth and status. It is certainly significant therefore that Wimborne Minster and Bere were large, cruciform churches of the 11th and 12th centuries respectively, with naves at least 45 ft and 30 ft long internally (RCHM, Iii, 12-14; V, 78-80; cf. Blair 1985, 121-23). The dimensions of St Mary, Wareham, are not precisely known, but it was certainly a large Saxon church, its nave 72 ft long internally (RCHM, Iiii, 309-10), and there is good reason to think that Canford originally had an early cruciform church, but its nave cannot be measured (*Ibid.* 197). Of the other churches valued in 1291/1340 at £20 or over, Shapwick has a 60 ft long 12th-century nave, but no evidence that it was a cruciform church (RCHM, V, 58).

Sturminster Marshall similarly had a long nave, c. 45 ft long, but in that case also with a north aisle, in the 12th century (RCHM, III, 284). Winfrith Newburgh also had a 12th-century nave, at least 45 ft long (*Ibid.* 376-77). Other churches in the area have 11th-century work, but none has features or size suggesting above-average status. Two churches may have 12th-century work: Wareham St Martin and Studland. The former has been described above, and has only a small nave (c. 24 ft) and chancel: the latter is on a larger scale, with a central tower, but was not a cruciform building and its 12th-century nave is less than 40 ft long (*Ibid.* III, 276-78).

Its architectural scale, wealth and parish size all indicate 'minster' status for Canford: it is therefore encouraging that this evidence is confirmed by a late 12th-century charter which shows that it had been a communally-held church, although Domesday Book did not reveal that there were priests there (RCHM, III, xlv). There are no such records for Sturminster Marshall, though its very name is substantiating evidence. There is one other church that should perhaps be regarded as a 'minster', Kingston in Corfe Castle parish. Although not particularly wealthy, the parish is a large one: the directly received income of its church may well have been reduced by some arrangement of the abbess of Shaftesbury Abbey, who owned Kingston in the 11th century and out of which she conceded the castle site to King William (Thorn and Thorn 1983, 19 no. 10 and its addendum). It may have been at the same time that the church at Corfe superseded that at Kingston as the parish centre: such transfers are known elsewhere (e.g. from Basing to Basingstoke, Hants.: Blair 1985, 136). Keen has shown that it was probably at Kingston that St Aldhelm founded a church in the early eighth century (1984, 213).

Although there have been many discussions of individual Dorset 'minsters' and their *parochiae*, few have attempted to show more than one on a single map, so that the difficulties of reconstructing their full extent are disguised. Figure 5 shows that Canford was contiguous with Sturminster Marshall, and that the boundary between both of them and Wimborne Minster was the River Stour. East of Canford and Wimborne is Christchurch, formerly in Hampshire, centre of another very large *parochia* (Keen 1984, 227-28). The next potential 'minster' to the west, Bere, is not adjacent to Sturminster. To which should the parishes in between be allocated? Geography suggests that Lytchett Matravers was carved out of Sturminster, which surrounds it on three sides (Taylor 1970, 79-80), but the other parishes in the area are not so clear-cut, nor do the medieval documents seem to indicate any surviving attachments such as burial rights which would indicate whether, for instance, Morden used to look to Bere, to Sturminster or to Wareham for its ecclesiastical support. Keen has shown that Ham Preston, the Hintons and Shapwick can safely be attributed to Wimborne (1984, 224-26). Domesday Book refers also to a priest in 'Tarente' who is clearly associated with the Wimborne community (Thorn and Thorn 1983, 1, no. 31). There are many 'Tarrant's' that this could be: Blair took it to be Keyneston (1985, 127), although Crawford and Rushton are Shapwick and Wimborne's immediate neighbours. At any rate, some north-westerly extension along the Stour from Shapwick is indicated for Wimborne's *parochia*.

The only published reconstruction of all Dorset's 'minster' *parochiae* is that by Pitfield (1981, 4-8), but this is not entirely satisfactory. He took the areas of the medieval hundreds insofar as they can be delineated from the Geld Rolls that accompany Domesday Book, associated a 'minster' with each hundred, and apportioned other churches to them on the basis of the placing of vills within that hundred. This method is unreliable, partly because of the problem of reconstructing the hundreds (e.g. discussion in VCH 1968, 1-5) but also because most of the hundreds had by the 11th century become very different in form from their earlier

origins and were organised for secular, not ecclesiastical, purposes. A single example will suffice: the tithings of Winterborne Tomson, Anderson and Bloxworth were all within Combsditch Hundred, though part of the ecclesiastical parish of Bere; the vill of Bere itself was within Bere Hundred. As an estate unit, Winterborne Tomson was separated from Bere by at least the middle of the 10th century, as a charter survives (Finberg 1964, 168-69), but the church at Bere maintained its responsibility for, and the income from those who lived at, Winterborne Tomson. Pitfield also assumes that the possibility of pre-Conquest structure is a justification for attributing 'minster' status to a church: the Anglo-Saxon law of 1014 which indicates four 'tiers' of churches (Blair 1985, 105) is enough to disprove this. Consequently, Pitfield's 'minster' at Studland is unlikely because of the size and plan of the church, and the size and wealth of its parish. Even more unlikely is his 'minster' at Wareham St Martin, an even smaller church even less highly rated than Studland. He also degrades Wimborne, preferring Horton, a minor and relatively late foundation.

This is not to say, however, that there is never a relationship between hundred and 'minster' *parochia*. A significant association has been shown in Hampshire between the early 'minsters' and the centres of royal estates (Hase 1975), and such estates might also be the areas of early hundreds. If it can be demonstrated, therefore, that the boundaries of a particular hundred remained largely unchanged, and a 'minster' can be recognised within it, there is certainly a case to be made that that 'minster's' *parochia* and the hundred were co-terminous. Pitfield was probably correct to see the area of *Aileveswode* (later Rowbarrow) hundred as also being a 'minster' *parochia*, though with Kingston, not Studland, as its church. Three of the sides of the *parochia* are conveniently and uncontroversially defined by the coast, and the fourth is clearly the western boundary of Corfe as it existed by the 10th century (Finberg 1964, 170-71). No recorded associations between the other Purbeck parishes and Corfe attest the latter's mother status, however. To what extent can evidence about estates help to clarify other *parochiae* in South-East Dorset?

Domesday Book is again a major source of information, this time about estates. It records, for instance, six royal manors in Dorset, not all in discrete units and not all co-terminous with parishes, as the Bere/Winterborne Tomson case illustrates. The Bere estate was associated with various others further to the west; Winfrith with East and West Lulworth, 'Winterborne' and Knowlton; Wimborne with Shapwick, Cichel and Up Wimborne and Charlton Marshall with Pimperne (Thorn and Thorn 1983, 1 nos. 2-6; VCH 1968, 64 *seq.*). Wareham St Mary was within the King's borough. Former royal estates in the area would have included Kingston/Corfe, the 1066 sixteen-hide Shaftesbury Abbey property, to which a charter probably refers (Finberg 1964, 170). Another was Sturminster Marshall; *Stureminster* was one of the ninth-century estates that King Alfred bequeathed to his younger son (Harmer 1914, 17; Keynes and Lapidge 1983, 175) – the other Dorset Sturminster, Newton, does not seem to have acquired the 'Sturminster' element until after the Conquest (Ekwall 1936, *s.v.*). In 1066, Sturminster (Marshall) was a large, thirty-hide estate held by Archbishop Stigand (Thorn and Thorn 1983, 28 no. 2). Canford, the only other 'minster' candidate, was a twenty-five-hide estate held by Edward, Earl of Salisbury (*Ibid.* 31, no. 2). Thus all the potential 'minsters' were either on royal, (or formerly royal), or on exceptionally large, estates. The Domesday Book groupings of the royal manors in Dorset were probably relatively new in 1066, re-arranged to take account of their diminution through grant and gift, but quite probably preserving older remnants (Sawyer 1984, 285).

The one church which does not yet fit easily into this pattern is Wareham St Mary, located within a royal borough

but not linked to a rural royal estate. Its extra-mural parish, east of the town, was small and of little value by the 13th century. By that time, Wareham St Martin and Holy Trinity both had extra-mural territory also (St Peter and St Michael did not). Keen was certainly right to argue that the other two Wareham extra-mural parishes should be taken into account in any attempt to reconstruct St Mary's original *parochia*, and to bring East Stoke (and East Holme) into the reckoning (1984, 218-21); not only does East Stoke 'bracket' Wareham, but the prior of Wareham was receiving a portion from its taxable revenue in 1291 (Astle 1802, 179). This is exactly the sort of record which may indicate old allegiances and thus former 'minsters'. Not all, unfortunately, point in that direction: it is difficult, for instance, to attribute much significance to the portion that the Prior of Tortington, Sussex, had from Tyneham in 1291, or to that which the Prior of 'Okeborn' (?Ogbourne, Wilts.) had from Steeple (*Ibid.* 179). The Prior of Wareham had a portion from Gussage St Michael, far to the north of the town (*Ibid.*

178), which cannot be claimed as evidence for the St Mary *parochia*. Potentially more important, however, are the portions which he had from Wareham Holy Trinity (but not from St Martin), Church Knowle and Winfrith. It is most unusual for a church of Winfrith's wealth and suggested status to make payments to another, and the 1291 Taxation is strong evidence that it had been severed from Wareham, perhaps not very long before it was recorded in Domesday Book, since a church of its importance would be less likely to have had its income sub-divided after the 11th century than would a lesser church. The re-arrangement of the royal estates may have been the moment of Winfrith's creation, in recognition that Wareham St Mary was no longer linked to a rural, royal estate, but compensating it for loss of revenue by the annual payment recorded in 1291. On that basis, the Church Knowle and Winfrith entries are grounds for suggesting that the whole area between the coast and the Piddle west of Corfe may originally have been Wareham *parochia*.

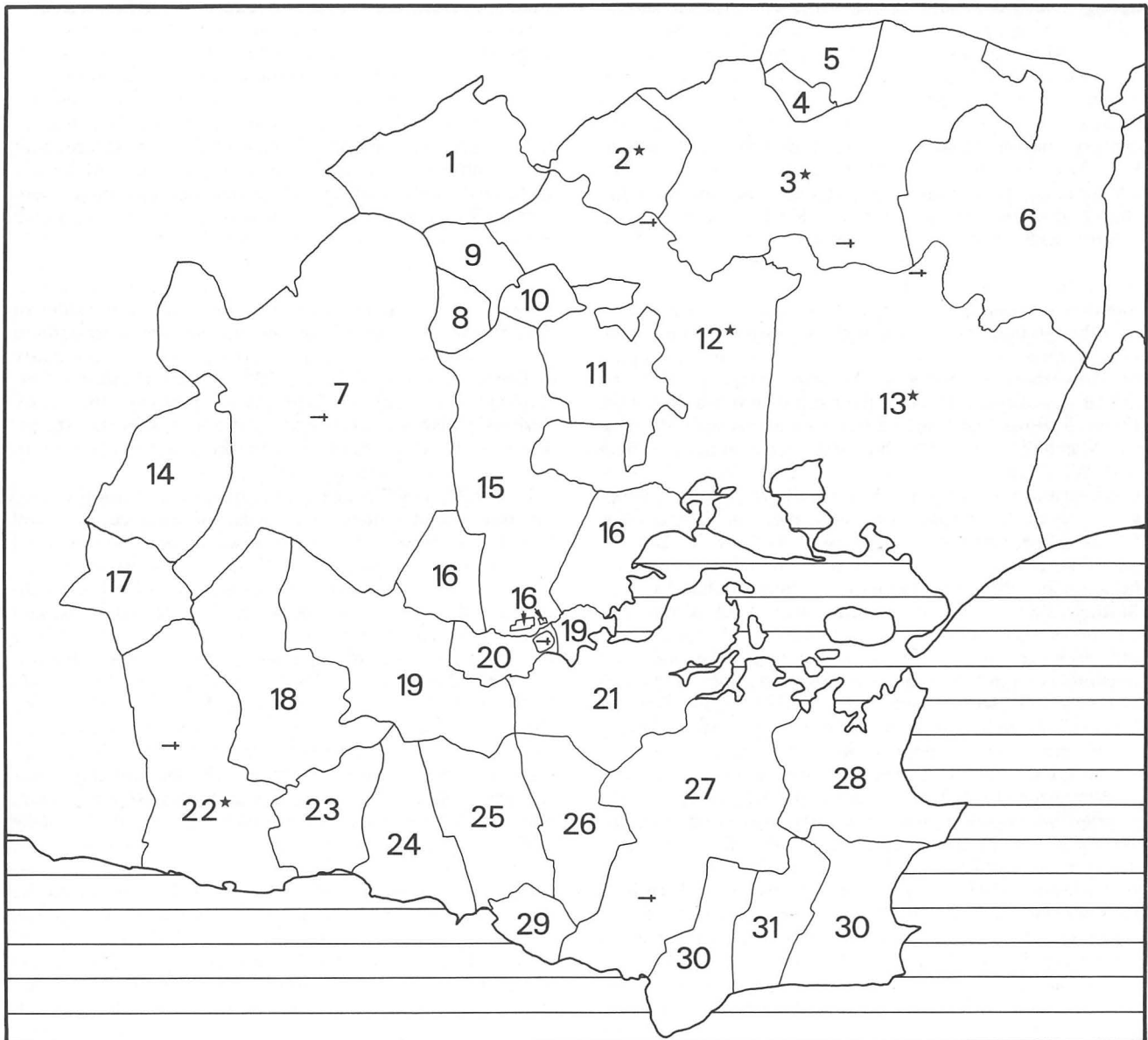


Figure 5. Attempted reconstruction of the medieval parishes in South-East Dorset. Key: 1, Spetisbury with Charlton Marshall; 2, Shapwick; 3, Wimborne Minster; 4, Hinton Parva/Stansbridge; 5, Hinton Martell; 6, Ham Preston/Chamberlayn; 7, Bere with Bloxworth and Turners Puddle; 8, Winterborne Zelston/Maylward; 9, Almer; 10, Charborough; 11, Lytchett Matravers; 12, Sturminster Marshall; 13, Canford; 14, Affpuddle; 15, Morden; 16, Wareham St Martin; 17, Morton; 18, Combe Keynes; 19, East Stoke; 20, Wareham St Mary; 21, Wareham Holy Trinity; 22, Winfrith Newburgh; 23, East Lulworth; 24, Tyneham; 25, Steeple; 26, Church Knowle; 27, Corfe with Kingston; 28, Studland; 29, Kimmeridge; 30, Worth Swanage; 31, Langton Matravers. Stars: churches valued at £20 or over in 1291 or 1340. Crosses: suggested 'minsters'.

The ecclesiastical arrangements between the Piddle and the Stour are even more difficult to reconstruct than those to the south. There seem to be no records that link Wareham St Martin either to Wareham St Mary or to other parishes; nor are there useful entries in the 1291 Taxation for the other churches. If it is accepted that Sturminster Marshall included Lytchett Matravers because it surrounds it on three sides, then Charborough may also be added. Winterborne Zelston would seem to have been taken from Almer, Affpuddle from Bere. Thereafter matters are even less clear-cut.

Charlton Marshall was a chapelry of Spetisbury in the 13th century and later. Its name, *Cerleton*, derives from *ceorl tūn*, 'farm of the churls' (Mills 1980, 12), which usually denotes a settlement dependent upon a superior, often royal centre (Finberg 1964b). In 1086, it was indeed a royal estate, paired with Pimperne (Thorn and Thorn 1983, 1 no. 5). Pimperne is a little distance away, whereas both the Bere and Wimborne royal estates are contiguous with Charlton. If the royal manors were reorganised at some time before Domesday, the Charlton-Pimperne connection may have been forged then: if there had been previous ties with Bere or Wimborne, it might be expected that they would have been maintained. If Charlton had been dependent upon Sturminster, however, the 1066 association with Pimperne becomes understandable, having become necessary as Sturminster left royal ownership between Alfred's reign and William's, a process of sub-division of the original estate which may also have involved Lytchett Matravers, Charborough and possibly Almer, leaving only Charlton retained in royal ownership.

All this leaves Morden sandwiched between two big royal estates and *parochiae*, Bere and Sturminster. In 1066, its land was divided between six manors. It seems to have had no ecclesiastical or administrative links with either Bere or Sturminster, but it was in *Celeberge* hundred, named from Charborough, which included Almer and Spetisbury (Mills 1980, 54). That could suggest a link with Sturminster rather than with Bere, and Morden's western boundary looks on the map as though it is a more clear-cut division. This leads on to consideration of its southern sector, where its parish bisected and surrounded parts of Wareham St Martin until 19th-century reorganisation. Keen explained this as the result of annexation by Morden of Wareham land which had originally formed a complete zone around the town's north side (1984, 224). Unfortunately, the tithe map of Morden does not show a hedge-line or bank running between the junction of the west part of Wareham St Martin, Bere and Morden up to the River Sherford, which might have survived as a relic of an earlier parish boundary. An alternative possibly is that the St Martin territory was taken out of the two royal estates at a time subsequent to the parcelling-up of Morden, by which time the ownership of the area adjacent to Wareham on the north side was not in the King's gift, except perhaps for the small patch of land represented by Cary. Such a process would at least provide an explanation for the oddest feature relevant to these boundaries, if they are ancient at all, that the causeway leading north from Wareham was not in Wareham territory. This is the precise opposite of the position at Cricklade, where it has been shown that the land on the north of the Thames was annexed to the *burh* to enhance the security of the entry-point, a precaution revealed by the incorporation of the entrance causeway within the parish of the church by the town gate (Haslam 1981, esp. fig. 1). Similarly at Wallingford, the boundary line crossed the Thames to cover the entry (Hinton 1977, 37). It is difficult to conceive why a reverse process should have been allowed at Wareham. But if the land on the north of the Piddle was royal estate throughout its length, there was no cause for concern, as maintenance and defence of the causeway and river crossing were a charge on the King's land and were in the King's

control in the ninth century. On this hypothesis, it was only at a later date that Wareham acquired parochial rights over land previously in the care of Bere and Sturminster, when the new church of St Martin needed to have provision made for it. Since it is not known when Sturminster finally left the King's ownership, it is not known when he would have ceased to exercise direct jurisdiction in these matters.

This reconstruction would leave Wareham's mid-Saxon church, St Mary, on the border of its *parochia*, as indeed were Sturminster, Canford and Wimborne, though the Piddle makes a less impressive boundary than the Stour. It attributes to Wareham a large and reasonably prosperous hinterland appropriate to its status and to a royal centre. Wareham's mid-Saxon importance is implicit in its name, for the *-hām* element is an early one, often used for places of special significance (Gelling 1978, 112-14; Mills 1977, 152-53), and the choice of the church as the burial-place for King Brihtric in 802 indicates royal interest and quite probably a residence in Wareham or nearby (Sawyer 1984, 279). The significance of such estate centres has been stressed by Keen, the seizure of Wimborne and Twinham in 900 by the aetheling Aethelwold being a seizure also of the very large territories that were dependent upon them (1984, 228).

Even if the details of the territories are open to question, it is at any rate fairly clear that the 'minsters' in South-East Dorset can all be associated with large royal estates. Wareham can be seen to have been at the heart of a huge tract of royal land, one of major importance to the Wessex kings. The aetheling in 900 was driving a wedge between Edward the Elder and his estates to the west. Even more important in Wareham's history are the events of 876-77, when a Viking army wintered there (Whitelock 1961, 48). They selected it for various reasons: according to Asser, it was a fortified place, a *castellum* (Keynes and Lapidge 1983, 245); as a royal estate centre, it was a place to which annual food renders were brought, so that after the harvest it was well-stocked with provisions for the winter (Sawyer 1984, 283). In such a place, the Vikings not only threatened King Alfred's own supplies, but they presented an enormous affront to his pride and prestige. The Chronicle does not explain the events that led to a treaty and the surrender of hostages (Whitelock 1961, 48); perhaps the Vikings had miscalculated the king's strength in the area. That they swore an oath 'on the holy ring – a thing which they would not do before for any nation' implies that this was not just an *ad hoc* raiding-party, but an army under important leaders. At precisely the same time that a Viking army was in Wareham, another army under Healfdene 'shared out the land of the Northumbrians and they proceeded to plough and support themselves'; the next year, the Vikings 'shared out some of Mercia', and in 878 it was temporarily the West Saxon land that was occupied (*Ibid.* 48-49). By 876, the Vikings were turning from raiders into settlers. Is it not likely that when they took Wareham in 876, what their leaders really had in mind was not just over-wintering but permanent possession, and that they chose Wareham because it was the most suitable centre in the whole of Wessex to be a base for the annexation of the kingdom?

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Field Survey of the Ancient Fields and Settlement Enclosures at Black Hill, Cerne Abbas, Dorset

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SUMMARY

The two enclosures and associated ancient field earthworks were examined and assessed by excavation and survey in December and January 1981/82 (Bond 1982). This report describes additional fieldwork which was undertaken in the late autumn of 1983 when parts of the western hilltop were ploughed for the first time.

All three fields on the hilltop were examined and recorded after ploughing. Systematic field-walking on the National Grid was the basis of the survey record, with detailed artefact distributions, soil-marks and earthworks plotted on a 50 metre grid. Soil samples at 10 metre intervals were collected in three traverses across the settlement zones defined by the earthworks; these were tested for phosphate.

This survey identified previously unrecorded elements of the field system, and further defined their structure. The artefact distributions have enabled some definition of functional zones. The data also allows for a settlement sequence to be described, although this needs to be tested by excavation.

The survey demonstrates that flint was extracted and worked on the hilltop from the early prehistoric period (Late Neolithic) onwards, and notably in the north-eastern area. Tools, predominantly flint scrapers, concentrated in the southern and western areas, as did the early pottery (Middle Bronze Age to Early Iron Age). This early pottery has its densest concentration on the eastern edge of the site, and is bounded by the concentration of core-waste and hammerstones to the north-west, the eastern earthwork enclosure to the west, and a broad concentration of flint scrapers to the south. This Bronze Age 'settlement focus' occurs in an area undefined by soil-marks and earthworks, but which probably lies in an area that was subjected to ploughing in the 18th/19th century (distribution of post-medieval pottery, manuring). The occurrence of Late Iron Age and Romano-British pottery and tile across the area indicates systematic use of the hilltop in this period, although the pattern of earthworks as such probably originates in the Bronze Age. However three distinct, separate, and successive field arrangements can be recognised.

This basic site depiction gives a basis by which similar hilltop enclosures and associated field systems in the locality can be more adequately compared. These include the excavated Bronze Age settlements at Shearplace Hill (Rahtz 1962) and Hog Cliff Hill (Ellison and Rahtz, forthcoming). Many of these are now subjected to annual ploughing. This survey also provides graphic evidence of the progressive loss of archaeological data as a result of ploughing.

INTRODUCTION

The earthwork remains at Black Hill are typical of a series of settlement and ancient field units in this area of west-central Dorset. Some of these have been shown by excavation to have their origins in the Middle Bronze Age; Shearplace Hill (Rahtz 1962); Hog Cliff Hill (Ellison and Rahtz, forthcoming). A select group of similar sites and the location of the Black Hill enclosures are shown in Fig. 1. These sites are catalogued in appendix 1.

The morphology of these upland settlements and their post-Bronze Age development have not been systematically analysed nor discussed, but many have been comprehensively mapped by the Royal Commission (RCHM 1952, and 1970), although these surveys were less complete in the West Dorset (RCHM 1952) parishes. These settlement earthworks are frequently associated with isolated barrows and more rarely with extensive barrow cemeteries. All the surviving sites occupy upland locations above the valleys of Winterbourne streams, and also in particular the Sydling Water and Cerne River. These river courses are topographically linked to the territorial centre located in the Frome valley around Dorchester; with the causewayed camp at Maiden Castle, the henges at Maumbury and Mount Pleasant, and the hillforts of Poundbury and Maiden Castle, and the major extended cemetery area to the south (South Dorset Ridgeway). The exact functional relationships between these three areas (northern river valleys, territorial centre, and southern ridgeway) need to be further clarified by field survey and excavation.

All these sites have been subjected to extensive erosion in the last twenty years with the onset of modern arable farming. This has severely reduced the number of extant and visible earthworks, but has exposed the physical and artefactual structure of these settlements in the modern ploughsoil.

A limited programme of excavation and survey was undertaken on the Black Hill site in 1981/82. This work included a series of small excavation trenches to assess the

effects of arable activity across the eastern earthworks, and a complete earthwork survey of the hilltop before the onset of further ploughing across the western shoulder of the hill (Bond 1982). These excavations showed that modern arable activity had considerably affected the surviving archaeological evidence in the areas adjoining the unploughed and protected enclosure. Little dateable material was recovered from these excavation trenches.

It was thought that systematic field-walking across the unit of fields that encompass the ancient field earthworks and enclosures would enhance an understanding of the chronology and settlement sequence, and in addition assess the exposed structural data from the western field area between the two enclosure sites which was to be ploughed for the first time. This work was organised and undertaken by the Trust for Wessex Archaeology for the Department of the Environment.

The survey was designed on a basis which would enable direct comparison to be made with similar surveys carried out on the South Dorset Ridgeway (Woodward, forthcoming).

THE ARCHIVE

The archive is organised with reference to the four record levels detailed in the *Principles of Publication in Rescue Archaeology*, Ancient Monuments Board 1975. The Level II record consists of survey maps, photographs, field hectare record forms and finds lists. The Level III record contains maps of soilmarks and earthworks, initial catalogues of lithic and ceramic finds, and distribution maps of all finds from field-walking.

The full archive is currently held by the Trust in Salisbury, and will be finally deposited with the finds in Dorset County Museum, Dorchester when fiche copies have been prepared for the National Monuments Record.

THE SURVEY TECHNIQUE

The technique used for the survey was that generally described in Woodward (1978), and developed by the Trust for Wessex Archaeology into a standardised system based on hectare record

forms (Richards 1985). At Black Hill the surface finds were collected and recorded within a 50-metre grid. The soilmarks and earthworks were also surveyed and plotted within this grid.

The survey was based on National Grid coordinates and offset entirely by compass bearing and paced measurements. Resultant small errors in compatibility between this survey and National Grid are due to maintaining collection units at 50 m² of field surface, even on steeply sloping ground. Relationships between observed archaeological features and between these features and artefacts recovered are constant however. Within each 50 m² (0.25 hectare) finds were recovered along five equally spaced north-south transects and then bagged together within one 50 m² collection unit. Assuming an average width of 2 m scanned along each transect a sample of around 20 per cent was obtained.

Prevailing field conditions, based on criteria detailed in Woodward 1978 are shown in Figure 3A. Variations may be considered small and were largely due to field surface weathering factors. These may only account for correspondingly small fluctuations in overall collection rates.

THE EARTHWORKS AND SOILMARKS (Fig. 2)

Extant earthworks, soilmarks and other features were mapped to the limit of ploughing. In the most southerly field, banks survive only as low, spread mounds. The soils do not allow the identification of lynchets or ditches. To the north a series of rectilinear banks and faint lynchets survive, though spread, as soil marks. The field to the west exhibits a remarkably well defined series of earthworks, soilmarks and other features.

Of particular note is the rectilinear enclosure formed by two banks (Fig. 2A, 36, 70). The enclosure consists of a ditch and

internal chalk bank on the east, a ditch and largely earthen and flint internal bank on the south, with an entrance on the south-east corner. Clearance cairns of large flint nodules occur at several points along the banks. Within this enclosure further dumps of flint nodules exist in the form of mounds (2A, 66) and within hollows (2B, 67). Feature 65 (Fig. 3A) is an earth-filled depression surrounded by an interrupted ring of upcast chalk approximately 7 m in diameter. The nature of this feature with an interrupted 'entrance' on the south-west suggests a hut, although this has not otherwise been substantiated.

To the south-east of this enclosure, Barrow 64 has been utilised as a clearance dump. To the south-west a further possible barrow mound with a similar clearance function is evident at ST 67000033 (Fig. 2A, 68). Both have stone-free ditch silts still evident intermittently around the mounds (see Fig. 2B).

A zone of extremely dense flint gravel was observed, largely enclosed within banks 70, 36, 35 and 69. It is not apparent whether this material is natural in origin or has resulted from soil loss from exhaustive land use. A high number of earthworks and other features survive within field units enclosed by such banks, a fact which might indicate the exclusion of an area of possibly poor fertility from an arable field regime.

A number of hollows have already been defined around ST 674006 by earlier survey (RCHM 1970; Bond 1982). The association of these hollows with narrow rectangular closes was thought to indicate possible hut depressions (Bond 1982). However a zone of naturally occurring large flint nodules is now recorded across this zone and could indicate that the hollows are flint quarries. An analysis of the nature of worked flint (below) in the area tends to support this view.

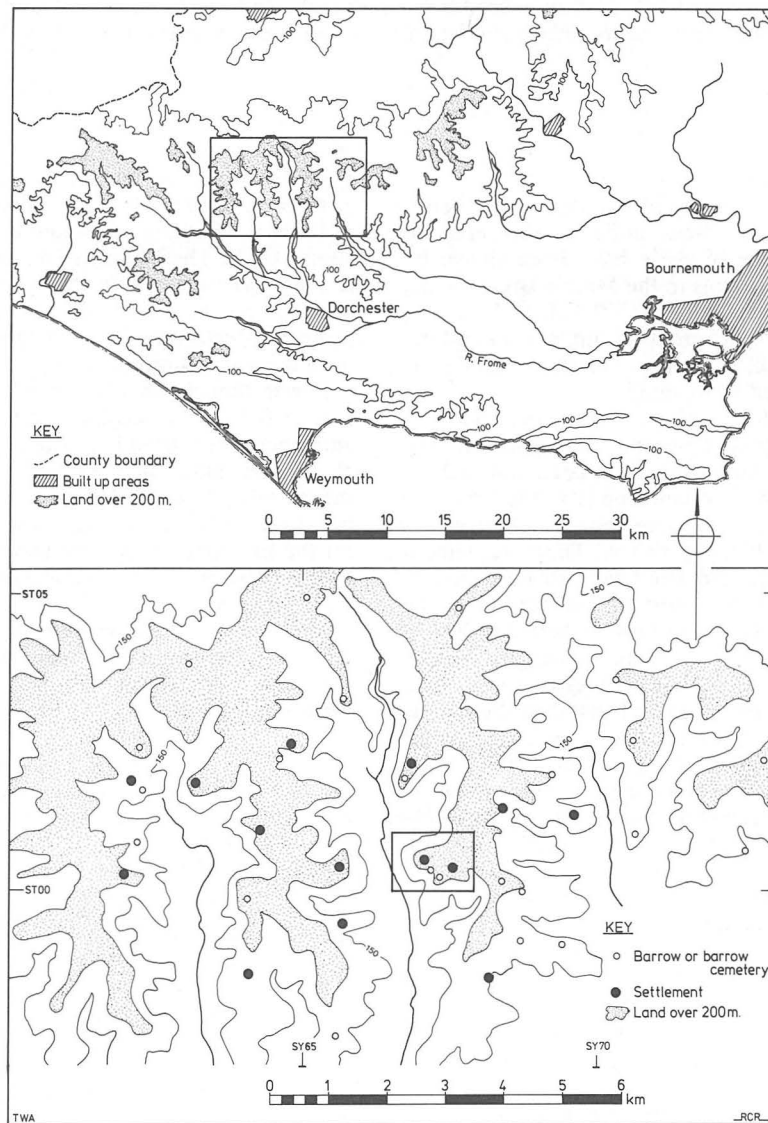


Figure 1. Location of study area, showing Black Hill and similar hilltop enclosures and associated barrow cemeteries.

A small rectangular enclosure (Fig. 2A, 71) is barely visible as an earthwork. It is possible that its location, towards the junction of field boundaries may indicate a hut or animal pen.

THE DISTRIBUTION OF LITHIC MATERIAL

The distribution of flint and other stone artefacts is shown on Figs 3B-5B. For the purposes of this report, the worked flint has been analysed by general categories. A more detailed analysis and comparison with material from the South Dorset Ridgeway (Woodward, forthcoming) and Mount Pleasant (Wainwright 1979) would allow for closer typological comparison. (Appendix 3).

Quantities of flint are shown as collected and no calibration has been attempted to remove bias caused by differential conditions (Fig. 3A) or partial coverage of collection units.

Three general concentrations of worked flint (Fig. 3B) can be identified around ST 670003, ST 673005 and ST 675003. These have formed the basis of the Sample Areas 1-3 (Fig. 6).

Sample area 1 is the least dense of the concentrations, but

conversely it has the greatest density of tools. These have a very limited range of types, mainly scrapers with one pick and one fabricator. Many fewer retouched pieces were recovered in comparison to the other sample areas. Most of the artefacts were found along the field boundaries, associated in the main with clearance dumps of flint on the field banks. This concentration probably reflects a reduced range of activities taking place in the fields adjacent to the settlement, though the possibility that this material has been deliberately dumped on the field boundaries from elsewhere should not be ruled out. The settlement site at Rowden, Winterbourne Steepleton, exhibited this field-side dumping characteristic (Woodward, forthcoming; interim note, Woodward 1981).

Sample area 2 is remarkable for the large amount of flint waste and a very much smaller number of tools. The lack of 'domestic' tools such as scrapers and piercers and the concentration of hammerstones and picks in and around this area may indicate a different specialised activity, possibly associated with the extraction



Figure 2. A. Black Hill earthwork survey 1983. Western and eastern enclosure earthworks based on Bond (1982). B. Black Hill soilmark survey 1983.

and initial processing of flint raw material. The large number of cortical flakes and the crude nature of much of the waste tends to confirm this.

Sample area 3 contains a much wider range of tools and retouched flakes in comparison to the other areas (Fig. 5B). In general, this assemblage is probably representative of domestic activity adjacent to the settlement enclosure. It is interesting to note that many of the piercers, the polished axe fragment and the 'macehead' (see Appendix 3) are distributed around this area.

THE DISTRIBUTION OF POTTERY AND TILE

Small quantities of pottery were recovered within the field-walked areas and has been classified by fabric groups as detailed in Appendix 2. The distribution of occurrences of pottery by period groups is shown on Figs 7A-8A.

The occurrence of prehistoric pottery (Late Bronze Age to Early Iron Age) does not appear to be directly related to either

settlement or funerary features and may result from manuring (Fig. 7A). A small concentration around ST 676005 is difficult to interpret owing to the apparent loss of any associated features. The distribution of post-medieval pottery (Fig. 8A) is most important. The occurrence of this material may represent the limits of hilltop ploughing in the 18th-19th centuries. This encroachment has clearly resulted in substantial removal of earthwork evidence from the field.

THE SOIL-SAMPLE TRAVERSES

Soil samples were augered from the base of the plough soil at 10 m intervals along three traverses across the recorded earthworks to test for ancient phosphates (Fig. 2 and Fig. 8B). Whilst some enhancement of levels is evident adjacent to the enclosures around ST 67450045 the results obtained are all low and variation slight. Levels are consistently low across the dense flat gravel area to the west. These sample traverses were insufficient for any characterisation of land-use.

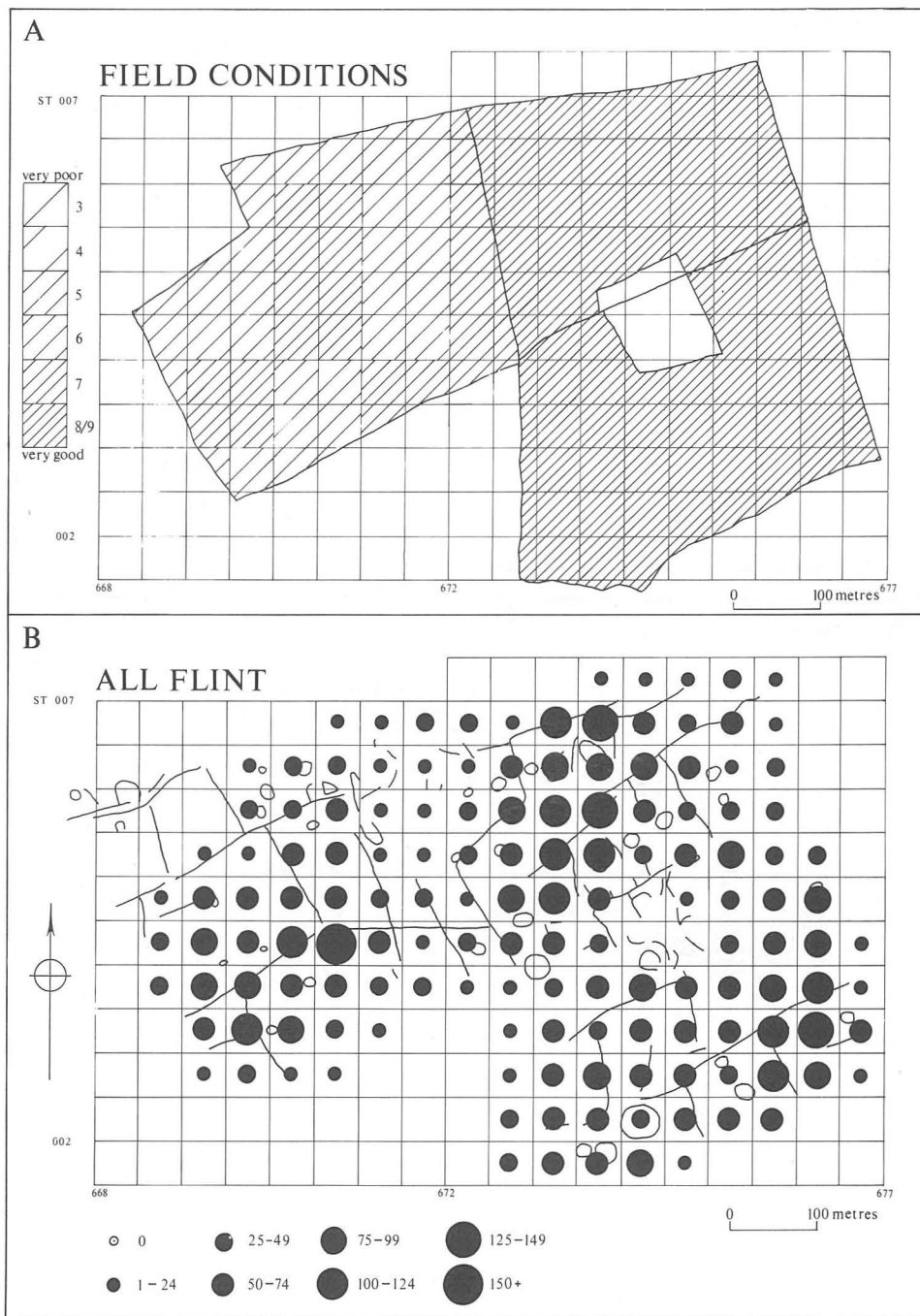


Figure 3. Black Hill survey 1983. A. Field areas walked with conditions depicted. B. All flint distribution (by count) against archaeological features.

THE DEVELOPMENT OF THE FIELD SYSTEM

The increased data from the survey of earthworks, soilmarks and material distributions provides a more complete data base from which the development of the field system can be described. However, interpretation is limited, and many of the problems of chronology and function can only be solved by excavation, although excavations on a small scale have limited results (Bond 1982). The conclusions developed here are based on both this survey and the previous excavation/survey by Bond (1982).

Early use of the hilltop for quarrying flint from the head (drift deposits) and flint (bands in the underlying chalk) outcrops on the side of the hill is apparent from the flint surface collection. This activity concentrated in the north-east area, and the earthwork hollows may be related, although geological sink-holes should not be ruled out. Flint winning for tool production probably began in the late Neolithic period and continued to the Late Iron Age. The first boundaries on the hilltop are probably of Bronze Age date (c.f. relationship to barrows). A sequence of boundary banks and ditches is immediately apparent in the central area between the two enclosures and associated in fields. It is probable that these two

enclosure units were independently (c.f. alignments) inserted onto a pre-existing field unit that was defined by shallow ditches, chalk banks and lynchet cuts against hedged (?) boundaries. Bond suggested in the excavation of one of the western enclosure boundaries that flint clearance to the edge of pre-existing boundaries was probable (Bond 1982, Trench 5). This clearance led to the formation of field banks, and a series of cairns. The exact relationship between the Middle Bronze Age to Early Iron Age settlement focus (pottery) and the adjacent enclosure is uncertain, but it is perhaps likely that separate functional areas of a single seasonal settlement are represented; animal penning in small fields and enclosures, and a separate habitation site (now ploughed out).

The relationship of the settlement to the barrows is important. The barrows are located off the crest of the hill and above the southern coombe. The western two barrows had flint mounds defined by circular ditches. It is possible that some of the other clearance cairns and hollows on the western shoulder of the hill may mark burial sites. This cemetery area was probably not specifically defined by a boundary, and it is apparent that the barrow furthest

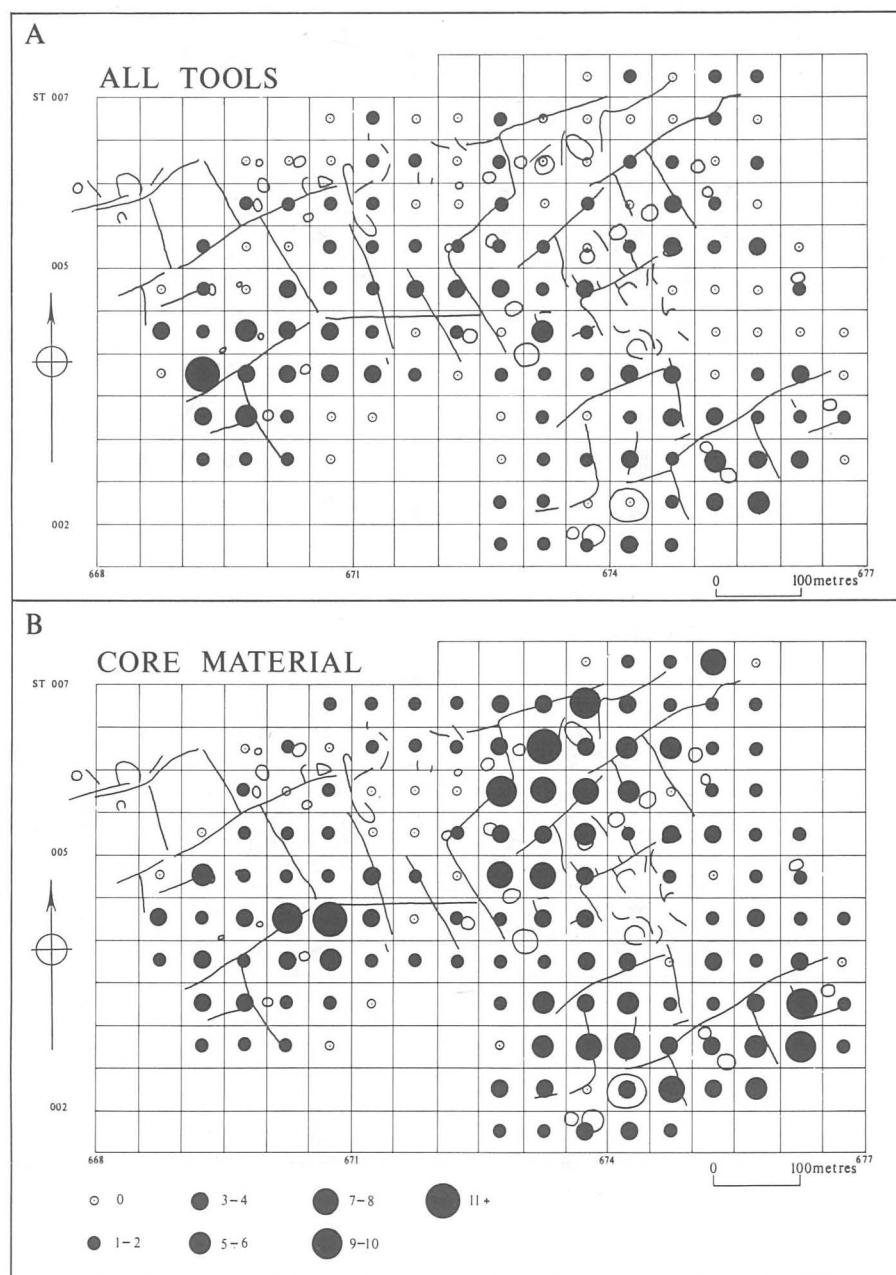


Figure 4. Black Hill survey 1983. A. All flint tool distribution (by count) against archaeological features. B. Flint core material distribution (by count) against archaeological features.

to the west was used as a marker to one of the later boundary alignments. However, the growth of the field system around the barrows did respect the mounds themselves, if not the immediate surrounds. Later field clearance of surface flint within the developing fields has clouded the character and shape of the earlier cemetery. The flint gained from field clearance and field construction was also used for tool production (c.f. tool and scraper distribution).

The latest use of the developed fields and enclosures was probably in the Late Iron Age/Romano-British period, but it is uncertain as to which elements, if any, have their origin at this time. It is perhaps possible that by the Late Iron Age the area was used for intermittent grazing.

The absence of earthworks on the eastern edge of the site and areas of the hilltop to the east point to an episode of late unrecorded ploughing. The presence of late-Medieval to post-Medieval pottery concentrated on the eastern side of the site, indicates that it was in this period that hilltop ploughing may have

begun. Ploughing of hill pastures for increased corn production was common in Dorset in the 18th/19th centuries, but exact areas are unrecorded (Bonney 1980).

CONCLUSIONS AND FUTURE WORK

This survey demonstrates the value of data collection from ploughed settlements and ancient fields such as Black Hill. It is clear that the systematic collection of comparable data sets from morphologically similar sites would be of value, so that their status and development can be more clearly depicted. There is a need also to further relate these settlements to the region's topography, and territorial organisation (c.f. introduction).

This data collection also has value in defining the settlement units more closely so that specific areas can be delineated for more careful land management, so that their future preservation can be ensured.

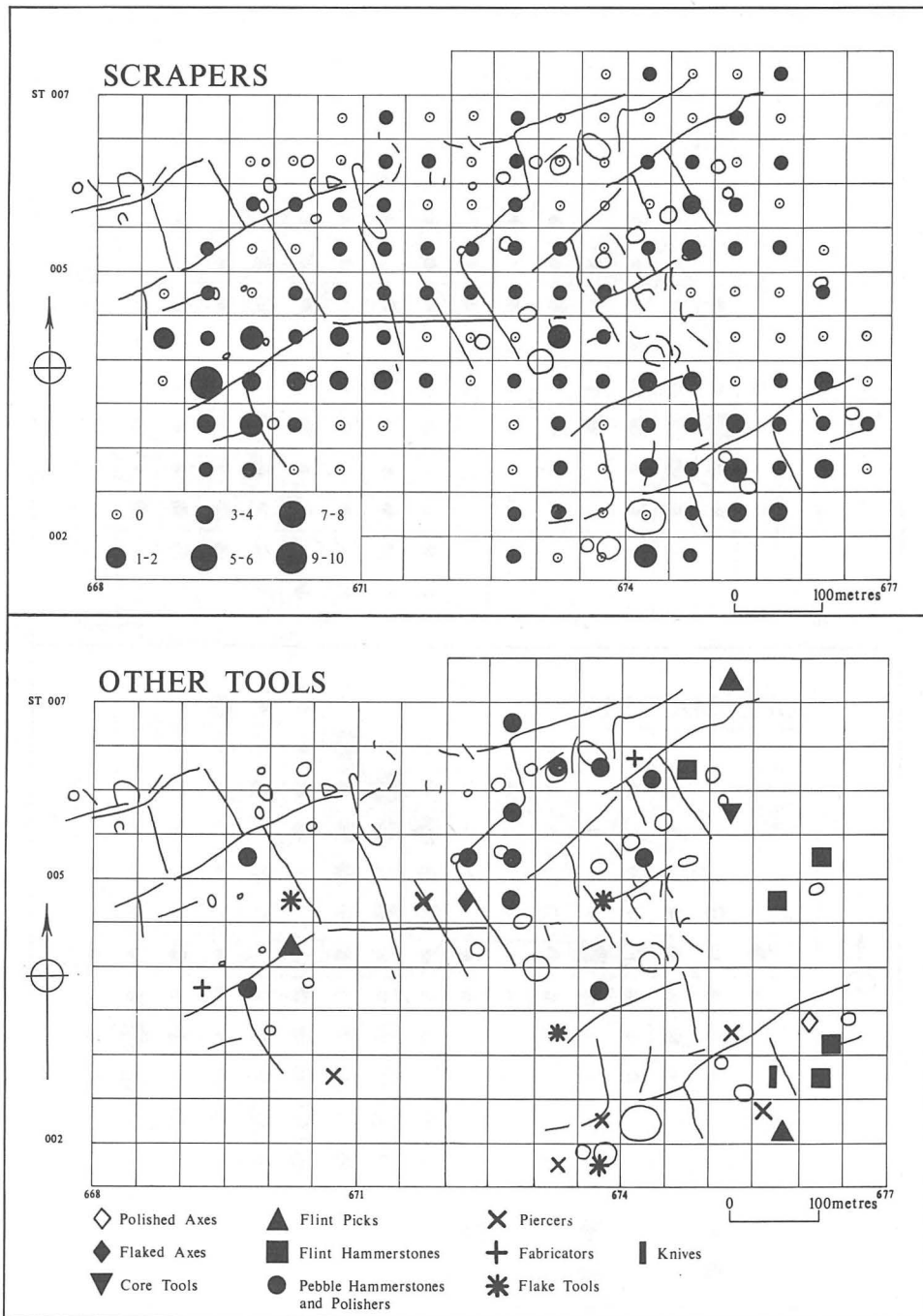


Figure 5. Black Hill survey 1983. A. Flint scraper distribution (by count) against archaeological features. B. Other tools distribution (by count) against archaeological features.

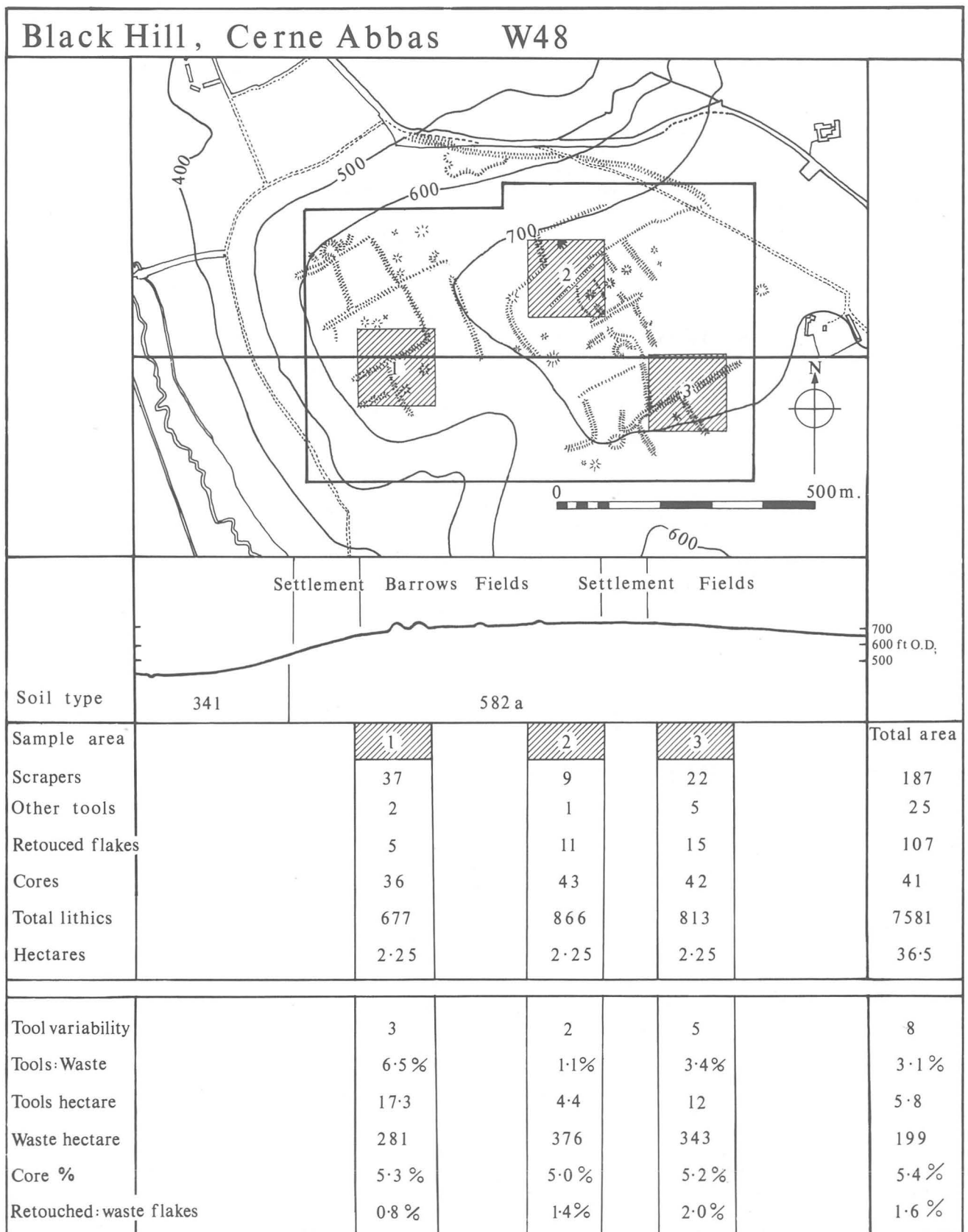


Figure 6. Topographic traverse and lithic variation.

In the case of Black Hill it would be important to stop the continued ploughing of much of the western area of the hill top (clearance cairns and barrows), and reduce the impact of ploughing around the eastern hilltop enclosure (Bronze Age settlement focus).

Some of these sites are subject to statutory protection, but the extent of this protection needs to be reviewed within the current farming regime (many of these sites are ploughed partially or totally), and against a background of current archaeological knowledge. The work at Black Hill was undertaken for the Department of the Environment as part of a review programme for scheduled areas. Further survey needs to be done within the study area (Fig. 1) to develop an adequate preservation policy, and this must be set within a clear investigative strategy, which is designed to answer outstanding archaeological questions.

There is some urgency in the need for further survey and

depiction of this series of sites; the rate of plough erosion is extremely high with modern farming practice, as has been demonstrated at Black Hill. These sites also form a concentrated and cohesive group, which is unusual within a national context, and a comprehensive programme of survey should be initiated at the earliest opportunity. This paper is a revision of the report submitted to the Department of the Environment in March 1984.

ACKNOWLEDGEMENTS

This survey was organised by Peter Woodward for the Trust for Wessex Archaeology within the general survey strategy of the South Dorset Ridgeway Project. The authors would wish to acknowledge field-walkers who collected and recorded the field data in wintery conditions, Martin Papworth, Alan Graham and John Wilson; Martin Trott for testing the soil for phosphate; Robert Read for Fig. 7 and

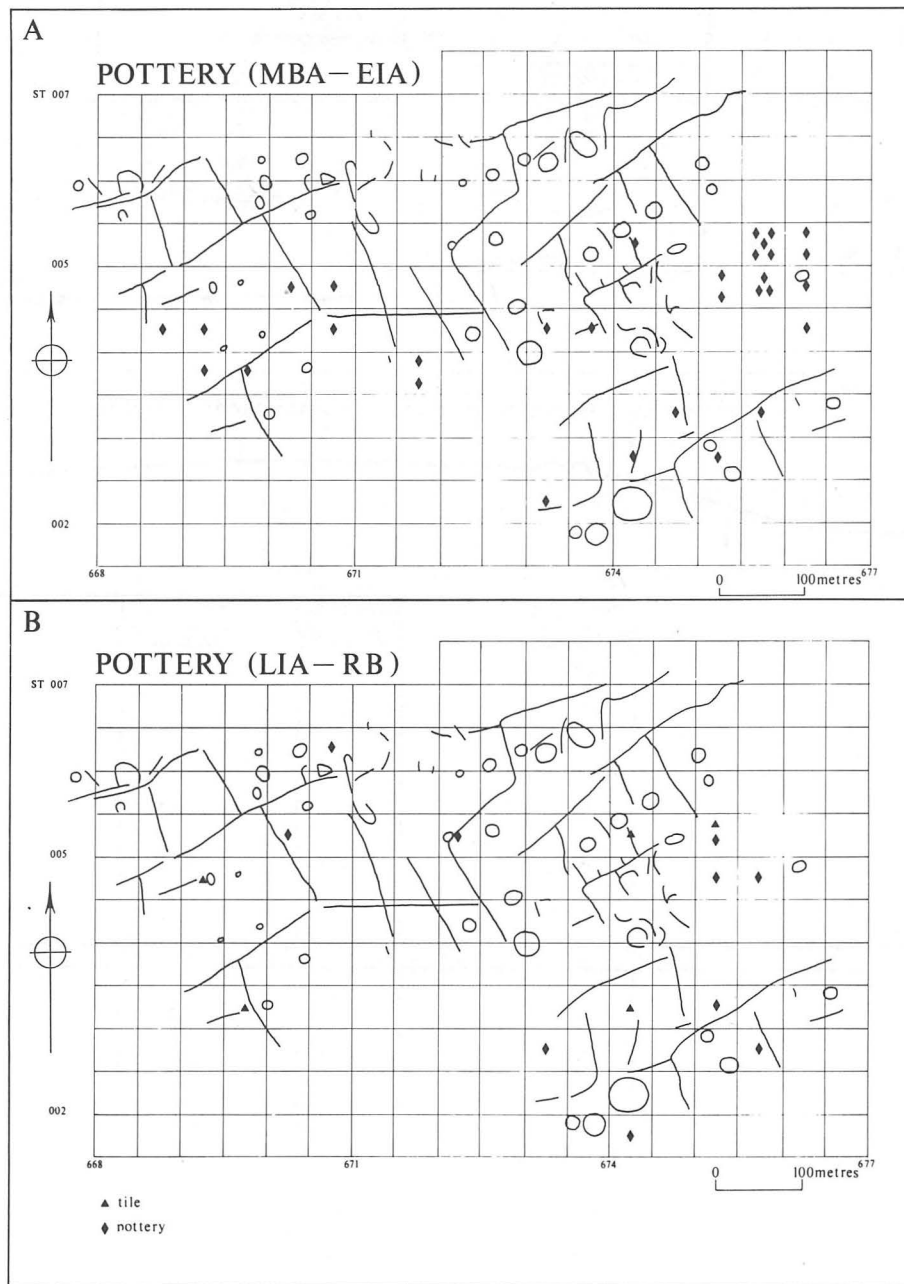


Figure 7. Black Hill survey 1983. A. Middle Bronze Age - Early Iron Age pottery (per individual occurrence) against archaeological features. B. Late Iron Age and Romano-British pottery (per individual occurrence) against archaeological features.

Ruth Soames for Figs 4b and 5. Thanks are also due to Dermot Bond whose continued interest in the area and assistance with this survey have been invaluable.

This project would not have been possible without the co-operation of the farmer, Mr Burt. The project was commissioned and financed by the Department of the Environment.

APPENDIX 1:
ANCIENT FIELDS AND SETTLEMENTS

The select group of sites depicted in Figs 1 and 2 are listed below. These are referenced to the Royal Commission's Survey of Dorset (1952 and 1970).

WEST DORSET VOLUME (RCHM 1952, Parish number)
Cerne Abbas: 31 Giant's Hill (ST 669020)
32 Black Hill (ST 670005)

33 Smacam Down (SY 656994)
34 Dickley Hill (ST 660004)
Cerne Nether: 5 Well Bottom Down (SY 682985)
Cerne Up: 8 Seldon Hill (ST 650025)
Sydling St Nicholas: 20 Croft's Down (ST 631017)
21/22 Buckland Down and Hog Hill (ST 644009)
23 Shearplace Hill (SY 640985)
25 Loscombe Hill and Folly Hill (ST 620002)
26/27 Cross Hill (ST 624017)

CENTRAL DORSET VOLUME (RCHM 1970, Celtic Field Number)
Piddletrenthide/ 38 Cow Leaze to Kiddle's Bottom
Alton Pancras: (ST 685005-692005)
42 Watcombe Plain (ST 710032)

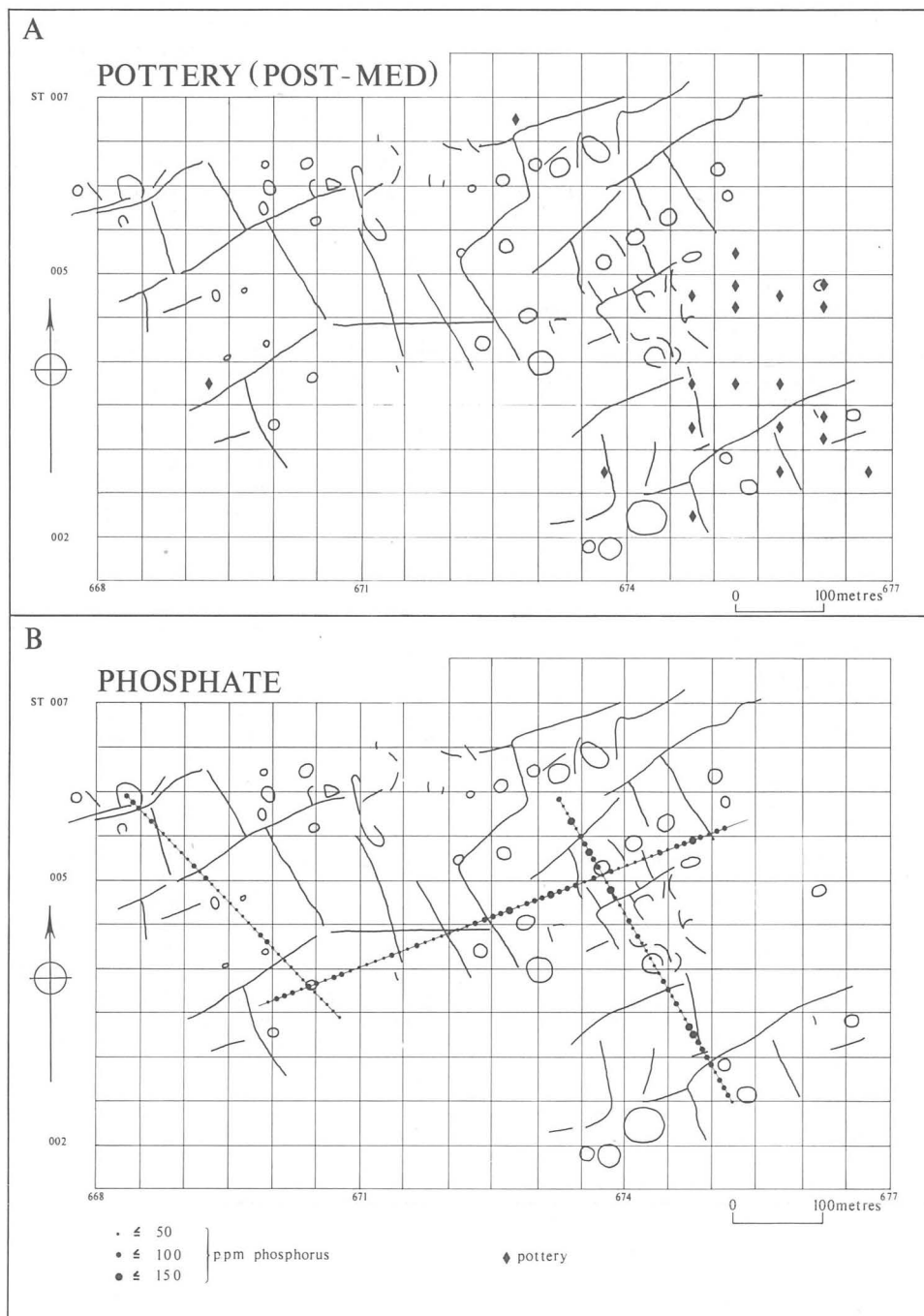


Figure 8. Black Hill survey 1983. A. Late-Medieval and post-Medieval pottery (per individual occurrence) against archaeological features. B. Phosphate values against archaeological features (phosphorus in parts per million).

APPENDIX 2: THE POTTERY

The pottery groups depicted in Figs 7 and 8, are primarily based on fabric descriptions. A few dateable forms occurred in groups E-G. The fabrics of groups A-D bear close comparison with the stratified groups excavated at Shearplace Hill (Rahtz 1962).

Fig. 7A: Pottery groups A-D.

Fabric A (MBA): Fine, soft, very sparse sand, occasional grog inclusions.

Fabric B (LBA/EIA): Harder (than A), sandy, occasional fine quartz grits, very occasional flint.

Fabric C (EIA): Coarse, moderately abundant medium quartz and medium flint inclusions.

Fabric D (LBA-EIA): Very coarse thick walled, abundant medium flint/quartz inclusions.

Fig. 7B: Pottery groups E and F.

Fabric E (LIA): Hard, common fine quartz-grain inclusions, wiped surfaces, well fired.

Fabric F (R-B): Various fabrics, including pottery mortaria. Mostly sandy, oxidised wares, moderately hard. Also includes tile, and one piece of (?) briquetage.

Fig. 8A: Pottery group G.

(Late Med.-Post-Med.), various fabrics and forms.

APPENDIX 3: THE FLINT by Peter Bellamy

The Black Hill lithic assemblage consists of 7580 pieces of worked flint and one piece of Portland Chert. The raw material is generally a mid to dark grey flint with light grey blotches and thick cortex. Many of the pieces, however, are patinated: the majority are light grey or bluish grey in colour but occasionally white heavily patinated pieces occur, often with some manganese staining. Very similar material occurs naturally on the hilltop, so it is possible that only the single Portland Chert scraper is foreign.

The assemblage mainly consists of waste flakes with a very much smaller number of retouched flakes, cores and tools. The numbers are as follows:

Total Lithics:	Flint	7580
	Portland Chert	1
Lithic Assemblage:	Waste flakes	6852
	Retouched flakes	107
	Core material	410
	Tools	212
Tool Assemblage:	Polished Axe fragments	1
	Flaked Axe	1
	Picks	3
	Discoidal Knife	1
	Scrapers	187
	Flint Hammerstones	5
	Chopper	1
	'Macehead'	1
	Flake Tools	4
	Fabricators	2
	Piercers	6

The assemblage is mixed with a range of different flakes; from thin, fairly narrow blade-like flakes to large, thick crude flakes, many of which are cortical. A similar variation was seen in the retouched flakes, with both small, fairly fine retouching and large, crude retouching present and also the technique of butt thinning by janus flake removal. The cores consist mainly of single platform types, often very crude but with some blade cores also.

The tool assemblage was almost completely dominated by scrapers. These show a large variation from rough cortical to fine thumbnail scrapers. Piercers were the next most common tool type: six crude examples were found. Rough core tools such as picks and choppers are nearly as numerous. Five flint hammerstones were found (one of which was a re-used core) but the total of hammers is much larger if the eleven pebble hammerstones are also taken into account, though some of these may have been rubbers. One of the fabricators was crude but the other was of a fine narrow rod-like form. One notable artefact (found at ST 674003SE) is a flint

worked into a rough circular shape with a natural hole through the centre, which is very similar to the 'macehead' found in the West Kennet Avenue (Smith 1965, Fig. 80 F205). Very few 'fancy tools' were found: only one polished axe fragment and one discoidal knife. Arrowheads were notable by their absence.

The nature of the assemblage suggests that it is chronologically mixed, but this is difficult to define as the artefacts themselves contain very few chronologically diagnostic types. However, the fabricators and the axes indicate some possible late Neolithic activity, and on the other hand the crude nature of the piercers and many of the scrapers may point to a Bronze Age occupation.

The presence of janus flake technique firmly suggests the presence of a middle-late Bronze Age industry (Harding, forthcoming). The majority of the flakes were cortical flakes or other trimming flakes which are not susceptible to chronological classification, but in general the large, thick nature of the flakes suggests a Bronze Age date for the bulk of the assemblage (see Ford *et al.* 1984). The occurrence of some blades may indicate the presence of a smaller Neolithic component. The same general pattern was noted in the core material with most being chronologically unclassifiable but it could fit comfortably into a Bronze Age industry, and the blade cores may be part of an earlier Neolithic industry. The lithic assemblage is in general very similar to others collected from upland chalk area on the South Dorset Ridgeway (Woodward, forthcoming); such as Cowleaze (W40) and Sheep Down (W41). However the composition of the tool assemblage at Black Hill has a much higher proportion of scrapers and no arrowheads, pointing to a narrower range of settlement and habitation occupations on this upland ridge, and perhaps activities on marginal ground.

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An Earthwork near Badbury Rings in Dorset

C. J. GINGELL

with R. J. DAWSON, with a contribution from J. G. EVANS

SUMMARY

This report describes excavations carried out by F. de M. and H. L. Vatcher in 1965 on a damaged earthwork near Badbury Rings.

Following the untimely death of Mrs Faith Vatcher, the Trust for Wessex Archaeology was commissioned to prepare a published record of these excavations. The report shows that phases of settlement in the Neolithic and Beaker period were succeeded by the construction of an earthwork, probably in the Middle Bronze Age, which was constructed several times.

The earliest features on the site were two Beaker pits (357a, 357b; fig. 4), and a post-hole (471; fig. 4) found to contain Beaker pottery. The Phase I bank sealed at least one feature and a group of seven Early Bronze Age pottery fragments, which included a Beaker sherd and a sherd with a finger-tipped cordon.

Earthwork Phase I *The initial phase of the earthwork consisted of a shallow ditch with its corresponding bank thrown up on the southern side.*

Phase II *Subsequently, a deeper ditch was dug to the north of, and parallel to, the Phase I ditch. Its bank on the southern side partly overlay the earlier ditch. A row of posts was inserted behind the bank into the fill of the Phase I ditch at a later date.*

Phase III *The ditch was later re-dug for much of its length, removing all traces of the Phase II ditch. The bank was thrown up over the Phase II bank and over the Phase I ditch and bank. By this time, the revetment of posts behind the Phase II bank had collapsed or been removed.*

A causeway interrupted both the Phase II and Phase III ditches: the number of features associated with it proved to be largely undateable. The post-ring of a possible round house was recorded in the interior of the earthwork; it produced undateable finds.

Post-earthwork Cultivation *A ploughsoil of Romano-British date filled the upper levels of the Phase III ditch.*

INTRODUCTION

An earthwork lay approximately 0.5 km west-south-west of the hill on which the Iron Age hillfort of Badbury Rings was built, and was just to the north of the Wimborne to Blandford road in the parish of Shapwick (Fig. 1). The monument (ST95600301) was constructed on essentially flat ground below the 60 m contour line. The visible remains consisted of a low chalk bank, aligned north-south/south-east roughly parallel to the B3082, turning towards it at the south-east end.

The bedrock of the area is Upper Chalk, overlain in places by clay-with-flints, which was not observed on the site.

The area around Badbury Rings has a great density of archaeological features, the majority of which are visible only on aerial photographs (Fig. 1). Two linear features RCHM nos a89 and a86, as yet undated, are of particular interest since they may have a direct relationship to the excavated earthwork. The Badbury Rings barrow group lies 250 m to the south-east of the site and the Badbury Barrow Group approximately 800 m to the north-west. The Roman road which ran from Old Sarum to Dorchester passed through a probable Roman fort, 1 km SW of the site: other evidence of Roman occupation is to be found in a circular feature on the west edge of Badbury Rings. Limited excavation around this feature by W. G. Wallace in 1900 produced material ranging in date from the 1st to the 5th century (RCHM 1975, 61).

THE 1965 EXCAVATIONS

In 1964 the earthwork was partially levelled by the farmer with a bulldozer bringing into cultivation a hitherto unused part of the field. Until that time, the earthwork was thought to form part of a disused field boundary. During the levelling of the bank two skeletons were found. D. J. Bonney and P. J. Fowler of the Royal Commission on Historical Monuments were notified, and a contour survey undertaken. On the evidence of the size and shape of the bank and the presence of what seemed to be side ditches, it was suggested that the feature was a form of long barrow. F. de M. and H. L. Vatcher were asked to excavate the site on behalf of the Ministry of Public Buildings and Works before more damage was done by the ploughing. Work began at the end of August 1965 and was completed by the beginning of November 1965.

THE SITE RECORD

The site record consists of one plan; eleven cross sections of the banks and ditches; one page of levelled profiles; a plan of the position of the profiles in relation to the area to be excavated; a catalogue of find spots compiled after the excavation from details given on the finds bags; 428 photographs; and one file of correspondence.

In the excavation record, conventional numbering of observed layers and features is not used. For the purposes of this report, the relevant find-spot numbers are used to identify features. The excavator's section drawings were of outline form, with brief descriptions of the layers: in Figs 5, 6 and 7, stylised forms of shading have been used.

EXCAVATION (Fig. 2)

The earthwork lay in the south-east corner of a field adjacent to the Wimborne to Blandford road. The extent of the excavation was limited to the south-east by a farm track.

The exact area of excavation was not marked on the original plan; an effort has been made to deduce the area from the photographs. A series of trial trenches was dug, establishing the presence of ditches and the development of the bank. Areas between these trial trenches were excavated as a receding face, to the approximate extent shown in Fig. 2. Part of each ditch was excavated, in the case of the Phase III ditch by mechanical excavator.

OCCUPATION FEATURES

Beaker Pits

Pit 357a had a surface diameter of 0.83 m, the bottom being undercut and slightly wider: the depth of the pit was 0.27 m. It contained 13 sherds of decorated pottery from at least six vessels (Fig. 8) and a flint flake and scraper (Fig. 11).

Pit 357b had a diameter of 0.76 m and was 0.27 m in depth: this was more concave profile than Pit a. It contained 90 Beaker sherds and fragments from at least five vessels, which included decorated and rusticated domestic Beaker pottery. Both pits contained charcoal and charred hazelnuts.

To the north-west of the Beaker pits, a feature interpreted by the excavators as a post-hole was found (471; fig. 4). It measured 0.38 m in diameter and 0.20 m in depth, and contained fragments of Beaker pottery from four decorated vessels.

THE EARTHWORK

PHASE I (Fig. 3)

Molluscan analysis (below) suggests that this phase developed on an open, cleared site.

The Phase I ditch was 'V' shaped in section with a narrow flat base (sections B-E; figs 5 and 6) and was 0.81 m deep. The width at the

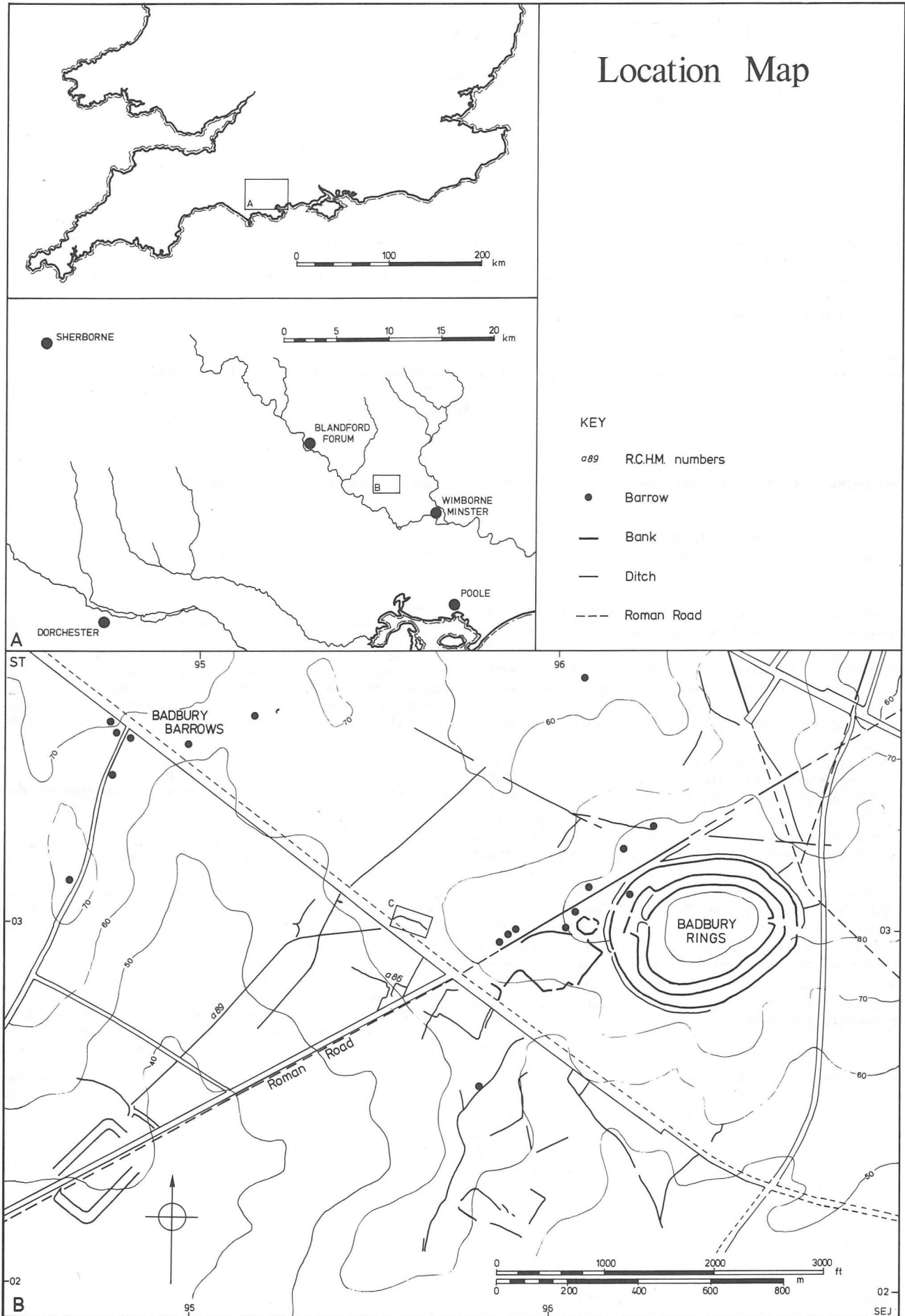


Figure 1. An earthwork near Badbury Rings: location maps.

top of the ditch was 1.29 m narrowing to 0.20 m at the base. It ran north-west/south-east for a length of 32 m with an interruption of 1.0 m at the north-west end. The continuation of the ditch beyond this hiatus was 0.53 m in depth. The extent of the linear ditch to the south-east of the site where it underlay the unexcavated Phase II bank is unknown.

The ditch had a primary silting of chalk weathered from the ditch sides, succeeded by a secondary mixture of chalk and soil. The stratification of finds is uncertain, since vertical measurements were taken from the top of the bank into the ditch. However, an attempt has here been made to divide these finds into those of the primary and secondary fills.

The primary fill contained one sherd of Neolithic pottery; two sherds of Beaker pottery; one Early-Bronze Age food-vessel sherd; and four Early to Middle Bronze Age sherds. The secondary fill contained four Early Bronze Age sherds and one Middle Bronze Age Barrel Urn sherd.

A length of the **Phase I bank** was preserved beneath the bank of **Phase III** (Fig. 3): the sections (D, E; fig. 6) show it to consist of a low turf mound adjacent to the ditch, capped by chalk rubble thrown over the back of the turf mound. It survived to a height of c. 0.38 m.

PHASE II

The **Phase II ditch** ran north-west/south-east parallel to the Phase I ditch, and 4.41 m to the north of it. It was 'V'-shaped in section; (A; fig. 5), the top being 2.43 m wide narrowing to a flat base 0.20 m wide; its average depth was 1.67 m.

This ditch was extant only at the south-east end of the site where a 12.81 m length was not recut in Phase III. To the south-east it continued beyond the excavated area. To the north-east, the ditch was replaced by the recut Phase III ditch, and its former line was marked only by the adjacent Phase II bank.

Twenty-nine pottery fragments were recovered from the Phase II ditch, none of which came from the primary chalk fill. The secondary silt fill contained four Early Bronze Age sherds, one Early to Middle Iron Age sherd, and 24 sherds of Romano-British pots. No internal dating evidence for the ditch itself was observed.

The **Phase II bank** ran the length of the excavated area and was interrupted only by the causeway: thrown up on the south side of the ditch, it comprised a turf core overlain by chalk from the cutting of the Phase II ditch. The bank was found to have been reduced by modern cultivation (section E; fig. 6) and survived to a height of c. 0.75 m. The back of the bank was subsequently defined by a row of posts set in the fill of the Phase I ditch. The posts were quite widely and irregularly spaced; they can scarcely have served as a revetment, situated as they are at the foot of the talus of the bank material.

At the eastern end of the site was a gap of 0.69 m in both the Phase II bank and the underlying Phase I bank; no discontinuity in the ditches, however, was apparent. A trench 4.11 m wide and 0.15 m deep was cut into the chalk across the gap. There is no recorded evidence which might date the presumed breaching of the bank at this point, nor is there any means of determining the relationship between the Phase II bank and the trench across this gap.

PHASE III

The **Phase III ditch** followed the same line as that of the Phase II ditch; the 'V'-shaped profile was maintained (section F; fig. 7), but the depth was increased to 3.95 m. The weathering 'cone' at the top of the ditch was c. 4.80 m wide and the flat bottom less than 0.15 m wide. A number of tool marks and seatings for post-holes were observed in the sides of the ditch; the plaster casts taken of these features have not been traced.

Ditch layers were not numbered by the excavators; here, the stratigraphy was described in its principal components. An attempt has been made to relate these to the zones in another ditch section recorded on site by John Evans (see Land Mollusc Assemblages below): these zones were defined by measurements from the surface at the centre of the ditch.

The primary fill below the lowest zone recorded by Evans (his Zone 2) consisted of a typical sequence of weathering deposits, alternating from coarse, frost-shattered material to finer rain-washed deposits. In this section, approximately seven seasons of weathering may be represented: in other sections recorded in the archive, seven to eight seasons are indicated. The one piece of



Plate 1. Badbury Earthwork, 1965. General view of excavations from east. Left; Phase I ditch; Right – ditch of Phases II and III; Background – Bank of Phases II and III.

