DORSET NATURAL HISTORY AND ARCHAEOLOGICAL SOCIETY

PROCEEDINGS

Volume 116 for 1994

Issued June 1995

Editor Jo Draper

Subject Editors

Joe Bettey (*Local History*) Sue Davies (*Archaeology*)

Michael House (*Geology*) Nigel Webb (*Biology*)

Claire Pinder (*Index*)

Printed by The Friary Press Ltd., Bridport Road, Dorchester, Dorset.

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

NOTES FOR CONTRIBUTORS

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

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

COVER

The Dorset County Museum held an exhibition 'The Home Front: Life in Dorset 1939-45' in 1994 to celebrate the 50th anniversary of D-day.
Mr T.A. Webb of the Observer Corps, at the Poundbury observation post in 1940. Photograph taken by Mr Parsons.

CONTENTS

DORSET NATURAL HISTORY AND ARCHAEOLOGICAL SOCIETY

COUNCIL MEMBERS AND OFFICERS 1994

President	A J T Jaggard Esq FSA FRSA	
Vice Presidents	R F Benoy Esq	A T Swindall Esq DipTP FRPPI ARICS
	Miss H A J Brotherton CBE	A B Warrick Esq
	J Stevens Cox Esq FSA	Miss E Watkins
	R N R Peers Esq FSA FMA MIFA	
Trustees	Major General H M G Bond DL	M C Matthews Esq TD BSc
	A J T Jaggard Esq FSA FRSA	Sir Philip Williams Bt
Past Presidents	C J Bailey Esq FSA	The Hon Mrs Marten OBE DL
	J R Bradshaw Esq MA	
Chairman of Council	Mrs Maureen Keats BSc FGS AMA	

Council members

Four members retire by rotation annually but are eligible for re-election. The dates placed in brackets give the year of the original election to the Council.

To retire 1995:
Captain I A Campbell (1993)
J B Hawthorne Esq MSc CBiol FIBiol FZS (1963)
Mrs E M Keats BSc FGS AMA (1978)
Mrs M S Ross (1988)

To retire 1996:
A J H Boulay Esq (1993)
H Jaques Esq MA (1993)
J F James Esq BA (1988)

To retire 1997:
G B Clarke Esq MA FSA (1986)
Mrs M Ladle (1993)
Prof M G Morris PhD MA FRES (1985)
D Pearman Esq (1988)

Co-opted:
Mrs T Loakes (1993)
Mrs M Tarraway (1993)
Mrs G Yarker (1993)

Dorset County Council:
Mrs P M Seaton

West Dorset District Council:
J Lock Esq

Officers:

Curator & Secretary	R M de Peyer Esq BA AMA
Deputy Curator	Miss C M Hebditch BSc
Assistant Curator	P J Woodward Esq BSc BArch MIFA
Editor	Jo Draper FSA
Hon Field Secretary	Miss E Watkins (to June 1994) Mrs A Collins (from June 1994)

Staff:

Secretary	Mrs M Bennett
Assistant Treasurer	Mrs C Hart
Membership Assistant	Mrs C Garratt
Education Officer	Miss L Poulson MA BEd CertEd
Museum Assistant	A Chick Esq
Caretaker	T Machen Esq
Assistant Caretaker	Mrs H Machen
Cleaner	Mrs C Cooke

The Boundaries of two Anglo-Saxon Charters relating to land at Corscombe: a commentary on the paper by Grundy (1935)

J.A. BARNARD

Summary

Two authentic Anglo-Saxon charters dating from the early 11th century describe the bounds of land at Corscombe granted to Sherborne Abbey by the king.

In 1935 Grundy attempted to relate the Anglo-Saxon bounds to features shown on modern large-scale maps. This paper describes the results of work carried out by members of the West Dorset Local History Society to examine Grundy's findings in the field and to see whether features described in the charters still exist in the landscape.

Some further comments are also made and suggestions are put forward for certain modification to Grundy's conclusions.

Among the surviving charters of Sherborne Abbey are two relating to Corscombe. Both are regarded by Finberg (1964, 176-177) as being later copies of the originals but in neither case is the authenticity in doubt, a view supported by O'Donovan (1988, 51-58).

The earlier charter is dated 1014 and refers to sixteen hides of land at Corscombe granted by King Aethelred to the monastic community at Sherborne free of all but the three common dues of bridge work, fortress work and military service. Although the charter title gives sixteen hides, the text refers to thirteen in one place and sixteen in another. O'Donovan (1988, 51-58) regards thirteen as the correct number.

The second charter dates from 1035 and records the grant by King Cnut of sixteen hides at Corscombe to Sherborne Abbey. It seems probable that this charter, which does not mention the earlier one, was issued to give secure title to the extra piece of land now included in the estate: this extra land is probably the area around Toller Whelme.

As is normal, the first part of the charter is in Latin and this is followed by a description of the boundaries of the land in question in Old English. As part of his very extensive study of Anglo-Saxon charters, Grundy (1935, 130-139) attempted to relate the descriptions in these Corscombe charters to features on modern maps and concluded that the first grant corresponded closely to the present parish of Corscombe excluding Benville and Toller Whelme, while the second included the latter but not Benville which later formed part of the Liberty of Frampton (Hutchins, 1863, 91; Drew 1949). A map of Corscombe and its surroundings is shown in Figure 1.

However, it appears that Grundy worked almost exclusively from documents and maps in his study and did not go into the field to trace the visible remains of the boundaries. Although in this respect, his work may be subject to criticism by those following in his footsteps, his pioneering contributions to the study of Anglo-Saxon topography must be recognized (Hoskins, 1982, 37-38; 1984, 152-153).

A further problem arises because at the time when Grundy was working, the National Grid was not used on Ordnance Survey maps (Seymour 1980) and some of his descriptions of locations are not clear, a problem exacerbated by the fact that his papers do not include maps.

In 1988, at the suggestion of Mrs. Eedle, the then Chairman, members of the West Dorset Local History Society began work on the Corscombe charter boundaries with the aim of, if possible, identifying these boundaries 'on the ground' and comparing them with Grundy's (1935, 130-139) findings. This paper summarizes the results of this work and makes some additional comments on the boundaries. A list of all those who took part in the field-work is given in Appendix I at the end of this paper.

In a number of cases it is thought that the grants of land in Anglo-Saxon charters have subsequently formed the basis of ecclesiastical parishes (Taylor 1970; Pearce 1978). Consequently, in this study, attention was directed towards the parish boundaries in endeavouring to establish the extent of the land granted in the charters (Rackham 1986, 10). The earliest relevant map discovered was the Tithe Map of 1840 and this shows only trivial differences between the ecclesiastical parish boundary at that date and the boundary of the modern civil parish.

In charters the perambulation is almost always described in a clockwise direction. The various landmarks generally define points where the boundary changes direction and, wherever possible, use was made of natural features such as water-courses.

The boundaries of land-units are often defined by hedges and useful information concerning the date that the boundary was established can be gained by assessing the age of the hedge using 'Hooper's Hypothesis' (Rackham 1986, 194). This states that the number of tree and shrub species found in the hedge, counted in a standardised way, is equal to the age of the hedge in centuries. Unfortunately this procedure has been shown to be unreliable in the west country (Aston 1985, 136-137) and in this study no attempt was made to determine the age of any hedge by species counting.

The points in the two charters will be distinguished by I- and II- and the text published by O'Donovan (1988, 51-58) will be given for each of the points in the charters. The translation by Grundy (1935, 130-139) will be used, though Gelling (1978, 208) warns against taking it as definitive.

Charter I A.D. 1014 Finberg (1964, no. 917), Sawyer (1968, no. 933), O'Donovan (1988, no. 15)

There are sixteen landmarks in this charter and these are shown in Figure 2.

I-1 Ærest on ærne dene

First to the Valley of the Storehouse

Valley of the Storehouse is Grundy's translation of the original Old English, *Aerne Dene*, but he does draw attention to the second charter where *Earne Dene*, Eagles' Valley, is written and suggests that as these are apparently the same place, the scribe may have made a mistake. Now it is impossible to say which is correct. Grundy (1935, 131) gives the location of this landmark as the westerly head of a well-marked valley running from the southern boundary of Corscombe parish into Beaminster parish. Unfortunately, as there is more than one such valley, this description is ambiguous. However, by considering the relationship between this landmark and other charter points, it seems likely that Grundy thought that the Anglo-Saxon surveyor intended somewhere near ST500040[1] and this is the location shown by Eedle (1984, 14). Later in this paper another place is suggested for this important point.

I-2 þanone on hornes beorh

Then to Horn's Barrow

Grundy (1935, 131) places this on what he calls the great ridgeway (now the A356) at about ST500051. Grinsell (1959, 66) remarks that there is no evidence of a barrow near this point now, nor has there ever been a record of one. However, the OE *beorh* (translated by Grundy as 'barrow') can also refer to a natural hill (Gelling 1978, 131) especially a round-topped one (Mills pers. comm. to W. Davidson). This as Davidson points out, exactly describes the terrain hereabouts, a fact emphasized by the placing of a radio-communications mast nearby, this mast being visible from virtually everywhere on the boundary.

It is also significant that the boundaries of three parishes, Chedington, Beaminster and Corscombe, meet close by and it seems likely that this meeting point, ST499050, is somewhere of ancient importance and could

[1] The location of places in this paper are given in terms of six-figure grid references, all of which are to be found on 1 in 25000 Pathfinder Sheet 1298 and 1 in 50000 Landranger Sheet 194, both published by the Ordnance Survey.

well be the *hornes beorh* of the charter. It should also be noted that it is the starting-point of the perambulation in the second charter, though in that text it is written as *hornes beorg*; *beorg* and *beorh* are alternative spellings of the same word (Toller, 1898).

I-3 ðanone on leas ende

Then to the end of the lea

It would be natural for the boundary to run along the top of the ridge following the line of the modern road (A356) via this point which cannot now be identified precisely. The parish boundary here is marked for part of its length by a well-defined bank between 0.8 and 1.4 m high on the north side of the A356.

I-4 þanone on miclan corf

Then to the Great Cut

This accurately describes Winyard's Gap (ST492062), a narrow defile where the A356 drops down from the high chalk ridge to the clays around South Perrott.

I-5 on miclan cruc middepearne

To the middle of the side of the Great Barrow

There is no reason to question Grundy's identification of this landmark as Crook Hill (ST499066), about 750 m east-north-east of Winyard's Gap though as Grinsell (1959, 66) points out, the reference is to the steep and long hill and not to any barrow on it.

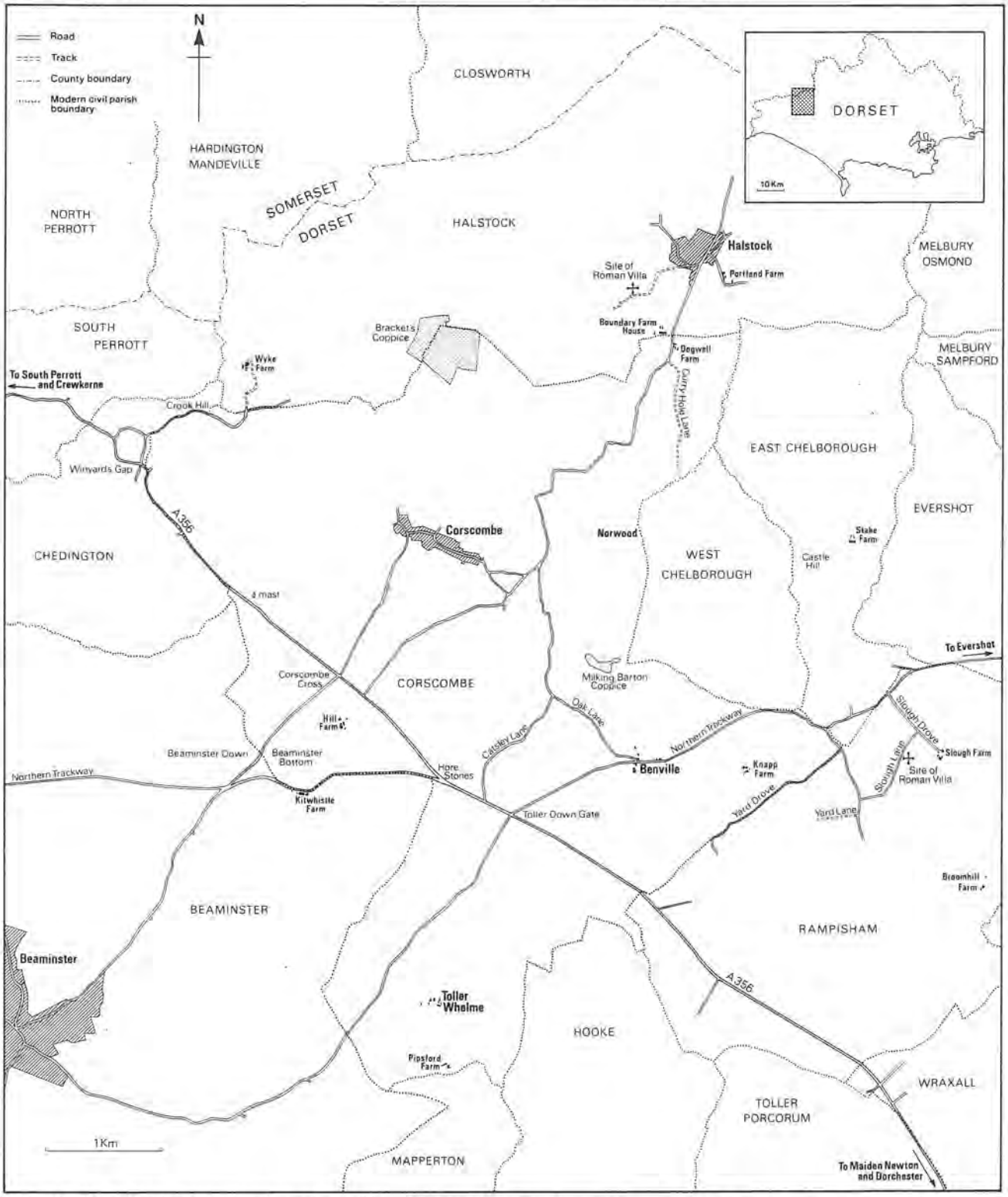


Figure 1. Map showing Corscombe and neighbouring parishes, together with many of the places mentioned in the text. The location, within Dorset, of the area shown in this map is indicated by the shaded rectangle in the inset.

The present-day parish boundary runs from Winyard's Gap along the top of a greensand spur and then down to a sunken lane before leaving the lane to run round the northern side of Crook Hill following a low bank surmounted by old trees to another three-parishes meeting point (Halstock, Chedington and Corscombe parishes) before rejoining the lane at the entrance to Wyke Farm (ST500066). Although it is impossible to be certain, it seems likely that landmark I-5 was at what is now the three-parishes meeting point (ST498067).

I-6 þanone andlanges hriceges on hlydan pol

Then on along the ridge to the stream in the dell

The parish boundary runs down a clear natural ridge approximately 800 m long and about 200 m across at its widest point across fields and through a wooded area to the Ryewater Brook at ST512067. This fits the charter very well though there is nothing to mark the line of the boundary today. The Ryewater Brook runs in a fairly deep valley or dell at this point but we should note that "loud stream", from the OE verb *hlydan*, to make a loud noise, might be a preferable translation.

I-7 þanone on syres ford

Then to the ford where the furze grows

Both Grundy (1935, 133) and O'Donovan (1988, 53) regard *syres* as a miscopying of *fyres*.

The parish boundary follows the Ryewater Brook north-east through the wooded area of Bracket's Coppice and at ST517073 turns east along its northern edge. Though there is no trace of a ford at this turning-point today, the stream is certainly fordable there.

I-8 ðanone on þone hagan

Then to the hedge of the Woodland (Game Enclosure)

This is the translation given by Grundy (1935, 133). The generally accepted rendering of the OE *haga* is a hedged enclosure (Mills 1991, 381) or place fenced in (Toller 1898). But according to Hooke (1988c, 145 and 148) *haga* indicates a type of fence that often seems to run alongside woodland, possibly connected with the management of game animals. These *haga* features are likely to have been substantial and were most commonly found in little-developed, often densely wooded regions later known to have been used for hunting or as game reserves. In the present case, it seems more likely that the fence is intended rather than the enclosed area.

The parish boundary follows a bank with a ditch on the inner side marking the northern edge of Bracket's Coppice, a well-wooded area the boundary of which may have been the *haga* referred to in the charter.

At ST520073 the modern parish boundary changes direction and this is probably the point I-8.

I-9 þanone on breopoldesham

Then to Breowald's House

It is impossible to identify this point today though the parish boundary does change direction quite sharply where it crosses the old road known as Common Lane (ST525068). This is a likely place for Breowald's House, as suggested by Grundy (1935, 134).

It is somewhat surprising that the charter does not mention Common Lane as it is generally believed to be a very old route, possibly even part of the Harrow Way (Lemmey n.d.; Wright 1988, 24).