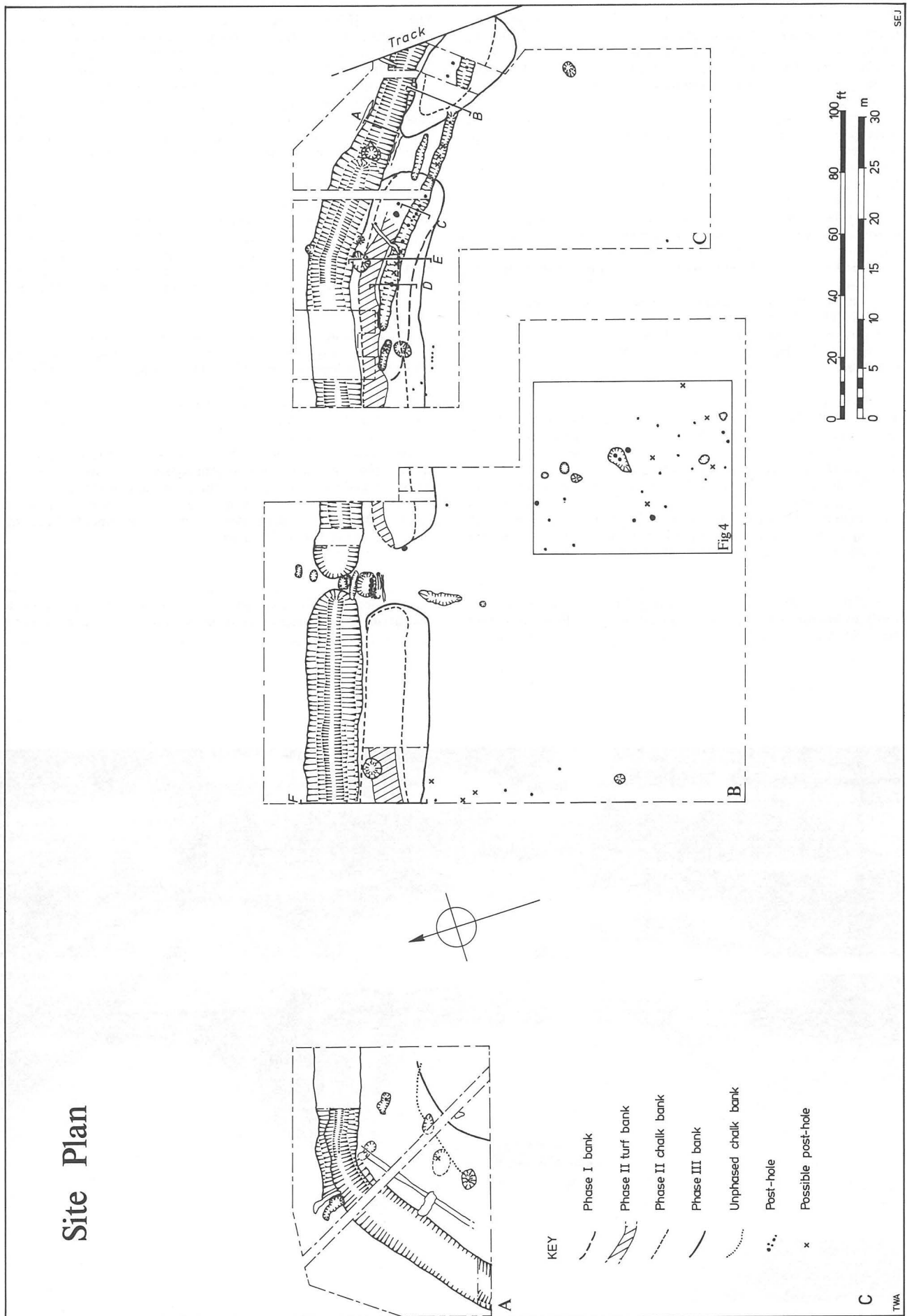


Figure 2. Earthwork near Badbury Rings: plan of 1965 excavations.

pottery from the bottom of the fill was too small for identification. In the upper layers of chalk, however, three sherds of pottery were found – one of the Beaker pottery and two of Bronze Age date. Since these probably derived from the surrounding surface, it is not possible to date the primary fill of the ditch.

Overlying the primary chalk fill was a fine brown silt with occasional spills of rubble from the sides and bank of the ditch, marking a phase of slow weathering. Evans' Zone 2 comprises the lower part of this material together with turves in the upper part of the underlying primary fill.

The upper part of this fill to c. 0.8 m below the surface at the centre of the ditch corresponds to Evans' Zone 3.

Across the top of the ditch fill was a dark brown soil containing a high proportion of chalk fragments. This is an ancient ploughsoil – as evident from the mixed nature and quantity of ceramic finds, and from the molluscan assemblage. This is Evans' Zone 4.

A thick lens of chalky ploughsoil of recent date produced a level surface to the ditch fill (Evans' Zone 5). The modern topsoil across the surface of the ditch comprises Evans' Zone 6.

The Phase III Bank was composed mainly of chalk, and chalk mixed with soil which was thrown over the back of the Phase II bank rather to widen it than to increase its height. The line of posts behind the Phase II bank had been removed prior to the construction of this bank. A turf line had developed on the back of the Phase II bank during an interval before the building of the Phase III bank.

Some of the material recovered – including 15 sherds of Romano-British pottery – may have been sealed by the later slumping of the Phase III bank. As a result the material from beneath the bank cannot reliably be dated.

In their report (Vatcher 1965, 101-2) F. de M. and H. L. Vatcher argue that a ballista bolt found beneath the Phase III bank constituted evidence that the ditch was deepened and the bank widened in the Iron Age as a defensive response to Roman invasion. However, neither the presence of Romano-British pottery and other finds beneath the slumped talus of the bank, nor of similar material in the upper ploughsoil levels of the ditch, provides an argument for postulating a date in the 1st century AD for the enlargement of the earthwork in Phase III. Indeed, none of the pottery need be attributed to the late pre-Roman Iron Age: almost all that claimed by the excavators has been re-identified as sherds of Neolithic bowls.

FEATURES ON THE CAUSEWAY (Fig. 2)

A number of irregular hollows was discovered on the causeway and between the bank terminals: the largest of these was roughly oval in shape, 2.43 m in diameter at its widest point, and 0.40 m deep. At the south-west end of the feature were four intersecting post-holes with a fifth in a hollow behind them. Surrounding the perimeter feature, nineteen stake-holes were recorded. It is possible that the entrance to the causeway was at some stage blocked by the setting of posts: however, the relationship of this feature to others at the entrance to the causeway is unclear. Three sherds of pottery – two Late Bronze Age and one Romano-British – were found in the upper fill of the feature. A number of other hollows, slots and small post-holes are shown in Fig. 2. The possibility cannot be excluded that some of these features were of periglacial origin and revealed by more thorough cleaning of the chalk subsoil in the entrance.

THE FINDS

There were 675 recorded find spots from which 1,133 sherds of pottery were recovered. At times the find spot number was given to several finds – not necessarily of the same material – which were found at one location. Finds spots were recorded by offset measurements as eastings and northings from a numbered grid point: the depth of the find from the surface was also recorded. Since no context numbers have been used, it has been difficult to pinpoint with accuracy the exact position of some of the finds in the stratigraphic sequence. Only diagnostic sherds from reliable contexts were selected for drawing.

NEOLITHIC

Thirteen sherds of Neolithic pottery were recovered from known contexts: a rim sherd was found in the fill of the Phase I ditch and another in the upcast turf of this feature. The rest of the material was found in the buried soil beneath banks I, II and III. No features of Neolithic date were identified.

BEAKER

One hundred and thirty-two sherds of Beaker pottery were found – including both unstratified finds and the material recovered from the Beaker pits themselves. The collection included 39 domestic pottery sherds of which six were rusticated. The Beaker pottery was widely distributed across the site and, apart from the pit groups, there were no tightly grouped assemblages. Beaker material in the

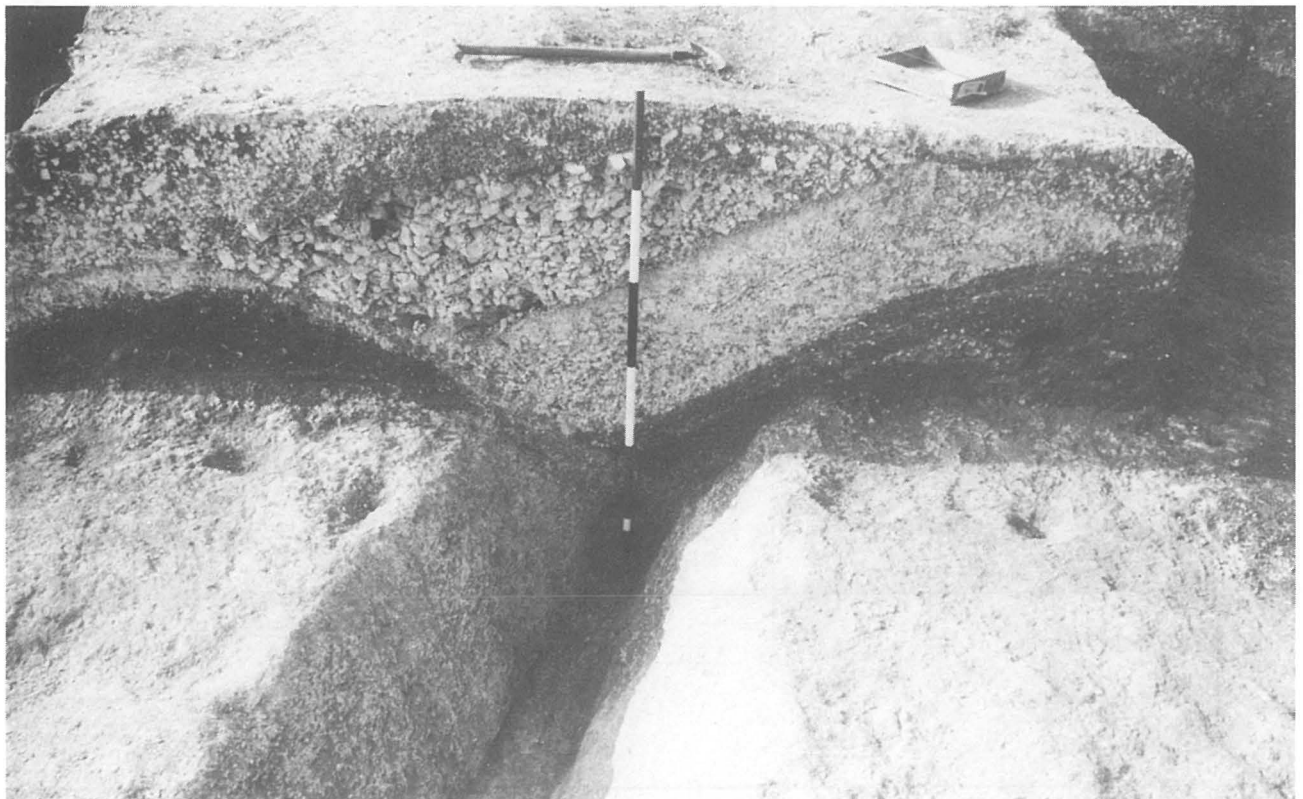
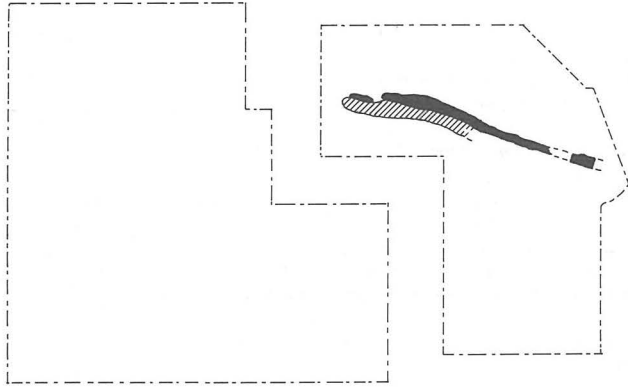
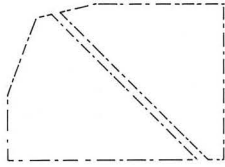


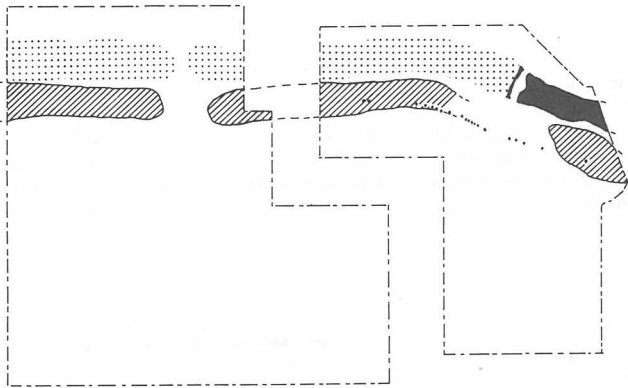
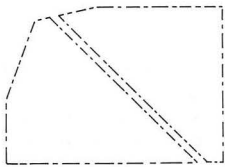
Plate 2. Badbury Earthwork, 1965. Phase I Ditch and left, Bank overlain by truncated banks of Phases II and III.

Phase Plans

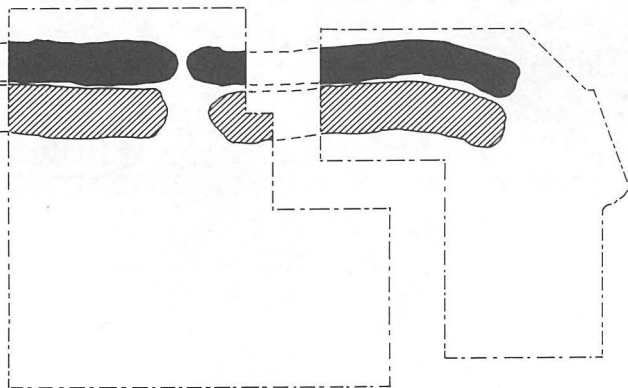
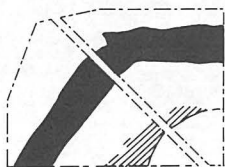
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
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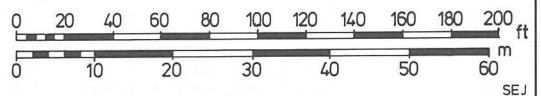


III



KEY

-  Ditch
-  Bank
-  Later disturbance
-  Post holes



TWA

SEJ

Figure 3. *Earthwork near Badbury Rings: plan of Phases I to III.*



Plate 3. Badbury Earthwork, 1965. Recut ditch of Phase III, from east.

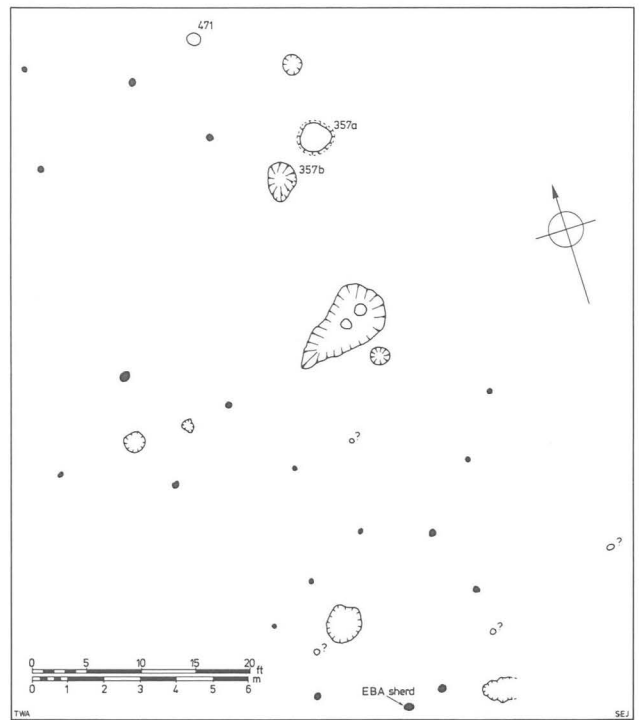


Figure 4. Earthwork near Badbury Rings: plan of features in the interior.

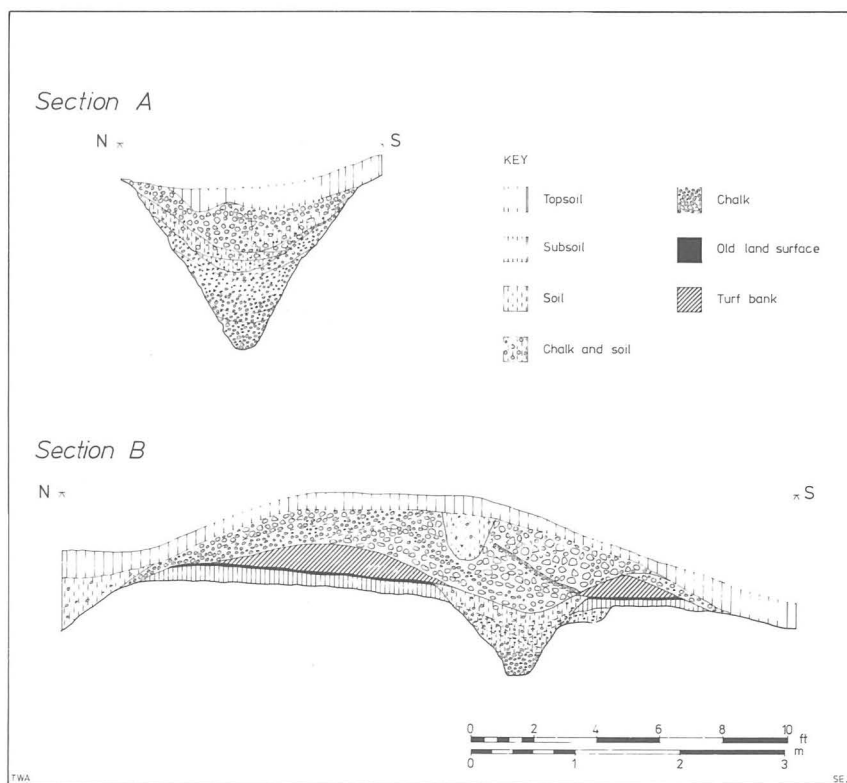


Figure 5. Earthwork near Badbury Rings: sections A and B.

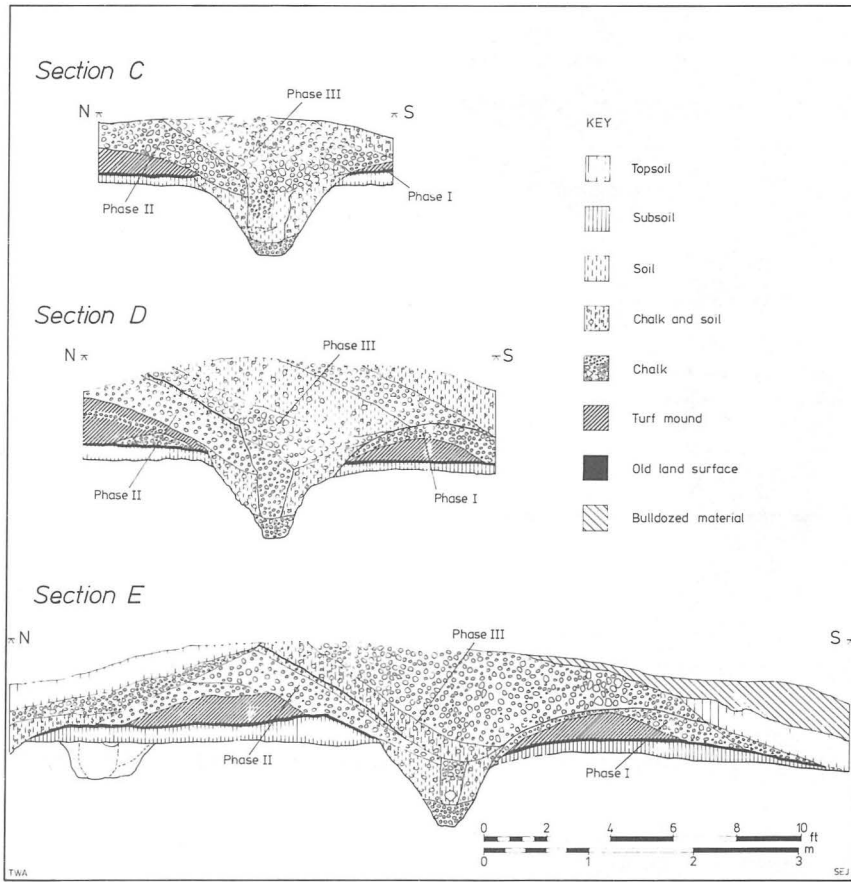


Figure 6. Earthwork near Badbury Rings: sections C, D and E.

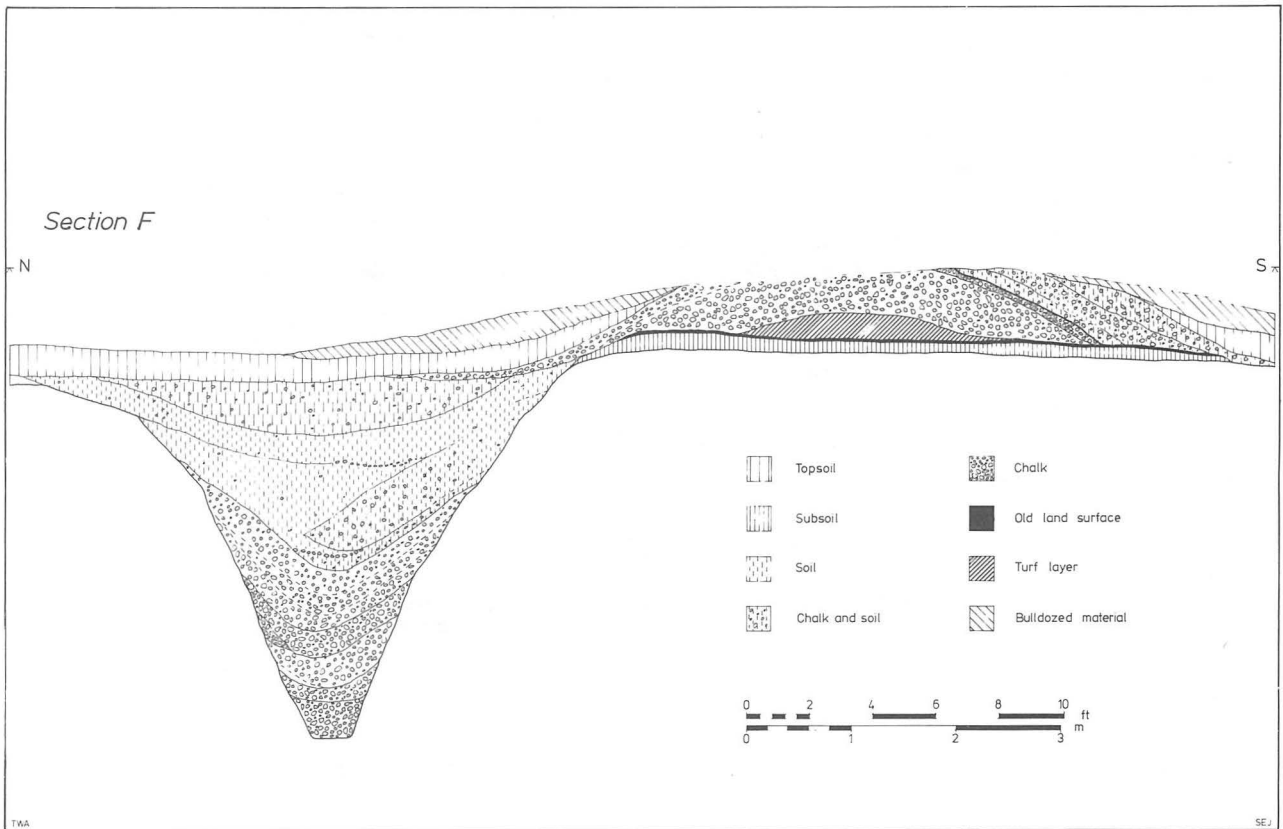


Figure 7. Earthwork near Badbury Rings: section F.

ancient land surface may have been incorporated into later features.

BRONZE AGE POTTERY

Forty-three sherds of Bronze Age pottery were found, occurring in all contexts except the area beneath the Phase I bank. Middle and Late Bronze Age material was found in smaller quantities: 17 sherds of each type of pottery were recovered from identifiable contexts, the greatest number coming from the upper silting of the Phase III ditch.

IRON AGE POTTERY

Only two Iron Age pottery sherds were recovered; these were found in the upper fill of the Phase III ditch.

ROMANO-BRITISH POTTERY

Four hundred and two sherds of Romano-British pottery were recovered from recorded contexts, most of them from the upper chalk and soil fill of the Phase III ditch. Fifteen sherds were found beneath the Phase III bank, but these may be considered intrusive.

CATALOGUE OF ILLUSTRATED POTTERY

A selection of pottery finds is illustrated in Figures 8, 9 and 10, divided into groups corresponding to the phases and major features of the site.

Find numbers are in brackets after the description.

Unless otherwise stated, oxidised exterior, reduced interior.

Figure 8. Beaker pits and post-hole (See plan; fig. 4).

Pit group 357a. Of 23 sherds from this pit 15 are illustrated.

1. Biconical beaker. Final Southern group (Clarke 1970). Zoned comb-impressed decoration. Hard, non-micaceous paste, with fine grog. Diam.: 125 mm.
2. Base sherd with finger-tipped decoration. Friable grog-tempered paste with medium-large flint grits.
3. Rim sherd with incised and impressed decoration. Smooth, hard non-micaceous paste, with small-medium grog.
4. Sherd with zoned incised decoration. Hard sandy paste.

5. Beaker sherd with impressed decoration, probably finger-nail. Friable, non-micaceous paste with abundant fine angular flints.
6. Beaker sherd with impressed decoration, probably finger-nail. Hard non-micaceous paste with medium-large grog and small flint and chalk temper.

Pit group 357b

7. Sherd with zoned comb-impressed decoration. Hard, slightly sandy non-micaceous paste.
8. Base sherd. Hard, non-micaceous paste, with sparse chalk and grog inclusions.
9. Rusticated beaker sherd with single and paired nail-impressions. Hard, non-micaceous paste, with sparse small angular flint inclusions.
10. Beaker sherd with stabbed decoration. Hard non-micaceous paste with small grog particles and sparse angular flint.
11. Beaker sherds with comb-impressed decoration. Slightly sandy paste, with small grog and medium chalk inclusions.
12. Rusticated sherd with nail impressions. Soft, non-micaceous paste with fine grog; oxidised exterior and interior, reduced core.
13. Rusticated sherd with nail impressions. Soft, non-micaceous paste with fine grog.

Post-hole 471

14. Beaker sherds, possibly retaining some bell beaker characteristics. Incised and comb-impressed zoned decoration. Hard, non-micaceous paste, with small grog and medium chalk inclusions.
15. Comb-impressed sherd. Hard non-micaceous paste, with fine grog and some chalk and angular flint.
16. Comb-impressed sherd. Smooth micaceous paste, with small-medium grog; oxidised exterior and interior, reduced core.
17. Sherd with comb impressed decoration. Sandy micaceous paste, with medium grog.

Phase I ditch fill

18. Sherd with furrowed surface. Hard, non-micaceous paste, with fine grog temper and sparse angular flints. Fumed exterior, interior

Figure 9

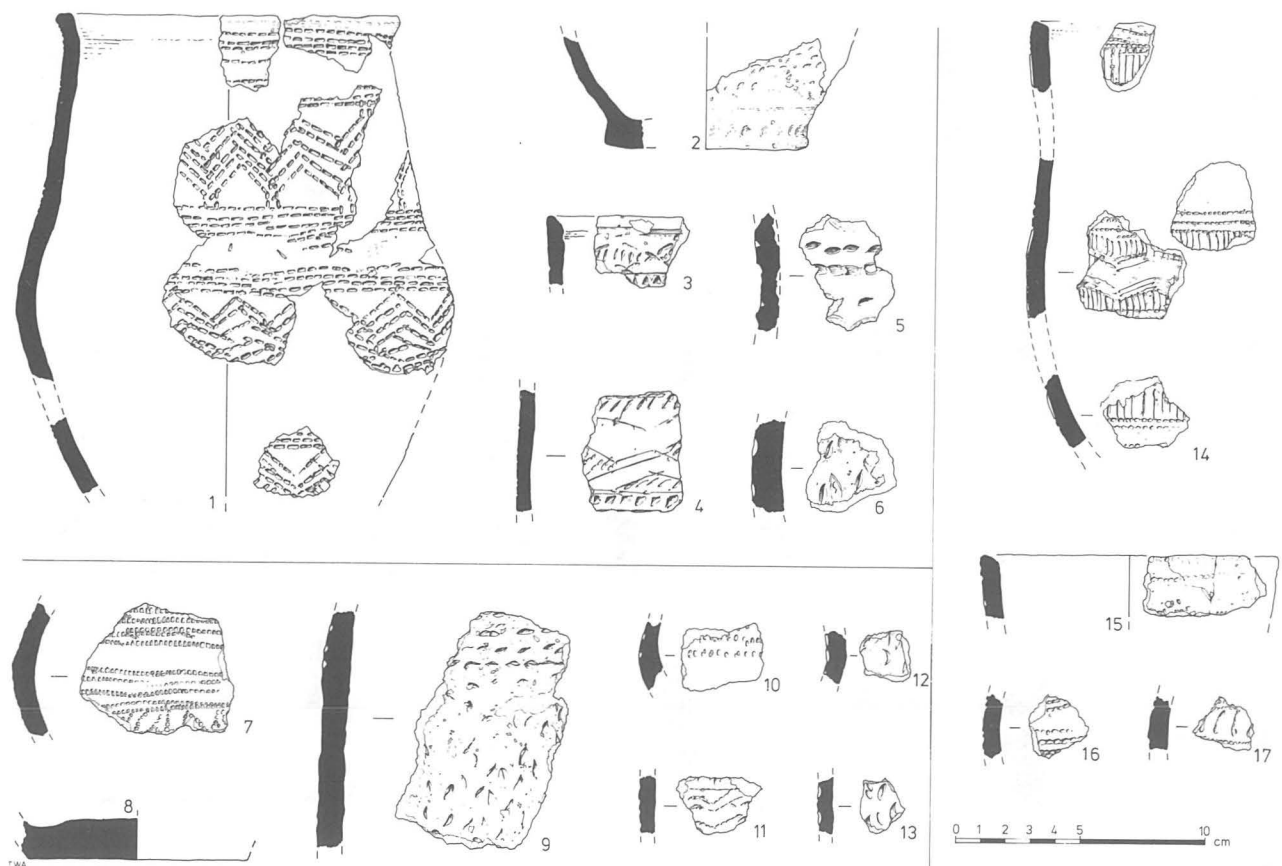


Figure 8. Earthwork near Badbury Rings: pottery from pit groups and a post-hole. 1-6 pit group 357a; 7-13, pit group 357b; 14-17, post-hole 471. All at $\frac{1}{3}$ life size.

and core oxidised (449). Possibly Longworth Primary Series collared urn, but the fabric is atypical.

19. Middle Bronze Age barrel urn rim sherd with external finger-tipping. Non-micaceous paste with abundant small-medium crushed flint temper. Oxidised exterior, reduced interior and core (393).

Old land surface under Phase I bank

20. Rim sherd of Early Bronze Age urn. Soft, slightly sandy paste, with sparse medium-large flint temper, nail impressed on top of expanded rim. Oxidised surfaces and core (303).

21. Cord-impressed beaker sherd. Smooth non-micaceous paste, with fine grog; oxidised exterior and interior (407).

Phase I bank

22. Middle or Late Neolithic rim sherds of Mortlake ware, with impressed decoration. Slightly micaceous paste, with sparse large flint temper (382). Small vessel as (231).

23. Impressed Neolithic Peterborough ware bowl sherd. Non-micaceous clay, with sparse large flint temper (302).

24. Comb-impressed beaker sherd. Slightly sandy paste, with very fine grog; oxidised exterior and interior, reduced core (302).

25. Nail-impressed beaker sherd. Hard, slightly micaceous paste, with small-medium grog (428).

26. Nail-impressed beaker sherd. Sandy paste, with small grog and small-medium flint temper (438).

27. Comb-impressed beaker sherd. Slightly sandy paste, with fine grog temper; oxidised exterior and interior, reduced core (438).

28. Beaker sherd with incised decoration. Slightly sandy paste, with small grog and medium flint and chalk temper; oxidised exterior, interior and core (454).

Phase II ditch fill

29. Durotrigian BB1 jar rim with shallow linear decoration, probably 1st century AD. Hard, sand tempered micaceous paste; reduced surfaces, oxidised core (286).

30. Beaker sherd with incised decoration. Non-micaceous paste, with medium-large grog; oxidised surfaces reduced core (1041).

31. Collared urn rim sherd with cord-impressed decoration on exterior surface and top of rim, internal lipping of rim. Soft, non-micaceous paste, with medium grog.

32. Middle Neolithic Ebbsfleet ware rim sherd with finger-tipping on exterior and rim top and lattice incised decoration of internal surface. Smooth paste with very large flint temper (370).

33. Middle Neolithic Mortlake ware rim sherd with imitation cord-impressed decoration on internal surface and top of rim, stabbed grog decoration of external surface. Micaceous paste, with sparse large flint and fine grog; mostly reduced (231). Same vessel as (382).

34. Comb-impressed beaker sherd. Non-micaceous paste, with fine grog temper (258).

Phase II bank

35. Cord-impressed beaker sherd. Non-micaceous paste, with small grog temper (443).

36. Bronze Age urn sherd, probably barrel urn, with rusticated finger-tip decoration. Hard friable paste, with dense medium-large flint temper; reduced exterior and core, oxidised interior (432).

Figure 10

Phase III ditch fill

37. Grooved ware sherd with perforated lug. Moderately hard, non-micaceous paste, with fine grog and some angular flint; fumed surfaces, reduced core (1187).

38. Comb-impressed beaker sherd. Smooth, non-micaceous paste, with fine-medium grog and sparse large flint temper; oxidised exterior, reduced interior and core (1187).

39. Early Bronze Age sherd with 'maggot' impressions. Soft, non-micaceous paste, with medium-large grog (376).

40. 1st century BB1 jar rim. Coarse, sand tempered, with reduced surfaces; oxidised core (1180).

41. New Forest beaker (1109). Fulford (1975) type 21.13 or 27.14, 3rd or 4th century.

42. 1st century BB1 jar rim. Coarse sand tempered, with reduced surfaces; oxidised core (1120).

Old land surface beneath Phase III bank

43. Urn rim sherd with finger-tipping below rim. Probably small biconical urn. Non-micaceous paste, with fine grog and moderately dense angular flint; reduced firing (1191).

44. Urn sherd with finger-tipped decoration. Probable barrel urn.

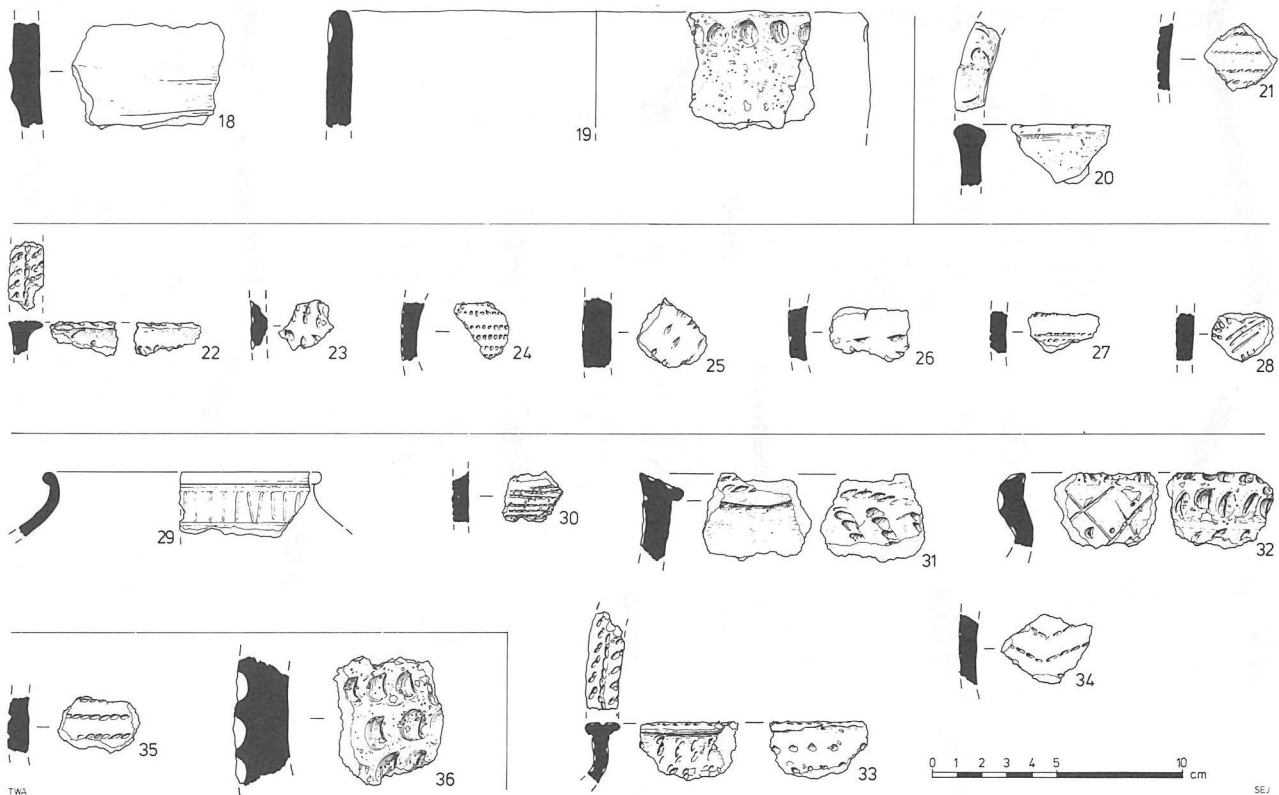


Figure 9. Earthwork near Badbury Rings: pottery from pre-earthwork land surface and from Phases I and II. 18-19, Phase I ditch; 20-21, land surface beneath Phase I bank; 22-28, Phase I bank; 29-34 Phase II ditch; 35-36, Phase II bank. All at 1/3 life size.

Non-micaceous paste, with medium-large grog temper; oxidised firing throughout (1185).

Phase III bank material

45. Collared urn sherd with 'horseshoe' impressions. Non-micaceous paste, with medium-large grog temper; reduced firing with lightly oxidised surfaces (412).

46. Base sherd. Sandy paste, with sparse medium grog; oxidised exterior, reduced interior and core (412).

Post-hole from 'hut circle'

47. Early or Middle Bronze Age sherd with finger-tipped decoration. Smooth non-micaceous paste with fine grog temper; oxidised firing throughout (8).

Unstratified surface find

48. Samian bowl sherd (266). M. G. Fulford identifies as probably Drag. type 37 bowl, likely to be Central Gaulish, later 1st century.

Worked Bone

A perforated bone point was found beneath the Phase II bank (Fig. 12.1) L: 85 mm, W: 5 mm.

Flint

A total of six burnt unworked flints was recovered from the site. There were also eight flakes, three of which displayed retouch, two scrapers and one flake showing scraper retouch. In addition four burnt flints, two flakes and a scraper were recovered from the Beaker pit 357 (B) (Fig. 11.1).

Fired Clay

A fired clay object, concave at both ends with a cylindrical hole in the middle was recovered from beneath the Phase III bank (Fig. 12.2). Diam. 41 mm.

Glass

There were two sherds of blue/green Roman glass found in the top silting of the Phase III ditch. These sherds were possibly from the same vessel, one was a small rim, the other a fragment of handle.

Shale

A single small shale rim was found in the upper filling of the Phase III ditch.

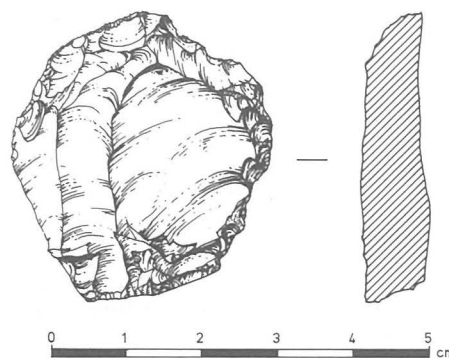


Figure 11. Earthwork near Badbury Rings: flint scraper from pit group 357b, at 1/4 life size.

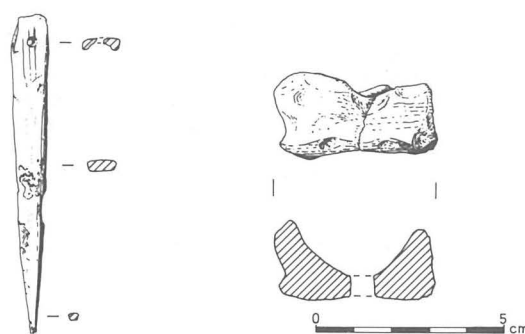


Figure 12. Earthwork near Badbury Rings: bone point and object of fired clay, at 1/2 life size.

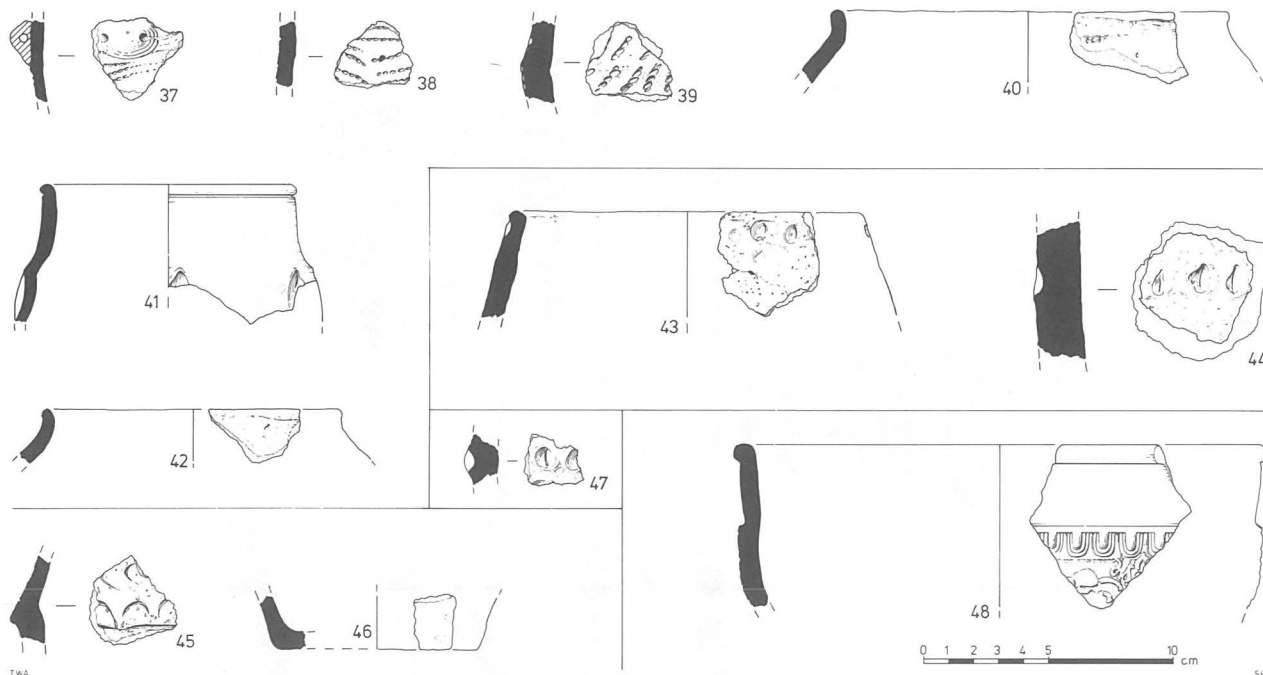


Figure 10. Earthwork near Badbury Rings: pottery from Phase III. 37-42 Phase III ditch; 43-44 beneath Phase III bank; 45-46, Phase III bank, 47-48 other finds. All at 1/3 life size.

Iron Ballista Bolt

Found beneath talus of the Phase III bank and identified by the excavators. The object has deteriorated since excavation and is not illustrated.

THE LAND MOLLUSC ASSEMBLAGES

J. G. EVANS

Aspects of the environmental history of the site were investigated using the evidence of land mollusc assemblages. The buried soils beneath the Phase I and Phase II banks provided indications of the environment prevailing before and at the time of the construction of the earthworks, while the infilling of the Phase III ditch yielded a fairly detailed sequence from this time up to the present. Sampling, analysis and interpretation are as described in Evans (1972), and the more recent nomenclature of Kerney (1976) has been used. Note that the mollusc assemblages have already been listed and discussed in detail (Evans 1972, 337ff.). Only a brief account is given here therefore, although with some different interpretations, and the table of shell counts is not repeated.

Three columns of samples were cut from vertical sections, each sample weighing 1.0 kg (air-dry), as follows:

Series BE III: Buried soil beneath Phase I bank.

Series BE II: Buried soil beneath Phase II bank.

Series BE IV: Infilling of Phase III ditch.

The stratigraphical details and depth measurements are indicated in the histogram (Fig. 13).

The environmental sequence has been divided into six zones on the basis of both the stratigraphy and the mollusc assemblages. The majority of these zones reflect events taking place in an area around and beyond the immediate bounds of the earthwork. A few, however – notably two and possibly three – pertain to the ditch alone.

Zone 1. Buried soils beneath Phase I and Phase II banks.

The assemblages are of open-country type, with woodland species

being practically absent. A little unusually, there is relatively uniform distribution of numbers amongst the various species. It is more normal for one to two species to be predominant in open-country assemblages, especially one or both of the *Vallonia* species. The virtual absence of *Vallonia excentrica* is strange, and the relatively high abundance of *Pomatias elegans* – commonly a scrub or hedgerow species – is unusual as well.

A possible interpretation of these assemblages is that they are from arable land. This would explain the paucity of *Vallonia excentrica* and *Vertigo pygmaea*, both essentially grassland species. *Pomatias elegans* does occasionally occur in arable today, and is likely to have been more common in such habitats in the Bronze Age. Cultivation is also hinted at by the lack of any stratification within the two profiles, both seen in field section, where there was no turf-line or worm-sorted stone horizon, and in the molluscan assemblages which are uniform through each profile.

It would be interesting to know whether there is any earthwork/lynchet evidence in the area for Celtic fields being present beneath the bank (cf. Evans and Vaughan 1985).

Zone 2. Ditch, turves in the lower infilling, and the lowest part of the fine infilling (160-180 cm).

The turves (267-272 cm and 197.5-202.5 cm) probably derive from the pre-bank buried soil as is indicated by the similarity of the molluscan assemblages from the two contexts. In the lowest levels of the fine infilling, open-country species are present but their numbers are reduced, and by 160 cm they are virtually absent. By this point, rapid infilling has ceased and stabilisation of the surface by vegetation and soil is beginning.

Zone 3. Ditch, 110-160 cm.

Woodland mollusc assemblages rich in species characterise this zone, while open-country species are virtually absent. Snail numbers are very high, indicating optimum conditions for molluscan life. There is a hint of some sort of disturbance at 140 cm both

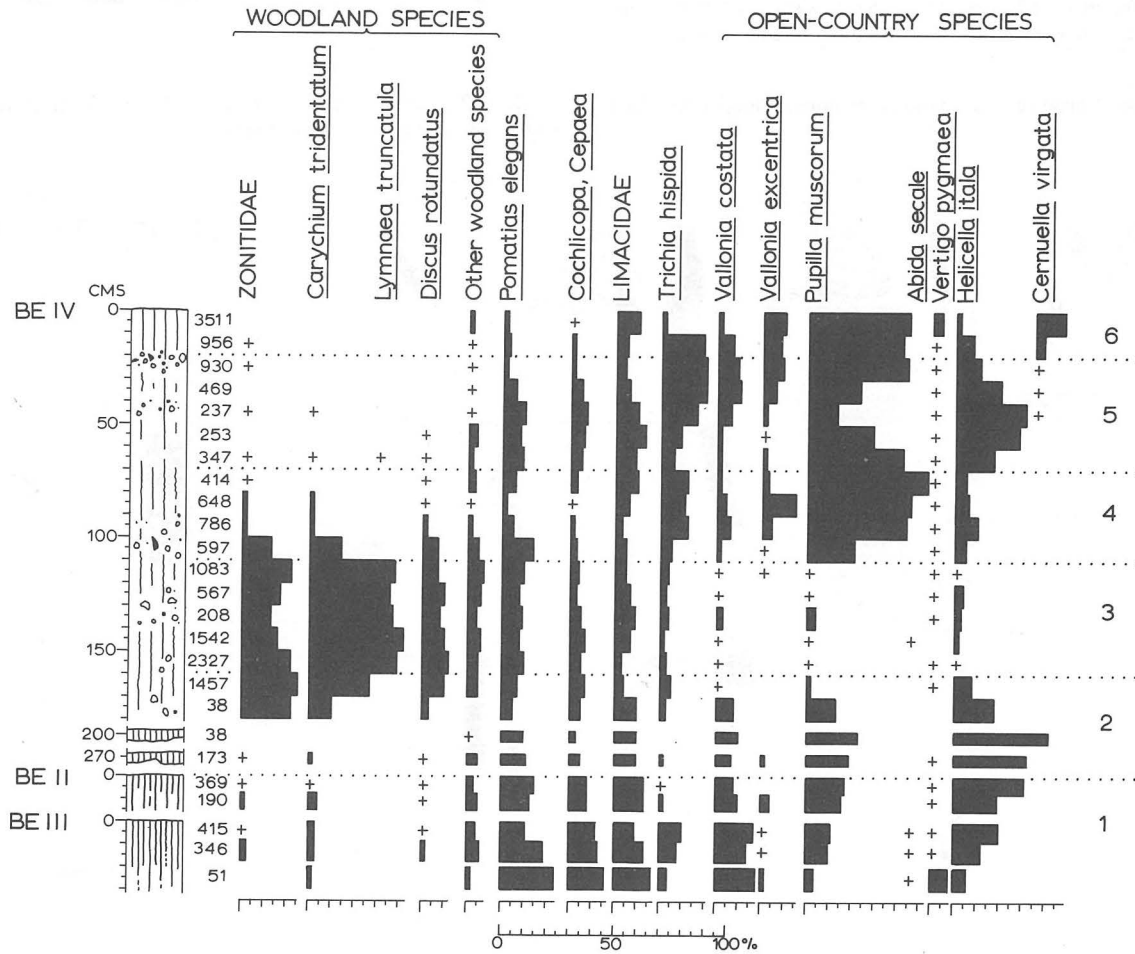


Figure 13. Earthwork near Badbury Rings: histogram of molluscan assemblages.

in the stratigraph where there is an inwash of chalky rubble and in the mollusc assemblages which show a reduction in numbers and a slight rise of open-country species. But these changes are minimal and the environment throughout this zone was one of woodland.

Zone 4. Ditch, 70-110 cm.

There is a sudden and dramatic change in the mollusc assemblages at 110 cm, with the virtual eclipse of all woodland species. Open-country species predominate from this point onwards. *Pupilla muscorum* is the main species, indicating shallow soil, a broken surface and sparse grass and other herbaceous vegetation.

Zone 5. Ditch, 20-70 cm.

The predominance of open-country species is maintained but *Helicella itala* becomes important in the assemblages while *Pupilla muscorum* declines. These changes indicate the inception of ploughing over the ditch, and this interpretation is supported by the stratigraphy which shows an increase in the amount of fine chalky debris in the infilling from 70 cm.

Zone 6. Ditch, 0-20 cm.

Pupilla muscorum returns to its former abundance and the generally open-country nature of the assemblages is maintained. Instances of the grassland species, *Vertigo pygmaea* and *Vallonia excentrica*, increases at the very top of the sequence, and *Ceruella virgata*, a species of late introduction into the British fauna, becomes common for the first time.

Several features of these assemblages are worthy of further comment. *Pomatias elegans* is common throughout, although above 100 cm in the ditch fill it is present only as small and often eroded apices indicating derivation from earlier deposits. Its earlier abundance both below 100 cm in the ditch and in the buried soils, on the other hand, is a real one. It is thus present in at least two habitats, open country (probably arable) and woodland. Its abundance at this site may be compared with its rarity at or virtual absence from other sites of later date, e.g., Danebury (Evans in Cunliffe 1984) and the Grim's Ditch on Knoll Down, Damerham (Evans and Vaughan 1985).

The abundance of *Pupilla muscorum* is in contrast to its general sparseness in chalkland areas today. It is not especially rare today but it never seems to occur in the vast numbers that are characteristic of several later prehistoric and more recent sites – for example, Mount Pleasant, Dorset (Evans and Jones in Wainwright 1979), Grim's Ditch, Ivinghoe (Davis and Evans, in press) and at the base of certain modern grassland profiles (Evans 1984; Evans and Vaughan 1985).

By contrast, the *Vallonia* species, usually very common at some stage in the history of most chalkland sites, are present in surprisingly low numbers, and the virtual absence of *Vallonia excentrica* in the pre-bank soils is remarkable.

As already proposed, some or all of these features of the assemblages may be a reflection of surface instability and the absence of well-established grassland at any stage in the history of the site. Arable episodes are suggested by high values for *Helicella itala* both in the pre-bank phases and at a later stage in the infilling of the ditch.

The woodland episode registered by the assemblages in the ditch between 110 and 160 cm may have been confined to the earthwork and be of purely local significance. Nevertheless, the various species must have been present in similar refugia locally for them to have colonised the ditch at all, so the woodland episode is, to this extent, a commentary on the generally prevailing environment. That woodland does not automatically colonise such ditches is shown by the succession at sites such as Woodhenge (Evans and Jones in Wainwright 1979) and Grim's Ditch, Ivinghoe (Davis and Evans in press) in which, although there were long periods of relative stability in their infilling, no woodland regeneration took place.

Bone

The bone report was prepared by M. Maltby. Due to the small sample and uncertain nature of many of the contexts,

a report has not been included here. A list of the animal bone is included in the archive.

Note – The skeletons found in levelling the earthwork prior to excavation were not available to the writers for examination.

DISCUSSION

From the varied nature of the pottery finds reported above, it can be seen that a long, if discontinuous period of prehistoric settlement and activity is represented at this site. Early, Middle and Late Neolithic pottery from the ancient land surface can be associated with the redeposited finds incorporated within the Phase I bank (e.g. sherds 231 and 382 above). The range of Neolithic wares includes Mortlake, Ebbsfleet and Peterborough bowls and Grooved Ware. Much of the material is in fresh condition and probably derives from features disturbed by the construction of the late earthwork. It is to be regretted that almost no finds were recovered, or recorded from the large number of pits and post-holes seen in Fig. 2, since apart from Maiden Castle few Dorset sites have produced similar Neolithic domestic assemblages.

Although no features can be attributed to the Neolithic phases of activity on the site, a number of features can confidently be dated to a period of Beaker settlement. Middle Beaker pottery (c.f. Case 1977), probably dating from the late third millennium or the first half of the second millennium BC, can be identified with two pits and with one post-hole; many of the unphased features may belong also to this phase. The molluscan evidence indicates a period of arable farming between the phase of Beaker settlement and the construction of the first earthwork.

The *terminus post quem* provided by the pottery from the buried soil beneath all three phases of bank is Early Bronze Age, confirmed by material found within the construction of each bank. The Phase I ditch, sealed by the later banks, contained pottery ranging in date from Early Neolithic to a Middle Bronze Age sherd. This slender evidence could be taken to indicate that the Phase I earthwork was falling into disuse during the Middle Bronze Age, and that the Phase II ditch was dug at the time. The whole timescale for the construction of the three phases of earthwork may however be very short, and is likely to have ended before the Iron Age, and possibly before the later ceramic phases of the Later Bronze Age.

The Phase I earthwork, apparently consisting of small V-section ditch and adjoining bank, with little or no berm, can be compared with linear earthworks in Wessex and elsewhere. The scarcity of settlement debris in the ditch fill and the molluscan evidence for arable land use would support a primarily agricultural interpretation of the earthwork. Whether it is a continuation of the linear earthwork (RCHM 1975 no. a89) shown in Fig. 1 remains uncertain. The Phase II earthwork may have been re-inforced by the erection of a palisade fence along the line of the Phase I ditch. This suggests that some new function was being served by this length of boundary in the Middle Bronze Age. Palisades are not known as a feature of linear earthworks, but have been identified in Middle Bronze Age enclosures (c.f. Ram's Hill, Berkshire; Bradley and Ellison 1975).

In Phase II a more substantial bank beside a V-shaped ditch with a narrow flat base was built in angled lengths, with a narrow causeway. In Phase III this ditch was recut. The excavators' statement in an interim report (Vatcher 1965) that the ditch extended south-west into fields beyond the Blandford-Wimborne road was based on geophysical survey and probing, the results of which are no longer available. It is not clear which phase of ditch is extended in this way.

The earthwork of Phases II and III is similar to a widely known group of Later Bronze Age enclosures and partly enclosed settlements. A number of examples were first

drawn together by C. M. Piggott (1942, Fig. 4) including South Lodge, Angle Ditch, Boscombe Down, Martin Down and the enclosures of the Marlborough Downs. Further examples are Thorny Down (Stone 1941) and Shearplace Hill (Rahtz and ApSimon 1962). At South Lodge the earthwork replaced an open settlement associated with bucket-urns (Barrett and Bradley 1980, 185) while the Angle Ditch was superimposed on an existing field (*ibid*, Fig. 3).

These sites have at least one of the following features in common: V-shaped flat-bottomed ditch with internal dump bank; angular or irregular plan; wide causeways or long breaks in the enclosure; integration with existing field systems or boundary ditches. This earthwork near Badbury has, in Phases II and III, all of these features. Together with the dating evidence of pottery finds this allows us confidently to place the earthwork in this group of Middle and Late Bronze Age sites.

The Phase III ditch filled only gradually with later plough-soil, much of it containing debris of 1st or 2nd century date, perhaps associated with the settlement on Bradford Down (Field 1982).

It was undoubtedly this material which prompted the excavators to propose a Late Iron Age date for the earthwork of Phase III (Vatcher 1965). In fact the very absence of material representing the period from the beginning of the Late Bronze Age to the Roman conquest is interesting. A similar absence of both settlement and arable activity of the first millennium BC has been noted from many central downland areas in Wessex, especially in Wiltshire, on the Marlborough Downs (Gingell forthcoming) and in the environs of Stonehenge (Richards forthcoming, and Gingell forthcoming).

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Survey and Excavation Along the Route of the Southern Dorchester By-pass, 1986-1987 – An Interim Note

PETER J. WOODWARD AND ROLAND J. C. SMITH
Trust for Wessex Archaeology

A road to by-pass Dorchester was first proposed in the 1930s. However the final decision to proceed with a southern route was only made after a second public enquiry in March 1985, by which time the full potential for archaeological work had been explored progressively through a series of surveys, excavations, observations and landscape interpretations. The proposed route severs an archaeological landscape of national importance and an area rich in surviving monumental remains; Poundbury, Maiden Castle, Mount Pleasant, Maumbury Rings and the Roman town of *Durnovaria* (Fig. 1). Although the route does not impinge directly on these sites, it cuts through a number of distinct topographic zones which contain a well-preserved archaeological sequence from the Neolithic through to the medieval period. This palimpsest of features is particularly important because it contains settlement and landuse data which links together the principal monuments of a tribal territory which in the later Iron Age is that of the 'Durotriges'. These monuments are set within a defined territorial focus between the Rivers Frome and South Winterbourne and are enclosed between two areas of

upland chalk: the South Dorset Ridgeway and spurs, the North Dorset Ridgeway and the Winterbourne valleys.

From the present A35 Bridport Road, SY66709040, the proposed road sweeps around southern Dorchester and rejoins the A35 at Stinsford Hill, SY70909130. A programme of archaeological work along the 6.2 kilometres of the road construction corridor was undertaken by the Trust for Wessex Archaeology between September 1986 and October 1987, both prior to and during road construction.

Intensive survey by fieldwalking, soil survey and aerial photographic mapping for the route was integrated into the Maiden Castle Survey (Wainwright and Cunliffe 1984; Sharples 1985). Fieldwalking was undertaken for 75 per cent of the proposed route (Fig. 1), the remaining areas being inaccessible for fieldwalking. This gave considerable data on prehistoric landuse and settlement and a positive structure to the range of archaeological cropmarks and earthworks in the area. This was augmented by geophysical survey, 18 per cent by length of the proposed route at specific points north and north-east of Maiden Castle, to further define cropmarks between SY670902 and SY680893 (Linford and



Plate 1. Aerial photograph of Alington ridge with Flagstones and St Georges Road excavations and trial trenches south of Alington Avenue. The large clump of trees just left of centre foreground is Conquer Barrow. (Photograph: John Boydton).

Schiell 1987) and an area west of Mount Pleasant on the Alington ridge (David 1982). Engineer's test pits at c. 200 m intervals along the route were observed during September 1986 to identify and define colluvial and alluvial deposits, and further define soil marks.

The results of the aerial photographic mapping, geophysical survey and test pits provided the basis for the location of 17 machine-trial excavation trenches. These were cut 4 m wide and totalled c. 710 m in length, c. 11 per cent by length of the total by-pass route, and were undertaken during January to March 1987. These were located on the Alington ridge (Fig. 1; 3, 4, 5) and north of Maiden Castle (Fig 1; 10, 11, 12, 13). Neither geophysical survey nor trial excavation were undertaken at any point of

the route south of Dorchester between the Alington ridge (Fig. 1; 5) and north-east of Maiden Castle (Fig. 1; 9). Area excavation was undertaken during April to July 1987 in five locations (Fig. 1; 3, 4, 9, 10 and 12); a total of 13,250 sq. m was stripped by machine, c. 7 per cent of the by-pass route by estimated area. These areas were excavated on a sampling basis with emphasis on identification of a basic chronological sequence, functional identification, record of structures and environmental aspects. Full excavation of all burials was undertaken. Construction work for the by-pass began in late July 1987 and involved an initial topsoil strip of the full length of the route followed by the bulk earthworks for cuttings and embankments. Colluvial and alluvial deposits along the route remained unstripped and were

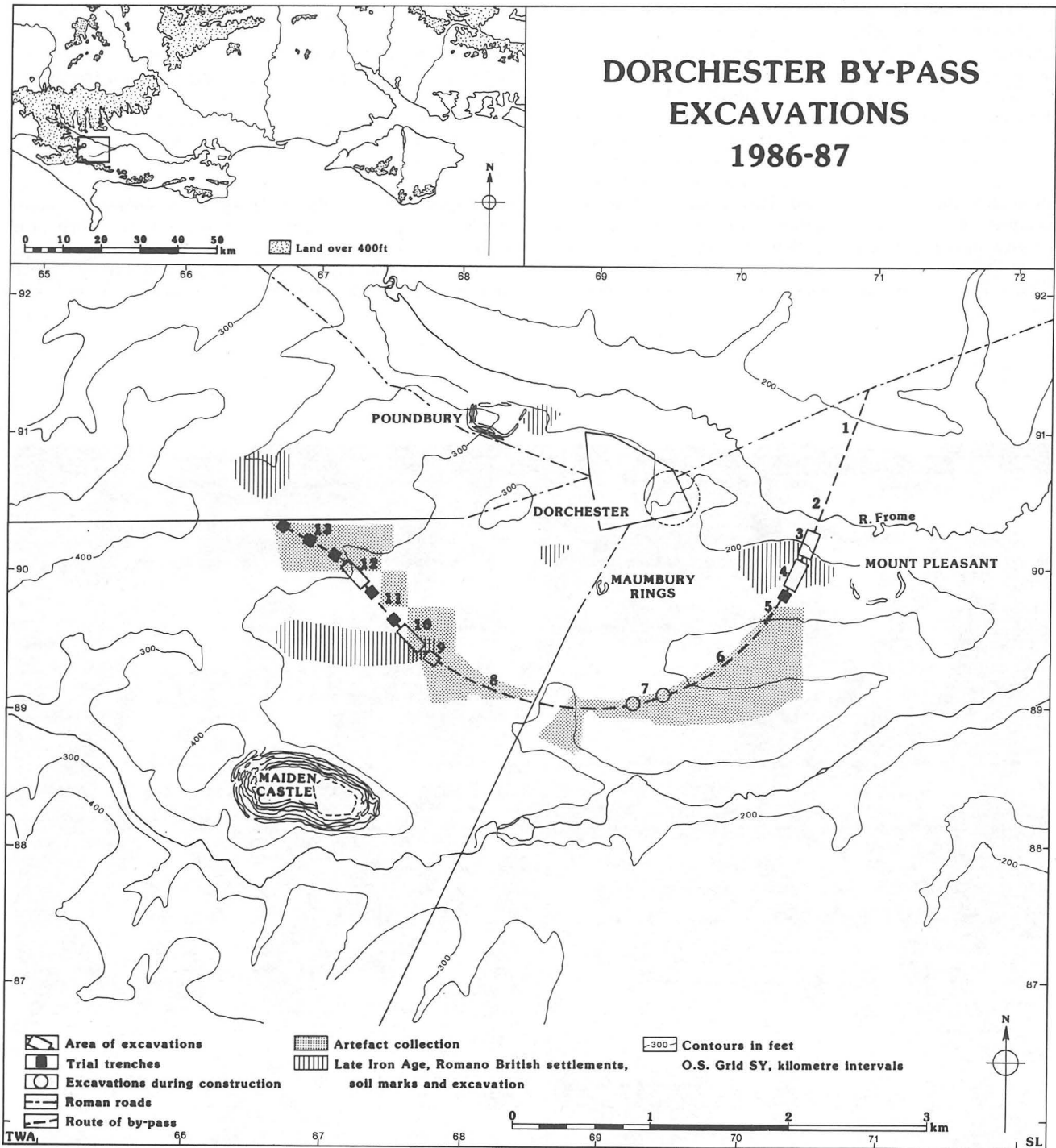


Figure 1. By-pass location plan.

sealed below redeposited chalk embankments. Observations were undertaken throughout the topsoil stripping and initial bulk earthwork stages of construction from July to October 1987. Further observation will continue until the end of construction in autumn 1988. The results of the trial excavations, area excavations and preliminary observations during construction and preliminary finds analysis can be summarised by site, located on Fig. 1 areas 1 to 13, running east-west along the by-pass route.

Site 1: Stinsford Hill, SY70859125.

From the present A35 Wimborne Road the by-pass route runs southwards down the south-facing slope of Stinsford Hill. Between this point and the floodplain of the River Frome there are river terrace gravels and sands, c. 3 m deep above chalk bedrock. The present alignment of the A35 at the point where it will join the by-pass is thought to reflect the position of the Roman road from Dorchester to Badbury Rings. No constructional evidence for this road was noted during observations. However excavations east of this point and south of the A35, prior to gravel extraction, located this Roman road (Chowne, forthcoming; summary note this volume).

Further south, close to the flood plain of the River Frome, the by-pass crosses a second projected Roman road alignment from Dorchester to the Roman fort at Lake Gates (Wimborne) and Poole Harbour (Field, this volume). Similarly no archaeological evidence for this road was discerned during observations, although the machine stripping was such that the moved soils often obscured freshly cut surfaces, and archaeological structures may well have been obscured.

Site 2: Alluvial floodplain of the River Frome, SY70609035.

Below the south facing slope of Stinsford Hill the by-pass route runs southwest across c. 700 m of the low-lying alluvial flood plain of the River Frome (Fig. 1; 2). Observations of deep drainage channels during construction revealed a sequence of gravels, silts and peats infilling deep channels and watercourses. Samples for environmental study were taken by John Evans and Amanda Rouse as part of the valley sediment study for the Maiden Castle Landscape Survey (in preparation).

Site 3: St Georges Road, SY70509020.

The by-pass route rises gently to the south of the River Frome and its alluvial floodplain (Fig. 1; 3). This section of the route, bounded by the Dorchester-Bournemouth railway line to the south and St Georges Road to the north, forms part of the lower north-facing slopes of the Alington ridge.

Geophysical survey on the proposed route (David 1982) detected two sub-circular anomalies towards the south of the field. Trial excavation in March 1987 was unable to identify an archaeological source for these anomalies, but did reveal a sequence of linear and curvilinear field and enclosure ditches and possible post structures predominantly towards the north of the site. Extant earthworks in the form of lynchets and terraces to the west could be seen to run along the contour across the proposed road construction corridor.

Area excavation was undertaken here in April to May 1987. An area of c. 2,080 sq. m was stripped by machine. Neither colluvial nor alluvial deposits were present below a variable depth of topsoil (max. c. 0.7 m) other than slight positive lynchet traces; the chalk bedrock had been pitted and scarred by glacial striations. All excavation was undertaken by hand on a sampling basis to identify a basic chronological sequence and to record all structures.

The earliest feature was a small post-ring, c. 7 m in diameter towards the south of the site (Fig. 2). This ring was evident as a series of shallow post-holes of variable depth partly removed by later ditches. Clusters of less well-defined post-holes within the centre of the site may similarly represent the remnants of comparable structures: the structural rings of huts.

The post ring predates a large subrectangular enclosure, c. 33 m by 48 m, enclosing most of the central and western areas of the site. This enclosure was defined by shallow (0.2 m to 0.5 m deep) linear ditches all showing evidence of considerable recutting. An entrance lay on the east side and a further possible entrance, partially blocked, on the southern side. A linear ditch lay within and subdivided this enclosure. A curvilinear ditch sweeping across the centre of this enclosure may also subdivide it or may represent the remnants of an earlier enclosure system. The limited datable material from the homogenous fills suggests a preliminary date in the earlier Romano-British period. Similar ditches running from

the north-east and south-east corners of this enclosure suggest that comparable enclosures existed to the north and south. One bell pit, 1.1 m in diameter and 0.85 m deep, within the eastern entrance and a number of isolated pits probably relate to this phase of activity. A small rectangular post building (Plate 2) in the north-east corner of the enclosure respects the line of its eastern ditch. This building, c. 3.5 m wide and 9 m long, with a slightly bowed side in plan, was open sided on its western edge. The building bears some comparison to those excavated at Alington Avenue and which can be shown to be late Roman/post Roman in date (Davies *et al.*, 1985). Also within the enclosure was a near square, four post structure, c. 2 m wide. All these elements can perhaps be associated to a single occupation: the surviving elements of a Romano-British farmstead.

The subrectangular enclosure predates a sequence of shallow field boundaries of earlier medieval date. Three clear systems are discernable with this sequence.

The earliest is represented by five, curvilinear, intercutting ditches, c. 0.2 m deep, running east-west across the south of the site. All terminate before the east limit of excavation.

A second phase of field system is represented by three parallel ditches, aligned east-west. These separate strips of land, c. 12 m wide, cross the south of the site. Similarly aligned ditches at comparable distances apart were observed in trial excavation and observation to the south and further up-slope beyond the railway and probably belong to this medieval field system. The lynchet terraces relate in some measure to these boundaries.

A north-south ditch, 1.2 m wide and 0.4 m deep, the final phase of the field system, ran directly across the slope to the west of the site. This cut across all the previous enclosures and boundaries and through the lynchet terraces. Associated with this ditch were four less pronounced, parallel ditches, less than 0.15 m deep, to east and west.

Cut across this latest boundary in the north-west corner of the site were the chalk and flint footings of a later medieval building that represent the latest excavated phase of the site. This building, 6.5 m wide and at least 8.5 m long, was floored with rammed chalk and limestone slabs. It was open sided to the north and may have served as a barn or agricultural out-building. This building is not recorded on the Fordington Map of 1779 (Duchy of Cornwall Record Office).

Site 4: Flagstones, SY70408995.

The Alington ridge forms one of the more important chalk ridges through which the by-pass runs. This ridge runs south of the River Frome from Maumbury Rings to Mount Pleasant (Fig. 1) and in recent years has witnessed a considerable amount of archaeological work; at Mount Pleasant (Wainwright 1979), at Fordington Farm (Woodward *et al.*, 1986) and Alington Avenue (Davies *et al.*, 1985). At Alington Avenue the surviving ditches of a Neolithic long barrow, which together with an appended Bronze Age double-lobed barrow, give definition to a linear cemetery aligned east-west along the ridge. This long barrow perhaps provided a focus and alignment for the siting of Maumbury and Mount Pleasant henges and ultimately for the Bronze Age round barrows. The ridge to the west of Mount Pleasant was subsequently developed for intensive arable farming and settlement (Davies *et al.*, 1985).



Plate 2. Post-Roman structure, St Georges Road.

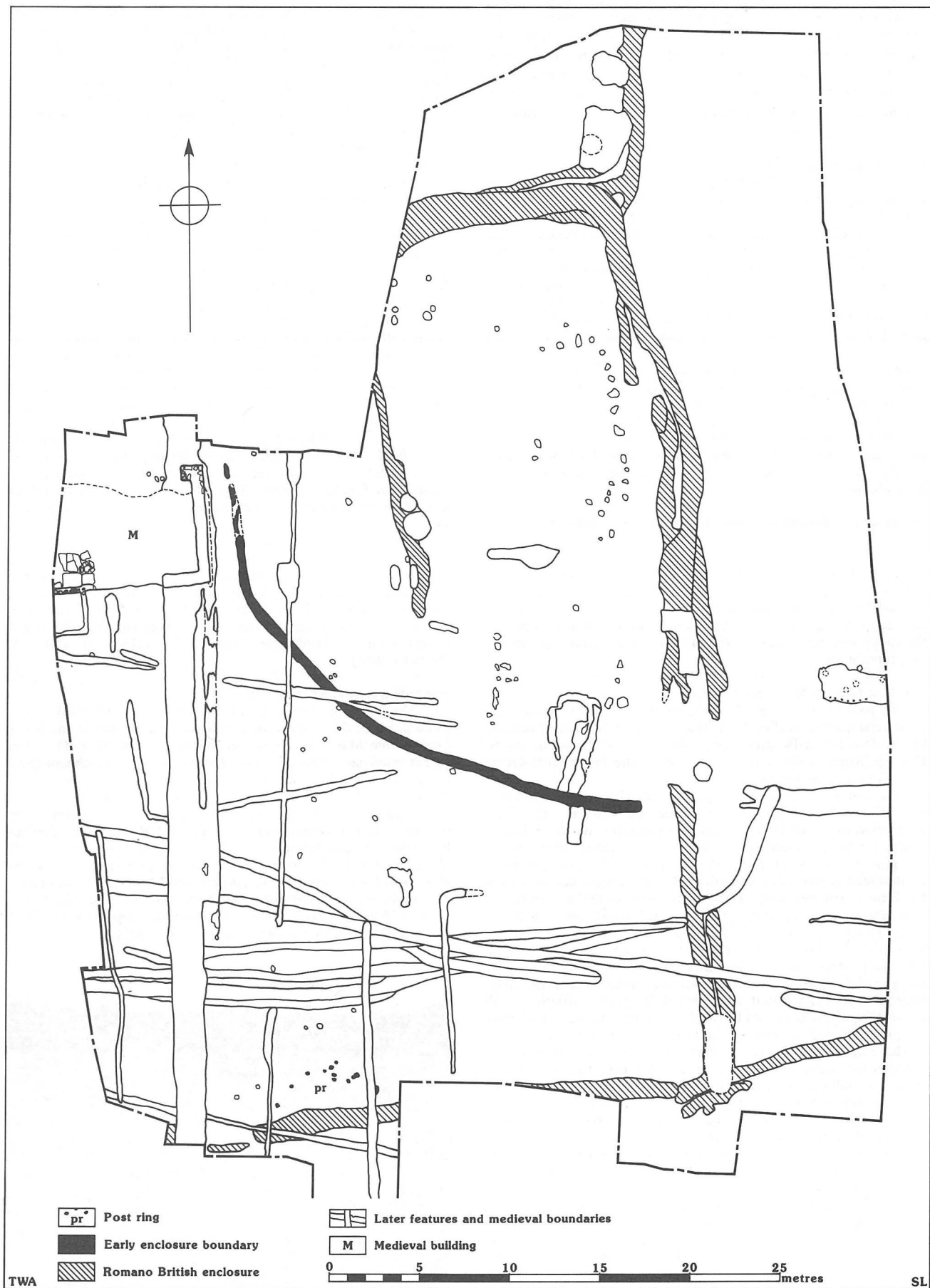


Figure 2. *St Georges Road site plan.*

The by-pass route cuts through this ridge to the west of Max Gate and it was recognised at an early stage that intensive survey was required on this section of the route. A geophysical survey was undertaken in 1981 (David, 1982) which identified a number of anomalies, some of which could be linked and interpreted as an enclosure located as an additional element within the barrow-henge alignment. It is on this archaeological feature that some of the by-pass trial excavations focused in February 1987 and which led to one of the area excavations along the route around Flagstones House and north towards the River Frome (Fig. 1; 4; Plate 1). An area of c. 5,460 sq. m was stripped by machine in April 1987 and excavation continued until July 1987. The principal component of the site was the western portion of a Neolithic causewayed enclosure, with an inner ring ditch and central burial pit (Fig. 3).

The exposed interrupted ditch can be taken to be a half-part of a full ring, c. 100 m diameter, as can an inner ring ditch c. 25 m in diameter. Any logical projection of the circuits to the east suggests that the monument is circular and concentric. If the circuit is taken to be circular there is a hint of an extended break at the western side of the site which might suggest an entrance, although definition is clouded by the western boundary wall to the site.

The interrupted ditch segments consisted of oval or 'sausage' shaped pits generally c. 3-5 m long and c. 1.5-2.5 m wide. They varied in depth from c. 0.5 to 2 m, with the segments generally becoming less deep towards the north of the site. The pits were generally near straight sided and flat bottomed. The basal fills of the segments consisted of dense and occasionally cemented chalk rubble, interspersed with occasional individual turfs or turf lines. The upper fills were humic, brown clayey loams. The chalk rubble suggests the segments of the outer ditch were partly backfilled immediately after cutting, sealing broken antler picks at the base of some segments, and were flanked by an irregular low bank both inside and outside the circuit. Two infant burials were located in separate ditch segments on the western side of the monument; a cremation below a metre long sarsen stone (Fig. 3, 2) and an inhumation of a 2- to 3-year-old below a slab of ridgeway limestone (Fig. 3, 3; Plate 3). Both were sealed below the chalk at the base of the infilled ditch. In 1891 a record of a sarsen was made during the construction of Thomas Hardy's house, Max Gate. This was found at a depth of three feet in the garden, below which were a quantity of ashes and half charred bones (Hardy 1930, 233-234). The exact provenance and stratigraphy is not known, but the position of a soakaway below the eastern lawn may mark the position, and this lies on the projected line of the outer enclosure ditch. Two additional infant burials were found within the primary chalk collapse in two of the northern segments (Fig. 3, 1 and 4).

On the sides of the segmented ditches of the outer circuit were four instances of *in situ* engravings (Fig. 3, A-D; Plate 4). The canvas for these pictograms was provided by the exposed faces of near vertical joints in the Upper Chalk through which the ditch segments were cut. Available surfaces were not present in all ditch segments and the four most suitable were used for picture making. These pictograms were fresh and showed little sign of erosion, which suggests that they were buried soon after cutting.

The four pictograms were removed for conservation and preservation.

The inner ring consisted of a near-circular continuous ditch, 1.8 m wide and 0.75 m deep, with near vertical sides and a flat base, containing predominantly chalky fills in a silty loam matrix. Centrally placed within this ring was a near circular pit, 1.5 m in diameter and 1.1 m deep. Within this pit a large sarsen boulder sealed an adult crouched inhumation. This central burial was not well preserved and only some of the principal long bones, skull fragments and teeth survived. A large copper alloy rivet and a transept arrowhead were recovered from the infill above the burial.

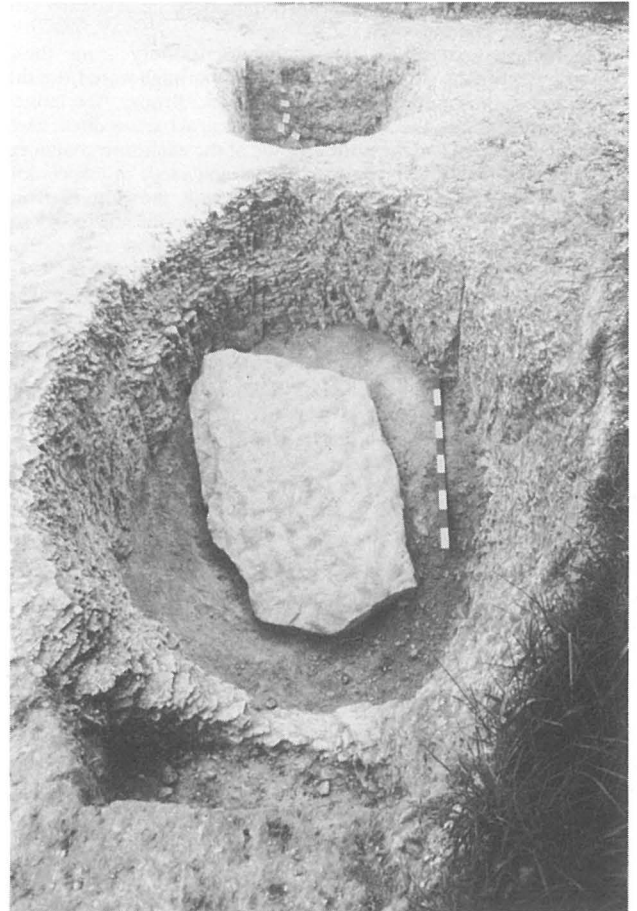


Plate 3. Limestone slab sealing infant burial in the outer causeway ditch at Flagstones.

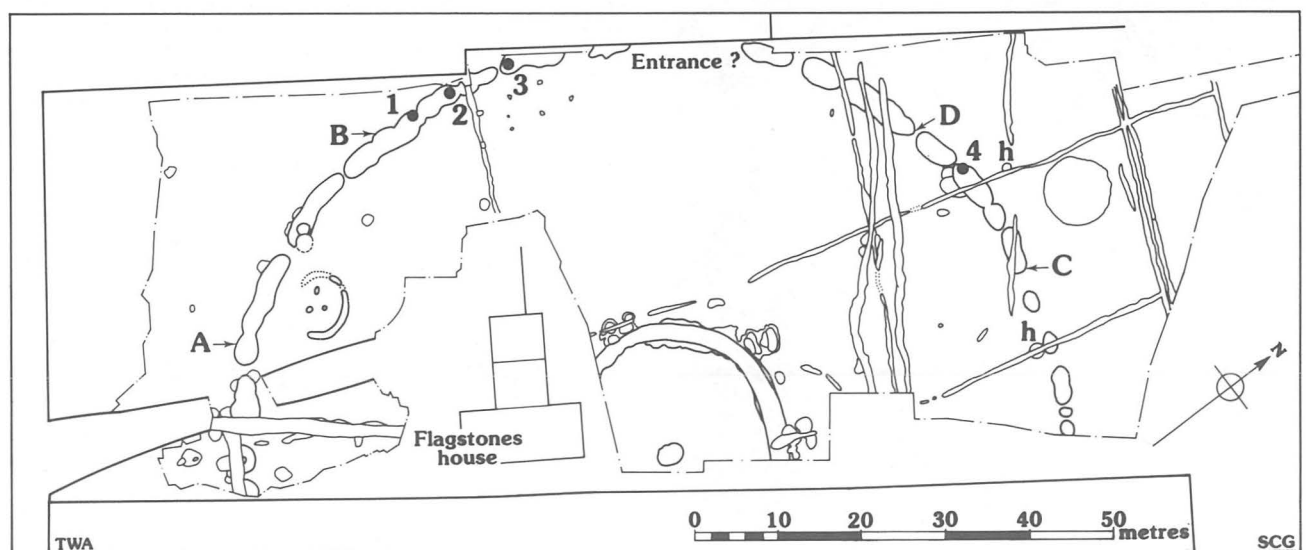


Figure 3. Flagstones site plan.

The rivet was a type commonly used in the Bronze Age in the hafting of daggers. Single occurrences are not uncommon and have on occasions been associated with wood fragments, as is the case of the rivets at Bush Barrow (Annable and Simpson 1964, 45; objects 171, 172).

Within the outer enclosure a few additional features can be directly associated with this monument. A number of 'sausage'-shaped pits, c. 1.8 m long and 0.6 m deep, were recorded, with the majority clustering in groups, outside the central barrow ditch. A small penannular enclosure, 8 m in diameter, with three shallow cremation pits occurred on the southern side of the site. Beyond the outer enclosure there was no evidence for out works or satellite burials, although an east-west linear 40 metres to the north in one of the trial trenches may be of an early date. Two small circular pits were also of Neolithic date.