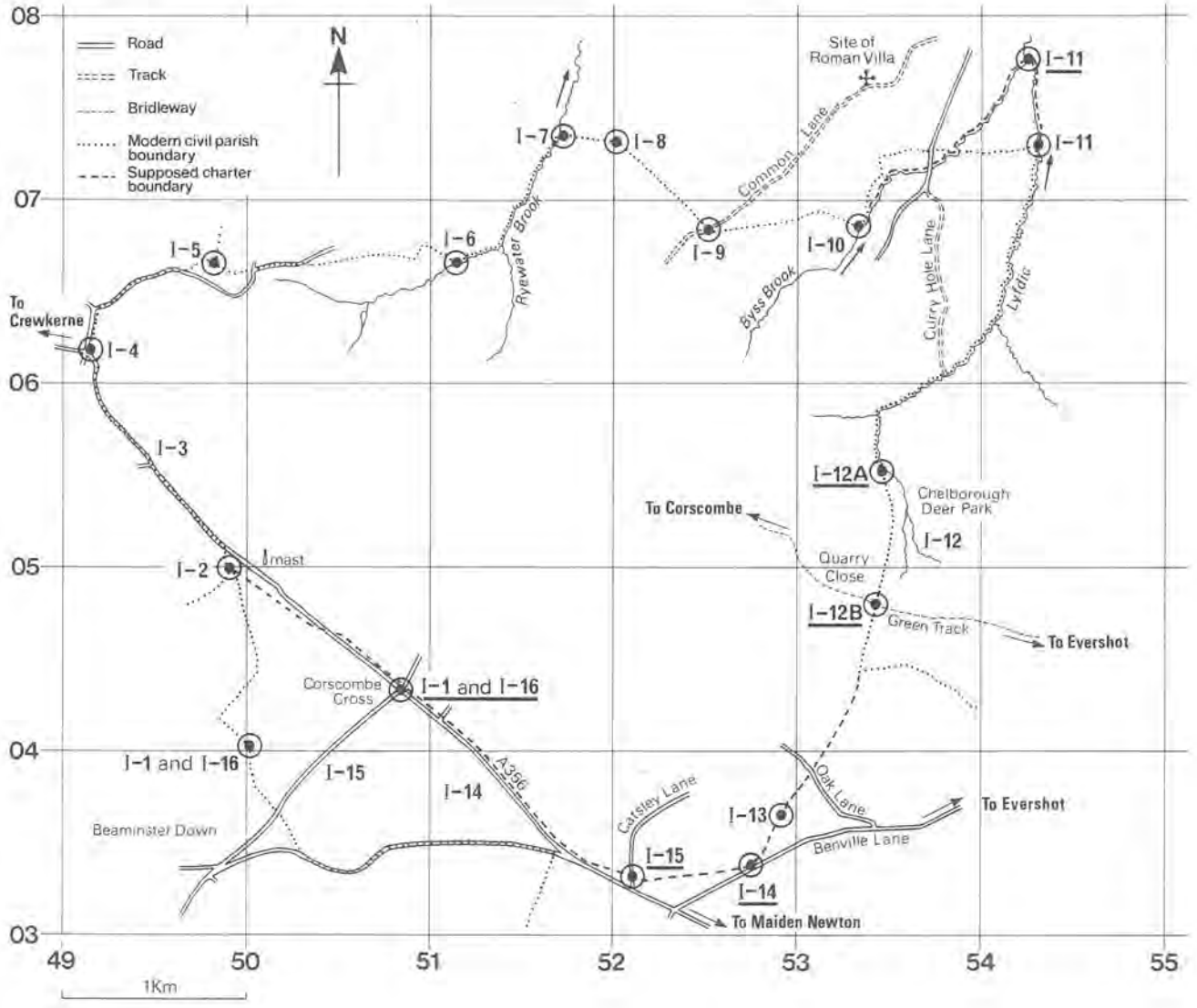


Figure 2. The boundary described in Charter I. Landmark points according to Grundy are shown as I-1, etc. Underlined points, e.g. I-12A, are those described in this paper which differ from Grundy's. The supposed charter boundary is shown only where it differs from that of the modern civil parish.

I-10 ðanone on byssan broc
Then to Byss Brook

The parish boundary continues in a generally easterly direction to ST533068 where it meets an unnamed but quite substantial stream. This stream was identified by Grundy (1935, 134) as the Byss Brook and this seems to be correct.

I-11 þanone on lyfdic
Then to the Lyfdic

In the Halstock charter of A.D. 841 (Finberg 1964, no. 567; Sawyer, no. 290) this stream is the *lieudic*, the Dyke of Running Water (Grundy 1936, 112). It is clearly the stream running from south to north roughly parallel to the Yeovil Road and about 250 m east of Halstock village.

The charter is not explicit about the route to be followed between points I-10 and I-11. It could be, as suggested by Eedle (pers. comm.) that the boundary followed the Byss Brook north-east to the junction with the *lyfdic* near Portland Farm (ST542077). This would be the natural line for the Anglo-Saxon surveyor to have followed and fits very well with the Halstock charter mentioned above.

The modern parish boundary follows the Byss Brook north from ST533068 for about 100 m but then leaves it to take a roughly parallel route north-east first along a hedge and then across a field before turning east along another hedge to Boundary Farm House (ST537073) from where it continues east past the Boundary Stone (which is not, of course, mentioned in the charters) along what appears to be a modern hedge to the *lyfdic* at ST543073. It seems most unlikely that the charter would have followed what is now the parish boundary over this section and it is interesting to note that the two shaded areas in Figure 3 are not very different in size and to speculate (Davidson pers. comm.) that at some time in the past there was an exchange of land between the parishes of Halstock and Corscombe resulting in the deviation of the parish boundary from that of the charter and that the Boundary Stone was a marker for the new boundary.

I-12 ðanone on lyc hagan on grenan þeg
Then to the Corpse Woodland (Game Enclosure) to the Green Track

Somewhat unusually, two landmarks are mentioned in this sentence. These we will distinguish as I-12A and I-12B, respectively.

The parish boundary follows the *lyfdic* south as far as a point (ST534055) close to Norwood where it leaves the stream and runs along the western edge of Chelborough Park, an ancient deer park (Cantor and Wilson 1966, 183-185). It is probable that the charter boundary in this section followed the same line as the present parish boundary and that I-12A is close to the point at which the boundary leaves the stream (ST534055) as it would clearly be necessary for the Anglo-Saxon surveyor to define this point: in this case, Chelborough Park represents the remains of the *haga* of the charter.

After leaving the stream and as it runs south along the edge of Chelborough Park, the boundary crosses two old tracks. One, now a footpath, is from Melbury to Corscombe via East Chelborough. The other, running along the southern edge of the Park, is a bridleway forming part of the old route from Evershot to Crewkerne via Corscombe (Good 1966, 85). Either of these could be the Green Way of the charter but it is more probable that the latter is intended and that landmark I-12B is at ST534048.

I-13 þanone on focgan crundel
Then to Focga's Quarry

Toller (1898 and Supplement 1921) gives various meanings for *crundel* but it is now generally considered to mean a dry depression of some sort such as a chalk pit or quarry (Campbell 1972; Rackham 1986, 353; Mills 1986, 174).

From ST534048 the parish boundary continues south until at ST534044 it turns abruptly east. The southward line of the proposed charter boundary continues as a hedge on a low bank, crossing Oak Lane at ST531039 and, continuing uphill, passes between two much overgrown disused quarries (ST529037). One of these may well be the Focga's Quarry of the charter. The hedge itself is almost certainly of great antiquity: it runs uninterruptedly for several kilometres across country and though other hedges meet it, often at a near-right angle, they never cross it. It seems very likely that this ancient hedge marks the line of the charter boundary.

I-14 þanone on trynd leapege
Then to the Way of the Lea of the Round Quarry

Grundy (1935, 134) appears to have regarded *trynd* as a form of *trindel* or perhaps *trendel*.

The OE *trendel* means a circle (Ekwall 1960, 479) or a circular feature (Mills 1991, 335; Toller 1898). In modern English trendel or trundle is used to describe an enclosure such as that above the Cerne Giant in Dorset or that near Bicknoller in Somerset. Another example is to be found on the Sussex Downs above Goodwood. It may well be, therefore, that the Anglo-Saxon surveyor was referring to some ring or circular feature, now lost, in the vicinity.

As far as the location of I-14 is concerned, Grundy (1935, 135) simply states that it is "probably in the part of the ridgeway which runs north west a short ¼ mile north of Hill Farm" without discussing the line of the boundary from Focga's Quarry to *trynd leawege* itself.

I-15 þanone on earna leapege
Then to the Way at Eagle's Lea

I-16 þanone forð andlanges herpaðes eft on ærne dene
Then along the highway once more to the Valley of the Eagles

The fact that the *earna lea* of I-15 must have been reasonably close to the *aerne dene* of I-16 lends support to the suggestion of a copying error and that *aerne dene* in I-16 (and in I-1, since they are the same place) should have been written *earne dene*, as is the case in Charter II. Valley of the Eagles, rather than Valley of the Storehouse, is therefore the preferred translation.

Grundy (1935, 135) is uncertain about the line taken by the boundary from Focga's Quarry (I-13) back to the starting point at the Valley of the Eagles (I-16). He places the lea of I-15 close to the Valley of I-16 and identifies the highway as "the road which runs up the dean, a piece of road which must have been used from the very earliest times in dry weather to cut off the angle between the two ridgeways, one of which comes down from the northwest and the other from the southwest to meet in the south part of the parish". What he had in mind here is quite obscure.

His analysis of this part of the charter is not convincing. Not only does it fail to provide satisfactory identification of *trynd leawege* or *earna leawege* but, more importantly, the supposed starting point, which it appears Grundy (1935, 131) placed near ST500040, would not have been reached along any important track (*herpath*, literally army road, in the OE text) as required by I-16.

There are, however, at least two other possible interpretations. In 1949 Drew published an interesting note on the lost place name Earnley which could be the modern form of *earna lea* (I-15). The earliest reference Drew

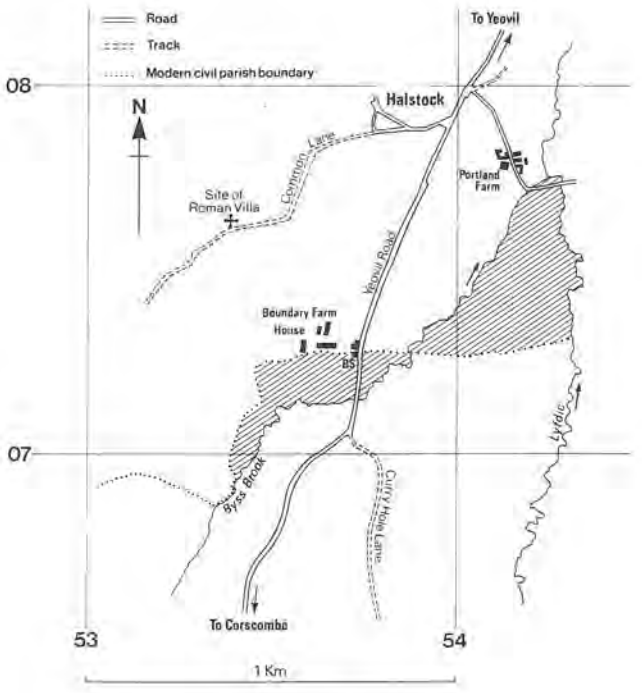


Figure 3. The shaded areas are those referred to in the text under I-11as possibly being exchanged between Halstock and Corscombe parishes in post-Saxon times. The suggested charter boundary follows the Byss Brook north-east to its junction with the Lyfdic and then turns south along that stream.

(1949) could find was to Erneleys in the time of Henry I (who reigned from 1100 to 1135, about a hundred years after the charters) but he was also able to discover that it has survived in the more modern form, Earnley, as the name of certain fields and woods on maps of the Benville Manor Estate. He suggests that *trynd leawege* in I-14 is the minor road running north west by Benville Manor (ST535036) now shown on the O.S. 6" to 1 mile map as Oak Lane, while *earna leawege*, Earnley Lane in modern form, is the road from Toller Down Gate to Benville now known as Benville Lane. Drew (1949) accepts Grundy's (1935, 134) translation of *tryndle* as Round Quarry but regards this as the one at ST529037 identified by Grundy as Focga's Quarry . Drew (1949) shows on his map the line of the charter boundary running south from where it crosses Benville Lane at ST528033 to meet the *herpath* (now the A356) at ST527029.

This interpretation fits the charter landmarks very well except that it requires Focga's Quarry to be between Oak Lane and Chelborough Park. In this stretch of country there is no sign on the 6" O.S. map or, more importantly on the ground, of any ancient quarry workings though as Grundy (1935, 135) points out, these tend to be very abiding features and are always shown on large-scale O.S. maps. Indeed, it is intrinsically unlikely that a quarry would be found on the clay soils of that area, whereas on the higher ground rising up to the chalk ridge, stone quarries or chalk pits might be expected and several are shown on the O.S. maps, including, of course, those at ST529037 which Grundy identified as Focga's Quarry. Nevertheless, it is worth noting that a field between Chelborough Park and the point near Milking Barton Coppice where the parish boundary now makes a 90° turn to the east (ST533044) bears the name Quarry Close on the 1840 Tithe Map and Hutchins (1863, 637) mentions that Forest Marble is found in the parish of West Chelborough. Furthermore, just south of Dogwell Farm (ST537072) Curry Hole Lane runs southwards towards Quarry Close, though today the track does not lead directly to it. The word 'Curry' is believed to be a corruption of 'Quarry' (Eedle pers. comm.).

Although at first sight this suggestion may appear attractive, when the second charter (which also includes Focga's Quarry as a landmark) is considered, further difficulties arise and a third interpretation appears to be more likely. From Focga's Quarry at ST529037 the ancient hedge already mentioned under I-13 continues and meets Benville Lane at ST527034. It is conjectured that Benville Lane was formerly the *trynd leawege* of I-14 and that if Grundy's (1935, 134) translation is indeed correct, the Round Quarry was one of the nearby workings shown on the O.S. map, perhaps that at ST526035. Until the Maiden Newton to Crewkerne road (now the A356) was turnpiked in the eighteenth century, Benville Lane almost certainly continued along an ancient hedge line (Good 1966, 71 and 142) which still exists apart from a gap of about 150 m, crossing Catsley Lane at ST521033; Catsley Lane could well be the *earna leawege* of I-15. From here, the natural line for the boundary would be, as stated in the Charter, along the highway (now the A356) back to the starting point, perhaps near Corscombe Cross (ST508043). There are certainly three steep valleys running northeast into Corscombe parish from this part of the ridge, any one of which might be *earne dene*.

The line of the A356 is certainly that of an old road and indeed in the seventeenth century was part of Ogilby's route from Bristol to Weymouth (Cochrane 1969, 120-121). It is the natural route between Dorchester and Crewkerne which were both towns with mints at the time of the charters (Hill 1981, 128) and it is almost certain that the modern A356 follows the same route as the *herpath* which in Saxon times must have connected these two places.

The third 'solution' provides a more satisfactory identification of the charter landmarks and shares with the second alternative outlined above, the merit of not including the arbitrary loop of land around Hill Farm (ST509039) to the south-west of the A356. The inclusion of such a loop, or bulge, in a charter land grant, especially one not marked by any prominent topographical features, is rather unusual and for this reason, as well as the others outlined above, we prefer this last solution.

Figure 2 shows the charter landmarks as proposed by Grundy (1935, 131-135) and our suggested alternatives, together with the present-day parish boundary.

Even allowing for the possible alternative interpretation outlined above, the area of land described in the charter appears to correspond fairly closely to the modern parish of Corscombe, excluding Toller Whelme and Benville (see Figure 1) and for much of its length the boundary is still marked by banks and hedges of considerable antiquity. Most of the charter landmarks have been identified with places at which the boundary undergoes a significant change of direction or with obvious topographical features such as a quarry.

Charter II A.D. 1035 Finberg (1964 no. 623), Sawyer (1968 no. 975), O'Donovan (1988 no. 16)

The second charter defines twenty-six points in the perambulation compared with sixteen in the first. The points in Charter II are shown in Figure 4. Grundy (1935) used the text published by Kemble (1839-48) and following him has inadvertently conflated two of the points and these will be labelled II-13A and II-14A to preserve as far as possible his numbering. Grundy's (1935, 136-139) translation of the Old English will again be used.

II-1 Ærest on hornes beorg
First to Horn's Barrow

II-2 Of þam beorge on leas ende on corf get
From the barrow to the end of the Lea to the Gate at the Cut
Grundy (1935, 136) has omitted "to the end of the Lea" from his translation of this sentence.

II-3 Of þam gete on cruc middepeardne
From the Gate to the Middle of the Barrow

II-4 þonne of cruc on ðone smalan hricg
Then from the Barrow to the Small Ridge

II-5 andlang hricges on hlyda pol
Along the ridge to the stream in the Dell

II-6 Of þam pole andlang streames on fyrs ford
From the Stream along the Stream to the Ford where the Furze grows
This description of the bounds starts at Horn's Barrow which occurs in the earlier charter as landmark I-2. From there through points II-2, 3, 4, 5 and 6 the boundary follows the same route as in Charter I and II-6, the Ford where the furse grows, is identical to I-7.

II-7 Of þam forda andlang readan hyrstes to hlype gete
From the Ford along the Red Copse to the Gate at the Deer-leap

II-8 Fram hlype gete to þam colpytte
From the Gate at the Deer-leap to the Charcoal Pit

II-9 Fram colpette to þam healfan treope
From the Charcoal Pit to the Half Tree

II-10 þanone forðrihtes on bropoldes heal
Then straight to Browald's Hollow
It is plausible, as Grundy (1935, 137) suggests, that from II-6 to II-10 the boundary follows the line of the earlier charter though the charcoal pit and the half tree have long since vanished. Quite why the additional landmarks should have been defined is not clear.

In the discussion of the earlier charter, Breowald's House, I-9, was placed where the boundary makes an abrupt change of direction as it crosses Common Lane (ST525068). This could not be described as a hollow today and the precise location of II-10 remains uncertain, though presumably Breowald's House and Browald's Hollow were not far apart.

II-11 þanon on staford upp ongean stream
Then to the Ford marked by a Staff up against the Stream
Grundy (1935, 137) placed the Ford marked by the Staff at ST535058 where the 6" O.S. map, in fact, shows a ford. While this is an important point on the supposed perambulation in that it is close to there that the stream (almost certainly the *lyfdic* of the earlier charter) divides, it is almost inconceivable that there would have been no landmarks between Browald's Hollow (II-10) which must have been to the west of the stream and Grundy's location for II-11, ST535058.

There is no mention of the Byss Brook (I-10) in the second charter, nor is the *lyfdic* (I-11) mentioned by name. This suggests that the boundary ran at least as far north as the point, ST542077, where the two streams join (compare previous comments on I-11) and this may be close to the "Ford marked by a Staff". It is not clear whether the Anglo-Saxon surveyor meant

that the Staff was hard by the Stream or that, having reached the Staff, the boundary turned upstream but the latter is more likely and is consistent with the probable line of the boundary.

In the Halstock charter of A.D. 841 (Grundy 1936, 112-115; Sawyer 1968, no. 290), also regarded by Finberg (1964, no. 567) as authentic, the Horse Ford, point 9 of that charter, may be identical to the Ford marked by a Staff in the Corscombe charter. It is worth remarking that the Halstock charter boundary runs directly west from Horse Ford to Furze Hill Ford which Grundy (1936, 113) suggests is the same as the Ford where the Furze grows; the latter appears in both Corscombe charters as I-7 and II-6. The southern boundary of the Halstock charter is defined by just the two Fords whereas the northern boundaries of the two Corscombe charters are marked by five and six points respectively. Today, the two parishes are, of course, contiguous in this region.

II-12 Of þam streame on stocchylle

From the Stream to the Hill of the (Stake (?) or, possibly, Staked Enclosure (?))

The present-day parish boundary goes upstream to a point (ST534055) close to Norwood from where it climbs to run south along the western edge of Chelborough Park. It is tempting to suppose that the Staked Enclosure refers to Chelborough Park for in medieval times this deer park was never embanked but was enclosed by a paling fence (Cantor and Wilson 1966, 183-185). Grundy (1935, 137) places the Hill of the Stake at ST533044 though this is not the summit of any elevated piece of land and it seems more likely that Chelborough Park itself was intended.

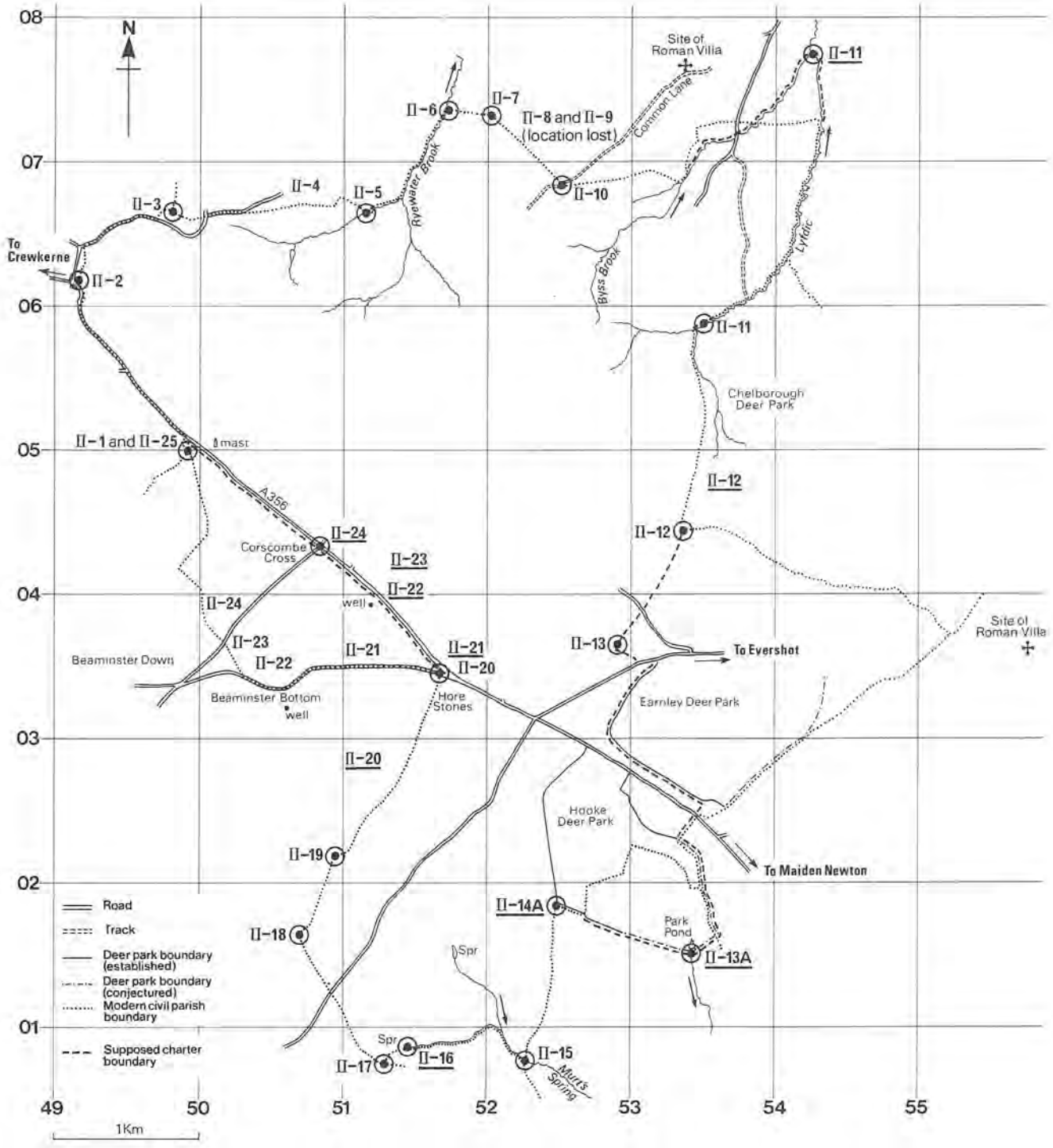


Figure 4. The boundary described in Charter II. Points which differ from those in Grundy's paper are underlined. The boundaries of Earnley and Hooke Deer Parks are marked. The supposed charter boundary is shown only where it differs from that of the modern civil parish.

II-13 Of stocchylle on fogga crundel eastpeardne

From Stake Hill to the east side of Fogga's Quarry

Fogga's Quarry is presumably the same as Focga's Quarry in the first charter. Arguments advanced in the discussion of landmark I-13 suggest a probable location of Focga's Quarry at ST529037 and today the field boundary runs between two quarry workings thereby implying that the one to the west of the fence is that mentioned in the charters.

The comments above made as a result of Drew's paper (1949) concerning another possible site for this landmark should nevertheless be borne in mind.

It is at this point that Grundy (1935, 138), apparently following Kemble's (1839-48) text, has inadvertently conflated the descriptions of the next two sections. Using the charter text published by O'Donovan (1988, 56) these may be rendered:

II-13AOf þam crundele forð be þyrtruman on þone fulan slo

Then on from that Quarry by the *wyrtruma* to the Foul Slough

II-14AOf þam slo forð be þyrtruman on brum dun middepearne

Then on from the Foul Slough by the *wyrtruma* to the middle of the side of Broom Hill

The word *wyrtruma* is given two meanings by Grundy (1935, 138). According to him it can mean either the edge of a wood on a slope where the tree roots show or the foot of the slope. The OE word *wyrtruma* means, literally, plant strength or plant wall and Rackham (1986, 82) drawing attention to the fact that a *wyrtruma* was nearly always at the edge of a wood, believes it to be the OE technical word for the woodbank which marked the edge of a wood.

The understanding of II-13A and II-14A presents some difficulty. From Fogga's Quarry at ST529037 the ancient hedge which has marked the boundary for some distance continues southwards interrupted only by Benville Lane at ST527034 and the A356 at ST527029. About 1200 m south of where it crosses the A356, the hedge meets the modern parish boundary at ST525019. This is apparently where Grundy (1935, 138) placed the "middle of the side of Broom Hill".

On the southern side of what is now the A356 this hedge corresponds to the western edge of Hooke medieval deer park (Cantor and Wilson 1961, 113-116) and, apart from the first 350 m, the hedge surmounts a bank 1 to 2 m high and up to 5 m wide which could be the remains of a *wyrtruma*. Earnley Park was on the northern side of the A356, a little to the east (Wilson 1972, 67-68).

If the *wyrtruma* of the charter were the boundaries of ancient woodlands which, in medieval times, became deer parks then it is difficult to see where the Foul Slough or marshy area of II-13A and II-14A could have been since the two parks lay on either side of the chalk ridge.

One possibility is that the boundary ran along the north-western and south-western edges of Earnley Park which are still marked by a fairly massive bank topped by a dense hedge, before crossing the crest of the ridge to the eastern side of Hooke Park and the lower lying ground around Park Pond (ST534016) which is certainly very marshy today and could well be the Foul Slough (II-13A). At this point, the boundary would then make a right-angle turn to the west and following the *wyrtruma*, which still exists as a very substantial bank, along the southern side of Hooke Park to Grundy's "middle of the side of Broom Hill" at ST525019 (II-14A). This 'solution' to this part of the charter appears plausible in that the landmarks mentioned, Fogga's Quarry, the Foul Slough and the middle of the side of Broom Hill, all correspond to the points at which the boundary undergoes abrupt changes of direction and this is our preferred route for the boundary.

II-15 Of brum dune on murtes pyll

From Broom Hill to Murt's Spring

Grundy (1935, 138) placed Broom Hill as "the top of the 700 ft. hill which stands NE of Toller Whelme". The 1946 edition of O.S. 1 inch to the mile Sheet 177 shows a spot height of 703 ft. (214 m) close to where the parish boundary crosses the A356 at ST535025. Landmark II-14A speaks of "the middle of the side of Broom Hill" and it has been argued above that this point is ST525019 where today the parish boundary turns south.

The supposed charter boundary has rejoined the present-day parish boundary 200 m east of this point and then continues with the parish boundary which then runs south on a substantial bank with a ditch on its eastern side as far as ST523008 where it turns west along a stream which Grundy (1935, 138) identified as Murt's Spring.

II-16 Of murtes pylle ongean stream on tollor æpylman

From Murt's Spring to the Great Spring at Toller

A better reading of the Old English might be "From Murt's Spring up against the Stream to the Great Spring at Toller".

The parish boundary follows Murt's Spring north-west to where it divides. The boundary then follows the more southerly branch past Pipsford Farm down to its source at ST515009 while the other branch comes down from a spring at Toller Whelme to the north. The name Toller Whelme is derived from OE meaning the source of the River Toller (Mills 1986, 146).

Either source could be the Great Spring referred to in the charter, but given that the parish boundary passes that at ST515009, this seems the more likely.

It must be remarked, however, that there are several springs in the area around Toller Whelme and Hooke and this makes it difficult to be certain which were intended by the Anglo-Saxon surveyor.

II-17 Of þam æpylman on cotte dene

From the Spring to Cotta's Dean

If the previous identification is correct, Cotta's Dean is the valley in which the spring rises about 250 m west of Pipsford Farm and today the parish boundary continues up this valley to join a bridleway at ST513008.

II-18 Of cotta dene æ rupan beorg

From Cotta's Dean to Rough Barrow

At ST513008 the boundary makes a right-angled turn and continues north-west along the bridleway to ST507016 where it turns north-east. About 200 m short of this turning-point at ST509015 Grinsell (1959, 66) noted a slight circular rise 16 paces in diameter and 1 foot high which may be all that remains of Rough Barrow.

II-19 Of þam beorge on rigcumb middepeardne

From the Barrow to the middle of Rye Combe

The parish boundary crosses the head of the valley in which Toller Whelme stands and this valley Grundy (1935, 138) believed was Rye Combe. Although there is a slight dog-leg in the parish boundary at ST509022 near the head of the valley, the boundary runs in a virtually straight line along a hedge for 2 km until it meets a minor road at ST517034 close to the Hore Stones. These ancient stones, perhaps boundary markers, are not, however, mentioned in either charter.

At ST517034, the parish boundary turns through 90° and runs almost due west along the north side of the minor road.

II-20 Of rigcumbe on gyrd lea middepeardne

From Rye Combe to the middle of Yard Lea

Grundy (1935, 138) placed Yard Lea at this 90° angle in the parish boundary at ST517034.

II-21 Of gyrd lea on þone stanigan peg

From Yard Lea to the Stony Way

Grundy (1935, 138) considered that the Stony Way was the Highway mentioned in I-16 of the earlier charter and goes on to say that the Stony Way is "the road which runs east and west about ¼ mile south of Hill Farm" (ST509039). As he plainly means the minor road from the Hore Stones to Beaminster Bottom, this statement is very hard to reconcile with his previous description of the highway quoted in the discussion of I-16.

According to this interpretation of II-20, Yard Lea (ST517034) actually stood on the Stony Way. If the latter was indeed the minor road, the whole of II-21 appears to be redundant, unless the scribe has mistakenly written 'to the Stony Way' instead of 'along the Stony Way'.

The minor road is certainly part of the Northern Trackway, an important very old long-distance route which entered Dorset near Ashmore in the north-east of the county eventually running through Evershot and Benville before crossing Beaminster Down and continuing westwards (Good 1966, 15). It would still have been a prominent feature in the landscape in Anglo-Saxon times.

II-22 Of þam pege on þone pæter pytt

From the Way to the Water Pit

The parish boundary leaves the minor road at ST503034 and turns north-west. It may be significant that a depression around ST502036 not far from the boundary is very wet, and Mrs. Eedle has drawn my attention to the fact that early editions of the O.S. 1 in 25000 map mark a well near Kitwhistle Farm (ST506032).

II-23 Of þam pytte on coccelmæres dene

From the Water Pit to Coccelmaer's Dean

Coccelmaer's Dean was not identified clearly by Grundy (1935, 139).

II-24 Of þære dene on earne dene

From the Dean to Eagle's Dean

As has been mentioned under I-1 Grundy (1935, 131) evidently placed

earne dene close to ST500040.

II-25 Of earne dene eft on hornes beorg

From the Dean once more to Horn's Barrow

If the Stony Way (II-21) is indeed the minor road through Beaminster Bottom not only does it make the solution proposed by Grundy (1935, 135) to the last parts of the first charter very difficult to follow, but it also means that three landmarks (II-22, II-23 and II-24) must all have been between the point at which the parish boundary leaves the road (ST503034) and Horn's Barrow (ST499050). As mentioned above, the Water Pit could well have been the declivity between the two minor roads at ST502036 but it is surprising that three landmarks should be mentioned in a relatively short (1.25 km) and straight section of the boundary.

There are thus considerable doubts about the line of the charter boundary proposed by Grundy (1935, 138-139) all the way from II-19 back to the starting point (II-1 and II-25). If it is accepted that his identification of the middle of Rye Combe (ST509022) and the Stony Way (ST517034) are correct, then Yard Lea must have been between these two points, its exact position now being lost. A well is marked on the O.S. 1 in 25000 map at ST512039 and it may be conjectured that the boundary ran from the Stony Way near to where the Hore Stones are today, along the very top of the ridge to the Water Pit (II-22), which might perhaps have been a dewpond, close to where the well is today.