Preliminary analysis of the prehistoric pottery from these features identified a plain, flint-gritted Peterborough ware from the lower silts of the causewayed enclosure. Early Bronze Age fabrics were recovered from the top levels of the central barrow ditch. Two small pits (Fig. 3, h) on the northern side of the enclosure contained considerable quantities of burnt charcoal and seeds in association with Hembury ware closely comparable with the pottery from Maiden Castle (Wheeler 1942). Hembury ware did not otherwise occur on the site, and these pits can be taken to belong to an earlier settlement episode. Four samples have been submitted for C-14 determinations; central burial, antler pick from base of causewayed ditch segment, burial from below the limestone slab and charcoal from the two early pits with Hembury ware (Fig. 3, h). Only one is presently available, from the antler; 4080 ± 80 yrs BP (HAR-8578). This date places the construction of the causeway ditch with that of the Dorchester monument (Woodward *et al.*, 1984; HAR-6663 (4020 ± 80 BP), HAR-6686 to HAR-6689, HAR-6664 (4170 ± 70 BP), and with the pre-enclosure settlement at Mount Pleasant (BM -664, 4072 ± 73 BP) and with the infill of Conquer Barrow ditch (BM -795, 4077 ± 52 BP). The date is later than that for the Alington long barrow to the west, from a jawbone of a domestic *Bos* at the base of the northern long ditch (Davies *et al.*, 1985; HAR-8579, 4450 ± 80 yrs BP).

This pottery analysis together with the carbon date gives a preliminary idea of sequence for these structures. They can be seen both in terms of scale and position as an important component of the henge monument and linear cemetery complex developed along the Alington ridge during the third and early second millennia BC.



Plate 4. Pictogram A, Flagstones.

This fusion of art depictions, individual burial and structures forms a unique composition, which will provide links between several separate traditions. A fuller discussion is currently being prepared for *Antiquity*, 62 (1988).

Later activity on the site, dating to the late Iron Age, consisted of a north-south, V-profiled, linear ditch, 1.7 m wide and 0.8 m deep, and an east-west, linear ditch, 1.0 m wide and 0.3 m deep, in the south-east corner of the excavation. These were associated with a series of deep circular and bell pits, some containing crouched inhumations. Three more isolated pits lay west of Flagstones House, one of which, 1.8 m deep contained an inhumation burial and the articulated skeleton of a horse. These features relate to the late Iron Age and Romano-British settlement to the west (Davies *et al.*, 1985).

A sequence of shallow linear boundaries towards the north of the excavation are probably medieval in date and relate to the medieval field systems to the north and beyond the railway line.

Site 5: Alington Ridge, SY70308980 to SY70758955.

The importance of this ridge has previously been stated. South of the A352 Wareham Road, on the gentle south-facing slope, trial excavation was undertaken in February 1987 (Fig. 1; 5) in conjunction with those preceding the Flagstones and St Georges Road excavations on the crest and north slopes of the ridge (Plate 1). Allied to preliminary observations during construction, a number of shallow (c. 0.2 m deep) linear gulleys were recorded and may be linked to the known late Iron Age and Romano-British settlement along the ridge. Although, notably, the late Iron Age, north-south enclosure ditch and related pits within the south-east corner of the Flagstones excavation (Fig. 3) were not evident here. A curvilinear ditch, 1.1 m wide and 0.45 m deep, observed along the replanned route of the Wareham Road (SY70758955) may be one of two ditches defining a trackway, indicated as an early bridleway (Simpson, Fordington Survey 1779) and also recorded on aerial photography. No constructional evidence was observed for the suggested Roman road along this ridge that links Dorchester to sites in the Isle of Purbeck (Davies *et al.*, 1985).

Site 6: North East of Conygar Hill, SY69908935.

From the A352 Wareham Road the by-pass route gradually arcs south-west and crosses an east-west dry coombe that separates the chalk ridges of the Alington ridge to the north and Conygar Hill to the south (Fig. 1; 6). Observations during construction disclosed a substantial width of colluvial deposits in the coombe floor. These deposits remained unstripped and were only partially removed to a depth of c. 0.2 m at its northern and southern fringes. Sealed below colluvium towards the north of the deposit was a north-south, linear ditch 1.7 m wide and 0.55 m deep. Preliminary dating of pottery suggests a Bronze Age date. Fieldwalking in this zone showed no particular lithic concentrations, other than a considerable collection of gunflints.

Site 7: North of Conygar Hill, SY69488913 and SY69278906.

From the coombe floor the by-pass route climbs gradually south-westwards before running west below Conygar Hill (Fig. 1; 7) and crossing Herringston Road and the Dorchester to Weymouth railway line. During observations two small, interrupted ditch rings were identified and full excavation was undertaken before their destruction by chalk cutting (Plate 5).

These two hengiform pit rings are positioned on the north slope of Conygar Hill (Fig. 4). Both lie falsecrested on more level ground (c. 70 m AOD) below the steeper gradients of the east-west ridge and commanded uninterrupted views to the north and west, to Maiden Castle and Mount Pleasant. The east ring (Fig. 4, 2100), 15 m in diameter, consisted of eight kidney-shaped pits, generally c. 3 m long, c. 2 m wide and c. 0.5 m deep, within one of which was a central post-socket 0.85 m in diameter and 0.5 m deep. These pits enclosed a setting of eight posts, each c. 0.85 m in diameter and 0.15 m deep (Plate 5). The homogenous upper pits fills contained sherds of late Neolithic Peterborough Ware while some antler and animal bone was present in the basal fills.

The west ring (Fig. 4, 2118), also 15 m in diameter, was composed of less regular pits and no internal post setting. The pits varied from 2.5 to 7.5 m in length and 0.32 to 0.77 m in depth and were positioned at more irregular spacing. The base of one segment contained fresh sherds from three late Neolithic grooved ware vessels.

These two henges make a considerable addition to the array of late Neolithic monuments in the area (refer Flagstones, Site 4).

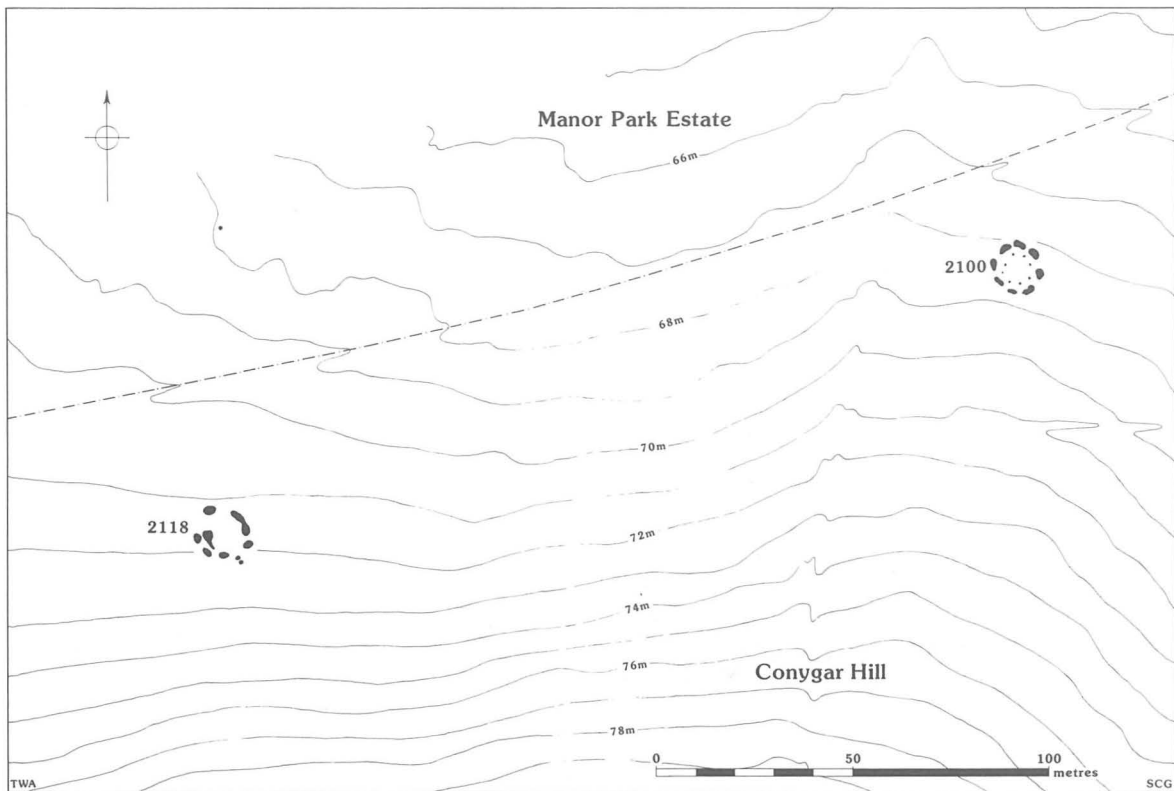


Figure 4. Plan of 'pit rings'. Dashed line indicates the limit of Manor Park Estate.



Plate 5. East 'pit ring' fully excavated during by-pass construction.

Fieldwalking in this area identified a concentration of early to late Neolithic material across the western henge and spreading 100 m to the west.

The two pit rings, c. 1,150 m apart, were separated by a single V-profile linear ditch, aligned north-south down slope. This ditch, 1.9 m wide and 1.17 m deep, contained sherds of Romano-British date. No further archaeological features were discerned, although a single solution feature c. 30 m in diameter adjacent to Herringston Road was excavated by the contractors to a depth of over 20 m.

Site 8: North and East of Maiden Castle Farm, c. SY68308910.

The by-pass route underpasses the Dorchester-Weymouth railway line and A354 Weymouth Road and begins to swing north-westwards cutting between the outskirts of modern Dorchester and Maiden Castle (Fig. 1; 8). Observations during construction at this point recorded occasional, isolated features, that were predominantly non-archaeological. A single, V-profile, linear ditch, 1.7 m wide and 0.56 m deep, ran south-east to north-west across the stripped easement. No datable material was retrieved from the

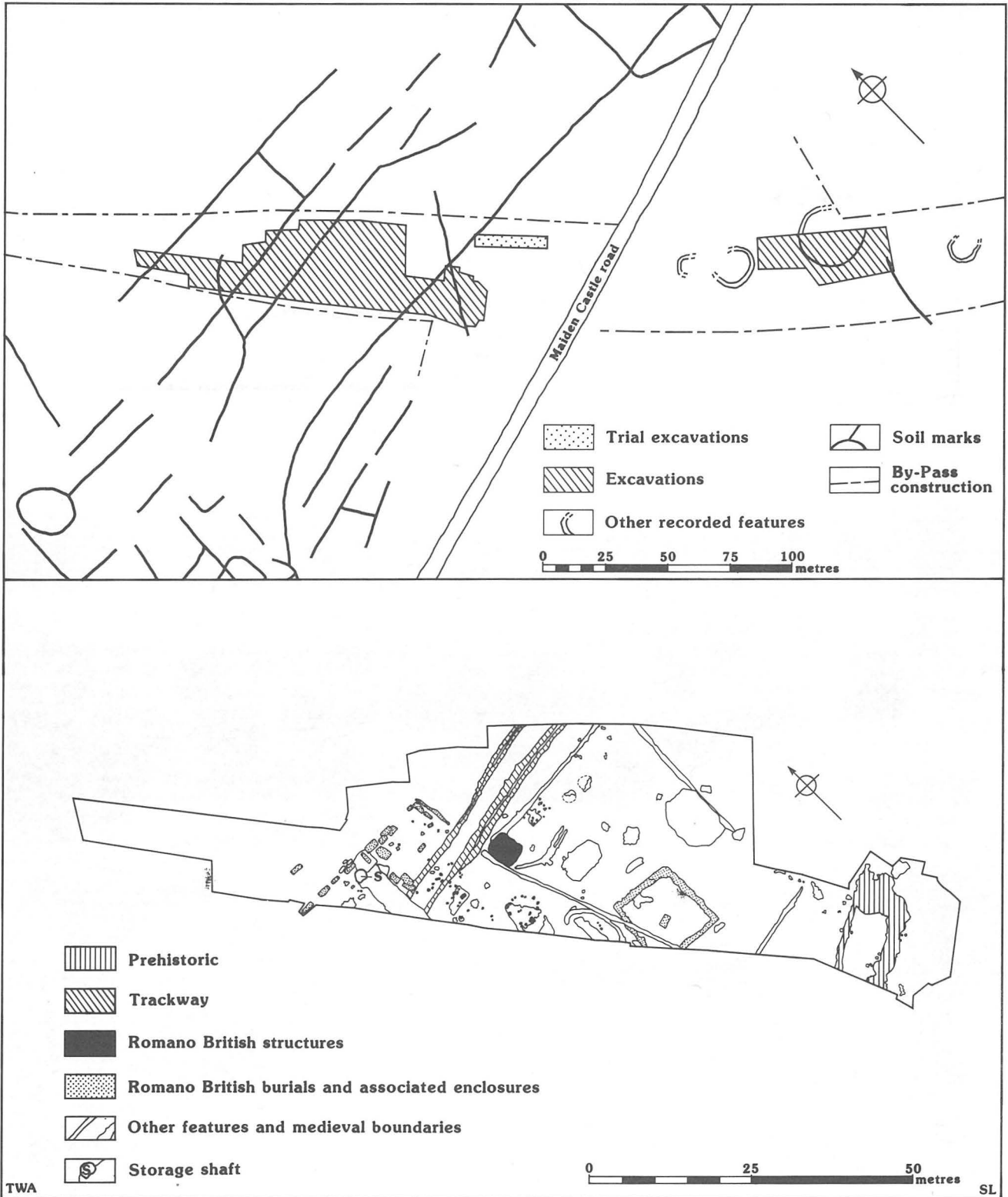


Figure 5. Maiden Castle Road location and site plan.

reddish-brown, clayey loam fills of this feature. A shallow, c. 0.15 m deep, colluvial deposit infilling the coombe north of Maiden Castle Farm remained unstripped during construction work. The fieldwalking survey recorded low levels of artefactual material in this zone, as far as Maiden Castle Road.

Site 9: South of Maiden Castle Road, c. SY67808930.

Area excavation of a soil-mark ring ditch was undertaken in June 1987, c. 100 m south-west of the point at which the by-pass crosses Maiden Castle Road (Fig. 5). An area of c. 720 sq. m was stripped by machine in which the south-west half of the ring was exposed, of which c. 50% was sampled by hand excavation. The internal diameter of the ring was 22.5 m, within which no burials survived. The ditch was near straight-sided, c. 1.75 m wide and c. 0.55 m deep, with a flat base.

Subsequent topsoil stripping during construction exposed three further ring ditches, none of which were apparent as soil-marks (Fig. 5). The internal diameters of these rings were, from north to south, c. 10 m, 13 m and 10 m. No burials were recovered. The two more northerly ring ditches had similar profiles to the original ring ditch and were 1.3 and 2.1 m wide and 0.45 and 0.6 m deep respectively. The most southerly of the four had suffered the greatest damage; the ditch only surviving to a depth of c. 0.15 m. The four ring ditches were all located on a shallow, north-west to south-east ridge and can be taken to be the ploughed-out remains of Bronze Age barrows.

Site 10: North of Maiden Castle Road, SY67658945.

North of Maiden Castle Road the by-pass route crosses the eastern end of an intense series of soil-marks running east-west along the Lanceborough barrow ridge (Fig. 1; 10). This extended series of cropmarks had previously been identified by survey and trial excavation to be a focus of settlement within a series of ancient fields laid between and across the shallow ridges north of Maiden Castle. The ancient field system can now be shown to have its origins in the Early Bronze Age (Fig. 1; 12). The extended 'village' focus along the Lanceborough ridge can be shown from pottery distribution to be intensively used from the Late Iron Age through the Romano-British period.

Area excavation of c. 2,550 sq. m of the road construction corridor examined the eastern end of this extended settlement ridge (Fig. 5). The site to the south lay on fairly level ground sloping gradually away to the north. Topsoil was stripped by machine; the exposed chalk surface was relatively free of peri-glacial scarring and indentations, although occasional tree-root hollows were present and sampled for soil and landsnail analysis, and were considered to be of an early date. The earliest phase of activity on the site was otherwise a series of shallow intercutting scoops to the south (Fig. 5). These created an irregular hollow, c. 8 m in diameter, to the east with two linear sequences of scoops projecting westwards. The greatest depth of the hollow was 0.72 m. The primary chalky fills contained pottery provisionally of Bronze Age date, although Romano-British material was evident in the upper settling fills. These scoops can be presumed to be the result of quarrying. No further features of earlier prehistoric date were evident on the site.

The remaining excavated features of the site appear to date from the early Romano-British period onwards of which an east-west



Plate 7. Middle Farm site after topsoil stripping.

ditched trackway represents the earliest phase. The ditches, both recut, define a track of c. 3 m width which appears to follow the contours of the north facing slope of the ridge. The ditch silts contained pottery of 1st century AD date.

Subsequent Romano-British activity on the site appears in general to be defined by this earlier trackway. A series of shallow and irregular scoops lie to the south, most of which can be presumed to relate to quarrying. The largest scoop, 6.75 m in diameter and 0.76 m deep, had later been used for rubbish disposal. This contained material of later 1st and 2nd centuries AD date. A north-south, linear ditch, 3.4 m wide, cut across the trackway at the west edge of the excavation. This irregularly cut feature, 0.36 m deep and flat-bottomed, may also be the result of quarrying and contained material of 2nd century AD date.

Also located south of the trackway were three late Roman structures of a type similar to those excavated at Alington Avenue (Davies *et al.*, 1985). Two of the structures, close to the west edge of the excavation, were of a comparable post-built design with slightly sunken floors. The more southerly of the two (Plate 6) was 5 m wide by c. 8 m in length, with a curved northern post-built wall and west and east cill-walls. A hearth was centrally placed within the building with a number of smaller post-holes for internal furniture. The building to the north was more rectangular in plan, 5.8 m by 4.5 m, with a cill-wall surviving at the southern end but otherwise post-built. This building had a slight sunken floor. An internal post-line divided the building into two unequal bays, 2 m by 4.5 m and 3.8 m by 4.5 m. The northern wall-line lies across the earlier trackway.

The third building was of different construction with a deeply cut floor, c. 0.5 m below the present chalk surface. The chalk floor of the building was not level, sloping slightly to the north-east into a deeper channel packed with flint nodules. A cill-wall survived on the south and west ledges of the structure.

Other settlement features associated with these structures were not evident within the excavated area. A single storage shaft was located to the north of the trackway. This rectangular, vertically sided pit, 2 m by 1.5 m and 3 m deep, contained pottery of late 3rd and 4th century date. The absence of pits, wells, corn driers and other settlement features may only reflect the excavation's position on the extreme eastern end of the extended settlement although the

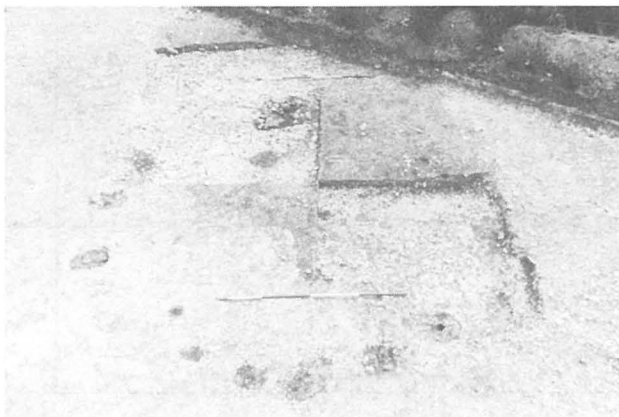


Plate 6. Late Roman post-structure at Maiden Castle Road.

identification of two corn-driers to the north-west of the site (Fig. 1; 11 and 13) suggests that some activities were taking place within the fields adjacent to the settlement. The fieldwalking, however, shows a limited distribution of contemporary pottery which conforms closely to the village settlement as defined by cropmarks. This suggests manuring was confined to infields and vegetable plots along the ridge itself.

An inhumation cemetery was set within a defined plot of land north of the earlier trackway. A total of 21 graves, predominantly aligned east-west and parallel to the trackway, were fully excavated and 21 extended and partially crouched inhumations were recovered. Of these there were 17 adults and 4 infants, the majority of which were buried in simple wooden coffins. Three burials were accompanied by gravegoods including metalwork, pottery and the leg of a hare. Preliminary analysis of these objects suggests a date in the late 3rd and 4th centuries AD. Two of the burials could be termed unusual. One extended burial was decapitated with the skull absent from the grave; one extended burial was also decapitated with the skull placed at its feet. This burial also had a dislocated spine and left arm mutilated. Similarly mutilated burials were found at Alington Avenue (Davies *et al.*, 1985).

Separated from this cemetery to the south of the site, a single crouched inhumation lay within a square enclosure, c. 12.5 m wide. An infant burial had been inserted into the western ditch of the square enclosure. This burial and enclosure are comparable to similar features at the Poundbury cemetery and can be presumed to be of late Roman date.

The latest phase of activity on the site is represented by a series of shallow, linear boundaries that can be related to the Early Medieval fields of Fordington.

Site 11: South of Middle Farm, SY67458970.

North of the Maiden Castle Road area excavations the by-pass route runs north-westwards and crosses a shallow combe. A colluvial deposit, c. 0.85 m in depth, remained unstripped during

road construction. Trial excavation and observations north of this point (Fig. 1; 11) located an isolated corn-drier with a bowl 0.9 m in diameter and 0.5 m deep and of Romano-British date. A series of shallow, parallel, linear gullies, 0.25 m deep, can be related to the Early Medieval field system of Fordington.

Site 12: Middle Farm, SY67308990.

South-west of Middle Farm the route crosses a north-south shallow coombe and then rises over a spur projecting from one of the east-west ridges north of and parallel to Maiden Castle. Soilmarks and geophysical survey had identified a possible enclosure and boundary system above a colluvial sequence within the coombe floor. Trial excavation in March 1987 provided further definition to the soilmarks and a preliminary examination of the colluvial deposits. Subsequent area excavation in June 1987 examined a further 1,820 sq. m and 540 sq. m of each area respectively.

The soilmarks proved to be part of a sub-divided early to middle Bronze Age enclosure (Fig. 6). The earliest enclosure consisted of a curvilinear ditch with steep sides and a flat base, 1.2 m wide and 0.8 to 1.0 m deep, that delimited, within the excavated area, the eastern portion of a sub-circular enclosure. There was a c. 3 m wide entrance on the northern limb of the enclosure and a single post-ring, 7 m in diameter, was identified within the interior. This ring post-dated a shallow and inconsistent linear gully that may have sub-divided the enclosure. Two parallel, linear ditches, 0.64 m wide and c. 0.28 m deep, to the north cut across the enclosure ditch and similarly appear to have sub-divided it. Five further isolated features were identified within the enclosure; two shallow pits, 0.9 m in diameter and c. 0.4 m deep, two unassociated post-holes c. 0.35 m deep and an irregular shallow scoop, 0.15 m deep. The south and eastern sides of the enclosure had been cut away by a large V-profiled ditch that terminated just within the east limit of the excavation. This ditch, c. 2.2 m wide and 1.7 m deep, was filled with primary voided chalk rubble, secondary fills of brown clays with chalky bands below a c. 0.3 m ploughwash. The upper fills

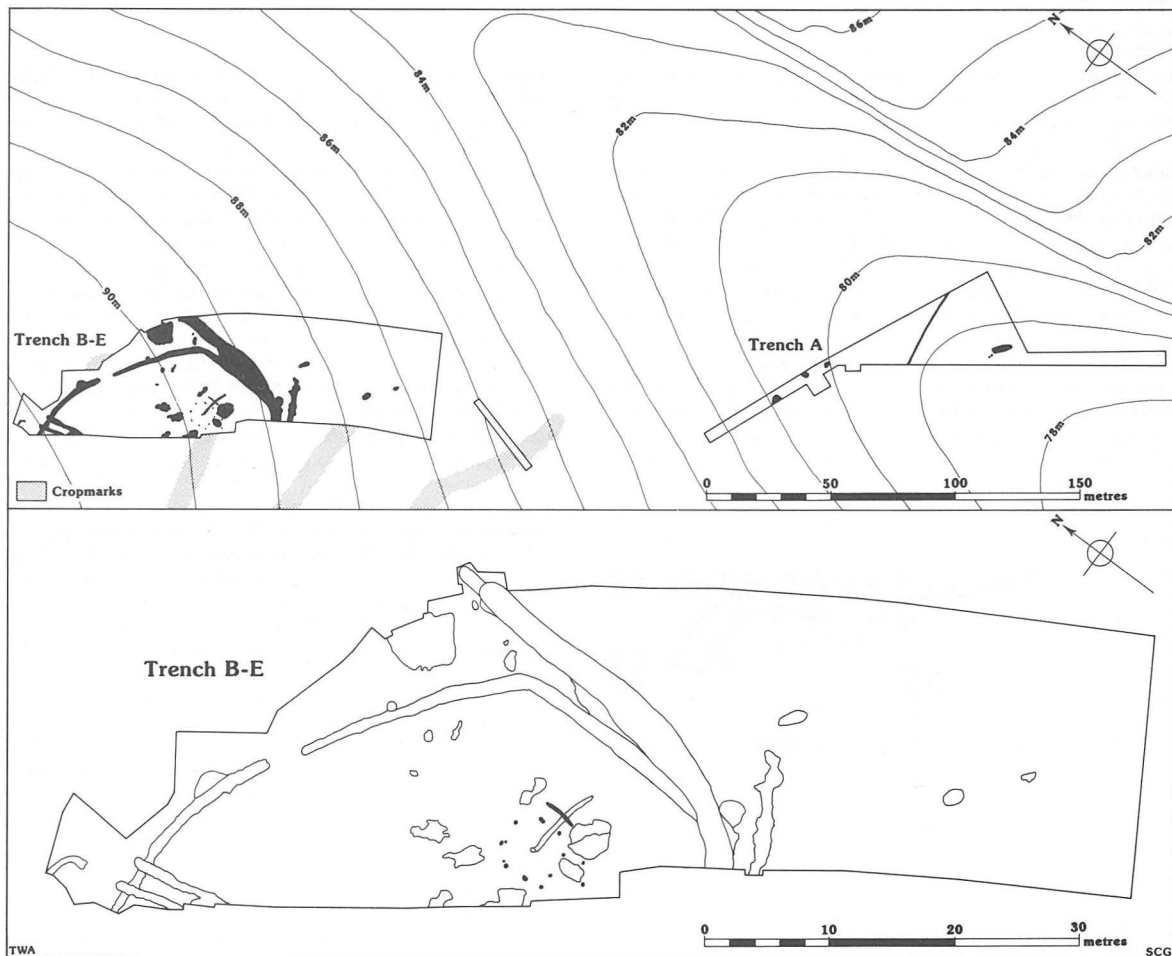


Figure 6. Middle Farm location and site plan.

contained pottery of middle to late Bronze Age date and inserted into the lower fills were at least three trussed burials. One of these was identified as an adult male with a healed fracture of the left forearm – sample submitted for a C-14 determination. These burials are comparable to those excavated from the double-lobed enclosure at Alington Avenue (Davies *et al.*, 1985). To the north of the terminal of this ditch and truncated by it was a length of ditch, 1.5 m wide and 1.15 m deep, that similarly terminated within the excavated area. This feature contained no datable material but may be contemporary with the earlier enclosure ditch.

The insertion of the trussed burials into the large Bronze Age boundary was the latest activity recognised on the site. Observations during construction work in September 1987 was unable to locate further elements of these Bronze Age systems to the north-west of the site although it is from this point that a c. 0.5 m capping of clay-with-flints overlay the chalk bedrock and identification of archaeological features became increasingly difficult.

To the south of the site the area excavation through the colluvial deposits identified a small post-alignment, a linear boundary and a hearth of burnt flint on the coombe floor (Fig. 6, Trench A). The post-alignment consisted of three post holes, c. 0.5 m in diameter and 0.2 to 0.4 m deep, two of which contained sherds from the same early Bronze Age, all-over cord beaker vessel. The linear boundary, 0.2 m deep, can be seen to relate to various field divisions within the ancient field pattern and was sealed by 1.5 m of colluvial soils which provide a clear sequence of landuse and environment from the Bronze Age onwards. A full east-west profile of the coombe and the colluvial deposits was obtained and recorded. During construction work in September 1987 it was not possible to identify further archaeological activity within or below the colluvial sequence as it remained unstripped.

Site 13: East of Monkeys Jump, SY67009020.

From the Middle Farm area excavations the by-pass route swings gently north-westwards before joining the present A35 Bridport Road to the east of Monkeys Jump (Fig. 1; 13). Throughout this section of the route the chalk bedrock was capped by a c. 0.5 m deposit of clay with flints/plateau drift. No magnetic anomalies were detected by geophysical survey for this stretch of the route (David 1987). Trial excavation was undertaken where the route crossed isolated linear soil-marks. These trials revealed a curvilinear ditch feature, 1.4 m wide and 0.8 m deep, adjacent to Monkeys Jump (SY66639035). This feature had a central flint packing suggestive of a palisade-type trench. The fills also contained fresh, knapped flints and two sherds of pottery, preliminarily dating to the Early Iron Age. Two poorly defined pit features, 0.75 m and 1.05 m deep, were also observed.

A second isolated corn-drier, c. 2 m by 1 m and 0.8 m deep, was located to the south-east. A small quantity of carbonised material lined the base of the feature.

Fieldwalking in the area between Middle Farm and the Bridport Road realised a considerable spread of worked lithic debris and tools. Analysis showed that this area was considerably exploited for the procurement of raw flint nodules from the early Neolithic onwards, and that two Early Neolithic assemblage groups to the north-east of the road relate to sites for tool manufacture and core preparation rather than continuously occupied 'home' sites. This zone of brown-earth soils was probably more intensively used for agriculture during the Bronze Age.

COMMENT AND CONCLUSION

This integrated programme has provided an unrivalled opportunity to record and develop an archaeological sequence for an area of national importance. The sites will provide data from the Neolithic to the Medieval period for a series of settlements which will enable a fuller history to be realised for surviving visible monuments, such as Maiden Castle, and the town of Dorchester itself. Although the initial design for the project was not fully realised in scale, and the time available to carry out archaeological work was limited, the full strategy for archaeological investigation was implemented on an informed sampling basis. The extent of the survey and preliminary investigation was enhanced by

the Maiden Castle Project. The Research and Rescue excavations that have been undertaken in the area during recent years will enable a considerable integrative synthesis to be undertaken, and provide a firm basis for the planning of future archaeological needs in the area.

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Kington Magna and Surrounding Areas: A Fieldwalking Survey of the Prehistory (1979-1987)

M. S. ROSS

SUMMARY

A Later Mesolithic assemblage has been defined, characterised by geometric microliths, in a rare association with an unstratified tufa deposit. The local stone source of river gravel flint and Upper Greensand chert was utilised with the few pieces of black chert coming from the Portland Stone, either from the Island of Portland or the Vale of Wardour.

Considerable post-Mesolithic occupation of the surrounding areas on the Corallian escarpment was evident from the artefacts collected, extending through the Earlier and Later Neolithic to the Beaker period.

The involvement and exploitation of other geological strata, in a prehistoric context, from the Sherborne area, the Vale of Wardour and elsewhere, has been demonstrated.

INTRODUCTION

This prehistoric material of flint, chert and pottery, is the result of fieldwalking, originally in Kington Magna (Ross 1985, 34), but later extended to cover adjacent areas, between 1979 and 1987.

These years fortunately coincided with a period of agricultural expansion, when fields were ploughed or drilled for draining, reseeding and cereal growing, thus giving the maximum opportunity for fieldwalking.

The north of Dorset has suffered from archaeological neglect, in part because of its geographical remoteness from the better-known sites elsewhere in the county, but also due to the misapprehension that its geology was unattractive to prehistoric people. It is now recognised, however, that all strata were exploited as will be shown.

GEOLOGY

The survey area (Fig. 2) is dominated by an outcrop of Corallian rock, running west-north-west to a maximum height of 130 m OD. There is a distinct escarpment on the west, dropping down to the Oxford Clay and alluvial deposits of the River Cale which forms the Blackmore Vale, while a more gradual slope on the east falls to the flood plain of the River Stour, extending to the Kimmeridge Clay round the Gillingham area. Springs come to the surface at the junction of the Corallian with the Oxford and Kimmeridge Clays.

A superficial deposit of Upper Greensand chert and flint, the former more marked in West Stour, is present on the Corallian soils, its appearance suggesting that it was transported by rivers (Martin Green, personal communication), which had derived their loads from an eroding Upper Greensand/Chalk escarpment (Paul Ensom, personal communication).

In Kington Magna, the spring rises at approximately 106 m OD with a spread of tufa on the slope below, probably exposed by ploughing (Fig. 8), its deposition due to the high content of calcium carbonate in the spring water. It could have formed at any time from the last glaciation onwards (pers. comm. Dr J. G. Evans and Dr R. Preece). Although fossilised or petrified objects such as hazel leaves, twigs and small molluscs can be seen in it, the tufa is unstratified, which makes dating impossible. However, within this long timespan sites are known where tufa formed during the climatic optimum of the late Boreal/Atlantic period, c. 5500-3200 bc (Evans 1975, 76) contemporary with the Later Mesolithic.

The extended area (Fig. 2) shows the Corallian ridge to be the most easterly of a roughly parallel series of five, mostly limestone, belts alternating with clay or sandy lowlands, aligned approximately north-south and extending to the west of Sherborne. To the north, where the Kimmeridge Clay is faulted against the Chalk and in the east and south (the latter not shown on Fig. 2) the central vale is overlooked by the uplands of the Upper Greensand and the Chalk. In addition to the catchment area of the Rivers Cale and Stour, drainage is effected also by the River Yeo flowing south-west through the Sherborne area, and the River Nadder, which rises near Shaftesbury and runs east to join the River Avon at Salisbury. Springs appear from the junction of the Gault Clay and the Upper Greensand.

THE STONE

The sub-angular flint is extremely variable with a typically heavy cortex and areas of both conchoidal and hackly fracturing. Although mostly patinated from various shades of blue to white, some material looked quite fresh, but in very mixed colours ranging from black, brown, fawn and grey to ochreous, the latter probably a result of ironstaining. Most of this material appeared to be derived river gravel flint, but a few artefacts were made from flint from the Chalk or Clay-with-Flints, neither available locally.

The characteristic brown Upper Greensand chert was also slightly variable in colour and sometimes difficult to identify due to thick patination. Much of the flint was heavily abraded and ironstained, perhaps as a result of cultivation, and this was particularly so in areas with a shallow, stony topsoil, which overlay the Corallian rock. The unpatinated flint was assumed to have been lying in wet, acid soil conditions (Martin Green, personal communication).

The black or grey chert came from the Portland Beds, from either the Island of Portland or the Vale of Wardour (Dr Bill Wimbledon, personal communication).

A brief survey of sites producing prehistoric stone material surrounding the area of fieldwalking, is given below.

1. Vale of Wardour (Gingell with Harding 1983, 11-25)

A programme of fieldwalking was carried out in 1976 and 1978, covering the valley of the River Nadder, which lies between the Chalk Downs of west Wiltshire and includes formations of the Portland and Purbeck Beds and the Lower and Upper Greensand. The survey extended from Kilmington (ST 7435) in the west to Compton Chamberlayne (SU 0229) on the Upper Greensand in the east, where Mesolithic artefacts were identified. Of the 37

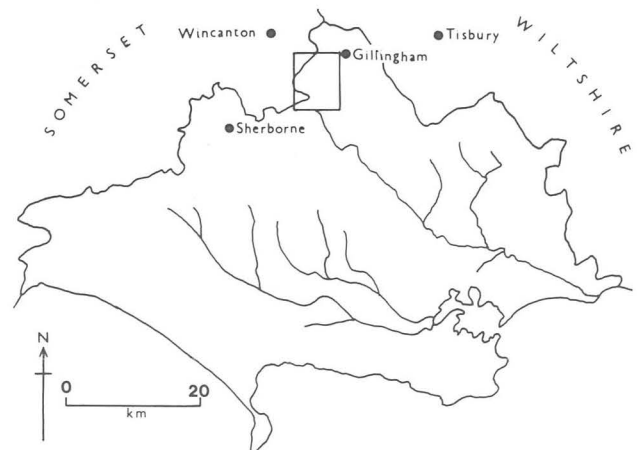


Figure 1. Location map of Kington Magna and surrounding area.

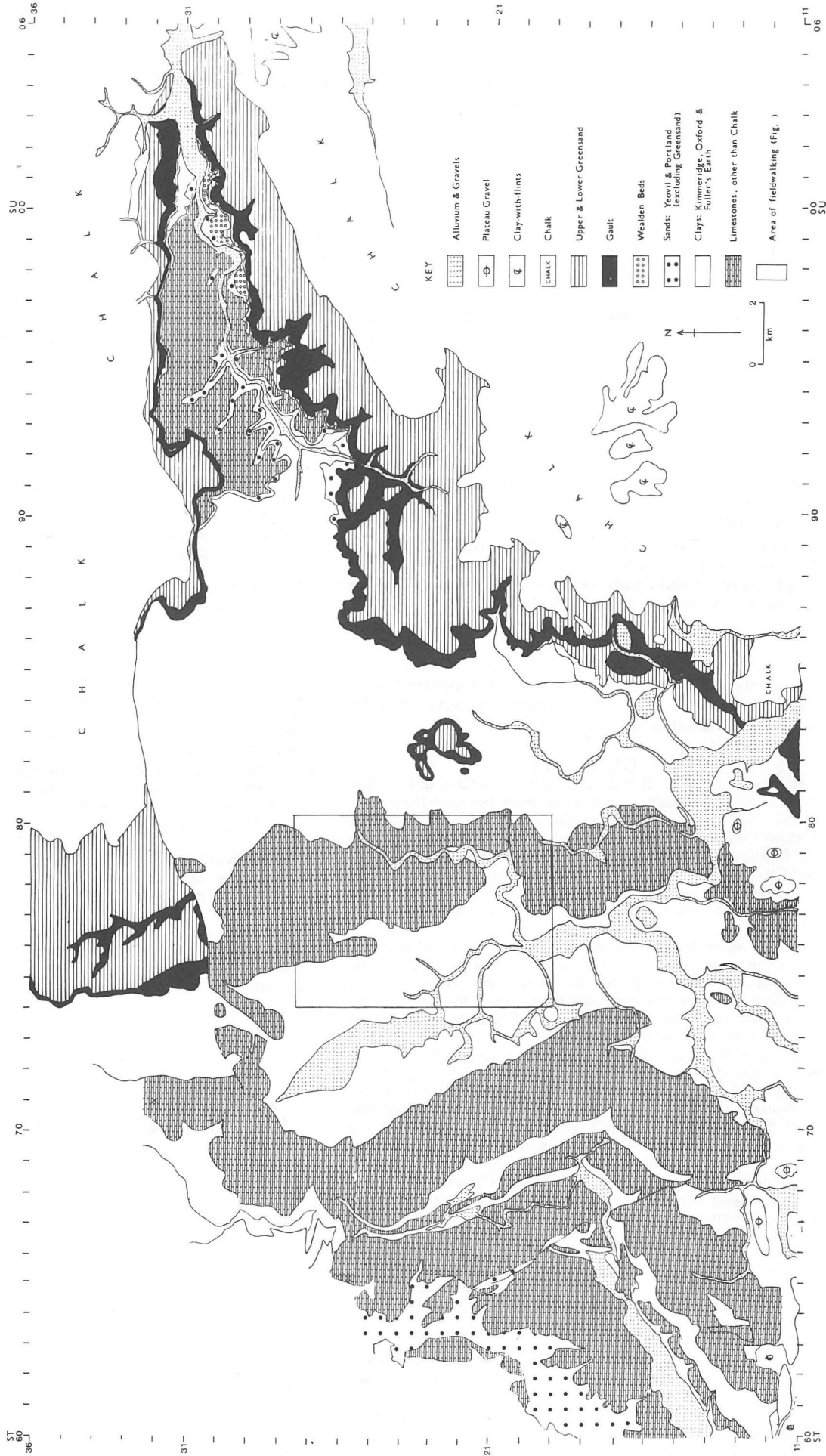


Figure 2. Geology of Kington Magna and surrounding area.

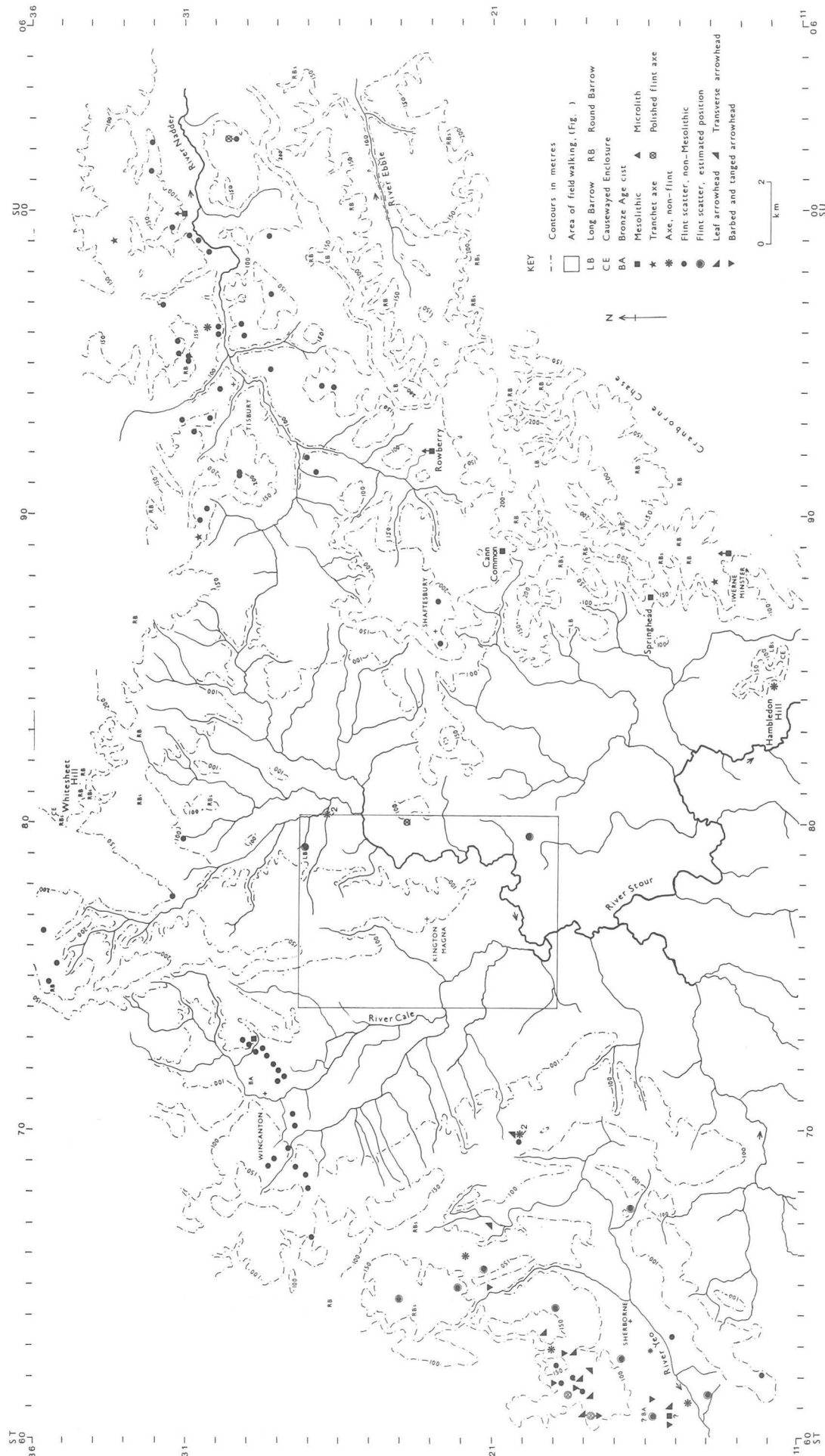


Figure 3. Contour map of area surrounding Kington Magna with previously recorded sites.

assemblages, only one at Teffont (ST 997310) on the Lower Purbeck Beds was of the Later Mesolithic period, on the basis of the cores, blades and one microlith, an asymmetric Horsham Point (Clark's type F). Two-thirds of the sites had less than 100 flint and chert artefacts, with the use of the latter from the Upper Greensand appearing to increase along the western part of the Vale. Patination was mixed and varied from a mottled light blue to light grey, with the proportion of Upper Greensand and Portland cherts about 13 per cent.

Two large private collections of flint implements have been noted, with numerous axes and scrapers from the Teffont area and further east, from Fovant, Sutton Mandeville and Swallowcliffe. There are smaller Mesolithic finds recorded from adjacent parishes in the Nadder and Wylde valleys (Wymer 1977, 337-9, 344).

It is striking that almost all the barrows from this part of Wiltshire are found on the Chalk Downs to the north and south of the Vale, rather than in the valley, where only one is recorded. The complex and commanding site of Whitesheet Hill to the north-west with its causewayed enclosure, round barrows and other features is of similar type to the Neolithic enclosure at Hambledon Hill (Mercer 1980). No Mesolithic evidence has been found from the limited excavation carried out (Piggott 1952, 404-6). To the south lies the archaeologically rich area of Cranborne Chase, where the finds of Later Mesolithic material have been considerable.

A Group I Cornish axe is recorded from Chicks Grove, Tisbury (Stone and Wallis 1951, 149).

2. Rowberry, Cann Common and Springhead (Martin Green, personal communication)

These three Later Mesolithic sites have been located by fieldwalking. They lie on springheads on the Upper Greensand near to the Chalk escarpment.

Springhead and Rowberry were the result of work by John Arnold. The former site is small but the latter covers a massive area, positioned between the Vale of Wardour and Cranborne Chase, extending for over 500 m and yielding more than 250 microliths.

The other smaller site of Cann Common was identified by Paul Kitching.

3. Iwerne Minster (Summers 1941, 145-6)

Fieldwalking was also responsible for the discovery of this large, important Later Mesolithic site. The surface geology is Clay-with-Flints but there is a discrepancy with the Geological Survey map showing Chalk (Sheet 313, 1:50,000) (Paul Ensom, personal communication).

The assemblage included 156 microliths, 60 per cent of which were obliquely blunted points, scalene triangles and a Horsham Point, with axes, picks, numerous scrapers, cores and microcores, typologically extending through the Neolithic into the Bronze Age. There was one core and several flakes of Portland chert. Patination was varied, mostly blue/white, with plough damage and iron-staining. Many flakes showed two periods of working and some had patches of extreme gloss. However, recent work by John Arnold has doubled the number of microliths, including one of Portland chert (Martin Green, personal communication).

To the south-west, Hambledon Hill dominates the area having two causewayed enclosures and two long barrows. A nephrite axe, class IIa, was also found (Evens *et al.* 1972, 245). There was Mesolithic evidence from the primary silt of the ditch (Wymer 1977, 70) but none on Turnworth Down further south (Not shown on Fig. 3).

There is also a group of four round barrows, a disc barrow and one other in this area near Iwerne (Grinsell 1982, 42: RCHM 1972, 41).

4. Wincanton (Ellison and Pearson 1976, 209-212, 223-4)

This report was the result of field work and excavation undertaken by the authors for CRAAGS in 1975-6 with the South-East Somerset Archaeological Society, during the construction of the Wincanton Bypass.

The only previous prehistoric material recorded was a flint scatter just north of the A303 on Maperton Ridge (ST 62N16) and an Early Bronze Age cist with crouched burial and a beaker in Windmill Hill Quarry in 1870. (ST 72NW8). The route cut through the Middle to Upper Jurassic formations, including the Cornbrash, the Oxford Clay, the Forest Marble and Fuller's Earth, all of which seem to have been exploited to some degree in the prehistoric period.

A total of 314 flints and chert items were recorded from the 19

sites, one of which was an excavation, yet only two produced more than 20 artefacts. The possible Mesolithic site was identified from the excavation, yielding two microburins and three blade fragments. Similar material from a field scatter in the same area included a leaf and a petit tranchet arrowhead, but these were thought to have been imported as a result of marling from a nearby chalk pit.

The flint material was grey to brown in colour, approximately one-third of which showed patination. There was very little iron-staining. Seven items of Upper Greensand chert and two from the Portland Beds were among the collection. There was definite utilisation of rough nodules and pebbles derived from surface deposits.

5. Sherborne

A Late Bronze Age burial with bones, ashes and flint flakes (Fowler 1951, 16) is the only likely monument recorded near Sherborne (c. ST 610161). There are, however, five possible round barrows to the north at Sigwells, Somerset on the Yeovil Sands (ST 6423) (Grinsell 1971, 95-6).

Two large assemblages from the Sherborne district are now housed in Dorset County Museum. The Joseph Fowler collection (Farrar 1955, 123-254), is mostly from the Yeovil Sands escarpment and the Inferior Oolite on the northern side of the Yeo Valley. From a superficial assessment, combined with details recorded (*ibid.*), the material appears mostly to be typologically of post-Mesolithic date. It includes fragments of Neolithic polished flint axes; leaf arrowheads; transverse and barbed and tanged arrowheads; 'thumb-nail' scrapers; cores, etc., although it is apparent that very little waste was collected. One group from fields at c. ST 613157 is outstanding in that it contains 200 flints, with flakes, small cores, scrapers, axe fragments and three barbed and tanged arrowheads. Possible Mesolithic blades, one trimmed, and six small cores came from the environs of Holnest House (ST 655090, not shown on Fig. 3). Although field names were used to record sites, other finds came from unspecified areas.

South of the River Yeo, the few sites detailed were on or near the Forest Marble escarpment, and none had more than two items, but this may be because insufficient field work was carried out.

The collection of the late C. E. Bean is much more wide-ranging than the previous one but still incorporates much Sherborne material. Again, a rapid appraisal of the largely unclassified flint showed it too to be mostly of the post-Mesolithic period, with several leaf arrowheads, including one of Portland chert, transverse and barbed and tanged arrowheads.

Probable Mesolithic material came from the spring-line on the Yeovil Sands at c. ST 620185, with two good unpatinated blades, a bladelet and core. Another area at c. ST 607053, (stated to be near Bedmill Spring), on the Inferior Oolite, produced blades and bladelets, cores for blade production and waste, in sufficient quantity to merit its recognition as a Mesolithic site (Fig. 3) although no microliths or microburins were among the items collected. A leaf arrowhead and a barbed and tanged arrowhead came from the same area with other likely post-Mesolithic material.

Just to the south, c. ST 612145, from a site probably on the Yeo river gravels, a collection had been made of flint pebbles from potato to acorn size. It is not known if these were isolated finds or a selection from a larger spread of similar material, as no details of systematic fieldwalking exist and precise identification of the sites is not always possible. Care stated (1979, 98), that Mr Bean had collected pebbles from Mesolithic sites in the Sherborne area which he had shown to her, but those noted above were not particularly close to the likely Mesolithic site nor were they with diagnostic material. These pebbles were shown to Paul Ensom who described them as normal wave-battered pebbles common in Tertiary strata and often present on Chalk downlands in Dorset. Some could have been brought in for surfacing field lanes or gateways (personal communication). The problem is compounded by the presence of the railway line running laterally through the field in question and although such pebbles would not be used as ballast, they could have been imported during construction. Recently the writer walked over this field but was unable to find any pebbles.

Fowler stated that the nearest source of natural flint to Sherborne is some eight miles away to the south on the Dorset Downs (Fowler 1951, 15) but there are, however, gravels in the Yeo Valley and Head deposits further afield which could have been utilised. He noted that the flints from the Yeovil Sands tended to be black/brown in colour, whereas those from the Inferior Oolite were white (*ibid.*), (and therefore patinated) and this is generally borne out by the flint examined.

The arrowhead and some few fragments of Portland chert were examined but there appeared to be little Upper Greensand chert.

In addition to a Neolithic polished axe, stone axes and fragments were collected by C. E. Bean in the Sherborne area and include one each of 'greenstone', sandstone, and a Group I Cornish axe. Also from Bradford Abbas were three of 'greenstone', one each of Groups I, VI, XVII, one of micaceous sandstone and one of spotted slate with a 'greenstone' axe from Yeovil Golf Course. (The last nine not shown on Fig. 3). (Stone and Wallis 1951, 142; Evens *et al.* 1962, 261, 264). Two unrecorded axes of 'greenstone' type are in the Dorset County Museum from the same collection and were found at Henstridge Bowden, Somerset (Fig. 3).

Minor sites

Shaftesbury Museum has on display some likely Mesolithic material, including trimmed blades, from an excavation on the Upper Greensand at Old Brow in 1947 (ST 857228). Two Mesolithic blades and other material, including pottery fragments thought to be of Neolithic or Bronze Age date (Farrar 1951, 94), came from Mampitts Lane (ST 87252285).

A transverse arrowhead and knife came from the Undercroft of St Peter's Church, Shaftesbury during excavation in 1977, and scrapers and a possible leaf arrowhead were collected from Hawkesdene Lane, Shaftesbury (Bill Moore, personal communication).

Two flakes of struck flint came from the area of Duncliffe Hill, near Shaftesbury and are in Dorset County Museum.

Several barrows lie on the chalk escarpment south of Shaftesbury, on the western fringe of Cranborne Chase, including a ploughed-out long barrow near Compton Abbas (RCHM 1952, 99: 1972, 3; Grinsell 1982, 30).

Stourpaine, on the Chalk, south of Hambleton Hill (not shown on Fig. 3), has four barrows recorded (Grinsell 1982, 50). Material collected included six picks, which can be Mesolithic or Late Neolithic (Richard Bradley, personal communications), a Mesolithic core (Wymer 1977, 73), and a quartzite axe (Evens *et al.* 1972, 270). The presence here of a flint industry has been noted (Piggott 1954, 283).

A tranche axe was found at East Knoyle, Wiltshire (ST 892306) (Wymer 1977, 338). This can also be Mesolithic or Late Neolithic in date (Richard Bradley, personal communication).

The Romano-British site of Allard's Quarry, Todber produced a few scrapers and worked flints on excavation (Williams 1951, 57). Part of a polished axe and 'Neolithic arrowheads' were also found there by C. E. Bean (*ibid.* 27). A few other stone artefacts came from the vicinity of the quarry and are housed in Dorset County Museum.

A polished flint axe was collected at Hunger Hill, East Stour (ST 801239) (Farrar 1955, 151).

In the parish of Gillingham, a group of five barrows on the Kimmeridge Clay (c. ST 805303), near the Wiltshire boundary (Hoare 1812, 254) were nearly levelled by enclosure of waste in the 19th century and there is now no trace of them (Grinsell 1982, 39).

A Group VI Langdale axe was found at ST 80242635 in 1976 during emergency fieldwalking on the Romano-British site at Common Mead Lane, Gillingham. It was classified by the Implement Petrology Survey of the South-West as having Group VI Characteristics, serial No. 1690. Its present whereabouts is unknown. An axe of tufa is also recorded in the British Museum from the same area (Evens *et al.* 1972, 270).

Longbury or Slaughter Barrow, Gillingham

This isolated and defaced long barrow, north-west of Gillingham at ST 78752723, is a unique feature in the area. It is so named because it adjoins the reported site of Slaughtergate. The remains of many human bodies were said to have been found on the old ground surface in 1802, assumed to be primary burials, and again in 1855 several other skeletons were uncovered just below the turf, representing secondary burials, with some fragments of a 'rude earthen vessel'. From a trial excavation mounted in 1951, the mound was found to be orientated east-west, on low-lying, flat ground at approximately 100 m OD, on Corallian strata. It measured 42.7 m × 12.3 m and was of even height of some 2 m throughout and parallel-sided. It appeared to have been constructed by stripping off the original topsoil over the underlying Corallian limestone (Farrar 1951, 113). There was no evidence of ditches when seen recently and they have not been previously recorded. Due to weathering, part of a secondary or intrusive inhumation was revealed in 1954 on the long axis of the mound,

with bones only 0.23 m below the surface, and was thought to be a crouched burial (*ibid.* 1954, 96).

The suggestion that this was a bank rather than an ordinary long barrow (*ibid.* 1951, 113) is unlikely in view of recent fieldwork on bank barrows and related monuments of Dorset (Bradley 1983, 15). Bank barrows are defined therein as being '... extremely long parallel-sided mounds and are distinguished from long barrows merely by their length...' (*ibid.*). There are only four so described in Dorset (RCHM 1970, 420-1; 1975, 56-7).

Longbury would appear to be an outlier of a group of barrows within the western part of Salisbury Plain in association with the causewayed enclosure of Whitesheet Hill (Megaw and Simpson 1979, 89). It does not fulfil the usual criteria for long barrows in that it is not on the chalk, nor is it in a prominent or upland position (*ibid.*), in fact quite the reverse.

The distribution of turf long barrows complements that of conventional long barrows. Normally the former have hardly any ditch and its absence at Longbury would seem to confirm the status of the barrow in that category. The suggestion of a relationship between long barrows and deposits of surface flint (Bradley 1984, 18) does not seem to apply here, but it is possible that a superficial deposit of flint and Upper Greensand chert was present on the Corallian as described above for other areas, but this has not been confirmed.

There are few flint finds from the vicinity of the barrow. Two small scrapers, two blades and a partly trimmed flake of Portland chert were found by Martin Green and are now in Shaftesbury Museum.

THE ASSEMBLAGE

Analysis of the main features of the tools and waste products is given below, including classification of the microliths.

MICROLITHS Classification (Clark 1934, 52-77)

Site		
KM	(1)	A1-2, 4 broken (Fig. 5, nos. 5 and 6), B2-1 burned, D1b-2, D3-1, F2-1 (Fig. 5, no. 4), 1 broken, unclassifiable fragments - 11 (Fig. 5, nos. 7 and 9), micro indeterminates - 2.
KM	(2)	D3-1.
KM	(3)	A2-1 (Fig. 5, no. 1), B3-1 (Fig. 5, no. 2), D1b-1 (Fig. 5, no. 3), unclassifiable - 1 (Fig. 5, no. 8).
KM	(6)	micro indeterminate - 1.
KM	(13)	A1-1.
KM	(26)	B2-1.
WS	(2)	A2-1 broken.
WS	(6)	unclassifiable - 1.
WS	(21)	A1-1.
FM	(14)	A1-1 burned.
G	(6)	B3-1 broken.

Key: KM Kington Magna, WS West Stour, FM Fifehead Magdalen, G Gillingham.

Most microliths were made from microblades, using the notch or double-notch technique, of which the microburin is the waste or by-product, excluding form D1b. The proportion of microliths to microburins is an indication of the extent of their manufacture. Form D1b microliths were fabricated by blunting both edges of a microblade and removing the bulbar end. Micro indeterminates represent an undeveloped negative facet when the notch technique was employed.

On the three other sites quoted below, sieving was employed following excavation which provided higher figures, whereas at Kington material was the result of fieldwalking.

Kington	2:1.
Downton, Wiltshire	3:1 (Higgs 1959, 230, Table III).
Cherhill, Wiltshire	5:1 (Evans and Smith 1967, 81).
Pentridge, Wiltshire	6:1 (Lewis and Coleman 1982, 61).

CORES

Four sites with large numbers were selected for discussion as representative of the area from which they came.

Mesolithic Assemblage, Kington Magna, KM (1)

Cores were apparently of river gravel flint (Martin Green, personal communication) and were, therefore, small and generally irregular. A few were from another source, probably from Chalk flint or Clay-with-Flints. There was some degree of cortex on 71 per cent, reflecting the small size of the original nodules. Only 7 per cent was obviously post-Mesolithic. The average weight was 29 g, although

there was one each of 100 g and 225 g, thought to be made from different flint. Some were worked down to 5 g or less, presumably for bladelet production (Fig. 5, nos. 18-19). At Cherhill, Wiltshire (Evans and Smith 1967, 79) Mesolithic and early Neolithic cores averaged 30 g in weight, microcores 12-15 g.

Colour was extremely variable and 40 per cent were patinated from matt or shiny white to numerous shades of mottled blue/white and cream. Part- or unpatinated material showed only occasional, lustrous black flint, mostly brown or grey with dark to light variations, rarely ochreous and often blotchy. All were abraded and mostly ironstained, possibly from contact with plough and harrow in the stony, iron-rich soil.

Two cores were of Upper Greensand chert and one of Portland chert (Fig. 5, no. 21), (Table 2). A very neat saddle core was outstanding (Fig. 5, no. 26) and well-shaped discoidal, cylindrical or pyramidal cores were rare (Fig. 5, nos 22-25), with the remainder being somewhat irregular.

Probable Mesolithic cores in small numbers were also seen in areas KM (3), (9), (11), (25), BW (4), WS (2), (4), (7), (9), (10), G (4), (6), (7) and SP (1), some having a noticeably very plain white patination.

The majority of these cores had two platforms established for blade production with evidence of rejuvenation as the flakes recorded show (Table 2). Rejection of cores was largely due to their small size leading to hinge fractures in attempting to correct the flaking angle, but a few were so small as to be totally exhausted. Some platforms were still just productive.

West Stour, WS (2)

A typologically post-Mesolithic site from which 72 per cent of cores weighed between 10 g and 25 g, averaging 26 g. There was cortex on 80 per cent and all were heavily abraded and ironstained, the topsoil over the Cucklington Oolite being very shallow in this area. Colour was largely white with varying shades of blue from patination. There were four possible Mesolithic cores, two of which appeared to be of Chalk flint, and one microcore (Fig. 5, no. 19). From the rather poor quality assemblage, some blade but mostly flake production was evident and cores were rejuvenated but rejected largely because of hinge fractures. A few platforms were still productive. Other sites in West Stour had similar material but some crude knapping with occasional multi-directional platforms was apparent and suggestive of later work (Julian Richards, personal communication).

Gillingham, G (4)

A generally post-Mesolithic site whose 37 cores had 70 per cent cortex and were all patinated, mostly white with blue shades. The average weight was 30 g. They were extremely battered and much ironstained. The topsoil was markedly shallow over the flaggy limestones of the Todber Freestone. Four cores were possibly Mesolithic and there was one microcore. Platforms for flake production and two cores with multiple platforms suggested later material (*ibid.*). Most cores were discarded as a result of hinge fractures, although a few were still productive. Ten cores were very small.

Stour Provost SP (1)

The material was mostly post-Mesolithic, but two good Mesolithic cores came from the flood plain of the River Stour. The patinated cores, mostly white, were 90 per cent of the total, while the average weight was 28 g. Seven were so small as to be totally exhausted. All were ironstained but less abraded than in WS (2) and G (4). Flake production was evident and hinge fractures again the most obvious reason for abandonment. One core only was of Upper Greensand chert although there was much natural material on the ground.

CORE REJUVENATION FLAKES

Crested blades formed 25 per cent of the total in KM (1), confirming the Mesolithic character of the assemblage. Material included one larger flake typical of flint from the Clay-with-Flints. Fig. 5, no. 20 is an example of a core rejuvenation flake.

ARROWHEADS

A broken, dark brown flint leaf arrowhead in KM (1), (Fig. 5, no. 39) and one of orange flint in KM (3) (Fig. 5, no. 40) were both pressure-flaked and unpatinated and demonstrate the use of good quality, well-coloured material for this purpose (Green 1980, 66). For example, several arrowheads in orange flint came from Hurst Fen, Suffolk (Clark 1960, 216), while oyster-coloured, pale grey flint and Portland chert arrowheads were seen in the Fowler and

Bean collections from Sherborne, described above. A rather crudely made barbed and tanged arrowhead from WS (10) was of fresh grey/brown flint but small areas of whitish patination remaining, suggested it was made on a Mesolithic flake. It was relatively large, measuring approximately 38 mm × 22 mm with a tang of some 12 mm, in contrast to the others collected which only averaged 20 mm × 16 mm and were completely patinated. One of these from SP (1) had a broken barb retouched to form a serviceable missile.

AXES

The tranchet axe (Fig. 6, no. 1) and fragments of a ? Mesolithic axe and a polished flint axe (Fig. 6, Nos 2 and 3), came from another flint source, possibly Clay-with-Flints as already described.

BLADES

There were few long, thin, elegant blades associated with Mesolithic assemblages, probably due to the quality and size of the original flint, although one reached 650 mm. Some 25 per cent were unpatinated.

Trimmed blades were not sufficiently consistent to classify as to direction and type, but had varying amounts of inverse retouch, or were trimmed down part of one side or at one end (Fig. 5, no. 12), or transversely blunted (Fig. 5, no. 14), while one blade was of Upper Greensand chert. Two bladelets only were considered to be complete with bulb and tip but many that were incomplete could have been used as microliths, although there was no evidence of blunting. Numerous bladelet fragments were recorded as spalls, some of which were trimmed (Table 1).

The category of 'utilised' blades was not included, it being considered misleading to try and differentiate between actual use and contemporary edge damage.

The breadth, length and breadth/length ratio of complete blades/flakes is shown in Fig. 7.

BURINS

In KM (1), one was made on a rejuvenation flake with trimming on the opposite edge, another was angled (Fig. 5, no. 11), while that in Fig. 5, no. 10 was dihedral. The steeply blunted burins WS (22), is thought to be typologically earlier in the Mesolithic with the possibility that the fine, larger and unpatinated microlith (Form A1) in WS (2), found only 200 m apart, might be of similar date, as it is considered to be an early form in southern England (Evans and Smith 1967, 75).

NOTCHED FLAKES

Three are notched at the end, two are trimmed, one with inverse retouch opposite the notch and one is of Portland chert.

TRIMMED FLAKES

Trimming appeared to be somewhat random with much broken material, which prevented classification, but included retouch at one end, mostly down one side or part of both sides and as inverse retouch. Eight flakes were in Upper Greensand chert and two were later work on Mesolithic material. Three flakes and one core rejuvenation flake had invasive retouch, characteristic of the Later Neolithic.

POINTS

A total of twelve included one obliquely truncated, three were later work on Mesolithic material (Fig. 5, no. 17) and one was on a Mesolithic core fragment.

SCRAPERS

These were typically Mesolithic and post-Mesolithic and had no consistent pattern. While many were rough, some were made on earlier material (Fig. 5, no. 33) and a few were of Upper Greensand chert. Mesolithic convex scrapers (Fig. 5, nos 27-29, 34, 35) and 'thumb-nail' scrapers (Fig. 5, nos 30-32) were examples and a double-ended Mesolithic scraper in KM (1) was an unusual form (Martin Green, personal communication). They provide evidence of activity on various sites.

DEBITAGE

All material was recorded as *debitage* other than the trimmed blades/flakes and artefacts listed in Table 1. Flint less than 20 mm in length was classified as spalls. In KM (1), 34 per cent had some degree of cortex.

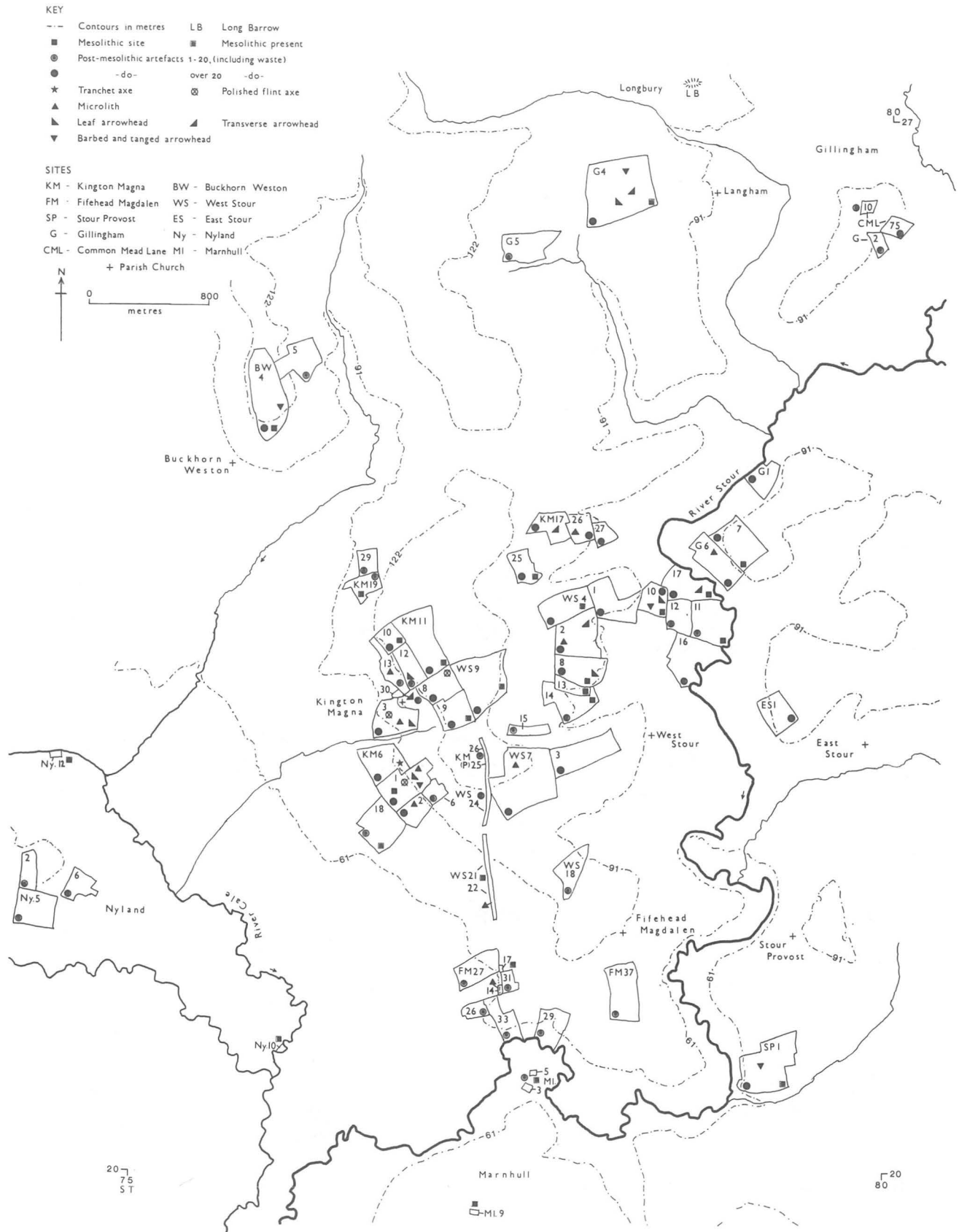


Figure 4. Distribution of prehistoric artefacts from Kington Magna and other field areas examined.

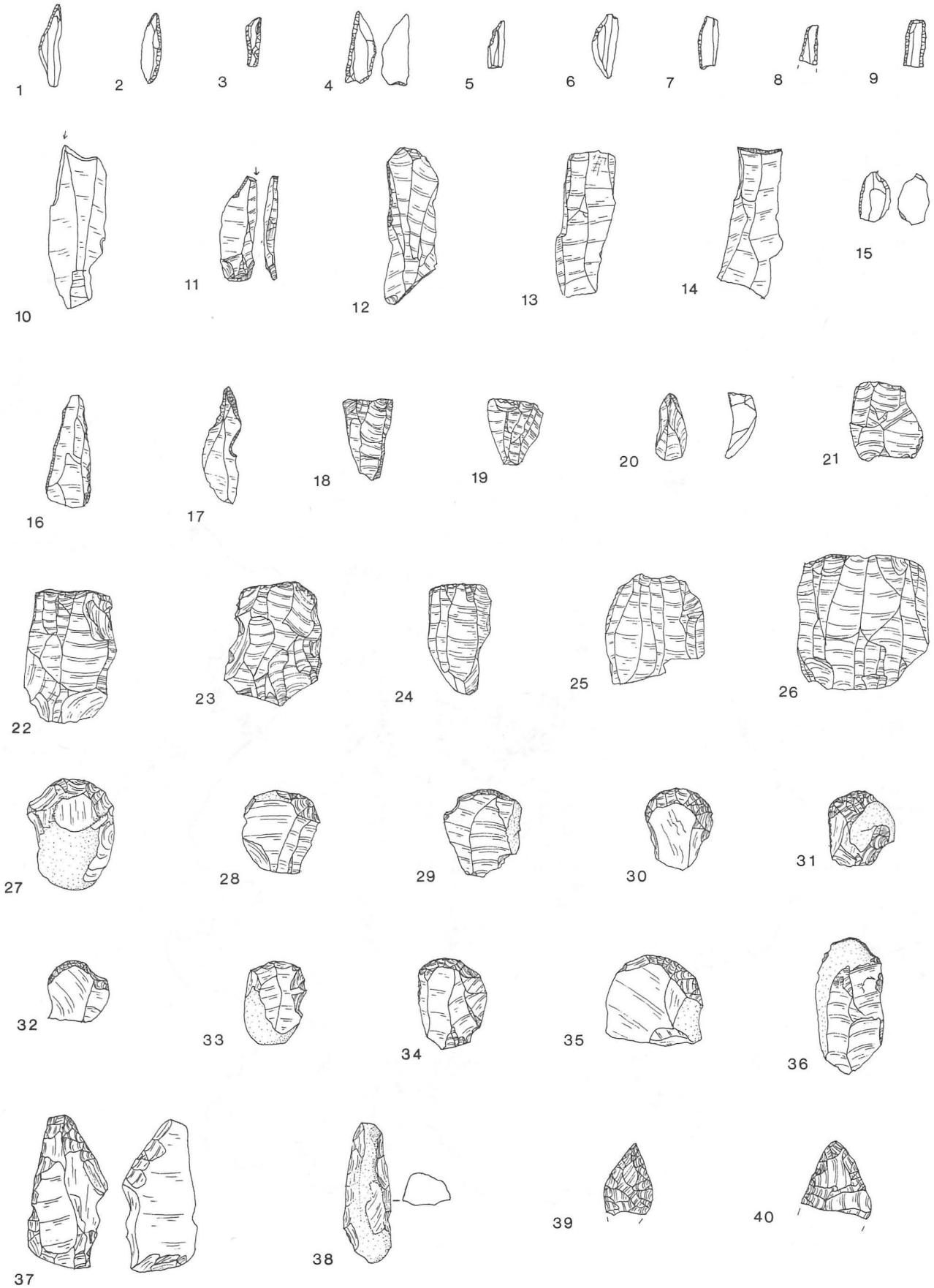


Figure 5. Microliths and other artefacts from Kington Magna and adjacent sites, half size. Microliths: 1 (A2), 2 (B3), 3 (D1b), 4 (F), 5 and 6 (A1), 7, 8, 9 (unclassified), 10 dihedral burin, 11 angled burin, 12 trimmed blade, 13 blade, 14 transversely blunted blade, 15 microburin, 16 knife, 17 post-Mesolithic point trimmed from Mesolithic blade, 18 and 19 microcores, 20 core rejuvenation flake, 21 core of Portland chert, 22-25 Mesolithic cores, 26 saddle core, 27-29, 34 and 35 convex scrapers, 30-32 'thumb-nail' scrapers, 33 scraper on rejuvenation flake from microcore, 36 end scraper, 37 laurel leaf, 38 fabricator, 39 and 40 leaf arrowheads. (Drawn by Barry Lewis).

Among the numerous flakes and blades from core preparation (of which many were broken), it was noticeable that most fracture surfaces were patinated and assumed to have been broken in antiquity, probably in knapping.

A quantity of fresh, unpatinated waste flint from the lower part of WS (8) came from a very wet area, perhaps originally the site of a spring, previously a Wither Bed (Tithe Map of West Stour, T/WSR, 1842, Dorset Record Office). This would have provided the wet, acid soil conditions, noted above.

Because of the variation in fieldwalking, in which some sites were repeatedly covered and others only visited once, it was decided that comparative figures for the flint scatter per hectare would be misleading. Moreover the location of sites has been related to present field boundaries and further fieldwalking, if carried out, would doubtless produce more artefacts.

BURNED FLINT

This has been recorded by weight (Table 1). Some tools could be identified among the material.

DISCUSSION

The focus of this survey is the Later Mesolithic site, on Corallian strata, KM (1) (Table 1), in a field known as Mitchard's Well, with related artefacts elsewhere (Fig. 4). For collection purposes, the field was divided into three areas (Fig. 8), with the majority of finds, including microliths, coming from area 1, but ploughing of the steep slope in the upper part may have resulted in downhill movement of some artefacts.

A spring comes to the surface on the hillside at c. 106 m OD (ST 76992267), in what is now a copse, while on the slope below, which gives way to the Oxford clay at c. 61 m OD, there is a considerable scatter of tufa. Although the fossilised hazel leaves seen in the tufa might be significant in a prehistoric context as evidence of human interference in the environment, no dating is possible from such unstratified material. There is only minimal environmental evi-

dence for this at Cherhill, Wiltshire (Evans and Smith 1967, 107). It was noted that several flints in KM (1) had a patchy calcareous deposit.

Parallels can be drawn with other Mesolithic sites and tufa deposits, of which there are only about six in Britain (*ibid.* 107). At Cherhill, Wiltshire a Mesolithic occupation horizon sealed by tufa is dated to 5280 bc \pm 140 (BM-447) and it appears that settlement moved to higher ground as the tufa formed, (*ibid.* 109). Another site at Blashenwell, Dorset had flints and charcoal scattered throughout the tufa, although settlement debris was thought to have come from a neighbouring ridge (Clark 1938, 332-3). Radiocarbon dates range from 4500 bc \pm 150 (BM-89) to 3800 bc \pm 140 (BM-1257), 3475 bc \pm 150 (BM-1258) (Evans and Smith 1967, 69). At Kington, ploughing to a depth of some 0.30 m had disturbed the tufa and only a few finds, none of which were microliths, lay on the surface. No flint, bone or charcoal was seen within the tufa. Occupation here too was apparently above the tufa deposit (Fig. 8).

The interpretation of air photographs by the Ordnance Survey (personal communication), showed a square enclosure and two circular features, the latter almost coinciding with the possible chipping floors (Fig. 8), but nothing could be determined from the Royal Navy photographs taken in 1980 (RN 4310 1980). The considerable activity in the area, with possible medieval lynchets, the creation of a water catchment pit and reservoir nearly a hundred years ago, the use of the field as smallholdings in the 1920s, the planting of the copse in the 1930s and recent ploughing, can have left little undisturbed and might account for the features described.

It is a characteristic position for Mesolithic settlement, high up on the spring-line of the Corallian escarpment.

The exploitation of inferior material, such as river gravel flint and chert which the Kington site provided, may account for the generally poor quality of the artefacts

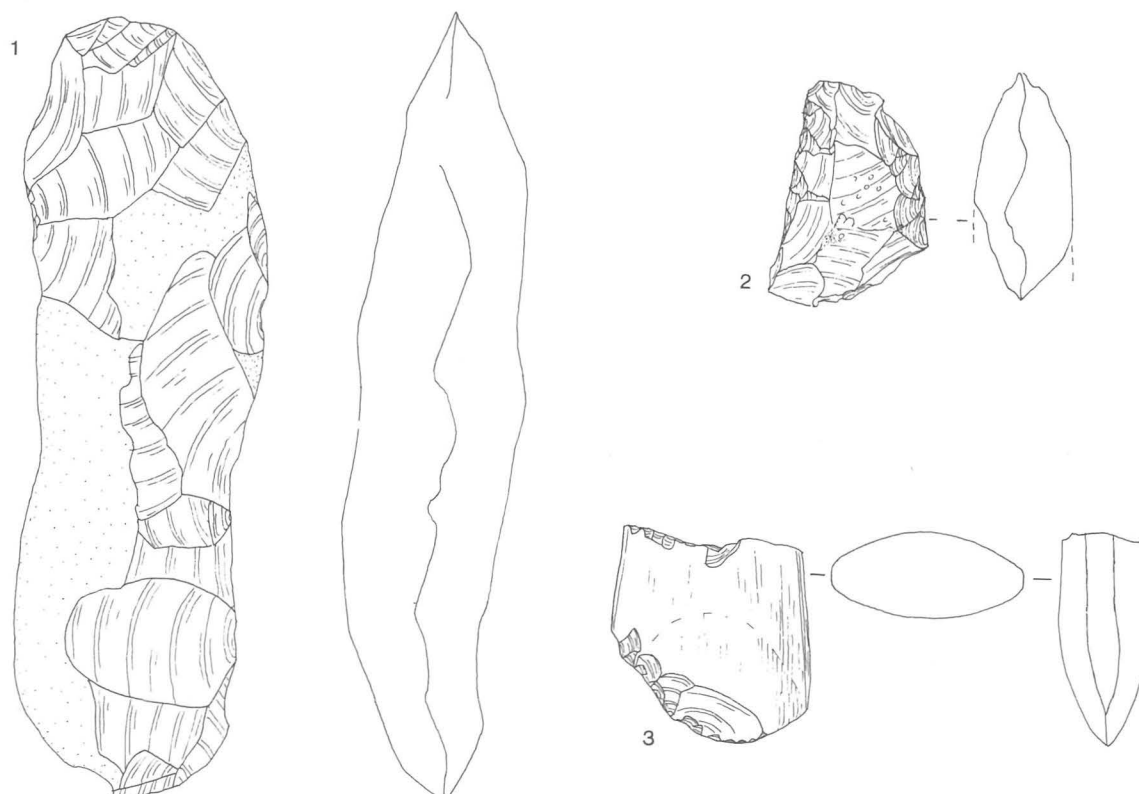


Figure 6. Flint axes from Kington Magna, half size. 1 tranchet axe, 2 butt end of Mesolithic axe, re-worked, 3 part polished flint axe.