It is almost certain that landmarks I-16 and II-24, both described as Eagle's Dean, are the same. In the discussion of the earlier charter, I-16 was placed near Corscombe Cross (ST508043) and this implies that Coccelmaer's Dean might be either the valley at the head of which Hill Farm (ST509039) stands today or more probably one of the deep valleys on the other side of the ridge whose heads are at approximately ST514043 and ST511045. From II-24 near Corscombe Cross the boundary would again have followed the crest of the ridge back to the starting point at Horn's Barrow, ST499050 (II-1 and II-25; also I-2).

Though this is admittedly somewhat speculative, it does provide a much more satisfactory identification of the various landmarks and is consistent with the proposed solution to Charter I.

Figure 4 shows the charter landmarks put forward by Grundy (1935) together with our preferred alternatives. It can be seen that we differ from Grundy in three places. First, as in Charter I, the Anglo-Saxon surveyor probably followed the Byss Brook from where he first met it, probably close to I-10 (ST533068), to its junction with the *lyfdic* at ST542077 and the present line of the parish boundary running west to east from ST534073 to ST543073 via the Boundary Stone dates from post-Saxon times.

Secondly, once the error in transcription after landmark II-13 is recognized, the line proposed by Grundy (1935) has to be disregarded and a new 'solution' has been put forward.

Thirdly, a new line for the final sections in the charter from II-21 onward is suggested. This is the same as that preferred for the corresponding part of Charter I and does not include the large loop of land south-west of the A356 around Beaminster Bottom which is now in Corscombe parish and was included by Grundy (1935) in both the charter land grants.

As with the first charter, the identified landmarks in Charter II all correspond to turning points in the perambulation or to major topographical features.

If we accept that the bounds described in this paper are broadly correct, then the area of land granted in the first charter is approximately 1160 hectares (2860 acres) while that in the second is 1600 hectares (3945 acres). Since the two charters give 13 and 16 hides respectively for these areas, this means that the area of one hide in the first charter is 220 acres and in the second 247 acres (Davidson, pers. comm.). This is considerably more than the 40 acres suggested by Tait (1902) for Dorset and roughly twice the 120 acre hide both Round and Maitland were in favour of in Dorset (Darby and Finn 1967, 80). However, it must be recognized that there was no standard size for the hide: it was simply the amount of land needed to maintain a ceorl's family with their servants and dependants (Sawyer 1978, 174) and as such it varied according to the nature of the holding.

The Halstock charter of 841 (Finberg 1964, no. 567; Sawyer 1968, no. 290) refers to a grant of 15 hides. Grundy (1936, 112-115) identified this land as being the present parish of Halstock immediately to the north of Corscombe, together with part of Closworth. The approximate area of the land in question is 1500 hectares (3700 acres) and this implies that one hide in this part of Dorset was roughly 250 acres in good agreement with the figure calculated from the Corscombe charters. A similar calculation for the Rimpton charters of 938 and 958 (Rimpton is about 16 km or 10 miles north-west of Corscombe and just over the county boundary in Somerset) leads to a value of close to 200 acres for one hide (Costen 1985). On the other hand the bounds of the Uplyme charter of 938 described by Fox (1970) enclose a hilly area in East Devon of approximately 1250 hectares (3090 acres) and since that grant refers to 6 hides, this means that one hide was approximately 500 acres in this case.

There is a further point worth mentioning. It is now accepted that there has been considerable continuity of occupation of land from the Roman era, or even earlier, through Saxon times and beyond (Taylor 1970; Fowler 1981; Aston 1985; Jones 1986 etc.). Many of the grants of land described in Anglo-Saxon charters have been shown to be based on Roman estates and in several cases the site of the Roman villa has been discovered. An example is provided by Halstock, immediately to the north of Corscombe, where a substantial Roman villa has been excavated at ST534075 (Lucas 1993) and the bounds of the Halstock charter of 841 are believed to correspond closely to those of the Roman estate (Lemmey n.d.). Likewise, just over the county boundary in Uplyme, O.S. maps show a Roman building in the land described by the charter of 938. On this basis, it might be expected that a Roman villa existed in Corscombe, but to date no significant finds from Roman times have been reported although a tessellated pavement suggesting the existence of a Roman villa was discovered in the neighbouring parish of Rampisham.

The author wishes to acknowledge many helpful discussions with W. Davidson, Esq. and Mrs. M. Eedle during the preparation of this paper.

Thanks are also due to those members of the West Dorset Local History Society who took part in the field-work and to the Committee of the Society for its encouragement to prepare this paper. The views expressed are, of course, the sole responsibility of the author.

Appendix I

The members of the West Dorset Local History Society who participated in the field-work which formed the basis of parts of this paper were:

Mrs. M. Eedle (Organiser), Mr. D. Grier, Mr. and Mrs. H. Livingstone, Mr. and Mrs. L. Manning, Dr. J. Barnard, Mr. and Mrs. W. Davidson, Mr. R. Jasper, Dr. and Mrs. A. Nineham, Mr. and Mrs. L. Burton, Mrs. N. Meadows-Taylor, Mr. E. Thornycroft, Miss J. Drewett, Mr. and Mrs. S. Hammond, Mrs F. McKenzie, Mr. and Mrs. J. Warwick, Mrs J. Coleberd, Mr. and Mrs. P.Sadler, Mr. and Mrs. J. Studd and Mr. J. Tobias.

Appendix II

The question of continuity of occupation of the countryside has absorbed many historians over the last thirty or so years and a considerable body of evidence has been accumulated which suggests that some boundaries might have been established in pre-Anglo-Saxon times (Hoskins 1955; Finberg 1959; Taylor 1970, 72-73; Bonney 1979; Fowler 1981; Aston 1985, 32-36; Jones 1986, 153). Lately this notion of the 'ancient estate' has received much less support and at a recent symposium (Hooke 1988a) many of the papers are concerned with change rather continuity.

Certainly the Anglo-Saxons did not enter an empty landscape and there is good evidence (Hall 1988) that in some places they occupied major Roman villas and farms, as well as founding new sites of their own. Sawyer (1978, 164) suggests that in the seventh century the basic units of rural organisation in England were large estates and although some survived more or less intact until the eleventh century, others had been greatly reduced or had even disappeared entirely. It is generally agreed that the nature and extent of estates in the early period of the settlement is likely to have been different from the pattern later on. Furthermore, there will have been differences between eastern England and the western side of the country where native Britons were in the majority: in short, no one explanation will fit all periods and all areas.

In some parts of Wessex, for example Central Berkshire, many of the estates granted in tenth century charters are co-incident with later parishes

(Hooke 1988c, 146). In particular for Dorset, Taylor (1970, 51-75) studied a large number of parishes and concluded that some of these land-units were in existence by the eleventh century and even earlier in some cases. In his view, since there is archaeological evidence of Romano-British occupation under some existing villages and hamlets, the whole pattern of settlement in this part of the country is likely to be Romano-British, or even Celtic, rather than Saxon in origin.

While in no case can it be convincingly argued that the boundary of a Romano-British estate has been established beyond dispute, there are places where there may be a direct link with the Roman period. One example of several in Dorset is Hinton St. Mary near Sturminster Newton where a substantial Roman villa with a mosaic dating from the fourth century has been discovered (Taylor 1970, 73). Halstock immediately to the north of Corscombe may be another (Taylor 1970, 73; Lemmey n.d.).

While a large Roman villa has been excavated at Halstock (Lucas 1993), there is no record of any substantial find of Roman material in Corscombe. The absence of any evidence of a Roman settlement there prompted a search of neighbouring parishes to see if any of them, in addition to Halstock, had Roman remains.

The 6" to one mile O.S. map marks a Roman tessellated pavement found in 1799 about 300 m due west of Slough Farm. Sheet 177 of the 1946 edition of the 1" to the mile O.S. map marks the same spot, ST558035, as the site of a Roman building. This was presumably a villa and its location raises interesting questions as to the extent of the associated estate.

To the east of the charter boundary proposed in this paper there are several places whose names recall those in the perambulation of Charter II. Thus at ST553055 there is Stake Farm with a prominent hill now known as Castle Hill just to the south-west (cf. II-12 and II-13) and Slough Farm is at ST561037 with Slough Drove and Slough Lane nearby (cf. II-13A and II-14A). Broomhill Farm (cf. II-14A and II-15) is at ST564025 while Yard Drove and Yard Lane (cf. II-20) are south-south-east of Benville at ST545032 and ST552031 respectively. Knapp Farm (ST544035) was formerly known as Yard Farm. The discovery of these names on the map together with the Roman villa nearby, causes one to speculate that the original Roman estate which may have formed the basis of the charter land grants perhaps included not only most of what is now Corscombe parish, but also large parts of East and West Chelborough and Rampisham parishes. A detailed study of both the maps and the terrain was carried out to see if evidence, other than the names mentioned above, could be found to support such a hypothesis. For example, consideration was given to streams other than the one already suggested being the *lyfdic*, hedge lines were examined for evidence of their antiquity, reasonable alternative locations for Fogga's Quarry were sought, and so on. However, after this detailed search no satisfactory alternative 'solution' to the charter boundaries can be put forward and we are forced to conclude that the similarity of the place-names outside the charter bounds has some other explanation.

BIBLIOGRAPHY

Aston, M., 1985, *Interpreting the Landscape.*

Bonney, D.J., 1979, 'Early Boundaries and Estates in Southern England', in Sawyer, P.H. (ed.), *English Medieval Settlements*, 41-51.

Campbell, A., 1972, *Enlarged Addenda and Corrigenda to An Anglo-Saxon Dictionary, Toller* (1898) (Oxford).

Cantor, L.M. and Wilson, D.J., 1961, 'Medieval Deer Parks of Dorset I', *Dorset Proceedings*, 83, 109-116.

Cantor, L.M. and Wilson, D.J., 1966, 'Medieval Deer Parks of Dorset VI', *Dorset Proceedings*, 88, 176-185.

Cochrane, C., 1969, *The Lost Roads of Wessex.*

Costen, M.D., 1985, 'Rimpton in Somerset - a late Saxon Estate', *Southern History*, 7, 13-24.

Darby, H.C. and Finn, R.W., 1967, The Domesday Geography of South-West England.

Drew, C.D., 1949, 'Earnley; a lost place-name recovered', *Dorset Proceedings*, 71, 84-87.

Eedle, M de G., 1984, *A History of Beaminster*, Chichester.

Ekwall, E., 1960, *The Concise Oxford Dictionary of English Place-Names*, 4th Edition.

Finberg, H.P.R., 1959, *Roman and Saxon Withington: a study in continuity*, Occasional Paper no. 8 Department of Local History, Leicester University.

Finberg, H.P.R., 1964, *Early Charters of Wessex* (Leicester).

Fowler, P.J., 1981, 'Agriculture and Rural Settlement' in Wilson, D.M., (ed.) *The Archaeology of Anglo-Saxon England* 23-48.

Fox, H.S.A., 1970, 'The Boundary of Uplyme', *Trans. Devon Association*, 102, 35-47.

Gelling, M., 1978, *Signposts to the Past.*

Good, R., 1966, *The Old Roads of Dorset* new enlarged ed. (Bournemouth).

Grinsell, L.V., 1959, *Dorset Barrows.*

Grundy, G.B., 1935, 'Saxon Charters of Dorset', *Dorset Proceedings* 57, 114-139.

Grundy, G.B., 1936, 'Saxon Charters of Dorset', *Dorset Proceedings*, 58, 103-136

Hall, D., 1988, 'The Late Saxon Countryside: Villages and their Fields' in Hooke, D. (ed.) *Anglo-Saxon Settlements* (Oxford), 99-122.

Hill, D., 1981, *An Atlas of Anglo-Saxon England* (Oxford).

Hooke, D., (ed.) 1988a, *Anglo-Saxon Settlements* (Oxford).

Hooke, D., 1988b, 'Intoduction: Later Anglo-Saxon England' in Hooke, D., (ed.) *Anglo-Saxon Settlements* (Oxford), 1-8.

Hooke, D., 1988c, 'Regional Variation in Southern and Central England in the Anglo-Saxon period and its Relationship to Land Units and Settlement' in Hooke, D., (ed.) *Anglo-Saxon Settlements* (Oxford) 123-151.

Hoskins, W.G., 1955, *The Making of the English Landscape.*

Hoskins, W.G., 1982, *Fieldwork in Local History*, 2nd edition.

Hoskins, W.G., 1984, *Local History in England*, 3rd edition.

Hutchins, J., 1863, *History and Antiquities of the County of Dorset* Vol. II 3rd edition, ed. and aug. Shipp, W. and Hodson, J.W.

Jones, M., 1986, *England before Domesday.*

Kemble, J.M., 1839-48, *Codex Diplomaticus Aevi Saxonici.*

Lemmey, P., n.d., *A History of Halstock* (Halstock).

Lucas, R.N., 1993, *The Romano-British Villa at Halstock, Dorset. Excavations 1967-1985* Dorset Natural History and Archaeological Society Monograph Series No. 13.

Mills, A.D., 1986, *Dorset Place-Names* (Wimborne).

Mills, A.D., 1991, *A Dictionary of English Place-Names* (Oxford).

O'Donovan, M.A., 1988, *Corpus of Anglo-Saxon Charters III Charters of Sherborne.*

Pearce, S.M., 1978, *The Kingdom of Dumnonia* (Padstow).

Rackham, O., 1986, *The History of the Countryside.*

Sawyer, P.H., 1978, *From Roman Britain to Norman England.*

Sawyer, P.H., 1988, *Anglo-Saxon Charters. An Annotated List and Bibliography*, Royal Historical Society Guides and Handbooks, No. 8.

Seymour, W.A., (ed.) 1980, *A History of the Ordnance Survey*, (Folkestone).

Stenton, F., 1971, *Anglo-Saxon England* (Oxford).

Tait, J., 1902, 'Large Hides and Small Hides', *English Historical Review*, 16, 280-2.

Taylor, C., 1970, *Dorset.*

Toller, T.N., (ed.) 1898, *An Anglo-Saxon Dictionary based on the manuscript collections of the late Joseph Bosworth* (Oxford).

Toller, T.N., (ed.) 1921, Supplement to the above.

Wilson, J.D., 1972, 'Medieval Deer Parks of Dorset XII', *Dorset Proceedings*, 94, 67-68.

Wright, G.N., 1988, *Roads and Trackways of Wessex*, (Ashbourne).

Some Anglo-Saxon charters and estates in South-East Dorset

DAVID A. HINTON

ABSTRACT

It is argued that Corfe may have been an important royal and ecclesiastical centre in the Anglo-Saxon period, but it is difficult to reconstruct the ownership and size of land units in present-day Corfe Castle and Worth Matravers parishes, from archaeology, charters, Domesday Book and retrospectively from map and tithe evidence. A new reconstruction of some Purbeck estates is attempted, and some possible evidence of forms of continuity through the first millennium A.D. is reviewed; it is suggested that a process of fragmentation of estates was largely halted by the Norman Conquest.

The Purbeck project organised by the Department of Archaeology, University of Southampton, has involved excavation and field survey of various kinds (Hinton and Peacock 1991; 1992; 1993). Discussed briefly in the first report was the possibility that Iron Age and Roman settlements worked land-units of which the boundaries may in some way have influenced those of the tenth and eleventh centuries (Hinton and Peacock 1991, 189-90). To investigate this theme further, the early medieval estates and boundaries of Corfe Castle and Worth Matravers parishes have been studied (Fig 1), and it can be argued that there was considerable fluidity in the composition of estates, with consequences for earlier interpretations (e.g. Taylor 1970, 59-62).

Parochial arrangements and royal interests

In the nineteenth century, the ecclesiastical parish of Corfe was much larger than its neighbours, and ran right across the Purbeck peninsula from the south coast at Encombe to the south shore of Poole Harbour (Hinton and Webster 1987, 52). This strongly suggests that it would once have had 'mother-church' status, its *parochia* covering the whole of south Purbeck before Worth (with Swanage) and others gained independence at unknown dates before 1291, when a papal taxation provides the first reliable full record of parish churches (Astle 1802).

Corfe's *parochia*, quite possibly itself a sub-division of Wareham's, might originally have been created for the church that was founded, according to the twelfth-century writer William of Malmesbury, by St Aldhelm while he was bishop of Sherborne in the early eighth century (Hamilton 1870, 363). This church was described as being two miles from the sea, near Wareham, where Corfe Castle stands out (*prominet*); although this suggests that the church was very close to the castle, making the present-day Church of St Edward the most likely site of Aldhelm's foundation, William also says that in his day the building was ruinous and used as a shelter by shepherds. If that information was accurate, St Edward's seems to be ruled out, since it is very unlikely that a church with parish responsibilities in the centre of Corfe would have been in such a state in the twelfth century. Later in the Middle Ages there was a chapel in Kingston, in the south part of Corfe parish, and this has been considered as a possible site for Aldhelm's church (Keen 1984, 213). If that were the case, any parochial rights would have been transferred to Corfe from Kingston. Recorded instances of such transferrals, however, usually involve places where the original sites can be recognized as having once been substantial, but which were subsequently overshadowed, as in the case of Basing and Basingstoke (Blair 1985, 136). Places named 'Kingston' have recently been studied by Bourne, who has shown that the great majority were secondary settlements within a royal estate (1988-9; for Corfe, 27); this would suggest that the king's *caput* was at Corfe rather than at Kingston, which would make the former a more likely location for a church founded by a bishop.

Another possibility is that Aldhelm's church was one of those *monasteria* that did not have parochial rights (Blair and Sharpe 1992, 5), and consequently fell into decay because it had no independent income, and was not associated with a royal estate centre. In that case, it need not have had any effect upon subsequent parochial territories. Yet another possibility arises from the occasional Dorset instances of churches overlying Roman villas, as at Winterborne Whitchurch, which imply the the use of some villa sites by ecclesiastical communities in and after the fifth century. Aldhelm might have transferred one such community from a Purbeck villa - so it was not actually the church which he dedicated that was ruinous in the twelfth century, but its predecessor, and William's information unfortunately conflated the two. Local familiarity with Roman ruins during Aldhelm's time is attested by the inscriptions at Wareham, which are all cut into Romano-British architectural fragments.

That Corfe church itself was the centre of the *parochia* from an early date is suggested by comparisons of its site to other 'mother-churches'. These are often prominently sited on the edge of a ridge, and have curvilinear boundaries (Blair 1992, 227-32 and fig 10.2). Although overshadowed now by the castle, Corfe church is nevertheless in a very visible place on the end of a plateau, and the northern side of its churchyard is noticeably curved in parts, despite building encroachments, and is similarly shown on Ralph Treswell's sixteenth-century map (Treswell 1585-6, fol 8).

Mother-churches were often built close to kings' residences; whatever its previous history, Corfe was a royal estate in the tenth century, as Anglo-Saxon grants, if genuine, attest. There are five charters which contain material relating to property units in Purbeck, four of which refer to land in what was Corfe ecclesiastical parish by 1291. One is the foundation charter of Milton Abbey, and purports to date from AD 934; it includes three hides given by the king at *Fromemuthe* (= Poole Harbour), two being on Green Island and one at Ower (Sawyer 1968, no 391; Sawyer numbers are used throughout the rest of this paper). This is clearly related to the manor of *Ora*, valued at three hides and owned by the abbey in 1066, recorded in Domesday Book (Williams 1968, 79, no 105). Three charters are from the cartulary of Shaftesbury Abbey. The first of these, Sawyer no 534, is a grant of *c* 948 made by King Eadred to Alfthryth, a 'religious woman', of eight hides which were *pars telluris Purbicinga*, 'part of the land of the men of Purbeck' (Mills 1977, 2), in exchange for sixty *mancusae* (a mancus was a unit usually of gold, and a considerable sum). The second Shaftesbury charter, no 573, has King Eadred, probably in 955, granting sixteen hides to his faithful thegn, Wihsige, at *Corf* and at *blechenhamwelle*; money is not mentioned. Wihtsige, presumably the same thegn, was the recipient in no 632 of seven hides at *Corf* and *blachenwelle* from King Eadwy in 956. The second place-name in these two grants is perpetuated by Blashenwell Farm, south of Kingston (Mills 1977, 8-9). The final Purbeck charter, no 1217, is for a three-hide estate called *Hreminescumbe*, given to Cerne Abbey in 987. Cerne owned *Romescumbe* in 1066 (Williams 1968, 77 no 91). This is clearly Renscombe, in Worth Matravers parish, adjacent to Corfe and a property still owned by the abbey at its dissolution.

Corfe is next mentioned in one version of the Anglo-Saxon Chronicle, according to which King Edward was martyred at *Corfesgeat* in 978/9 (Rollason 1989, 142-4). Events involving kings and princes tended to take place at or near a royal residence (Sawyer 1984, 276), and Edward may have been

intending to stay at a royal house or lodge while hunting on the Purbeck hills. This would imply either that part of Corfe had remained royal estate when the grants were made to Wihsige, or that he or his heirs had lost their holdings, which had reverted to the king.

Domesday Book records that in 1086 a manor called *Chingestone* (=Kingston) belonged to the abbess of Shaftesbury, valued in 1066 at sixteen hides (Williams 1968, 82-3 and no 134). The estate may have been acquired in expiation for King Edward's murder, and in acknowledgement of the abbey's receipt of his body. It is often assumed that the Alfthryth of charter no 534 was an earlier abbess, but, as will be shown below, at least part of the estate recorded as being purchased by her was granted to Wihsige in no 573, and there is no hint in the second charter that Shaftesbury retained a reversionary interest. In 1086, King William held one hide of the manor, where he built a castle called *Castellum Warham* in Domesday Book, but quite clearly Corfe - for which he gave Shaftesbury the church of Gillingham in exchange; one virgate, a very small unit, had been annexed by a baron, William de Braiose (Williams *ibid*). King William had probably in effect reclaimed for the Crown whatever residence was at Corfe, with a hide of land around it. There is some possibly pre-Conquest masonry at the castle, suggesting that the site was in use before 1066 (RCHM 1970, 57-8 and 69-70). Presumably the abbess's Domesday estate took its name from Kingston because, deprived of the hide around the new castle, it was no longer appropriate to call it 'Corfe' - and 'Blashenwell' was probably a smaller place even than Kingston.

The Shaftesbury charters

The only Purbeck charters to list estate boundaries are those in the Shaftesbury Cartulary (MS London, BL Harley 61), a manuscript ascribed to the early fifteenth century by Edwards (1988, 229) and Cook (1989, 29-30). Sawyer (1968), however, ascribed charter no 534 to the fifteenth century, nos 573 and 632 to the fourteenth, which are the dates also given by Mills (1977, 1, 5 and *passim*), but although the three charters are not on consecutive pages, the Harley 61 manuscript does not appear to have been compiled at different dates; it is consistent in the use of red ink for headings, for instance. There may have been more than one scribe involved, but if so, they seem to have been contemporaries, and all three charters are confidently written, though the lines in no 632 are not very straight. Doubts will be expressed about the reliability in particular of no 632, but at least it appears that its scribe in Harley 61 was a copyist, not a composer, when writing in the cartulary. The Old English boundaries have all been printed, no 534 and no 573 by Birch (1885-99, no 868 and no 910), with the Latin introductions. Number 573 was also printed by, among others, Kemble, a little less accurately (1839-48, no 435 - not no 433, as Sawyer 1968); he included the red-ink rubric, but at the end. He also printed the boundaries of no 632 as part of his no 435, under a heading of his own, *Aliae Divisiones*, with the rubric again at the end. This makes it appear that the two charters are consecutive in the manuscript, but they are in fact several pages apart. Number 632 was also printed by Earle (1888, no 13).

All three boundary lists were translated by Hutchins (Shipp and Hodson 1861, 511-3), and nos 534 and 573 were printed in abbreviated form in Old English, with translations, by Grundy (1935, 118-28 - no 573 has omissions). The names of the major places mentioned, and many of those of the boundary-points, were printed in Old English, and translated, by Mills (1977, 1, 5-33, 64).

As with anything surviving in a fifteenth-century manuscript which copies or purports to copy earlier documents, it is impossible to be certain of the authenticity or accuracy of every word or phrase. Occasional inaccuracies, or even forgeries, do not invalidate the whole of a text; discrepancies in charter dates or witness-lists do not necessarily negate the reliability of the bounds. There are problems with all three of the Shaftesbury charters (see eg Finberg 1964, 170, no 593; 170-1, no 596; 171, no 598), but the accuracy of the Old English boundaries is better treated independently of consideration of the Latin prolegomena and witness-lists.

Grundy discussed briefly the date when the charters were composed in the forms in which they were copied in the fifteenth century; his consideration of some of the spellings in no 534 suggested to him that they 'were in use as early as 1150, and may have been in use before that date' (1935, 118). For no 573, he therefore gave a date of *circa* 1150-1250 (*ibid*, 123). Other documents in Harley 61 were drawn up between 1089 and 1121, and there are charters that extend to the reign of King John (Cooke 1989). These dates suggest that the charters copied in Harley 61 were written in the twelfth century, but the words used then may have been slightly recast from earlier versions. A copyist has been unsure of the readings of at least two words in no 534 - in Harley 61, there is one 50mm space deliberately left blank after two letters, 'bl'; there is a space for about three letters in the next line before the word 'o11e', which may be accidental, but there is a deliberate gap of some thirteen letter spaces at the end of that line, after 'thane'. The blank after 'bl' can be reconstructed from no 573 as 'blechenhamwelle' or a variant spelling. What it suggests is that the copying scribe could not read the letters of the word, and did not recognize it as a name. An appropriate space for the missing letters was left, but the scribe later failed to make a connection between nos 534 and 573, and did not realize that the omission could be made good. That reconstruction suggests a scribe not totally sure of the correct readings, which seems to be confirmed by various misrenderings of the runic forms of 'th' and of 'w', and by confusions of 'b', 'r', 'n' etc. (Mills 1977, 14-15; Jackson 1984, 168, 169, 174).

In the translations below, Old English words, with modern letter-forms, are only printed if they are recognisable as names, or are words where different readings may be significant. Where Grundy (1935) and Mills (1977) have different translations, the latter's have been used without comment, except where the variation may be significant. In the Old English, singular and plural forms occur waywardly, and the translations give what seem to be the better sense in each case. *Dic* and variants have been rendered as 'dyke', since that can still mean either a bank or a ditch in modern terminology, although it tends now to be applied to bigger features than are likely to have been on the Saxon boundaries. *Weg* and variants have been translated as 'way', although it is unlikely that its meaning was any different from *path*, 'path', or *rod*, 'road'. Similarly, *broc* for 'brook' and *welles* for 'streams' are probably not significant differences, but unfortunately *welles* can also be 'springs' or 'wells' and a misreading of the first vowel can create a confusion with 'walls'.

In nos 534 and 573, the clause numbering is Grundy's (1935), except that, as he restarted at 1 for the western marks of no 534, 'i' has been prefixed to those to avoid confusion. Punctuation is modern.

Sawyer no 534

1) First from *wicanforth* (crossed *d* in MS creates *th*, but uncrossed *d* makes better sense, hence 'the ford of the dairy farms' (Grundy 1935, 118) or 'the ford over the River Wych' (Mills 1977, 18)) to *beam broc* ('the brook with a tree-trunk across it', Mills 1977, 31); 2) and then along the brook to a withy thicket; 3) across over the marsh to the *weilate* ('cross-ways'); 4) then to a stone; 5) from the stone to *alle thiscan* (discussed below); 6) from *alle discan* to a dyke; 7) then south along (the) dyke to the *here path* ('army path'); 8) from the *here path* south along the dyke to the combe; 9) then along the combe to the corner to *strut heardes* ('Struthgeard's') path; 10) from that path forward along the *welles* (stream(s)) to the western combe; 11) then down along the combe(s) to the brook; 12) then along the stream(s) to the *schort mannes pol werth ut on se* ('to Shortman's Pool forth(?) out to sea'). Then is this the western land boundary. i1) From the sea to a stone rock; i2) from that rock to the cliff upwards to a dyke; i3) then north along *safandune* (?'Juniper Down', Mills 1977, 32) to the straight *herepath* ('army-path'); i4) then north along (the) dyke to the *ealden stodfald* ('old horse-enclosure', Mills 1977, 30) eastwards; i5) then on to the *ealden hege rewe* ('old hedgerow'); i6) along the hedgerow to the dyke; i7) from the dyke to a *linc reawe* ('bank with a row [of trees etc.]', Mills 1977, 15-16); i8) from the *linche* to bl ..... (Blashenwell); i9) then along the brook to *olle discan* (see below); i10) from *olle discan* north over the ..... to *scyleford*; i11) then along the stream so that it comes again to *Wikenforde*.

Sawyer no 573

1) First from the sea to a dyke; 2) along the dyke up to *swuren* (Swyre) [Head]; 3) cross over Swyre to the cross-dyke; 4) from the dyke to the edge; 5) forward by the edge to *Alfricheswelle* ('Aelfric's Spring'); 6) from the spring to the way; 7) from the way to a dyke; 8) from the dyke north directly to *wicun*; 9) down along *wicum* stream; 10) from the stream to a thorn; 11) north along the dyke to a *walle* (wall, unless a miscopying of *welle*, spring); 12) along the wall to *stanwei* ('stony way'); 13) from the dyke to a dyke; 14) along the dyke due north to *wicum*; 15) down along the *wicum* stream; 16) from that stream to a thorn; 17) from that thorn to the *holendich* ('hollow dyke', or 'holly bank'); 18) along the dyke upwards directly through

the wood to the dyke to the *rupemor* ('rough moor'); 19) from the rough moor to the *crundel* ('quarry(-pit)'); 20) from the quarry up directly to the *holenbedde* ('holly bed or stump, or farm characterised by holly', Mills 1977, 31); 21) from the *holnebedde* to the *holne stoke* ('holly stake'); 22) from the stake to the stream; 23) along the stream to *auenes broc* (?'avon brook'. Grundy (1935, 124) omitted the passage from here to his next number), from the brook to the old way, along the way to *hecgan sled* ('valley with a hedge'), from the valley to the stream; 24) along the stream to the *stanene bregge* ('stone bridge'); 24) from the bridge to the way; 25) along the way straight to the *richt wei* ('straight way' or 'ridgeway'); 26) from the way to a stone wall; 27) from the wall straight down to *Wickenford*; 20) along *Wickenforde* straight up to *beambroc* (see no 534, 1 above); 29) so up along the stream; 30) from the stream to the *withi begh* (presumably 'withy-bed'); 31) from the *withibedde* to a stone; 32) from the stone to the other; 33) from the stone to hole Wicken (discussed below); 34) again to the stone; 35) from the stone to the old dyke; 36) along the dyke to the *wal* ('wall' or, if misrendered *wel*, 'stream', Mills 1977, 32); 37) along *welles* ('stream') to *struthgeardes cum* ('Struthgeard's combe') 38) along *welles* to *struthherdes wege* (Struthgeard's way) 39) from the way again to a *wal* (?wel); 40) along *welles* to *seven willes thry* ('seven springs trough'); 41) along (the) stream(s) out directly to *seortmannes pol*.

Sawyer no 632

These are the land-marks to Corf and to Blechenenwelle their seven hides. 1) First to *wikenforde*; 2) along *wiken* to *scylenforde*; 3) from *scylenforde* to *richt wege* ('straight way' or 'ridgeway'); 4) from the way to *olle discan* (see below); 5) then to *Blechene*; 6) from the *welle* ('spring', unless 'wall') to the *hlinc* ('bank'); 7) along the bank to a dyke; 8) then on to the old *rode* ('road'); 9) along the road to the old *stodfald* ('horse-field'); 10) from the field to a dyke; 11) south along the dyke to the *herepath* ('army-path'); 12) from the army-path south along *sawendune* ('Juniper Down') to a dyke 13); along the dyke to the cliff; 14) then out to sea. Then this is the western boundary. 15) From the sea to the *stod dic* ('stud dyke'); 16) then *be wertrumen* (either 'foot-(stock)' or 'on past near') to a stone wall 17) from the wall across over the small combe; 18) from the thorn upwards; 19) then on by *euisc* (?'the ivy-covered bank', Mills 1977, 31) to the northern stud-dyke; 20) from the dyke to a stone wall; 21) north along the wall to *stanweg* ('the stony way'); 22) along the way to a dyke; 23) then north along the dyke; 24) from the dyke to *wicean*; 25) from *wichen* to a thorn; 26) and then to a dyke; 27) from the dyke to a thorn; 28) and then north to iricht *wege* ('straight way' or ridgeway'); 29) from the way to Aelfstanes *path* ('Aelfstan's path'); 30) then past *eficlif* (?'ivy cliff) to aneres *broc* (?'avon brook'); 31) down along the brook to the *bige* ('bend'); 32) from the bend to a thorn; 33) then south directly to a moor; 34) down along the moor to *wicean*; 35) up along *wicean* again to *wichenforde*.

The names

Of all the boundary names in the three charters, the only one that seems indisputably to survive on a modern map in the same location as in the tenth century is *swuren* in no 573, clause 2, which indicates Swyre Head at NGR SY 934783. This is on the present-day ecclesiastical parish boundary between Corfe and Kimmeridge, which is also the boundary-line on the 1843 tithe map. It therefore shows that, here as so often, the nineteenth-century ecclesiastical parish relates in some way to a Saxon estate. if *bl* ..., no 534, i8 is to be reconstructed as *blechenhamwelle*, the name of one of the estate's components in no 573's prolegomen, it is remembered by Blashenwell Farm at SY 952803, although the farm is some 750 metres east of the parish boundary. It is presumably also the *Blechene* and *welle* of no 632, 5 and 6. Another 750 metres further east is Lynch Farm, which may owe its name to *linc reawe/linche* of no 534, i17 and i18, *hlinc* in 632, 6, despite its even greater distance from the parish boundary. Other names survive in later documents, but are not in modern use. For instance, alle *thiscan* and its several variants (no 534, 5 and 6, i9 and il0; no 573, 33; no 632, 4), are probably '011a's marshy meadow', preserved as Holewich, Hollwysh water, Hollish Furlong etc. until the nineteenth century, identified by Shipp and Hodson (1861, 511-2) and by Mills (1977, 14-15) as meadowland on the south bank of the small stream that runs along the south side of Corfe Common (approximately SY 955806). It must be a linear feature, as it occurs twice in no 534. The various streams and brooks are problematical. *Wican*, as in no 534, 1, may be the Corfe River, since this used to be called the Wych River (Mills 1977, 18). The name might, however, as Grundy suggested (1935, 118), be used of any stream that ran past a *wic*, or 'dairy farm'. *Beam broc* (no 534, 1; 573, 28) has no echo in later names; nor does *auenes broc* (no 573, 23), presumably the *aneres broc* of no 632, 30.