← TOOLS → ← WASTE PRODUCTS →

SITE	TOOLS														WASTE PRODUCTS																		
	MICROLITHS	MICROLITHS BROKEN OR UNCLASSIFIED	AXE, MESOLITHIC FRAGMENT	AXE, TRANCHET	AXE, POLISHED FLINT	ARROWHEADS, LEAF	ARROWHEADS, TRANSVERSE	ARROWHEADS, BARBED AND TANGED	BLADES, TRIMMED	BLADELETS, TRIMMED	BURINS	FABRICATORS	FLAKES, NOTCHED	FLAKES, TRIMMED	SPALLS, TRIMMED	HAMMERSTONES	KNIVES	LAUREL LEAF	POINTS	SCRAPERS	OTHER TOOLS	POTTERY SHERDS	MICRO INDETERMINATES	MICRO BURINS	CORES	CORE REJUVENATION FLAKES UPPER	GREENSAND CHERT FLAKES	PORTLAND CHERT FLAKES	DEBITAGE, BLADES/FLAKES	SPALLS/BLADELETS FRAGMENTS	BURNED FLINT, WEIGHT	LATER WORK ON MESOLITHIC MATERIAL	GEOLOGY
KM (1)	6	*17	*1		*2	*1	*1		⁺¹ 24	15	6	1	6	43	31	⁺¹ 1	⁺¹ 3	7	87	6	1	2	13	⁺² 178	130	33	3	1121	574	1275g	16	Co	
KM (2)	1								1									1	8					8	4		33	8		1	Co		
KM (3)	3	*1			*1	1				2	1	1	4						9					14	8	7	90	69	100g	3	Co		
KM (6)				1						1			1									1		1	2	2	24	8	40g		Co		
KM (8)					*1														7					3	1	3	32	15	25g		Co		
KM (9)											1	1							8					14	2	2	59	17	150g		Co		
KM (10)																			5					⁺¹ 5			23		140g		Co		
KM (11)												1	1						4					⁺¹ 9	8	12	114	48	125g		Co		
KM (12)					*1								2						1					1	3		7		25g		Co		
KM (13)	1																							3		1	8	2			Co		
KM (17)						2													3					3	2		17	1	25g		Co		
KM (18)													1						2						1		7	2		1	Co		
KM (19)																			⁺¹ 2							1	1	2			Co		
KM (25)								2											18					⁺¹ 5	2	1	3	17			Co		
KM (26)	1												2		1				1					1	4		14	5			Co		
KM (27)													1											1	3		6	2			Co		
KM (29)																											1			10g		Co	
KM (30)						1																										Co	
Ny (2)																										1		4				Ox	
Ny (3)																											1					Ox	
Ny (5)																								1	2		3					Ox	
Ny (6)																			1													Ox	
Ny (10) (12)																												2				Al	
WS (1)																																	Co
WS (2)		*1				1					2			2	1				4						11	5		51	11	75g		Co	
WS (3)													1						34					40	12	12	266	61	350g		Co		
WS (4)											2		2	1	1				8					⁺¹ 5	2		35	4	75g		Co		
WS (5)													2					1	19					24	6	9	114	16	350g		Co		
WS (6)		*1																													Co		
WS (7)							1						8	1	⁺¹ 1									5						20g		Co	
WS (8)					*1								2	1	1	*1			19	1				21	17	5	119	19	150g		Co		
WS (9)													2	1	1				2					5	5	2	61	22	15g		Co		
WS (10)					1	1					1		3			1			11					7		1	16	6	10g		Co		
WS (11)													3											13	6	5	42	10	100g		Co		
WS (12)																								1			2				Co		
WS (13)																								1	1		3	1			Co		
WS (14)																											1				Co		
WS (15)																								1			6				Co		
WS (16)													1						1										5g	1	Co		
WS (17)					1														2		3				1	1		11				Co	
WS (18)																			1									1				Co	
BW (4)						1							1						6				1	6	2			31	12	25g	1	Co	
BW (5)																											5		25g		Co		
G (1)													1	3					^{#1} 6						5	3	10	20	17	25g	2	Co	
G (2)																								1								Ki	
G (4)					2	1	2	1	1		2		6	4					1	28				⁺¹ 37	3	21	268	126	250g		Co		
G (5)																								1			5				Co		
G (6)		*1					1				1		5		1				1	9				⁺² 15	4	12	94	41	350g	1	Co		
G (7)						2		1		3	6	2							⁺¹ 17					⁺⁷ 44	9	27	298	143	475g	2	Co		
ES (1)													1						4					⁺¹ 6	1	13	44	18	400g		Co		
SP (1)							*1						8						2	13				⁺¹ 21	6	21	235	44	525g		Co		
CML (1), (10), (75) ⊙													2														1				Ki		
ML (3), (5), (10)																												1				Ox/Al	
FM (14), (17), (26), (27)		*1											1														1					Co	
FM (29-33), (37)																												2				Co	
WS (21), (22), (24)								1					2															5				Ox/Co	
KM (25P), (26P)																												4	1	30g		Co	
TOTAL	13	*22	1	1	4	7	6	⁺¹ 30	20	8	13	^{#1} 8	⁺⁵ 100	50	⁺⁷ 6	⁺¹ 9	1	14	⁺⁷ 343	7	4	3	14	⁺⁷ 522	257	203	4	^{#1} 3332	⁺² 1330	5170g	29		

KEY: *Damaged †Upper Greensand Chert #Portland Chert
 × Pipeline (Ross 1985, 90-94)
 ⊙ Developed sites 1975, 1984

KM Kington Magna
 Ny Nyland
 WS West Stour
 BW Buckhorn Western
 G Gillingham

ES East Stour
 SP Stour Provost
 CML Common Mead Lane
 ML Marnhull
 FM Fifehead Magdalen

GEOLOGY: Al Alluvium
 Ki Kimmeridge Clay
 Co Corallian
 Ox Oxford Clay

described above, particularly the blades and the irregular, intensively used cores. Very small microliths may have been used in a new type of missile (Mellars 1976a, 87) or were just a skilful adaptation to changing circumstances. The need to acquire high quality flint for the axes, not locally available, has also been described above.

In addition to the tools, the quantity of *débitage* (Table 2) would suggest that Kington was, like Iwerne and Cherhill (Evans and Smith 1967, 81) a base camp for year round occupation. The site is ideal for exploiting the various habitats and ecotonal communities provided by the contrasting geology and as an observation point for game. Accessibility to the rivers and their considerable network (although levels may well have been lower (Evans 1975, 139)), must have provided a perennial source of fish, eels, trout and salmon coming up-river to spawn (Mellars 1976b, 381) and freshwater mussels, whose shells lie on the river banks today. However, there is no archaeological evidence here for fish. Bones of wild animals, including cattle, pigs and deer, suggested hunting activities at Cherhill, Wiltshire (Evans and Smith 1967, 111), which could have been paralleled at Kington, strengthening the cause of permanent occupation.

An extension of the settlement over the hillside is indicated by other Mesolithic artefacts such as microliths in KM (2), (3), (13) and a tranchet axe in KM (6), (Table 1, Fig. 4), while isolated microliths and Mesolithic material elsewhere might represent hunting expeditions.

Occupation of some kind may have existed in the river valleys, but is generally unidentified, having been masked by colluvial deposits resulting from Neolithic and later deforestation (Jacobi 1978, 81). It is suggested in this area, that Mesolithic artefacts found adjacent to rivers at ML (5), Ny (10), (12), WS (17) and SP (1) (Fig. 4), were likely debris from such locations uncovered by recent dredging and ploughing (*ibid.*), although it is always possible that they had been brought down in the colluvium.

Post-Mesolithic use of the site is evident from the finds, although no division can be recognised, but use of the stone source obviously encouraged occupation (Care 1982, 269). The large spread of material from this period (Fig. 4, Table 1), must show how attractive the well-drained soils of the Corallian were for agriculture (Megaw and Simpson 1979, 79), subject to forest clearance.

Neolithic chronology from unstratified material can only be provided by specific diagnostic artefacts and these include a typical laurel leaf (Fig. 5, no. 37) and two of the

leaf arrowheads (Fig. 5, nos 39-40, Table 1). The latter are generally considered to date from the Earlier Neolithic although they may extend to the end of the 2nd millennium bc (Green 1980, 96). Those from other sites such as WS (10) and G (4) are quite variable, being heavily patinated, poorly flaked and differently shaped. Transverse arrowheads were introduced in the Later Neolithic with three chisel and three oblique types represented.

Their survival may have continued to 1500 bc and beyond (*ibid.* 111). A period of organised and increasing land use (Whittle 1981, 373) is borne out by the wide distribution of material (Fig. 4, Table 1).

A deterioration in knapping skills characterises the Later Neolithic with careless core production and random use of waste flakes, all apparent in the assemblage. There are a number of retouched types on earlier material in addition to a few tools with invasive retouch (Table 1), (Pitts 1978, 188). In the Beaker period, dating from c. 2000 bc, 'thumb-nail' scrapers and barbed and tanged arrowheads appear with their specialised invasive flaking, in contrast to the rest of the material, and are similar to those noted from the Sherborne area above, on the differing geology of the Inferior Oolite and the Yeovil Sands. There are no obvious artefacts such as large cores or crude scrapers which might represent the Late Bronze Age, but the remarkable survival of sherds of pottery include one from a Collared Urn, KM (1), two Deverel Rimbury sherds and one sherd of Durotrigian Late Iron Age pottery (WS 17) (Martin Green, personal communication).

There are very few round barrows from the area lying roughly between Shaftesbury and Sherborne, perhaps due in part to lack of fieldwork or unsuitable photographic conditions, and a similar absence in the Vale of Wardour has been noted above. The destruction of all traces of five barrows near Gillingham by intensive agriculture has already been described and may be relevant.

At least twenty stone axes (some fragmentary), of igneous, metamorphic or sedimentary rock have been recorded from outside the area of fieldwalking (see above), although not necessarily contemporary with the sites on which they were found (Smith 1979, 13). Their manufacture covered a long period ranging from c. 3250 bc to c. 1750 bc (*ibid.* 14). This is a random group, all unstratified, without obvious associations and not comparable elsewhere. However, twelve of the axes would seem to be of Cornish origin, as the distribution of ungrouped 'greenstones' suggest Cornwall as a likely source (Evens *et al.* 1962, 229),

	← TOOLS →															← WASTE PRODUCTS →												
	MICROLITHS	MICROLITHS BROKEN OR UNCLASSIFIED	BLADES, TRIMMED	BLADELETS, TRIMMED	AXE, MESOLITHIC FRAGMENT AXE, POLISHED	ARROWHEADS, LEAF	ARROWHEADS, BARBED AND TANGED	BURINS	FABRICATORS	FLAKES, NOTCHED	FLAKES, TRIMMED	SPALLS, TRIMMED	HAMMERSTONES	KNIVES	POINTS	SCRAPERS	OTHER TOOLS	POTTERY SHERDS	LATER WORK ON MESOLITHIC MATERIAL	MICRO INDETERMINATES	MICRO BURINS	CORES	CORE REJUVENATION FLAKES UPPER	GREENSAND CHERT FLAKES	PORTLAND CHERT FLAKES	DEBITAGE, BLADES/FLAKES	SPALLS/BLADELETS FRAGS.	BURNED FLINT, WEIGHT
Area 1	5	15	19 ⁺¹	10	*1 *2	*1 *1	4	1	# 1	29	21		1	5	52 ⁺⁵	5	1	10	2	11	96	81	14	1	702	407	975g	
Area 2	1	2	5	4			2			11	8		1	1	22	1		4		2	68 ⁺²	45	16	2	410	162	300g	
Area 3				1						3	2		1	1	13			2			14 ^{# 1}	4	3		9	5		
TOTAL	6	17	24 ⁺¹	15	*1 *2	*1 *1	6	1	# 1	43	31		1	3	7	87 ⁺⁵	6	1	16	2	13	178 ^{+2 # 1}	130	33	3	1121	574	1275g

KEY: † Upper Greensand Chert
Portland Chert
* Broken

CORALLIAN GEOLOGY

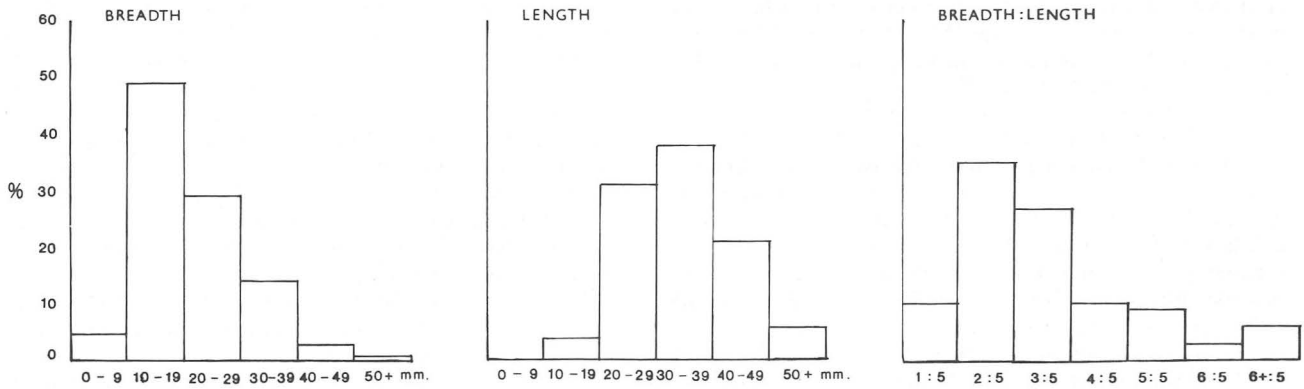


Figure 7. Histogram of blade/flake ratios from Mesolithic site, *Kington Magna*.

with the spotted slate axe as a possible addition. Cornish axes frequently appear on Earlier Neolithic sites in southern England including Hambledon Hill and Maiden Castle (Smith 1979, 17), the latter thought to be a point of exchange with the south-west (Care 1982, 281). The two Langdale axes from Gillingham and Bradford Abbas, with a possible third also from Gillingham, are at the extreme limit of their distribution (Cummins 1979, 11, Fig. 8). However, they form two-thirds of those found at Windmill Hill some 55 km away (Bradley 1984, 62).

Such axes have been suggested as functional tools for woodworking (Harding and Young 1979, 105) which might in part account for their demand and widespread distribution, but perhaps their recognition as prestige goods associated with certain sites is of more importance (Bradley 1984, 57). Random finds could suggest deliberate deposition (*ibid.*).

On the slender evidence of twelve Cornish and two, possibly three, Langdale axes, competition between the

exchange systems of the two groups might be relevant, based on the areas over which they held sway (*ibid.* 65), demonstrating the two-stage axe distribution pattern from factory to trading centre and further dispersal elsewhere (Cummins 1979, 8, Fig. 3, 9).

The result of this project demonstrates comprehensive prehistoric activity over the area, with the possibility of further sites to be identified, and the involvement of all geological strata.

ACKNOWLEDGEMENTS

It is entirely due to the goodwill and tolerance of the landowners that I have been able to carry out the fieldwalking programme on which this article is based and I should like to express my thanks to them all.

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There will inevitably be some errors for which I am wholly responsible.

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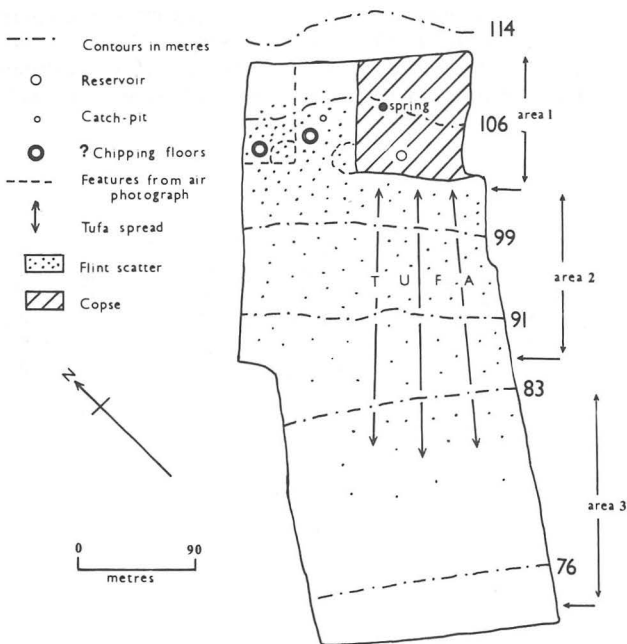


Figure 8. The Mesolithic site, *Kington Magna*. (The position of all features is estimated, apart from the field boundaries.)

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ABBREVIATIONS

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|----------------------------|--|
| <i>Dorset Proceedings</i> | <i>Proceedings of the Dorset Natural History and Archaeological Society.</i> |
| <i>Proc. Prehist. Soc.</i> | <i>Proceedings of the Prehistoric Society.</i> |

A Megalosaurid Dinosaur Jawbone from the Kimmeridge Clay of the Seabed of West Bay, Dorset

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SUMMARY

The specimen (DORCM G10603) described in this note is a portion of the upper jaw of a large, bipedal, carnivorous dinosaur, probably a megalosaurid. Although it is merely an eroded fragment it is worth recording since dinosaur remains, especially skull bones, are rare fossils, particularly in the Kimmeridge Clay.

Introduction

In the mid 1980s a lump of fossil bone containing several large teeth was brought to the Dorset County Museum by Mr E. Taylor. It had been dredged up by a scallop trawl from the seabed in the area to the west of Portland. Large numbers of fossil vertebrae have been obtained from the same area and while some are worn and rounded, and colonised by bryozoa and serpulid worms, others are fresh, suggesting that the bones are still being eroded out of the subjacent strata. A fauna of ammonites dredged from the same area has been described by Van der Vyver (1985, pp. 168-169). It includes *Aulacostephanus autissiodorensis* (Cotteau), the index species of the uppermost zone of the Lower Kimmeridgian in Britain. Thus a Kimmeridgian age, perhaps Lower Kimmeridgian, seems probable for this jawbone.

The specimen is registered at the Dorset County Museum as DORCM G10603.

Description of the specimen

The bone is the anterior part of a left maxilla (see Fig. 1) preserving four tooth positions. It measures 171 mm long by 164 mm high.

In lateral view (see Fig. 2) a few areas of original surface remain showing smooth, finely-pitted bone, but the rest is eroded. There are several large foramina, mostly near the lower edge. Their openings face ventrolaterally and the largest measures 8 mm × 6 mm. Along the mid-line the surface from the back edge as far as the middle is almost straight, then it begins to curve medially and about 25 mm from the front it curves inwards still more strongly indicating that the front edge, though broken, closely represents the original anterior end. The anteroventral corner is broken away and above it is a broken edge exposing fragments of the first tooth. Above that an edge 60 mm long slopes posterodorsally some 55 degrees from the vertical to the broken and eroded dorsal edge of the bone. A smoother area behind and below this point seems to be the remains of a subnarial vacuity. Posterior to that the bone is

eroded, exposing the tops of the 3rd and 4th tooth cavities.

In lingual, or internal, view (see Fig. 3) the lower half of the bone is occupied by the tooth-row containing the roots of four large teeth and three replacement-teeth.

The remaining stump of the first tooth is exposed by erosion over a height of 48 mm. Above that the bone is crushed and there is no trace of a replacement tooth. In ventral view (see Fig. 4) the tooth is 29 mm long, 13 mm wide, hollow and with a symmetrical almond-shaped outline, rounded anteriorly, pointed posteriorly.

The ventral edge of the second tooth socket is not much reduced from its original form by breakage and erosion. The alveolus contains the root of a tooth whose midline is 51 mm posterior to that of the first. The tooth measures 39 mm front to back and in ventral view it is concavo-convex because the inner wall is pressed into the pulp cavity by a fold of the lingual wall of the tooth-row. The fold forms the floor and walls of a vertical groove in which the replacement-tooth lies. This groove interrupts the tooth-row wall, as do the other replacement-tooth grooves, so as to divide it into separate interdental plates. The corrugated surface of the interdental plates suggests highly vascular bone that would have been continually remodelled to allow the replacement teeth to grow and pass into occlusion.

The replacement tooth is 44 mm high. Its tip is 23 mm above the lower end of the groove in which it lies, 46 mm above the alveolar edge of the maxilla.

The third tooth is broken off 20 mm above the eroded ventral edge of the alveolus and is exposed lingually by the erosion of the edges of the interdental plates. It is 28 mm anteroposteriorly and its midline lies 43 mm behind that of the second. In ventral view the tooth is 15 mm thick, with symmetrically biconvex sides meeting anteriorly in a blunt point enclosing about 100 degrees and posteriorly slightly more acutely. The anterior edge bears only the first two serrations which are low and rounded. The posterior edge has serrations 1 mm long with 10 of them in 6 mm of length.

Above this tooth lies a replacement tooth 13 mm high, its tip 75 mm above the edge of the alveolus and 8 mm above the end of the groove between the interdental plates. Both edges are serrated and the denticles spread round the tip like the spokes of a fan.

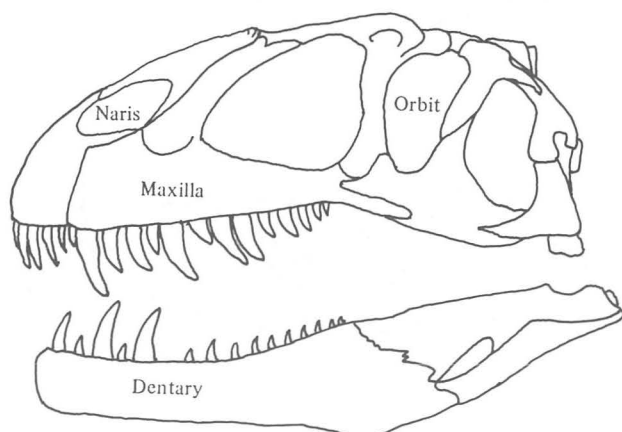


Figure 1. A megalosaurid skull to show the position of the maxilla.

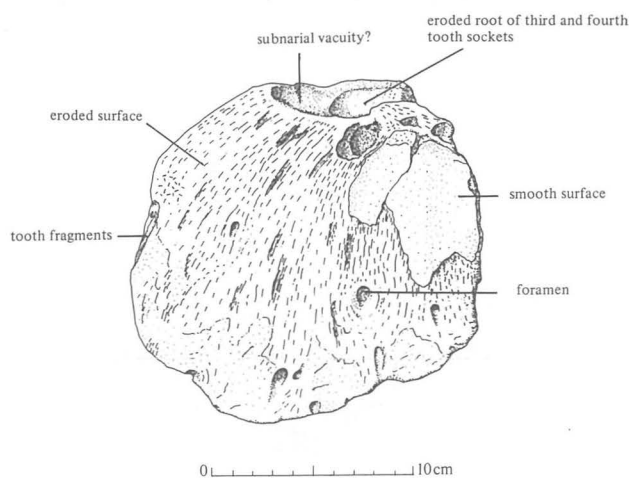


Figure 2. Lateral view of the Dorset maxilla.

The fourth alveolus is broken away posteriorly and is eroded. It contains the stump of a large tooth. In ventral view the anterior edge of the tooth is semicircular. The posterior edge is missing but the pulp cavity is entire so that the mid line can be noted; it is 47 mm posterior to that of the third tooth. In posterior view the tooth is 20 mm thick at the bottom end and it tapers upwards through its height of 108 mm to 7 mm owing to the pressure of the growing replacement tooth which lies lingually alongside it. The replacement tooth is 85 mm high and 20 mm thick dorsally. At its upper end it is in contact with the older tooth for 14 mm, then separated by the bone of the floor of the replacement-tooth groove, which runs down past the tip of the replacement tooth to become continuous with the interdental plate and interalveolar septum. The tip of the tooth is broken but the middle part of the posterior edge preserves the remains of 27 serrations in a length of 22 mm, (equivalent to 10 in $7\frac{3}{4}$ mm).

The first of the three interdental plates has the anterior edge and the ventral tip broken away. It widens ventrally where the posterior border swings gently backwards below the tip of the replacement tooth, narrowing the groove to 2 mm. Dorsally the plate is not offset laterally from the upper part of the bone by a step as are the other two plates. Instead there is a shallow depression 25 mm across dorsoventrally.

The second interdental plate has the ventral tip broken away. The posterior border forms the right hand edge of the arch framing the third tooth. The pointed apex of this arch is the posteroventral corner of the replacement-tooth groove which is 20 mm high posteriorly, has a round-arched top 8 mm wide, and a concave anterior border 23 mm high. The dorsal limit of the interdental plate is defined by a step 1 mm high offsetting the plate laterally.

The third interdental plate was the largest, although its borders are broken and eroded, except anteriorly where it arches over the third tooth. It measures 36 mm along the dorsal step while the comparable measurements of the second and first interdental plates are 32 mm and 23 mm.

The replacement teeth conform to the pattern of replacement described by Edmund (1960). According to this account the odd-numbered teeth are replaced in sequence followed by the even-numbered, and the waves of replacement pass from back to front so that the replacement teeth become progressively smaller towards the front of the jaw.

The jawbone is 46 mm thick at the top of the third interdental plate. Above this it bulges lingually to 64 mm in a regular convex curve 67 mm high. The bulge continues forward with the thickest part following a line that rises about 15 degrees with respect to the tops of the interdental plates, and also swings lingually following a shallow concave course parallel with the convexity of the lateral side of the bone (see Fig. 4). It reaches its farthest lingual point in a prominence directly above the second tooth. This prominence is the base of a process, now missing, which, as shown by the grain of the bone, curved downwards and forwards and would have met its fellow from the right to unite the maxillae.

Below the base of this anteromedial process a broad swelling or buttress dips steeply anteroventrally for 30 mm. Ventrally it is abruptly truncated by the arch at the head of the first replacement-tooth groove. Anteroventrally it slopes into the concave area at the top of the first interdental plate.

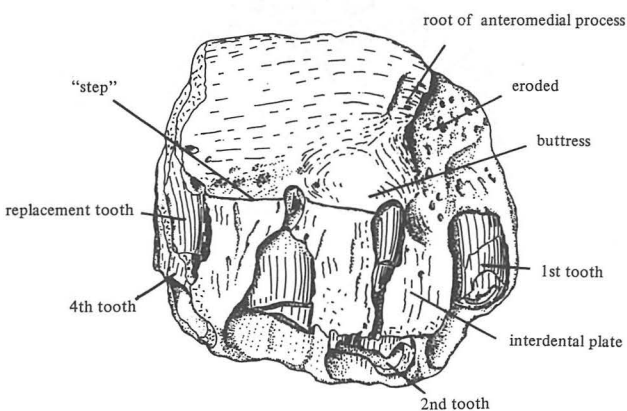


Figure 3. Lingual view of the Dorset maxilla.

Comparisons

The bone clearly represents a large theropod, and isolated and fragmentary bones of this kind are usually referred to *Megalosaurus*. The type species of *Megalosaurus* is *M. bucklandi* Meyer, 1832, from the Stonesfield Slate (lower Middle Bathonian) of Stonesfield, Oxfordshire. The type material in the University Museum, Oxford, (OUM) is the group of bones described by William Buckland in 1824, comprising a dentary (J.13505), dorsal vertebra (J.13577), sacrum (J.13576), caudal vertebra (J.13579), ribs (J.13581, J.13585), ilium (J.29881), pubis (J.13563), ischium (J.13565), femur (J.13561) and a metatarsal (J.13572), representing an adult animal some 7 or 8 metres long. Later finds from the same horizon and locality include two maxillae (J.13506, and J.13559) (see Huxley, 1869; Walker, 1964, p. 125). The size of these two bones is commensurate with that of the dentary and the rest of the large bones from Stonesfield so that there is no reason to suppose that they are not *M. bucklandi*.

Compared with them the Dorset specimen is similar in general appearance but is much larger; its subnarial height is over 164 mm while the Stonesfield specimens are 110 mm (OUM J.13506) and 105 mm (OUM J.13559). In DORCM G10603 the teeth are relatively closer together, the interdental plates relatively lower in height and the lingual surface above them and below the anteromedial process is relatively higher.

The proportions are closer to those of a maxilla in the Stroud and District Museum (SDM 44.1), described by S. H. Reynolds (1939, p. 204; Text-fig. 10, p. 206) as *Megalosaurus*. It comes from the Chipping Norton Formation (lowest Bathonian) of New Park Quarry near Stow-on-the-Wold, Gloucestershire. Other large theropod bones from the same horizon around Stow include an ilium (SDM 44.19) and two femora (SDM 44.23, 44.24). The ilium is more like that of *Metriacanthosaurus* (see Walker, 1964, p. 117) than *Megalosaurus bucklandi* but the opposite is true of the femora, so it is not clear what the maxilla should be referred to. It is over 110 mm high below the naris, again, much smaller than the Dorset specimen and even farther removed stratigraphically than *M. bucklandi*.

There are unfortunately no maxillae from the English Kimmeridgian for comparison, indeed, there are very few megalosaurid bones at all from this level. The collections at Oxford contain only a caudal vertebra (OUM J.47134) from Shotover, near Oxford; a tibia (OUM J.29886) from Swindon (erroneously recorded as Stonesfield by Huene, 1926, p. 51); and three metatarsals (OUM J.13586a, b, c) also from Swindon (see Phillips, 1871, p. 215). These are all much larger than the corresponding elements from Stonesfield, as the following measurements show: the centrum

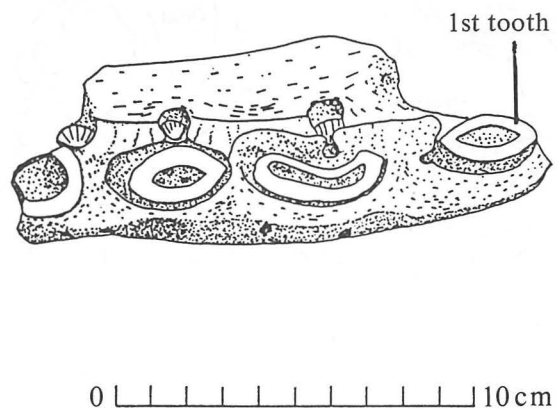


Figure 4. Ventral view of the Dorset maxilla.

of the vertebra is 107 mm high and 127 mm wide anteriorly, against 93 mm × 93 mm (OUM J.13579); the tibia is 765 mm long and the maximum measurement across the head is 255 mm, against 720 mm and 190 mm (OUM J.13568); the head of metatarsal III is 139 mm by 81 mm, against 106 mm × 56 mm (OUM J.13569). Whilst these bones represent gigantic theropods consistent with the size of the Dorset maxilla they cannot justifiably be all included in one species.

Lydekker (1888, p. 163) mentions a large tooth from the

Kimmeridge Clay of Foxhangers, near Devizes, Wiltshire, under the name *Megalosaurus insignis* E. Eudes-Deslongchamps in Lennier, 1870. The largest of the teeth figured by Deslongchamps under this name are from the Boulonnais, north-eastern France, and are 110 mm or more in length. (This type specimen destroyed in 1944 during Allied bombardment.) They are thus of the same kind of size as those in the Dorset jaw, but isolated teeth are not diagnostic so that *M. insignis* is not a valid species.

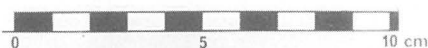


Figure 5. Photograph of DORCM G10603 in lateral view.

Figure 6. Photograph of DORCM G10603 in lingual view.

Of the North American forms of this age, *Allosaurus* (see Madsen, 1976b, pl. 6) is smaller, the anterior edge of the maxilla dips posteroventrally and has a notch or subnarial foramen at its upper end. The interdental plates are relatively lower and not separate. *Ceratosaurus* (Gilmore, 1920, pl. 18) and *Marshosaurus* (Madsen, 1976a) are much smaller.

There does not seem to be an existing taxon to which this maxilla can be assigned and it seems inappropriate to erect one on the basis of this isolated and fragmentary specimen. Significant though it is, *Megalosauridae indet.* is the only label it can be given.

Acknowledgements

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The Kimmeridgian Fauna Associated with the Portland Plesiosaur

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ABSTRACT

The fauna associated with the plesiosaur (Brown 1984) is listed and used to attempt an exact correlation with the Crushed Ammonoid Shale of the Dorset Coast. Palaeoecological inferences are drawn from the fauna in order to place it in a wider context.

1. INTRODUCTION

Between September 1983 and August 1984 staff of the British Museum (Natural History) Department of Palaeontology made three visits to the east coast of Portland in order to excavate the remainder of a plesiosaur in the Upper Kimmeridge Clay Formation. A history of the discovery of the plesiosaur, *Colymbosaurus trochanterius* (Owen), together with a preliminary report on the material collected, was given by Brown (1984). The present account lists the associated fauna collected by the writer in 1983 and 1984 and attempts to make an exact correlation with an equivalent horizon in the Upper Kimmeridge Clay Formation outcrops at Chapman's Pool in the main coastal succession.

The main purpose of the visits was to collect as much of the plesiosaur as possible, which entailed removal of large quantities of overburden by hand. Therefore, collection of the associated fauna was necessarily a subsidiary activity, limited by time and a site which was difficult of access.

2. DESCRIPTION OF THE SITE

Figure 7 indicates, with an exaggerated slope, the profile of Grove Cliff on the east side of Portland at SY 706722: it is diagrammatic and not to scale. Upper Jurassic outcrops at Grove Cliff allow a succession to be followed from the top of the Portland Freestone down to a position low in the Portland Sand Formation. Accumulations of fallen debris, vegetation and a rough unmetalled road completely obscure the junction of the Portland Sand Formation and underlying formations.

Below the road a change of slope marks the change of lithology from sands and sandstones to argillites equivalent to beds from the Hounstout Marl down to the Lingula Shale in Chapman's Pool and on Hounstout. This is a rough steep area covered with brambles, bushes and small trees. The plesiosaur excavation lies at the foot of this slope, level with the shingle beach and situated in a small embayment. Here, dark grey weathered shale is exposed for roughly 8-10 metres above the beach.

The excavation comprised a horizontal floor, containing the skeleton of the plesiosaur, backed by a 2 m wall of shale being worked back in order to uncover the plesiosaur. Because of scattering of the skeleton the length of the excavation approached 10 m. The level of the floor is referred to as 'datum' and all measurements were taken from that level. From datum up to 0.7 m, fine shaley argillites contained a rich fauna of molluscs and other invertebrates; together with numerous fragments of fish, mostly teleost, but some of shark. The fauna was roughly evenly distributed throughout the 0.7 m shell bed, but with a particularly rich concentration of ammonites and bivalves about 0.1 m above datum. An abundance of fish remains and partial skeletons at a level of 0.6 m above datum received the name 'fish horizon', but fish teeth, scales and skeletal fragments were distributed throughout the 0.7 m of the shell bed. Shales above 0.7 m were almost barren; while, above the top of the 2 m wall of the excavation, weathered shales were exposed, for 8-10 m, up to a level of vegetation and fallen debris of higher formations.

3. COLLECTION AND TREATMENT

All the material forming the subject of this report came from datum and up to 0.7 m above: it is all now deposited in the British Museum (Natural History), Palaeontology Department. About 10 kg of shale was broken up by hand for macrofauna, and the shale residue, together with shale removed from the skeleton of the plesiosaur by laboratory staff, was treated for microfauna. The treatment consisted of repeated boiling in strong detergent, decanting the suspended mud and drying. Sainsbury's 'Floor and Wall Cleaner' proved cheap and effective, yielding a clean sample made up of dark grey, flat mineral aggregates, with an average size of 0.28 mm and reacting weakly with 25 per cent HCL; together with broken shell fragments, foraminiferans, ostracods, juvenile molluscs, echinoderm fragments, together with fish teeth, scales and skeletal fragments, all of which were hand-picked under low-power stereo magnification.

4. FAUNAL LIST

FISH: vertebrae, otoliths, scales and skeletal fragments of teleost fish; as well as teeth and dermal denticles of shark.

Chondrichthyes:

Hybodus cf. *obtusus*

Sphenodus sp.

Palaeospinax sp.

"*Heterodontus*" *duffini* Thies.

Heterodontus sp. (juvenile).

Squatina sp.

Osteichthyes:

Caturus sp. teeth only.

Lepidotes sp. teeth only.

Tharsis dubius (de Blainville), intact skeletons.

ECHINODERMATA: interambulacral plates, primary and secondary radioles, and a single unkeeled tooth from jaw apparatus ("Aristotle's Lantern"), all from a pedinid echinoid. Numerous fragments, mostly stem ossides, of the crinoid *Balanocrinus* sp.

MOLLUSCA (Cephalopoda):

Pavlovia rotunda (J. Sowerby): rare.

Pavlovia concinna (Neaverson): very common.

Pachyteuthis sp., rostra only: common.

Black carbonised arm hooks of an unknown coleoid cephalopod: about 50 fragments and complete hooks.

(Scaphopoda):

Prodentalium sp. nov., small ribbed species: common.

Laevidentalium sp., smooth form: single specimen.

(Gastropoda):

Emarginula sp. nov., single, poorly preserved specimen.

Trochacteon sp., common.

(Bivalvia):

Nuculoma sp., cf. *cottaldina* (P. de Loriol): single right valve.

Mesosacella cf. *morrisoni* (Deshayes): common.

Grammatodon shourovskii (Rouillier & Vossinsky): common.

Musculus fischerianus (d'Orbigny): one specimen only.

Meleagrinea sp. juv.: common as juveniles, up to 2 mm.

Oxytoma inequivalvis (J. Sowerby): rare as adult, juveniles common.

Camptonectes auritus (Schlotheim): several broken fragments.

Buchia sp., with concentric undulations: common.

Liostrea plastica (Trautschold) = '*Liostrea bononiae*' of authors, very common as adults, left valves adherent on *Pavlovia*, right valves separated. Juvenile spat and prodissoconchs abundant in washed residues.

Pseudolimea aff. *duplicata* (J. de C. Sowerby), 17 ribs: one specimen only.

Mesomiltha concinna (Damon): common.

Trautscholdia sp., juv., cf. *kitchini* (Cox): common.

Protocardia morinica (P. de Loriol): very common.

Thracia depressa (J. de C. Sowerby): single specimen only.

Venericyprina argillacea Casey: common.

Pleuromya sp.: single squashed specimen.

BRACHIOPODA:

Lingula ovalis (J. Sowerby): rare.

Discinisca latissima (J. Sowerby): rare.

CRUSTACEA (Cirripedes):

Plates of undescribed lepadomorph barnacles including the genera *Pycnolepas* and *Archaeolepas*: common.

(Ostracoda):

Galliaecytheridea spinosa Kilenyi: abundant.

Orthonotocythere pustulata Kilenyi: rare.

FORAMINIFERA:

Lenticulina plexus: abundant.

Dentalina sp.: common.

Episthomina sp.: rare.

Cytherina sp.: common.

Calcareous adherents on shell fragments: rare.

Arenaceous forms, crushed and distorted; probably overlooked when picking washed residue: common.

5. REMARKS

Washed residues were dominated by vast numbers of stem ossicles of *Balanocrinus*, together with a few calyx plates. No more than four ossicles were seen in articulated sequence, the overwhelming majority being single segments. This indicates considerable posthumous disturbance which, in view of the fineness of the sediment, cannot be attributed to current activity. The large number of active, shallow-burrowing *Protocardiids* present would provide sufficient bioturbation to cause disarticulation and scattering of stem ossicles.

Plates of cirripedes are not common elements in washed residues of Jurassic argillites; but they are present in the Rotunda Zone of Portland at Chapman's Pool, Dorset, and were recorded from a similar horizon in the Bristol Channel by Lloyd, Savage, Stride and Donovan (1973, p. 622). Lepadomorph barnacles, by means of a fleshy peduncle, attach themselves to hard substrates. A possible substrate for these barnacles is discussed below.

Some oysters were collected showing xenomorphic patterns on the right valve which matched convincingly with rib patterns of *Pavlovia concinna*: some left valves were still adherent on *Pavlovia* at Portland, and were also seen at Chapman's Pool. Cope (1968) has reported oyster adhesions onto Kimmeridgian ammonites and, following a discussion, concluded that oyster spat settled on ammonite shells, after death of the ammonite, when the shell was resting on the sea floor.

Ammonoids developed an elaborate camerated structure, the phragmacone, which is accepted as a mechanism for delicate adjustment of buoyancy. Such an interpretation makes neither hydrostatic, nor biological, sense unless it is accompanied by the assumption of shell-cleaning behaviour as a constant process. Live-collected *Nautilus* are almost invariably free of adherent epibionts: but the writer did once observe a serpulid tube in the umbilicus of the shell of *Nautilus macromphalus*, and there is the well-known example of the ammonite, *Schlotheimia* sp., overgrowing adherent serpulid tubes (Schindewolf 1934), which is neatly depicted in ceramic decoration in the stair well at the end of gallery 8 in the east wing of the British Museum (Natural History). Nevertheless, these are uncommon and

exceptional occurrences; so that, since ammonites are usually free of adherent epibionts, the assumption of shell-cleaning behaviour is reasonable. Hence, we may infer that epibionts on ammonite shells were usually present only after the death of the ammonite. Empty shells of *Pavlovia*, either floating or on the sea floor, thus provided a suitable substrate for adherent oysters, probably also for cirripedes, and possibly even for crinoids as well.

Many large ammonites, up to 25cm, were seen as overburden was removed: these were unhesitatingly referred to *Pavlovia*. The dominant form was referred to *P. concinna* Neaverson; while a much rarer and smaller form, was referred to *P. rotunda* after comparison with uncrushed specimens from the Rotunda Nodules at Chapman's Pool. No juvenile ammonites were seen in washed residues, though juveniles of other non-cephalopod molluscs were common. Extremely fragile, carbonised arm hooks of an unknown coleoid cephalopod were picked from the residues. Celeoid arm hooks, rare at most horizons, are almost unknown in the Kimmeridge Clay Formation. It was not possible to correlate these arm hooks with the rostra of the belemnite *Pachyteuthis*, since both rostra and hooks were widely scattered through the shelly shales.

Ribbed scaphopods were abundantly present in the washed residue, but none was greater than 5 mm in length, and no broken fragments of larger shells were seen. The single smooth *Laevidentalium* had normal dentaloid dimensions at 25 mm.

A single specimen of the patelloid gastropod genus *Emarginula* was found in a block of shale associated with numerous bivalves, *Protocardia* and *Liostrea*. Only the internal surface was seen, resembling very closely the interior of the living *Emarginula fissura* (Linné), and measuring 5 mm along its longest axis.

The macrofauna was dominated by bivalves and ammonites so that, in any block of shale, *Protocardia*, *Liostrea* and ammonites outnumbered other groups by ratios from 5:1 to 20:1. *Protocardia* was not represented as juveniles in the microfauna, but vast numbers of *Liostrea* spat were present, some bedding planes being covered, the majority of these between 2 and 1 mm. *Oxytoma*, though rare as adults in the macrofauna was present as common juveniles in the microfauna: *Meleagrinnella*, equally as common in the microfauna was not seen as an adult. All three genera, *Liostrea*, *Oxytoma* and *Meleagrinnella*, had well-formed prodissoconchs on both valves of *Oxytoma* and *Meleagrinnella*, and on the right valve of *Liostrea*. These prodissoconchs will form the basis of a separate study.

STRATIGRAPHY

The lowest horizon cropping out on Portland is a 25.4 cm (10") bituminous indurated shale, the Blackstone, on the shore north of Castletown at the extreme north end of the island (Arkell 1947:88). B.G.S. 1" map 341 and 342 West Fleet and Weymouth, shows strike lines of outcrops trending roughly along a NE-SW direction. With an approximate SE dip, it follows that all the Kimmeridge Clay underlying Portland down to sea level, is above the Blackstone and equivalent to shales with *Pectinatites*, *Pavlovia* and *Virgatopavlovia* of the main coastal outcrops in the vicinity of Chapman's Pool.

The plesiosaur excavation is stratigraphically isolated in the sense that no sequence of beds could be followed either above or below, to connect it with a known horizon, owing to slipped material and obscuring vegetation. Nevertheless, the fauna contains *Pavlovia concinna* and *P. rotunda* so that a zonal correlation with the Rotunda Zone at Chapman's Pool is firmly established, while the following arguments attempt to correlate the plesiosaur excavation with a more restricted horizon.

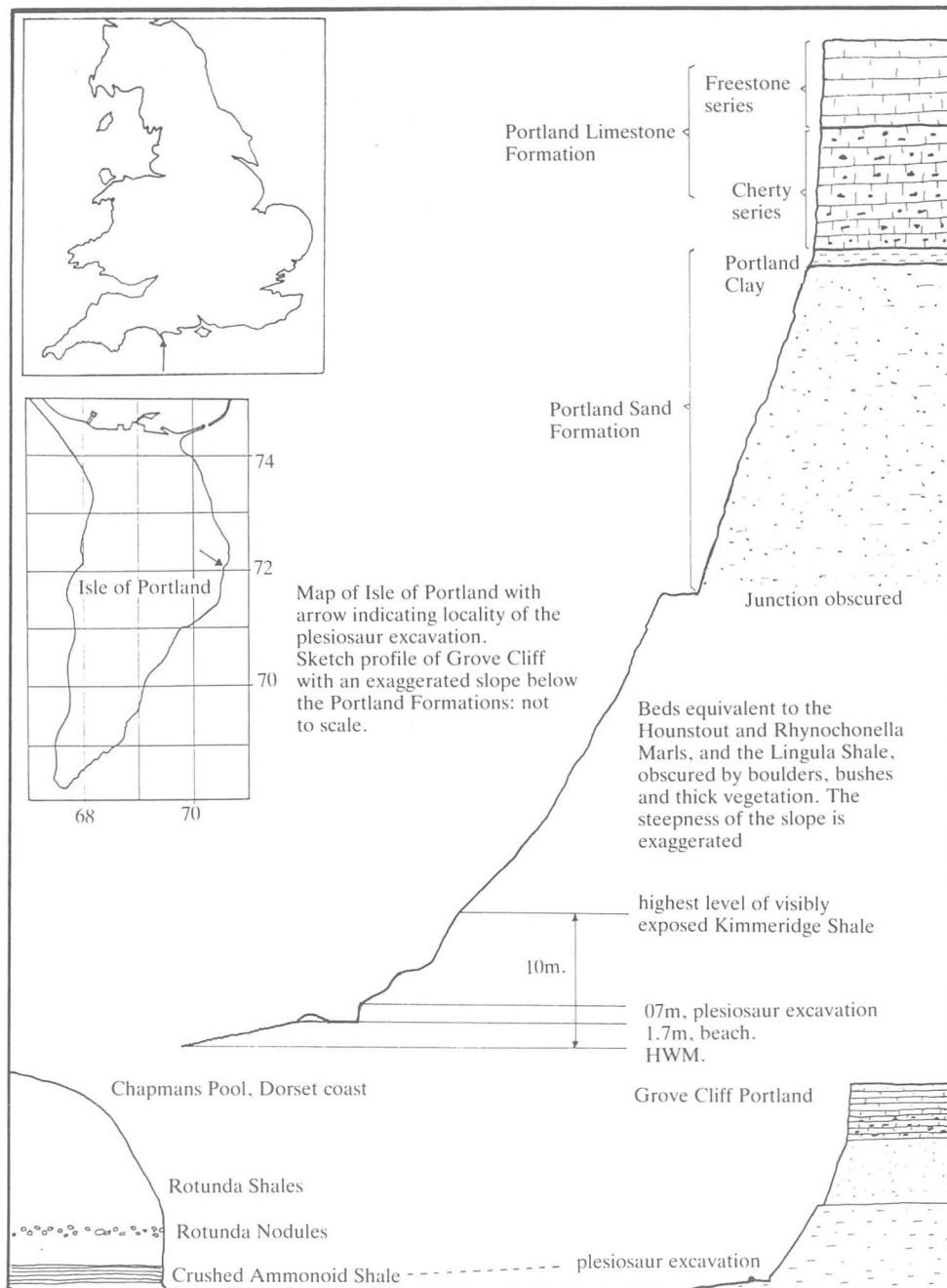
Cope (1978: 472, 529), drew the base of the Rotunda Zone beneath bed 2, 'hard bituminous shale' which covers

the shore at the eastern end of Chapman's Pool, recording both *P. concinna* and *P. rotunda* from this horizon. This bed also yields a benthic fauna dominated by *Mesomiltha concinna*, *Protocardia morinica*, and *Liostrea plastica* adherent on ammonites. Cope also records the same two species of *Pavlovia* from the Rotunda Nodule Bed (bed 1b) 4.25 m above; but, in the writer's experience, the three bivalves mentioned above in bed 2, are absent from the Rotunda Nodule Bed. The two species of *Pavlovia* therefore allow correlation of the Portland plesiosaur excavation with either bed 2 or bed 1b at Chapman's Pool. But, the benthic fauna, dominated by the three bivalves, is common to the plesiosaur excavation and to bed 2, 'hard bituminous shales', in Chapman's Pool. Thus, bed 2 in Chapman's Pool is the best candidate for an exact correlation with the plesiosaur excavation at Portland; and the latter consequently lies right at the base of the Rotunda Zone, contiguous with the underlying Pallasioides Zone, see bottom of Figure 1.

Since the Upper Lydite Bed of Hartwell, Buckinghamshire, is equivalent to beds from the Rotunda Nodule Bed

up to the base of the Portland Sands (Casey 1967: 129), then the underlying Crushed Ammonoid Shale at Chapman's Pool correlates with the Hartwell Clay at Hartwell, Buckinghamshire. And as the plesiosaur excavation correlates with bed 2 in Chapman's Pool, a shelly horizon in the Crushed Ammonoid Shale, then it also correlates with part of the Hartwell Clay in Buckinghamshire where a rich benthic fauna of bivalves also occur, including Casey's *Venericyprina argillacea*. This arcticid bivalve supports the correlation here made between the Portland plesiosaur shell bed, bed 2 at Chapman's Pool, and the Hartwell Clay in Buckinghamshire.

Another more tentative correlation may be offered between the plesiosaur excavation and Kimmeridge Clay in the Bristol Channel, 10 km N. of Coombe Martin, N. Devon. Lloyd, Savage and Stride (1973: 622) recorded from Station D 4876/3 'grey calcareous clay, with pyrite nodules and aggregates, gastropods, *Cucullaea*, echinoderm fragments, cirripedes'. This horizon they correlated with the Pallasioides Zone 'sensu Casey', that is beneath the Rotunda



Zone, the base of which was drawn beneath 1b Rotunda Nodule Bed, assigning bed 2 to Pallasioides Zone. Cope showed (1978: 472) that the base of the Rotunda Zone must be drawn beneath bed 2 on the presence of *P. rotunda*, so that a correlation with Station Dy 4876/3 is stratigraphically possible and is weighted by the presence of 'echinoderm fragments [and] cirripedes' at both localities. Cirripedes are not usually found in washed residues of Jurassic argillites, so that their presence at any locality may be regarded as something special: if they occur at two places, at horizons which are stratigraphically correlated at the zonal level, then assigning them to the same event is more economical than assuming two separate occurrences of cirripedes. Therefore, it is suggested that the plesiosaur excavation and Station Dy 4876/3 in the Bristol Channel are part of the same widespread palaeoecological event and therefore coeval.

If these correlations are correct then it is probable that benthic shelly beds occur, at the same stratigraphical level, at Portland, Chapman's Pool, and at Hartwell, Buckinghamshire, in one direction, and in the Bristol Channel in another. These rich benthic horizons are unlikely to be purely local events and fortuitously at the same stratigraphical level, but part of a widespread event resulting in rich living for benthic communities. An abundant microfauna of ostracods and foraminiferans, together with numerous filter-feeding bivalves, fish and plesiosaurs, are all elements of an elaborate food chain founded on a widespread plankton field. The shell bed, up to 0.7m thick at Portland, indicates a plankton field which was stable for several thousand years. However, these arguments are tenuous and offered tentatively for consideration only.

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Laevitrigonia cineris sp. nov., a Bivalve from near the Jurassic-Cretaceous Boundary in the Durlston Formation (Purbeck Limestone Group) of Dorset

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ABSTRACT

The new species of trigoniid bivalve, *Laevitrigonia* (*Laevitrigonia*) *cineris* is described from the Cinder Beds Member at the base of the Durlston Formation of the Purbeck Limestone Group at Durlston Bay, Swanage, Dorset. Its age is probably close to Jurassic-Cretaceous boundary. Although known from this level since the 19th century, this trigoniid has never been formally described or illustrated. The new species is compared with other *laevitrigoniids* from the Late Jurassic and earliest Cretaceous deposits of northwestern Europe and the Russian Platform.

INTRODUCTION

The literature on the systematics of the bivalves of the English Purbeck Limestone Group is scattered, but reference to the principal articles is contained in the works of Kelly (1983) and Morter (1984a, 1984b). Only one trigoniid has been formally described hitherto, *Trigonia densinoda* Etheridge (1881) from the Cinder Beds Member at the base of the Durlston Formation in the Vale of Wardour, Wiltshire. This species was redescribed by Kelly (1984) and referred to *Myophorella* (*Pseudomyophorella*), a subgenus only known elsewhere in England from a Late Volgian occurrence in the Late Jurassic Spilsby Sandstone of Eastern England. In the present article *Laevitrigonia* (*L.*) *cineris* sp. nov. from the Cinder Beds Member of Dorset is described and illustrated for the first time. Although these trigoniids have been occasionally reported from this horizon since the record of Etheridge (1881; see systematic description below) they have been usually referred loosely to the group of '*Trigonia gibbosa* J. Sowerby'. The specimens are clearly a different species to this. *L.* (*L.*) *cineris* is rare in Dorset and only four specimens have been discovered in existing museum collections; Oxford University Museum (OUM) has two specimens, the Dorset County Museum (DORCM) and the British Geological Survey (BGS) have one each and all are from the Cinder Beds of Durlston Bay, Swanage. The species was also reported from the same horizon in Wiltshire by Andrews (in Etheridge 1881), but this remains to be confirmed. Despite persistent searching the author has not yet seen any specimens *in situ* in the field.

The Cinder Beds Member is an oyster rich unit at the base of the Durlston Formation. The stratigraphy is shown in the central part of Figure 1. In Durlston Bay, in the author's experience, the unit contains throughout abundant reworked isolated valves of *Praeexogyra* [*Liostraea*] *distorta* (J. de C. Sowerby), and less commonly towards the centre of the bed occur '*Protocardia*' *major* (J. de C. Sowerby), *Serpula coacervata* Blumenbach, spines and plates of *Hemicidaridaris purbeckensis* Forbes, with occasional *Modiolus* sp. This is the 'Urchin band' of Austen (1852). The fauna is the most diverse marine macrofauna in the Purbeck Group in Dorset with the fauna containing echinoderms which are normally regarded as stenohaline; it is by far the most fully marine incursion within the Purbeck Beds. The Cinder Beds Member of Durlston Bay are Bed DB 111 of Clements' (1969) measured section from the Zig-Zag path to Peverill Point. The specimens described below occur from an unspecified level within the bed, but all are most likely from near the centre of the bed (Clements DB 111b).

ENVIRONMENT

Morter (1984a) recognised the *Praeexogyra distorta* Association of the Cinder Beds Member as often a monospecific lumachelle representing brackish-marine (mesohaline) conditions with salinity at 4-18‰, occurring in both the

Lulworth and Durlston Formations. He also identified the '*Protocardia*' *major* Association with serpulids as euhaline or polyhaline, and that the Marine Association with echinoids, trigoniids, serpulids and other bivalves was euhaline, with salinity 30-40‰. The Cinder Beds Member at Durlston approximate to this model, with overlap between the Marine and the '*Protocardia*' *major* Associations. The oyster rich top and bottom divisions represent a slightly restricted brackish-marine lagoon facies, while the central part in which the echinoids and serpulids occur represent a more open marine environment. To the west at Lulworth Cove the Cinder Beds Member has lost almost all trace of the '*Protocardia*' *major* Association, although at Worbarrow Tout where Ensom (1984) has recognised vertical packing in the oysters, he (Ensom 1985) also recognised a barnacle plate providing further evidence for normal marine conditions.

AGE

The absence of ammonites means that the age of the Cinder Beds Member is a subject of continued discussion when correlating with the ammonite zonal and subzonal sequences of the Boreal and Tethyan realms. The more traditional view is that the Cinder Beds Member represent the base of the Ryazanian stage at the base of Boreal Cretaceous (Casey 1962, 1963, 1973). In the most recent review of Hoedemaeker (1987), it is correlated with the upper part of the *jacobi* Subzone, the last subzone of the Tethyan Jurassic. Hoedemaeker places the base of the Berriasian, which is the Jurassic-Cretaceous boundary, at the base of the *grandis* Subzone. Hoedemaeker's correlation with the subzonal ammonite sequence of south-east France is shown in Figure 1, together with Morter's (1984a) comparison with the Boreal ammonite sequence of eastern England. Note that the figure should not be used for correlation between Boreal and Tethyan ammonite sequences which are complex, and which space does not allow full discussion of here.

SYSTEMATICS

Class BIVALVIA Linné 1758
Order TRIGONOIDA Dall 1889
Suborder TRIGONIINA Dall 1889
Superfamily TRIGONIACEA Lamarck 1819
Family TRIGONIIDAE Lamarck 1819
Subfamily LAEVITRIGONIINAE Saveliev 1958

Remarks. Cox (1969) made no attempt to subdivide the family Trigoniidae, although there are several groups which can be readily defined. Saveliev (1958) in defining the *Laevitrigoniinae* included the single genus *Laevitrigonia*, but excluded the genus *Eselaevitrigonia* which is also followed here. He included taxa from Middle Lias to Turonian age. However in the present study pre-Oxfordian *Laevitrigonia* have not been identified, and the genus is believed to have appeared in the Oxfordian and continued into the Berriasian stage.

The *Laevitrigoniinae* have never been thoroughly monographed, although a substantial number of species were described and figured by Lycett (1872-1883), mainly from the British Isles. The present author has been collecting data on this group with the aim of eventually monographing them in full.

Genus *Laevitrigonia* Lebkuchner, 1932
(=*Laevitrigonia* Deecke 1925, non. nud.)

Type Species. By original designation: *Trigonia gibbosa* J. Sowerby 1819, p. 61 (Lebkuchner 1932) Portland Beds, Middle Volgian, southern England.

Subgenus *Laevitrigonia* Lebkuchner 1932

Diagnosis. Juvenile shell has regular commarginal ribs which pass across the flank, the posterior carina and the posterior area without interruption. The adult ornament which first appears around 8-12 mm from the beak, is highly variable from near smooth, to having ribs or tubercles or combinations thereof in various orientations, in rows, arcs, chevrons or irregular relative to growth lines, and being particularly prone to irregularity at the anteroventral margin.

Remarks. The European and Russian Platform group of *Laevitrigonia sensu stricto* are all closely related to each other. Other trigoniids which have been referred to *Laevitrigonia* such as those from the Himalayas (Cox 1952), East Africa (Aitken 1961) and New Zealand (Fleming 1987) appear to belong to a different stock, but the author has not yet had the opportunity to examine these other examples in detail to make a full assessment.

In England, *Laevitrigonia* (*L.*) first appears in the Coralline Oolite, Middle Oxfordian, of Yorkshire with *L. (L.) pickeringensis* (Arkell 1930). In continental Europe the genus also appears in the Oxfordian of Switzerland, the Boulonnais and SE France, where *L. (L.) geographica* (Agassiz 1840) has been recorded. These Oxfordian species may be conspecific. A stratigraphically earlier record, *L. (L.) oviensis* (Lycett 1881) from supposed Lias of northern Spain is of Kimmeridgian age (Suarez Vega 1974). The *Laevitrigoniinae* are here believed to be derived from the genus *Vaugonia*. This was first proposed by March (1911) who believed that the 'Undulatae' (including *Vaugonia*) were the ancestors of the 'Gibbosae' (*L. gibbosa* and related forms). *Laevitrigonia (L.) cineris* sp. nov. appears to be the last *Laevitrigonia (L.)* in northwest Europe, although undescribed material in the Museum

of A. P. and M. V. Pavlov, Moscow University, collected by Professor P. A. Gerasimov, occurs in Ryazanian deposits of the Russian Platform.

Stratigraphic and geographic range. Oxfordian – Volgian of northern, western and central Europe; Kimmeridgian of north Spain; Volgian to Ryazanian of the Russian Platform.

Laevitrigonia (L.) cineris sp. nov.
Plate 1a-i

- 1881 *Trigonia* like *T. gibbosa*; Etheridge, p. 246 (Cinder Beds, Swanage, Dorset).
- 1881 *Trigonia gibbosa*; Andrews (in Etheridge 1881), p. 250 (Cinder Beds, Vale of Wardour, Wiltshire).
- 1884 *Trigonia gibbosa*; Andrews, p. 63 (Cinder Bed, Vale of Wardour, Wiltshire).
- 1884 *Trigonia*; Damon, p. 205 (Hard Cinder Bed, Durlston Bay, Dorset).
- 1894 *Trigonia gibbosa* Sow.; Andrews & Jukes-Browne, p. 69 (Middle Purbeck Beds, Vale of Wardour, Wiltshire).
- 1895 *Trigonia gibbosa* Sow.; Woodward, pp. 271, 383 (Cinder Bed, Middle Purbeck Beds, Vale of Wardour, Wiltshire).
- 1947 *Trigonia* sp.; Arkell, p. 132 (Cinder Beds, Dorset).
- 1964 *Laevitrigonia* sp.; Casey & Bristow, p. 124 (Cinder Bed, Dorset & Vale of Wardour).
- 1969 *Trigonia* sp.; Clements, p. A61 (Cinder Beds, Swanage, Dorset).
- 1984a *Trigonia* = ?*Eselaevitrigonia* sp.; Morter, p. 222 (Cinder Bed, Dorset).

Types. Holotype: BGS, Rh3526; 3 paratypes: OUM, J.40147, J.37506 and DORCM, G.1177. Derivation of name: Latin: *cinis* = cinder. All from the Cinder Beds Member, basal Durlston Formation, Purbeck Limestone Group, Durlston Bay, Swanage, Dorset.

Derivation of name. Latin: *cinis* = cinder.

Diagnosis. *Laevitrigoniid* with subdued flank ornament comprising principally low sub-commarginal ribs which at the anterior cut obliquely across the growth lines horizontally.

Description. Adult shell reaching about 40 mm length, 30 mm height and 13 mm inflation (single valve) (these figures represent maxima based on incomplete large specimen). Commissural outline subtriangular with umbones located well to anterior. Umbonal angle

S.E. FRANCE		DORSET				E. ENGLAND	
Stage	Ammonite subzones	Fmn.	Member	Ostracod faunicycles	Ostracod zones	Ammonite zones	Stage
EARLY BERRIASIAN	<i>subalpina</i>	Durlston	Intermarine Beds	Corfe	<i>vidrayana</i>	[Vertical lines]	EARLY RYAZANIAN
				Royal			
Croydon	<i>kochi</i>						
Nothe							
LATE TITHONIAN	<i>grandis</i>	Cinder Beds	Cinder	<i>granulosa</i>	<i>runctoni</i>	[Vertical lines]	
			Peveril				
	<i>jacobi</i>	Lulworth	Cherty Freshwater Beds		Durlston		
					Netherfield		
					Swanage		
					Ashdown		
					Goldspur		
					Mountfield		<i>dunkeri</i>
Soft Cockle Beds							

Figure 1. Correlation of the Cinder Beds Member with the Boreal ammonite sequence of eastern England (After Morter 1984a) and with the Tethyan ammonite sequence of south east France (After Hoedemaeker 1987). This is not a correlation between the Boreal and Tethyan ammonite sequences. See text for discussion.

c. 90°. Beaks small and slightly incurved. Juvenile shell ornament of fine commarginal ribs which pass across the posterior carina and the posterior area without interruption. After about 10 mm from the umbo, the juvenile flank ornament becomes suppressed and coarser sub-commarginal ribs appear which are strongest towards the anterior where they become horizontal and cut across the growth lines obliquely and reach the anterior margin. The posterior carina is marked only in the early and middle growth stages of the shell and becomes rounded thereafter. The juvenile posterior area ornament of regular commarginal ribs passes into more irregular ribs in the middle growth stage, finally becoming suppressed in late growth stage. The ribs pass onto the ledge of the otherwise smooth escutcheon. The mid-area groove is only weakly defined and ornament, where present, passes across it. The hinge line is not seen clearly in any specimens.

MEASUREMENTS (in millimetres)

	Valve	Length	Length posterior	Height	Inflation (single valve)	Umbonal angle
BGS Rh3526 (Holotype)	R	36	26	32	11	88°
OUM J.37506 (Paratype)	R	—	—	41	12	92°
OUM J.40147 (Paratype)	R	—	—	incomplete	—	—
DORCM G1177 (Paratype)	R	—	—	42	23*	91°

*Inflation of two valves in occlusion.

Remarks. There are two species of *L. (L.)* which resemble closely *L. (L.) cineris* sp. nov. The first is *L. (L.) boidini* (de Loriol 1875) from the Grès de la Crèche, Early Volgian of the Boulonnais, France, and which is distinguished by a less prominent umbonal region and more weakly defined carina and mid-area ornament in the middle growth stages. The second is *L. (L.) gibbosa* (J. Sowerby) from the Tisbury Glauconitic Member of the Portland Sand Formation in the Vale of Wardour and from the Grès des Oies of the Boulonnais, which is also distinguished by a less prominent umbo and a tendency towards coarse low tuberculation on the flank. Other laevitrigoniids which are closest stratigraphically to the Purbeck Limestone Group occur at or near the top of the Portland Stone Formation and include *L. (L.) tenuitexta* (Lycett 1874) which

is characterised by particularly fine dense sub-commarginal tuberculation on the flank; *L. (L.) manseli* (Lycett 1874) which has strong tuberculation oblique to the growth lines; and *L. (L.) wightensis* (Strand 1928) which has particularly coarse tuberculate and ribbed flank ornament with a very marked antecarinal depression. On the Russian Platform *L. (L.) koprinensis* (Gerasimov 1955) occurs in Middle Volgian strata, not Ryazanian as stated in error by Kelly (1984, p. 94). It is distinguished from *L. (L.) cineris* by having a less prominent umbonal region, a weaker posterior carina, and coarser flank ribbing which becomes more coarsely tuberculate near the posterior carina. Ryazanian *Laevitrigonia (L.)* does exist on the Russian Platform, but the material (A. P. and M. V. Pavlow Museum, Moscow University) remains undescribed.

Morter (1984a) referred the Cinder Beds Member laevitrigoniid to *Trigonia* = ?*Eselaevitrigonia* sp. Firstly it cannot be *Trigonia* s.s. because the posterior area lacks the regular radial rows of tubercles that distinguished that genus. The type species of *Eselaevitrigonia* is *T. meridiana* Woods 1917 (Kobayashi and Mori 1954) from the Cenomanian to Turonian of New Zealand, but is known from the Tithonian of Kutch (Fleming 1964, 1987). According to Cox (1969) this genus is characterised by an 'Antecarinal depression with ill-defined borders, marginal and escutcheon carinae rounded off; flank costae which are not broken into pustules, continued across antecarinal depression and area; area with radial costellae in early growth stages.' OUM J.40147 shows flank costae breaking into tubercles. OUM J.37506 and the holotype, BGS Rh3526, show clearly the posterior area bearing commarginal ribs in the juvenile growth stage, irregular lamellose tubercles and irregular lamellose commarginal ribs on the intermediate growth stage. Thus the Cinder Beds Member specimens cannot be *Eselaevitrigonia* nor is that genus closely related to *Laevitrigonia* s.s.

Although in the British Isles the nearest well documented *in situ* stratigraphic occurrence to the Cinder Beds Member of *Laevitrigonia (L.)* is the top of the Portland Stone Formation, there are two enigmatic occurrences from central and eastern England which have been described and illustrated by Kelly (1984). The first is *L. (L.) wightensis* (Strand) (Sedgwick Museum, Cambridge, B.85668) from the base of the Lower Greensand at Potton Bedfordshire. It is likely to have been derived from the Portland Stone Formation but a higher unit is not precluded. The second specimen, *L. (L.) manseli* (Lycett) (British Geological Survey, CE3752), probably a

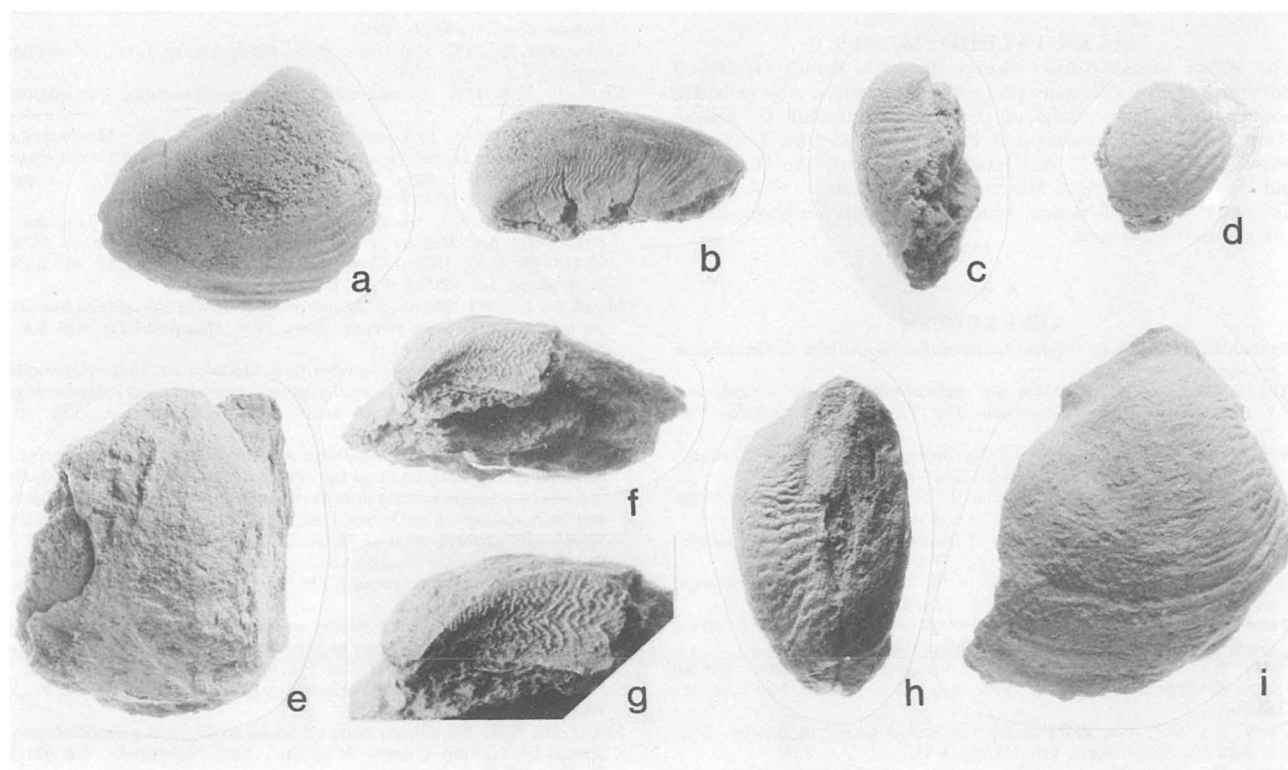


Plate 1. a-i. *Laevitrigonia (Laevitrigonia) cineris* sp. nov., Cinder Beds Member, Durlston Formation (Purbeck Group), Durlston Bay, Swanage, Dorset; a-c, BGS Rh3526, (holotype) right valve, lateral, oblique posterodorsal and anterior views, x1; d, OUM J.40147, right valve, lateral view, x1; e-g, OUM J.37506, right valve, e, lateral and f, oblique posterodorsal views, x1; g, oblique posterodorsal view, x2 (enlargement of Fig. 1f); h, i. DORCM G1177, right valve, anterior and lateral views, x1.

Pleistocene erratic, may have been derived from the glauconitic Spilsby Sandstone, and gives a strong indication of origin from the Spilsby Basin because of its association with other Spilsby erratics. Whilst neither of these specimens provide conclusive evidence for laevitrigoniids in the Spilsby Basin, they certainly indicate that this occurrence was possible.

There is further enigmatic material from the Whitchurch Sands which Casey (1963) regarded as a time equivalent of the Cinder Beds Member (earliest Cretaceous) transgression, but which Morter (1984b) believed represented a Late Portlandian age. Specimens examined by the author from ferruginous sandstone facies of Shotover, Oxfordshire (OUM J.40143, J.40144) are part and counterpart of an indeterminate trigoniid. A well preserved external mould of *L. (L.) manseli* (Lycett) (BGS) from Warren Farm, Stewkley, Buckinghamshire, was originally identified as *L. gibbosa* var. *damontiana* by Casey and Bristow (1964). They also recorded *L. gibbosa* and *L. sp. juv.* from Hurdlesgrove Farm near Whitchurch, but the material is not well preserved and not identifiable with confidence beyond generic level. The occurrence of *L. (L.) manseli* would suggest a correlation of the Whitchurch Sands with parts of the Portland Stone Formation rather than with the Cinder Beds, as this species is unknown above the Portland Stone Formation.

CONCLUSIONS

The occurrence of *L. (L.) cineris* sp. nov. in the Cinder Beds Member of Dorset and probably of Wiltshire represents the final appearance of the genus in western Europe. Its age is probably of very latest Jurassic age, although a basal Cretaceous age is not precluded. The subgenus was derived from *Vaugonia* and first appeared in the Oxfordian of Europe. It had been one of the most abundant bivalves in the Portland Formation Stones during Middle Volgian time when it had flourished in the Anglo-Paris Basin. With the onset of Lulworth Formation throughout the basin the *Laevitrigonia* s.s. seems to become locally extinct in western Europe, but managed to survive to reappear at the base of the succeeding Durlston Formation, in the Cinder Beds Member. It seems that *Laevitrigonia (L.)* became extinct before the end of the Ryazanian/Berriasian stage, just after the beginning of the Cretaceous Period.

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The Coastal Landforms of Central Southern England – A Critical Review

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SUMMARY

The paper – ‘On the Relationships between Geology and Coastal Landforms in Central Southern England’ – by Jones, Allison and Gilligan in the *Dorset Proceedings* vol. 105, 1983, pp. 107-118, is reviewed. Substantial errors and contradictions are indicated in field observation and interpretation. The relevance of the techniques adopted is questioned. Examples are given to show that many features discussed in this paper cannot be understood without reference to wave processes, stage of evolution, and to past events and conditions no longer operating. It is argued that the neglect of these has led to a ‘mechanistic’ model which this author considers inappropriate.

INTRODUCTION

The authors have made a study of the coastal landforms of East Dorset and the Isle of Wight. These include such familiar features as Lulworth Cove, Kimmeridge Bay and the Needles. The aim of the study was to investigate ‘. . . the shape, distribution [of], and relationships between the coastal indentations, and the role of stratigraphy and geological structure in controlling landforms’.

It was considered that many of the significant features of this coastline could be interpreted ‘mechanistically’ in the response of rocks to erosion under local conditions and that this response itself was closely associated with a common underlying monocline. Much of the paper is given to demonstrating the influence of this fold on the erosional potential of the various rock groups where they meet the sea. Here a variety of ‘barriers’ have been identified which are seen to prevent the encroachment of the sea. Local breaching of these barriers form the familiar array of bays and coves. River valleys were seen to be important sources of some of these breaches. The conclusions offer an ‘integrated evolutionary’ model in which all the coastal indentations up to, and including Poole Bay itself, are seen to be the repeating expressions or linkages of these same variables based on the monoclinical structure. The study rests on both qualitative and advanced quantitative analyses within the rock groups, and interpretations made in the field. Quantification of results was considered a particularly important new contribution to the work.

The paper introduces many observations and interpretations which are seen to need closer examination particularly where they appear to be misleading or factually incorrect. Therefore before discussing the central issues it raises, it is intended first to follow the paper through in some detail. An annotated map, Figure 1 is included to support some of the ideas here presented and to provide locational details.

REVIEW

1. Methodology. Jones *et al.* 1983 (p. 107, para. 5): In dividing the general categories of rocks into ‘strong’ and ‘weak’ as far as erosional potential is concerned, the Greensands and Gault have been excluded from both. In the Isle of Wight these Beds form a prominent feature similar to the adjacent Chalk, while in Purbeck they form comparatively low relief. The difference may not be lightly passed over by briefly ascribing it to the ‘gentle dips’ of these rocks in the Isle of Wight. In fact, the authors’ cross-section (*ibid.* Figure 1) clearly indicates in the Isle of Wight a bevelled surface, or planation, across both Chalk and Greensands regardless of their strength or dip. Similar non-structural surfaces are found repeatedly in the study area, which later will be shown to interfere with the basic structural reasoning on which the study is based.

2. The Chalk (*ibid.* p. 107): This forms the principal research of the paper. An impressive variety of techniques has been used to investigate the material properties of the Chalk, both in situ and in the laboratory.

The results demonstrate a tectonic hardening of the Chalk about

the axial fold line of the Purbeck Monocline. Yet interpolation is based on few test sites between Ballard Point and Worbarrow and even these include some ambiguous values around Ulwell. Furthermore, the Needles which are later declared, importantly, to be of mechanically hardened Chalk are here recorded as having compressive strengths more appropriate to soft chalk (*ibid.* Figure 5).

Interpretation of this detailed work in landform terms is very misleading. It is stated that, ‘. . . All the south facing Chalk cliff sections between White Nothe and Ballard Down and also the Needles, on the Isle of Wight are cut in mechanically hardened Chalk’. Firstly this contradicts the measurements for the Needles, above. Secondly, the cliffs from White Nothe to Middle Bottom are in nearly horizontal and presumably (using the authors’ own argument), non-tectonically hardened Chalk. Thirdly, using the term ‘south-facing’, (a term of no possible functional significance) excludes the impressive Chalk cliffs between Ballard and Handfast Points which include sections of both vertical ‘hardened’ Chalk and near horizontal ‘soft’ Chalk.

The authors conclude: ‘These cliffs owe their existence to the mechanical hardening of the steeply dipping Chalk and form the backwalls of bays such as Lulworth Cove, preventing further northward erosion of these features.’ The term ‘owe their existence’ is a strange and imprecise one. We could logically follow it by asking, ‘What do the cliffs between Ballard and Handfast Points, or east of White Nothe in “soft” Chalk, owe their existence to?’ Or for that matter the soft Wealden Clay cliffs in Worbarrow Bay? Active cliffs owe their existence to an equally active basal removal of materials, whether soft or hard, and not to their content.

For all the lengthy and elaborate study given to the mechanical hardening of Chalk in this paper, little evidence is found of it in landform terms (apart from micro features) on the coast. It will be argued later that the presence of hardened Chalk in the back walls of some of the bays is coincidental not causal to them. But perhaps the strongest evidence of the fact that the hardened Chalk has little influence on these cliffs is to be found across the Isle of Purbeck Fault on Ballard Down. Here the vertical ‘hardened’ Chalk lies alongside the horizontal ‘weak’ Chalk with no vestigial evidence of this change either on the surface or in cliff retreat.

(It should be noted that the same fault line is strongly picked out inland, for instance, at Stonehill Down SY 930823. That it is not indicated on the coast is of considerable interest which could have been expected to be a central issue in this section.)

3. The Wealden and Purbeck Beds (*ibid.* p. 109): The section opens by again writing the Gault and Greensands out of discussion. There follows a generous discussion of the litho-stratigraphy and structure of the Wealden and Purbeck Beds and some of the micro features developed in them. The relevance of this in terms of macro relief is not developed apart from the well-documented effect on Lulworth and Worbarrow Bays of the thinning of the Wealden Beds westwards. The principal exposure of the Purbeck Beds on the coast between Durlston Head and Peveril Point and its coastal expressions are not mentioned.

4. The Portlandian and Kimmeridgian Strata (*ibid.* p. 113): Compared with the technical intricacies and details of the Chalk and Purbeck Beds, the Portland Beds are given rather elementary treatment with self-evident truths like ‘the outcrop width is reduced as the dip increases’. Questionable phrases crop up. What scientific interpretation is to be given to – ‘the bedding dip . . . has become just steep enough to cease to impart any stability, permitting failures’ (caption to Figure 18)? Or in the caption to Figure 19 –

'wave action [for erosion] is from the north' . . . What size of waves are to be conjured out of a 300 metre fetch backed by high cliffs?

There are contradictions. The authors note (*ibid.* p. 114, para. 4) that marine breaching (due to rock failure) 'is restricted to western parts of the region where the outcrop has transferred from the gently to the steeply dipping part of the fold'. In this they have clearly ignored Pondfield Cove at the east end of Worbarrow Bay where marine breaching is as active today as at Stair Hole, and similarly marine breached Mupe Bay and Bacon Hole at the other end. In later discussion it is considered very important to separate Stair Hole and the westerly coves, from Lulworth and the easterly by their mode of origin, so the omission of Pondfield and Mupe at this stage is itself important. The caption to Figure 20 suggests the Pondfield situation was in fact known to the authors. (Note caption error – for 'landward' read 'seaward'; also rotation of the horizon in this figure). (*The editor apologises for this: it was her fault.*)

The Kimmeridge strata are introduced (*ibid.* p. 116) with the measurement of the compressive strength of one of their hard stone beds. These are seen to be important to the formation of the Kimmeridge Ledges, ' . . . where the hard stone bands outcrop at sea-level a substantial wave cut platform occurs'. While this is quite true, it fails to add that substantial platforms also occur in the shales, and that hard stone bands are also found in the actively eroding cliffs. Thus the 'great difference between the hard mudstones and the fissile shales' tells us little about platforms or cliffs or anything else.

In later discussion, these 'resistant' platforms are viewed as barriers to marine attack (*ibid.* p. 116, last para.). Again this is misleading. Rather the platforms are the product of marine attack than a protection against it, their very presence with an active cliff behind them, from which shale fragments ' . . . rain continually . . . which are easily washed away', amply supports this view. Even in other circumstances, abrasional power of waves at a cliff foot may be enhanced by the presence of a platform compared with a cliff entering deep water. This is quite clearly seen at Portland Bill where the strongest wave action from the west has barely encroached on the deep water cliffs while the platform immediately to the east is being actively extended by much smaller waves. The importance given to the Kimmeridge Ledges in this paper as a barrier has no justification.

In the discussion on the evolution of Chapman's Pool, the conjunction of this little bay with a deep valley is used to support the 'barrier breach' theory and is enlarged upon (though Egmont Bight, a similar feature close by without a valley, is ignored). The explanation offered, is that the cliffs on either side of Chapman's Pool, that is Emmetts Hill and Hounstout, are relatively resistant to marine attack because of a protective skirt of fallen Portland Stone on the shore. Since there is no such provision in the valley area, the sea has cut back to form the Pool. This idea is now examined . . .

Hounstout, unlike Emmetts Hill, has a very limited exposure of Portland Stone to provide such a skirt, and the shore over which it would be dispersed is very long. Further, very little of this limited provision reaches the sea but falls onto an under-cliff. Thirdly, examination of early maps and sea charts such as OS 1st ed., 1811, and MacKenzie 1787, shows this under-cliff then, to be a more extensive platform supporting a battery, a summer-house, and later a carriage drive round the headland. At these and earlier times virtually no Portland Stone could have reached the sea-shore. The subsequent erosion of much of this platform deduced from these maps merely confirms that the area under Hounstout has been, and continues to be, in retreat and has received little protection to the present day. There has been no effective protective skirt, and field observation confirms that there is no effective skirt today. Hounstout may not be considered as part of a barrier theory.

A much simpler explanation for Chapman's Pool might include a combination of the following: 1. The valley mouth in presenting lower cliffs for erosion than on either side, would retreat much more quickly . . . 2. The cliff material in the valley is largely unconsolidated and easily eroded. 3. The Emmetts Hill/Hounstout corner faces exactly, one of the greatest sea fetches in Southern Britain (Figure 1), one that also happens to coincide with the prevailing wind. Chapman's Pool is therefore a focus of persistent, high wave energies.

5. Conclusion (*ibid.* p. 117): Much of the conclusion is given to the analysis of barriers and breaches a concept on which the integrated model largely depends. A general criticism of this concept is given later. However the conclusion also compounds many of the un-foreseen difficulties which have been here demonstrated, as well as introducing new ideas and evidence. These are now examined.

The familiar array of coves and bays along this coast such as Lulworth, Worbarrow, Man-of-War, are to be found in many texts as a sequence in evolution in which 'time' is substituted by 'space'. Objection to this has been voiced (Brunsdon and Goudie, 1981) in that while Lulworth and Worbarrow are considered to have river breached origins, the rest are marine breached. Whether this in any way invalidates the sequential model is doubtful but the distinction between marine and river breaching is both stressed and extended by the research in this paper.

It is argued that the critical angle of instability for the Portland Beds which leads to marine breaching is found at Stair Hole westwards and that ' . . . These landforms should not be linked with the major features such as Lulworth Cove, Worbarrow Bay and Poole Bay' (Jones *et. al* 1983, p. 117, para. 2). This idea is reinforced where marine breaching is seen to be ' . . . a sequence unique to the western end of the Purbeck/Isle of Wight fold structure.'