Other names have not survived, but some boundary points are unmistakable nevertheless; *schort mannes pol* (no 534, 12) and *seortmannes pol* (no 573, 41) cannot but be Chapman's Pool at SY 956770, and Struthgeard may have passed into oblivion, but the path and combe named after him (no 534, 9; no 573, 37 and 38) are clearly around where Swanworth Quarry has obliterated much of the local topography in Coombe Bottom, SY 968785. These places relate the charters again to an ecclesiastical parish boundary, that between Corfe and Worth Matravers.

Because Swyre Head and Chapman's Pool are both on parish boundaries (Fig 1), it cannot be assumed either that all the estate marker points can be located on them, or that the delineated land unit or units were co-extensive with the whole of Corfe parish. Equally, it cannot be assumed that Alfthryth's and Wihsige's estates were not the same because the former was valued at eight hides, the latter's at sixteen. Revisions were common, and the doubling of the assessment is more credible than is the odd figure of seven hides stated in no 632, although it would not have been unusual for a land-owner to have sought confirmation of his title to a holding from a new king. Alfthryth's charter has fewer boundary-points, but it is quite common for earlier charters to have fewer than later ones, so a land area of equal size is not precluded by that. Nevertheless, the charter boundaries do suggest that the estates were not exactly the same.

The boundaries: no 534

Grundy (1935, 118) located the first boundary-point in no 534 as being on the Corfe-Langton Matravers parish boundary, at SY 998808 (w on Fig 1), taking *wicanforth* as 'ford of the dairy farms'; this is plausible, as the Corfe-Swanage lane along the south of the chalk ridge might have needed to ford a ditch at this point, and the line of modern farms - Rickets, Knaveswell, Knitson - are all cattle-based to this day. Beam *broc* would thus be the south-flowing stream which the parish boundary follows down to its junction with an east-flowing stream, the 'brook' of clause 2, up which it runs through land where a withy thicket might well once have grown and which is still marshy (clauses 2 and 3) to just north of the cross-roads (*weilate*, clause 3), now Harman's Cross. The parish boundary continues westwards, picking up a west-flowing stream before turning due south. If Grundy were correct in these identifications, and if *alle thiscan* etc (no 534, 5) are Hollish, it has to be assumed that the stone of clause 4 marked the turn, and that the small stream was not mentioned. Having left the stone, the estate boundary would then have run with the parish boundary across Hollish Meadows at SY 973802, going south along a bank or ditch (clause 6) to the B3069, the 'army-path' of clause 7. Alternatives for the places referred to in these clauses are discussed below.

From the B3069, the estate boundary would seem to have been the parish boundary, as it continues south to the eastern arm of Combe Bottom. The parish boundary does not go straight down the combe, but climbs the western slope up onto Kingston Down, which it cuts across to near the top of a western combe (SY 960782), down which it descends to rejoin the main combe in Hill Bottom, and so out to sea. Struthgeard's path (clause 9) is probably the now-lost track from Renscombe to Kingston, a continuation of the Priest's Way, still partly recognisable within the fields (Good 1966, 119). The preceding corner would thus have marked where the boundary began to climb from Combe Bottom. From the path, a stream must be assumed at the head of the western combe, to explain clause 10, though there seems an unnecessary point here. A brook, as in clause 11, still runs down Hill Bottom to exit at Chapman's Pool.

Reconstruction of the western boundary of no 534 must depend largely upon the parish boundary and the line suggested by no 573. Presumably therefore it climbed from the sea just east of Rope Lake Hole at SY 927775 to cross over downland (*safandune*, clause i3) to reach the Kingston-Kimmeridge road, the here-path of clause i3. Difficulties begin soon afterwards: the 'old horse-enclosure' (clause i4) seems to have survived as a field name until the eighteenth century, but cannot now be precisely located (Mills 1977, 30). The most probable explanation is that the estate line and the parish boundary diverge, with the former running eastwards from somewhere around SY 944804, following a lynchet, the *linc reawe* of clause i7, approximately along the 200 foot contour to Blashenwell, represented by *bl*... in i8: this lynchet was perhaps long enough and prominent enough to give its name to Lynch Farm further to the east. The estate boundary then seems to follow the brook, as in clause i9, from Blashenwell northwards down to Corfe Common, where it joins the stream recognized as Hollish Water (the *olle discan* of i9 and il0).

It then ran north, to a point which the Harley 61 scribe did not fill in. As the preposition is 'over', as is used in the sense of 'across marshland' in clause 3, 'across marsh' is a plausible guess, and there is damp ground where the Blashenwell stream joins the 'Hollish', but 'way' is an alternative suggested from no 632, clause 3 (below). That would mean that either the Hollish stream or a track was followed approximately northwards to a point called *scyleford* (il0). This seems likely to be the *Shulford* (Old English *sc*, pronounced *sh*) given as one of the boundaries of the Corfe town liberty set out in 1381, which has 'to the water running from Blashenwell' as one of its markers, and, a little later, 'thence by la Lesedyche to Shulford, and so continuously by the waters called Wychewater and Holewysshewater, following the stream to Spadefordbrugge' (Shipp and Hodson 1861, 511-2). Mills (1977, 18) suggested that Spadeford Bridge is an early name for St Edward's Bridge, where the A351 crosses the Corfe River (SY 959824), and that this in turn had supplanted 'Wych-ford' - *Wikenforde* of no 534, clause ill. This would make the stream (il1) leading to the ford the Wych/Corfe river, and *scyleford* somewhere further up it, which seems consistent with the 1381 boundary.

That reconstruction is not, of course, consistent with Grundy's; in order to reconcile a *wicanford/Wikenforde* with a location near Knaveswell Farm, he proposed an entirely different line from Blashenwell (i8), taking the brook of i9 to be the 'Hollishwaters' stream, to be followed eastwards to watermeadows (i9 and il0) east of Corfe Common and on to somewhere near Little Woolgarston: *scyleford* thus had to be near Westwood Farm, some 1,300 metres further east, with a similar distance to go to reach his location for *wicanford*. These hops would be far longer than any others in the boundary, and would be implausible even without the *scyleford*/Shulford identification.

If 'Wychford' was just outside Corfe, not near Knitson Farm, alternatives for the boundary points in the early clauses of no 534 need to be suggested. *Beam broc* (clause 1) is presumably not just another alternative name for the Corfe River, but might be the stream that runs round the east side of the castle hill, known in the nineteenth century as Byle Brook (eg Ordnance Survey 1st edition). The withy thicket of clause 2 might be anywhere in fairly damp ground, and there is such land, which might also be the marsh that had to be crossed, on the south-east side of Corfe Common. The crossroads of clause 3 might relate to a track north from Afflington to the modern A351, rerouted in the last century by the railway, and the minor right of way south from Little Woolgarston. Clause 4's stone might have been at the point where the parish boundary turns north to climb towards Worth, and would therefore be at the same spot as Grundy's reconstruction suggested. From then on, therefore, the line would climb up to the Kingston road, and then head for Combe Bottom. Another line, west of Afflington, is considered below.

The boundaries: no 573

The boundaries in the second charter, no 573, begin at the sea on the west. The dyke of clause 1 would seem to be the curving hedge-line from east of Rope Lake Hole up to Swyre Head (2), followed by the ecclesiastical parish boundary. The parish boundary is then marked by fences and walls, none now with a significant bank beneath or ditch alongside. It runs parallel to the most obvious break of slope ('edge', 4) overlooking Encombe. There are springs still shown on modern maps along here, but none now remembers Aelfric (5). The 'way' of 6 is presumably the 'army-path' of no 534, i3, the Kingston - Kimmeridge road. Soon afterwards, however, the two charters appear to diverge, for no 573 demands a direct line north to *wicun* and then along the *wicum* stream (clauses 8 and 9), with no hint of turning off along lynchets to Blashenwell (no 534, i7 and i8). Number 573 is clearly going with the parish boundary, past Orchard Hill Farm and East Orchard Farm, to meet the Corfe River - the *wicun* stream - south of Bucknowle. The parish boundary follows the river eastwards for a time, veering north again overland east of Bucknowle - there might have been a thorn here (clause 10), and there is certainly a field boundary that takes the line northward (clause 11) to cross the Corfe-Church Knowle road, perhaps the 'stony way' of clause 12. The next three clauses, as Grundy noted, make no sense and obviously involve careless repetition of clauses 7 to 10. That leaves clause 17 to pick up the thread again; 'hollow dyke' may refer to the prehistoric earthworks on Knowle Hill, which the parish boundary crosses at SY 944824. It then descends steeply through Norden Wood, a description that suits clause 18's reference to 'directly' and 'through' 'the wood', though not its 'upwards'. Nevertheless, consonance is strongly suggested by the next marker, 'rough moor', since the heathlands begin at the bottom of Knowle Hill. An old clay-pit, a residue of the Roman pottery industry (eg Sunter and Woodward 1987, 16-20), might well have been the *crundel* of clause 19, now obliterated by modern workings.

So far, these boundary points are fairly uncontroversial. The rest of the charter is much more problematical, partly because it now must run through heathland with less likelihood of clear-cut reference points, and partly because clauses 27 and 28 name *Wickenford* and *beam broc*, which are likely to be the same locations as those in charter no 534's clauses 1 and ill, and clause 33 has *hole Wicken*, a probable variant of Hollish. From clause 35, it is fairly clear that the same line is being followed as in no 534 clauses 8 to 12, though there is no mention of the Swanage - Kingston road. Roads are mentioned, in clauses 23, 24 and 25, with the ridgeway along Rollington Hill and Brenscombe Hill seemingly the best candidate for the *richt wei* of 25.

Grundy saw no reason to doubt that the parish boundary was followed throughout the charter. After threading its way across the heath by means of a small stream through Langton Wallis Heath, the parish boundary comes again to the Corfe River which it follows into Poole Harbour. It rejoins the land at Newton Bay, follows a stream southwards between Rempstone Heath and Newton Heath, and thus to the Corfe - Studland road (SY 996819). The charter has a 'stone bridge' (clause 24), which Grundy would locate near here. The parish boundary then follows a track up through Rempstone Wood onto Ailwood Down. Grundy would have the ridgeway (clause 25) crossed at approximately SZ 001814, then a stone wall (26) followed down to his choice of *Wickenford* west of modern Knaveswell. The only objections to this, apart from the Wickenford identification, are that it would include Milton Abbey's land at Ower, if charter no 391 is reliable; that the Poole Harbour exit and entry might be expected to have been more clearly signalled, since the sea is explicitly mentioned at the beginning; and that there seems no need for a stone bridge, because the parish boundary is following a ridge as it crosses the Corfe-Studland road. Grundy's omissions in clause 23 are not important since he did not try to locate any of the land-marks in that area.

As in no 534, so in no 573, *Wickenford* is succeeded by *beambroc*, and Grundy saw the boundaries from there on as being those that he had outlined for no 534. Number 573 does state that it goes 'up' to the brook, and 'up along' the stream, but this need not necessarily indicate the direction of the water's flow. Withy-beds and stones (31-33) would not be identifiable: *hole Wicken* is reached without a clear-cut preceding marker. Consequently, the alternative interpretation that sees the *beambroc* in no 534 as the Byle Brook on the east side of Corfe remains just as likely, and better fits the 'up along' and 'up' of clauses 28 and 29.

Since the repetition of clauses 7-10 by 13-16 shows that there was considerable carelessness in some stage of the transcription of no 573, it may be impossible to make sense of the clauses that lead up to clause 27's *Wickenford*. Various permutations of ridgeways, streams and tracks can be considered, and it is tempting to relate the 'stone bridge' of clause 24 to Spadeford/St Edward's Bridge, but that would involve rejecting the latter's identification with the *Wickenforde* of clause 27. If a line across Norden Heath from the 'quarry-pit' of 19 was marked by hollies, the stream of 22 would be the one followed north-eastwards by the parish boundary until just before it joins the Corfe River. If *auenes broc* (23) were the ditch that runs into the Corfe from the north at about SY 965846, the 'old way' (23) would be the little bit of track followed by the parish boundary northwards, before it turns east again (with South Middlebere as the 'valley with a hedge', 23) to meet up with the Corfe River, which would be the stream of clauses 23 and 24. Here it is necessary for the estate boundary to have separated from the parish boundary if it were to attain St Edward's Bridge. References to a bridge, roads and a wall suggest that the Corfe was not being followed, but these features do not seem to have left obvious traces in later topography. It is just possible that the 'stone bridge' was at Sharford Bridge (SY 965847), the 'way' of clauses 24 and 25 a track across Wych Heath to the road which in the last century led to the ferry at Wych Passage- but it is not very straight (clause 25), and needs no stone wall (26) to link it to a 'Wickenford' at St Edward's Bridge.

An alternative is to locate the 'stone bridge' at a lost location on the Corfe River, perhaps at Arfleet Mill at SY 962828 (Mills 1977, 7-8). First recorded in the thirteenth century, this must at least have had tracks leading to it, one of which might be the 'way' of clauses 24 and 25, leading south to join the B3351, though this could hardly have been described as 'straight' (clause 25). Why a stone wall (clause 26) should have been needed to link it to the Corfe River at Saint Edward's Bridge/Wickenford is unclear. A crumb of support is given to this reconstruction by one of Treswell's maps, which shows four

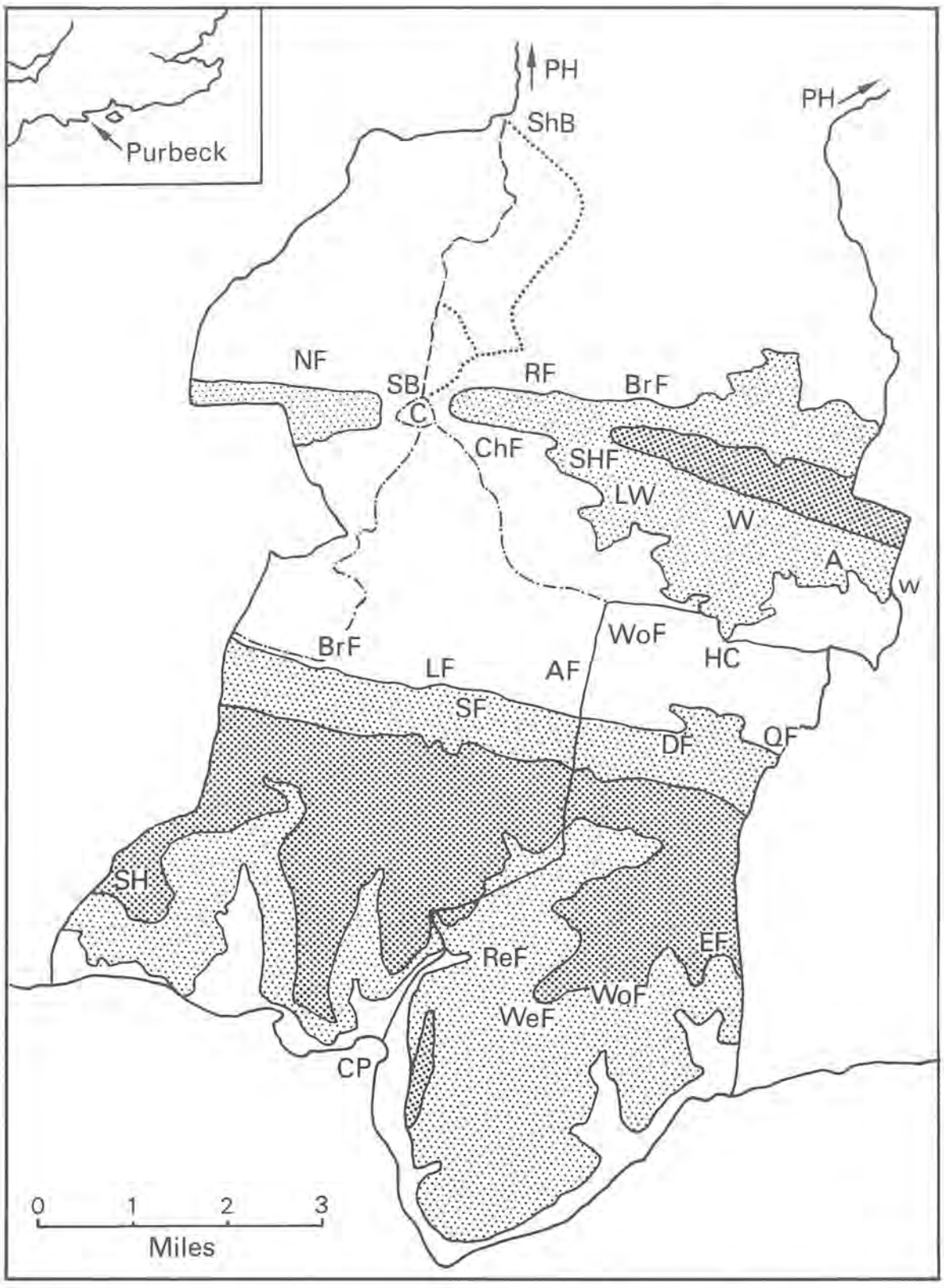


Figure 1. Corfe (excluding north part) and Worth Matravers. Nineteenth-century ecclesiastical parish boundaries: continuous lines; putative line of charter no 534, where different from parish: dash-dot lines; Corfe River north of Corfe: dashed line; alternative putative lines of charter no 573, where different from parish or no 534, dotted lines. Land over 200 feet: oblique lines; land over 400 feet, hatched lines. Letters: A, Ailwood Farm; AF, Afflington Farm; BF, Blashenwell Farm; BrF, Brenscombe Farm; C, Corfe; CP, Chapmans Pool; ChF, Challows Farm; DF, Downshay Farm; EF, Eastington Farm; HC, Harmans Cross; LF, Lynch Farm; LW, Little Woolgarston; NF, Norden Farm; PH, to Poole Harbour; QF, Quarr Farm; RF, Rollington Farm; ReF, Renscombe Farm; SB, St Edward's Bridge; SF, Scoles Farm; SH, Swyre Head; SHF, Sandy Hill Farm; ShB, Sharford Bridge; W, Woolgarston; WF, Worth Farm, WeF, Weston Farm; WoF, Woodyhyde Farm; w, Grundy's location of wicanford.

small fields in this area as 'adjacent' to the castle (1585-6, fol 5), the only ones which he surveyed east of the Corfe. In 1843, fields here were still owned separately from Rollington and Bushey Farms, which worked all the rest of the land north of East Hill (Tithe apportionment, DRO T/COC).