Yet in the western 'marine breach' area, it is stated ' . . . Two

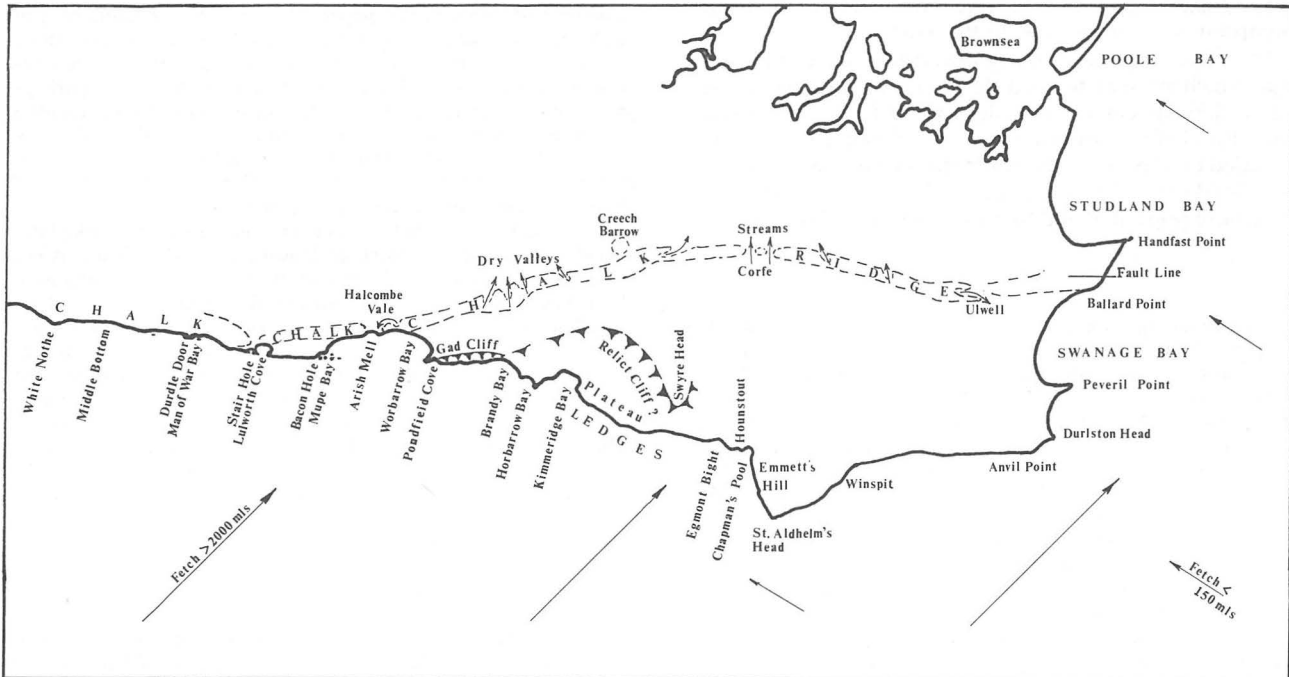


Figure 1. Map showing locational and other features referred to in the text. Note: Direction of maximum wave energies, over Kimmeridge Plateau and hedges, probable relief cliff, chalk dry valleys, Isle of Purbeck Fault line.

small dry valleys to the west of Durdle Door may also have formed Lulworth [river] type features' (*ibid.* p. 117, para. 3, bottom) while it was shown earlier, the 'river breach' area of Worbarrow Bay, includes not only Pondfield Cove, but the equally marine breached, Bacon Hole and Mupe Bay. The argument is full of contradictions.

Even the case for Worbarrow Bay to be river breached must be challenged. It is stated '... Worbarrow Bay occurs where a stream has cut a valley through the Portland Limestone at sea level... The valley runs back to Arish Mell... Worbarrow Bay is formed on the line of a more deeply incised valley than Lulworth Cove' (*ibid.* p. 117, para. 3). Yet no evidence is offered to support these assertions.

Arish Mell gap which obviously once had water passing through into the bay confirms nothing. If we look at the pattern of valleys along the Chalk ridge from Ballard Point to Worbarrow Bay, the rivers in the two gaps at Corfe flow north, and of seven dry valleys, six go to the north, only the fault guided Ulwell Gap goes south. Marine capture from the south, of the heads of any of these north directed valleys would produce an Arish Mell type feature together with a reversal of stream flow. Furthermore, unlike Lulworth, there is no impressive valley north of Arish Mell, just a small subdued catchment which would appear incapable of initiating a stream strong enough to breach the Chalk, let alone the Portland Stone to the south. The floor of the Gap contains a small buried channel filled with solifluxion type materials. This and the presently inactive, gentle drainage pattern behind, is consistent with periglacial processes of late Glacial times exploiting an existing breach of the Chalk ridge. The interesting Halcombe Vale would seem to fit this hypothesis. The freshness of the Arish Mell gap encouraged Arkell (1947, pp. 5, 319, 320); and Mottram (1972, p. 25) to see it as a possible marine breach once the sea had reached the Chalk. There seems no reason to revise their interpretation. It is considered that the whole of the discussion of the initiation of these bays and coves is seriously flawed.

The interpretation of Kimmeridge Bay as a drowned valley feature (Jones *et al.* 1983, p. 117, para. 3) needs scrutiny. The configuration of the magnificent natural amphitheatre formed in the Portland Beds from Gad Cliff to Swyre Head with its lower plateau of softer Kimmeridge Beds is wholly against its being formed by stream action although streams may have subsequently modified it. It will be argued later that this area was probably shaped by interglacial wave action and later modified by periglacial activity.

In the last paragraph of the conclusions, the coastal evolutionary model is applied to include Poole Bay. It is suggested that in the Post-Glacial rise in sea level, marine erosion will have actually opened up the whole of Swanage and Durlston Bays, removed 32 km 'barrier' of mechanically hardened Chalk (claimed elsewhere in the paper to be very resistant to erosion), and then swept up the Tertiary sediments of the Poole Basin.

All this in say, 6,000 years! We are told with some confidence that erosion would have been quick... The current erosion rate for this coast estimated from map records over a 70-year period is in the order of 0.2 m/yr for the Chalk at Ballard Down (Bird and May 1976). At this rate we might expect the loss of about 1 km of Chalk during the whole Post-Glacial period. This, without considering the inconceivable volumes of Wealden and Purbeck materials which would have to be removed to the south and of the Tertiary to the north. It is considered that this is 'orders of magnitude' away from reality and reason.

GENERAL DISCUSSION

1. 'Quantification', and the measurement of rock properties. Much of the paper is given to the technical measurements of rock properties and stresses the need for quantification in landform interpretation. The reasons for quantification are given in the second paragraph (*ibid.* p. 107): 'Data are presented which permit quantification of this relationship (between stratigraphy and topography) in terms of rock properties, a necessary prerequisite to an understanding of the evolution of coastal landforms.'

In practice, no quantifiable relationships are established or even attempted. We are given a variety of measurements for the different rock groups but no topographical measurements to relate them to. And even within rock groups, the only measurements common and therefore potentially comparable, were the Schmidt Hammer tests on the Chalk and Portland Beds. The only possible, if vague, topographical comparison that might have been made of these, was between the tectonically hardened and 'soft' Chalk. That this had no demonstrable effect was shown earlier.

Techniques should match their purpose. The question here is

whether the interpretation of landform is helped by the use of electron micrographs, Mohr's stress circle analyses, or Hoek Triaxial Tests; whether Young's Moduli or seismic velocities, (saturated or dry) register sensibly in the shape of a land of such variable geology. They do not. To apply such tests to the Chalk and compare them with say the Wealden is rather like identifying subtle variations in the VPN (Vickers Pyramid Number) hardness of a knife blade in order to see if it will cut butter.

The interpretation of landforms in the global sense considered in this paper cannot be achieved by the measurement of a few sophisticated parameters.

2. The neglect of 'Process'.

In a paper where the study of rock failure is pursued in detail in order to explain coastal landforms, omission of the wave processes by which such failure is largely activated, and which also generate coastal forms regardless of rock structure must be considered a conceptual error. It is clear that wave action has been considered as operating with equal force around the coast (iso-tropically) and to act normally to the coast at any point. This has led to errors in interpretation – two examples are given. East of Durlston Head the largest waves entering Swanage and Poole Bays are driven by the short cross-Channel fetch from the south or south-east; see Figure 1. Their energies are relatively small and would be quite unable to fulfil the cavalier destructive role suggested for them in opening up the Needles-Ballard Down Gap.

Around the corner, the westerly coast of Purbeck is under attack from very high wave energies which are directed over a narrow south-westerly arc (Figure 1). This influence is seen in the geometry of Worbarrow, Brandy, Horbarrow and Kimmeridge Bays, in Chapman's Pool and Egmont Bight. Indirectly, it provides a very different non-mechanistic, interpretation of the presence of mechanically hardened Chalk in the back wall of Worbarrow Bay to the one favoured by the authors. Rather than being a barrier to normal wave action from the south, this 'back-wall' of Chalk is simply being progressively exposed by the oblique attack of the waves from the south-west removing the Wealden Beds at the east end of the bay... that it is hard or soft Chalk, is immaterial.

3. The concept of barriers and breaches and considerations of 'Stage'.

The barrier concept is central to the study not only in interpreting specific features of the coast but also in establishing the 'linkages' of the model. While it is difficult not to conceive Stair Hole or Lulworth in terms other than barriers that have been breached, the concept has elements of purpose and finality attached to it which are unhelpful elsewhere. Both these elements are present in a single sentence which is describing the cliff coast of Purbeck (*ibid.* p. 116, para. 5): 'In situ material [Portland Limestone] acts as barrier preventing coastal erosion of the softer materials back to the hardened Chalk.' The fact that the Chalk referred to is singled out as 'hardened', reinforces the barrier image of a sea that advances from barrier to successive barrier. This military image is found repeatedly throughout the study but cannot be considered explanatory. To entertain the two miles landward extent of nearly horizontal, resistant, Portland Stone at say Winspit in the same barrier terms as its steeply dipping, narrow extension at say, Stair Hole, is wholly unhelpful to explanation.

Stage: Landforms, especially in the regional sense of this paper, are often considered in terms of progressive change in which discernible 'stages' are recognised. The classic example already cited is the sequence of bays and coves – Stair Hole-Lulworth-Worbarrow and so on. It is not clear in the paper whether the coast is considered to be changing or not. Expressions of 'barriers preventing erosion' suggest the coast is no longer changing. Elsewhere it is accepted that even barriers erode slowly. The distinction is important. If we accept that the present coast is but a 'stage' in evolution, then 'barriers' might be better seen as coincidental to the coast today (along with the bays and coves) and not causal to it... At a more distant time forward or back, different relationships would be present (and no doubt different explanations offered). At the very least, 'stage' encourages a view of relative change between say the Portland Beds and the Wealden rather than the static view of barriers. Stage is sometimes a useful way to interpret landforms; it may lack sophistication, but it also avoids implausible explanations.

4. The influence of past conditions.

Many of the features of this coast seem to be anomalies, neither available to structural interpretation nor fitting in with today's

conditions. (The coastal dry valleys west of Lulworth are an obvious example where their floors conceal buried channels now filled with solifluxion materials clearly demonstrating both climatic and sea-level change). The Kimmeridge area gives rise to many questions which challenge a structural interpretation . . . 'Why for instance is the Kimmeridge Vale and plateau there at all? It projects a kilometre from under the cover of much more resistant Portland Stone yet is today in rapid retreat – witness the Kimmeridge Ledges – so why is it there? Under what circumstances could the resistant Portland Beds have retreated to reveal a softer uneroded Kimmeridge plateau? Why have the Kimmeridge Clays not formed the same relationship with the overlying Portland Beds at Kimmeridge as at Gad Cliff, Emmetts Hill, St Aldhelms Head, or even Portland? Being not obviously formed by the sub-aerial erosion of structural differences, or by its immature drainage which include cliff cascades, what were the origins of this vale?

A consistent explanation would be that the plateau was formed by marine erosion of the Upper Kimmeridgian strata by past sea levels operating at a present height of around 70 m. This would have pushed back the more resistant Portland Beds above, exposing an extensive surface in the less resistant Kimmeridge strata below. Some indirect evidence for this is found in the line of the Portland Rocks themselves which, from Smedmore Hill to Swyre Head, faces the same pervasive line of fetch as the present bays. This could be the old cliff line (Figure 1), while 'gravels of chert and limestone' (Portland?) which have been recorded on the Kimmeridge surface (Arkell 1947, p. 331), maybe of marine origin.

Evidence of platforms along this coast considered to be marine in origin, is well documented (Sparks 1952, Doornkamp 1963, Mottram 1972). And even in the critical current debate in which the importance accorded to high Pleistocene sea-levels is being seriously challenged, their influence on coastal landforms, and particularly those of the Dorset area, is not disputed (Jones 1980, p. 256; 1981, pp. 130, 142). In the study area, bevelled surfaces cutting across the structure and consistent with past marine erosion, are recognised in the steeply, northward dipping, Portland Purbeck and Wealden Beds from Lulworth Cove to Mupe Bay (Mottram 1972, p. 26), and, at similar heights, in the gently, eastward dipping, beds of the Kimmeridge Clay from Clavell Tower to Egmont Bight. Together with the present juvenile drainage across the area, marine planation offers the simplest consistent interpretation for these features.

Acceptance of planation and bevelling could explain many other anomalous features of this coastal area not relatable to structure . . . the preservation of the soft Purbeck Beds on top of the Purbeck plateau, the relative roles of the Greensands and Gault in Purbeck and the Isle of Wight, the undifferentiated surface across the Isle of Purbeck Fault on Ballard Down. It could provide the necessary, but rarely considered, initial condition, of a surface in which the 'Cove and Bay' formations like Lulworth have arisen in their familiar form . . . a surface extending from the Chalk cliffs and ridge, south across the Wealden and the steeply dipping Portland 'barrier' rocks.

It is apparent that these landforms contain many residual elements from past conditions. Neglect of the influence of past events especially within the Pleistocene in this study have led to errors in interpretation. For instance, had the Kimmeridge Vale been recognised as a relatively transient feature inherited from the past, and rapidly eroding at present, it could not have been proposed as a barrier to future change.

CONCLUSION

It has been shown that the paper offers a 'new model of coastal landform evolution' without considering past events or 'stage'; that the model is 'mechanistic' without considering the coastal processes by which the 'mechanism' is actuated; that the concept of 'barriers' and 'breaches' has been extended to areas where the idea is remote to useful explanation and often contradicted by field evidence.

It has also been shown that many of the 'newly defined linkages' should not be defined, as they have been, in mechanistic causal terms. These linkages are often simply expressions of the underlying structure – Chalk, soft or hard; stratigraphy; folding; etc., revealed on erosion and observable in the coastal features of today. They are not explanatory of the formation of those features within the context of a global evolutionary model. The exception of course is the familiar Stair Hole-Worbarrow sequence, but this is neither newly defined, nor does it admit extension to 'the eastern shores of the Isle of Wight'. Finally, extending the model in the terms conjectured, to include Poole Bay and the Isle of Wight, would require, minimally, sustained erosion rates over the past six thousand years in the order of one hundred times those at present indicated for this coast.

Had the earlier important work by Mottram (1972) on the same coast been drawn on, it would have become apparent that there were many features of this coast that could not be explained in purely structural terms and some of the difficulties of this mechanistic model could have been avoided.

Much of the analysis offered in this critique is part of a text of landform interpretation on the Dorset Coast being prepared by the author.

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The Editor,
Proc. Dorset Nat. Hist. Archaeol. Soc.
Dorset County Museum
High Street West
Dorchester
Dorset
19 January 1987

Dear Ms Draper

Re: Poole, G. 'The coastal landforms of central southern England' - A critical review

We have read with care the above manuscript and must express our surprise on two counts. Firstly that such a discussion should be considered for publication as a paper and secondly, that this contribution should have been submitted after such an inordinate time period following the publication which is the subject of the critique (Jones, *et al.* 1983). The paper reported the provisional results of original work-in-progress during 1981-82. Since its publication, no written or verbal criticism has been communicated to us. The paper has therefore stood for four years. During this time we have considerably advanced our ideas and greatly increased the data. We feel that a detailed response to the critique is unnecessary, since its author can now refer to further works (Allison 1986, Allison 1987, for example). Our original arguments are substantially unchanged in the light of this further work, although they have been refined. It is not appropriate to publish these developments in letter format. They will be submitted for publication as a true research paper.

The critique contains no original information, nor does it offer an alternative explanation for those aspects of our original publication which have been criticised. In parts the author of the critique has misquoted our original work. For example, point 4 paragraph 3: we are at a loss to understand why the author assumes that these measurements were taken only on one bed. In places the original paper is also quoted out of context. For example, the author of the critique states that: 'Compared with the technical intricacies and details of the Chalk and Purbeck Beds, the Portland Beds are given rather elementary treatment with self-evident truths like' . . . 'the outcrop width is reduced as the dip increases'. In fact our paper reads: 'Consequently such breaching is restricted to western parts of the region where the outcrop has transferred from the gently to the steeply dipping part of the fold. This occurs because the outcrop width is reduced as the dip increases and the erosional instabilities become greater'. We do not consider this entire statement as self-evident truth, particularly as the observation could only be quantified by the use of tetrahedral block rock slope stability analysis. Other examples of inaccurate quotes and mis-interpretations abound but to cite them there here would be irrelevant.

It is, however, interesting and important to note that the author of the critique at no time seriously discusses the data sets. This, with his 'knife through butter' analogy,

seems to indicate a lack of understanding of the techniques employed.

The major failure of the critical review can be simply demonstrated by the 'knife through butter' analogy, which reads as follows: 'Techniques should match their purpose. The question here is whether the interpretation of landform is helped by the use of electron micrographs, Mohrs stress circle analysis, or Hoek Triaxial Tests; whether Young's Moduli or seismic velocities (saturated or dry) register sensibly in the shape of a land of such variable geology. They do not. To apply such tests to the Chalk and compare them with say the Wealden is rather like identifying subtle variations in the VPN (Vickers Pyramid Number) hardness of a knife blade in order to see if it will cut butter.' This statement is nonsense.

First let us look at geology. We are concerned with the respectable scientific objective of trying to understand, amongst other things, why the Chalk forms hills and the Wealden lowlands; why Portland Limestone cliffs are steeper than those of the Wealden; why the materials in the Wealden Beds will, under certain conditions, flow in a plastic manner whilst this never happens with the Chalk or the Portland Limestone. In other words, we are not trying to understand the knife, we are trying to understand the butter. We are not using these routine analytical techniques to understand the intricacies of process, but to understand the response of the materials to common processes.

We therefore suggest, with all due respect, that the author of the critique should familiarise himself with the content of the following texts before writing the paper referred to at the end of his review, to save himself potential embarrassment (Abrahams 1986, Anderson and Richards 1987, Bromhead 1986, Brunsden and Prior 1984). We look forward to reading and, if necessary, responding to this paper when it is ultimately published.

Yours sincerely,

Mervyn E. Jones* and Robert J. Allison†

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Dorset Archaeology in 1987

POOLE PREHISTORIC SITES

1. **Poole** (SZ 05409671). A palaeolithic hand-axe was found in river gravels during commercial work by a small stream at Magna Road. (Accessioned by Poole Museums.)

2. **Lytchett Matravers** (SY 946969). An extensively chipped polished stone Neolithic axe of cream/brown flint was found at the gateway of Greenfields Farm, Loop Farm Road. Length 143mm (butt end broken, probably 10-15mm longer); width 78mm; thickness 38mm. The ground had recently been disturbed.

3. **Poole** (SZ 03799320 approx.). 6 flakes and a plano-convex knife were found in the garden on the east side of 18 Rosemary Road, Parkstone. Collecting will continue. (Accessioned by Poole Museums.)

4. **Poole** (SZ 032928). A Neolithic polished stone axe in a creamy white flint was found in the garden of Newbarn, Haymoor Road, Parkstone. The axe is 119mm long, 59mm wide and 33mm thick.

K. S. Jarvis

TWO NEW PREHISTORIC SITES ON CANFORD AND KNIGHTON HEATHS, POOLE

Both these sites were discovered as a result of field work carried out by the authors.

Mesolithic site: Canford Heath, Poole. SZ 02279545.

This site is on the 70m contour, close to the edge of a south facing scarp which dominates both Canford Heath and Poole Harbour.

The site appears to be covered in part by a bronze age barrow. Some of the microliths have been recovered from the exposed surface of the mound and so it seems that the flints were incorporated in the barrow during its construction. The following flints have been recovered: 9 microliths, 2 blades, 2 small scrapers, and 2 core trimming flakes.

Late Neolithic site: Knighton Heath, Poole. SZ 05109610.

This site is on the 40m contour, at the top of a small dry valley. The area was a smallholding prior to 1983, and since that date it has been built on. The following flints have been recovered: 1 flint knife, 1 class 'A' short end scraper, 2 class 'D' long side scrapers, 7 retouched flakes, 1 fabricator, 46 flakes and 7 cores or core fragments.

Acknowledgement

We would like to thank G. Dowdell for examining and commenting on the flints from both sites.

Ken Standing and John Smith

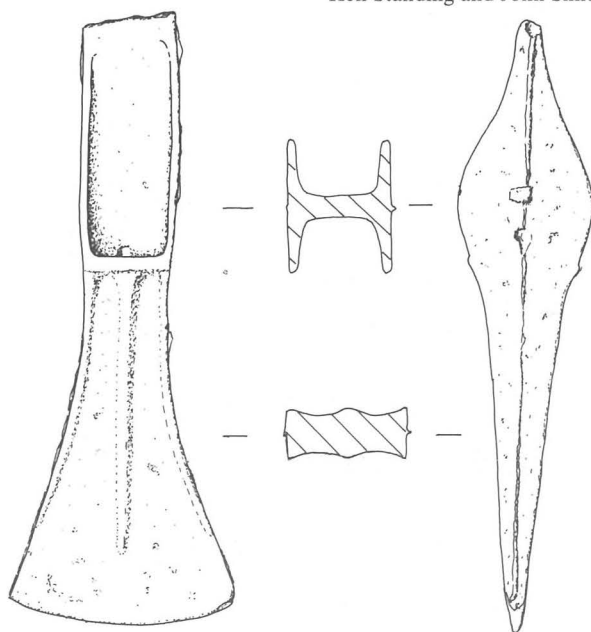


Figure 1. Palstave from Shapwick, at 1/2 life size.

A PALSTAVE FROM SHAPWICK

In May 1987, while inspecting a disused drainage pit, the Kingston Lacy warden noticed this palstave weathering from the pit section. The site lies 400m west of Badbury Rings (ST 95720289) on the north verge of the Blandford road. The axe was found 0.2m below ground surface but stratigraphy had been disturbed by roadworks. A close examination of the pit section revealed a tarmac deposit below the palstave find spot.

The Shapwick palstave is 161mm long with a broad blade measuring 60mm at the cutting edge. It is high flanged and without a loop. Below a stop ridge the blade has a median ridge and low flanking ridges. The condition of the axe is good and the casting seams are clear.

It corresponds most closely with the group III (south western, high flanged) axes of the Anglo-Welsh palstave series (Smith 1959, 184). Group III palstaves are considered part of the Taunton Phase of the Later Middle Bronze Age dated to the 13th-12th century BC (Burgess 1974, 203). Of the axes in the Dorset County Museum, Dorchester, palstaves from Winterborne Steepleton (DCM 0.50.1) and from Grimstone (DCM 1963.15.2) are broadly similar to the Shapwick palstave. The axes from the hoard found at Blackrock, Sussex (Piggott 1949, 107) are closely comparable.

A Middle Bronze Age rapier was found approximately 500 m to the north-west of the Shapwick palstave in 1851 (Oliver 1936, 27) ST 960030.

The Shapwick palstave has been donated to the Dorset County Museum. (1987.105.1)

David Smith and Martin Papworth
The National Trust

Burgess, C. B., 1974, 'The Bronze Age', in C. Refrew (ed.), *British Prehistory*.
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BOURNEMOUTH HOSPITAL MIDDLE BRONZE AGE HOARD SITE (SZ 1294)

The hoard site (*Proceedings* 1985, 153) is not yet available for excavation. However it was possible to excavate an area of 10 square metres at a distance of six metres from the hoard site. This was carried out to attempt to establish whether the site was extensive or not and to gauge time and finance required for excavation. The excavation by the author and Mrs T. Hall revealed no features at all cut into the natural gravel. It appears therefore, as far as it is possible to ascertain at present, that the hoard site is very localised and not associated with a settlement.

K. S. Jarvis

A CROUCHED INHUMATION FROM HIGH WOOD, PAMPHILL: AN INTERIM REPORT

In April 1987 it was noted that several large trees had been blown over by recent high winds in High Wood, Pamphill. Amongst the roots of one of these were seen human bones, which on closer examination proved to belong to an adult crouched inhumation. The tree roots held the skeleton together and dragged it from the ground as the tree collapsed.

The leg bones were doubled up as if they had been trussed, the forearms spread with elbows touching. Before the burial was disturbed, the skull would have pointed towards the north-east. The burial cist was circular, 0.7 m diameter.

Scattered around the skeleton were fragments of at least two Bronze Age vessels and smaller sherds of Romano-British date. Two 4th-century coins were found in the disturbed soil of the tree root hollow. Many fragments of bone were also found here including cremated bone. The burial had been exposed to the weather for a fortnight prior to its discovery.

The burial lies on the south-west edge of High Wood (ST 96770305), 100 m E of the outer rampart of Badbury Rings and 30 m north-east of the Roman road from Hamworthy to Bath. A ring ditch (Field 1963) has been identified immediately south-west of the Roman road (ST 96780297) and the finds recorded here indicate the site of another barrow.

Although the site had been badly disturbed the coins and pottery indicate a 4th-century date for the crouched inhumation which seems to have disturbed at least one cremation burial of Bronze Age date. This focus of funerary activity indicates that a burial mound existed here prior to the plantation of High Wood in the 18th century.

I am grateful to David Smith, Robert Briggs and John Beavis for their interest and help. The finds have been deposited at Dorset County Museum, Dorchester, prior to further analysis.

Martin Papworth
The National Trust

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RADIOCARBON DATES FROM MAIDEN CASTLE

In the last year the results of a further fifteen radiocarbon dates, from Maiden Castle, have been obtained. These dates were processed by the Oxford University Radiocarbon Accelerator Unit; eight were part of the in house research programme and seven were paid for by English Heritage. I am grateful to: John Evans, Rupert Housley and John Gowlett for the provision of this facility; Dr G. J. Wainwright for the financial arrangements and M. Armour-Chelu and N. Balaam for sample identifications.

The dates are:

- OxA-1141 4360+/-80BP Animal bone from the final fill of the inner ditch of the Causewayed Camp, trench II.
 OxA-1142 4750+/-80 BP Animal bone from the final fill of the inner ditch of the Causewayed Camp, trench II.
 OxA-1143 4730+/-80 BP Animal bone from the secondary fill of the inner ditch of the Causewayed Camp, trench II.
 OxA-1144 4550+/-80 BP Animal bone from the primary fill of the inner ditch of the Causewayed Camp, trench II.
 OxA-1145 4660+/-80 BP Antler from a pit cutting the primary fills of the Bank Barrow ditch, trench III.
 OxA-1146 4650+/-80 BP Animal bone from a primary fill of the Bank Barrow ditch, trench I.
 OxA-1147 4690+/-80 BP Animal bone from a secondary fill of the inner ditch of the Causewayed Camp, trench I.
 OxA-1148 4810+/-80 BP Human bone from a child burial in the primary fill of the inner ditch of Causewayed Camp, trench I.
 OxA-1336 4570+/-80 BP Animal bone from the bank between the Causewayed Camp ditches, trench II.
 OxA-1337 5030+/-80 BP Animal bone from the primary fill of the inner ditch of the Causewayed Camp, trench II.
 OxA-1338 4930+/-80 BP Human bone from the primary fill of the outer ditch of the Causewayed Camp, trench II.
 OxA-1339 4740+/-80 BP Animal bone from the primary fill of the outer ditch of the Causewayed Camp, trench V.
 OxA-1340 4650+/-70 BP Animal bone from the primary fill of the outer ditch of the Causewayed Camp, trench V.
 OxA-1341 4460+/-80 BP Charcoal from the final fill of the Bank Barrow ditch, trench III.
 OxA-1349 4660+/-80 BP Antler from a pit cutting the primary fills of the Bank Barrow ditch, trench III.

All the dates are expressed in uncalibrated years before present (AD 1950).

These dates fit well with the original series of conventional radiocarbon dates published in last year's *Proceedings* (Sharples 1987) and together they provide a chronology for the early prehistoric activity on Maiden Castle (this activity is discussed in the first interim report on the recent excavations, Sharples 1986). The chronology begins with the creation of the Causewayed Camp between 5100 and 4800 BP. The Bank Barrow was constructed soon after, around 4600 to 4700 BP. The late Neolithic and early Bronze Age activity is more difficult to date. The earliest date 4750+/-80 (OxA-1142) would appear to be a derived sample. There is however, good agreement between samples OxA-1141 and OxA-1341, which suggests activity commences between 4500 and 4300 BP.

Niall Sharples

Sharples, N. M., 1986, 'Maiden Castle Project 1985: An Interim Report', *Dorset Proceedings* 107, 111-119.

Sharples, N. M., 1987, 'Maiden Castle Project 1986: An Interim Report', *Dorset Proceedings* 108, 53-61

A GOLD GALLO-BELGIC STATER

In November 1987, Mr B. Dillon found this coin in a cliff fall near Swanage (SY 03657865 approx.), and has kindly allowed its publication. The coin is a globule of gold, marked with a cross

(weight 6.55 g). It belongs to Allen's Class X_B (D. F. Allen, 'The origins of coinage in Britain: a reappraisal', in S. S. Frere (ed.), *Problems of the Iron Age in Southern Britain* (1961), Institute of Archaeology, Occasional Paper, no. 11, 97-308). These coins are found on the Continent in the Soissons - Châlons-Rheims area, and date to the mid to later 1st century BC. Examples in Great Britain are extremely rare. Over 40 were found in 1806 in Peebleshire (Allen, *op. cit.*, 104, 170). It is remarkable that since the publication of Allen's paper the only other examples have been found in Dorset. In 1986 one was found by P. S. Gelling at Pilsdon Pen (*PPS*, 43 (1977), 283-4; A. J. H. Gunstone, *Ancient British Anglo-Saxon and Norman Coins in West Country Museums*, Sylloge of Coins, 24 British Academy (1977), Pl. I.7). A second was found by Mr. Clark in 1976, close to Long Field, Hengistbury Head, Bournemouth, on the shore of Christchurch Harbour: it weighed 6.80 g. This third example from Dorset is an important addition to an extremely rare class of coin.

Laurence Keen

DUROTRIGIAN COIN FINDS

The reporting of silver coin finds to HM Coroner has meant a great increase in the number of coins with secure provenances, although it must be assumed that large numbers of silver coins are not reported by the finders. All prehistoric and medieval coin finds are added to the Sites and Monuments Record maintained by the County Planning Department. Notes on individual coins of particular interest are published in these *Proceedings*, but in view of the large number of coins being found it has been decided that notes on prehistoric and medieval coins will be published only when significant concentrations start to appear. Three groups of Durotrigian coins, the subject of Treasure Trove Inquests, are worthy of reporting. In late 1986 Mr and Mrs J. P. House found a number of coins at Muckleford, *Bradford Peverell*, in an area of about 50 square metres (centre SY 6390 9335): these consisted of five silver staters of Durotrigian type and one silver half or quarter stater. They were found with two small silver ingots. In March 1987 another silver stater was found in the same area. Mr House also reports that he has found eleven bronze Durotrigian staters in the same field.

In November 1987 Mr B. Dillon, using a metal-detector in the vicinity (SY 63609335), found a silver Durotrigian stater (weight 4.38 g), another, incomplete (weight 2.70 g), a bronze stater of the same type but coated with silver (weight 5.22 g), and a single bronze stater (weight 3.61 g). There are no previous finds recorded from this area.

In July 1986, Mr K. Bickmore, using a metal-detector at *Winterborne Monkton*, in the field containing a number of ploughed-out barrows, immediately east of Maiden Castle (SY 675 882), found 20 silver Durotrigian staters and one silver quarter stater. Miss M. Archibald reports that the coins were struck on a declining metal standard, one near the head of the series in good silver, the others with less silver but generally above 50 per cent in the type of this group. The coins were found in an area of 50 square yards, denser in the centre with three within three feet of each other. This group was declared to be Treasure Trove.

Laurence Keen

THE STOUR VALLEY GRAVELS PROJECT: 1987 INTERIM REPORT

Excavations on behalf of Poole Museums Service at the Moortown site recommenced from June 1987 to January 1988. Three main phases of activity were identified:

1. An area of Deverel-Rimbury Bronze Age ditches and pits extended west from the site of a cremation urn excavated in 1986. A rare cylindrical clay loom-weight of Bronze Age date was found but the pottery has yet to be examined.

2. A late Iron Age sub-rectangular enclosure of 0.25 hectares (Jarvis 1986) was bounded by a single 'V'-shaped ditch some 3 m wide and 1.5 m deep. A distinct recut of this ditch, which contained quantities of Romano-British pottery, attested to the continued use of the enclosure into that period. Many fragments of quern stone have been recovered from this ditch.

3. A later Romano-British palisade ditch containing over 60 post holes at regular intervals of c. 1 m.

Within the enclosure over 170 pits and post holes have now been excavated. Towards the centre an incomplete circle of post holes c. 4 m in diameter indicated a probable round house. The interpretation of the majority of the features is as yet unclear, due to the lack of stratigraphic relationships and dating evidence.

At a later date removal of the modern earth banks surrounding the gravel pit will enable further investigation of the Bronze Age settlement, and of the important Neolithic settlement site 450 m to the north excavated in 1984.

D. R. Watkins

Jarvis, K. S., (1986), 'The Stour Valley Gravels Project: 1986 Interim Report', *Dorset Proceedings* 108, 180.

ARCHAEOLOGICAL EVALUATION AT THE HUTCH, POUNDBURY CAMP, DORCHESTER

The site lies on the south-eastern corner of the defences of Poundbury Camp hillfort, c. 1 km north-west of Dorchester, (SY 68259097). An application for the construction of office accommodation with car parking was granted with provision for access for archaeological recording and observation during demolition and development. Machine-cut trenches (Fig. 2) were excavated across the postulated line of the hillfort defences in order to locate them precisely and to examine their structure.

The western trench ran from the base of the inner rampart for some 37 m south-westwards across the line of the defences, and was approximately 2 m wide. At the northern end a 5 m-wide stretch of the inner hillfort ditch filling was revealed but not further investigated. Some 18 m to the south of this, the chalk bedrock was very soft at a point which aligns with the remnants of the outer hillfort rampart, which can be seen as a low earthwork in the adjacent pasture to the west. Two metres to the south of this soft chalk bedrock lay the inner edge of the outer ditch. This ditch was partially excavated by machine to the maximum depth of proposed footings, some 1.8 m. It was 7.5 m wide at the top, and most of its fill was a homogeneous light brown calcareous loam, with vacuous chalk fragments at the base of the excavation level, probably collapse off the weathered side of the ditch. The ditch appeared to be a shallow V-shape in section unlike sections previously excavated (Green 1987, fig. 22) and gave the impression of being unfinished and deliberately backfilled relatively soon after its original excavation. No finds were recovered.

The southern trench, 4 m wide, was excavated from the south end of the western trench for some 32 m eastwards along the southern boundary of the site. Towards its eastern end the outer

edge of the hillfort outer ditch was observed, and in order to clarify the ditch-line a 10 m long off-set section was excavated northwards. The ditch fill was again not further investigated, but the ditch appeared to be about 8 m wide. The line of the ditch was also traced to the east in a further small machine-cut trench adjacent to the eastern boundary of the site. The ditch appears to be swinging north-eastwards at this point, following the line of the extant inner rampart.

A late post-medieval rubbish dump was also located along the southern edge of the site.

Unfortunately the site was then developed without further archaeological work being possible.

The work was funded by the Developer, Rowan Cole Associates, and recorded by C. N. Thompson for the Trust for Wessex Archaeology.

S. M. Davies and C. N. Thompson

Green, C. J. Sparey, 1987, *Excavations at Poundbury Volume I: The Settlements*, Dorset Nat. Hist. Archaeol. Soc., Monograph Number 7 (Dorchester).

INTERIM REPORT ON THE WESTERN LINK ROAD, BRADFORD PEVERELL, DORSET

In his 1943 report on excavations at Maiden Castle Sir Mortimer Wheeler drew attention to an elaborate Celtic field system visible on aerial photographs of Fordington Down taken by Major G. W. G. Allen in 1937. The greater part of Fordington Down was under pasture until 1950 when some of the lynchets were levelled by bulldozer. A local amateur archaeologist visited the sites and recorded the presence of late Iron Age and Romano-British pottery, bones and areas of discoloured soil. Further levelling took place in 1956 when investigators from the Royal Commission on Historic Monuments noted another area of Romano-British occupation debris in the vicinity of the current excavations.

One of these settlements and part of the field system (SY 667907) will be destroyed by the Western Link road. In response to this threat Dorset County Council and English Heritage have provided funds for the Trust for Wessex Archaeology to carry out excavations in advance of road construction. Unusually for sites on the chalk downland the settlement is well preserved. On the valley floor a layer of colluvium seals archaeological remains whilst on the side of the coombe soil displaced by the bulldozer masks settlement features.

The primary objective of the current excavation are to record the development of the landscape by studying environmental indicators such as land snails and soils and to identify the ways in which man utilised the area for agriculture and settlement. This information will enhance the results obtained from excavations in Dorchester, on the route of the by-pass and the Maiden Castle project.

Apart from a few sherds of Bronze Age pottery and some pieces of struck flint the earliest remains to have been recognised are those of the field system. These are in the form of ditches (and possibly banks) that define a series of small square fields. Parts of the field system probably continued in use during Roman times and the spur immediately west of the coombe was ploughed in the Middle Ages. However, the steeper parts of the valley were under pasture for a long period perhaps from when the settlement was abandoned until the earthmoving activity of 1950. This pasture episode is represented on site by a dark, stone-free decalcified soil the upper part of which contained fragments of clay pipe and post-Medieval pottery.

The majority of the artefacts and features discovered to date belong to the late Iron Age and Romano-British period and are sealed by the decalcified soil referred to above. A sunken trackway divides the settlement into two parts. To the east on the upper slopes of the valley is an area of settlement features; pits, gullies, and postholes cut into the chalk bedrock and sealed by up to 1.5 m of soil. This zone is being recorded in 1 m squares in artificial horizons 100 mm thick so that the precise location of all artefacts can be identified and erosion processes studied. This type of research is only possible on sites that have not been damaged by ploughing. Amongst the settlement features are a number of Roman (Plate 1) and possibly pre-Roman graves.

West of the sunken trackway in the bottom of the valley are a number of well preserved structures. The earliest of these appears to be a gully beneath a layer of flint nodules. A V-shaped ditch cuts through this flint layer. Although undated the ditch has the characteristic form of Bronze Age enclosure ditches such as the recently excavated example at Middle Farm south of the Bridport Road. In the upper levels of the ditch and the adjacent area are a number of burials. These are inhumations without grave goods although hobnails and coffin nails have been found. Some burials

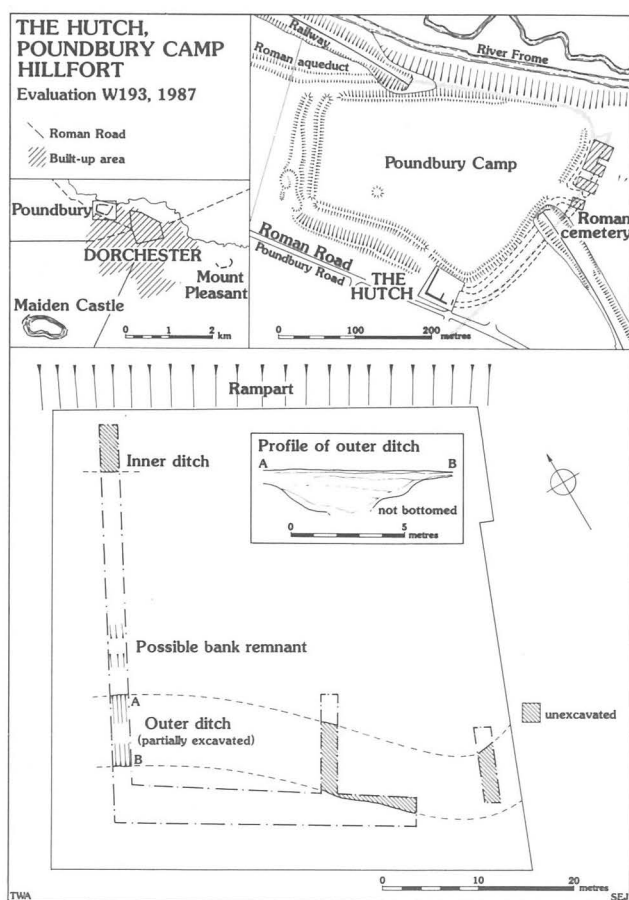


Figure 2. The Hutch, Poundbury Camp.



Plate 1. The Western Link: Crouched burial with associated sheep bones, black-burnished dish, and type 18 terra sigillata bowl made by Germanus of La Graufeuque AD 65-80. (Photo: P. Chowne).

continue the Iron Age tradition of slightly crouched inhumation. This cemetery, which relates to a rural settlement, will provide us with a quantity of invaluable pathological data that can be compared and contrasted with the evidence from the urban cemetery at Poundbury.

Halfway up the eastern side of the coombe is a massive lynchet, probably part of the field system. Just below and parallel to this feature is a wall of flint nodules bonded with mortar. It is not certain as yet whether this wall is part of a building or merely acted as a revetment to prevent the movement of soil down into an area of industrial activity. In the valley bottom are a number of pits and hollows. One pit is rectangular, lined with *opus signinum* and was surrounded by a wall made from flint nodules. The pit was clearly designed to be waterproof and may be a cistern. Adjacent to this pit were the remains of a substantial grain drying oven. One of the hollows in the valley bottom contained a large amount of pottery and burnt material suggestive of an industrial process although simple rubbish disposal cannot be ruled out. Excavations will continue during 1988.

P. Chowne
Trust for Wessex Archaeology

ARCHAEOLOGICAL EVALUATION AT SOUTHFIELD HOUSE, DORCHESTER, DORSET

Introduction and background

Southfield House lies across the line of the southern defences of the Roman town of *Durnovaria*, immediately east of the suggested site of the south gate and the road to Radipole (Weymouth) at SY 69259030. The exact location of the gate and any associated structures is uncertain. The town defences of *Durnovaria* were probably initially constructed in the latter half of the 2nd century AD and consisted, as far as is known, of an earth bank and multiple ditch system. A stone wall was later added to the front of this bank, perhaps in the 4th century (RCHM 1970, 542). Part of the rubble core of the wall still survives on the west side of the town in Albert Road. The overall width of the bank is suggested to be c. 4 m, with the ditch system c. 38 to 47 m wide overall, excluding any counterscarp bank. From the records of 1896 the depth of the ditches seems to have been c. 4 m. Any access into the town is likely to have been via causeways rather than bridges (RCHM 1970, 542-551).

Roman cemeteries have been found along most of the roads out of *Durnovaria*, in accordance with laws applicable to the period. To the south-west, groups of burials have been found flanking the road to Radipole, as far as the amphitheatre at Maumbury Rings, including a number at the junction of Weymouth Road and Great Western Road, just to the west of Southfield House (RCHM 1970, 571 ff).

Observation of eight test pits excavated by the developers in the garden of the house in 1986 indicated the presence of substantial features varying in depth from 2 to 3 m. On the west side of the site it was noted that the natural chalk bedrock was significantly higher than on the east side, possibly suggesting the presence of a causeway or break in the defensive system.

The observation of the test pits and the existing evidence for the location of the defences of the Roman town suggested that a further stage of investigation was more than worthwhile. The Developers, Wimpey Home Holdings Ltd, commissioned and funded an evaluation of the site, with a view to determining the nature and state of preservation of any extant archaeological remains. This work was carried out in late June and July 1987.

The initial evaluation trenches, 1-5

Six trial trenches were excavated by machine in the garden of Southfield House, in the area outside the line of the proposed building. All trenches were aligned north-south across the line of the Late Roman defences, apart from trench 4 which was located to test for features between trenches 1 and 3 (Fig. 4). The trenches were excavated down to natural chalk, except where exceptionally deep archaeological features were found (the Late Roman ditch). Most of the deposits thus removed were modern topsoil, but they also included part of the upper fills of the ditch and the defensive bank make-up.

Elements of the defences were found in five of the six trenches excavated; the outer ditch was present in trenches 1, 2a and 5; and the counterscarp bank lying to the south of the ditch, in trenches 1, 2, 2a, 3 and 5.

The Ditch: the full depth of the ditch was only excavated in trench 2a, where the fill was removed by machine to a depth of 3.2 m from the modern surface. The fill of the ditch was a homogeneous fine brown loam down to within c. 0.75 m of the bottom. The lowest layers comprised a fine red-brown silty clay on the south side and chalk wash with occasional chalk rubble on the north. The upper fills were identical to the fills of the ditch observed in the other trenches (trenches 1 and 5) and to those in sections of the defences elsewhere in Dorchester (Graham 1983, 188). The ditch was c. 7 m wide at the top and had a splayed V-shaped profile.

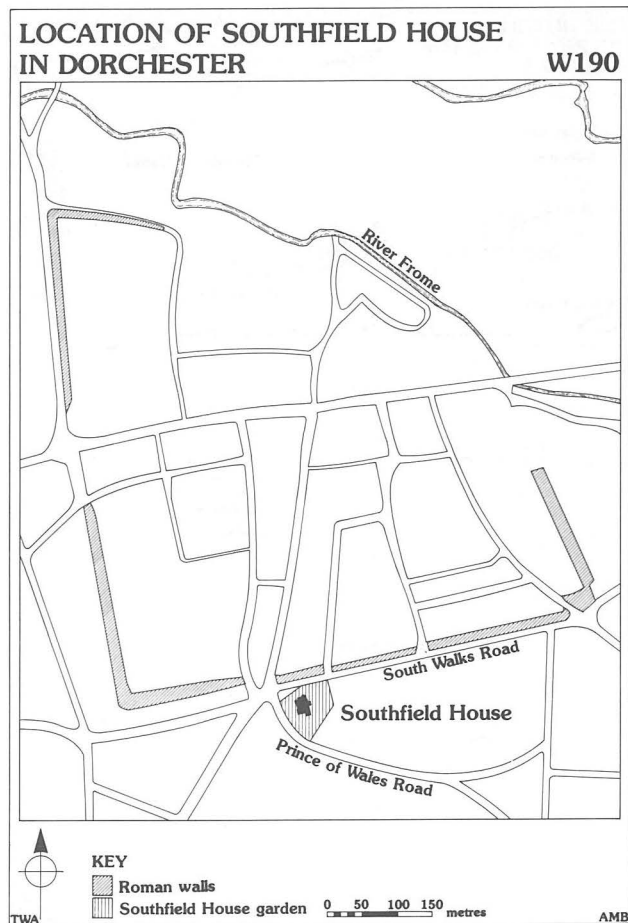


Figure 3. Southfield House, location.

Very few finds were found in the machine-excavated section of the ditch, and were limited to fragments of animal bone; no datable material was recovered. It is assumed that the ditch located is the outermost ditch of the Late Roman town defences.

The Counterscarp Bank: the full width of the bank was exposed in trench 1 and either end in trenches 2 and 2a (Fig. 4). The bank was c. 23 m wide and survived, in trench 1, to a height of c. 1.25 m (Fig. 6). It was constructed of dumped layers of chalk and clay. Finds in the make-up of the bank are of 2nd- to 3rd-century date. During the manual excavation of the top layers of the bank in the early stages of extending the trench a decorated copper-alloy brooch, dating to the earlier part of the 2nd century was found (Fig. 7, SF1, context 040).

The line of the ditch and the counterscarp bank run at a slight angle to South Walks and this suggests that the defences may be narrowing off or turning towards the presumed site of the gateway into the Roman town.

Other features: in trench 1, cut by the Late Roman defence ditch and underlying the counterscarp bank was a second ditch (052), aligned roughly north-northeast/south-southwest (Fig. 4). A third ditch (042) lay at the extreme south end of the trench, apparently filled with brown loam akin to that in the Late Roman ditch, and lying at right-angles to the second ditch (Fig. 4). These two ditches are described below in trench 1EX.

In trenches 2, 2a and 3 small gullies or, more likely, graves were located (Fig. 4), but were not further investigated.

The discoveries in the initial evaluation trenches raised the need for further work to examine the nature and date of the unexpected second ditch. Consequently trench 1 was extended westwards to the south of the annexe of Southfield House. Initially this extension was dug by hand (trenches 1A and 1B, Fig. 4), but subsequently it was opened up down to chalk by a machine (trench 1EX, Figs 4 and 5). Sections across the second ditch and excavation of other features revealed was then completed manually.

Trench 1EX

An area c. 15 m by 8 m was excavated to chalk bedrock or the

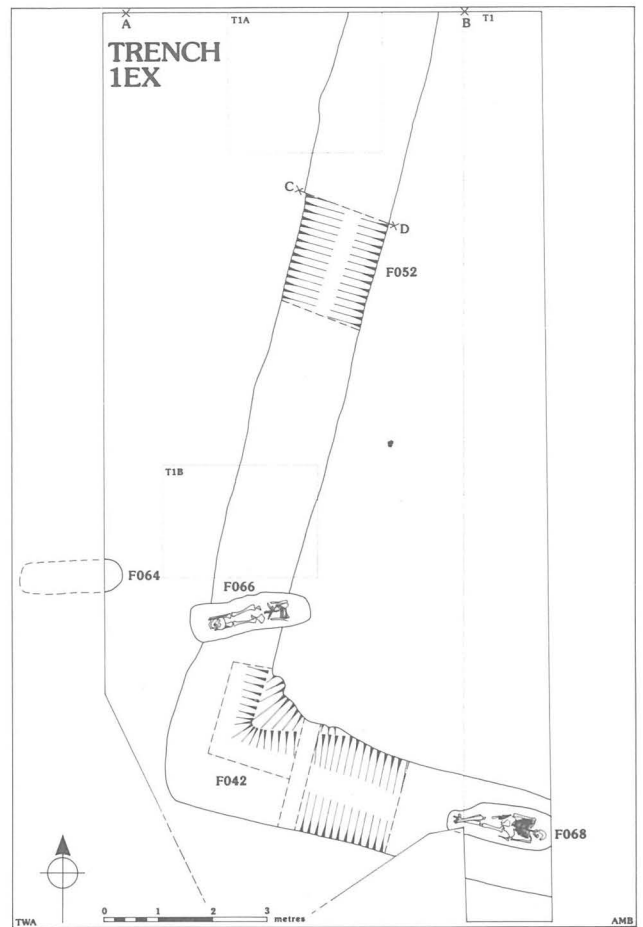


Figure 5. Southfield House, trench plan.

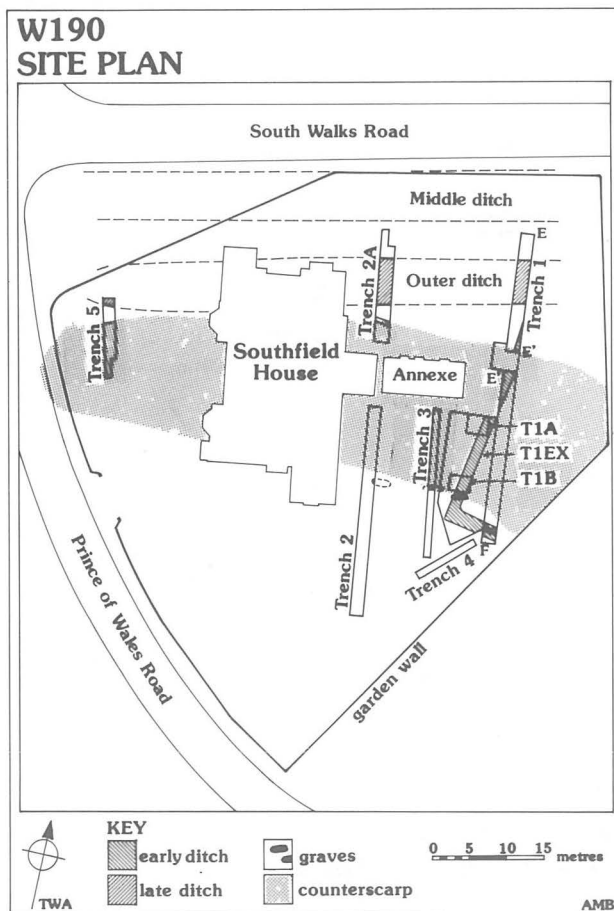


Figure 4. Southfield House, site plan.

lower archaeological strata. This removed topsoil and deposits belonging to the Late Roman counterscarp bank (039, 040, 041, etc., Fig. 6), and revealed the earlier ditches as well as three graves (Fig. 5). Depth of chalk below the modern surface was c. 2 m.

Ditch 042/052

The two ditches originally defined in the evaluation trench 1 were found on the excavation of the extension to be a single feature, a right-angled ditch with square-cut corner. Stratigraphically this was the earliest feature on the site, cut by the Late Roman ditch (057) and by two graves (066 and 068 below) and underlying the counterscarp bank contemporary with the ditch 057. As the section through ditch 052 shows (Fig. 6) the layers in the bank had subsided into the earlier ditch 052. Ditch 052 has a splayed-V profile, and was cut into the natural chalk to a depth of c. 1.5 m. It was filled with red-brown clay, with a central core of flints in clay. This fill was very similar to the clay make-up of the counterscarp bank and both probably derive from the natural Clay-with-Flints subsoil which overlies the chalk over much of Dorchester. This natural clay was also found under the counterscarp bank, where a remnant and much truncated prehistoric brown loam (derived from arable cultivation) also survived on top of it (Mike Allen pers. comm.). Animal bone and pottery were recovered from all layers infilling the ditch, and the pottery which includes a Central Gaulish Samian base with a maker's stamp, can be dated to the 2nd century AD.

The function of the ditch is not certain, and no other features were located which might have clarified it. The fill is very homogenous and similar in character to that of the counterscarp bank, and it is very likely that the ditch 042/052 was deliberately filled in when the late Roman defences were constructed.

The burials

The early ditch 042/052 was cut by two burials, 066 and 068; another burial, 064, lay to the west. Only the two burials which cut the ditch were excavated, and only 066 was lifted. This policy was followed as the area being excavated was proposed for car-parking and disturbance at the level of the graves was not anticipated. All three burials were extended inhumations in wooden coffins, aligned

east-west. The wooden coffins were identified from the presence of iron nails. All the burials lay to the south of the counterscarp bank, and could be contemporary with it. Other burials may exist in unexcavated areas.

Grave 066

A shallow subrectangular grave cut 0.25 m into the fill of ditch 052. Extended inhumation with arms crossed over the chest, left over right. Decapitated, with the skull, mandible and four vertebrae laid between the feet. No gravegoods, but 2nd-century pottery was found in the fill of the grave.

Skeletal Report

Jacqueline I. Mckinley

The skeleton is that of a female, aged 55-60 years, with mesocephalic skull. Stature is estimated to be c. 4 ft 6 in.

The skeleton was largely intact, although the maxilla, and parts of the vertebrae, ribs, fingers and toes were missing. The bone structure was small and very fragile.

When excavated the skull, together with the atlas, 3rd and 4th cervical vertebrae were found resting on the lower legs feet, where they had obviously been deliberately placed, while articulated, at the time of burial. Only one of the remaining three cervical vertebrae survived, either the 6th or 7th – probably the latter – which was in the usual position in the spinal column. No signs of damage such as would be caused by severance of the neck were visible on the 4th or 7th cervical vertebrae and obviously the head must have been removed in the region of the 5th and 6th. It is reasonable to assume, considering that the rest of the cervical vertebrae remain intact, that the damage caused to the 5th and 6th vertebrae (several blows may have been necessary to remove the head as against one clean cut), was responsible for their lack of survival.

Pathology

Considerable tooth loss had occurred resulting in the resorption of pre-molar and molar sockets. The remaining teeth were heavily worn, with small caries lesions on incisor and canine lateral necks and all teeth showed heavy tartar deposits. Lines of dental hyperplasia (the result of prolonged hunger or illness in childhood

while the teeth are forming), were evident on the canine crowns. The lack of wear to the left maxillary 3rd molar indicates the failure of the tooth to erupt fully and its resulting lack of use.

Both superior orbital arches had areas of pitting, cribra orbitalia, believed to be the result of iron deficiency in childhood.

The non-fusion of the frontal suture, metopism, is a non-specific morphological variant with possible genetic association. The prominent mental protuberance may also be of genetic relevance.

Osteoarthritis was evident in various areas of the skeleton, being fairly gross in the cervical region of the spine and the carpal/metacarpal region of the right hand. Gross eburation (polishing) and pitting of the articulation process surfaces with associated marginal osteophytosis was evident on the axis, 3rd and 4th cervical vertebrae. (No disc degeneration.) The lumbar region was less severely affected, the articulations of three vertebrae being involved. The thoracic region had only very slight lesions affecting only one vertebra. One rib articulation facet was also slightly affected.

Osteoarthritis in the right hand was evident from gross eburation on the trapezium where it articulates with the first metacarpal and correspondingly, from eburation and osteophytosis on the trapezium surface of the 1st metacarpal.

Numerous (min. 6 each), small cysts have developed in the sacro-iliac articulation surfaces of both halves of the pelvis. Gross osteophytosis had also developed along the superior border of the left sacro-iliac articulation, forming a flange with 14 mm of growth at one point. Considerable pain and stiffness in the lower back must have resulted.

Osteophytosis (an age related lesion associated with alleviating pressure on joints by the development of bony growths) was evident in the metacarpals, and proximal/middle phalanges of both hands, but only to a slight degree.

Two small cysts were noted in the left acetabulum at the edge of the notch.

Grave 068

A shallow subrectangular grave cut c. 0.25 m into the fill of ditch 042. Extended inhumation of an adult, aged c. 25 years, legs crossed at the ankles, left over right, arms by the sides. No gravegoods.

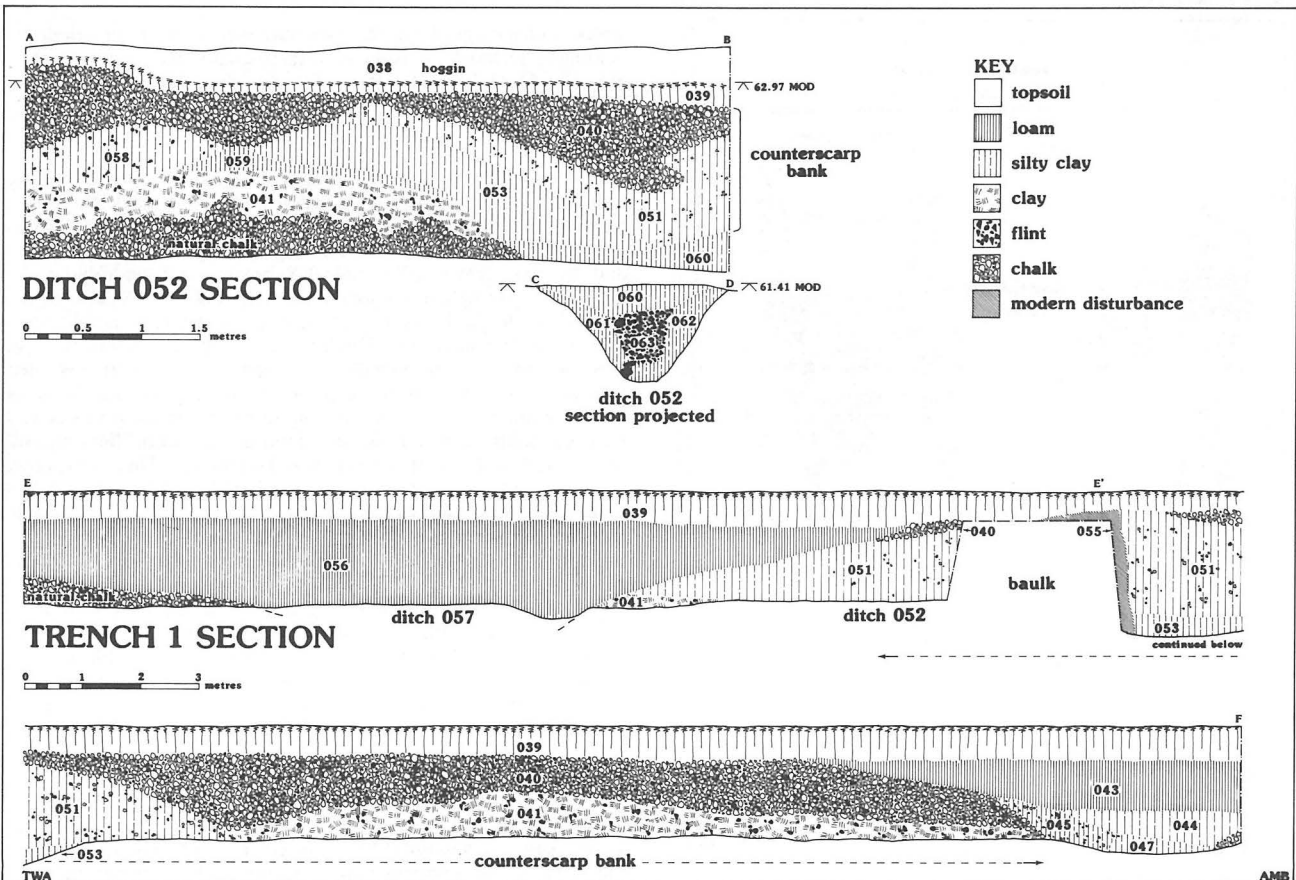


Figure 6. Southfield House, sections.

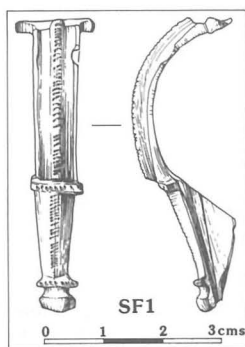


Figure 7. Southfield House, copper alloy brooch.

Discussion

The discovery of an Early Roman ditch outside the walls of the Late Roman town is of great interest in adding to the understanding of the development of the town *Durnovaria*. The alignment of this new ditch, 042/052, appears to continue the line of Charles Street and it does fit with other anomalous linear features observed in the southeast area of the town, probably again outside the walls. It is possible therefore that this ditch represents an early laying out of an *insula* for the developing Roman town at some time in the late 1st or early 2nd century (W. G. Putnam pers. comm.). The *insula* was obviously never built on, the expectations of the early planners being perhaps too grandiose, and the laying out ditch was abandoned and backfilled with the construction of the later defences. Most of the dating evidence for the construction of these defences points to a date in the latter part of the 2nd century.

The burials located were not entirely unexpected, and represent an extension of the known cemetery area around the south gateway into the Roman town. Their relationship to the counterscarp bank, apparently lying to the south of it and respecting its line, suggests contemporaneity with its use. Burials in wooden coffins are known from many cemetery sites along the Roman roads outside the town (RCHM 1970, 571 ff), in accordance with Roman law, and are generally dated to the 3rd or 4th century AD. The lack of gravegoods might imply a late date within that range. Decapitated burials are also not uncommonly found in Late Roman cemeteries across southern England (Harman *et al.* 1981), and local examples can be cited from the extensive urban cemetery adjacent to Poundbury Hillfort (TWA in preparation), as well as from the smaller rural cemetery recently excavated at Alington Avenue to the south-east of the Roman town (Davies *et al.* 1986, 107).

Acknowledgements

The excavations were entirely funded by the Developers, Wimpey Home Holdings Ltd, who also supplied all machine-time. In particular the Trust is grateful to Euan Cresswell, Reg Ferm and Terry Vincent for all their help and interest (and patience). The site was supervised in the field by Neil Thompson; the illustrations were prepared by Amanda Balfour; and the project managed by Susan M. Davies for the Trust for Wessex Archaeology.

S. M. Davies and C. N. Thompson

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A POSSIBLE ROMAN AMPHITHEATRE NEAR BADBURY RINGS

Attention was drawn to this site by an 18th-century map (DRO D/PKL) which has recently become available for study. It depicts a large circular earthwork near Badbury Rings and describes it as a 'Roman amphitheatre'.

This site was noted in 1954 (Quinnell) as a horseshoe-shaped earthwork of unknown date and it is still visible although much ploughed down.

Fieldwork was conducted in February 1987 when the field was newly ploughed. A chalk bank 25.0 m wide and 0.5 m high survived on the north and west sides of a circular depression 30.0 m in diameter. Assuming the bank once surrounded the depression, the original diameter of the monument can be estimated as 80.0 m. Fieldwalking recovered seven fragments of pottery all from the chalk bank. These included three sherds of Bronze Age date, two fragments of Romano-British colour-coated ware, a piece of Samian and an abraded sherd probably Romano-British. The earthwork has been truncated on the north-east side by a modern road and the bank is visible in the hedgeline. In September a contour survey was carried out while the field was in stubble.

The site (ST 95560281) lies outside the south-west boundary of the Romano British settlement identified with Vindocladia (RCHM 1975, 61) and immediately north-west of the Roman road from Badbury to Dorchester. Such a location would be in keeping with the sites of known amphitheatres such as those at Dorchester and Silchester. A further similarity with Maumbury Rings is indicated by the Bronze Age pottery which might suggest that the earthwork was a modified prehistoric barrow or enclosure.

The little known about Vindocladia indicates that its size would not warrant such a public amenity but if further work proves this to be an amphitheatre it would bring into question the status of the settlement.

David Smith and Martin Papworth
National Trust

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Dorset Record Office, Bankes Archives, Woodward Estate Maps, 1774.

EXCAVATIONS AT BUCKNOWLE FARM

During the 1987 season work continued on the small separate group of farm-buildings to the south of the courtyard villa. Several short stretches of walling were located, but full plans of the buildings uncovered this year could not be recovered because of extensive late 3rd century disturbance. It is in any case probable that the structures here were flimsy open-sided lean-to erections associated with a number of stone tank-bases similar to one found in 1984. Demolition of the last of these working-huts in the late 3rd century AD resulted in the surviving foundations being incorporated into the metalling of the yard fronting the remaining farm-buildings.

Four child burials, including one in a stone cist, found under this surface, had been placed within the buildings. Fourteen such burials have now come to light in the farm complex.

Coins and pottery from the last five year's work suggest that this group of agricultural buildings was largely of 3rd century date, and that demolition occurred when the courtyard villa was formed. In 1987 an exploratory trench north-eastwards from the main excavation located further substantial walls of 4th century date which may be part of a third wing to the villa. Work in 1988 will be concentrated here to determine whether new farm-buildings were constructed on the south side of the courtyard.

Two further Iron Age huts were located and, from the pottery recovered, appear to be of pre-'Durotrigian' date. The smaller of the two huts, with a diameter of 7 m, may have served an industrial rather than a domestic purpose, since it was at least partially open-sided. Pits and post-holes within it contained quantities of animal bone, which in due course may explain what role it had in daily life. A ditch running away eastwards from the edge of the hut may have been associated with it.

A heavy deposit of burnt flint extended over an area of some 9 m by 3 m across the centre of the excavation and was apparently related to features dating from the century before the Conquest.

J. Collins, N. Field and A. Light

OBSERVATION AT NORDEN, CORFE CASTLE: AN INTERIM REPORT

In August 1987 a trench dug by Wessex Water Authority to locate a faulty water pump was examined. The site was in North Castle field (SY 95608255) lying within the southern boundary of the Romano-British settlement at Norden (Sunter 1987, 11).

The trench was 1.8 m wide, 2.0 m long and 0.6 m deep. The natural sand was 0.5 m below ground surface. Below the plough soil (0.15 m deep) and an occupation layer (0.20 m deeper) was a yard surface of compacted chalk lumps (0.05 m deep). This yard sealed an occupation layer which covered another surface of compacted chalk lumps with some flints. Both of these layers had an average depth of 0.05 m. The lower yard had been laid directly on the natural sand.

Of the Roman pottery five fragments were of Samian, the remainder being sherds of Black Burnished ware. One mudstone and three chalk tesserae were recovered. Rim sherds collected from above the upper yard surface indicated a 3rd-century date for its construction. These included two bowl/dishes with straight side and rim and one bowl/dish with dropped external flange. The lower yard surface produced a sherd from a bead rim bowl indicating a 1st century date for this layer. These dates are based on a small sample, 70 sherds were recovered above the upper yard and 15 above the lower yard. A further 45 including all the Samian sherds lay within the topsoil.

Martin Papworth
National Trust

Sunter, N., 1987, 'Excavations at Norden' in *Romano-British Industries in Purbeck*, DNHAS Mono 6, 9-43.

A SECTION OF A ROMAN ROAD AT COCKROAD FARM, MOOR CRICHEL, DORSET, ST 98660892

In the course of laying an underground electricity cable, a machine-dug trench crossed the line of the Roman road between *Vindocladia* and *Sorviodunum* (associated with Badbury Rings and Old Sarum respectively), in a field to the East of Cockroad Farm. The section exposed showed that the base of the road was made of flint nodules overlaid by compacted chalk rubble, which may have formed the road surface. The road was at least 6 m wide and the agger at least 0.15 m high but it is now much reduced by ploughing. A shallow ditch was observed close to its western side, probably running parallel to it. The road base sealed a fine clayey loam, probably a pasture land soil, but no evidence of the date of the road's construction was obtained.

The field work was carried out on the 24 and 25 August 1987, and was paid for by Mr J. Stefanidis, the resident of Cockroad Farm.

Alan H. Graham
Trust for Wessex Archaeology

ROMAN ROADS IN EAST DORSET

Since the writer published a preliminary report¹ several years back on some of the evidence from fieldwork and excavation for a military road from the Lake Farm base to Dorchester, further survey and exposures from dug sections have made it clear that the early system of road communications created by the Second Legion in the county was more extensive and revealing than at first seemed credible. Details hopefully promised in 1984 must await the right time and place to be published, now that so much more information has come to hand. However, it is possible here to refer to three developments in 1987, where road-materials have been recorded on anticipated alignments.

(1) The writer informed the Trust for Wessex Archaeology in the summer of 1987 that a promising alignment of possible Roman road running almost due south from Stoborough in Purbeck was going to be disturbed by the construction of the Wareham by-pass (SY 92628535). A section was cut by the Trust and the results are reported elsewhere for that body. However, it should not be out of order to say here that this road can be demonstrated on the ground to have led from Wareham to the hillfort at Flower's Barrow. The southern stretch of Furzebrook Road partly follows the alignment. To reach the high ground at Knowle Hill (SY 931822), there is an impressive terraced climb and cutting, hitherto unexplained.

(2) In October 1987 during a lecture at Wareham the writer presented some of his evidence for the course of the Roman road from Dorchester to that town. There were various indications that the A352 road from East Stoke followed a Roman line, which, for the last half-a-mile, ran straight on towards the Castle, instead of swerving away towards Westport. Information from Mr Alan Reid of Wareham in the audience was followed up regarding construction of a new tennis court on the west of the Castle Mound (SY 921871). Earth-removal here had indeed exposed what is best seen as part of the metalling for the Roman road from Dorchester, exactly on the predicted course.

(3) During the autumn of 1987 there has been extensive earth-disturbance preceding the building of a new road linking Wareham Road and Wimborne road, Corfe Mullen, on the site of Mount Pleasant Farm, in the area known as Cogdean. With the help of local volunteers and support from the developers and the civil engineers (who in one place dug a special machine-trench) it was possible to confirm at a number of points (from SY 992979 to 991975) the existence of a well-cambered road, 4 m wide, with

side-ditches and a margo or side-walk. These discoveries corroborate the expected alignment of an early Roman road linking the Lake Farm base, via upper Corfe Mullen, with Wareham and Purbeck, for which there was already evidence.

N. H. Field

1. Field, N. H., 'The Roman road from Lake Farm to Dorchester', *Dorset Proceedings*, 106 (1984), 116.

ARCHAEOLOGICAL EXCAVATIONS AT THE TRUMPET MAJOR, DORCHESTER, DORSET

An extension to the west and south of the Trumpet Major public house (SY 70259000) Alington Avenue provoked the need for archaeological investigations. This was confined to the line of the footings' trenches, with extension only as necessary to excavate fully any inhumations encountered. Eight extended inhumations were found, all with a West-East alignment, and dated provisionally to the later Romano-British period. Several of the graves overlay earlier features but these could not be fully investigated, and their date is unknown. The site lies to the north of the major multi-period settlement excavated to the south of Alington Avenue in 1985, *Dorset Proceedings* 107, 1985, 101) and will be published as a part of that site.

A contribution to the cost of the work was made by Eldridge Pope Limited and the co-operation of the contractors, McIntyre Build, was appreciated. The excavation personnel were from the Dorchester Community Programme, funded by the Manpower Services Commission. The excavations took place in September 1987, and were supervised in the field by Ruth Soames.

Alan H. Graham
Trust for Wessex Archaeology

RECENT EXCAVATIONS AT THE GROVE TRADING ESTATE, DORCHESTER, 1987: THE WYVERN MARLBOROUGH SITE

Introduction

Proposals for the development on part of the site of the extensive Late Roman cemetery at Poundbury (SY 68559112) led to further rescue excavations on the area. Although the archaeology had been examined on a very large scale between 1964 and 1980 by Christopher Sparey Green, a number of burials remained unexcavated and these were the subject of the 1987 work. This report is a summary of the excavation results only; the detailed results will be incorporated within the volume on the whole of the cemetery excavated by Mr Sparey Green, which is in preparation by the Trust for Wessex Archaeology.

The area designated for development by Wyvern Marlborough Ltd covers the western half of Site E of the previous archaeological work (Green 1987, and TWA in prep.), as well as a narrow band of mostly unexplored land immediately to the north of that site (Fig. 8). The known archaeological remains included not only the large Late Roman cemetery but also a palimpsest of settlement features dating from the Neolithic to the post-Roman periods (c. 2500 BC to AD 600+; Green 1987). The work in 1987 concentrated solely on the cemetery remains, and only the burials that were in immediate danger of destruction from the development were excavated. Excavations centred on two main areas, one in the north-west of the development containing a group of 22 unexamined graves (Fig. 9) and the other in the south containing five unexcavated graves (Fig. 10). Only one grave, 1242 on the eastern edge of the north-western group, was not located.

The remnant topsoil and accrued debris were removed by machine; all graves were then excavated using trowels. The two intersecting graves (1198 and 1199) were sectioned, the remainder dug in plan. Coffin nails were recorded three-dimensionally in order to maximise potential information on coffin construction. Soil samples were collected for lead analysis. Grave numbers allocated during Mr Sparey Green's excavations were retained, but grave fills and skeletons were recorded using the Trust's sequential context number system.

The Graves

The graves showed clearly in the chalk bedrock and were easily distinguishable from those excavated previously by the difference in the fills. All graves were sub-rectangular in plan, with steep sides and flat bases, except 1364 which was more rounded in plan and profile. They ranged in length from 0.95 to 2.27 m, and in width from 0.48 to 0.93 m. Depths varied from 0.12 to 1.2 m, and the graves had apparently been levelled into the hillside. The original

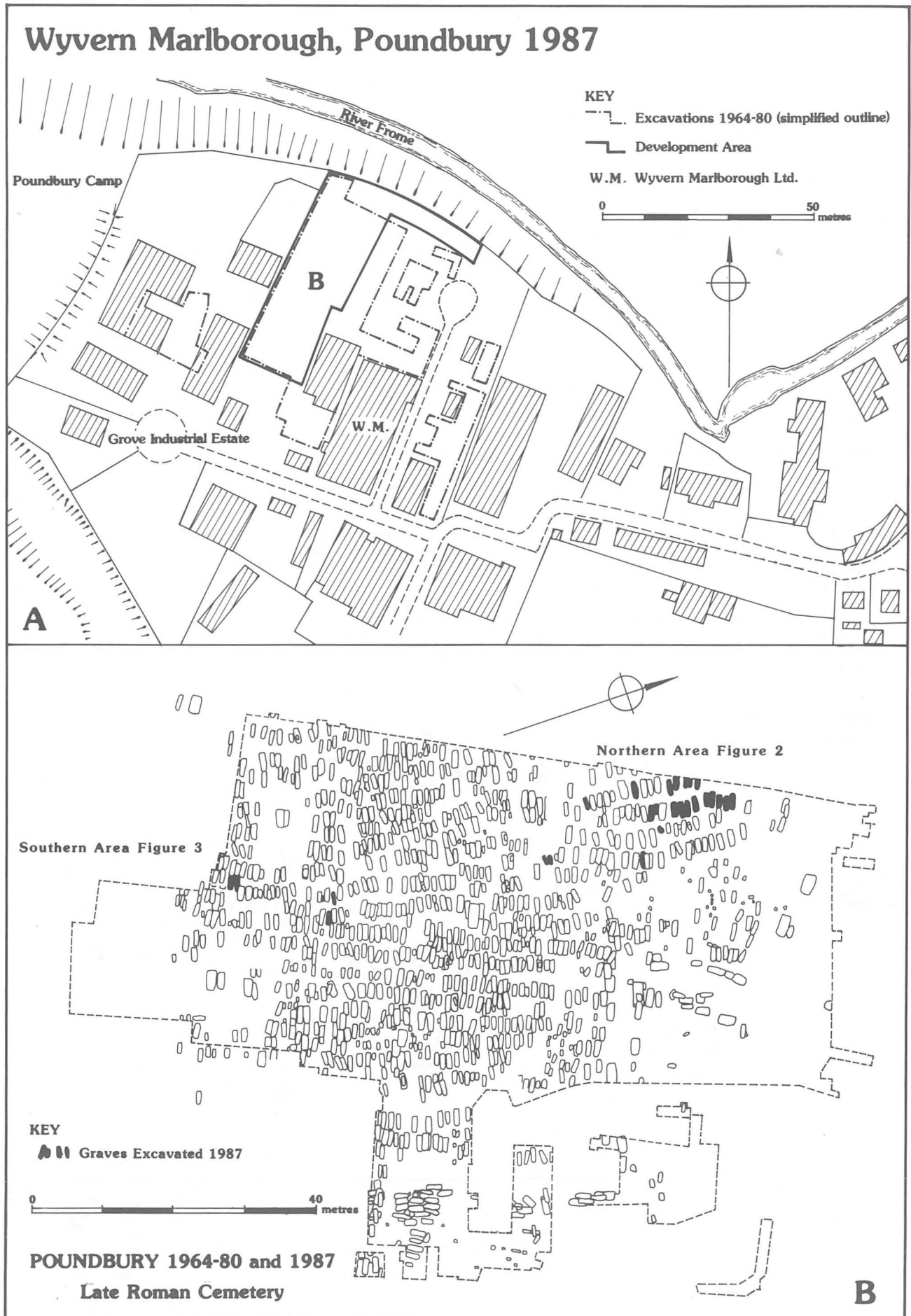


Figure 8. Wyvern Marlborough: location plan.

level of the natural chalk has been considerably reduced over the excavated area, as shown by graves 1197 and 1199 which extended into the woodland to the west. The reduction is presumably the result of the initial machine-clearance for the earlier excavations and subsequent weathering over the past 10 years. The graves at the north end of the site were generally shallower than those at the south, although grave 624 at the south end was also very slight in depth. There was no evidence for any form of gravestone or marker post.

The graves were filled with homogeneous grey-brown loam and mixed sub-angular chalk rubble. The deeper fills contained more semi-vacuous chalk rubble near the base with compacted clay-loam near the surface. Collapsed coffins were often marked by areas of loose chalky and flint rubble surrounded by iron nails. Three adjacent shallow graves (1202, 1203 and 1206) had partial linings of flints and building stone, surrounding the wooden coffins, which could suggest some form of cist burial, which Mr Sparey Green associates with the final phases of the cemetery (1982, 64). All the graves contained single burials apart from 1192, which contained two adult burials, one on top of the other.

The coffins

All the inhumations were buried in wooden coffins. In some cases, such as in graves 1185 and 1197, the coffin outline was preserved as a soil mark, and graves 1194 and 1230 also produced fragments of apparently desiccated wood. More usually, however, the evidence for wooden coffins was in the form of iron nails which frequently had mineralised wood adhering to them. The nails fall into two basic types, round-headed and diamond-headed, already well-documented from the Poundbury cemetery (Mills in preparation). The large diamond-headed nails in graves 1185, 1199 and 1230, together with the well-defined shadows, indicate the presence of at least some substantial coffins. Grave 1192 also produced an iron strap-fitting from the coffin. The detailed plotting of the position of the nails within the graves and further study of the mineralised wood, identification of type and orientation of the grain for example, will enable the construction techniques to be analysed.

The coffin in grave 964 appeared to have been packed with gypsum, a rite observed not infrequently in the previous excavations.

The inhumations

The 26 skeletons recovered were all well-preserved except for those in graves 964 and 1194. The skeleton in grave 1340 was incomplete owing to disturbance from tree roots and that in grave 251 was unfortunately damaged by the machine-cleaning, as the grave was shallower than anticipated. Grave 250, which was extremely shallow, contained no skeleton, and was possibly destroyed in antiquity.

Most of the burials were those of adults, though an infant was buried in grave 624 and a child in grave 1150. Generally the burials were extended with heads to the west and arms laid by the sides or across the pelvis. The burial in grave 1364, however, was laid in a sleeping position with head to the east, the hands together in front of the face and the legs drawn up towards the chest. Burials of this type form a very small proportion of the Late Roman ones at Poundbury. Two other burials deserve mention: the skeleton in grave 1201 was visibly foreshortened apparently because the body had been forced into a coffin which was too small for it; and grave 1192 contained two burials, both adults. The legs of the upper skeleton had been amputated above the knees, the arms, clavicles and scapulae were absent and the skull may have been severed from the body at the third vertebra. The lower skeleton appeared to be intact.

Detailed examination of the skeletal material has not yet been carried out, but will clarify the observations on the upper burial in grave 1192, as well as providing information on age, sex, nutrition and disease for the population.

Gravegoods and other finds

Most of the burials were not accompanied by gravegoods, although a double-sided bone comb decorated with an incised ring-and-dot motif was found near the skull of the burial in grave 1194, together with an iron pin at the throat; and a coin had been placed in the mouth of the burial in grave 1197. Approximately 8 per cent of the burials in the Late Roman cemetery excavated by Mr Sparey Green were accompanied by goods, including combs and coins, so the finds in 1987 were not unusual.

A small number of finds were recovered from the fills of the graves, including residual prehistoric flint flakes, fragments of Late

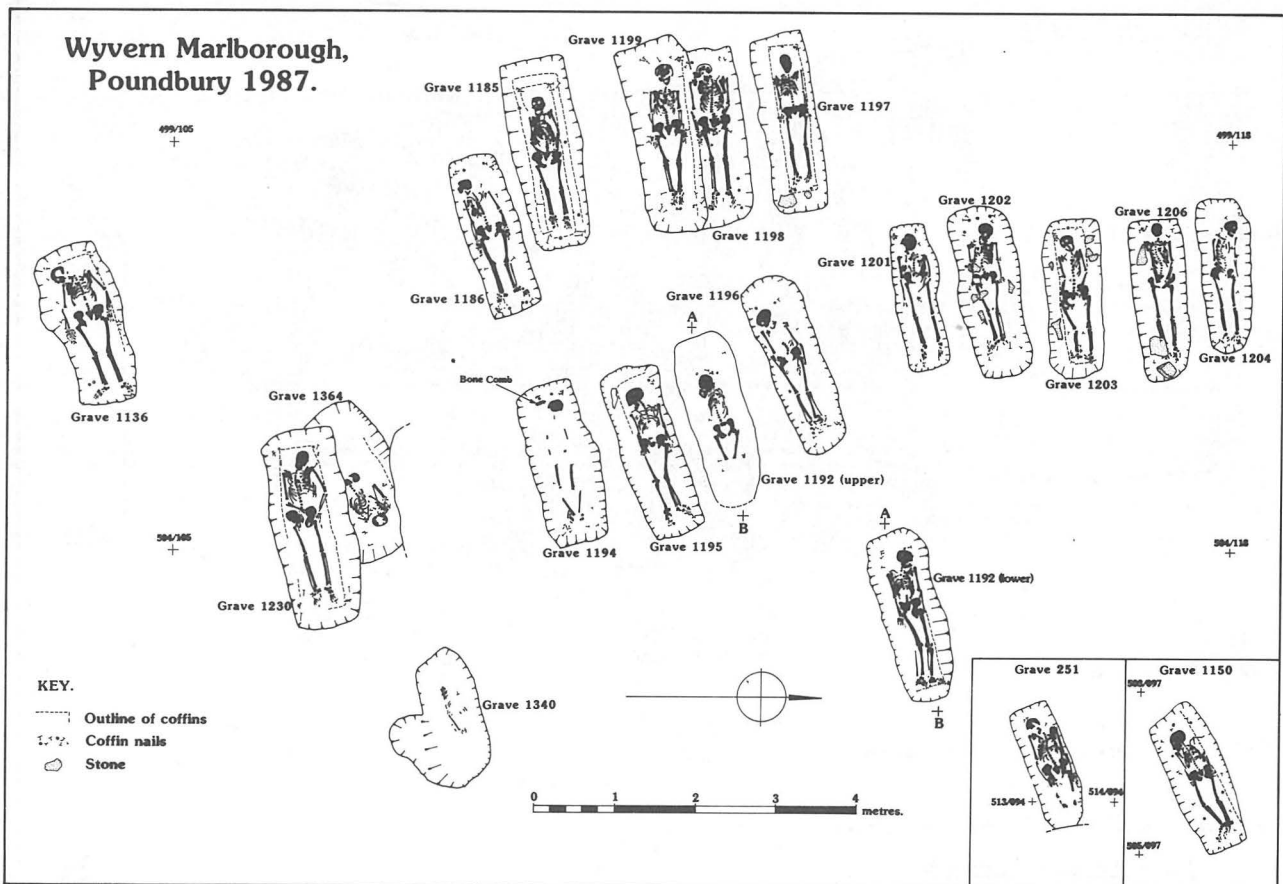


Figure 9. Wyvern Marlborough: the northern area.

Iron Age and Roman pottery and animal bone from the earlier settlements on the site. These finds have been listed in the site archive.

Acknowledgements

The 1987 excavations were funded by the developer, Wyvern Marlborough Fireplaces Ltd. The Trust is most grateful to Mr P. Meyers for his interest and assistance in arranging for the work to be carried out, and to Mr L. Meyers and Mr D. James also of Wyvern Marlborough; also to Mr M. Howarth and Mr D. Nicholson of John Stark and Partners for their help and support. The work was carried out by Trust assistants and members of the Trust's Manpower Services Community Programme Scheme based in Dorchester. It was supervised in the field by Philip Harding and Ruth Soames; and the project was co-ordinated for the Trust by Susan M. Davies.

S. M. Davies, P. Harding and R. Soames

Green, C. J. Sparey, 1982, 'The Cemetery of a Romano-British Community at Poundbury, Dorchester, Dorset', in Pearce, S. M., *The Early Church in Western Britain and Ireland*, Brit. Archaeol. Rept. 102 (Oxford).

Green, C. J. Sparey, 1987, *Excavations at Poundbury Volume I: The Settlements*, Dorset Nat. Hist. Archaeol. Soc. Monograph Number 7 (Dorchester).

Mill, J. M., in preparation, 'The Coffin Fittings' in TWA in preparation.

TWA in preparation, *Excavations at Poundbury 1964-1980. Volume II: The Cemeteries*.

RECENT ROMANO-BRITISH DISCOVERIES IN THE GUSSAGE VALLEY

The purpose of the following note is to briefly describe a number of finds and features of Romano-British date recorded from the area centred on the Gussage Brook Valley, in the north-east of the county. It is hoped that a fuller description of some of the items noted here will appear in a future volume of the *Proceedings*.

Part I: Late Roman pit, Gussage All Saints parish

During deep ploughing in the winter of 1975 a void appeared at ST 99451110. Located on the northern slope of the Gussage Brook Valley at 56 m OD, the feature is approximately 60 m east of the Roman road, 'Ackling Dyke' (Margary 4 c). Due to local rumours of bombs being jettisoned in the vicinity in the Second World War, an army disposal team was called to examine the site. In the course of their investigations the army exposed a pit, removing soil to a depth of 3.2 m without archaeological supervision, before concluding that the feature was not the result of military activity. At this point one of the writers (M.G.) was approached by the late Mr J. Ironmonger of St Giles Farms Ltd in case the pit proved to be of archaeological interest.

Because most of the fill had been removed before the archaeological significance had been recognised it was not possible to ascertain the original plan of the pit. It was however clear that the mouth of the pit was sealed by over 1 m of colluvial deposits. At this point the pit was 1.22 m wide, tapering to 0.92 m at the lower limit of the army excavation. The remaining 0.46 m of fill was removed (by M.G.) giving a total depth, from the modern ground surface of 3.66 m.

The lower fill consisted of a grey wash with occasional chalk rubble, and contained clay and Purbeck stone roof tiles as well as a small quantity of pottery. Careful sieving of the spoil from the army excavation yielded further sherds of pottery, animal bone, oyster shells, iron nails and five poorly preserved, but identifiable roman coins.

The coins (mint marks illegible unless stated otherwise).

- (1) AE 3, House of Constantine; rev. Fallen Horseman type
c. AD 346-360.
- (2) AE 3, Valentinian I; rev. type GLORIA ROMANDRUM;
AQUILIEA mint. AD 364-375
- (3) AE 3, Valentinian I; rev. type. SECVRITAS REIPUBLICAE
AD 364-375
- (4) AE 3, Valens; rev. type. SECVRITAS REIPUBLICAE
AD 364-378
- (5) AE 3, Valens; rev. type. SECVRITAS REIPUBLICAE
AD 364-378

The pottery. A total of 86 sherds were recovered, all but 16 being coarse wares, with grey, sandy fabrics predominating, although some BB1 was also present. Diagnostic forms include bead and flange bowls and finger impressed storage jar rims. The 16 fine ware sherds were all products of the New Forest kilns, including a colour-coated mortarium and folded beakers of Fulford type 27, the latter having a date range of c. AD 270-400 (Fulford 1975, 50-52).

Date. When the ceramic evidence is combined with that of the coins, a date of c. AD 360/70-400 for the infilling of the pit would be appropriate.

Discussion

A notable feature of the pit contents is the quantity of fired clay and Purbeck stone roofing materials, suggesting proximity to a substantial building. Further Roman material has been recorded from nearby at ST 99401105, by Mr R. Morris of the Kennet Valley Detecting Club. This includes 21 Roman coins ranging from the 1st or 2nd century to the 4th century, with issues of the latter period predominating (a full list of the finds made by Morris has been deposited in DCM).

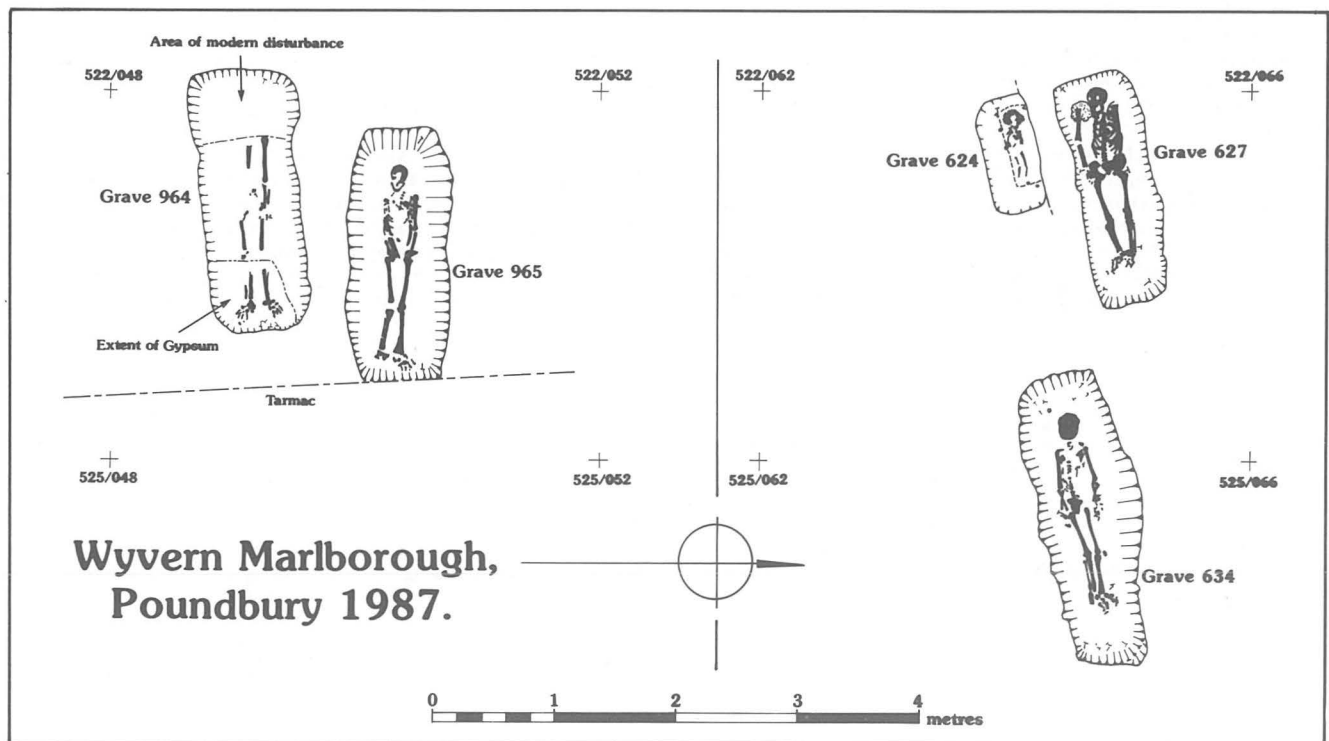


Figure 10. Wyvern Marlborough: the southern area.

Of particular interest was the depth of colluvium sealing the pit. If such a deposit is typical for this part of the valley slope, it has important implications with regard to the recovery of the pre-Medieval settlement pattern in the region. Aerial photography or geophysical survey would be unlikely to reveal any features sealed by such a deposit.

Only observation of building works and other disturbances to the subsoil will be likely to add to our knowledge of activity on the valley floor.

Part II

The following items have all been found by members of the Kennet Valley Detecting Club, and were made available for study through the good offices of Mr Tony Morris. It is intended to publish a fuller account of the items in a future volume of the *Proceedings*. A full list of the objects has been deposited in the DCM Dorchester.

All the material comes from a transect running from the Gussage Valley floor northwards onto Gussage Cow Down, the latter being the site of a well-documented Iron Age and Roman settlement complex (RCHME 1975, 24).

Area centred on ST 999134. In excess of 100 Roman coins are recorded, ranging from Vespasian (AD 69-79) to Valens (AD 364-78). Also noted was a Durotrigian stater, Mack 317. 2 cu alloy key rings, 1 fe key, numerous fibulae and a miniature copper alloy spearhead (Figure 11, no. 3). The spearhead is a simply made item with a small hole, probably for a rivet to affix it to a shaft. Such miniature items are generally considered to be 'votive' in character (Green 1976) and are associated with temples and shrines. The number of coins and fibulae from this location may suggest the presence of a small roadside shrine on Gussage Hill. The position invites comparison with other shrines of Roman date, which are often found in close proximity to major late Iron Age centres.

ST 999131. From within the area of a 'double banjo' complex located by John Boyden (RCHME forthcoming); a Durotrigian ¼ stater, Mack 319; an Fe saw, probably late Iron Age or early Roman, and the base of a samian cup, Drag. 33, bearing the stamp of ASIATICVS of Lezoux, c. 150-80 AD.

ST 9991355. Several Roman coins and a silver finger ring inscribed VIENE FELIX.

On the valley floor, from the area of unploughed water meadows further Roman coins and fibulae are recorded, area centred on ST 9871113.

The fibulae are described here in full (Figure 11 nos 1 and 2).

1: Disc brooch with enamelled inlay and eight projecting lugs, 19.5 mm in diameter. The areas of enamelling are separated by a rosette-shaped band of eleven arcs. The outer enamel was probably white; the inner setting being red. A central hollow may have held a paste or glass bezel, or, alternatively a projecting stud. The pin (missing) was hinged, with the anchoring and catchplate surviving.

Disc brooches with projecting lugs occur in a wide variety of forms, although those with six projections seem to be the commoner type.

The accumulated dating evidence for the type overall suggests a *flourit* during the 2nd century AD.

2: Tapering Bow Brooch with head loop. This brooch is 38 mm long, and comprises two elements; the upper bow is divided by a central vertical ridge, with 'rocker arm' ornament either side. The lower bow tapers slightly to a projecting foot. Wings project either side of head loop have two parallel grooves at each extremity. The pin was hinged.

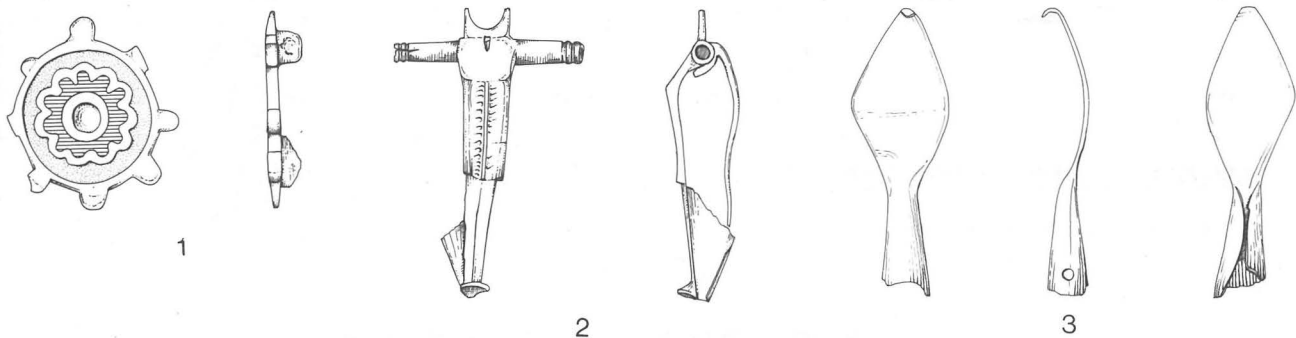


Figure 11. Copper alloy brooches and miniature spear head from the Gussage Valley, at life size.

The type is a predominantly south-western one, with a date range beginning in the later 1st century AD and running well into the 2nd.

Mark Corney and Martin Green

Fulford, M. G., 1975, *New Forest Roman Pottery*, Brit. Archaeol. Rep. 17.

Green, M. J., 1976, *A Corpus of Religious Material from the Civilian Areas of the Roman Britain*, Brit. Archaeol. Rep. 24.

RCHME, 1975, Royal Commission on Historic Monuments (England): *Dorset Volume V: East*.

RCHME, forthcoming, *Bokerly Dyke: an ancient boundary and its context* (title provisional).

CHRISTCHURCH

The following hitherto unpublished sites and work are noted.

1. **St Catherine's Hill.** In January 1976 the author conducted emergency earthmoving funded by Christchurch Council to give some protection to barrows eroding into old quarry workings on St Catherine's Hill. The barrow numbers are the Ordnance Survey Record Card series.

SZ 19NW22. About 30 cm of topsoil was added to the centre of the barrow to reduce erosion due to a path over the barrow.

SZ 19NW23. Minor pits in the barrow were filled in.

SZ 19NW24. A large quantity of sand was banked against the eroding edge of the barrow and a path was re-routed to encourage the public to avoid the barrow.

SZ 19NW25. A large quantity of sand was banked against and over this barrow. Trees were planted to cut off access.

SZ 19NW26. The irregular shape of this mound suggests it is probably the Napoleonic beacon mentioned in documentary sources to be on St Catherine's Hill. It may or may not have been built on an existing barrow. No work was involved.

2. **Quomps Copse** (SZ 131963). The following five earthworks were surveyed in Quomps Copse in 1975 by Mr P. Aitken.

1. Low circular mound 10 m diameter surrounded by a berm, bank and ditch (SZ 1312796291).

2. Bowl barrow 13 m diameter (SZ 1310096270).

3. Probably bowl barrow 8 m diameter (SZ 1309596254).

4. Bowl barrow 10 m diameter (SZ 1309096244).

5. Oval mound 12 m across partially surrounded by a berm, ditch and bank (SZ 1307596216). Other features noted in the area were a low mound (SZ 1297196163), some ditches (SZ 13009641) and traces of slight banks and ditches (SZ 13069632).

Earthworks Nos 1-5 are roughly in a straight line running north-east/south-west and are in a wooded area at the top of a scarp.

3. **High Street**, south-west side (SZ 1569692800). In c. 1980 Mr P. Aitken excavated an oven-like structure about 3 m long and 1 m deep. A sample of white vesicular material was examined by Dr P. J. Ovenden and is considered to be fused wood ash as it contains 20 per cent silica and no iron. Almost all of a medieval green-glazed jug with three feet was incorporated into the structure as a compact pile of sherds with other coarse pottery. Similar jug forms are known at Winchester. The oven was built into the rear of a bank associated with the 12th-/13th-century defensive ditch A (Jarvis 1983, 10, 19) excavated by Harding (Harding in Davies 1983). The oven was located during levelling for a car park and the jug has been donated to the Red House Museum, Christchurch.

4. **Tricycle Museum** (SZ 15939244). A watching brief during the conversion of a ruined late medieval monastic building revealed that no medieval floor levels survived. An average of 0.3 m of black loam with 19th/20th-century finds was removed to reveal undated buff sandy layers below.

5. Christchurch Castle New Bows Pavilion (SZ 16019265). In October 1987 the author undertook a watching brief of an area 18 m by 11 m during the removal of the topsoil by contractors to the top of the archaeological levels. This area is within the motte and bailey castle believed to date to c. 1100 and destroyed c. 1645. It contained very varied deposits of sandy loams often with chalk fragments. An undated pit was cut into clay make-up layers and one observation suggested a small surviving area of clay floor levels truncated by other features. The layers were often shelving at low angles. It is not possible to interpret the observations in detail, and they may relate to the castle ditch, although the work does give an indication of the nature of the deposits of the Castle area. Finds were very sparse and limited to two sherds of 13th-/14th-century cooking pots.

6. Place Mill (SZ 16009240). A 3 m deep trench revealed an undated stone revetment of rounded water-worn boulders 0.6 m in diameter and at a depth of 2-3 m. This appears to be a bank between the sea and the mill stream and could be medieval or later in date. (See 1870 Ordnance Survey 1:500 sheet 86.12.6.)

K. S. Jarvis

Jarvis, K. S. (1983). Excavations in Christchurch 1969-1980, *DNHAS Mono 5*.

Davies, S. M. (1983). Excavations at Christchurch, Dorset, 1981-3, *DNHAS 105*, 21-56.

TWO SAXON HOOKED-TAGS

These two silver items were submitted for identification by the finder, Mr K. Farnham, who has kindly allowed their publication (Figure 12). The first (a), from *Bere Regis* (SY 83509656) is incomplete and the hook is broken. The broken, tapering plate is decorated with very lightly incised lines forming a border along each edge. The junction between the plate and the hook is thicker and has worn moulding; two slight depressions may indicate that this was conceived as an animal head. The hook is circular in section. The form is unusual: the plate may have been triangular like the plain silver hooked-tags from Tetney, Lincolnshire (D. M. Wilson, *Anglo-Saxon Ornamental Metalwork 700-1100* (1964), nos 86-7). The second tag (b) from Winterborne Whitchurch (SY 84109985) has a very thin rounded plate with three holes: there are vague traces of lightly incised lines around the holes. Although lacking distinct decoration this tag is similar in form to that from Hanford, Dorset (L. Keen, 'A Saxon Hooked-tag from Hanford', *PDNHAS*, 106 (1984), 119). Both tags, like the others of this type, are so slight that they could have been used for fasteners on only very light fabric. The lack of ornament prevents a firm date being assigned to them, but they probably belong to the 9th or 10th century.

Laurence Keen

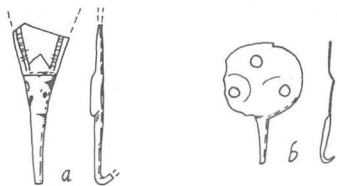


Figure 12. (a) Saxon Hooked-tag from Bere Regis. (b) Saxon Hooked-tag from Winterborne Whitchurch. Scale: both full-size.

LODGE FARM, PAMPHILL

Lodge Farm (ST 97430215) is a stone house of the late 14th or early 15th century. The National Trust acquired the property as part of the Bankes Estate in 1981. With support from English Heritage the Trust decided to undertake a major observation and refurbishing scheme for the building. This work was carried out from May 1986 to July 1987.

Cracks in the outside walls indicated a weakness in the foundations and it was proposed to underpin the building. Since the underpinning trenches would destroy valuable information concerning the past development of the site, archaeologists were employed to carry out the work. Detailed archaeological plans and elevations were also made of the building.

Lodge Farm is thought to be a hunting lodge built on the southern edge of Cranborne Chase. The walls are of ironstone ashlar with chalk and rubble infilling. The surviving medieval windows, doors and fireplaces are of Chilmark limestone.

The first floor is divided into three bays by four oak trusses; the north bay containing the solar, the remaining two bays forming the

hall. These trusses have assembly marks from north-south, I-III. Truss II has wattle and daub infilling, III has an arch-braced collar and IIII has a king and two queen posts between the tie beam and collar. An oak plank and muntin screen divides the solar from the hall.

In the west wall of the solar a doorway indicates the position of a demolished garderobe tower. The garderobe wall footings were excavated thus revealing its plan. Finds from the garderobe pit indicated a 19th century date for the demolition of this part of the building.

The ground floor ceiling consists of four oak cross beams resting on Chilmark corbels dividing this floor into three bays. The cross beams support oak joists, nine to each bay. Originally the ground floor may have been one room although stave holes below one cross beam may indicate a wattle and daub partition. In the east wall are the remains of a spiral stone staircase giving access to the hall.

In the 17th century the ground floor was subdivided by two screens of elm, wattle and daub, forming two rooms and a central cross passage leading from the front door into an outshot. The outshot was constructed of brick against the west side of the building and the garderobe tower. A second floor was inserted above the hall at this time.

In the 19th century a brick oven and fireplace was constructed on the north side of the outshot and above the west wall of the demolished garderobe tower. A cellar was also excavated below the north half of the medieval lodge.

The underpinning trenches revealed features predating the construction of the building. A ditch 3.0 m wide and 1.5 m deep was located under the north-west corner of the medieval lodge. A ditch of similar size was found under the centre of the south wall. Both were cut by stake holes, indicating a palisade. They are clearly part of the same enclosure but neither ditch was located when the cross passage was examined. However, a post-pit indicating the position of a gateway implies that the enclosure entrance was here. The filling of the ditch contained 14th century pottery, mortar, clay and limestone tiles and animal bones, including fallow deer antler. The building material from the ditch indicates that this feature once enclosed an earlier lodge.

The ditch cut a packed gravel surface containing numerous fragments of Iron Age pottery and burnt flint. Eight post-holes and a pit were also found to be of this date, together with two intercutting ditches aligned east-west and running parallel with the south wall of Lodge Farm. These were 1 m wide, 0.5 m deep and traceable for 12 m.

Laurence Keen and Martin Papworth

THE FOUNDRY, THAMES STREET, POOLE

Excavations by D. R. Watkins on behalf of Poole Museums, using mainly Community Programme staff, was funded by the Manpower Services Commission, Poole Borough Council and the site owners Williams Holdings PLC.

Following demolition of Poole Foundry, in May 1986, excavations took place on a site between the parish church of St James and the Quay.

The drift geology of this area of Poole consists of deltaic sands and gravels overlying an uneven clay which shelves seaward. Above the natural deltaic sands are black humic reclamation soils, with an interface of compressed marsh grasses and other organic shoreline deposits. These anaerobic deposits were in an excellent condition and were extensively sampled.

The structures: pre-reclamation period:

(a) **Iron Age.** Evidence of seasonal salt production existed in a ditch on the west side of the site and substantial quantities of Late Iron Age briquetage were recovered.

(b) **Medieval.** South of this ditch, a sub-rectangular structure, of oak piles and rough chalk blocks, was uncovered, dug into the sands. The purpose of this structure is uncertain but a jetty seems likely. The finds indicate a medieval date.

(c) **The timber butt c. 1500.** Over 60 substantial oak timbers were found in stacks dug into the pre-reclamation beach. These represent the timber store of a medieval boatyard undergoing wet seasoning in the tidal stands before being built into craft. The majority of timbers had only been roughly shaped and many still had bark attached (See *DNHAS* 1986, 190, 192).

The most important timbers were those that had been salvaged from built craft. A group of ten 'floor timbers' were found, cut to accept clinker planking, and bored for the 'trenail' fastenings. Another group of stem and stern posts included one with corroded iron fastenings still in place.

These furnished timbers are very important in understanding the nature of medieval coastal craft and the methods of their construction. It is intended to conserve these timbers by freeze drying. **The leather:** the pre-reclamation beach also produced over 200 fragments of shoe leather, including complete soles often showing signs of wear. These may have been washed from a rubbish dump at another point along the shore and do not seem to imply a leather working site.

Post-Reclamation phase: A date of c. 1500 is probable for the reclamation of this area of Poole based on an important pottery assemblage including German, Dutch, French and Spanish imports.

The foundations of a substantial limestone wall were discovered running for over 30 m from Thames Street towards the Quay. This may have been a tenement boundary wall relating to foundations uncovered along the Thames Street frontage. This frontage exhibits two main phases of post-medieval building. The reclamation of this area was probably undertaken in order to build the earlier more substantial limestone building. It is flanked by later foundations of limestone and chalk.

D. R. Watkins

CORFE CASTLE, OUTER GATEHOUSE EXCAVATIONS 1986. INTERIM REPORT

In April 1986 the first season of archaeological work under the present programme of consolidation and display of the Castle ruins by the National Trust began prior to the work on the Gatehouse structure. Before work started the excavated area contained a grass-covered mound of demolished masonry and rubble which obscured the north side of the Gatehouse and the curtain wall to the west of it. The curtain wall is thought to date from the mid-14th century and the Outer Gatehouse from the mid-13th century (RCHM 1970, 62-3).

The excavation revealed the plan and details of the guard chamber itself which had been demolished in 1646 by Parliamentarian troops. The walls had been undermined by sappers' trenches and explosive charges caused the walls to subside into them. Only the base of the guard chamber west wall remained in its original position.

The south wall, integral with, and at the rear of the base of the solid drum tower of the Gatehouse, retained several features, including a cupboard and fireplace. The hearth and part of the flagstone floor were uncovered, but most of the interior of the ground floor of the guard chamber was obscured by a substantial block of masonry which proved to be part of the collapsed barrel-vaulted roof of the guard chamber.

The west wall of the guard chamber had collapsed outwards and had fallen against the curtain wall, partially covering, with large blocks of rubble, a flight of limestone steps shown on the survey of the Castle drawn by Ralph Treswell in 1586. The substantial part of the mound against the curtain wall was shown to consist of a single block of masonry; the overthrown and partially inverted upper chamber of the guardhouse.

The lower part of the west wall included the base of a window splay. The tangled lead-cames and shattered glass of a diamond leaded window were found scattered on the early 17th century ground surface immediately outside the window on the west.

The north wall of the guard chamber had been robbed for building stone but a surviving sill of shaped limestone contained the stubs of iron fittings and indicated that another window had existed here. The east wall of the guard chamber was not fully examined, but it has also been severely robbed.

Surrounding the guardhouse was a metallised surface of flints and packed limestone. This lay directly below the occupation layer of the early 17th century above which were the demolition and abandonment layers containing many finds of Civil War date together with re-deposited medieval material. There were no investigations below this level.

This work was carried out with the help of National Trust Acorn volunteers, supervised by Nancy Grace and with grant aid from HBMC.

David Thackray and Martin Papworth
The National Trust

Royal Commission on Historical Monuments, 1970, *Dorset Volume 2, South-East*.

CORFE CASTLE, WEST BAILEY EXCAVATIONS 1987. INTERIM REPORT

During April-July 1987 excavations were carried out in the West Bailey of Corfe Castle as part of a programme of work to consolidate the Castle walls and enhance the presentation of the monument.

In area A, which lay 12 m north-east of the South Tower, a 9 m length of wall was examined which aligned north-south. This was considered to be part of the destroyed south-west Bailey curtain wall of 12th-century date (RCHM 1970, 159). The excavations proved that this was not the case. The wall was constructed of large blocks of reused masonry from the 1646 demolition. These were mortared together to a width of 0.4 m but on the west the wall was abutted by a dry stone wall of equal width which had collapsed. This structure probably dates to the early 18th century when a rector of Corfe village lived in the North and South Towers of the West Bailey and laid out a garden. Below the wall was a turf-line dating to the abandonment of the Castle after the Civil War and below this a layer of occupation debris of the mid-17th century. This covered a yard surface constructed of large packed limestone lumps which was not excavated.

To the north the ground surface was lowered to reveal the south face of the curtain wall (area B). This had been obscured by the rubble accumulated after the demolition. Below the rubble was a turf line equivalent to that in area A. This covered a yard surface to the south and east containing 13th century pottery and three arrowheads of the same date. This layer was probably a medieval trackway leading from the West Bailey to the Inner Ward. To the north and west a build up of black soil contained occupation material from the 14th to 17th centuries, covering a surface of packed mortar which was fragmentary but contemporary with the yard surface to the south.

The west part of area B had been cut away, probably in the 18th century, to enable an alcove to be built into the curtain wall. This work exposed several medieval layers including the early 13th-century foundation trench for the curtain wall. This cut through occupation layers of the late 12th century which covered a yard surface of small limestone lumps. The yard was cut by a ditch and several other layers were visible below it. These were recorded but not excavated. Finds from surface cleaning indicated a 12th-century date for these.

East of area B demolition rubble was removed to create an even surface on which to build a new flight of stone steps abutting the curtain wall and leading from the West Bailey to the Inner Ward (area C).

The layers below the demolition rubble were recorded prior to the construction of the steps. They had been damaged, probably by the Cromwellian sappers. Fragments of a mortared flint and limestone surface were visible below a black soil, also a packed stoney surface, probably a continuation of the 13th-century trackway visible in area B.

The work was carried out with the help of National Trust Acorn volunteers supervised by Nancy Grace with grant aid from HBMC.

David Thackray and Martin Papworth
National Trust

Royal Commission on Historical Monuments, 1970, *Dorset, Volume 2, South-east*.

WOOLCOMBE

Woolcombe (SY 553954) is a deserted medieval hamlet and post-medieval farm at the south end of the large West Dorset parish of Toller Porcorum. The fourth season in the current programme of excavations and surveys took place in July 1987. Further post-excavation work was also carried out in the past year.

Survey

As in 1986 a number of opportunities for fieldwalking were missed due to very wet weather at the critical times when ploughed fields and personnel were both available. It is hoped that this potentially important work will resume in 1988.

The ground floor plan of the farmhouse was revised and a series of external elevations begun. Survey and analysis of the small building (SB3) to the north of the house continued; its structural sequence can now be related to the stratigraphical sequence in the adjacent trench VI (see below).

Earthworks, mainly disturbed lynchets, to the north of the farmhouse and on the north-west side of the stream, were planned for the first time. The original plan of the settlement earthworks in the Lower Bottom (Site 5; Hunt 1984, fig. 17) was revised and appears as Figure 13 of this report. Close contour plans of these earthworks were also begun. These are important as an enhancement of the record, particularly as some of the surface features are very slight. Resistivity surveys also continued; these are intended eventually to cover the entire field.

A lime kiln about 100 m west of the farmhouse (Site 7; *ibid.*, 159) was surveyed and photographed. It was built in the 18th century, probably to supply lime for the substantial construction works carried out in that period about the house and farm buildings. A chalk pit which presumably fed the kiln lies a short distance to the north-west.

Observation and salvage

In May 1987 Paul Spoerry and Pam Griffin observed an open pipe trench to the north of the farmhouse. This trench was cut through the north-west corner of the platform on which the farmhouse stands, and through part of the former millpond. This part of the platform was made of chalk and limestone rubble, and was provisionally dated to the 19th century. A dark soil deposit was found to the north, in the millpond area; it was probably a silt accumulation in the bottom of the pond, and lay over a spread of redeposited gravel and green sand. The pond silt was accumulating before the 19th-century platform extension took place.

Excavation

Sub-sites I, VII, IX and XI (Figure 13) are parts of a group of settlement earthworks in a field named Lower Bottom, immediately south-west of Woolcombe Farm. **Sub-site XI** was a completely new intervention in 1987. Geophysical survey of this earthwork platform showed some anomalies which were investigated by digging sample sondages. Towards the north side of the platform these showed the now-familiar metallated yard surfaces, with some looser and larger flint rubble which might be building debris. To the south these surfaces had given way to a deep loam deposit. This exercise has shed some light on the late and post-medieval periods at Woolcombe (see VIIN, below), but further work will be needed to explain the formation of the platform and its earlier use.

In **Sub-site I** a new trench (**IA**; 26 sq. m) was cut in 1986 between a previously excavated area, on top of the scarped platform, and the hollow way, in order to examine the relationship between these substantial topographical features, and to explore the narrow sloping area which separates them. In 1986 evidence strongly suggested that the scarped platform was formed by garden cultivation, and that it was constructed later in the history of the settlement, probably in the late 13th century. Excavation of **Trench IA** was continued in 1987, supervised by Richard Sermon. The metallated and rutted street/hollow way was dissected. It was laid down in two periods; the second of these may be placed in the late 13th or early 14th centuries, but probably continued in use into the post-medieval period. Between the street and the edge of the scarped platform a substantial layer of soil was removed to reveal

three substantial-looking pits dug into the natural. These pits, which hold out good prospects for sealed groups of pottery and environmental materials, have yet to be excavated.

Sub-site IX is a scarped platform on the opposite side of the hollow way to Sub-site I. George Rybot excavated a trench on the top of the platform in 1967-1968, uncovering a number of medieval features including several pits (some of which he interpreted as post-pits), the post-holes of a timber fence, and a large gully containing building rubble (Rybot 1967). He concluded that the 'post-pits' held large posts which formed the main load-bearing timbers of a substantial building, which he took to have been a barn. This trench was re-excavated in 1987, also under the supervision of Richard Sermon. The extent and boundaries of the trench and the features were confirmed, and a number of sherds, mainly small, were recovered from the backfill. A small patch of unexcavated pit fill survived, and since this was very rich in charcoal it was removed for environmental sampling.

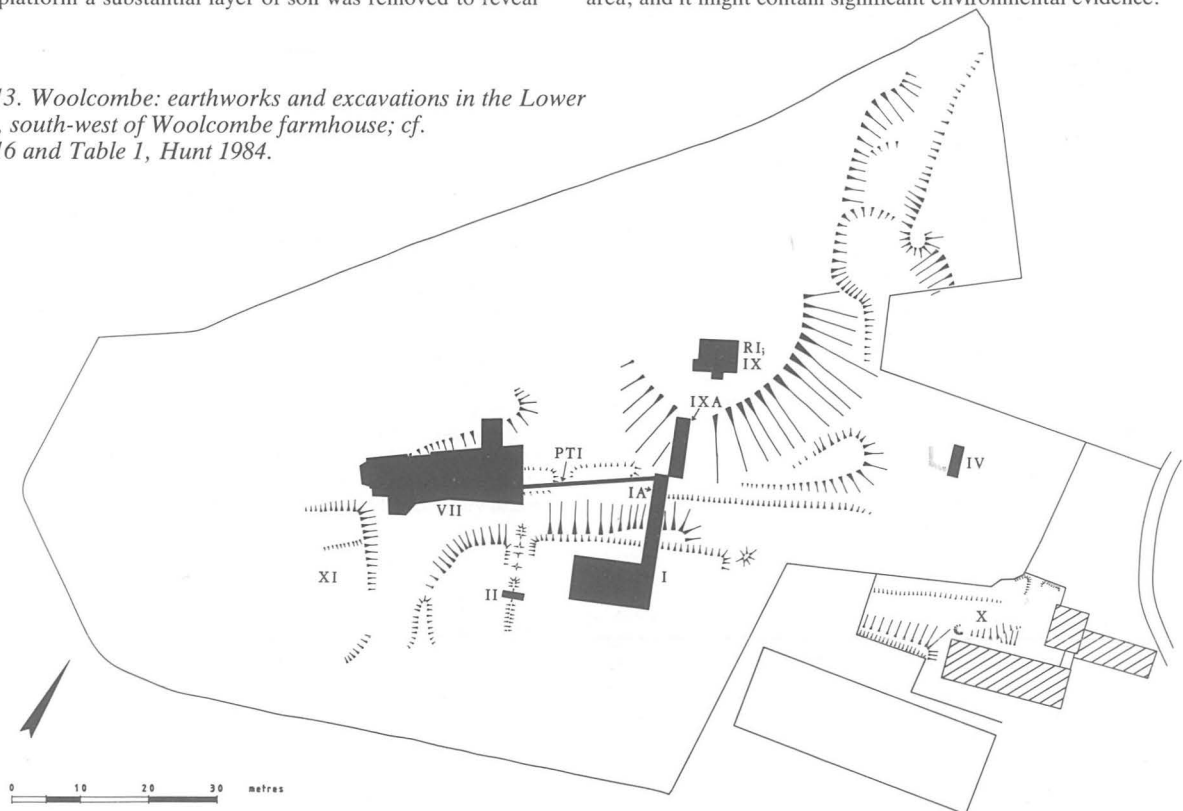
Features were re-interpreted as far as was possible. The large gully seems to have been part of a quarry dug to obtain quantities of the underlying sandy clay, most probably for making cob. While we have insufficient evidence to say what the pits were used for, it is clear from their proportions that they were very unlikely to have held posts. Perhaps the pits in IA, which at first sight are comparable in size, may shed some light on these earlier-excavated examples.

A new trench, **IXA**, was dug to examine the relationship between this scarped platform and the hollow way, and to explore the intervening space. Immediately below the turf and very shallow topsoil was a metallated surface very similar to those found in VII and elsewhere. They are discussed briefly in the section on VIIN (below). No further excavation was possible in the time available.

Sub-site VII (supervised by Peter Busby) was initially excavated by George Rybot in 1968-1969; this excavation is known as R2 (Rybot 1968). In 1985 much of R2 was re-excavated and all surviving features planned. In 1986 it was re-opened in two separate sections, known as VIIN and VIIS (Hunt 1985; 1986). In 1987 only **VII** was opened, bearing in mind the limitations of time, since in this area the structural and depositional sequence seemed to be better preserved. Strategically important dating evidence was also likely to be present. The chronology of this area was considerably clarified; though open to revision in matters of detail, it is summarised in an interim form below;

1. The earliest deposit is a possible buried soil, which has been identified but not yet excavated. It may pre-date settlement in this area, and it might contain significant environmental evidence.

Figure 13. Woolcombe: earthworks and excavations in the Lower Bottom, south-west of Woolcombe farmhouse; cf. Figure 16 and Table 1, Hunt 1984.



2. Several pits were dug into this burial soil. They may be associated with fragments of a rubble-founded building (EB2) seen in VIIS in 1985 and 1986.

3. A street surfaced with compacted rubble was laid down in the floor of the valley, sealing the remains of EB2 and the backfilled pits. This event marks a major reorganisation of the settlement plan, and perhaps indicates some significant development in the history of the hamlet as a whole. This street was later resurfaced at least once. It is preserved as the hollow way, occupying a spinal position in the plan of the settlement earthworks, and apparently articulating the house sites and scarped platforms which made up the plan of the settlement in its later stages.

Beside this street a small (4 × 3 m) but well-constructed rectangular building (EB1) was erected. Its walls were of flint with local sandstone rubble facings, most of which had been robbed or eroded away, except in the case of the south wall which was remarkably well preserved. The floor was of rammed gravel on a foundation of rubble, and there was a doorway of conventional domestic width in the north wall, near the north-west corner. No hearth was found, and it is therefore hard to demonstrate conclusively that this was a cottage. However it is quite possible that a hearth was lost when parts of the floor were removed by earlier excavation; or that a built-up hearth was used. Moreover it is difficult to see what else this small but well-built structure could be, at least in its original form.

A possible wall butted the south-west corner of this building. This needs further investigation, but is tentatively seen as the rear wall of an open-fronted and probably timber-framed building which used the south wall of the ?cottage for support. On the west side of these buildings lay a metallated yard.

This period of development probably took place in the later 13th century. If the cottage interpretation is accepted for EB1, domestic use ended in the 14th century; but the buildings may have continued in agricultural use associated with later yard surfaces.

4. On the north side of ?cottage a quantity of dark, humus-rich soil had accumulated. This is interpreted as a midden.

5. The midden was abandoned and its remains were sealed by an extension of the metallated yard surface (see 3, above), so that it extended continuously from the street, past the north side of the cottage, up to and beyond the west limit of excavation. This enlarged yard surface, dated broadly to the late medieval period, is very similar in structure and stratigraphical position to those found in XI and IXA (see above), and in II (Hunt 1984). It seems to be part of a very large farmyard which replaced the domestic buildings in a drastic settlement reconstruction which took place in the 14th century. A few post-medieval tiles crushed into the yard surfaces indicate that this farmyard phase continued into the 16th or 17th centuries.

6. In the ?18th century the farmyard was abandoned, and the area reverted to grassland.

To link sub-sites IA and VIIN, part of an old water pipe trench (PT1) was emptied and its sections cut back and drawn. The sections showed the street surfaces, rubble spreads (possibly from demolished buildings), and some dug features which might be pits and/or post holes. The results from this non-destructive transect sample are still being analysed.

In general terms the *chronology of settlement in the Lower Bottom* seems to be as follows:

?12th-early 14th centuries: hamlet settlement, with stone and/or cob-walled cottages/houses, possibly timber-framed farm buildings, and gardens. At least in its later stages this hamlet was laid out along a metallated street.

14th-?17th centuries: extensive metallated farmyards, farm buildings and cattle pond (cf. Sub-site IV; Hunt 1985).

18th-20th centuries: permanent pasture; short-lived rickyard in mid-19th century, succeeded by a small orchard (cf. Sub-site I; Hunt 1984).

Sub-site VI lies immediately to the north of Woolcombe farmhouse. Excavation of the 1985-1986 trench was completed in 1987. The chalk rubble foundation – probably for a timber building – exposed in 1986 was provisionally dated to the late 13th or early 14th centuries. It stood on a shallow make-up layer of redeposited green sand, very similar to the material which sealed it. This sequence of green sand redepositions is very similar to that traced in Sub-site III (Hunt 1984, 157). It is likely that the depositional sequence in these two sub-sites, separated only by a very few metres, can be correlated and this is currently being pursued as part of the post-excavation programme.

Beneath this 'primary green sand layer' was a very deep (up to 1.3 m) deposit of dark soil, whose upper profile, so far as it could

be traced in a rather confined trench, was slightly convex. This very substantial dump of soil might therefore be a large bank, perhaps cut at a corner; or it might be part of the platform building process. If so, the undulating profile could be explained by uneven compaction when buildings were constructed on the platform. In either case it represents a major and foundational phase of activity. The dumped soil contained very little domestic rubbish, and was thus likely to be field soil, but its origins are still a matter of conjecture. It might have been upcast from lynchet building, or the digging of quarries and a fishpond, all of which features are or were present at no great distance from this sub-site. The small quantity of pottery present makes secure dating difficult, but it seems very likely that this very substantial construction work, and possibly associated activities as suggested above, took place in the early-middle 13th century.

The earliest feature in this trench was a slight bank of well-compacted clayey green sand with mixed rubble. Only a very small part of this bank could be exposed, so it is not possible to say whether it carried a palisade or was associated with other features. It apparently ran roughly parallel to the course of the nearby stream, and so might represent a flood barrier, or alternatively an early enclosure or pond bank. Unfortunately it neither contained nor sealed any dating evidence.

Post-excavation research

Assembly of the excavation archive continues; each season's results are processed during the following winter and spring. Identification and analysis of carbonised plant remains from medieval contexts has begun in the Dept of Archaeology at Durham University.

Paul Spoerry, who has managed the pottery research programme, has contributed the following note:

The pottery type fabric series has been further refined, and now comprises 57 fabrics representing almost continuous occupation at Woolcombe from the early 12th century to the present day. Twenty-five of these type fabrics are earlier than the 16th century, and these can be divided into fine wares, sandy wares and four grades of quartz and/or flint-tempered coarse wares. Most of the medieval material is of 13th-century date, the sandy wares replacing some of the coarser quartz/flint-gritted fabrics around 1250.

Educational activities

Interest in the Woolcombe project has grown among Dorset schools. Several parties of school students visited the site during the excavation, to study the methods of investigation, the environment and the finds. Their activities were co-ordinated by John Seabrook.

Acknowledgements

As ever I am deeply indebted to Dinah Austin, Simon Austin and Michael Austin for allowing us to excavate, and to take up much of their space and time in the process. The excavations were partly funded by a grant from the Dorset Archaeological Committee, to whom I am grateful. I also record my thanks to my colleagues in the field: Paul Spoerry (assistant director; finds manager), Pam Griffin (site manager; illustrator), Peter Busby and Richard Sermon (supervisors) and John Seabrook (director of studies for schools' visits). Catering, technical and logistical support was provided by Bill Putnam, John Beavis, Carol Burns, Graham Dumas, Ian Lifford and Carrie Symes. Aerial photographs were taken by Lt/Cdr Chris Palmer of HMS Osprey, Portland, to whom I am also very grateful.

Our thanks go to all who took part in this season's work – students from DIHE and the Servei d'Informacio Arqueologica at Barcelona, pupils of Dorset schools, visiting volunteers and DNHAS members.

Post-excavation work was also carried out by DIHE students as part of their Archaeology course. I am very thankful to Paul Spoerry, Pam Griffin, Peter Busby and Richard Sermon, all of whom gave much help and advice at this stage. Pam Griffin also drew Figure 13.

Alan Hunt
with a contribution by Paul Spoerry
DIHE Archaeology Unit

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MARINE SITES

The following list of possible and definite wreck sites illustrates the maritime archaeological potential of the Dorset coast. Most finds have been reported by non-archaeologists mainly in the last two years and probably reflect an increased awareness by the public of

the importance of reporting marine finds arising from the publicity of the Studland Bay Wreck. More precise locations for sites Nos 1, 7-9 are, or may become, available at Poole Museums.

1. Roman amphora base. Studland Bay. (Accessioned by Poole Museums.)
2. Medieval 13th/14th century cooking pot sherds. Studland Bay Wreck area.
3. One complete wine bottle and complete northern slipware dish c. 1750. Poole Bay. (Accessioned by Poole Museums.)
4. Spanish sherd, 16th century. Christchurch Ledges.
5. Limestone cannon ball 80 mm diameter. Perhaps 16th century. South east of Christchurch Ledges.
6. Antler wreck. Position 50 50 26N; 01 55 21W. Hook Sands outside Poole Harbour. A coherent wreck with a cargo of stone and antler. This wreck is probably of the late 18th century.
7. Spanish amphora complete Goggin type Late D. c. Poole Bay. (Accessioned by Poole Museums.)
8. Slate Wreck. An undated wreck surviving mainly as a pile of rectangular roofing slates. Poole Harbour entrance.
9. Undated coherent wreck fragment. Surviving length 5 m with carvel planking. Studland Bay.

In the summer of 1987 a local diver Mr C. Jarvis discovered a bronze cannon in Poole Harbour unassociated with a wreck or other material. The cannon has been conserved and loaned to Poole Museums initially for 10 years. It appears to date to c. 1815 on typological parallels. Further study and the cleaning of faint founder's and ordnance marks may provide further information later on. The gun has a tompion in position and is therefore probably loaded. (Location recorded at Poole Museums.)

K. S. Jarvis

TILES FROM IWERNE MINSTER

Following the collapse and subsequent repair of St Mary's churchyard wall two decorated floor-tiles were recovered by Mr R. Shaw. The first, with Emden's design 211 (A. B. Emden, *Medieval Decorated Tiles in Dorset* (1977)), is already recorded for Iwerne Minster and Shaftesbury Abbey. The second (Figure 14) is decorated with a design not recorded before. The surface is too worn to establish which slip method was used to produce it: it is certainly not inlaid. The form of the shield, which has arms not yet identified, suggests a late date, and may be paralleled with a tile bearing the arms of Salisbury, made c. 1530 for Christchurch Priory (E. C. Norton, 'The Medieval Floor-tiles of Christchurch Priory', *PDNHAS*, 102 (1980), 61-3 and design 54). Whether this design has any association with Iwerne Minster has yet to be determined.

Laurence Keen

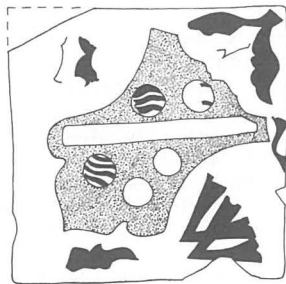


Figure 14. 16th-century slip-decorated tile from Iwerne Minster. Scale: one quarter.

RADIPOLE

In 1986-87 the Radipole DMV earthworks (SY 666813) were disturbed on the south side by road widening. A medieval oven was recorded in this area in 1986 (Keen 1986). In 1987 a house platform and part of a hollow way were scarped away, but salvage recording was carried out by students of DIHE Archaeology Unit before the process was far advanced. Fragmentary remains of two rubble walls and two shell middens were recorded. Unstratified medieval and post-medieval pottery was recovered from soil heaps produced by surface stripping.

Alan Hunt
DIHE Archaeology Unit

Keen, L. J., 1986, 'Medieval oven, Radipole, Weymouth', *Dorset Proceedings* 107, 186.

THE CHAPEL ON BROWNSEA ISLAND —A NOTE

Since my discussion on the medieval cemetery on Brownsea Island (Jarvis 1981) another reference (Ewen 1949, 102) to the chapel has been discovered. This records that three tons of brazil nuts were stored in the chapel of Broncksey in 1581/2. These goods were hidden there because they were the spoils of piracy and had been purchased illegally from pirates.

This reference shows that the chapel, last recorded in 1534 as the only building on the island, was still in existence in 1581/2 and must have been lost in the following two centuries.

K. S. Jarvis

Jarvis, K. S. (1981). 'A Medieval Cemetery on Brownsea Island', *Dorset Proceedings* 103, 134-6.

Ewen, C. L'Estrange (1949), 'The Pirates of Purbeck', *Dorset Proceedings* 71, 88-109.

WAREHAM

Wareham Bears (SY 9246587246)

A child's stone coffin carved with a 'key-hole' type recess for the head was found c. 1985 incorporated in a wall between Nos 18 and 20 Church Street during alterations to the Wareham Bear Shop. The coffin, which is apparently Purbeck stone, was c. 1.2 m long and has been deposited with Lady St Mary Church. Coffins of this type are late medieval to 16th-century on current dating.

No. 75A North Street (SY 2200876700)

In summer 1986 the building trenches for flats were examined and revealed 1.2 m of topsoil overlying natural gravel. An undated layer of buff sand 0.2 m thick overlay natural and extended from the North Street building line back for 5 m. An undated feature probably a pit 1.3 m wide and 0.4 m deep was also noted 1 m back from the North Street building line. The lack of archaeological evidence is surprising as the site is adjacent to the early post-conquest church of St Martins and is on the frontage of North Street.

Mill Lane (SY 2227574088)

Observation of foundation trenches for flats in autumn 1987 by Mrs L. Ladle revealed c. 0.5 m-1.2 m of topsoil overlying natural gravel. The topsoil contained modern debris at its base and several 19th/20th century features were noted. The watching brief therefore provided no evidence of late Saxon/Medieval occupation in this area although observations of this type would only have a low probability of detecting post-hole buildings and area excavation would be required to assert this with more certainty.

K. S. Jarvis

THE STUDLAND BAY WRECK PROJECT – INTERIM REPORT

The 1987 season completed the excavation of c. 75 per cent of the main coherent part of the wreck site. The diving time was divided equally between the excavation and producing a detailed 1:10 plan recording every nail and trenail. The internal stratigraphy of the wreck is now understood more fully and consists of three main layers. A total of 189 finds were recorded during the season, many being small fragments of wood. However more Iberian coarsewares and Isabella polychrome pottery has been recovered whilst Columbia plain tin-glazed pottery was found for the first time. Other interesting finds include a glass fragment probably of Mediterranean origin and two wooden artefacts of uncertain function. The iron concretions await X-ray analysis.

A survey of the surrounding area was conducted by Mr M. Rednap and Marine Archaeological Surveys. The survey involved a sub-bottom profiler and sidescan sonar and has provided a large amount of data about the sea bed over an area of 1750 m by 1125 m around the wreck. Sonar suggests shallow buried debris up to 100 m to the west of the wreck and also contacts elsewhere that could be shallow wreck sites which will be investigated.

The heel of the keel of the vessel which was detached from the vessel and was beginning to break up has been raised since the 1986 interim report. This has been examined by G. Hutchinson of the National Maritime Museum and is now in storage awaiting conservation and display.

The project has now reached a point where an adequate sample of the site has been excavated and the nature of the site is understood. A final season in 1988 will complete outstanding work.

K. S. Jarvis

Shorter Contributions

A CLAY MASK OF BACCHUS IN THE DORSET COUNTY MUSEUM

Valerie J. Hutchinson

The subject of this note is a small (8.8 × 8.0 × 3.0 cm) brick-red tile-clay mask in the Dorset County Museum (Acc. No. 1886.9.135; Plate 1), presumed to be from Dorchester or its immediate vicinity. The mask is moulded in medium-high relief upon a flat, roughly triangular field which it fills almost completely. Its subject is a human head in frontal view with rather small, round, wide-open eyes, an oval face which narrows near the eyes, a prominent triangular nose, and thick, straight lips, which appear to be slightly parted and do not meet at the corners. The eyebrows are delineated by horizontal slashes, which add to the alert appearance of the face. A shallow incised line cuts horizontally across the subject's forehead, midway between the eyebrows and the crown of the head; presumably the area above this line will have represented hair, a wreath or a fillet. Two clusters of round, knoblike projections appear at the subject's temples; these 'knobs' are arranged in roughly diamond-shaped patterns to suggest hanging bunches of fruits, most probably grapes. Traces of white gesso remain on the mask. The piece is flat and without decoration at the back. Its shape, together with the material from which it is made, suggests that it originally formed part of some small architectural ornament, most likely an antefix.

An identification of the mask's subject as Bacchus is suggested by the fruited headdress. An alternative view might be that it is a Maenad, but the somewhat narrow cheeks and the absence of free-flowing hair lead me to interpret the subject as male.

Although exact parallels to the Dorchester piece are lacking, the use of terracotta masks to adorn the exteriors of Romano-British buildings is well documented. Most of these masks occur as the central motifs on clay antefixes, which are found at both civilian and military sites, although they seem to have been more common at the latter (Toynbee 1964, 428 ff.). To date Dorchester has been the findspot of five such pieces – all made, like our example, of red tile-clay. As is noted in the *RCHM Dorset* (ii, 1970, South-East, 538), four of these antefixes come from a single mould and represent a male, bearded Medusa with wings springing from his hairy brow; their style is predominantly Celtic, with patterned locks



ILLUSTRATION

Plate 1. Roman clay mask of Bacchus. Dorchester, Dorset County Museum. Photo: Dorset County Museum.

of hair and an exaggeratedly wedge-shaped nose to which the brows are joined (Toynbee pl. XCIXc). The fifth piece is essentially similar but portrays a beardless Medusa. Among other Romano-British antefixes there is a good deal of variety, both in style and in subject matter; examples include Celticised Medusas from Silchester and Colchester (Boon 1974, 169 fig. 27, Hull 1958, pl. XXXB), a classically portrayed Jupiter Ammon from Chester (Watkin 1886, 221 no. 3 with fig.), a lion mask from London (Walters in *VCH London* i, 1909, 136), and a number of what are thought to be local deities depicted in local styles, from Chester, Caerleon, and York (Toynbee 429-430, with references). All of these subjects, nevertheless, admit of the same general interpretation, in Miss Toynbee's words, as either 'apotropaic or divine' guardians for the buildings that they once adorned (*ibid.*, 430). A similar function may perhaps be assigned to a tragic male mask of terracotta from the Roman settlement at Snodland, Kent, which the excavators thought 'formed part of a scheme of decoration' (Cook 1928, 83) – and to our own piece.

Bacchus was certainly a familiar figure to people in Roman Britain, and his powers as a guardian were known to be diverse. As a giver of wine, he could logically be expected to guard the vessels in which that beverage was served, and it is doubtless for this reason that his image appears often on both imported and locally made tableware (Hutchinson 1986, 23-25). As a giver of immortality, he could be relied upon, with equal logic, to accompany souls into the next world, and so we find grave goods, most notably the marble statuette of Bacchus from Spoonley Wood, Gloucestershire, which are chosen to ensure his help (*ibid.*, 18-19). But perhaps just as often as Romano-Britons called on Bacchus to guard their dinner-tables or their graves, they called on him, more simply, to be present – with all that this implied about good luck, happiness and prosperity. A vague sense that he was a useful deity to have on one's side, whatever the occasion, was quite conceivably behind the manufacture of jewellery and intaglios which bear Bacchic figures, combinations, or symbols; these could be carried about always on one's person, as lucky charms are still carried today (see major studies by Henig 1977 and 1978). It may well be that a similar feeling lay behind the choice of a Bacchic mask to adorn a building at Roman Dorchester – a feeling that Bacchus, a deity at least as powerful as any other in the provincial pantheon, could be depended on to turn away evil and bring good fortune to the premises.

It remains to ask where the Dorchester Bacchic mask was manufactured. Whereas at first glance the piece appears wholly classicising in style, with softly modelled cheeks and some naturalistic variety in the grape-clusters (one of which hangs lower than the other and has an 'extra' grape), a second glance will reveal that the shape and relative size of the features are very much the same as those on the clay Medusa masks from Dorchester. Accordingly, one may surmise that our piece was made in the same provincial workshop as the latter, and that it dates to the same (unspecified) time within the Roman period in Britain.

Martin Henig, who has also examined the mask, writes that 'on the whole he is happy with the account offered here, but would not rule out a very much later origin, in the 18th century. In particular he is disturbed by the traces of gesso which could indicate a fairly recent use. It is very much to be hoped that another mask from the mould will turn up in a stratified context'.

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KING ALFRED AT SHAFTESBURY: THE LOCATION OF EGBERT'S STONE

L. S. Dutton, BSc

The greatest of the campaigns waged against the Danes by King Alfred the Great was the campaigns of 878, when he fought back from his refuge in the marshy wilderness of Athelney to inflict defeat upon Guthrum's army of Danes.

The correct reconstruction of the course of this campaign has been hindered by the difficulties of identifying some of the place-names quoted in the early records. One of the places which has resisted identification is *Egcbryhtsstan* – Egbert's Stone. (It is not known who Egbert was: perhaps he was Alfred's grandfather, King Albert, who ruled 802-839.)

The Anglo-Saxon Chronicle provides the following account of events after Alfred had found refuge at Athelney.

'And afterwards at Easter, King Alfred with a small force made a stronghold at Athelney, and he and the section of the people of Somerset which was nearest to it proceeded to fight from that stronghold against the enemy. Then in the seventh week after Easter he rode to *Egcbryhtsstan* east of Selwood, and there came to meet him all the people of Somerset and of Wiltshire and of that part of Hampshire which was on this side of the sea [presumably a reference to Southampton Water], and they rejoiced to see him. And then after one night he went from that encampment to Iley.¹¹

Alfred's biographer, Asser, provided his version of events in his life of King Alfred:

'In the same year, after Easter [23 March], King Alfred, with a few men, made a fortress at a place called Athelney, and from it with the thegns of Somerset he struck out relentlessly and tirelessly against the Vikings. Presently, in the seventh week after Easter [4-10 May], he rode to Egbert's stone, which is in the eastern part of Selwood Forest and there all the inhabitants of Somerset and Wiltshire and all the inhabitants of Hampshire – those who had not sailed overseas for fear of the Vikings – joined up with him. When they saw the king, receiving him (not surprisingly) as if one restored to life after suffering such great tribulations, they were filled with immense joy. They made camp there for one night. At the break of the following dawn the king struck camp and came to a place called Iley.¹²

Many attempts have been made to establish the identity of Egbert's Stone, without success. All analysts agree that the name is now completely lost, but that it must have been at a location convenient for the assembly of the men of Somerset, Wiltshire and western Hampshire. Stevenson suggested that Egbert's Stone marked the point where the county boundaries of Somerset, Dorset and Wiltshire met near to the village of Penselwood.³ Earlier in about 1722 it was considered to be near Stourton (ST 745351) in Wiltshire and a fine tower, which can still be seen, was erected to mark the spot.⁴

When Alfred was seeking a location where the levies from the shires could conveniently assemble a necessary requirement would have been that the chosen location should be situated on roads or tracks, along which the fighting men could march. Stourton is remote from roads and can be eliminated on this account.

The two starting points for Alfred's counter-attack against the Danes in 878 were Athelney and Egbert's Stone. When he set out from his retreat at Athelney and from Egbert's Stone with his levies, he would have been fully conscious of the dangers confronting his undertaking.

The early Anglo-Saxon kings were frequently men of deep faith, and a custom had developed that before embarking on a hazardous military campaign, they would pray for divine help and make vows in the hope of a successful conclusion. Bede reported that Alfred's predecessor, King Caedwalla, undertook to make grants of land to the church before embarking on his campaign in the Isle of Wight in 686.⁵ Bede also reported that King Oswy of Bernicia, before engaging the allied armies led by the pagan King Penda of Mercia in 655

'... vowed that if he were victorious, he would offer his daughter to God as a consecrated virgin and give twelve estates to build monasteries... In fulfilment of his vow to the Lord, King Oswy gave thanks to God for his victory [at Winwaed] and dedicated his

daughter Aelfled, who was scarcely a year old, to his service in perpetual virginity. He also gave twelve small grants of land... The daughter whom King Oswy had in this way dedicated to God entered the monastery of Heruteu or Hart's Island [= Hartlepool], at that time ruled by Abbess Hilda. Two years later, the Abbess acquired a property of ten hides at a place called *Streaneshalch* [= Whitby], where she founded a monastery. In this the king's daughter became first a novice and later a mistress of the monastic life.⁶

Although there is actually no report that Alfred sought divine assistance in this way before his counter-attack in 878, it is known that he did this before his assault on the Danes at London in 886. The Anglo-Saxon Chronicle reported that in 886 King Alfred had promised to send alms to Rome 'when the English were encamped against the enemy army at London and there, by the grace of God, their prayers were well answered after that promise.' The Anglo-Saxon Chronicle also stated that following the recapture of London, Alfred fulfilled his promise by despatching alms each year to Rome.⁷

It would, therefore, be in accordance with the custom of the time and with Alfred's known piety for him to make prayers and promises for divine help in the hazardous undertaking on which he was about to embark in 878.

Asser reported that '... he ordered two monasteries to be constructed. One of these was for monks and was located at a place called Athelney, which is surrounded by swampy, impassable and extensive marshland and groundwater on every side'⁸ and that 'King Alfred ordered the other monastery to be built near the east gate of Shaftesbury as a residence suitable for nuns. He appointed as its abbess his own daughter Aethelgifu, a virgin consecrated to God... Alfred abundantly endowed these two monasteries with estates of land and of every kind of wealth.'⁹

This action by Alfred has a striking resemblance to the action taken by King Oswy in 655 and suggests that it was taken in similar circumstances, i.e. before a crucial battle in which the survival of the kingdom was at stake.

There are, therefore, good grounds for supposing that before departing from Athelney and Egbert's Stone Alfred offered prayers and vowed that he would build a monastery on the spot, if his military venture was blessed with success. The fulfilment of the vow following the defeat of the Danes was the construction of the monasteries at Athelney and Shaftesbury. The sequence of events indicates that Egbert's Stone can be equated with Shaftesbury.

The location of Shaftesbury gives support for this equation. It satisfies the description 'east of Selwood'. The hill on which it stands was a prominent landmark towards which the levies could converge. Also it stood on roads along which they could march. The men of Somerset could have marched in an easterly direction along the predecessor of the modern A30 road; the men of Wiltshire in a westerly direction along the same road or in a southerly direction along the predecessor of the modern A350 road; the men of west Hampshire in a north-westerly direction along the predecessor of the modern B3081 road: all these roads led to Shaftesbury.

After his spectacular defeat of Guthrum's army, Alfred lost no time in taking the necessary action. Among his first acts after the signing of the Treaty of Wedmore was the decision to fulfil his vows to God and give instructions for the building of monasteries at Athelney and Shaftesbury. When the monastery at Shaftesbury was completed and ready for dedication, Alfred appointed his daughter Aethelgifu to be its first abbess, as Oswy's daughter, Aelfled, had become abbess at Whitby.

Another early act soon after the Treaty of Wedmore was Alfred's decision to institute a new system of fortification or burhs to strengthen the defences of Wessex. Among the sites chosen were Lyng (adjacent to Athelney) and Shaftesbury: another case of parallel developments at the two locations.¹⁰ Alfred's inclusion of Shaftesbury among his chain of burhs is fully consistent with the analysis set out above that Alfred had been present at Shaftesbury and had been able to see for himself the excellent defensive properties of the hill-top site.

There is no direct evidence for the actual date for the construction of the monasteries at Athelney and Shaftesbury. In the case of Shaftesbury, the mention by Asser of the 'east gate' suggests

¹ *English Historical Documents Volume I* (1979), Dorothy Whitelock (ed.), p. 196.

² Asser's *Life of King Alfred* translated by Simon Keynes and Michael Lapidge, Penguin Classics 1987, p. 84.

³ Asser's *Life of King Alfred*, W. H. Stevenson (ed.), Oxford, 1904.

⁴ Asser's *Life of King Alfred* (1987), p. 248.

⁵ Bede: *A History of the English Church and People*, translated by Leo Sherley-Price, Penguin Classics, 1984, p. 223.

⁶ *Ibid.*, p. 183.

⁷ *English Historical Documents* (1979), *op. cit.*, p. 197.

⁸ Asser's *Life of King Alfred* (1987), p. 102.

⁹ *Ibid.*, p. 105.

¹⁰ Asser's *Life of King Alfred* (1987), p. 193.

that the burh was already in existence when the monastery was built. There is evidence that the burh was built in 880, so the monastery could have been built soon afterwards.

The absence of any trace of the place-name Egbert's Stone can be

adequately explained by its replacement by the name Sceaftensbyrig, modern Shaftesbury, when the burh and the monastery were built on the hill-top assembly area, which until that time had been marked by a large stone.

Natural History Reports

RAINFALL 1987

D. J. PAXMAN, MA

Statistics

Dorset's general rainfall in 1987 was 30.89 inches, 15 per cent less than the 1941-1970 average of 36.36 inches.

MONTHLY SUMMARY:

	Rainfall (inches)	Average 1941-70	Per cent of average	Number of days with thunder
January	0.5	3.8	13	0
February	3.2	2.6	123	0
March	3.3	2.5	132	0
April	3.0	2.1	143	3
May	0.9	2.6	35	2
June	3.0	2.0	150	4
July	1.7	2.3	74	1
August	0.9	3.1	29	2
September	1.9	3.4	56	4
October	6.8	3.6	189	5
November	3.1	4.2	74	1
December	2.5	4.0	63	1

Melbury House (37.67 inches) was the wettest station, and Portland Bill (23.09 inches) was the driest.

GENERAL REPORT

Nineteen eighty-seven will be remembered for the intense cold of January and the great storm of October 15th-16th. Both events are discussed later in this report.

Three months in the year were exceptionally dry.

January

This month was dry throughout Britain, but exceptionally so in the south-west. In Dorset it was the driest January in our records which extend back to 1856. The previous dry Januaries were 1976 (0.57 inch) and 1964 (0.63 inch). Only two Dorset stations had as much as an inch of rain in the month: Minsterne and Langton Matravers. The new January record is 0.52 inch.

May

May's 0.92 inch of rain was the lowest for this month since 0.67 inch in 1956.

August

August rainfall varied widely in Britain. About half the country had more rain than usual while half had less. London had twice its usual rainfall. At the other extreme, Plymouth had only 13 per cent of its average. Dorset's 0.92 inch represents 29 per cent of average, but there have been seven lower totals this century, the most recent being in 1981.

Drought

Most Dorset stations experienced three periods of absolute drought in the year:

17 or 18 days in the latter part of January;

14 to 17 days ending with April 27th;

14 to 16 days beginning on June 28th.

Even traditionally wet stations such as Forde Abbey and Melbury House shared in the last of these three droughts. Surprisingly, the only stations to share in none of them were traditionally dry sites - Weymouth and Portland.

Wet October

October was very wet in England and Wales. London had over three times its average rainfall, and over the country as a whole the rainfall was well over twice average, making it probably the third wettest October since 1727. Although this month was the wettest of the year in Dorset, the county escaped relatively lightly. The total of 6.83 inches was only 89 per cent above average. It created no record. We have had eight wetter Octobers this century, the most recent of them in 1976. The highest October rainfall in Dorset was that of 1960 (10.10 inches, which was 273 per cent of average).

The cold weather of January

In the early days of January exceptionally cold weather spread westwards across much of northern mainland Europe. On January 10th, with an anticyclone over Scandinavia and pressure low across southern Europe, winds over Britain became easterly and brought air that was very dry and intensely cold.

January 12th was probably the coldest day this century over much of England and Wales. The only place in Britain to record a temperature above freezing was Butt of Lewis in the Hebrides. In Dorset, Corfe Mullen had a minimum temperature of -10.5°C . Typical maxima were -4.9°C at Dorchester (Weatherbury Way) and Shillingstone.

Eastern England experienced disruption from heavy snow showers, followed by drifting in the strong winds. Dorset escaped significant snowfall until 14th when most of the county had snow. However, nowhere was the cover more than four inches. A slow thaw reached southern England on 20th, bringing to an end one of the coldest spells in the south since January 1740 when there was an easterly gale coupled with temperatures as low as -9°C in London.

The storm of October 15th-16th

The intention here is to describe the origins and development of the October storm, and to give some account of how it affected Dorset. This will be set in perspective by comparison with what happened outside Dorset, and with a notable storm of the past.

Origin and development of the storm

At midday on October 15th the British Isles lay in a col bounded by three shallow depressions. Over the Atlantic, west of this complex system, very cold polar maritime air was being drawn rapidly from high latitudes as far south as latitude 40°N . At the same time, very warm moisture-laden tropical maritime air was moving north-east across Spain and into France. The temperature difference between these two air-masses was unusually great, giving a cold front of great vigour, on which were several wave disturbances. The depression which occasioned the storm began life as one of these waves. At midday on 15th it was positioned about 100 miles north of Cape Finisterre. Pressure at the centre had deepened to 969 millibars and the system had already developed a closed circulation. It now pursued a straight track of 030 degrees, which took the centre across the Devon coast at 0130 hours on 16th (pressure 956 millibars), and across the Lincolnshire coast on to the North Sea at 0530 hours (pressure 959 millibars). Thereafter the depression changed direction, tracking north and deepening slightly. By midday on 16th, still very vigorous, it was centered between Orkney and Norway (956 millibars).

1800-0030 hours. The warm front

At 1800 the warm front lay from Brest to Portland to London, and was moving very slowly north. It did not clear north Dorset until 0030. The arrival of the tropical maritime air caused some dramatic rises in temperature. On the south side of Poole Harbour there was a rise of 8°C (to 16°C) between 2000 and 2300. At Shaftesbury there was a rise of 6.7 degrees in less than an hour between midnight and 0100. As the front passed the continuous rain became intermittent.

At midnight, wind speeds north of the front were typically about 10 knots. South of the front winds were southerly and strengthening. At Hurn Airport, a few miles inland, the wind was $170/24$ (degrees/knots), but at Portland Bill there was a Force 8 gale ($170/38$ kts).

0030-0130 hours. The cold front

The depression began to occlude well before midnight, by which time there was a well developed bent-back occlusion. Between the northward moving warm front and the eastward moving occlusion there must have been a cold front (also eastward moving). Such a front is, however, difficult to detect and must have been diffuse. Portland reported a heavy shower just before 0100, and a sudden fall in temperature of 4°C . This temperature drop can be followed across southern England to the east coast, and may be taken as marking the passage of the cold front, though there was no veering of the wind, and showers fell ahead of the temperature fall as well as behind it.

Rainfall in Dorset 1987

STATION	OBSERVER OR AUTHORITY	Greatest Fall in 24 hours		Days with .01 in. or more	Days with 1 in. or more	DEPTH OF RAINFALL IN INCHES												Total for Year
		Depth	Date			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
Abbotsbury (East Farm)	D. J. Wood	1.40	1/2	132	1	0.26	3.56	3.05	3.25	1.03	2.64	1.29	1.03	1.27	5.83	3.20	2.05	28.46
Bere Regis (Chamberlaynes)	G. E. Drew	0.94	11/11	154	0	0.62	2.77	3.15	2.49	0.65	2.19	1.60	0.69	2.00	6.88	2.40	2.74	28.18
Blandford (Bryanston)	Miss Ann Jaques	1.04	5/6	143	2	0.56	3.10	3.30	2.96	0.98	2.82	1.47	0.72	1.83	7.30	3.03	2.64	30.71
Blandford (Tarrant Rawston)	J. H. Cossins	0.92	5/6	162	0	0.52	3.23	3.49	3.31	1.12	2.82	2.99	1.00	2.01	6.85	3.09	2.69	33.12
Bournemouth (Alderney Reservoir)	B'mouth & Dist. Water Co.	1.31	16/7	143	3	0.43	2.69	3.59	2.39	0.63	2.32	3.01	1.35	1.62	6.34	2.91	2.00	29.28
Bournemouth (Hurn Airport)	Met. Office	1.12	18/7	150	3	0.41	2.56	3.48	2.57	0.70	2.37	2.94	1.02	1.46	6.02	3.20	1.98	28.70
Branksome (Bourne Valley)	Southern Gas	—	—	—	—	0.48	2.68	3.68	2.34	0.72	2.15	2.24	1.08	1.57	6.02	3.30	1.97	28.23
Bridport (Bradpole)	G. R. Smith	—	—	131	—	0.66	3.49	3.23	3.32	1.13	3.81	1.71	0.85	1.99	6.63	3.34	2.80	32.96
Cattistock (Lankham House)	J. F. Willows	1.30	5/6	169	2	0.48	3.32	3.74	3.92	1.07	3.67	1.42	0.85	2.01	7.65	3.13	2.73	33.97
Cerne Abbas (Abbot's Walk)	D. H. Paul	1.32	5/6	149	4	0.38	3.87	3.67	3.19	1.01	3.98	1.16	0.70	2.13	7.86	3.47	3.55	34.97
Charminster (Hill View)	Mrs Eveleigh	—	—	—	—	0.54	3.79	4.27	3.35	0.94	3.23	1.23	0.89	1.57	6.73	3.37	3.05	33.21
Dewlish (Parsonage Farm)	M. Britton	1.14	5/6	119	2	0.37	3.44	3.11	3.66	0.63	3.27	1.89	0.63	2.09	7.21	3.15	2.68	32.13
Dorchester (Waterworks)	Wessex Water	1.29	1/2	—	—	0.44	3.91	4.44	3.27	0.76	3.60	1.35	0.66	2.21	7.05	3.83	3.13	34.64
Dorchester (Weatherbury Way)	J. R. Oliver	1.31	1/2	148	3	0.52	3.62	4.35	3.02	0.76	3.48	1.34	0.81	1.80	6.65	3.77	2.84	32.97
Evershot (Melbury House)	S. Rayner	1.38	5/6	172	4	0.59	3.31	3.99	3.79	0.99	4.41	1.98	0.88	2.67	8.05	3.40	3.60	37.67
Forde Abbey	M. Roper	1.06	18/10	153	4	0.82	3.37	2.23	3.55	1.05	4.09	0.93	0.84	2.12	8.24	2.67	2.94	32.85
Frome St Quintin	D. Pearman	1.29	5/6	163	1	0.40	4.16	3.93	3.89	1.04	4.17	1.49	0.74	2.03	7.47	3.32	3.55	36.19
Langton Matravers (Leeson House)	Mrs D. M. Kerridge	—	—	169	4	1.20	2.95	3.18	3.07	0.86	2.97	1.80	1.42	1.91	7.49	3.77	1.79	32.40
Leigh (Denbury House)	Lt-Col B. H. T. Barlow-Poole	1.00	5/6	110	1	0.30	2.61	2.29	2.83	0.82	3.21	1.07	0.59	2.04	6.46	2.57	2.61	27.40
Lyme Regis (Pinhay), Devon	G. D. C. Allhusen	2.13	1/2	139	2	0.72	4.42	3.20	3.23	1.29	3.62	1.12	0.87	2.14	7.83	3.34	2.76	34.54
Maiden Newton (Wraxall, Manor Farm)	Lt-Col J. T. A. Wilson	1.31	5/6	164	6	0.40	3.72	4.12	4.20	1.22	4.03	1.28	0.79	2.12	8.13	3.64	3.23	36.88
Marnhull (Crown Road)	Mrs E. M. Payne	0.92	9/10	174	0	0.60	3.25	2.92	2.80	1.33	2.67	2.00	1.17	1.77	6.38	2.94	1.99	29.82
Minterne	The Lord Digby	1.39	7/10	144	3	1.15	3.72	4.14	3.12	0.62	4.25	1.86	0.67	2.21	8.00	2.44	3.49	35.67
Netherbury (Virginia Cottage)	J. K. Newsom Davis	1.50	7/10	157	3	0.73	3.61	3.52	3.24	1.18	4.43	1.13	0.93	2.03	7.60	3.36	2.89	34.63
Parkstone (Lilliput)	R. J. O. Crew	1.11	16/7	142	1	0.60	2.50	2.00	2.26	1.03	2.56	2.49	1.41	2.25	5.16	2.72	1.57	26.55
Portland Bill	HM Coastguard	0.87	8/11	138	0	0.20	2.29	2.23	2.25	0.95	1.71	1.23	0.76	1.40	6.37	2.12	1.58	23.09
Puddletown (Bardolf Manor)	H. G. Wood Homer	1.36	5/6	164	3	0.52	3.93	3.99	3.49	1.13	3.20	2.06	0.78	2.49	7.21	3.58	3.27	35.66
Shaftesbury (Coombe Hill), Wilts	P. S. Cooper	0.98	8/11	176	0	0.53	2.81	2.98	3.03	1.10	2.49	1.44	1.25	1.61	6.28	2.81	1.76	28.08
Shillingstone (Green Hills)	E. Nimmo	1.30	7/10	162	4	0.51	2.99	3.34	2.85	1.15	2.79	1.17	0.76	1.68	7.50	2.90	2.37	30.01
Swanage	K. Moore	1.04	11/11	154	2	0.50	2.66	3.56	2.28	0.76	2.12	1.58	1.11	1.74	6.81	3.42	1.65	28.20
Wareham (East Stoke, River Laboratory)	J. Morgan	1.09	1/2	160	2	0.53	3.16	3.81	2.91	0.74	2.57	1.55	0.85	1.69	6.35	3.51	2.47	30.13
Wareham (Trigon)	G. P. Sturdy	1.08	3/4	139	2	0.50	2.97	3.50	2.42	0.69	2.11	1.39	0.89	1.56	6.24	3.13	2.34	27.75
Weymouth (Cranford Avenue)	H. F. Middleton	0.99	1/2	149	0	0.43	2.95	2.97	2.43	0.93	2.35	1.27	1.03	1.43	6.17	3.23	1.77	26.95
Weymouth (Westham)	A. J. Coe	0.94	8/11	143	0	0.48	2.68	2.93	2.26	0.85	2.32	1.64	0.93	1.40	5.33	2.81	1.62	25.27
Wimborne (Corfe Mullen, Central Avenue)	A. H. Dunn	1.13	8/11	175	3	0.40	3.12	3.68	2.75	0.73	2.85	2.46	1.76	1.71	6.41	3.18	2.26	31.31
Wimborne (Stanbridge Mill Pumping Station)	B'mouth & Dist. Water Co.	—	—	—	—	0.25	2.36	2.84	2.70	1.06	2.13	1.99	0.67	1.67	6.11	2.58	1.87	26.24
Wimborne (Walsford Bridge Pumping Station)	B'mouth & Dist. Water Co.	1.24	18/7	154	2	0.35	3.02	3.15	2.50	0.71	3.08	2.94	1.10	1.84	6.22	3.03	2.05	29.97
Winfrith (Atomic Energy Establishment)	Mr Ware	1.11	8/11	141	2	0.39	3.12	3.61	3.42	0.70	2.56	1.28	0.77	1.59	6.86	3.49	2.36	30.16
Yetminster (The Mill House)	R. M. Clarkson	—	—	—	—	0.36	2.14	2.14	2.81	0.94	3.24	0.79	0.74	1.85	6.49	2.38	1.88	25.76
AVERAGE FOR THE COUNTY				151	2	0.52	3.18	3.35	3.00	0.92	3.03	1.68	0.92	1.87	6.83	3.12	2.47	30.89

At Portland the wind touched storm force at 0100 hours (180/48 kts). Hurn recorded its maximum gust of the night (61 kts) at 0140, which may also mark the passage of the cold front.

0230-0430 hours. The occlusion

By 0230 the depression centre was in the vicinity of the Blackdown Hills and the occlusion began its eastward advance across Dorset, accompanied by renewed continuous rain. It did not clear the county until about 0430.

At Portland Bill the wind at 0300 had moderated ahead of the occlusion to 220/32 kts. The passing of the occlusion was marked by a veering of the wind to westerly and the beginning of the period of strongest winds of the whole storm. The Royal Naval Air Station (RNAS), Portland, recorded its highest gust at 0318. It was a gust of 86 kts, which seems to have been the highest anywhere in Dorset. Portland Bill's highest gust was of 78 kts, at 0348.

At 0400 the wind at Portland Bill was 270/55 kts, gusting to 76 kts, while the RNAS was reporting 250/56 kts, gusting to 77 kts. It was not until after 0500 that there was any significant reduction in wind speeds. By 0730 the winds at Portland were below gale force. Inland in Dorset the winds were never as fierce as at the two exposed stations on Portland.

Some notes on various aspects of the storm

(a) Rainfall

The storm was not notable for its rainfall. Only two Dorset stations reported as much as an inch of rain (Swanage 1.03 inches and Shillingstone exactly an inch). Approximately two thirds of the county had rainfall over 0.75 inch.

(b) Atmospheric pressure changes

Several Dorset observers commented on the very low barometric pressure in the early hours of 16th, and the very rapid pressure rise which followed. Before the formation of the depression which caused the storm pressure was already very low. At midday on 15th the pressure over most of England and Wales was only 982 millibars. The subsequent deepening of the depression and the fact that the centre passed so close to Dorset account for the low pressures in the period 0100 to 0300 on 16th.

The dramatic pressure rises in the wake of the depression are to be explained by the tightness of the pressure gradient on its southern flanks and the fact that it accelerated once it was over the land, making the passage from the Devon to the Lincolnshire coasts at a speed of 60 kts. Pressure rises were more rapid in east Dorset and west Hampshire than anywhere else in the country. At Dorchester (Weatherbury Way) there was a rise of 26 millibars in the four hours 0300 to 0700. Rises of 8 millibars in an hour were common, but the largest rise in an hour was 12.2 millibars at Hurn between 0400 and 0500.

(c) Wind strengths

The strongest gusts recorded in Dorset were 86 kts at Portland (RNAS) and 78 kts at Portland Bill. These may be compared with figures from other similarly exposed sites during the storm. The strongest gusts of all occurred in the Brest Peninsula, where several stations had gusts over 100 kts, the highest being 119 kts. In England the highest gusts were all in the south-east:

- 106 kts at Gorleston (near Great Yarmouth, Norfolk);
- 98 kts at Shoreham-by-Sea;
- 94 kts at Langdon Bay (near Dover).

Before considering the damage caused by the storm it is instructive to compare the winds experienced at inland stations.