Number 632

Wikenforde is the first point in the third charter, no 632. From there, it proceeds to *scylenforde* which reveals that it is going anti-clockwise round the estate. There is no obvious 'straight way' (clause 3) leading from Corfe River to Hollish meadows (4), although the ford might imply one; no 534, clause il0 has a blank space in this equivalent point. The two elements of Blashenwell (*Blechene*, 5; *welle*, 6) imply southwards progression to the presumed lynchet along the 200-foot contour (*hlinc*), which it follows to the west before picking up the parish boundary at around SY 944804. The old *rode* (8) to be followed looks suspiciously as though it is a misreading of the old (hedge) *rewe* of no 534 clause i5, before reaching the horsefield (cf no 534, clause i4). It then turns south to follow a dyke to the *herepath* (cf no 534, clauses i3 and i4), to *Sawendune*, a dyke, the cliff and the sea (cf no 534, clause il - i3).

The eastern boundary of no 632 (which calls it 'western'), ie between Corfe and Renscombe, does not relate directly either to no 534 or to no 573. The 'small' combe (clause 17) might be the western combe of no 534, 10, but the 'stud-dyke' and *euisc* ('ivy-covered' bank) of clauses 15 and 19 have no equivalent. It simply reads like a jumble of thorn-bushes, dykes and stones, interspersed with paths and streams which borrow or alter names in no 573 - 'stony way', 'straight way', *aneres broc* -'Aelfstan's path' (clause 29) looks like an echo of Aelfric's well (no 573, clause 5). In effect, the charter seems to be a reasonably clever re-rendering of no 534 for its first part, with a miscellany for its second, composed by a scribe who did not know the terrain and did not realize how implausible it would be to create a counter-revolutionary set of bounds. The only significant point may be the rendering of a *wege* in the Shulford area.

Further reason to doubt the validity of no 632 is its ascription to the estate of only seven hides. There is a suspicious echo here of another series of Shaftesbury charters in Harley 61 relating to Dorset estates, around Cheselbourne, which includes grants of eight and of seven hides to another 'religious woman', Wynflaed (Sawyer no 485). Here, too, a layman subsequently had a sixteen-hide unit (no 955). A dispute over tenure was settled in Shaftesbury's favour, according to Domesday Book, although the abbey was not successful in all such matters (Williams 1968, 43). These affairs supply a motive for invention, to provide documents to use should there be a problem over Kingston. But even if no 632 is a concoction, nos 534 and 573 need not be totally discredited with it. Indeed, the identification of some at least of their boundary-points is an argument in their favour. A fabricator with no early material to draw upon, and who clearly did not know the local terrain or a better job would have been done on no 632, could not have produced something which in parts at least seems to make sense.

The estates in Corfe

The reconstructions of charters no 534 and no 573 suggest that Wihsige acquired Alfthryth's eight-hide estate, and also a strip west of Kingston and a large block north of the Corfe River and the Corfe gap. Hence, perhaps, the two different names, Corfe and Blashenwell, used in the prolegomen, for the two main units were recognisably discrete albeit contiguous. The reconstructions also suggest that Corfe's ecclesiastical boundaries and the estates' boundaries were the same for part of their lengths, but that the land units did not involve the whole of the parish. This must have been true also in 1066: Domesday Book records several manors that can be located in Corfe parish, in addition to the abbess's *Chingestone* (Kingston) and Milton's *Ora* (Ower). *Alvronetune* was the name given to each of five different manors, taken to be represented by the modern Afflington, north-east of Kingston; some were quite large, others small (2 hides, 1¾ virgates: *ibid* 96 no 311; 2 hides, *ibid* 89, no 236; 3½ virgates, *ibid* 95, no 290; ½ hide, *ibid* 89, no 237; 1 virgate, *ibid* 114, no 510). One of them was held in 1066 by Alveron, who is presumed to have been the eponym: if so, she or her heirs broke up the estate not long before the conquest. There were also several manors along either side of the chalk ridge east of Corfe: *Aleoude*, quite a large holding at just under five hides, is taken to be Ailwood *(ibid* 112, no 482), the name of the down west of the parish boundary. Ailwood Farm is on the south side of the down, next to Rickets Farm, and Ailwood Copse is to the south. *Orgarestone*, a holding of just under two hides, is usually taken to be Woolgarston (*ibid* 95, no 297), west of Ailwood; in 1066, it had been held by five thegns. *Ragintone*, two and a half hides less one virgate, had been held then by as many as nine thegns; this is thought to be Rollington, now a farm and land on the north side of the ridge, east of Corfe. Next to it is Brenscombe Farm, assumed to be the single-virgate of *Brunecume* (*ibid* 109, no 420). Brenscombe Hill adjoins Ailwood Down.

Some idea of the physical extent of Shaftesbury's 1066 Kingston estate can be derived from later documents. At the Dissolution, the abbey's lands in Corfe ecclesiastical parish included Encombe and West Hill Farm, south of Kingston, Blashenwell and probably Scoles and Lynch Farms, to the north, Kingston Common Farm east of Bucknowle, and Norden Farm (Shipp and Hodson 1861, 514-27). Apart perhaps from the four small fields near Arfleet Mill, there seem to have been no lands east of the Corfe River north of the East Hill - Ailwood ridge, nor on its south side. Also attached to the manor were salt-works at Arne (Keen 1987, 26), and land at Swalland Farm (Shipp and Hodson 1861, 520), in Kimmeridge ecclesiastical parish but in 1790 part of Corfe civil parish (Mills 1977, 84). Combined with the Domesday Book evidence, this strongly suggests that the Shaftesbury 1066 estate contained most if not all of the land which had belonged to Wihsige. If his estate had included a large part of Wych Heath, east of the Corfe River, Shaftesbury does not seem to have had any claim to it, which might suggest that the Corfe was indeed no 573's boundary in that area. Afflington is more problematical: for what it is worth, Treswell's general map of Purbeck (1585-6, fol 3) shows the late sixteenth-century estate having its northern boundary well south of Byle Brook, i.e. probably at 'Hollish'; but since he locates Woolgarston, Downshay and other places too far south in relation to the Byle and to Afflington, this is not very good evidence. He shows a curved south-western boundary, which may have some validity, as in 1843 Afflington Farm's boundary with Kingston Farm ran northwards up the western arm of Combe Bottom, and the line then curved up to the B3069. The tithe apportionment then shows the division between Scoles Farm, with Afflington land extending to the Byle Brook, its northern boundary - its eastern was the Corfe parish line. This is relevant to both charters no 534 and no 573. Their line from 'beam brook' (Byle Brook) past a 'cross-roads' to reach 'Struthgeard's path' is not sufficiently well defined for it to be certain that it is the parish and not the putative Afflington boundary that is being followed. If it was the parish boundary, the Afflington land had been part of Wihsige's sixteen-hide estate, and Shaftesbury received no tax alleviation for its exclusion from *Chingestone*, also rated in 1066 at sixteen hides. Even if that rating already included one hide at Arne, as Keen suggested (1987, 26), rather than that the estate was valued at sixteen hides before William I removed one hide from it, there would be a considerable discrepancy between the tenth- and eleventh-century valuations, since the Afflington manors totalled over five hides altogether - but their removal either did not affect, or had only slightly affected, the Kingston rating. In effect, there would have been a hidden tax increase before 1066 - whereas in the next twenty years there was a visible one, as the estate's annual render was raised from £16 to £23.

Worth estates

Turning to Worth, there are five Domesday manors usually identified as being in the western part of the parish (Swanage being its eastern division). One was Cerne's *Romescumbe* (Renscombe), valued at five hides one virgate (Williams 1968,

77 no 91); three were called *Orde*, valued at sixteen and a half hides, half a virgate (*ibid* 99 no 330), at three virgates (*ibid* 109 no 418), and at half a hide (*ibid* 99 no 332). It may be that either or both of the manors called *Torne* were in Worth, but cannot be located (*ibid* 109, nos 419-20); other parcels of land stated to be in Purbeck could of course have been in Worth, Corfe or any other parish (Williams 1968, 137). At first glance, it would seem that Cerne Abbey's *Romescumbe*. like Shaftesbury's Kingston, had had an assessment increase, from the three hides of charter no 1217 to five hides, one virgate (Williams 1968, 77 no 91). The manor also seems to have been disadvantageously taxed in cash, since it paid £8 annually, when £1 per hide seems to have been the Dorset base-line (*ibid*, 12). One of the quirks of Domesday's arithmetic is that the manor was said to have five hides and one virgate in land, with two hides and three virgates in demesne, and three hides and one virgate held by villagers - which totals six hides, or three virgates too many!

Renscombe's western boundary in the eleventh century was presumably the estate/parish boundary of charters no 534 and no 573. The eastern boundary as it existed in the eighteenth century is shown on an estate map (DRO Dl/Fry/l1/12). It ran from the sea to Combe Bottom, and, as was pointed out by the RCHM (1970, 413-4), can still be traced by an almost continuous straight wall 'occasionally supplemented by traces of banks and scarps', except at its north end where it dips into the combe. As Cerne's estate was always in different ownership from its neighbours to the east, there is a very good chance that the boundary has not changed since the early Middle Ages.

The land area of Renscombe Farm in Worth is about 730 modern acres (RCHM 1970, 413). This is very different from what Domesday allows to be computed: 1,200 acres of pasture, twelve of meadow (Keen 1991, 11) and fifty of 'unfruitful woodland' - a fair description of the modern furze in Combe (Hill) Bottom, where no tall timber grows, let alone oak trees to provide pig mast (Williams 1968, 20). Furthermore, these figures are only for the two hides and three virgates of Romescumbe that were in demesne: present-day Renscombe seems to have too little land for the Domesday demesne farm, far too little for the tenants as well. The manor may have included some bits of land that were physically separate, just as Kingston included Shaftesbury's hide at Arne in the twelfth century if not before, and Cerne did indeed own various parcels on Purbeck at the Dissolution (a four-acre detached portion seven miles away belonged to the eighteenth-century estate), but whether any already belonged to the abbey in the eleventh century is unknown. It is unlikely, however, that they would have amounted to the full two hides one virgate/three hides increase. The manor does seem to represent a good example of the irreconcilability of Domesday and modern acreages (Darby 1967, 100-7).

Renscombe's eastern neighbour is Weston Farm. This was mapped in 1772 by Samuel Donne, when it had recently been bought by the owner of the next estate, Worth Farm, and he showed a fairly clear boundary between the two, running almost continuously north from the sea (DRO, D86/E16, nos 14 and 15). This, however, disguises that Weston Farm had had two distinct parts, in 1772 recently amalgamated (Shipp and Hodson 1861, 696). The RCHM assumed that the whole strip was one of the *Orde* (Worth) manors of 1066; but if so, it was somewhat undervalued in relation to Renscombe, for it is about a third of the latter's modern acreage, but the *Orde* units seem either too big, at over sixteen hides, or too small, at three virgates, and half a hide. The three-virgate *Orde* might have been that part of Weston which in the fourteenth century was the three-virgate Montacute holding (Shipp and Hodson 1861,696), but the usual attribution is to Woodyhyde, in the north-west of Worth parish, a name derived from 'widow's hide' and taken to refer to the 1086 owner, the relict of Hugh FitzGrip (Mills 1977, 66).

The RCHM also assumed that Eastington, on the other side of the parish, was one of the *Orde* manors, but this is even less likely, as its later medieval size was bigger than Weston's. Christchurch Priory had a one and a half hide estate there in the thirteenth century (Shipp and Hodson 1861, 696-7). It became a manor in its own right, and eventually passed into the ownership of Sir Christopher Hatton, so was mapped in detail by Treswell (1585-6, fol 31). He shows a sinuous boundary with 'Worthe' from the sea, as far as the limestone plateau. The north end of the estate, at the Kingston-Swanage road, was narrower than further south. Its eastern boundary was clearly the Langton parish boundary. Some land at 'Heycrofts', north of the road, went with it.

As well as showing all the details of Eastington and Langton Wallis manors, Treswell indicated which neighbouring fields in Worth then belonged with which estate, as far west as Haycrafts Lane. At that time, land belonging to Worth manor lay on either side of the road at Harman's Cross, as far north as the parish boundary, with Quarr occupying the north-east corner; Worth 'bracketed' fields belonging to 'Haycroft', east of the Lane. Donne in 1772 also showed Worth having fields around Harman's Cross - Quarr might on that evidence represent the smallest of the three 'Worth' manors of 1086, though Downshay, west of the Lane and later a tithing if not a manor in its own right, is a viable alternative. On the other hand, there may be no modern equivalent of that manor: in 1086, Roger of Arundel held its half hide, and he also held the biggest *Orde* manor, so he or a successor might simply have amalgamated them.

As well as the land east of Harman's Cross, both Treswell and Donne placed Worth farm land on the north side of the Kingston - Swanage road, and Donne shows it as having fields also on the south side, and to the west of Haycrafts Lane at Harman's Cross. This evidence combines to suggest that the biggest *Orde* manor, Roger of Arundel's of over sixteen hides, had land that extended from the sea right up to the northern parish boundary. It is worth noting that Roger, according to Domesday Book, was grazing 250 wethers on his demesne two hides one virgate - the same number of sheep as Cerne had on its three-virgate larger *Romescumbe*, but which suggests that their farm was not seriously understocked by their immediate neighbour's standard (cf Keen 1991, 12: Cerne had 250 sheep on its Kimmeridge demesne of two hides, two and a half virgates, which suggests similar stocking rather than overstocking. It is not possible to compare these figures to Kingston, for which the Exeter Domesday Book does not exist; the Exchequer Domesday Book does not tell the animal numbers. Nor, in Kingston's case, does it record any woodland, even though the estate must have had more than Worth, where there were seven by seven furlongs, since it would have had some on both sides of the ridge west of the Corfe gap, as well as on the south slope of the limestone and in the clay vale next to where Worth's is most likely to have been.)

Reconstructions

At the north end of Worth, the small sizes of Woodyhyde, Quarr and other farms probably means that a great deal of unrecorded sub-division, amalgamation and exchange of small plots of land is likely always to have taken place: the evidence of Haycroft's fields suggests that they were taken out of Worth manor land when Eastington became a separate estate. The local picture would be confused further by the extensive working of the Purbeck Marble veins on the south side of the valley, for which new access-routes must have cut through many existing fields. Consequently, any attempt to reconstruct medieval boundaries from even sixteenth-century evidence is problematical. Unfortunately, the technique of dating field-boundaries by counting the number of different species in their hedges is less applicable where long-term stability is unlikely. In any case, on Purbeck the counts have been shown to be more affected by geology than any other factor (Moore,

Hooper and Davis 1967, 206). The age of the parish boundaries on the limestone would not be distinguishable from potentially younger boundaries between farms, for instance: if Weston and Eastington had been detached from Worth after, rather than before, the Norman Conquest, this would not be revealed by a species count.