Average figures for Dorset were:

Maximum wind speeds	34 kts (force 8)
Maximum gusts	61 kts (force 11).

Similar figures for London, Kent, Surrey and Sussex were

Maximum wind speeds	45 kts (force 9)
Maximum gusts	81 kts (force 12).

(d) Storm damage

The storm caused 18 deaths, and did enormous damage to property including the uprooting or destruction of many millions of trees. South-east England was the area worst affected.

The first deaths occurred in Dorset. Two firemen were killed when a tree crashed on their tender at Highcliffe near Christchurch. Weymouth lifeboat went to the assistance of a small craft in trouble off Portland. However, in general the Dorset observers stress the county's good fortune in escaping the devastation experienced in the south-east. Typical comments are:

Bridport (Bradpole) – This district was spared serious damage.

Wraxall – Only the odd tree lost.

Shaftesbury – Little damage done.

Wareham (Trigon) – No damage to buildings, but extensive damage to trees, especially hedgerow and parkland trees.

Swanage – Trees uprooted. Damage to roofs.

Although Dorset was so close to the centre of the depression, it was only on the fringe of the area most affected by the high winds. Whereas Kent, Surrey and Sussex experienced winds likely to recur only once in two centuries or more, the winds in Dorset were of the order seen once every five to ten years, though the gusts at Portland and other exposed coastal sites have a return period of perhaps 15-20 years.

(e) 1703 and 1987

Comparing any great storm with earlier ones is never easy. So many variables are involved that it is inconceivable that history should repeat itself, except in the broadest way. Comparing storm with storm is therefore a difficult and, ultimately, a subjective exercise. There seems to be general agreement that we have to go back to the storm of November 26th-27th (OS) 1703 to find a truly comparable storm.

The 1703 storm is famous for two reasons. First, it destroyed the first Eddystone lighthouse, built only five years before, drowning the engineer Henry Winstanley who had designed it. Secondly, Daniel Defoe published in the following year a comprehensive description of the storm, based on a large number of eye-witness accounts which he had assembled. One can say with some certainty that the 1703 storm was worse than that of 1987. It seems to have been more violent. It certainly lasted longer and was destructive over a larger area.

HEAVY FALLS OF RAIN

Nineteen eighty-seven did not see many days with heavy general rainfall. The three most notable situations are briefly described here. The most widespread heavy rain was that on February 1st, but even on this day only about half of Dorset received over an inch of rain.

February 1st

A depression lay west of the British Isles. The associated fronts moved slowly into south-west of England, giving over an inch of rain across the hills of west and south Dorset. At Lyme Regis (Pinhay) the fall was 2.13 inches. This station is just inside Devon. The nearest Dorset stations had much lower falls (Bradpole 1.32 inches, Netherbury 1.22 inches and Forde Abbey 1.02 inches), but the 2-inch fall must have extended two or three miles into Dorset.

June 5th

A depression approaching Ireland from the Atlantic gave widespread heavy rain and gale-force winds. Berry Head in Devon recorded a gust of 85 kts early on 6th. Rainfall exceeded an inch in the hilly areas of west and central Dorset. (1.39 inches at Minterne.)

October 7th

A deepening depression moved north-east near southern Scotland on 7th and 8th, bringing rain and strong winds to much of the British Isles, followed by showers. Over an inch of rain fell along the line of the Dorset Heights from the Devon border to the Stour Valley (Netherbury 1.50 inches).

RAINFALL STATIONS

The following stations have closed:

- Beaminster (East Street);
- Bere Regis (Chamberlaynes);
- Buckland Newton (Brockhampton Gate);
- Mapperton.

The gauge at Abbotsbury was moved from East Cottage to East Farm on July 1st 1987, and the station has been renamed accordingly.

Two new stations are included in this year's report:

Cerne Abbas (Abbot's Walk) – details of the exact position of the gauge are awaited.

Langton Matravers (Leeson House) NGR SZ 005786, 230 ft ASL. Note: this station is part of the Field Studies Centre. Observations are made daily at an unstandard hour, 1700 GMT.

We regret not having received reports from three stations belonging to Wessex Water:

- Charmouth (Sewage Works);
- Milborne St Andrew;
- Upwey (Friar Waddon).

GEOLOGY

SILTSTONE DYKES IN THE MIDDLE LIAS OF DORSET

P. C. ENSOM
Dorset County Museum, Dorchester, Dorset DT1 1XA.

Fallen blocks of a grey siltstone on the shore around Eype Mouth (SY 449 910) reveal features which may be explained as dewatering structures. The blocks are assumed to have come from the Starfish Bed (Middle Lias) which is present in the cliffs to the east and west of Eype Mouth.

One wave-washed block showed a structureless sediment dyke with a maximum width of 0.02 m seen for a distance of 1.03 m across the top surface of a current cross-stratified silt. At one extremity the sediment dyke narrowed to *c.* 0.003 m with two thin veins branching off on one side (Plate 1). The dyke's contact with the host sediment was marked by a veneer of calcite, though this was absent from the walls of the two side veins. The structureless sediment was identical to the bioturbated silt (A) in which it originated before passing up through current cross-stratified silts (B). There were a series of steeply dipping micro-faults passing down over a thickness of 0.09 m from the point of contact between the bioturbated silt and the penetration point of the dyke through the overlying current cross-stratified silts (Plate 2).

While the above example permitted the direction of sediment emplacement to be ascertained, another block lying close by did not. This specimen (Plate 3) showed a more complex network of sedimentary dykes cutting other abiogenic/biogenic structures on the bottom of a siltstone bed which rested on a softer calcareous silty clay. The dykes passed into this silty clay and were sometimes refracted at the interface. Calcite veins were at times common, running both with, cutting across and disconcertingly being cut by the dykes (Y). The sediment-fill of the dykes was again structure-

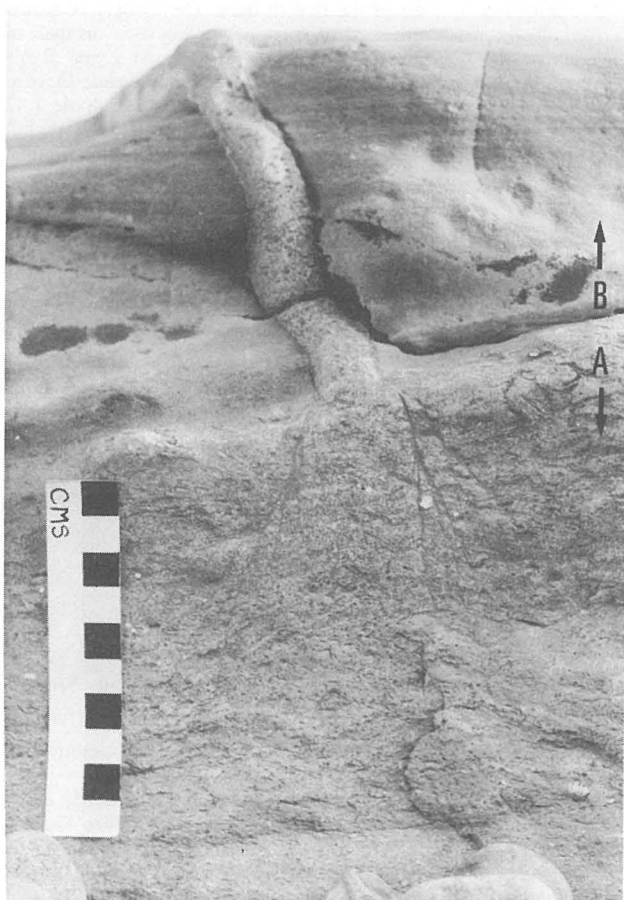


Plate 1. Upper surface of Middle Lias siltstone showing sediment dyke. A = lower bioturbated silts. B = upper current cross-stratified silts.

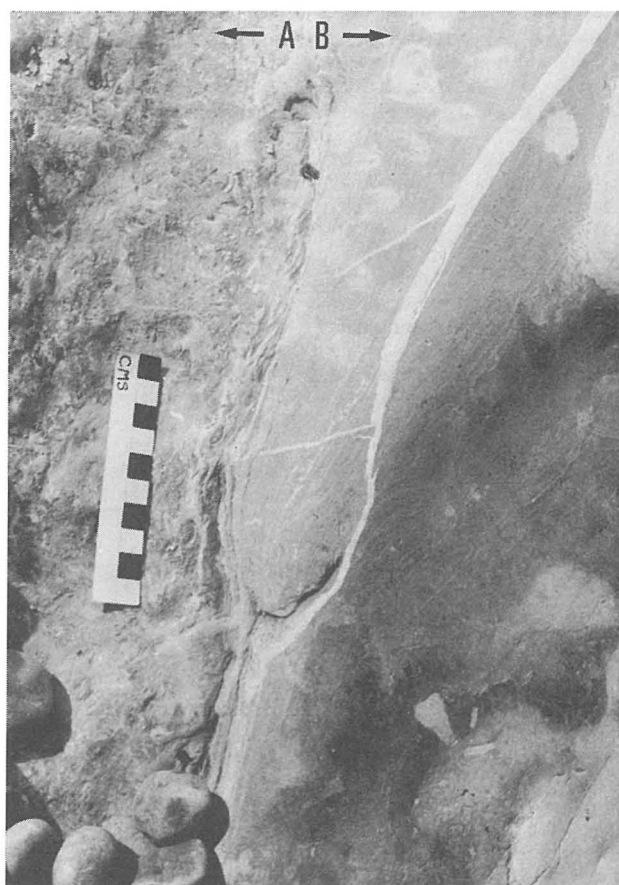


Plate 2. Microfaults in underlying bioturbated silts (A) dipping steeply down from point where sediment dyke passes into current cross-stratified silts (B).

less and though showing against weathered host siltstone, where in contact with the calcareous silty clay, it soon passed almost without trace into a sedimentologically very similar unweathered host siltstone. Only a faint and slightly sinuous junction and the presence of small sphalerite aggregates/crystals (confined to the dyke silts) confirmed their presence on a freshly broken surface.

The first example may be explained as a dyke produced by sediment injection. Pettijohn *et al.* (1972, p. 127), describe sands becoming 'quick' and being injected into other sediments as dykes or sills. Such injection could be triggered by an 'external shock' (Collinson and Thompson 1982, p. 141) when sediments are deposited in quiet conditions. Another possible explanation may be that with the rapid deposition of the overlying sediments after storm activity (Sellwood *et al.*; 1970, Goldring and Stephenson 1972) underlying sediments may have been rapidly loaded and this in turn led to dewatering. The second example, though possessing puzzling features such as the calcite veins apparently cut by dykes, is believed to be the result of the same mechanism.

Further examples of these sedimentary structures have been observed in fallen blocks of the Starfish Bed just west of Eype Mouth, though fallen blocks below Thorncombe Beacon have not yet revealed any comparable structures. When considering mechanisms the close proximity (< 50 m) of these blocks to the line of the Eype Mouth Fault, known to have been active in Upper Liassic times (Jenkyns and Senior 1977), might be worth bearing in mind.

I thank Q. G. Palmer for helpful discussion.

DAMAGE TO EYPE NODULE BED AMMONITES;
NEW DISCOVERIES

P. C. ENSOM

In a note on a variety of types of damage to ammonites from the Eype Nodule Bed, Middle Lias at Eype Mouth SY 448 910 (Ensom 1985, pp. 161-4), I suggested that periferal damage seen in many of these ammonites was comparable to that described by Roll (1935) who suggested decapod crustaceans may have been responsible.

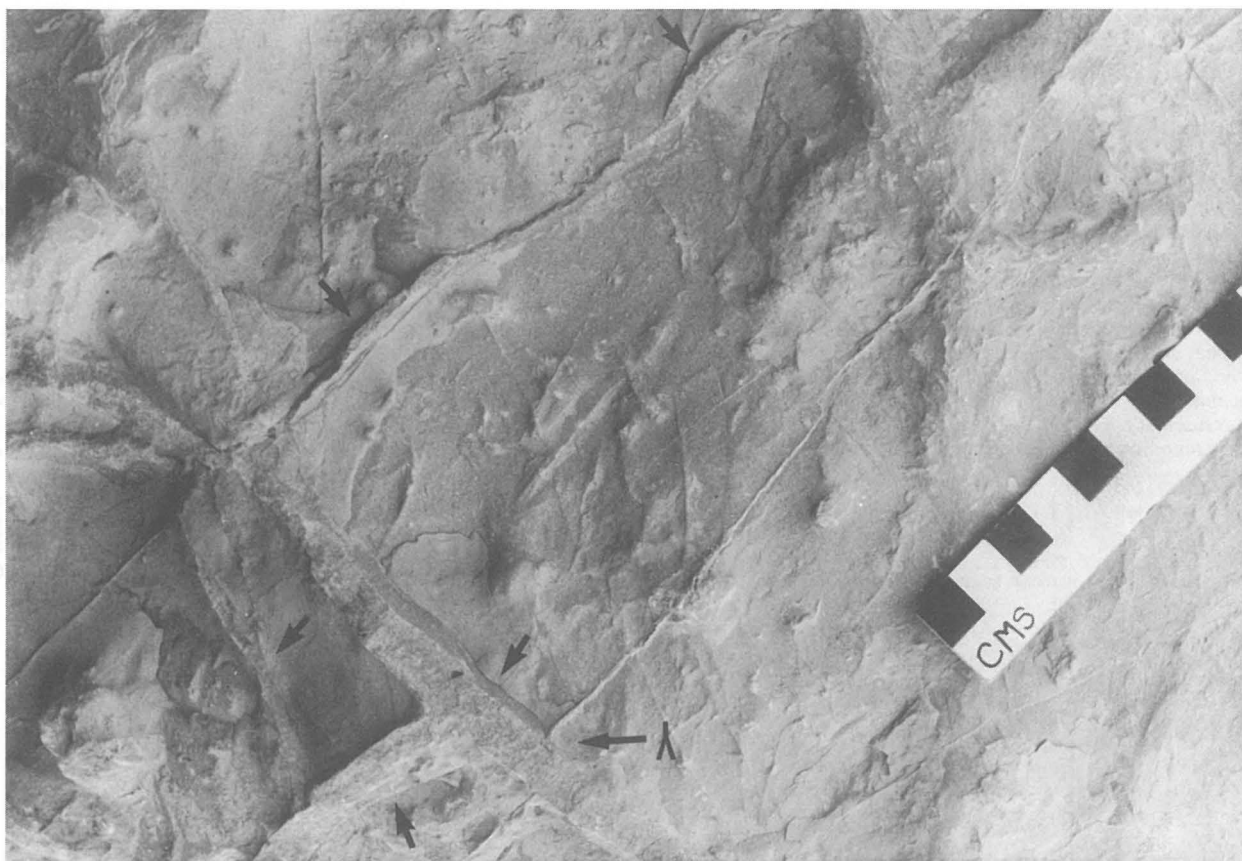


Plate 3. Sedimentary dykes (arrowed) on base of siltstone block. A calcite vein is cut by a dyke at Y. Portion of block accessioned DORCM. G.10749.

Since then two discoveries have been made which add to that original description. When the note was written no remains of crustaceans had been found at this horizon, though the Middle Lias strata of that section contain numerous examples of burrow systems, e.g. *Thalassinoides* which have been ascribed to decapod crustaceans (Sellwood *et al.*, 1970). A small sample of the sediment from the upper part of the Nodule Bed has now yielded a fragment of an indeterminate crustacean (DORCM G.10747) and the writer has learnt of a larger specimen from the Eype Nodule Bed (R. Edmonds, pers. comm.). While this at least provides tangible evidence for the existence of crustaceans, the recovery of a slab of Eype Clay with an almost complete specimen of *Amaltheus* (DORCM G.10748) preserved on it has produced evidence that damage to the venter may have an alternative explanation in some or all cases.

The specimen (Plate 4) shows a more or less intact body chamber but flattened inner whorls. The body chamber has a notched area on the venter, corresponding with those I described in 1985. However in this case the shell material from that notch is preserved in the clay. In this instance at least there is no evidence for the removal of the shell, but rather a crushing of this marginal zone.

A possible explanation for this might be the absence of sediment fill caused by the angle of repose of the ammonite shell or perhaps remaining tissue and/or a gas pocket. The presence of a small unpaired muscle has been recognised in the postero-ventral position of the body chamber of Mesozoic ammonoids (Kennedy and Cobban 1976) and that this may have contributed to the collapse of shell in this part of the body chamber is open to speculation.

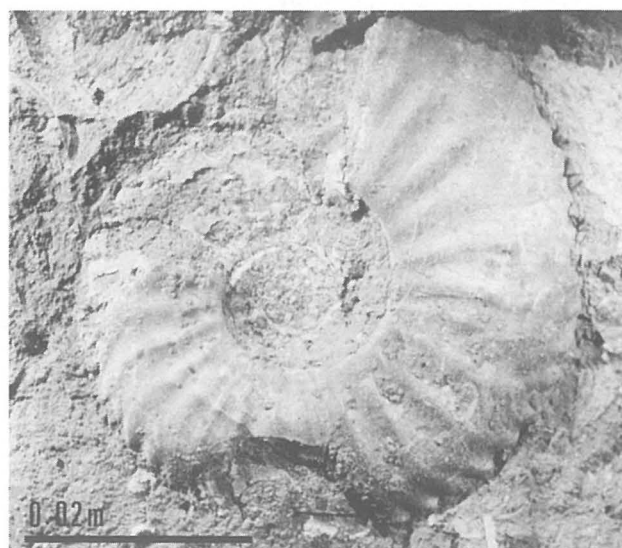


Plate 4. *Amaltheus* sp. Scale bar 0.02 m.

EXCAVATIONS AT SUNNYDOWN FARM, LANGTON MATRAVERS, DORSET: AMPHIBIANS DISCOVERED IN THE PURBECK LIMESTONE FORMATION

P. C. ENSOM

In the Geology Report in last year's *Proceedings* (Volume 108) I recorded early observations on what was already an unusual discovery in the Purbeck Limestone Formation at Sunnydown Farm near Langton Matravers (SY9822 7880).

Lifting of the limestone bearing the casts of the footprints, the discovery of which had prompted the investigation, continued in 1987 and was completed in early June.

A great deal of recording and research remains to be carried out on the limestone pavement and the clay samples taken from immediately below. What follows is an interim report on the discoveries made so far.

The section exposed in the quarry (Figure 1) shows the upper

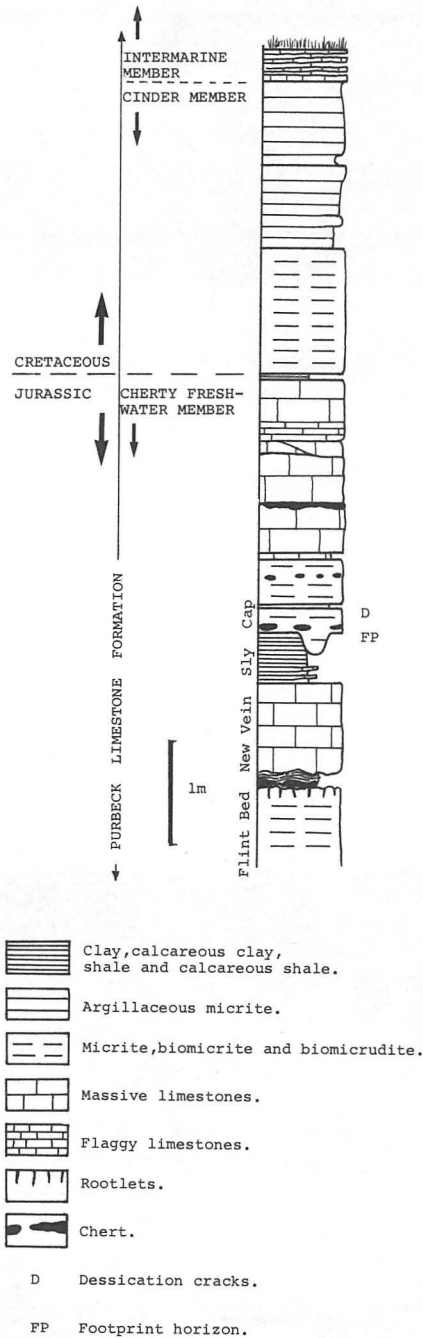


Figure 1. Section through the strata exposed at Sunnydown Farm Quarry, 1986-1987.

part of the Cherty Freshwater Member (uppermost Jurassic) overlain by the Cinder Member and basal Intermarine Member (lowest Cretaceous). These strata can be equated with reasonable certainty to beds DB 97-112 (Clements 1969) in Durlston Bay. I specifically suggested that the limestone bearing the casts of the footprints could be equated with DB103 (Ensom 1987). Samples taken from the underlying clay at this locality (DB102) have yielded a very similar fauna, including mammals, to both the writer and David Ward (pers. comm.). In addition samples from a further two locations (Lovells Quarry near Langton Matravers (SY c 980 790) and Suttles Quarry near Swanage (SZ c 020 777)) have also produced a comparable fauna. Dr Ian West has very generously examined samples from the beds in question and his results are printed below. They provide a lithological endorsement of this correlation.

The limestone pavement removed from the quarry and reassembled on adjoining ground covers an area approximately 16 m x 4 m. The lower surface of this limestone bed is rich in the casts of footprints produced by both tridactyl bipedal dinosaurs and the much larger quadrupedal dinosaur noted last year. The bipedal dinosaurs' footprints are at present thought to have been produced by an herbivore (cf. *Iguanodon*) and one or more carnivores. Very small theropod (cf. coelurosaur) teeth are not uncommon in the clay samples in which the footprints were made, and in addition

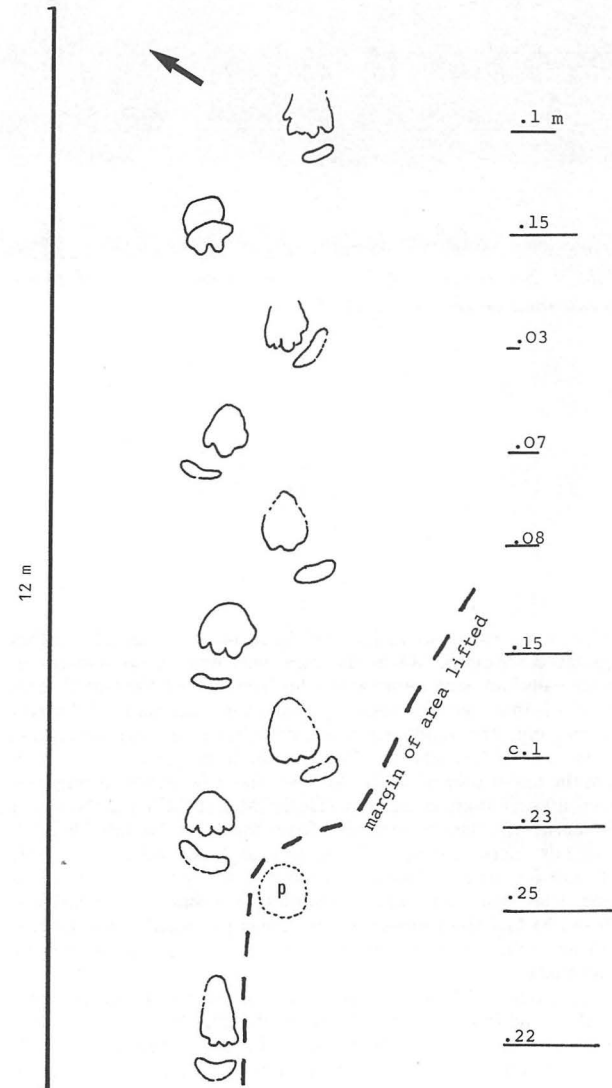


Figure 2. Sketch plan of the main sauropod trackway. The plan is of the casts and therefore reversed. Actual direction of track approximately WNW-ESE. North, indicated with an arrow, remains the same. Measurements on right side give approximate depth of footprints derived from the casts. p = the first footprint recovered in July 1986 and is figured in Plate 5.

much rarer teeth of the ornithischian fabrosaurid *Echinodon becklesii* have been recovered. Footprints of this dinosaur have not been recognised, though two relatively small theropod footprints have been noted on the site. The identity of the larger dinosaur responsible for the spectacular footprints which led to the excavation of the site was considered briefly in last year's report. Since then additional material has become available and a continuous sequence of 19 footprints (Figure 2) has been provisionally surveyed. The 'apparently four-toed' cast (Ensom 1987) has had five toes recognised (Plate 5) and a well preserved claw-cast has been identified on another cast. In addition a difference between outer and inner toes (hoofed, 3-5 on Pl. 5, and clawed, 1-2 on Pl. 5, respectively) supports the sauropod origin. The main trackways footprints consist of 9 forelimb and 10 hindlimb casts. The forelimb casts vary from free-floating pods of limestone in the clay below the limestone bed, where the footprints were deeply impressed, to almost imperceptible crescent-shaped ridges where the footprints were at their shallowest. The depth of the footprints are given on the right margin of Figure 2. Variation in depth over a short distance is at present equated with sediment plasticity, a matter alluded to by West (below). Footprint sizes fall well within the range of foot sizes recorded by Lockley *et al.* (1986) on a number of sauropod tracks, as does the stride of 2.2 m.

In addition to the main trackway at least three other tracks made by the same or a similar species of animal are present, though the number of footprint casts are sadly limited by the area lifted and interpretation of these tracks promises to be difficult.

Examination of quarried stone at Lovells Quarry (c. 300 m north-west of Sunnydown Farm Quarry) has produced many further examples of sauropod footprint casts at the same horizon.

Vertebrate faunas

Approximately the top 0.05 m of the clay in which the footprints were made was found to be rich in vertebrates and as excavation of the footprint cast layer progressed the clay was collected and is now being sieved. Sediment passing through the 300 µm aperture is not retained. Fortunately only c. 5 per cent of the original sample is retained after successive drying, wetting and sieving operations. The finest residue (500 µm-300 µm aperture) is further treated with very dilute acetic acid (2½ per cent solution) and all calcium

carbonate so removed. All residues are picked from a gridded sorting tray under a binocular microscope.

The bulk of the samples has come from the Sunnydown Farm Quarry, though additional samples from Durlston Bay, Lovells and Suttles Quarries have been processed to ascertain the extent of the deposit. The results are remarkable, indicating an extensive vertebrate rich horizon yielding fish, the first amphibians recorded from the Purbeck Limestone Formation including two species of salamander and a frog, reptiles and mammals. The detailed recording of the location of different samples will eventually permit a detailed distribution of the vertebrate remains across the site, and this may give a clearer picture of the conditions at the time of deposition and how these relate to the footprints.

A dark carbonaceous clay c. 1.5 m below this horizon in the same quarry is also yielding vertebrate remains (fish, amphibians, reptiles and mammals). The following is a provisional faunal list for both horizons.

	horizon	
	upper	lower
Fish		
Selachii		
Teeth aff. <i>Hybodus</i> sp.	×	×
Incertae sedis		
Various teeth and scales as yet unidentified	×	×
Amphibia		
Caudata		
Undetermined batrachosauroidid salamander	×	×
Undetermined salamander	×	
<i>Albanerpeton</i> sp.	×	
Anura		
Indeterminate frog	×	
Reptilia		
Chelonia		
<i>Tretosternon</i> sp.	×	
? <i>Pleurosternon</i> sp.	×	
Squamata		
Sauria (Lacertilia)		
Paramacellodidae		
<i>Paramacellodus</i> sp.	×	
<i>Becklesius</i> sp.	×	×
Incertae sedis		
<i>Durotrigia</i> sp.	×	
Rhynchocephalia		
indet. Sphenodontid	×	×
Crocodylia		×
<i>Nannosuchus</i> = juv. <i>Goniopholis</i> ?	×	
<i>Theriosuchus</i> sp.	×	
<i>Bernissartia</i> sp.	×	
<i>Goniopholis</i> sp.	×	
?Pterosauria indet. teeth	×	
Saurischia		
Theropoda		
cf. <i>Nuthetes destructor</i>	×	×
Ornithischia		
Fabrosauridae		
<i>Echinodon becklesii</i>	×	
Mammalia		
Multituberculata		
<i>Bolodon</i> sp.	×	
<i>Pliopriion minor</i>	×	
Triconodonta	×	
Docodonta		
<i>Peraiocynodon</i> sp. (?= <i>Docodon</i> sp.)	×	
Symmetrodonta		
<i>Spalacotherium</i> sp. (cf. <i>Tinodon</i>)	×	
Eupantotheria		
<i>Phascolestes</i> sp.	×	
<i>Peramus</i> sp.		×
? <i>Peraspalax</i> sp.	×	
<i>Amblotherium</i> sp.	×	

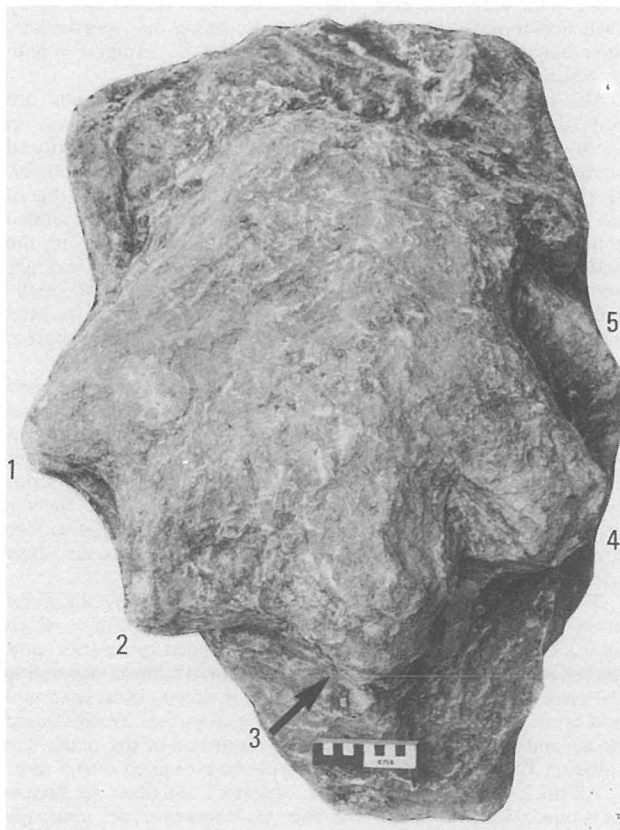


Plate 5. Cast of right pes (hind limb) of a sauropod. cf. *Diplodocus* sp. The digits are numbered 1-5. Each division on scale = 0.01 m.

Acknowledgements

I would like to thank R. and M. Notley for their continuing kindness and hospitality during the 1987 season of excavations at Sunnydown Farm. Messrs C. J. Suttle and P. Lovell have

kindly allowed me access to quarries and have given time to show me around the excavations. The Palaeontological Association's Sylvester-Bradley Award continues to support my work on fossil footprints. I am very grateful to Drs A. R. and A. C. Milner who spent a day examining vertebrate residues from the Purbeck Limestone Formation and in so doing isolated the first amphibians from these strata, and identified these along with the lizards. Dr A. R. Milner kindly read the text of the Sunnydown Farm Quarry note. Dr P. Butler has generously provided m.s. drawings of Upper Jurassic mammal teeth to assist with identification. Many others have contributed to the work at Sunnydown Farm; my thanks to all of them for their help, discussions and encouragement. Merial Ensom copes with buckets of mud, and an oven full of drying samples, with perfect equanimity; on top of this she types drafts of this report and greatly assists with photography. I owe much to her patience and support.

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A NEW PTEROSAUR FROM THE KIMMERIDGE CLAY OF KIMMERIDGE, DORSET

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Abstract

The partial remains of a pterodactylid pterosaur from the Kimmeridge Clay of Kimmeridge Bay are described. The specimen is similar to those of *Germanodactylus* from the Solnhofen Limestone of Bavaria. However its specific identity remains unclear, thus for the present it is referred to *Germanodactylus* sp. These remains represent the first record of a germanodactylid pterosaur to be found outside Bavaria and possibly the earliest record of a pterodactylid pterosaur.

Introduction

Mr S. M. Etches recently discovered the partial remains of a small pterosaur in a bed of dark grey mudstone about 5 m below the Flats Stone Band (*eudoxus* zone, Lower Kimmeridgian) (Cox and Gallois 1981) at Charnel (NGR 899 789) in Dorset. The remains, found in close association and thus assumed to represent a single individual, consist of seven elements; two cervical vertebrae, a single dorsal vertebra, a radius and ulna, the first phalanx of the wingfinger (digit 4) and a tibia (Pl. 1 a-h, Fig 1. a-h). The bones are generally well preserved though not all are complete and the cervical vertebrae, in particular, have been heavily crushed. Significant dimensions of each element are given in Table 1.

TABLE 1. Dimensions of material ascribed to *Germanodactylus* sp. Etches Colln. K 96. Figures in parentheses are estimates of complete lengths, an asterisk indicates original length is not known.

Element	Length	Width	Width
		proximal end	distal end
Cervical vertebra #3?	17.1	18.8*	9.8*
Cervical vertebra #4?	18.7 (25.5)	14.5*	—
Dorsal vertebra	9.8	5.1	4.5
Ulna (right)	97.5	14.5	15.2
Radius (right)	97.5	10.6	11.5
Wing phalanx 1 (left)	120.0 (126.0)	16.8	—
Tibia (right)	133.5 (142.0)	10.0	—
Fibula (right)	(64.5)	—	—

Description of material

The smaller cervical vertebra (Pl. 1a, Fig. 1c and d) is tentatively identified as the third cervical and the larger (Pl. 1c) as the fourth. The smaller cervical is virtually complete though heavily crushed. The centrum bears a broad and rather shallow cotyle anteriorly and a prominent strongly convex condyle posteriorly (Pl. 1d, Fig. 1d) thus the cervical vertebrae were procoelous as is typical for pterosaurs (Wellnhofer 1978). In dorsal view the vertebra presents a broad wedge-shaped outline; the prezygapophyses, which lack their articular tubercles, diverge widely, the mid-region is somewhat waisted and the postzygapophyses show only moderate divergence, but bear well-preserved elliptical articular surfaces (Pl. 1b, Fig. 1d). The neural crest is long and low. The larger cervical lacks the posterior region and is heavily crushed. The prezygapophyses are complete, relatively short and robust and each bears a well preserved elliptical articular surface (Pl. 1c).

The dorsal vertebra is uncrushed but lacks the upper half of the neural arch and the neural crest (Pl. 1d, Fig. 1a and b). The centrum is spool-shaped and markedly waisted, the width at the mid-point being only half that of the anterior end. The anterior cotyle appears to have had a shallow ventral lip, and a much deeper dorsal lip which supported the anterior pedicels of the neural arch (Fig. 1a). The posterior condyle is circular and gently convex; the articular surface appears to extend up onto the posterodorsal surface of the centrum (Fig. 1b), corresponding with the development of the anterior cotyle. Thus it would seem that in this region each dorsal vertebra overlapped the preceding one, presumably increasing the stiffness of the dorsal region of the vertebral column by resisting vertical movements.

The radius and ulna are both from the right wing and are complete, though slightly crushed. The ulna, as is typical in pterosaurs, is somewhat more robust than the radius, and the dorsal condyle of the proximal articulation is larger than the ventral (Pl. 1f, Fig. 1f) (Padian 1983). The distal articulation is similar to that of the ulna of *Araripesaurus* (Wellnhofer 1985) with a large rounded condyle forming the dorsal half, a small tubercle occupying the mid-point of the articulation, and a shallow fovea carpalis occupying the rather flat ventral expansion. On its proximal end the radius bears a simple, shallow, concave articulation and on its distal end two small lozenge-shaped condyles oriented at ninety degrees to each other (Pl. 1e, Fig. 1e).

Phalanx 1 of the left wing-finger (digit 4) has a well-preserved proximal articulation, but the shaft is somewhat compressed and lacks the distal end (Pl. 1g, Fig. 1g). The proximal articulation is typically bicondylar, with a large deep dorsal cotyle and a smaller shallower ventral cotyle. The extensor tubercle on the anterior surface of the proximal condyle is unusual in that it lacks a prominent proximal process and terminates in a rather flat surface parallel to the condyles. The phalanx shaft presents an offset triangular outline.

The right tibia is virtually complete and lacks only the distal articulation (Pl. 1h, Fig. 1h). The proximal articulation, which appears to be a little distorted, is wedge-shaped in anterior view and bears an incipient groove on the proximal surface, separating the medial and lateral condyles. The shaft is circular in cross-section and bears a long narrow groove on its lateral surface terminating at about mid-height and into which the distal end of the fibula was splinted. Thus the length of the fibula can be estimated at 64.5 mm.

All the long bones (radius, ulna, phalanx 1 and tibia) are hollow as is typical for pterosaurs. The bone walls however, are unusually thick, the ratio of their width to the shaft diameter typically being about 4.0. In most pterosaurs of a similar size, for example *Rhamphorhynchus* (Wellnhofer 1975) the walls are relatively much thinner, with bone wall/shaft diameters of 6.5 or more.

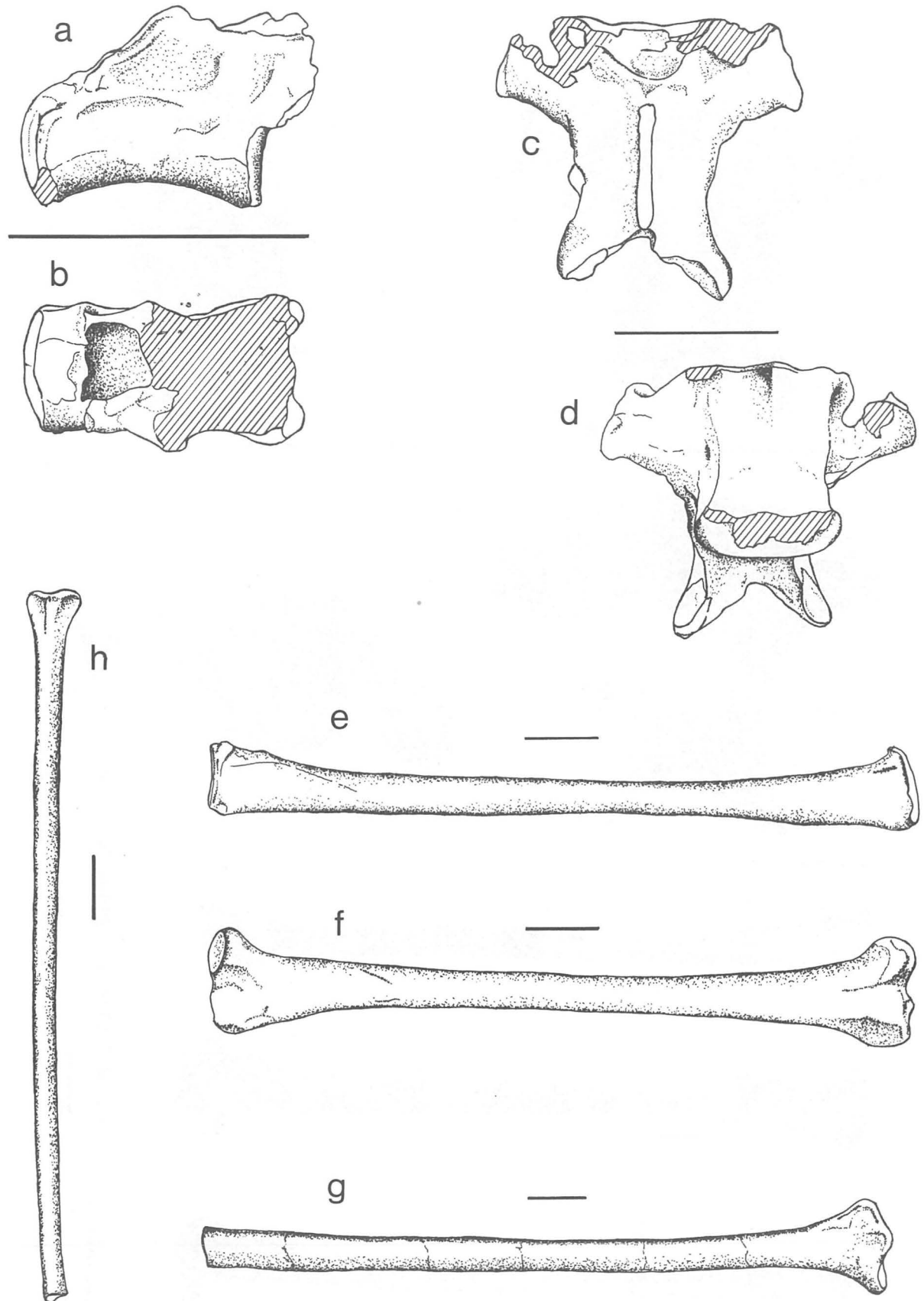


Figure 1. *Germanodactylus* sp. Kimmeridge Clay (Lower Kimmeridgian), Dorset. Etches Colln. K 96. a. Dorsal vertebra in right lateral view. b. Dorsal vertebra in dorsal view. c. Cervical vertebra #3? in dorsal view d. Same in ventral view. e. Right radius in posterior view, proximal end to the left. f. Right ulna in posterior view, proximal end to the left. g. First phalanx of left wing-finger, (digit 4) in dorsal view. h. Right tibia in anterior view. Scale Bar = 10 mm.

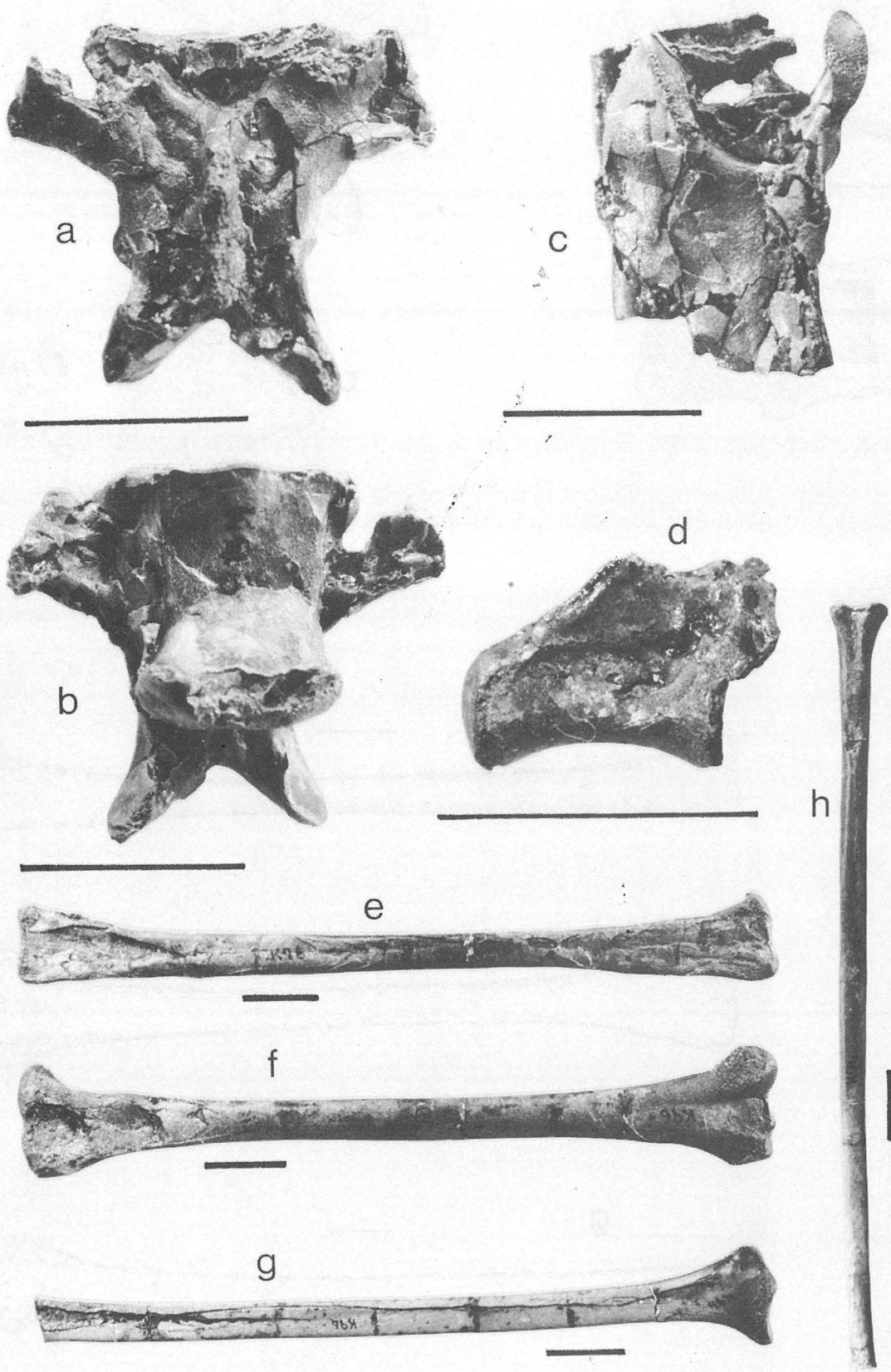


Plate 1. *Germanodactylus* sp. Kimmeridge Clay (Lower Kimmeridgian), Dorset. Etches Colln. K 96. a. Cervical vertebra #3? in dorsal view, b. same in ventral view. c. Cervical vertebra #4? in dorsal view. d. Dorsal vertebra in right lateral view. e. Right radius in posterior view, proximal end to the left. f. Right ulna in posterior view, proximal end to the left. g. First phalanx of left wing-finger (digit 4) in dorsal view. h. Right tibia in anterior view. Scale bar = 10 mm.

Discussion

These remains are undoubtedly those of a pterosaur. The vertebrae are characteristically pterosaurian, as are the highly elongate hollow limb bones. Furthermore, the large digit 4 which forms the distal portion of the wingspar, and represented here by an incomplete phalanx 1, is unique to pterosaurs. Pterosaurs are currently divided into two suborders; the Rhamphorhynchoidea, which consist of primitive long-tailed pterosaurs ranging from the Upper Triassic to the end of the Jurassic and the Pterodactyloidea, which consist of more derived, short-tailed pterosaurs ranging from the Upper Jurassic to the end of the Cretaceous. This new specimen can be confidently assigned to the Pterodactyloidea. The disparity in size of the middle cervicals (Howse 1986) and their apparent lack of cervical ribs, the morphology of the distal end of the ulna, the triangular cross section of the wing phalanx, and its concave anterior edge, together with the relatively short fibula (< 45 per cent length of tibia) are all typical pterodactyloid characters (Wellnhofer 1978).

Comparison of this material with the corresponding elements of similar size and proportion in more complete pterosaurs suggests that this animal had a wingspan of about 1.2 m. This is about the same size as the well-known pterosaur *Dimorphodon*, from the Lower Jurassic of Dorset.

Three characters possessed by this specimen indicate that it has close affinity with the Upper Jurassic pterodactyloid *Germanodactylus* (Family: Germanodactylidae) from the Solnhofen Limestone (Upper Jurassic, Tithonian) of Bavaria, West Germany. 1. The cervical vertebrae are very similar to those of *Germanodactylus* (Plieninger 1901 Pl. 4, Wellnhofer 1970 Pl. 11, Fig. 1) and unlike those of other early pterodactyloids. 2. The proximal end of phalanx 1 of the wing-finger of *Germanodactylus* appears to lack a pronounced extensor tubercle (Plieninger 1901 Pl. 4) as in the specimen at hand. Other pterodactyloids all possess, as far as is known, a well developed extensor tubercle. 3. The relative proportions of the ulna, phalanx 1 and tibia of germanodactylids are unique among pterodactyloids in that the tibia is longer than the phalanx 1, which in turn is longer than the ulna (Wellnhofer 1968, 1970). Reconstructed elements from the specimen at hand (Table 1) display very similar proportions; the tibia is 1.13× the length of the phalanx 1 and the phalanx 1 is 1.29× the length of the ulna. These three characters provide strong support for assigning this specimen to the genus *Germanodactylus*. The specific identity of this specimen remains unclear, so the appellation *Germanodactylus* sp. must suffice for the present. Comparison with published data (Plieninger 1901, Wellnhofer 1968, 1970) suggests that there are minor differences between the relative proportions of the material at hand and the two known species of *Germanodactylus*; *G. cristatus* and *G. rhamphastinus*.

This specimen presents three points of interest.

1. It is only the second known occurrence of associated pterosaur remains from the Kimmeridge Clay, the first being the partial remains of the wing of a rhamphorhynchoid pterosaur, consisting of a humerus, a radius and an ulna, a proximal carpal and a single metacarpal discovered in 1972 by R. A. Langham (Taylor and Benton 1986) and currently under study by the author. All other pterosaur material from the Kimmeridge Clay consists of isolated and frequently incomplete elements.

2. If further investigation confirms the identity of this specimen, it will be the first record of *Germanodactylus* outside Bavaria, extending, albeit rather modestly, the known palaeogeographic range of this genus. Currently *Germanodactylus* is known only from the Solnhofen Limestone (Tithonian); thus, this specimen also extends the stratigraphic range of germanodactylids by a few million years.

3. The earliest previously known pterodactyloids are of Tithonian age, which is currently thought to be equivalent to the early Upper Kimmeridgian (Cope and Zeiss 1964). Thus this specimen, recovered from the *eudoxus* zone of the Kimmeridge Clay extends the range of pterodactyloids down into the Lower Kimmeridgian and apparently represents the earliest positively identified pterodactyloid. A new vertebrate fauna recently recovered from the uppermost Portlandian of South Wiltshire, contains both pterodactyloids and rhamphorhynchoids. Thus it would appear that the two suborders co-existed in time from the mid-Lower Kimmeridgian up to the end of the Portlandian. This considerably extends their known range of co-existence which has, until now, been entirely restricted to the Tithonian (Wellnhofer 1987).

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Wheeler, A. Jenkins and H. Anger for their help with the plate and to Paul Ensom for his support and encouragement. Special thanks for permission to study this material are due to S. M. Etches, who gratefully acknowledges the RAC Gunnery School (Lulworth) for permission to visit areas within the ranges. This work was supported by the Wilkie Calvert postgraduate studentship awarded by Reading University.

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NOTES ON SOME PURBECK SEDIMENTS ASSOCIATED WITH THE DINOSAUR FOOTPRINTS AT SUNNYDOWN FARM, NEAR LANGTON MATRAVERS, DORSET

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Dinosaur footprints discovered in the Cherty Freshwater Member of the Purbeck Formation at Sunnydown Farm Quarry (SY 9822 7880), near Langton Matravers, have been reported by Mr Paul Ensom (1987 and above) who is excavating and investigating them. This note provides some limited information on sedimentological, geochemical and other aspects of associated limestones and clays.

Ensom (1987) correlated the bed above the footprints with bed DB.103 of Durlston Bay (Clements 1969), the 'Cap Bed' of Bristow and Forbes (1884), and with bed WB.112 of Worbarrow Bay (Ensom 1985). The calcareous shale or mudstone into which the footprints were impressed was, thus, correlated with bed 102, the 'Sly Bed' of Bristow and Forbes (1884). The limestone beneath this is the equivalent of the 'New Vein', bed DB.101.

The Underlying Limestone, the 'New Vein'

Samples from this bed at Durlston Bay have been studied petrographically and geochemically by El-Shahat (1977). At this locality it is a bivalve biosparrodite now predominantly of calcite (94 per cent), but with 1 per cent aragonite, 1 per cent quartz, 0.24 per cent organic carbon and a very low porosity (1 per cent). It is an early cemented type of biosparrodite of El-Shahat and West (1983). According to Clements (1969; 1973), it contains *Hydrobia*, *Viviparus*, *Ptychostylus* and *Theodoxus*, remains which are in general of a low-salinity, perhaps oligohaline, fauna.

The Calcareous Shale with footprints

A sample of this bed from Sunnydown Farm, taken from near the level of the footprints was examined. It is well-laminated and rather contorted, calcareous, sandy, carbonaceous shale. It contains plant debris, numerous bivalve fragments, ostracod valves, some quartz sand grains and vertebrate teeth (Ensom 1987 and this volume). Some silicified gastropods and spherulites of chalcedony are present. Much of the calcite is micritic. Framboidal pyrite, now oxidised to limonite, was originally abundant and occurs in bivalve shell fragments. XRD shows the clay to be a very fine-grained mixture of smectite and illite (with some mixed layer-minerals) and it would, therefore, have originally been very plastic. This accords with the smectite (approx. 52 per cent of the fine clay fraction) and illite mixture recorded in the equivalent bed at Durlston Bay (although here, too, a little mixed-layer clay may be included with the smectite) by El-Shahat (1977). Although the footprint indentations are of only moderate depth they were apparently made by very heavy animals (Ensom 1987) and this suggests that the clay was only just wetter than the plastic limit. In the dry summer season this clay, with its high carbonate content and plant debris, may have dried hard, rather like artificial mudbricks, daub or adobe. (Barton and London Clays can have broadly similar illite-smectite compositions (Gilkes 1968), although sand and carbonate content is variable and the bedded clay is over-consolidated. Where remoulded or redeposited in a landslip the material might be suitable for experiments involving footprint indentation and geotechnical properties including moisture content. Lake muds of appropriate composition would be better but are not readily available.)

At Durlston Bay the equivalent calcareous shale (DB.102) is pyritic, as well as carbonaceous, and has a sulphur content of 1.37 ppm. This is higher than that of associated strata (El-Shahat 1977). A notable feature is that the organic carbon content attains 7.46 per cent. Quartz amounts to about 10 per cent and there is more than the usual amount of sand for the Cherty Freshwater Member. There is 31 per cent calcite and 4 per cent aragonite. The strontium content of a shale sample is as high as 1453 ppm. Much would originally have been present in aragonite since converted to calcite. Mn, at 1127 ppm, is also relatively high. The heavy mineral composition of DB.102, in terms of the percentages of non-opaques, is as follows: zircon-55, garnet-20, rutile-12, tourmaline-10, staurolite-1 and others-2 (El-Shahat 1977). This is typical for the middle Purbeck Formation except that the garnet content is rather high.

The bed at Durlston Bay has a very low salinity fauna (C-phase of Anderson 1985) with abundant *Planorbis* and *Valvata* but also *Physa*, *Neomiodon* and charophytes (Clements 1969; 1973). Palynology by Hunt (1985) has shown that, although fern spores are not common near this horizon, tree pollen is abundant.

The limestone overlying the footprints

At Sunnydown Farm the limestone with footprint casts overlying the shale is a biomicrite with ostracods, charophytes, bivalves, gastropods and burrows at the base (Ensom 1987). The limestone was originally pyritic, although the pyrite is now oxidised. Bivalves now consist of neomorphic, pseudo pleochroic calcite with crushed and compacted shells. Features of interest are uncrushed gastropod shells and paired ostracod and bivalve shells with geopetal fillings. There is much silicification with length-fast chalcedony (chalcedonite) in cavities.

At Durlston Bay, DB103 is a biosparrudite with 80 per cent calcite, 5 per cent aragonite, 3 per cent quartz, 5 per cent clay and 0.69 organic carbon. It is of the late-cemented type with much pseudo pleochroic calcite. Porosity is 5 per cent. In terms of fauna it has a low-salinity (C-phase) assemblage with *Viviparus* and *Valvata* (Clements 1969; 1973), although the water was not necessarily completely fresh or limnic.

Conclusions

The combined sedimentological and faunal evidence suggests a series of lake deposits. The limestone beneath (bed DB.101 at Durlston Bay) seems to represent a subaerially-exposed, shell-debris beach that was cemented by the passage through it of meteoric water (El-Shahat and West 1983).

The shale or mudstone at Sunnydown Farm in which the footprints are impressed, was a calcareous, sandy, peaty, laminated mud, waterlogged and in reducing conditions. The sediment was probably deposited on an extensive mud-flat at the margin of a freshwater lake. Coniferous trees presumably grew on nearby higher ground.

The overlying limestone is a shelly sediment of a shallow lake which had charophyte algae. Desiccation cracks in this bed at Durlston Bay (El-Shahat and West 1983) suggest that some brief exposure did occur. Nevertheless, the lack of early cementation, the presence of pseudo pleochroic calcite and aragonite indicate that the sediment had not been above the water-table for any long time interval, during which diagenesis could occur. The overall sequence is thus one of gentle transgression at the margin of an almost freshwater lake.

Acknowledgements

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A RE-EXAMINATION OF ARKELL'S TUFA NODULES FROM SPRING BOTTOM, RINGSTEAD

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In the 1947 Geological Survey Memoir W. J. Arkell noted the occurrence of various recent tufa deposits in the south Dorset area (tufa being a spongy textured deposit of CaCO₃ precipitated from freshwater solutions of calcium bicarbonate and usually associated with plant remains). Of particular interest is the deposit that occurs by the ford at Spring Bottom, Ringstead (SY 7435 8185) where, to quote Arkell (1947, p. 352), 'hard spheroidal nodules about the size of a pigeon's egg occur'. Arkell also noted that the internal structure of these nodules was of 'concentric tufa spheres'. As far as the writer is aware these 'tufa nodules' have escaped subsequent scientific study, and it is the object of this short note to update the description and interpretation of Arkell's discovery. The nodule described here was collected by Mr P. Oak in 1986 and passed on to me by Mr P. C. Ensom.

The nodule which is ovoid in shape and about 3 cm in diameter is composed of a creamy-white, non-ferroan, low-Mg calcite (determined by staining and X-ray diffraction). The outer surface of the nodule has a rough, brecciated texture and is clearly abraded in

places. When sawn in half the millimetre scale laminated structure noted by Arkell is clearly visible (Pl. 1). The laminae are concentrated toward the periphery of the nodule forming a layer between 5 and 10 mm thick. The central portion of the nodule has a more spongy or cavernous texture and with a hand lens it can be seen that the calcite has a radiating filamentous structure. Within both the spongy filamentous calcite and the outer laminated calcite a few larger tubes occur, about 500 μm in diameter and arranged concentrically within the nodule, i.e. normal to the radiating filamentous calcite.

In thin section this microcrystalline calcite appears a brownish colour largely due to abundant inclusions of organic matter up to 10 μm in diameter. Within the radiating filamentous portion of the nodule, dark, thread-like organic filaments (about 2 μm wide and up to 5 mm long) occur (Pl. 2). Some of the longer filaments show side branching. These filaments are encased by a 10 μm thick coating of micritic calcite.

The laminated parts of the nodule are mainly composed of micritic layers typically 0.5 to 1 mm thick, which retain a prominent clotted texture. X-ray diffraction indicates the presence of minor amounts of smectite clay and quartz which is likely to be included within this clotted calcite. These layers are in places interspersed by alternating sub-laminae of golden-brown coloured microspar and dark micritic material up to 10 μm thick, often arranged in botryoidal clumps up to 500 μm in diameter. In a few of these botryoids a micron-scale radial structure is visible (Pl. 3).

In places, units of laminated material are intergrown with units of radiating filamentous structure and the nucleus of the nodule appears to be a layer of the laminated material which was subsequently overgrown by radiating filamentous material. The nucleus is asymmetrically positioned within the nodule, about 5 mm off centre (Pl. 1).

From the above description there can be little doubt that Arkell's tufa nodules are in fact oncolites, basically rolled algal stromatolites. To quote Scoffin (1987), 'oncolites (or oncoids) are defined as unattached stromatolites and usually have a spheroidal structure of concentric laminations around a nucleus'. The specific features noted within these Ringstead oncolites; thread-like organic filaments (cyanobacteria), clotted-texture micrites (cf. Monty 1976), micron-scale microspar and micritic laminae arranged in botryoids with radial fabrics (cf. Maddox and Andrews 1987) are all consistent with the oncolite interpretation.

The origin of these oncolites presumably came about when layers of laminated tufa became detached from the stream bed, acting as nuclei (although subsequent oncolite nuclei could have been broken off these earlier formed oncolites which would have been

susceptible to erosion). These gravel size fragments of tufa were then colonised by cyanobacteria which grew normal to their substrate. The asymmetric position of the nucleus fragment shows that it was not significantly rolled until one-sided growth of cyanobacterial colonies had begun. Then the cyanobacterial encrusted fragment began to roll and laminated layers of calcite were deposited. The intergrowth of laminated and radiating filamentous units suggests that oncolite growth proceeded by periods of rolling on the stream bed (recorded by the concentric laminated units) followed by periods of stasis (recorded by the radiating filamentous units). If this model for oncolite growth is correct it suggests that different types of cyanobacteria flourished under fluctuating dynamic conditions.

The most enigmatic feature of these oncolites are the larger tubes (up to 500 μm in diameter). This size of tube is too large for cyanobacterial construction, and although tube-like structures are common components of marine stromatolites (e.g. serpulid worms and vermiform gastropods), such marine organisms were clearly not responsible for construction of the tubes recognised here. Given the freshwater environment of oncolite formation the most likely creatures to have inhabited the tubes are either small worms, or possibly, insect larvae.

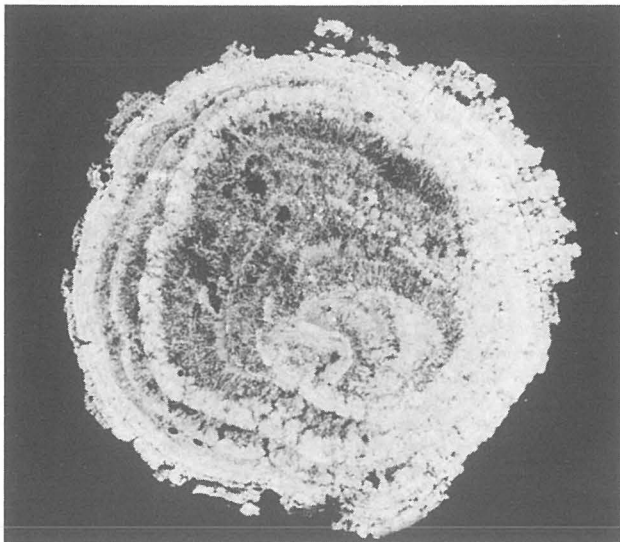


Plate 1. Cross section through the Ringstead oncolite in plane polarised light (ppl). Millimetre scale laminated fabrics are best developed toward the outer edge of the structure. The central portion is composed of a spongy textured calcite with radiating filamentous structure. The nucleus is situated slightly off centre (toward the bottom right of the structure) and is dominantly composed of laminated material. The oncolite has a diameter of 3.2 cm.

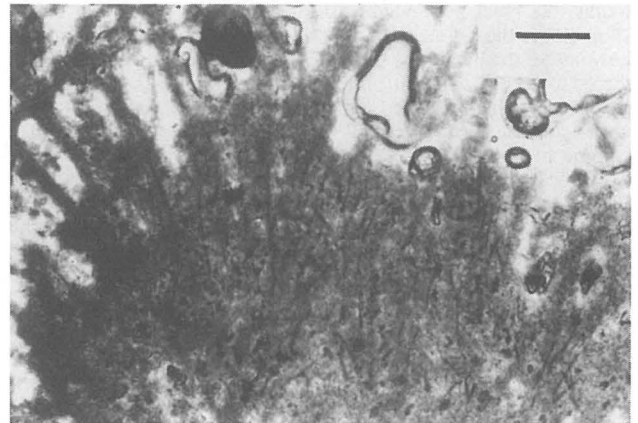


Plate 2. Photomicrograph in ppl. showing organic thread-like cyanobacterial filaments encased in micrite. This material comprises the spongy textured calcite seen in Pl. 1. Scale bar = 20 μm .

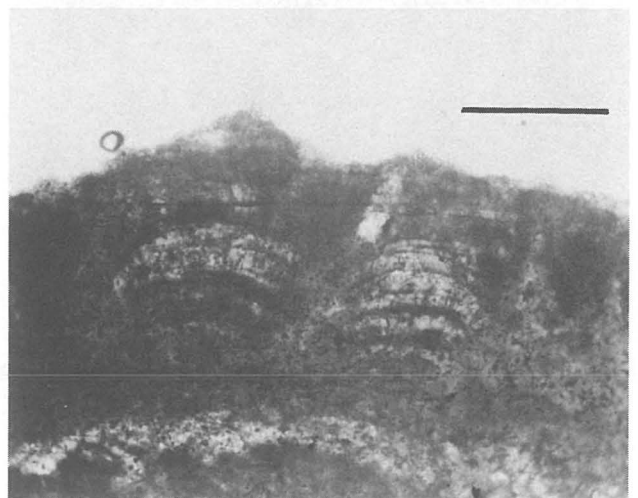


Plate 3. Photomicrograph in ppl. showing botryoidal structures in microsparite sub-laminae. Note the internal lamination and radial patterns in the botryoids. These structures are encased in a more dense micritic fabric. Scale bar = 500 μm .

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RECENT LANDSLIP ACTIVITY ON BLACK VEN

R. P. H. EDMONDS

Charmouth Heritage Coast Centre, Lower Sea Lane, Charmouth, Dorset.

Since the winter of 1985/86, a considerable increase in landslip activity has been seen between Lyme Regis and Charmouth. Three large and distinctive movements can be distinguished.

On the 13 April 1986, a large part of the cliff top in the middle section of Black Ven (SY 355 934) slipped down the cliff face as a rotational block 160 m long and up to 36 m wide. Over the next few weeks, the block continued to subside and had dropped by about 15 m before the dry summer weather stabilised it. As a result of this movement, the line of the Coast Path was broken and walkers were forced to use the adjacent 15th fairway of Lyme Regis Golf Course. In the spring of 1987, the Golf Club decided that this practice was unsafe and the path was closed. The subsiding block pushed a large volume of water-saturated sand into the undercliff area of Black Ven. This sandflow spilt onto the beach and also partially reactivated older mudflows which heaved up part of the beach. A second potentially much larger landslip had taken place in the western edge of Black Ven and involve a mixed area of undercliff and meadows by the Spittles. This landslip suddenly developed

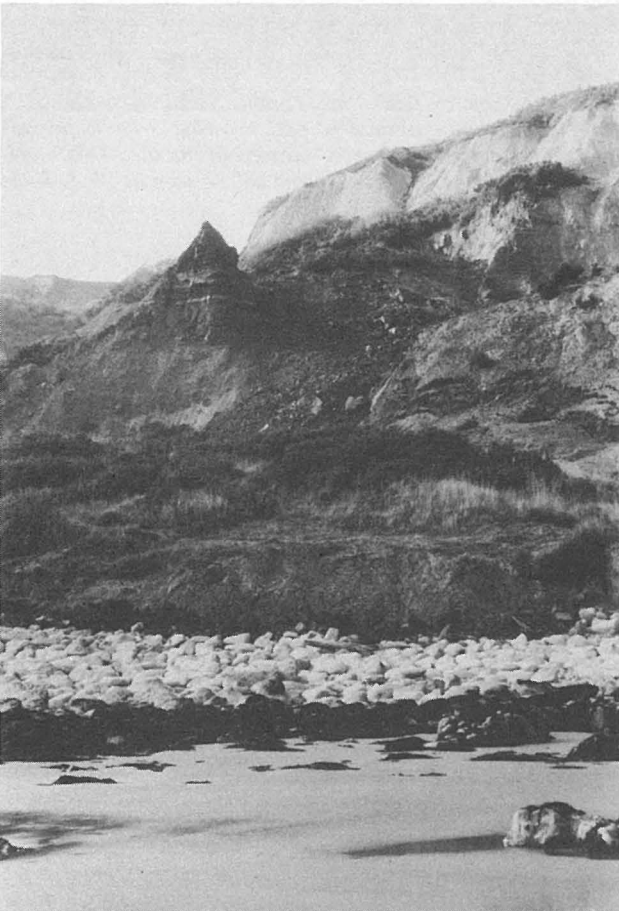


Plate 1. The Pinnacle landslip of Black Ven, 4 May 1987, seen from the shore.

overnight after torrential rain and thunderstorms on the 20/21 May 1986. By midday on the 21st, a huge fan of mud up to 183 m wide and extending up to 64 m seaward, had spilled over the beach by Church Cliffs, the slip had displaced clays from the *Asteroceras obtusum* zone. Effects of landslip were evident up to 640 m inland where meadows and a hedge had subsided. The landslip continued to move for three days but then stabilised for the summer. However, with the onset of winter and renewed rainfall, movement was again apparent by November 1986. By mid January 1987, extensive movement was observed in the inland meadows and the size of the slip rapidly increased until fissures were observed just below the Old Charmouth to Lyme Regis Road.

It does seem possible that this landslip could cut through the old road and may even reach the cliff top three quarters of a mile inland, while on the beach, mudflows pose a real threat to the unwary walker.

The third major slip on the 20 December 1986, again took place in Black Ven, close to the western side of the April 1986 movement (SY 353 933). Here, a section of the Upper Greensand cliff top collapsed displacing a huge volume of saturated sand into the under cliff. This sand run flowed out across the beach and almost covered the area contained within the boulders marking the western lobe of the massive 1958/9 landslip. Although extremely treacherous at the time, this slip was rapidly washed from the beach by the sea.

A fourth, smaller but most spectacular landslip took place on the morning of the 4 May 1987. A long ridge of Black Ven Marls on the eastern flank of the 1958/9 Black Ven landslip (SY 357 932) suddenly slipped approximately 15 m. Part of the ridge also collapsed leaving a pinnacle of *in situ* rock as illustrated in Plate 1.

Rainfall in 1986 was greater than normal (Paxman 1987) and it is tempting to relate this directly to the increase in landslip activity.

All four of the described landslips had started to move again by November 1987, and if this winter holds more heavy and prolonged rain in store, then it is quite possible that a really large movement could take place in one of the areas described.

Reference

- Paxman, D. J., 1987, 'Rainfall 1986', *Dorset Proceedings*, Volume 108, pp. 203-4.

BOTANY

D. PEARSON

I had hoped that last year's report would galvanise members into either sending in records or commenting on the rarity of species. Alas, a deafening silence! The Records Centre tell me there are plenty of records for butterflies, dragonflies and birds, but very few for flowers. This must be because members assume that everything is known. This is far from the case. There are vast areas of the county, especially the north, but also the west and north-east, that have had almost no attention at all in the last fifty years, i.e. since Professor Good's time. As he concentrated on particular sites rather than attempting a comprehensive survey of all species, this means a great part of the county has never been completely investigated. Even the areas not mentioned above, the south and south-east, are not particularly well covered and any comprehensive survey, like that for this year and next for the BSBI, turns up a host of new records.

It is well known that modern cereal cultivation methods here have dramatically reduced the number of cornfield flowers, and it is also known that there are similar pressures on wetlands. During the year the writer attempted to refine sites for some less common Cyperaceae (Sedges and allies) recorded by Professor Good in the 1930s. For the species *Carex acuta* (Slender Sedge), *Carex pseudocyperus* (Hop Sedge), *Eriophorum latifolium* (Broad-leaved Cotton Grass) and *Scirpus sylvaticus* (Wood Club Rush) a total of 46 sites were revisited and only three re-recorded. Whilst freely accepting human error, these are all conspicuous species, and the point could be re-inforced with many other members of that family.

I make no apology therefore for repeating my comments of last year. It is difficult to know what to publish in these pages and whether one is recording the right plants from a general interest point of view or whether true scarcity would require a substantially different list. By the time this is published there is still plenty of time to get out and record plants.

Undoubtedly the highlight of the year was the discovery of a Lizard Orchid (*Himantoglossum hircinum*) by Dr M. G. Morris. The last previous record was from Langton Herring, where a plant, first recorded in 1933, persisted for some twenty years (see *The Concise Flora of Dorset* by Professor R. Good).

A detailed survey of the Early Spider Orchid (*Ophrys sphegodes*) by R. Burt has been published by the Dorset County Council. This shows a more easterly concentration of the plant than previously thought.

Taxonomic revision of the position of the Sea Lavender (*Limonium recurvum*) thought to be endemic to Portland has widened the definition of the species to include other variants in the British Isles and another species endemic to Portland has been created.

In the following list the abbreviations correspond to the names of the following recorders, J. Bowyer, A. Horsfall, H. Bowen and D. Pearman.

Heathland and Grassland

Cicendia filiformis (Yellow Cicendia)
Threshers Heath (N. R. Webb)
Crassula tillaea (Mossy Stonecrop)
Winfrith (A.H.)
Hypericum maculatum (Imp. St John's Wort)
Arne (A.H.)
Lathyrus nissolia (Grass Vetchling)
Long Bredy (R. J. Surry); Durlston (Warden) Kimmeridge (J.B.)
Orchis morio (Green Winged Orchid)
Burton Bradstock (R. J. Surry); Buckland Newton (D.P.)
Trifolium striatum (Knotted Clover)
Winfrith (A.H.)
Trifolium subterraneum (Burrowing Clover)
Winfrith (A.H.); Edmonshan (D.P.)

Wet Places

Baldellia ranunculoides (Lesser Water Plantain)
Norden (M. H. Lock); Wareham Common
Bidens tripartita (Trifid Bur Marigold)
Coker's Frome (A.H.)
Butomus umbellatus (Flowering Rush)
Wareham (M. H. Lock)
Carex x pseudaxillaris
Leigh (D.P.)
Drosera x obvata (Sundew)
Studland
Elodea nuttallii
Stoborough (D.P.)
Eleocharis quinquefolia
Rampisham, Corfe and Arne (D.P.)
Potamogeton pusillus (Pondweed)
Encombe (A.H. and J.B.)

Woodlands

Aconitum anglicum (Monkshood)
Moigne Combe (D.P.)
Corydalis claviculata (Climbing Corydalis)
Lions Hill, Avon Causeway (D.P.); Lulworth (A.H.)
Lathyrus sylvestris (N-leaved E-pea)
Kimmeridge (J.B.)
Neottia nidus-avis (Bird's Nest Orchid)
Kingston (J.B.)

Coastal

Hyoscyamus niger (Henbane)
Kimmeridge (J.B. & A.H.); Lulworth (R. D. Cundall)
Lotus tenuis (N. L. Birdsfoot)
Ridge (D.P.)
Orobancha maritima (Carrot Broomrape)
Dancing Ledge, Winspit, St Aldhelms (W. G. Teagle)

There have been many more records for this in the last few years than previously.

Ranunculus parviflorus (Small Flowered Buttercup)
Redhorn (A.H.)
Elymus farctus x pycnanthus (Hybrid Couch Grass)
Small Mouth (H.B.)
Thesium humifusum (Bastard Toadflax)
Portland (H.B.)
Silybum marianum (Milk Thistle)
St Aldhelms, Sunnydown Farm (R. J. Surry)

Arable, Aliens, etc.

Amni majus
Corfe Castle (J.B.)
Barbarea intermedia
West Stafford (D.P.)
Centaurea cyanus (Cornflower)
Maiden Castle (D.P.)
Galinsoga ciliata (Shaggy Soldier)
Burton Bradstock (R.S.)
Himantoglossum hircinum (Lizard Orchid)
Bere Regis (M. G. Morris)
Isatis tinctoria (Woad)
Briantspuddle (P. Bowell)
Juncus tenuis (Slender Rush)
Lions Hill, Loscombe, Stoborough (D.P.)
Lamium hybridum (Cut Leaved Dead Nettle)
Ashley Chase (D.P.)
Leycesteria formosa
Rodwell (H.B.)
Malva pusilla (Mallow)
Smallmouth (H.B.)
Papaver hybridum (Bristle Poppy)
Studland (A.H.)
Senecio viscosus (Sticky Groundsel)
Corfe Mullen, Dorchester (H.B.)
Silene gallica
Wareham (M. H. Lock)
Solanum cornutum
Briantspuddle (P. Bowell)
Onopordum acanthium (Cotton Thistle)
Winterborne Came (H.B.)
Tulipa sylvestris (Wild Tulip)
Smedmore (J.B. & A.H.)
Valeriana dentata (Cornsald)
Studland (A.H.)

MARINE INVERTEBRATES

J. B. HAWTHORNE

Rhizostoma pulma. This large jellyfish, which averages two feet across its umbrella, is not unusual in Dorset waters early in the summer. This year was exceptional in the very large numbers that were present for most of the summer months. Specimens were reported at Castle Cove (Weymouth) on May 10th and shoals were still present in Weymouth Bay on July 22nd. It feeds on plankton and its persistence may indicate unusual water conditions.

Paramola cuvieri. A giant spider crab credited with this name, was reported in the *Dorset Evening Echo* of 13th March as caught off Portland by a boat from Copine Fish Limited. It was apparently able to span four feet. It lived for a short time at the Weymouth Sea Life Centre. A Japanese relative, *Macrocheira kaempferi*, can span ten feet and must be one of the world's largest arthropods – a fine specimen can be seen in the museum of the Reading University Zoology Department. Only the male has the very long claws, a feature shared with the small masked crab, *Corystes cassivelaunus*, to be found on Weymouth beach.

Most of the identifications in these annual notes must be considered to be provisional. The following notes are included since the species have been expertly determined thanks to the good work of Mr Dennis Seaward – I am most grateful to him for providing them.

Stylochoplana maculata. A flatworm. Probably this species, Ringstead Bay, 7.3.1985, det. R. A. Bray, BM(NH).

Sipunculans:

Golfingia elongata. Frequent in shingle, lower Fleet, 1986/7.
Golfingia (now *Nephasoma*) *minuta*. 19.5.1987. Several from shingle in the lower Fleet – 'little doubt that these are this species'. This and previous species det. Dr P. Gibbs, MBA.
Phascolion strombi. Occasional in empty *Turritella* and *Nassarius* shells, Weymouth Bay, 1984-87.

Pycnogonids:

Achelia echinata and *A. longipes*. From red algae with bryozoans and hydroids, Bowleaze Cove, 7.3.1985.
A. echinata and *Callipalene brevisrostris brevisrostris*. From shingle, lower Fleet, 11.3.1986. These det. by Dr R. Bamber.

Crustaceans:
Amphipods:

Sunamphitoe pelagica. RB, CC.
Dexamine spinosa. RB, BC.
Jassa falcata. BC.
Apherusa jurinei. BC.
Podocerus variegatus. BC.
Caprella acanthifera. BC.
Gammarus locusta. CC.
Amphithoe ramondi. CC.
Hyale stebbingi. CC.

Isopods:

Zenobiana prismatica. CC.
Dynamene bidentata. CC.

Caridea:

Athanas nitescens. RB.

All det. by Joan Ellis, BM (NH).

Crab:

Pisa tetraodon. BC. Det. by P. Clark, BM (NH).
 CC – Castle Cove, 20.2.1985, *Zostera* bed.
 BC – Bowleaze Cove, 7.3.1985, small red algae and *Fucus serratus*.
 RB – Ringstead Bay, 7.3.1985, small red algae.

Other notes from Mr Seaward:

Cephalochorda:

Amphioxus (lanceolatus?). Frequent in maerl gravels, Lulworth banks, c. 20 m, 27.6.1987.

Foraminifera:

Gromia oviformis. Something almost certainly this, is common in most samples in lower Fleet, but nobody seems to want to be certain about it!

LAND ARTHROPODS

N. R. WEBB

As in previous years, I have compiled this report from records sent to the Dorset Environmental Records Centre at the County Museum, from records sent directly to me and by abstracting the entomological journals. This report includes records from J. R. Cox, A. W. Hickman, E. M. Keats, M. H. Lock, A. Marsh, A. Mahon, M. G. Morris, D. Palmer, E. D. V. Prendergast, S. P. M. Roberts, R. J. Surry, J. F. and W. G. Teagle, N. R. Webb.

Insecta

Orthoptera

Tawney Cockroach (*Ectobius pallidus*). Reported from Gore Heath and Ulwell.
 Lesser Cockroach (*Ectobius panzerii*). Reported from Burton Bradstock and Ulwell.
 Oak Bush Cricket (*Meconema thalassinum*). Reported from Gore Heath and Durlston.
 Great Green Bush Cricket (*Tettigonia viridissima*). Reported from Burton Bradstock, Ballard Down, Ulwell, Townsend (Swanage) and Durlston.
 Wart Biter (*Decticus verrucivorus*). Continues to be reported from its stronghold.
 Dark Bush Cricket (*Pholidoptera griseoptera*). Reported from Burton Bradstock, Charmouth, Eype Mouth, Ridge Cliff, Lambert's Castle, Whitchurch Canonicorum, Ryall, Bridport, Worth Matravers, St Aldhelm's Head, Townsend (Swanage), Durlston and Stoborough.
 Grey Bush Cricket (*Platycleis denticulata*). Reported from Charmouth, Chapman's Pool, Ballard Down, Durlston and Ulwell.
 Bog Bush Cricket (*Metrioptera brachyptera*). Reported from Gore Heath and Stoborough Heath.
 Short-winged Conehead (*Conocephalus dorsalis*). Burning Cliff.
 Long-winged Conehead (*Conocephalus discolor*). Records continue to be received for this species which is increasing its range. Recorded from Corfe Common and Durlston.
 Speckled Bush Cricket (*Leptophyes punctatissima*). Reported from Burton Bradstock, Gore Heath and Durlston.
 Stripe-winged Grasshopper (*Stenobothrus lineatus*). Reported from Durlston and Ulwell.

Odonata

Intensive recording has continued for *Dragonflies of Dorset*. In view of the large number of records, I do not propose to review them here. J. R. Cox has now completed his tenth year of

population monitoring from a transect on Studland Heath. He reports that out of seventeen species recorded regularly, five have increased significantly in numbers, while four have decreased. Small Red Damselfly (*Ceriagrion tenellum*). This species showed an obvious increase in 1987 following three seasons in which there were slight decreases. The annual index of abundance was the highest since monitoring began in 1978. This species was out in some numbers by 28th June and was last seen on 23rd August.

Azure Damselfly (*Coenagrion puella*). Numbers of this species are increasing slowly from their low point in 1984, but numbers still remain below the ten-year average. First seen 6th May, last seen 11th July.

Common Blue Damselfly (*Enallagma cyathigerum*). This species increased further this year bringing numbers up to the ten-year average. First seen 6th May, last seen 12th October; a longer season than last year.

Large Red Damselfly (*Pyrrosoma nymphula*). A slight decrease in numbers was shown by this species during 1987 to the second lowest level in ten years. First seen 22nd April, last seen 29th July.

Blue-tailed Damselfly (*Ischnura elegans*). A substantial drop in numbers was recorded for this species during the year, but numbers remained at about the ten-year average. First seen 2nd May, last seen 23rd August; a longer season than last year.

Emerald Damselfly (*Lestes sponsa*). This species showed a drop in numbers during 1987 to just below the ten-year average. First seen 30th June, last seen 23rd August.

Hairy Dragonfly (*Brachytron pratense*). This species showed a large increase taking numbers to the highest recorded in ten years. First seen 2nd May, last seen 10th June, but this is a very early date.

Southern Hawker (*Aeshna cyanea*). Numbers of this species dropped by about fifty per cent from last year; however, total numbers were not large. First seen 4th July; last seen 8th September.

Brown Hawker (*Aeshna grandis*). This scarce vagrant was noted on two occasions in the vicinity of Little Sea; on 23rd August and 1st September although sightings may refer to the same individual. The distribution of this species in Dorset is confined to the rivers Stour, Avon and Moors.

Common Hawker (*Aeshna juncea*). Several more seen than last year, but the total numbers recorded are too small to draw significant conclusions. First seen 10th August; last seen 16th October.

Migrant Hawker (*Aeshna mixta*). This species showed a large increase in numbers to the second highest recorded during the ten years of monitoring. First seen 31st August; last seen 16th October. Emperor Dragonfly (*Anax imperator*). Not recorded from the census route but noted on three occasions in the vicinity of Little Sea in July and on two occasions from Godlingston Heath.

Gold-ringed Dragonfly (*Cordulegaster boltonii*). Recorded in July from Studland Heath and from Godlingston Heath.

Downy Emerald (*Cordulia aenea*). Another increase shown by this species, which brought numbers to the second highest count during ten years of recording. First seen 6th May; last seen 11th July, a longer season than 1986.

Black-tailed Skimmer (*Orthetrum cancellatum*). Numbers of this species dropped to just below the ten-year average figure. First seen 10th June; last seen 31st August.

Keeled Skimmer (*Orthetrum coerulescens*). Recorded in very small numbers from the transect; too small to draw significant conclusions. Generally more common over the boggy valleys on Godlingston Heath.

Broad-bodied Chaser (*Libellula depressa*). Not recorded on the transect during 1987. Not a common species on Studland Heath; a single male near Little Sea 6th June and Godlingston Heath 6th July.

Four-spotted Chaser (*Libellula quadrimaculata*). This species showed a large increase after two poor seasons, with counts at about the level of the ten-year average. First seen 2nd May; last seen 6th July.

Black Darter (*Sympetrum danae*). Recorded in very small numbers from the transect. More numerous on Godlingston Heath. First seen 25th July; last seen 5th November.

Ruddy Darter (*Sympetrum sanguineum*). Numbers of this species fell by about one third from 1986 levels, but numbers were at about the level of the ten-year average. First seen 30th June; last seen 22nd September.

Common Darter (*Sympetrum striolatum*). This species showed a significant fall in numbers in 1987, continuing the downward trend recorded for the last ten years. The numbers in 1987 were the second lowest since 1984. First seen 11th July; last seen 28th October.

Diptera

E. T. and D. A. Levey in conjunction with W. F. Dean have continued their studies on Dorset hoverflies (Syrphidae) and have submitted extensive lists for various localities. The following is a selection of records for species which are either scarce in Dorset or have been encountered at new localities.

The most exciting find was of *Xylotodes cunotus* in the west of the county. This appears to be only the fourth British record: previous records from 1899, 1953 and 1977.

- Platycheirus tarsalis* Marl Pits Wood, 15.5.87.
Xanthandrus comtus Portland, Easton, 4.5.87, 28.8.87.
Chrysotoxum vernale Queens Copse, Holt, 7.6.87.
Cheilosia grossa Tadnoll Meadows, 13.4.87, Redbridge, 13.9.87.
Cheilosia soror Wyld Warren, Charmouth, 11.7.87.
Dasyrphus lunulatus Queens Copse, Holt, 29.5.87.
Leucozona laternia Wyld Warren, Charmouth, 11.7.87.
Metasyrphus nitens Yellowham Wood, 3.5.87.
Parasyrphus annulatus Queens Copse, Holt, 29.5.87.
Parasyrphus malinellus Whatcombe Wood, 4.5.87.
Xanthogramma citrofasciatum Whatcombe Wood, 12.5.87.
Chrysogaster chalybeata Queens Copse, 5.7.87, Kingcombe Wood, 18.7.87.
Sphegina kimikowiczi Wyld Common, Charmouth, 17.7.87.
Anasimyia contracta Queens Copse, 6.6.87, Studland, 28.6.87.
Eumerus ornatus Brackets Copse, 1.8.87.
Heringi heringi Chedington Wood, 6.5.87, Whatcombe Wood, 12.5.87.
Neocnemidon latitarsus Yellowham Wood, 4.5.87
Parapenium flavitarsus East Bloxworth, 25.7.87.
Criorhina asilica Studland, 31.5.87.
Xylota florum East Bloxworth, 25.7.87.
Xylota tarda Brackets Copse, 1.8.87.
Arctophila fulva Grange Wood, Middlemarsh, 20.9.87.
Microdon mutabilis Studland, 25.5.87.

Coleoptera

Coccinellidae (Ladybirds)

There has been a good response to the request for the records of this family by DERC. *Ladybirds in Dorset* by Adrian Moon and available from the DERC at the Museum is a very good guide to this group.

- Subcoccinella vigintiquatuorpuntata* (Twenty-four-spot Ladybird). Zig-zag Hill, Ball Hill, Worth Matravers, Coker's Frome, Corfe Common, Stonebarrow Down.
Rhizobius litura. Powerstock Village, Westhay, South Field Down, Merley.
Scymus frontalis. Blue Pool.
Exchomus quadripustulatus (Four-spot Ladybird). Throop Heath, Gallows Hill, Great Ovens Hill, Gore Heath, Moreton Plantation.
Tythaspis sedecimpunctata (Sixteen-spot Ladybird). Slepe, Plush, Coker's Frome, Pentridge, South Field Down, Tadnoll Heath, Alderney, Gore Heath.
Adelia bipunctata (Two-spot Ladybird). Reported widely throughout the county from 16 localities.
Adelia decimpunctata (Ten-spot Ladybird). Recorded widely throughout the county from 23 localities.
Coccinella septempuncta (Seven-spot Ladybird). Reported widely throughout the county from 26 localities.
Coccinella undecimpunctata (Eleven-spot Ladybird). Merley, Stoborough, Burton Bradstock.
Propylea quatuordecimpuncta (Fourteen-spot Ladybird). Reported widely throughout the county from 34 localities.
Anatis ocellata (Eyed Ladybird). Gore Heath.
Calvia quatuordecimpuncta. Brackett's Coppice, Delcombe Wood, Coker's Frome.
Neomysia oblongoguttata (Streaked Ladybird). Moreton Plantation.
Halzia sedecimpunctata. Blue Pool, Bottlebrush Down, Studland, Gore Heath.
Thea vigintiduopunctata (Twenty-two-spot Ladybird). Cobley, Merley.

Other Coleoptera

The following are a selection of a number of records received.
Anthrenus verbasci (Museum Beetle). Appropriately, if not alarmingly, this notorious beetle was reported from the County Museum on three occasions.
Lucanus cervus (Stag Beetle). Parkstone.

- Dorcus papallelipipedus* (Lesser Stag Beetle). Burton Bradstock, Little Bredy.
Cetonia aurata (Rose Chafer). Chapman's Pool.
Amphimallon solstitialis (Summer Chafer). Burton Bradstock, Gore Heath.
Lampyrus noctiluca (Glow Worm). Studland, Durlston.
Carabus nitens. Studland.
Cicindela sylvatica (Wood Tiger Beetle). Gore Heath.
Timarcha tenebricosa (Bloody-nosed Beetle). Burton Bradstock, Renscombe, Thorncombe Beacon, Eype Mouth.
Chrysolina menthrasti (Mint Beetle). Pallington, Stoborough, Cokers Frome.

Hymenoptera

- Mutilla europaea* (Velvet Ant). Gore Heath, Studland Heath.
Vespa crabro (Hornet). Nested in the tree used in previous years at Furzebrook; Gore Heath, Langton Matravers.

LEPIDOPTERA

ALAN T. BROMBY

The following field workers submitted records: D. N. Arnold, J. Baiss, A. T. Bromby, J. R. Cox, A. H. Dunn and N. R. Webb. Further information was supplied by the Dorset Environmental Records Centre.

- Anthocharis cardamines* L. Orange-tip White. Corfe Mullen, 5 between 2.5 & 20.5. (A.H.D.)
Colias croceus Fourc. Common Clouded Yellow. 12.7 & 16.7. Then 8 records in August and 6 in Sept. (D.E.R.C.)
Pararge megera L. Wall Brown. Winspit, 10 on 7.8. (A.H.D.) Radipole 15.8. (D.N.A.)
Eumenis semele L. Grayling. Corfe Mullen, 4.8 & 23.8. (A.H.D.)
Vanessa cardui L. Painted Lady. Wimborne 12.3. (F.R.C.) Upwey 21.3, followed by one record in April, 7 in May, 3 in June, 8 in July, 24 in August, 9 in Sept., 2 in Oct and a very late record - Ferrybridge, 31.12. (D.E.R.C.)
Celastrina argiolus L. Holly Blue. Scarce this year. Corfe Mullen, 28.4. (A.H.D.) Studland Heath 26.5. (F.R.C.)
Herse convolvuli L. Convolvulus Hawk. Spetisbury, 10.9. Bloxworth, 19.9. St Aldhems Head, 23.9, Milborne St Andrew 28.9. Radipole 9.10. (D.E.R.C.)
Sphinx ligustri L. Privet Hawk. Radipole, 13.6. (D.N.A.) Brownsea, 22.6. (A.T.B.)
Macroglossum stellatarum L. Humming-bird Hawk. Swanage, 8 between 24.8 & 15.10. (J.R.C) Brownsea, 14.9 & 22.9. (A.T.B.)
Hemaris fuciformis L. Broad-bordered Bee Hawk. Studland Heath, 4.7. (J.R.C.) Brownsea, 23.6. (A.T.B.)
Thyatira batis L. Peach Blossom. Radipole, 29.6. (D.N.A.)
Tethea ocularis L. Figure of Eighty. Radipole, 4 between 8.6 & 7.7. (D.N.A.)
Lymantria monacha L. Black Arches. Furzebrook, 6.8. (N.R.W.)
Gastropacha quercifolia L. Common Lappet. Radipole, 29.6. (D.N.A.)
Saturnia pavonia L. Empress. Furzebrook, 28.4. (N.R.W.) Studland Heath, larvae in August (J.R.C.)
Nola albula Schiff. Kent Black Arches. Brownsea, 18.7 & 22.7. (A.T.B.)
Parasemia plantaginis L. Wood Tiger. Bind Hill, no date given (J.B.)
Agrotis vestigialis Hufn. Archer Dart. Brownsea, 22.7. (A.T.B.)
Agrotis ripae Hubn. Sand Dart. Brownsea, 18.6 & 23.6. (A.T.B.)
Anaplectoides prasina Schiff. Green Arches. Radipole, 23.6. (D.N.A.)
Lampra fimbriata Schreber. Broad-bordered Yellow-underwing. Radipole, 3 in July (D.N.A.)
Hadena w-latinum Hufn. Light Brocade. Radipole 7 between 20.5 & 7.7. (D.N.A.)
Leucania l-album L. White L. Wainscot. Radipole, 3 between 3.10 & 5.10. (D.N.A.)
Leucania vitellina Hubn. Delicate Wainscot. Furzebrook, 6.10. (N.R.W.)
Leucania loreyi Dup. Cosmopolitan Wainscot. Radipole, 23.8. (D.N.A.)
Nonagria typhae Thunb. Bulrush Wainscot. Radipole, 15.8. (D.N.A.)
Apamea ophiogramma Esp. Double-lobed. Radipole, 6.7. (D.N.A.)

- Celaena leucostigma* Hubn. Brown Crescent. Radipole, 10 between 19.8 & 9.9. (D.N.A.)
Cucullia verbasci L. Mullein Shark. Radipole, 4 between 27.4 & 11.5. (D.N.A.)
Lithophane semibrunnea Haw. Tawny Pinion. Brownsea, 22.10 at ivy blossom. (A.T.B.)
Gripusia aprilina L. Common Merveille-du-jour. Radipole, 21.10 & 23.10. (D.N.A.)
Catocala fraxini L. Clifden Nonpareil. Information recently received makes it virtually certain that the record for Leeson House, Swanage in 1986 refers to a released specimen (J.B.).
Catocala nupta L. Red Underwing. Radipole, 13.9 & 3.10. (D.N.A.)
Euclidimera mi Clerck. Mother Shipton. Studland Heath, 6.6. (J.R.C.). Radipole, 8 between 10.6 & 29.6. (D.N.A.)
Ectypa glyphica L. Burnet Companion. Radipole, 10.6. (D.N.A.)
Episema caeruleocephala L. Figure of Eight. Radipole, 4 between 21.10 & 24.10. (D.N.A.)
Plusia gamma L. Common Silver Y. Radipole 320 between 30.4 & 8.11. (D.N.A.) A poor year for this species.
Archiearis parthenias L. Common Orange-underwing. Studland Heath, 2.4. (J.R.G.)
Rhodometra sacracia L. Vestal. Radipole, 7 between 18.8 & 20.9. (D.N.A.) Abbotsbury, 30.8. (D.E.R.C.) Furzebrook, 18.9. (N.R.W.)
Xanthorhoe designata Hufn. Flame Carpet. Radipole, 2.6. (D.N.A.)
Earophila badiata Schiff. Shoulder-striped Carpet. Swanage, 17.4. (J.R.C.)
Epirrhoe tristata L. Small Argent-and-sable. Radipole, 25.6, 9.8 & 12.8. (D.N.A.)
Orthonama lignata Hubn. Oblique Carpet. Radipole, 20.8 & 3.9. (D.N.A.)
Pyrausta olivalis Schiff. Olive Brindled Pearl. Swanage, 15.7. (J.R.C.)

FISH

M. LADLE

Following the EEC's implementation of catch quotas (which apply to Dorset) on cod and flatfish the Ministry of Agriculture, Fisheries and Food is now considering the introduction of new measures designed to protect stocks of bass and to increase the yield from bass fishery. In recent years, bass has become the most desirable and profitable species to be caught along the Dorset coast and the catches from the Portland race have, at times, been spectacular. The new measures will involve not only an increased landing size limit of 36 cm and a new mesh size for nets of 99 mm but also the introduction of nursery areas protected from fishing. In Dorset the latter would include a large section of Poole Harbour to be closed from May to October and the whole of the Fleet to be closed to fishing throughout the year. There will probably be certain exemptions from the ban on fishing but it seems probable that this type of legislation will increase in years to come and may influence both commercial and non-commercial fish species. For example, a ban on the use of gill nets would protect a wide range of fishes, birds and mammals from this highly unselective method.

MARINE FISHES

Dicentrarchus labrax Bass. In 1987 some extremely large bass were caught in Dorset (and in other parts of Britain). A Portland specimen of over 17 lb was reported and I was able to examine several fish from the Purbeck coast of between 10 and 13 lb in weight. Most of these bass were born in 1969 or 1976 both of which are noted strong year classes.

FRESHWATER FISHES

Rutilus rutilus Roach. Many of the large roach which have shoaled in the vicinity of Wareham bridge (R. Frome) for several years seem to have reached the end of their life span. Like the bass mentioned above, they may represent survivors of the exceptional spawning year of 1976.

No reports of unusual fish were received in 1987 but many of the common species were observed in their usual haunts.

AMPHIBIANS

ROBERT V. SKINNER

The amphibian reports received by the DERC during 1987 are included in tabular form at the end of this section.

Palmate Newt *Triturus helveticus* Razoumowsky. The earliest sighting recorded in Broadstone was on 25th March in a garden pond. Two or three were noted on several occasions in a garden pond in Corfe Mullen between 12th May and 7th July, including one juvenile on 7th July (A. H. Dunn).

Common Frog *Rana temporaria* L. Records are still continuing for an area to the south of Little Sea on Studland Heath indicating that the recent colonisation is still active. Two specimens were seen on 22nd August, one half-grown and one quite small. On 30th September a Grass Snake regurgitated the front half a medium-sized frog (J. R. Cox). The first record for the Corfe Mullen area was of a large active female in a garden pond on 9th January. On 23rd January, during a sudden cold spell, three dead frogs were seen in the same pond and on 26th January a male was trying to have amplexus with both live and dead frogs. Some frogs were seen in the garden pools during February but on 1st March six were

Species	Site	Grid Ref	Recorder	Date	
Smooth Newt		9577	G. Dutson	1987	
	Powerstock	541973	R. J. Surry	17.4.87	
	Common Powerstock	544974	R. J. Surry	17.4.87	
	Common Powerstock	541973	R. J. Surry	15.6.87	
	Common Powerstock	5497	J. & G. Brook	29.5.87	
	Common Warry's Plantation	693098	E. Prendergast	4.6.87	
	Leeson House	004785	W. G. Teagle	9.6.87	
	Palmate Newt	Hams Plot	481012	J. Messer	17-20.2.87
		Powerstock	541973	R. J. Surry	17.4.87
		Common Powerstock	541973	R. J. Surry	15.6.87
Common Duddle Heath		7392	E. M. Keats	24.5.87	
Maiden Newton		597976	Countryside Task Force	1.6.87	
Yetminster		597108	Countryside Task Force	2.6.87	
Warry's Plantation		693098	E. Prendergast	4.6.87	
Crested Newt	Common Powerstock	541973	R. J. Surry	17.4.87	
	Common Powerstock	541973	R. J. Surry	15.6.87	
	Common Warry's Plantation	693098	E. Prendergast	4.6.87	
	Pentridge	772160	E. Prendergast	19.8.87	
	Bagber	7615	E. Prendergast	3.10.87	
Common Frog		8993	G. Dutson	1987	
		9183	G. Dutson	1987	
		9797	G. Dutson	1987	
	Seaborough	429059	C. W. Wright	1987	
	Abbotsbury	5784	J. Hayman	10.3.87	
	Swannery				
	Powerstock	541973	R. J. Surry	17.4.87	
	Common Yetminster	597108	Countryside Task Force	2.6.87	
	Post Green	953941	K. Clarke	15.6.87	
	Broadstone	003955	K. Clarke	9.9.87	
Broadstone	003955	K. Clarke	18.9.87		
Broadstone	003955	K. Clarke	17.10.87		
Broadstone	003955	K. Clarke	22.10.87		
Bagber	7615	E. Prendergast	5.8.87		
Common Toad		0196	G. Dutson	1987	
	Seaborough	429059	C. W. Wright	1987	
	Swanage	036786	W. G. Teagle	26.3.87	
	Sturminster	786146	G. K. Graham	6-7.7.87	
	Newton				
	Burton	489895	R. J. Surry	14.7.87	
	Bradstock				
	Burton	489895	R. J. Surry	19.7.87	
Bradstock					
Broadstone	003955	K. Clarke	17.10.87		

observed with two pairs in amplexis. The first spawn was noted on 21st March. On 25th March ten frogs were present and on 31st March one garden pool was full of spawn. On 30th April thirteen adult frogs were observed in the garden where the pools are situated and five were still in evidence on 19th August (A. H. Dunn).

Common Toad *Bufo bufo* L. A few scattered records only for Studland Heath in April. On 22nd May one adult male was found in a disused, pedal-driven float in the Knoll car park, Studland. On 30th December 1986 two or three were found flattened on the ferry road, Studland, by Stephen Morrison. These had probably been enticed out by the mild winter (J. R. Cox). A reddish-coloured specimen was seen in a garden pond in Corfe Mullen on 29th May and a half-grown individual was seen on 21st June. One adult was also noted in a garden pond in Parkstone on 27th February (A. H. Dunn).

REPTILES

ROBERT V. SKINNER

The reptile reports received by the DERC during 1987 are included in tabular form at the end of this section.

Slow-worm *Anguis fragilis* L. A dead specimen was found with part of the tail missing in Central Avenue, Corfe Mullen on 2nd April. Adults were recorded on the Corfe Mullen Common on 10th April and 19th August, at Winterborne Stickland on 15th June and at Little Bindon, Lulworth Cove on 10th July (A. H. Dunn). On Studland Heath the earliest record came from Stephen Morrison on 10th March. This was nine days earlier than last year. There were

slightly fewer records from the Studland Heath Reserve this year, only 26 individuals, with juveniles making up about 25 per cent of the whole. The last date for the Reserve was 12th October. On Godlingston Heath, one specimen was found on two or three occasions under a sheet of tin which was within a large area that was burnt on 27th February 1986 (J. R. Cox).

Viviparous or Common Lizard *Lacerta vivipara* Jacquin. One seen on 10th April on Corfe Mullen Common (A. H. Dunn). The first half of February was comparatively mild and moist. It then became colder from the nineteenth of the month but in spite of this change, the first lizard was seen on Studland Heath NNR on 21st February. No more were seen until 12th March when Stephen Morrison recorded three. A total of 57 were seen during the year which was much the same as in the previous season. However, a much larger percentage of juveniles was noted amounting to nearly half of the individuals seen. The last date recorded was 25th October by Steven Morrison. These records still only represent about one-third of the area of the South Haven Peninsula which has been under recorded as a whole (J. R. Cox).

Sand Lizard *Lacerta agilis* L. The first date for Studland Heath NNR was 10th April which although earlier than last year was still much later than most years. This species was under recorded but 20 individuals were noted, five of which were juveniles. The last date was 17th October, a month later than last year. On Godlingston Heath three adult males, one female and one juvenile were recorded in tiny patches of unburnt heath, within the large area that was burnt in February 1986 (J. R. Cox).

Grass Snake *Natrix natrix* Lacepède. One seen in a garden in Corfe Mullen on 20th May (A. H. Dunn). The first record from Studland Heath NNR was on 10th March when three were seen together in bracken by Stephen Morrison. 28 individuals were recorded

Species	Site	Grid Ref	Recorder	Date
Slow-worm		8891	G. Dutson	1987
	Seaborough	429059	C. W. Wright	1987
	Swanage	019786	W. G. Teagle	10.5.87
	Townsend	024783	W. G. Teagle	14.11.87
	N.R.			
	Warmwell	7587	J. & G. Brook	24.5.87
	Heath			
	Godlingston	0282	J. & G. Brook	26.5.87
	Heath			
	Bridport	462930	J. Hussey	28.5.87
	Hams Plot	481012	J. Messer	Summer '87
	Sutton	8615	C. R. Bristow	29.9.87
	Waldron			
Manor Farm,	8424	C. R. Bristow	21.10.87	
Motcombe				
Dorchester	698900	L. Newton	8.8.87	
Common Lizard		8891	G. Dutson	1987
		8993	G. Dutson	1987
		9576	G. Dutson	1987
		9794	G. Dutson	1987
		9994	G. Dutson	1987
	Worth	977761	W. G. & J. F. Teagle	2.4.87
	Matravers			
	Burning Cliff	760815	W. G. & J. F. Teagle	1.10.87
	Tarrant	900122	A. Horsfall	24.4.87
	Gunville			
	Godlingston	0282	J. & G. Brook	26.5.87
	Heath			
	Hartland Moor	9685	R. D. Ruffell	31.5.87
	Powerstock	542974	R. J. Surry	15.6.87
	Common			
	Nr Arne	956865	R. J. Surry	27.6.87
	Triangle			
	Wareham	927870	M. H. Lock	27.7.87
	Stoborough	936853	M. H. Lock	29.8.87
Heath				
Christchurch	139958	A. W. Hickman	1.8.87	
Alderholt	105123	E. Prendergast	4.8.87	
Bagber	7615	E. Prendergast	1.10.87	
Sand Lizard		8791	G. Dutson	1987
		8902	G. Dutson	1987
	Godlingston	0282	J. & G. Brook	26.5.87
	Heath			
	Shipstal Heath	9888	R. D. Ruffell	31.5.87
	Slepe Heath	955865	R. D. Ruffell	31.5.87
	West Moors	094048	E. Prendergast	7.8.87
	Depot			
	Slepe Heath	9585	R. Barrington	9.87

Grass Snake		8993	G. Dutson	1987
		9283	G. Dutson	1987
		9092	G. Dutson	1987
		9094	G. Dutson	1987
		9577	G. Dutson	1987
	Seaborough	429059	C. W. Wright	1987
	Bagber	7615	E. Prendergast	26.5.87
	Alderholt	105123	E. Prendergast	4.8.87
	Stoborough	927846	M. H. Lock	11.7.87
	Heath			
	Stoborough	923862	M. H. Lock	31.8.87
	Bagber	7615	E. Prendergast	5.8.87
	Leeson House	004787	W. G. & J. F. Teagle	22.9.87
Smooth Snake		8992	G. Dutson	1987
		0295	G. Dutson	1987
	Throop Heath	814917	D. & Q. Palmer	13.7.87
	Puddletown	738922	L. Newton	31.8.87
	Woods			
Slepe Heath	9585	R. Barrington	9.87	
Adder		9576	G. Dutson	1987
		8902	G. Dutson	1987
	Seaborough	429059	C. W. Wright	1987
	Nr Corfe	958827	P. A. Brown	2.3.87
	Castle			
	Stoborough	936850	M. H. Lock	5.3.87
	Heath			
	Stoborough	923857	M. H. Lock	10.9.87
	East Creech	935823	M. H. Lock	22.9.87
	Townsend NR	02287825	W. G. Teagle	15.3.87
	Townsend NR	02287825	W. G. Teagle	19.3.87
	Townsend NR	02287825	W. G. Teagle	5.4.87
	Townsend NR	02287825	W. G. Teagle	10.4.87
	Townsend NR	02287825	W. G. Teagle	23.4.87
	Langton	994797	W. G. Teagle	21.4.87
	Matravers			
	St Aldhelm's	958757	J. F. Teagle	4.5.87
	Head			
	Seacombe	984766	W. G. Teagle	30.6.87
Butterwick	6610	J. & G. Brook	23.5.87	
Wood				
Powerstock	5497	J. & G. Brook	25.5.87	
Common				
Okeford Hill	8109	Countryside Task Force	3.6.87	
Powerstock	549974	A. Horsfall	25.7.87	
Common				
Chapman's	955772	A. Horsfall	29.7.87	
Pool				

through the year which is about the same as in 1986. Of the total, 25 per cent were juveniles. The last date for this species on the Reserve was 25th October, two weeks later than last year (J. R. Cox).

Adder *Vipera berus* L. One seen on heathland at Arne on 15th May. An adult was found in a garden in Parkstone on 14th July (A. H. Dunn). Four males were recorded by Stephen Morrison on Studland Heath NNR on 10th March. Almost the same number of individuals was recorded through the year as in 1986. Of the 52 seen only three were juveniles. The last date for the Reserve was a record from Len Howells on 25th October (J. R. Cox).

Smooth Snake *Coronella austriaca* Laurenti. Barely recorded on Studland Heath NNR because of the lack of observers. One specimen was found under a piece of wood alongside the ferry road on 30th August by Len Howells (J. R. Cox).

ORNITHOLOGICAL NOTES 1987

PAUL HARRIS

This has been a superlative year for bird watching in Dorset. After a relatively quiet start to the year with now regular Glaucous and Iceland Gulls, Smew and Goosander at various sites, the spring was undoubtedly the best on record with a long line of rarities. These began with adult Night Heron on Portland, Bee-eater at Durlston and Whiskered Tern for several days at Radipole.

Attention soon switched to Stanpit March which over several days in May produced two Red-rumped Swallows, two Black-winged Stilts (previously at Abbotsbury), male American Wigeon, Alpine Swift and Black Kite. Portland turned up a male Woodchat Shrike, two Alpine Swifts and a Tawny Pipit (second county spring record), while Radipole had a Roller and a Purple Heron. Elsewhere in the county two further Alpine Swifts and three Red-footed falcons were seen.

June is usually quiet but produced two Subalpine Warblers on Portland, Glossy Ibis, Black-winged Stilt and Purple Heron at

Radipole. Early autumn began with Little Egret at Radipole and Stanpit and a Ruddy Shelduck at Radipole.

After a brief respite autumn began in earnest with Wilson's Phalarope at Radipole and in September, Short-toed Lark and Booted Warbler on Portland.

Probably the star bird of the year was a Red-eyed Vireo at Hengistbury Head for a day – the first county record. Durlston had a Pallas's Warbler, while on Portland three Pallas's Warblers and a splendid male Rustic Bunting were seen. Lodmoor again had a male American Wigeon.

The year appeared to be ending quietly with a Ring-billed Gull at Radipole, when on the 30th and 31st just within the county border near the village of Burton a Little Bustard was seen.

MAMMALS

E. M. KEATS

Mammal records have been submitted by a number of contributors, both to me and to the Dorset Environmental Records Centre. My thanks to all recorders. These records are vital if a distribution picture for mammals in the county is to be built up. Dates, grid references and details of identification are important particularly details for rare species. Behaviour is another important aspect worth recording. All records are indexed at the Dorset Environmental Records Centre at the Dorset County Museum, Dorchester, where future researchers can make use of them. It is only possible to print a small number of the records but all are kept.

Maps showing the distribution of Stoat, Weasel and Brown Hare are printed in this report. There are many blank areas, are these just lack of records? I am sure many of the pre-1980 records could be confirmed for post 1980. I am grateful to Mr Richard Surry, Keeper of Records for DERC for supplying the maps for 1987.

The checklist numbers and scientific names are as listed in *The Identification of British Mammals* by G. B. Corbet, British Museum (Natural History) 1969. In addition to the species mentioned

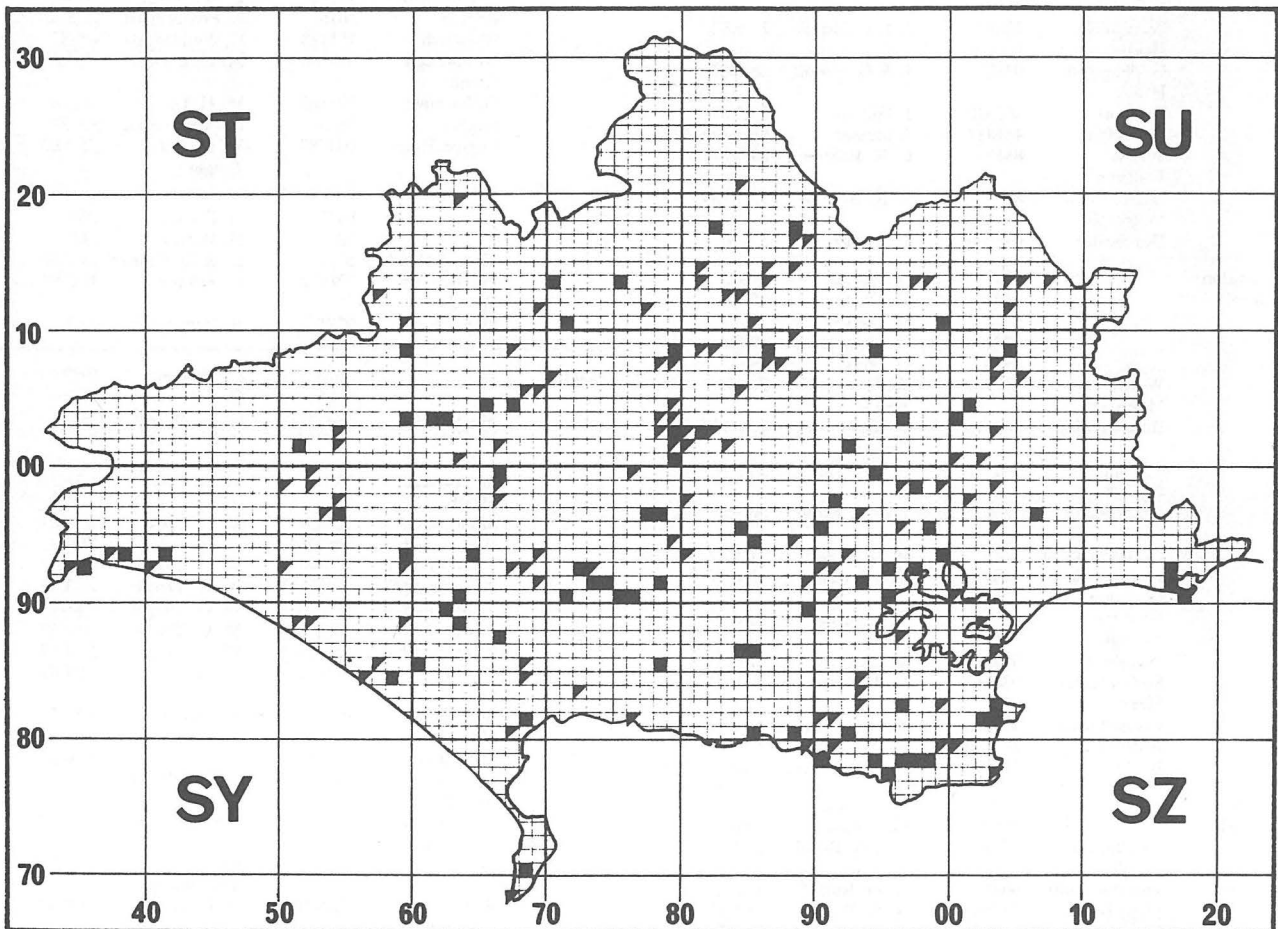


Figure 1. Stoat, *Mustela ermines*. Half-filled squares pre-1980 records, filled squares post-1980 records.

elsewhere in the report the following species were reported in 1987: 1. **Hedgehog** *erinaceus europaeus*, 2. **Mole** *Talpa europaea*, 3. **Common Shrew** *Sorex araneus*, 4. **Pygmy Shrew** *Sorex minutus*, 5. **Water Shrew** *Neomys fodiens*, 11. **Whiskered Bat** *Myotis mystacinus*, 19. **Pipistrelle** *Pipistrellus pipistrellus*, 20. **Barbastelle** *Barbastella barbastellus*, 21. **Common Long-eared Bat** *Plecotus auritus*, 24. **Fox** *Vulpes vulpes*, 30. **American Mink** *Mustela vison*, 43. **Sika Deer** *Cervus nippon*, 44. **Fallow Deer** *Dama dama*, 45. **Roe-deer** *Capreolus capreolus*, 55. **Rabbit** *Oryctolagus cuniculus*, 57. **Grey Squirrel** *Sciurus carolinensis*, 59. **Dormouse** *Muscardinus avellanarius*, 61. **Harvest Mouse** *Micromys minutus*, 62. **Wood-mouse or Long-tailed Field Mouse** *Apodemus sylvaticus*, 64. **House-mouse** *Mus musculus*, 66. **Brown Rat** *Rattus norvegicus*, 67. **Bank Vole** *Clethrionomys glareolus*, 68. **Water Vole** *Arvicola terrestris*, 69. **Short-tailed Field Vole** *Microtus agrestis*.

8. **Greater Horseshoe Bat** *Rhinolophus ferrumequinum*. A newly-discovered roost/hibernation site has been found in the east of the county and a number of individuals seen in the north-west of the county. The Dorset Bat Group would welcome any information on this species whose numbers are low. All British bat species are protected by law and any reports on bat roosts should be sent to the Group.

9. **Lesser Horseshoe Bats** *Rhinolophus hipposideros*. A possible nursery roost has been reported from the north-west of the county, there are very few records of this species.

12. **Natterer's Bat** *Myotis nattereri*. A roost of about 60 in a house roof in east Dorset is encouraging. One was found, stuck fast to the seedheads of a large burdock plant by the hooked burs, by a visitor to Durlston Country Park. It was freed by a warden and identified before release.

Brandt's Bat *Myotis brandtii*. This species is very difficult to distinguish from the Whiskered Bat but has been confirmed in two Dorset localities in 1987, including a nursery roost in central Dorset.

16. **Serotine** *Eptesicus serotinus*. Bat bones found in a water tank in

Purbeck in July were identified as this species and there have been a few other reports of this species.

18. **Noctule** *Nyctalus noctula*. One specimen was passed to two members of the Dorset Bat Group and it has also been reported in the west Dorset coastal areas.

Eleven species of the fourteen British species were recorded in Dorset in 1987. Gradually more is being discovered about British Bats but more information is needed.

27. **Stoat** *Mustela erminea*. Figure 1.

28. **Weasel** *Mustela nivalis*. Figure 2.

31. **Badger** *Meles meles*. There have been two reports of bumblebees nests and a wasps nest being dug out by badgers, one at Briantspuddle and one at Lodmoor. An albino was a road casualty near Beaminster in September and unfortunately there have been a number of other road casualties. Traffic takes a fairly heavy toll of many of our mammal species, records of such victims are useful. In April a badger seemed to be regularly visiting a Dorchester garden, although it was not seen, three latrine pits were in use at the end of April.

32. **Otter** *Lutra lutra*. There have been twenty reports of positive evidence for otters on the Rivers Frome and Piddle in 1987. Most of these were sightings of spraints, four with tracks and one of an otter seen in April. Have there been no signs of otters on the River Stour this year?

34. **Grey Seal** *Halichoerus grypus*. One was in Weymouth Harbour in late March.

53. **Brown Hare** *Lepus capensis* (Figure 3). Many more records would be welcome for this species, as can be seen from the map, many squares where hares were recorded before 1980 have had no accounts sent in since 1980.

56. **Red Squirrel** *Sciurus vulgaris*. Mrs K. B. Parkyn has submitted her full report on sightings of this species on Brownsea Island. Numbers reported were well up on 1986 being 466 and were very high in September. 21 were seen in litter bins up until the end of

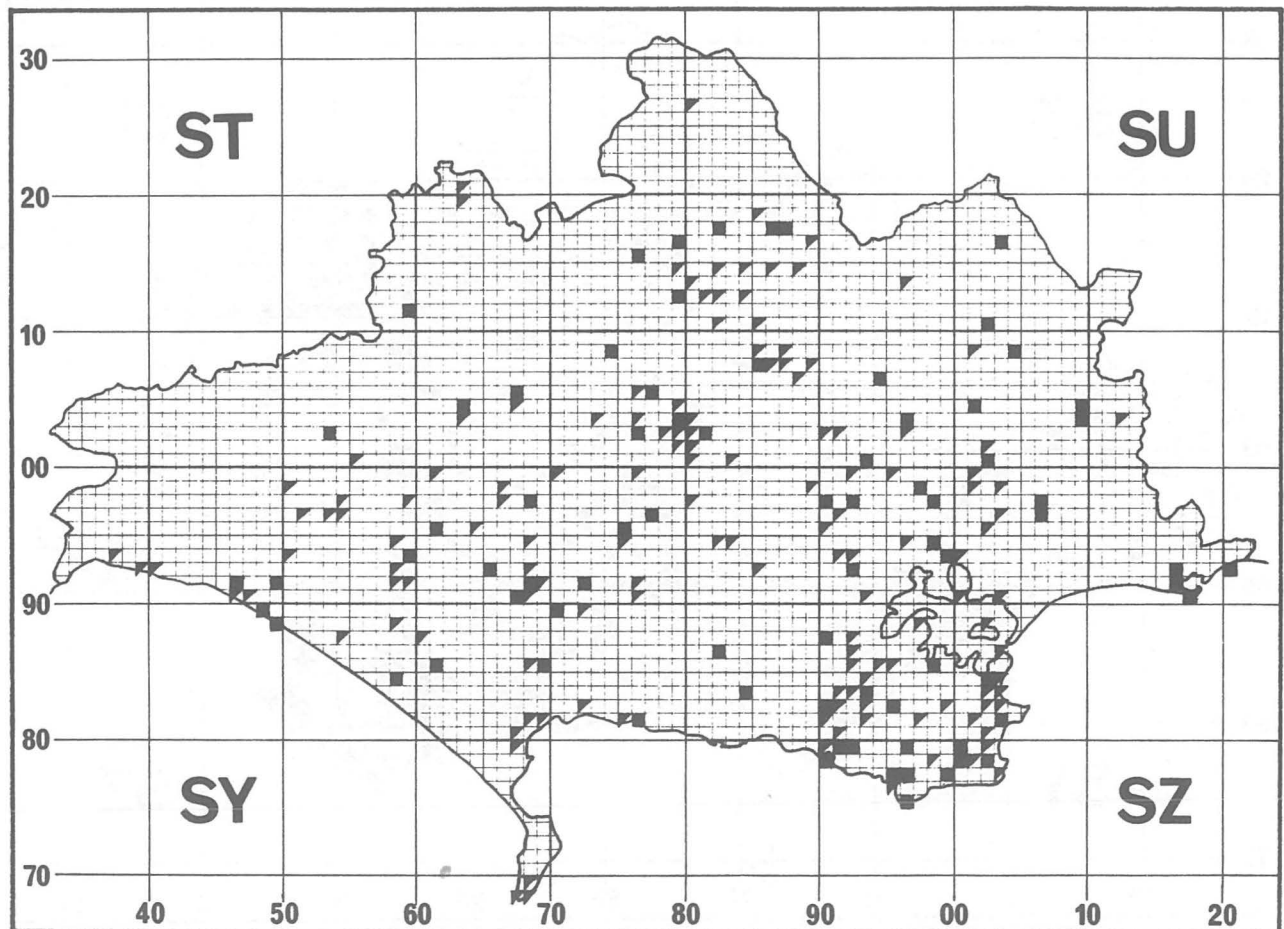


Figure 2. Weasel, *Mustela nivalis*. Half-filled squares pre-1980 records, filled squares post-1980 records.

July. There was a good crop of acorns and beechmast so perhaps the squirrels did not need to search the litter bins after July. Several large groups were seen, two groups of seven, one of nine, one of eleven and one of thirteen individuals.

86. **Porpoise** *Phocoena phocoena*. Twenty or more porpoises were seen swimming off Durlston Head on 6th May.

94. **Pilot Whale** *Globicephala melaena*. One was recorded in a well-rotted condition on the beach at Durlston Bay in mid-February: it was 5.12 m long.

THE MARINE MOLLUSCS OF DORSET

D. R. SEAWARD

There have been considerable published additions to the knowledge of the marine molluscan fauna of Dorset since Sykes's list of 1945 (*Proceedings*, 67, 127-142). It is unlikely that 'Sykes' will be replaced in the near future, so I give below some of the more significant references, a few of which cover a wider area of Dorset.

In these *Proceedings*, besides occasional mentions in the annual marine invertebrate report, there are the papers by Spooner and Holme on the offshore bottom fauna (82, 77-82), Hawthorne on the severe winter of 1963 (85, 87-90), Brandwood on *Littorina rudis* in the Fleet (104, 165-167), Holland *et al* on the effect of oil on the intertidal (107, 135-139), Roberts *et al* on marine associations (107, 140-151), and my own articles on the Fleet* (100, 100-108) and Portland Harbour* (108, 159-167), and on *Caecum armoricum* in the Fleet (109, above).

Holmes' surveys of the Channel benthos appear in the *Journal of the Marine Biological Association* (41, 397-461; 46, 401-493 and 47, 397-405), as do papers by Rees and Lumby on *Octopus* (33,

515-536), Crisp and Southward on intertidal organisms (37, 157-208), Foster on Lulworth Banks (41, 157-160), Holme on the severe winter of 1963 (47, 397-405) and *Loligo* (54, 481-503) and Gibbs on *Abra tenuis* in the Fleet (64, 791-800).

The *Journal of Conchology*, carries short notes on *Paludinella littorina*, *Ammonicera rota* and *Lasaea rubra*, all from the Fleet, in 32, 260; 33, 384 and 33, 385, respectively.

For several years, the Conchological Society has organised dredging trips from Weymouth, and the results are published in *The Conchologists' Newsletter* 90, 207-210; 95, 310-316; 99, 404-406; 100, 426-427; 100, 427-429; 103, 67. Other relevant notes are in 65, 82; 69, 155; 70, 173-174; 74, 257; 95, 322-323; 96, 334-335; 101, 18-19; 103, 66.

Fleet molluscs and habitats are discussed in *Porcupine Newsletter*, 3(6), 140-146 and 3(7), 173.

Three reports to the Nature Conservancy Council cover the work of the *First* (1978), *Second* (1978) and *Third* (1979) *Dorset Underwater Surveys* covering nearshore waters of Kimmeridge Bay, Ringstead to Studland Bay and Chesil Cove to Lyme Regis, respectively. 'Soft' shores are dealt with in *Report on the Sediment Shores of Dorset, Hampshire and the Isle of Wight** by Holme and Bishop in their 1980 report to NCC. Further reports to NCC consider Poole Harbour (Dyrynda 1984) and the Fleet (Seaward 1983 and Dyrynda 1984).

The Fleet Study Group has produced two collections of papers, both edited by Ladle and published by Dorset County Council: *The Fleet and Chesil Beach* (1981) and *The Biology of the Fleet** (1986).

References marked * include many further local references not repeated here.

The above sources, together with unpublished data from museum collections and elsewhere, add many species to the Dorset molluscan fauna, and these will be listed in a subsequent issue of the *Proceedings*.

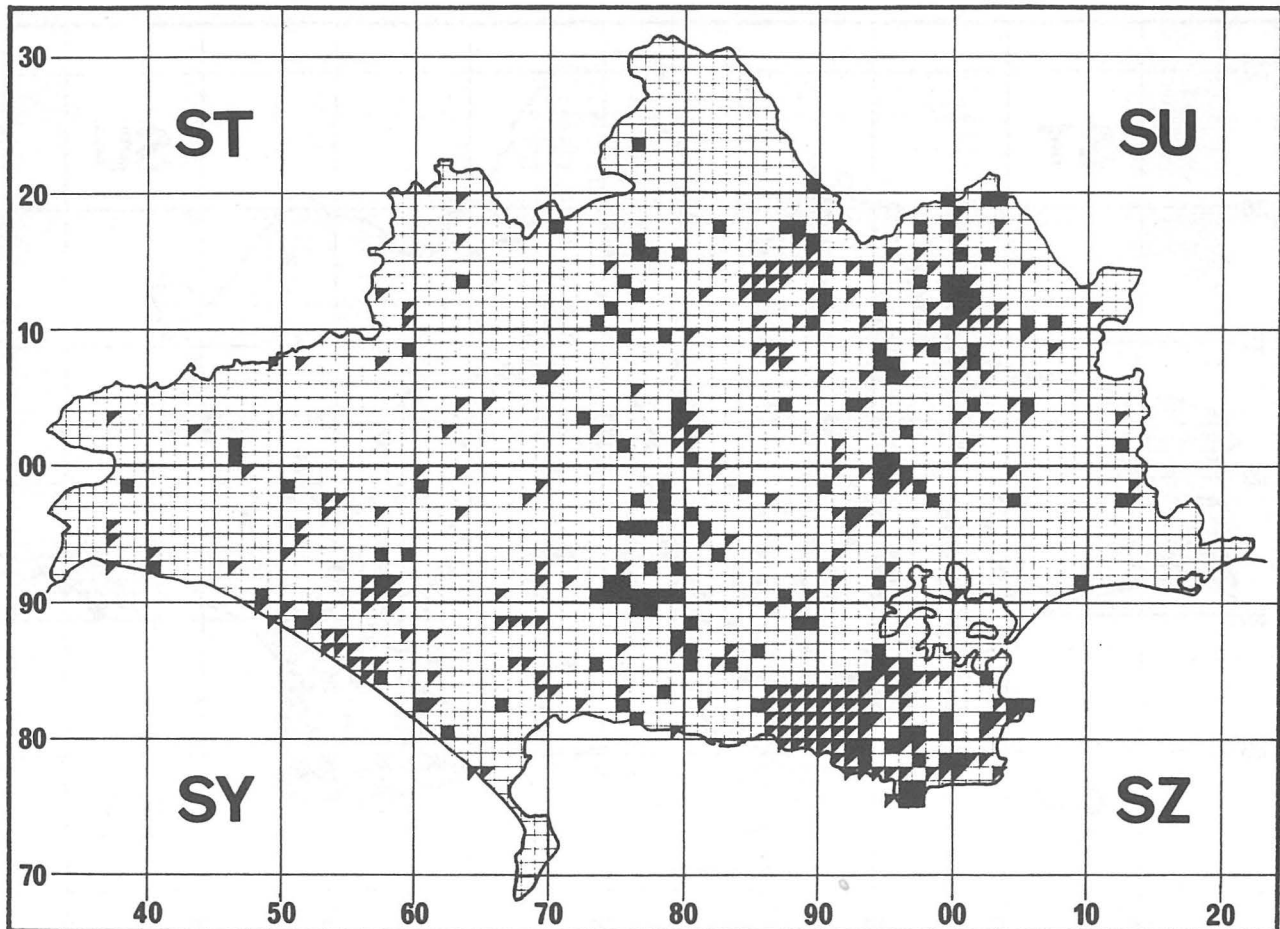


Figure 3. Brown Hare, *Lepus capensis*. Half-filled squares pre-1980 records, filled squares post-1980 records.

CAECUM ARMORICUM DE FOLIN,
1869, NEW TO THE BRITISH MARINE
MOLLUSCAN FAUNA, LIVING IN
THE FLEET, DORSET, WITHIN AN
UNUSUAL HABITAT

D. R. SEAWARD

When I wrote about the marine molluscs of the Fleet some years ago (*Proceedings*, **100**, 100-108), I had not discovered the unusual communities of animals living interstitially in Chesil Beach where the shingle slopes into the sheltered water of the lagoon. Although the shore shingle is consolidated with mud and detritus for much of the length of the Fleet, in places 'springs' emerge which keep the pebbles clean and the interstices clear. The 'spring' water is about the same salinity and temperature as the sea in Lyme Bay on the other side of Chesil Beach, some 200 m or so distant.

It is still a matter for investigation as to whether these springs are of sea water percolating from Lyme Bay, or of Fleet water stored at high water. The different tidal regime on the two sides of Chesil Beach, with the double low water of Weymouth Bay affecting the Fleet, may be relevant.

However caused, these springs seem to be appreciated by many marine invertebrates, particularly molluscs, some of which are rare or in an unusual habitat. The shingle here is sheltered and stable, in contrast to that on the open sea side of Chesil. In the lower Fleet towards Ferrybridge (SY6477 to 6675), tidal range is up to 2 m, and the intertidal shingle surface is kept clean except for a little seasonal growth of green algae, whereas in the mid-Fleet opposite Langton Herring (SY6081 to 6180), tidal range is a few centimetres and the shore may be covered by a mat of rotting vegetation for long periods.

At a spring site in the mid-Fleet, the shingle surface shows no animals except the rough winkle *Littorina rudis* (Maton), but a few centimetres deep, many small molluscs will be living in the spaces between the 1-2 cms size pebbles. The bivalve *Lasaea rubra* (Montagu) var. *pallida* is dominant with hundreds or a few thousand in a litre sample of pebbles. Its more usual habitat is in crevices on exposed rocky shores (Seaward 1987, *J. Conchology*, *London*, **32**, 387).

Two prosobranchs *Onoba semicostata* (Montagu) and *Onoba aculeus* (Gould) also occur regularly, perhaps 10 to 100 in a similarly-sized sample. These two species are difficult to separate and the latter, until recently regarded as a northern species, was found in 1987 in a lagoon in East Anglia and here in the Fleet. The apparent occupation of the same 'niche' by two very similar and closely-related species is interesting.

Particularly surprising is the presence of the tiny prosobranch *Caecum armoricum* De Folin, never previously recorded in Britain, and only apparently known as shells from a few sites along the Atlantic coast from St Malo to the Algarve (Van Aartsen and Hoenselaar 1984, *Basteria*, **48**, 23-26). Dr Van Aartsen has kindly confirmed my determination. Up to 100 have been present, together with many shells, in several litre pebble samples from a few sites in mid-Fleet during 1986 and 1987, and I have also found it present at a spring site in the lower Fleet. All stages from post-larval to fully adult occur, and the species appears to be a significant member of the mollusc community of this micro-habitat. The adult shell is up to 2 mm long by about 0.4 mm diam., so the animal is easily overlooked.

Two other *Caecum* species, *C. glabrum* (Montagu) and *C. imperforatum* (Kanmacher), live sublittorally 10-20 m deep in the interstices of coarse sand and maerl in Weymouth Bay. I suspect that *C. armoricum* will be found to be normally sub-littoral, and that it only occurs intertidally in the Fleet because of the special circumstances of the springs. These may also account for the presence of another normally sublittoral mollusc, *Emarginula cornica* Lamarck, in similar situations in the lower Fleet.

Shells of molluscs from these spring communities, particularly in mid-Fleet, are usually heavily coated with brown (presumably ferruginous) deposits.

STUDLAND HOVERFLY REPORT 1987

E. T. LEVY, D. A. LEVY AND W. F. DEAN

Sixteen visits were made to Studland in the past year, between the dates 11th April and 26th September. On the second of these visits, on 13th April, we were delighted to record the impressive, scarce, humble-bee mimic *Criorhina ranunculi* in Twelve Acre Wood, and later in the same locality, an example of *Cheilosia albipila* was taken resting on thistle leaves. Both these early species had been recorded on Studland in the 1930s by Capt C. Diver, but were new to our own lists for this reserve. Another good find of a similar nature was made on 27th May when *Microdon mutabilis* was rediscovered in typical habitats at Spur Bog and Wood Marsh.

The next three species we recorded were entirely new to Studland and Diver certainly made no mention of them. The most important was *Criorhina asilica* which was found on Hawthorn Blossom in Piplely on 31st May. This species is – in our experience – the scarcest of the genus, all of which have now been seen on the peninsula. *Criorhinas* need old decaying timber for the development of their larval stages, and it is important in all woodland reserves that old tree stumps, fallen trunks, etc., are left *in situ*, rather than being removed from the wood in the interests of tidiness.

Two more entirely new species were found during the year, *Cheilosia variabilis* and *Cheilosia vulpina*. Both widespread and not uncommon elsewhere in the county.

Another pleasing occurrence this year was the brief sighting of the very rare hoverfly *Chrysotoxum octomaculatum* in Three Acre Wood on 31st May. It is hoped we can confirm this record in 1988, for this species has not been recorded since 1955 and needs to be examined closely to ascertain its identity.

The latter species included, now leaves only eleven hoverflies (listed originally by Capt Diver fifty years ago), for our team to rediscover. Of these, the handsome *Eristalis cryptorum* is undoubtedly the one least likely to be found. For since 1953 it seems to have disappeared completely from all its known south coast localities. At the time of Diver's admirable survey of the South Haven Peninsula, it was to be seen regularly in the 'middle' ground of Studland, especially around Curlew Cottages.

Chrysotoxum elegans is a coastal cliff-top and grassland species not uncommon at Swanage. We feel that Diver's only specimen was probably storm-driven from there, but hope that it may occur under similar circumstances, when War Hill in September might be a good place to look for it.

Sphaerophoria loewi, a small low-flying brackish species will probably require a great deal of searching for, but may turn up at Bramble Bush Bay or North Dunes Marsh areas.

The other seven elusive species yet to be encountered by us are *Pachysphyia ambiguum*, *Meligramma cincta*, *Xanthadrus comtus*, *Xanthagramma citrofasciatum*, *Sphaerophoria abbreviata*, *Cheilosia grossa* and *Cheilosia longula*. All are quite likely to be found in future years, perhaps dependant on the timing of our visits and the dryness of the season.

After three years, our Studland list now standing at 119 species (which includes 31 not recorded by Capt Diver), is highly complimentary to the methods and the wardenship of Studland Reserve. The autumn cut-back and clearance of bracken from woodland clearings is especially productive, as it allows the ground-cover flora such as Tormental, Lesser Celendine and Bedstraw, upon which several scarce early hoverflies feed, to spread and flourish widely. It is a delight to see *Chrysotoxum vernale* and *Anasimyia lunulata*, two of the reserves specialities visiting these flowers in the late spring.

Our thanks to Nature Conservancy for continued access permits and to the wardens for their co-operation during 1987.

THE SCALY CRICKET

(Mogoplistes squamiger) (Orthoptera: Gryllidae)

The enigma of its distribution, and a possible explanation

A. J. WISE

The Scaly Cricket is known in Britain from only a single site, the area around Smallmouth, between the Isle of Portland and the mainland of Dorset.

It is a very unobtrusive insect, found in (for an insect) a most unusual habitat, the area of the high-water mark of the tides, spending much of the time in the shelter of, and underneath, rocks and large boulders. It was first located at this site in 1949, and found at intervals during the following decades, with the latest record of which I am aware being in 1986.

This insect is Mediterranean in distribution, where it is found in habitats essentially the same as at Smallmouth, i.e. a littoral location. Away from the Mediterranean the only locality, of which I am aware, is near Granville (on the south-west of the Cotentin peninsula), and this location gave me the clue which guided the hypothesis which I now present to try to explain this strange distribution.

After the expulsion of the Axis forces from North Africa in World War II, the Allies turned their attention first to Sicily, and then to the western shores of the Italian peninsula. Many of the invasions were made from landing craft. As these craft approached a beach with their bow-ramp lowered, all manner of littoral material, including (possibly) *Mogoplistes squamiger* at any stage of its life cycle was scooped up.

There was a grave shortage of these landing craft and those used for the Italian landings were rapidly transported to Britain for the 'Overlord' assault in June 1944. They were stored at Portland Harbour, only a matter of a few hundred yards from Smallmouth. After June 1944, as the Allied armies pushed eastwards, these forces were supplied from many south coast ports, including Portland. Perhaps very significant is the fact that Granville was, until well into autumn 1944, the base of the Supreme HQ, Allied Command.

It seems to me a reasonable, but probably unprovable, supposition that *Mogoplistes squamiger* was carried from the Mediterranean, possibly the western shore of Italy, to Portland Harbour in landing craft. From Portland Harbour they easily spread to Smallmouth where, obviously, they found the habitat suitable. It is also possible that some were carried, again probably by landing craft, to Granville with men and material for the Allied HQ.

Acknowledgement

I would like to thank Dr David Ragge for his helpful information and for his comment that 'your explanation does seem quite likely'.

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THE NATURAL HISTORY OF
COKER'S FROME, DORCHESTER

COMPILED BY D. ELTON

In August 1987 a small group of the Society's members carried out a brief survey of the watermeadows north of Dorchester, around Frome Whitfield and Coker's Frome farms. The purpose was to provide information on the ecological interest of the area for the Dorset Trust for Nature Conservation who had been commissioned by a firm of consultants to produce a report in connection with proposals for housing development. The results are summarised below.

Botanically, the meadows themselves are mostly uninteresting, having been improved. One exception is a small wet meadow in which plants such as Trifid Bur-marigold *Bidens tripartita* and Creeping Yellow Cress *Rorippa sylvestris*, along with Marsh Marigold *Caltha palustris*, Water Plantain *Alisma plantago-aquatica*, Marsh Ragwort *Senecio aquaticus*, Square-stalked St John's Wort *Hypericum tetrapterum* and *Veronica* spp were found, suggesting an old, unploughed and unimproved meadow. Otherwise the floristic interest is largely confined to the drains and ditches which, where protected from grazing, support lush emergent vegetation and provide cover for frogs, water voles, dragonflies and water birds such as coot and heron. Two areas of scrub woodland, hedgerows and many fine mature trees add habitat diversity, if nothing of particular botanical note.

Some aspects of the insect fauna were studied, notably the Coleoptera. Finds included *Chrysolina menthastri*, a mint-feeding, metallic green leaf beetle which is not all that common. Few butterflies were recorded during the survey period itself, although 20 or so species have been recorded previously.

A week's visit in August inevitably yielded a limited list of birds but, fortunately, the bird life of the area has been recorded in some detail over many years: well over 100 species have been seen, of which around 50 breed. These include a good range of warblers, spotted flycatcher, moorhen, kingfisher, green and great-spotted woodpecker, skylark, reed and corn bunting – reflecting the range of habitats available. Spring and autumn migrants use the area as do raptors and owls at any time of year. The meadows are perhaps best known for their winter visitors, e.g. lapwing, teal, snipe, water rail, little and great crested grebe.

There are still many 'gaps' in the existing information (dragonflies for example have not been well recorded), and any further records will be very useful in building up a more comprehensive picture of the natural history interest of the area.

Obituaries

Eleanor Joan Ida Brocklebank (1901-1987)

Joan Brocklebank was born on 10th December 1901 at Heswall, Cheshire, the country home of her Liverpool paternal grandparents. Her parents were Captain H. C. R. Brocklebank, CBE, RN, and Honoria (Nora) Lewin, of Frant, Sussex, daughter of Captain W. Lewin, RN. Captain Lewin had retired early from the Service to become owner and headmaster of Hazelhurst, a boys preparatory school at Frant. From him and her mother she gained her interest in history.

She was educated at home by a Parents National Educational Union governess until she was ten, when her father was posted to the Cape Station. Whilst her parents were abroad she and her sister were sent to boarding-school, first a co-educational preparatory school, Godstowe at High Wycombe, then at fourteen, to Downe House, formerly Charles Darwin's home near Orpington, Kent. This had a strong influence: 'to do lessons in the laboratory that he had built was a privilege'.

On leaving school she dearly hoped to be allowed to go to the Royal College of Music, having passed School Certificate music with a distinction, by reading, teaching herself, and having harmony lessons during the holidays; but 'girls from Dorset manor-houses did not get to universities in those days'. Despite urgent pleading this was not allowed.

She moved to Dorset in 1918. Amongst a large circle of friends there were three who particularly influenced her in her early days: Nancy Tod, Biddie Kindersley and Joyce Findlay. With the first two she started to sing madrigals. For ten years, whenever and wherever they travelled, they took madrigal books with them and would sing during lunch-breaks, in fields, on downs or on mountain sides; after supper they would retire to a bedroom and sing the whole evening through.

Her career, happily, arose from her special hobby, conducting small choirs, beginning with the Marnhull WI in 1926, then the Dorchester Ladies' Choir, which later became a mixed choir – the West Walks Singers of Dorchester. She conducted a choir in Dorchester for 42 years, and the Donhead Choral Society for 35.

Another influential friend, from 1931 onwards, was Rolf

Gardiner, son of the Egyptologist Alan Gardiner, and nephew of the musician Henry Balfour Gardiner who had given him land at Springhead, Fontmell Magna. Springhead, under the influence of Rolf Gardiner and his friends, became a centre of farming, forestry and music, all of which attracted Joan. It was the beauty of the place, in particular, together with the singing of the polyphonic choral music of the 17th and 18th centuries, which held her to Springhead. From 1934 to 1971 she took part regularly in the Whitsun meetings there, as well as the Summer Schools in 1935, 1936, 1938 and 1939, and after the war when Imogen Holst, Dr (later Sir) Thomas Armstrong, John Gardner and Roger Norrington conducted.

In the winter of 1933-4 she had attended a newly-founded College of Social Arts, the Musikheim, at Frankfurt-an-der-Oder, Germany, now Poland. Largely on the strength of this experience she got the pioneer job of Music Organiser for the National Federation of Women's Institutes, and for three winters from 1936 to 1938, Wednesday to Saturday each week, travelled from Cumberland to Kent, Devon to East Anglia, and Wales as well, teaching singing and arranging local music committees and festivals, all then new ideas, in remote villages. This rewarding work came to an end in September 1939 at the outbreak of the Second World War.

In the First World War, during the school holidays, she had washed-up twice a week in a local canteen for the troops, and in a Red Cross Hospital run by her aunt. Too young to be allowed in the wards, her war-work was at the pantry sink. In the Second World War she spent the first two and a half years in farm-work and forestry at Springhead. In the course of this, with her own hands, she planted two acres of Preston Wood with acorns. Forty years later she used to speak with pride of the 'beautiful stand of oak trees forty foot high'. Flax-pulling one summer 'was back-breaking work, but not so bad as turmit hoeing'.

At the end of 1942, after two and a half years on the land, she applied for, and obtained, the job of Music Organiser for Dorset under a Carnegie Trust scheme, just started, for the rehabilitation of amateur music when the war should end. She was appointed by the Dorset Music Council, set up jointly by the Carnegie Trust and the local education authority, with grants for activities from both. Besides promoting music-making, concerts and the like, there was much paperwork to be done. Budgets for future plans, and accounts for past activities, had to be drawn up and submitted; she had no secretarial help, and all this was done with two fingers on her own aged typewriter.

As soon as the war ended she established permanent organisations, of which the following are still in lively existence: the Dorset Rural Music School, the Dorset Guild of Singers and the Dorset County Orchestra. Of this trio she felt the first was the most important, since an appreciation of music is best encouraged at an early age. In 1956 Joan founded the Bach Cantata Club, as a result of a moment of inspiration when thinking how to spend the Carnegie Trust's Special Grant for Advanced Students. Paul Steinitz, who was introducing Bach Cantatas to a wide audience through the London Bach Choir, was the founding conductor. She was particularly proud of this achievement.

Small choirs and orchestras were fostered, some of which survive as component parts of the Dorset Guild of Singers. These were busy, happy years, on a shoestring (with a part-time salary), even though life was hair-raising, since the local authority had the habit of cutting grants at short notice according to political climate, the next party putting



Joan Brocklebank in 1957.

them on again at a reduced rate. Despite this chopping-axe poised many times, her fighting spirit, evident in all her activities, ensured the survival of music in the county. She retired in 1962.

After her retirement from music-organising she travelled a good deal, often with an artist friend and his wife, Keith and Helen Henderson. Keith Henderson gave her tuition in both drawing and painting, for which she had never had time before. The results were shown in various exhibitions in Dorchester; the latest in 1980, her 80th year.

Folk-song and folk-dance were an abiding interest from her childhood, both in performance and, in later years, research. It was in her early grown-up years that the activities of the Dorset Natural History and Archaeological Society attracted her. Collaboration with her mother and the WI in the production of a book about Marnhull, helped by Colonel Drew, Curator of the Dorset County Museum and Secretary of the Society, who became a friend, occupied much time, along with other village activities, such as the Marnhull Players.

She was an active member of the Society from 1926, especially from 1964 when she joined the Appeal Committee, a committee that did so much to improve the Museum by raising several hundreds of thousands of pounds to put the County Museum's buildings in order, and build a multi-purpose Temporary Exhibition Gallery, Archaeological and Rural Craft Galleries, a laboratory and a schools area. She became a Council member in 1965, and a Vice-President in 1978, after she had declined the Presidency of the Society, partly because of advancing years, but perhaps more particularly because of the projects she had in mind for the years ahead. Nonetheless she found time to serve on the Library, Membership and Fund-raising, and Temporary Exhibitions Committees, and to play an active part in rejuvenating the Dorset Record Society.

Besides her work for music in the county she had, over the years, become keenly interested in local history. Her parents had moved to Nash Court, Marnhull, in September 1918, where she also lived until 1933, when her parents moved to Charlton House, Shaftesbury, just over the border in Wiltshire. After 1933 she lived in 14 different parishes in Dorset, including Ashmore, Kimmeridge, Bere Regis, Compton Abbas, Twyford and Fontmell Magna, until she bought a house with her father's help, in Sutton Waldron. There she lived for 15 years. When her father died in 1957 she made plans to move south, and in 1960 had built Greatfield House, Affpuddle, designed by Ernest Wamsley Lewis, a Dorset architect of considerable distinction. Lewis made for her a house which is instantly recognisable from its style, one of a small group of houses that will undoubtedly stand the test of time.

She lived in Affpuddle for 23 years, five spent writing *Affpuddle in the County of Dorset*, which was published in the same format as the 1951 edition of *The Marn'll Book*. Around the house she created, from a field, a most attractive garden. By 1980 the house had become too large for her, and the garden too much hard work. She moved to Dorchester, to be near the Museum, the County Library and County Record Office, where she worked regularly almost to the end of her life. She moved twice more, parting reluctantly on each occasion with some of her pictures, books and fine furniture, but retaining a small part of her collection of Montelupo plates, a prized marquetry chest of drawers, a painting or two by Keith Henderson, and some by herself. Amongst the books was still the core of her Dorset collection, and many of the works of Thomas Hardy.

The Society and our Museum have profited greatly in many ways, in the last twenty or so years, from her lively mind and her willingness to follow up her ideas with hard work. Thus it was that in 1974-5 she headed a working committee which assembled an exhibition of the life and

work of Sir James Thornhill of Dorset (1675-1734). She not only compiled and wrote the handsome catalogue for that exhibition (good typography was one of her hall-marks) but was responsible for gathering together a memorable exhibition of material lent by the Ashmolean Museum and the Bodleian Library in Oxford, the Bristol City Art Gallery, the British Museum, the Guildhall Art Gallery in London, the Worshipful Company of Painter-Stainers and the Victoria & Albert Museum, with the help of many experts, including Mr Edward Croft Murray, who recognised her integrity and enthusiasm, and responded to it.

Joan was active as a member of the working committee which organised the Centenary Exhibition of the sculptor, painter and designer, Alfred Stevens of Blandford (1817-1875), another admirable exhibition in the Museum. Ten years later, in the autumn of 1985, she arranged an exhibition on Ancient Woodland, held in the Victorian Gallery to coincide with a symposium on that subject which she also master-minded. She had also set her sights on an exhibition to commemorate the tercentenary, in 1988, of the Glorious Revolution, but alas this was not to be. Even so, just before her death, on 30th March, she had been teaching herself Latin and Anglo-Saxon, for an essay on Cerne Abbey and Affpuddle, one of its estates.

In her latter years she still attended Committee and Council meetings regularly, striking sparks of inspiration, always one of the first to stand up after a lecture in the Museum to ask the most penetrating questions.

The list of her publications reflects, amongst other things, her love for, and pride in, her father, and some of her musical and local history enthusiasms. Recently she was persuaded to write down an account of her life and her work which has made such an outstanding impression on the 20th-century development of Dorset's musical life. This obituary has drawn widely from those recollections.

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Barbara Muriel Kerr, M.A., B.Litt. (1913-1987)

Barbara Kerr, second daughter of Arthur Francis George Kerr and his wife Daisy Muriel (née Judd), was born on 21st September 1913 in Chiswick, whilst her parents were on leave from Chiengmai in Siam, where her father was Medical Officer of Health. Dr Kerr returned to Siam alone and in 1915 left to serve in the R.A.M.C. in France. For a time, in 1918, whilst he was working at a hospital in Marseilles, his family lived at Hyères to be near him, and when he returned to Siam in 1919 his wife and daughter Barbara soon followed. In May 1920 his third daughter Ann was born. Dr Kerr, a fine physician and surgeon who had become the authority on the flora of Siam, was now appointed first Government Botanist. In November he and his family made the month-long journey by train and boat back to their old house at Chiengmai, which was to be the base for his explorations of the northern provinces. Family life there was soon cut short. Mrs Kerr died in September 1921 soon after the birth of her fourth daughter. Her husband, accompanied by a visiting brother, travelled back with his young children to Hayes in Kent, where they were to be brought up by their aunt, Mrs Palliser, a strong character who calmly set about the task of organising their education.

Barbara Kerr attended Kinnaird Park School at Bromley. After short periods at Neuilly and Weimar to improve her languages and knowledge of French and German culture she proceeded in 1932 (the year that Dr Kerr rejoined his family at Hayes) to Trinity College, Dublin. Here she worked hard but fitted in a full social life. She produced plays for Trinity Dramatic Society and acted in the Dublin University Players' productions at the Gate Theatre, ending up as Chairman. She was also involved with a children's mission in Grenville Street and was a faithful attendee at Trinity College Chapel. A friend remembers her hearty but untuneful hymn-singing there, and her later addiction to playing Purcell's Trumpet Voluntary on the gramophone before breakfast. She left college at the end of 1936 with a first class honours degree in modern history and political science, and went on in October 1937 to the Society of Oxford Home Students (now St. Anne's College) to work for a B.Litt. degree, which was conferred in 1939 for a thesis entitled 'Irish Immigration into Great Britain, 1798-1838'.

In 1938-9 Miss Kerr gave a series of lectures at the National Portrait Gallery on historical personages, and on completion of her thesis helped with the children at the Magdalene Mission at Camberwell, whilst giving W.E.A. courses and lectures on many subjects including Federal

Union, and casting about for a suitable job. In May 1940 she was appointed an Assistant Principal in the Ministry of Supply, where frequent enforced idleness irked her sorely. Some excitement was provided by the Blitz. During the Battle of Britain a bomb dropped in the garden and on another occasion the nose of a shell came through the ceiling and lay smoking on Dr Kerr's floor. In 1941 she had the unpleasant task of giving evidence at the Central Criminal Court, where two female colleagues were jailed for five years for stealing official papers. Her great compensation was that she started to learn Russian, which was to stand her in good stead later on. But 1942 was a year of illness and hospital treatment for tubercular glands, and in April Miss Kerr left her post, spending most of 1943 in the country, first with evacuees and then working on the land.

It was in 1943 that Barbara Kerr was first employed by the United Nations Relief and Rehabilitation Administration. She started with the Leith-Ross Working Party in London, continued with industrial rehabilitation in the Cairo Balkan Mission in September 1944, joined the Yugoslav Mission in Bari in November, and actually reached Yugoslavia in April 1945, proceeding to Belgrade. Her work was described by her Director as 'the development of analyses and studies relating to requirements, programming and utilisation of industrial commodities'. Her now fluent Russian, French, and German simplified her work, and she earned great commendation. In May-October 1946 she was back in England on temporary assignment as a Procurement Liaison Officer, to accelerate procurement and send periodic reports to the Mission. She returned to Belgrade and finally left on the 28th February 1947, having served throughout U.N.R.R.A.'s time in Yugoslavia and attended President Tito's reception for those who had done so. Some of the fruits of her stay were a share in an U.N.R.R.A. publication on transport rehabilitation, the ability to speak Serbo-Croat, a life-long attachment to Yugoslavia and lasting friendships.

After a spell in Switzerland, probably as a cure for the tubercular glands which were again troubling her, Barbara Kerr came in 1948 to Dorset. Her forebears were from Donegal, but her great-grandfather William Pattison Kerr, D.D., had moved to England in 1879 and become rector of Sydling St Nicholas; her grandfather Dr Elias William Kerr had lived and worked in Cerne Abbas and Dorchester, and her father and his brothers had attended Dorchester Grammar School. Miss Kerr had as a child visited her grandfather at South Lodge, Dorchester, and so it was almost a homecoming for her. Whilst staying at first in Dorchester and then with friends at Grants Farm outside Wool on the heath (a place where she always felt healthy) she worked for the National Agricultural Advisory Service on soil sampling, which entailed taking samples from fields all over the county, so that, after analysis elsewhere, recommendations could be made for improvement. When she left Dorset for Putney in 1952 to look after her aunt, she followed up this experience by attending the Institute of Archaeology's course on environmental archaeology, studying particularly soil analysis. After further soil sampling, this time in Derbyshire, she took a part-time job in a tutorial establishment in Kensington, and renewed her connection with Dorset by renting Ash Cottage at Hethfelton for weekends. It was there that she began her book *Bound to the Soil*. Sometimes with her sister Ann, who did most of the delightful drawings, and Ann's husband John Wilson, who took many of the photographs, she went on long expeditions, often on foot, to gather material. In 1965 she came at last to live permanently in the county which she had long inhabited in spirit. She had already made valuable contributions to the Society's *Proceedings* and in 1967 was awarded the Mansel-Pleydell silver medal for her essay, commended for outstanding merit, on Dorset fields and their names. This aspect of land history was of particular interest to her, and she gave much help to Mr A. D. Mills in his work for



Barbara Kerr in 1976.

the English Place-Name Society on *The Place-Names of Dorset* by supplying information and making available the lists of field names collected by the Dorset Women's Institutes in response to her questionnaire.

In 1968 *Bound to the Soil*, subtitled *A Social History of Dorset 1750-1918*, was published by John Baker and became at once a classic. It described the old way of life in Dorset before the drift from the land and showed 'the interplay of the soil and human activities' in regions spread across the county. It was a theme for which Barbara Kerr's training, experience and character perfectly fitted her. The fruits of long research in record offices and libraries were allied to knowledge of the soils, agriculture and landscape, and a friendly enquiring spirit and enthusiasm which encouraged many Dorset people to recall their memories for her verbally, giving life to the bones of the more recent past. One must not forget her broad knowledge of literature, which enabled her to produce an apposite quotation or a pertinent reference to a character from fiction. She particularly loved the Victorian novelists. A life-long friend writes 'Dickens was usually her travelling companion for she had the heavy reader's fear of arriving at some place where "there was nothing to read". She read Conrad a great deal, the great Russian authors of the last century, and loved her father's favourite writer, W. W. Jacobs'. She was known to start off a journey with more books than clothes.

By this time Barbara Kerr was well settled in the extension which she had built onto her friends' house at Grants Farm where she could enjoy alternately her love of remoteness and her hospitable liking for friends around her. Here she stored her large library of books on many topics, her prodigious notes and diaries. Here she entertained a great variety of friends from home and abroad, including some whom she had met as passing acquaintances and adopted, figuratively, with characteristic kindness. If one met her on a journey (on public transport, as she had thankfully given up her car on coming to Dorset), it was frequently on an errand of friendship, sometimes far afield. Her correspondence was voluminous, carried on in a neat but difficult hand which remained obstinately the same even after a course in italic. Her friends, whilst teasing her about this, nevertheless greatly enjoyed deciphering her letters, which were full of interest and amusement, as she had a great sense of humour and a keen appreciation of the ridiculous. One of them recalls particularly her little snorts of amusement followed by a wry remark whenever anything pretentious came into the conversation.

It was for friendship's sake that Barbara Kerr began work on her second book *The Dispossessed - An Aspect of Victorian Social History*. Based on the diaries and letters of Henrietta Thornhill, an ancestor of her old friend, Miss Mabel Siddons-Downe, owner of the papers, it contrasted with *Bound to the Soil* in showing a family and society on the move when 'industrialism was uprooting families and forcing them into the wilderness of expanding cities and of untrodden lands'. The book ranges widely, from South Lambeth to travels on the Continent and life in India and New Zealand. Research took Miss Kerr away from Dorset all too often, and she was relieved when publication by John Baker in 1974 left her free for her Dorset concerns. Through her other publications she had become known as the authority on social history in Dorset and an expert on land use. She was invited to lecture at the British Agricultural History Society's Conference at Weymouth and at the Thomas Hardy Festival in 1978. She made a survey of the field systems of Hammoon in connection with the Dorset Naturalists Trust Farming/Wildlife Conference there, and compiled a report on the history of land usage in Morden with special reference to the heathland for the Nature Conservancy's Morden Bog National Nature Reserve plan of management (printed in this volume). Her last publication (before death) was a section on 'Country Professions' in *The Victorian Countryside*

(1981) for which Professor G. E. Mingay had collected contributions from numerous scholars. She had many projects in mind, particularly a work on 'The Botanical Upsurge of the 19th Century', for which she had made voluminous notes. It seems also that Yugoslavia was much in her thoughts in the last years before she became too ill to concentrate. She had visited the country a number of times since the war, and in the 1970s wrote several articles with Yugoslav themes.

Barbara Kerr had never stinted in her response to the many requests for help and information which reached her, and it was a great sadness and loss to local historians as well as to her friends and family when, after some years of illness, she died in Dorchester, on 24th February 1987, leaving her library of several thousand books to this Society as a final benefaction to the Museum, which she had helped in many ways, and to Dorset. She lies in the family grave at Cerne Abbas. A friend writes 'She was a lovely, whole, intelligent and generous person and we've lost someone quite outstanding both as a scholar and a person'.

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Tony Brown (1914-1987)

Paul Anthony Makepeace Brown of Eastgate, Corfe Castle – Tony Brown, as he was known to all of us – died on 1 October 1987 at the age of 73, and is survived by his wife, Betty, a son and a daughter. He was not a native of Dorset, having a Scottish father living at Paisley for many years, and going to Abbotsholme School in Derbyshire and afterwards to Glasgow Art School. Joining the RAF during the war, he served in the Middle East from 1942-5, married in 1946 and moved from Kent to Dorset two years later.

Employed for some years in the Planning office at Wareham he was well placed to develop a practical interest in archaeology. He joined the Society in 1948, and from 1951 until 1982 scarcely a volume of the *Proceedings* is without reference to his work, whether the results of field observation and assiduous surface collecting, or of the restricted use of the spade, which he employed only in rescue work, or so far as to reveal some indication of the age and nature of a buried site. He was then eager to turn over such sites to those whom he considered experts. In an age of growing professionalism his total modesty left him apparently without ambition to contribute substantial and definitive studies over his own name, although the clarity and conciseness of his reporting were matched by the competent draughtsmanship of his art training.

He possessed considerable practical intelligence, never allowed theory to take him further than was warranted by the features he had exposed, and had a flair for nosing out sites of importance. A notable instance was the Roman well at Norden, associated with two uninscribed altars and quite possibly of religious significance, which was betrayed by no more than some lichened masonry protruding from amidst the overgrown tip-heaps of the old Matcham clay-pits, which none but he would have been tempted to prospect. Other major sites include the tessellated pavement and mosaic of the Brenscombe villa(?) further east, and the Bucknowle villa south of the Chalk ridge, to which he was led by what he first judged to be casual losses on an ancient

route. Leaving aside his numerous flint assemblages and potential Bronze Age barrows, he added over 20 sites, prehistoric to mediaeval, to the Purbeck lists, and greatly extended knowledge of the extent of known sites, especially of the still scarcely appreciated Romano-British industrial complex at Norden, and of the black-burnished ware factories at Redcliff near Wareham.

His inquisitive turn of mind had led him, briefly, to try mink-farming and later to join Arthur o'Hare's craft pottery established in the Greyhound Hotel yard under the walls of Corfe Castle. Subsequently, having given up an attempt to establish a local museum in the Town House, stocked largely with his own finds, he turned the pottery workshop into a local 'museum of curiosities', archaeological and geological, where he delighted to entertain interested tourists and parties of schoolchildren. He was especially happy imparting some of his enthusiasm to the young. Fossil-hunting came latterly to occupy more of his time, and he had a fossil pine-cone named after him as well as sharing authorship of a paper by J. B. Delair on tridactyle footprints at Worbarrow Bay, in the *Proceedings* for 1974.

Dedicated as he was to Dorset's past, Tony Brown's personality was rounded by an active concern for the present. Of middle stature and athletic mould he had in his time been a considerable rugby football and squash rackets player, and the junior section of the Swanage and Wareham Rugby Club had benefited from his coaching. He also took a prominent part in amateur dramatics with the Purbeck Players, also appearing with the Swanage Theatre Club and the Arts Club Players; in the *Western Gazette* on 16 October 1987, his friend George Willy recalls some of his notable appearances in the modern repertoire. His passing will thus be regretted in many spheres, not least in Purbeck archaeology where his nearly 40 years of endeavour may be appreciated in the context of an amateur tradition of fieldwork that has contributed, more than any other agency, to the pre-eminence of a region not specially rich in upstanding monuments of pre-medieval times.

R.A.H.F.



Tony Brown

Kenneth Basil Rooke, MB, BCHIR, 1916-1987

When Dr Kenneth Rooke died on September 23rd, after a long illness, the Society lost a member who had made a great contribution to the study of birds in the county, and one who encouraged others to strive for the very high level of observation and accurate recording that he achieved.

No one knew better than he how to campaign in a good cause, and he played the leading part in saving the Cranborne First School from closure. His patients in Cranborne and district, where he had practised for 37 years until his retirement in 1984, mourn a doctor who was universally respected not only for his skill and dedication but for his support and friendship in time of trouble.

Kenneth Rooke, the son of a surgeon in Bournemouth, would have made a success of any career he chose. He opted for medicine rather than accountancy which, as a brilliant mathematician, had first appealed to him. His lifelong interest in birds began at school at Clifton where he made his mark as a meticulous recorder in the Bristol Bird Club, and was chosen in two succeeding years to go on a Public Schools Exploration Society expedition to Newfoundland. At Sidney Sussex College, Cambridge, he gained a first in the natural science tripos. He joined the Cambridge Bird Club and became president in due course, meeting the great ornithologists of the day on equal terms. He went on to obtain medical qualifications at the Middlesex Hospital and Cambridge and was called up to the Royal Army Medical Corps in 1942 – gaining an opportunity to bird watch in Algeria and Tunisia.

In 1947 he returned to his native Dorset and joined the

Cranborne practice where he worked until he retired. He became involved in bird recording, took over the editorship of the County Bird Report from the Rev. F. L. Blaythwaite, and founded the Dorset Field Ornithological Group which was the forerunner of the Bird Club and existed to assist in record-keeping for the Report. He discovered that Portland was a wonderful place from which to study bird migration, and founded the Portland Bird Observatory. The mystery of migration was an absorbing interest, and the appearance of Pallas's Warbler, a straggler from Siberia, at the Observatory led to a paper he produced at Oxford at the 14th Ornithological Conference on the orientation of the species which attracted much attention. With Arthur Bull and others he was responsible for the establishment of the Dorset Trust for Nature Conservation and for shaping its future development on sound lines.

In 1954 the retirement of his partner increased his work load and he had to give up his work on the Report and on Committees. He continued to observe bird life in Dorset as he drove round his widespread practice, and somehow found time to continue his pioneer work in protecting Stone Curlews by marking nests to save them when fields were being rolled. Later on a succession of seasonal RSPB wardens, appointed to watch over rare breeding birds, found his practical advice and local knowledge both unequalled and invaluable.

His ability to inspire others, his dedication to the cause of conservation, his willingness to help and advise, will be much missed by those who knew him and greatly valued his friendship.

H. J. Brotherton

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