It is important to stress that a farm unit is not the same as an estate. Weston and Eastington might have existed as farms in the eleventh century, but have been part of the largest of the 'Worth' manors: so there may have been boundaries already existing before legal separation. Nevertheless, it is incorrect to say that 'Saxon estates' in Corfe and Worth have boundaries 'still marked on the ground' - or even recognisable on early maps - by continuous lines (Taylor 1970, 62; see Fig 2). In more detail, Taylor's reconstructions cannot be justified. Shaftesbury's late Saxon Kingston estate may have been run as a number of separate farms, but the divisions between them are unrecognisable, and it is not known if, for instance, Westhill was run as part of Encombe or Kingston. Indeed, it could not be proved that Swalland Farm was not already part of the estate, from the evidence of its boundaries. The parish boundary up to Swyre Head is not so substantial as to allow it to be taken for granted that there might not have been a second line up to Swyre Head that has left no trace. There is no bank along the edge of the ridge from Swyre Head to indicate that that is anything more than a modern field boundary, nor does the wall that takes the estate around Plantation Wood have any sign of antiquity. On the other side of the Kingston road, it has been ploughed out, leaving no mark even in the verge. The charter boundaries from the sea to Swyre Head could fit either line, and there seems to be no record of Shaftesbury's acquisition of Swalland in Harley 61 or other sources. Its ecclesiastical exclusion from Corfe parish suggests that it was separate from Encombe when that division was created, but that does not preclude its incorporation into Alfthryth's land before charter no 534 was written.

Elsewhere, there seems no topographical or documentary justification for Taylor's placing of part of Afflington within Worth parish. If straight hedge-lines were really a guide, Quarr's medieval fields might be thought to have extended up the limestone as far south as the B3069, following a line shown on the 1840 Worth tithe map (DRO T/WOR), but Treswell shows this area as 'Worth Common' which suggests that the fields post-date the sixteenth century. By extension, a similar line cannot be used to reconstruct Woodyhyde; neither farm may ever have had land much if at all to the south of that attributed to Quarr by Treswell. Woodyhyde's eighteenth-century eastern boundary is recognizable from Donne's map showing fields around Caplestone Farm as belonging to Worth.

North of Worth, four Domesday manors have been identified: *Aleoude*/Ailwood, *Orgareston*/Woolgarston, *Ragintone*/Rollington, and *Brunecume*/Brenscombe. Despite being in Corfe parish, the first was mapped in detail by Treswell because in the later sixteenth century it was part of Langton Wallis manor (1585-6, fol 31). He shows its northern boundary as a line that seems to be the middle of the chalk ridge, presumably the parish boundary. The western boundary appears to be the lane north from Harman's Cross for part of the way: Westwood was within the estate, 'Tubbotes hill'/Tabbits Hill Farm outside it. Its southern edge was the Worth parish boundary, as it would also have been for part of *Orgarestone*, which would probably have followed the Byle Brook if its land continued westward to march with Afflington. Logic suggests that its northern boundary would also have been the chalk ridge. There is a hint that the Byle Brook was not its boundary as far as Corfe, however. Rollington tithing at one time included Challows Farm, south of the ridge, and was said also to have included Sandy Hill Farm (Shipp and Hodson 1861, 530-1). *Ragintone* may have had its land on both sides of the ridge, therefore, contrary to Taylor's line. *Orgarestone* seems substantially undervalued at two hides minus four acres, annual value forty shillings, if it extended as far west as Corfe. *Aleoude* had five hides, one virgate, on very similar quality land, though it was valued no more highly at forty shillings. *Ragintone*, however, was only two-and-a-half hides, less one quarter virgate, again valued at forty shillings. Reducing the size of *Orgarestone* does not make sense in relation to

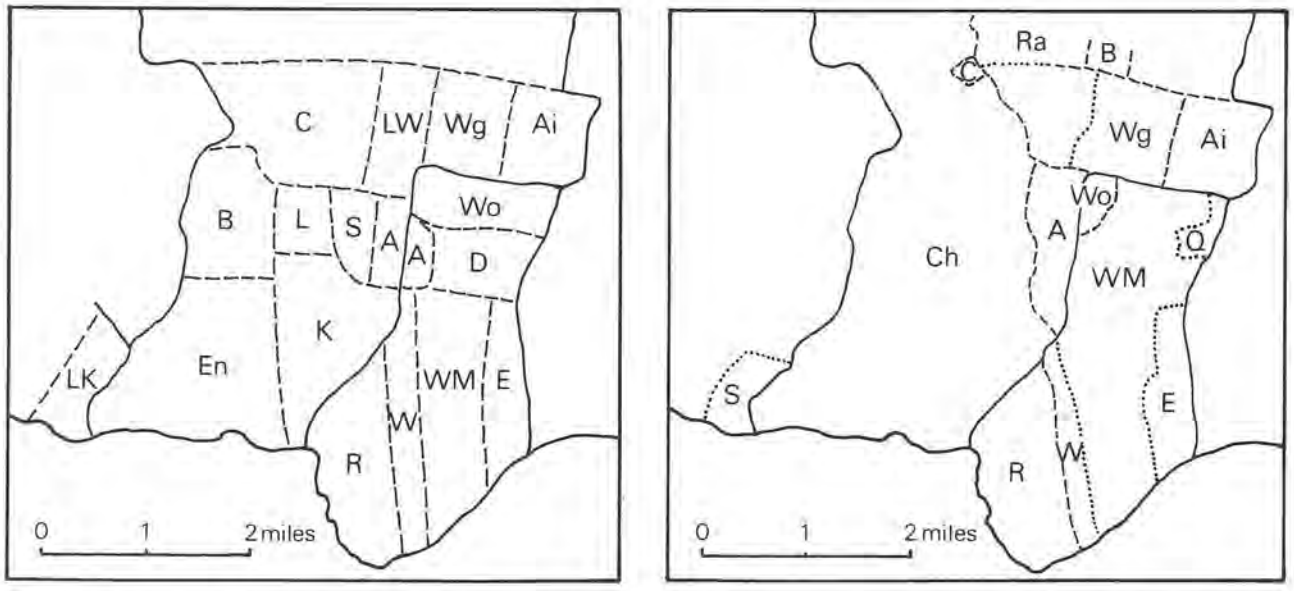


Figure 2. Left, Taylor's (1970, fig 7) map of 'Saxon estates' (redrawn). Continuous lines, parish boundaries; dashed lines, estate boundaries. Letters; A, Afflington (bis); Ai, Ailwood; B, Blashenwell; C, Corfe Castle; D, Downshay; E, Eastington; En, Encombe; K, Kingston; L, Lynch; LK, Little Kimmeridge; LW, Little Woolgarston; R, Renscombe; S, Scoles; W, Weston; WM, Worth Matravers; Wg, Woolgarston; Wo, Woodyhyde.
Right, alternative reconstruction of Domesday manors and some early medieval farm units. Continuous lines, parish boundaries; dashed lines, putative manor boundaries; dotted lines, alternative boundaries and possible farm units. Letters: A, Afflington; Ai, Ailwood; B, Brenscombe; C, Corfe Castle; Ch, Chingstone; K, Kingston; Q, Quarr; R, Renscombe; Ra, Rollington; W, Weston; WM, Worth (later Matravers); Wg, Woolgarston; Wo, Woodyhyde.

Rollington. Shipp and Hodson noted later medieval involvement of Afflington with Rollington (1861, 527, 535). It would certainly make for greater equity of the total hidage of the former's five Domesday manors (six hides, quarter of a virgate and four acres) and values (£6-9-6) if some of the lands actually lay north of Byle Brook.

One small Domesday manor, the single-virgate *Brunescume*, is represented by the modern name Brenscombe Farm, east of Rollington. The neighbouring down has the same name, so that this farm may have been a tongue of land on the north side of the ridge. What happened in the part of Corfe that lies eastwards again is unknown, for there seems no Domesday equivalent to Rempstone Farm. The two *Torne* manors might be there - they immediately precede the *Brunescume* entry in Domesday Book, and like it were owned by FitzGrip's widow; but there is no absolute geographical arrangement in Domesday's listings, and no local place-names support the identification (Mills 1977, 35). Another possibility is that Ailwood crossed the ridge in the eleventh century, only part of it subsequently becoming part of Langton Wallis manor.

From all this, no great confidence can be placed on any reconstruction of Domesday manor boundaries (as on Fig 2), so that a late Saxon property map cannot be reconstructed. Domesday does, however, reveal that large numbers of small farm units must have existed. Some co-ownership may have been in operation, so it cannot be assumed that *Ragintone's* nine thegns each had a separate holding, but individual manors like the three virgates and half a hide of two of the *Ordes* show that some quite small discrete units existed. Furthermore, an active landmarket can be inferred: Alfthryth's sixty *mancusae* show big money involved, and the uneven assessments of Afflington suggest more than a sub-division within a family. The Norman Conquest presumably reduced such activity, as free thegns disappear from the record, downgraded to tenants (Williams 1968, 15-16; for a similar argument for Somerset, Aston 1985, 84). Small farms continued to exist, as donations to Shaftesbury show (Cooke 1989, 29-30), but in the ownership of big land-owners. The landscape may not have changed much in 1066, but its ownership soon did, and with it a restriction on land transference and estate sub-division. In particular, Afflington may show a part of the procedure; it was reckoned as five manors in 1086, with a series of different owners. Each element retained the original name, indicating a recent division, and possibly some form of continuing coherence as a unit: it seems not to have divided further after 1086, and may subsequently have been at least partly reintegrated, if its nineteenth-century bounds are a guide. Rollington and Woolgarston followed different paths: their nine and five 1066 thegns do not suggest a very different farming pattern from Afflington's five units, but they had not fragmented to the point where they could not be reconstructed for the benefit of a William de Braoise or a Roger of Arundel. Ailwood, by contrast, had apparently not begun the sub-division process which 1066 checked, since a single and sizeable holding became the Domesday manor. Brenscombe, at the other end of the size spectrum, also remained a single holding, not being taken in by any bigger neighbour, and remaining, perhaps uniquely in the area, as a recognisable unit in the farming, as opposed to the estate, landscape.

The farming of this part of Purbeck is shown by Domesday Book to have been a mixture of pasture, ploughland and woodland management. This mixture is difficult to recognize on most of the individual estates. Compared to the 'classic' pattern in which long strips allowed each unit an element of different resources based on height and geology, some of the Purbeck farms seem almost perversely unbalanced. Renscombe, with its unfruitful woodland, had a little meadow, but was mostly pasture. The eighteenth-century farm (except four acres) was entirely on the limestone, as was Weston. Eastington may have had land in Haycrofts to overcome the plateau's deficiencies. Kingston and the biggest 'Worth' may have had a good balance. It seems that some of the smaller units, such as Woolgarston, may have had plenty of good hay ground and grazing on the chalk for their sheep, and also had ploughlands. They were arranged in almost square blocks, however. Only the reconstruction of Afflington looks like the classic, long strip, with limestone plateau for grazing, slopes for woodland and ploughing, and hay meadows in the valley.

Finally, the implications for continuity between Roman and late Saxon farms and estates need to be reconsidered. If the Bucknowle Roman villa (SY 954815) was at the centre of its lands, Saxon boundaries cut through its estates, for it is close to the line of charters no 534 and no 573. An argument that it must have controlled the whole of the west part of the area south of Corfe gap could not be sustained on medieval evidence. If any estate continuity occurred, the Bucknowle villa must have been close to the eastern edge of its territory. Big estates may have fragmented, of course, but that does not preclude the continued working of the smaller farm units of which they must in part have been composed. The RCHM pointed out that Weston Farm has Roman and Iron Age occupation evidence immediately adjacent to it (1970, 621); and as has been said above, removal of Weston from the list of Domesday estates does not mean that it was not an eleventh-century farm. Other sites, such as that at Compact Farm in Worth, were not maintained in occupation (Hinton and Peacock 1991, 189-90), but a shift of settlement down into Worth may have kept the same farm operative as a unit. The reported occurrence of stone-lined cist graves at both Worth and Studland churches may even suggest some continuity of cemetery sites, those two emerging as parish churches despite intervening *parochia* administration (ibid 189). At present, it can only be said that some administrative elements may have disappeared without trace, but some that were more intimately related to the lives and deaths of those who occupied the land may have survived.

REFERENCES

Aston, M., 1985, 'Rural settlement in Somerset; some preliminary thoughts', 81-100 in Hooke, D., ed, *Medieval Villages*, Oxford University Committee for Archaeology Monograph 5.

Astle, T., ed., 1802, *Taxatio Ecclesiastica Angliae et Walliae, auctoritate P. Nicholai IV* circa *AD 1291*, Record Commission.

Birch, W. de Gray, 1885-99, *Cartularium Saxonicum*, 3 volumes.

Blair, J., 1985, 'Secular minster churches in Domesday Book', 104-42 in Sawyer, P., ed, *Domesday Book: A Reassessment.*

Blair, J., 1992, 'Anglo-Saxon minsters: a topographical approach', 226-66 in Blair, J., and Sharpe, R., eds, *Pastoral Care before the Parish.*

Blair, J., and Sharpe, R., 1992, 'Introduction', 1-10 in Blair and Sharpe, eds, as above.

Bourne, J., 1987-8, 'Kingston place-names: an interim report', *English Place-Name Society Journal,. 20, 13-38.*

Cooke, K., 1989, 'Donors and daughters: Shaftesbury Abbey's benefactors, endowments and nuns, c 1086-1139', *Anglo-Norman Studies*, 12, 29-45.

Earle, J., 1888, *A Handbook to the Land-Charters and other Saxonic Documents.*

Edwards, H., 1988, *The Charters of the Early West Saxon Kingdom*, Oxford, British Archaeological Reports British Series 198

Finberg, H.P.R., 1964, *The Early Charters of Wessex.*

Good, R., 1966, *The Old Roads of Dorset.*

Grundy, G.B., 1935, 'Saxon Charters of Dorset (continued)', *Dorset Proceedings*, 57, 114-39.

Hamilton, N.E.S.A., 1870, *De Gestis Pontificum Anglicanum*, Rolls Series 52.

Hinton, D.A. and Peacock, D.P.S., 1991-3, 'Worth Matravers', *Dorset Proceedings*, 113, 187-90; 114, 245-6; 115, 160

Hinton, D.A. and Webster, C.J., 1987, 'Excavations at the Church of St Martin, Wareham, 1985-6, and "minsters" in south-east Dorset', *Dorset Proceedings*, 109, 47-54.

Hutchins. See Shipp and Hodson.

Jackson, R.H., 1984, 'The Tisbury landholdings granted to Shaftesbury Monastery by the Saxon Kings', *Wiltshire Archaeological and Natural History Society Magazine*, 79, 164-77.

Keen, L., 1984, 'The towns of Dorset', 249-84 in Haslam, J., ed, *Anglo-Saxon Towns in Southern England.*

Keen, L., 1987, 'Medieval salt-working in Dorset', *Dorset Proceedings*, 109, 25-8.

Keen, L., 1991, 'An introduction to the Dorset Domesday', 1-26 in Williams, A., and Martin, G.H., *The Dorset Domesday.*

Kemble, J.M., 1839-48, *Codex Diplomaticus Aevi Saxonici*, 6 volumes.

Mills, A.D., 1977, *The Place-Names of Dorset. Part One*, English Place-Name Society.

Moore, N.W., Hooper, M.D., and Davis, B.N.K., 1967, 'Hedges I: introduction and reconnaissance', *Journal of Applied Ecology*, 4, 201-20.

RCHM, 1970, *County of Dorset, Volume Two: South-East.*

Rollason, D., 1989, *Saints and Relics in Anglo-Saxon England.*

Sawyer, P.H., 1968, *Anglo-Saxon Charters: An Annotated List and Bibliography*, Royal Historical Society.

Shipp, W., and Hodson, J.W., eds, 1861, *The History and Antiquities of the County of Dorset by John Hutchins. The Third Edition, Volume 1.*

Sunter, N., and Woodward, P.J., 1987, *Romano-British Industries in Purbeck*, D.N.H.A.S. Monograph 6.

Taylor, C., 1970, *Dorset.*

Treswell, R., 1985-6, Manuscript of survey and maps prepared for Sir Christopher Hatton, housed in Dorset Record Office, property of the National Trust.

Williams, A., 1968, 'Introduction to the Domesday Survey', *Dorset. Volume Three.* Victoria County History, 1-60, and 'Translation of the text of the Dorset Domesday', ibid., 61-114.

Poole Shipping in the eighteenth century

GLANVILLE J. DAVIES

The expansion of Poole occurred during the eighteenth and early nineteenth centuries, for it was then that trade and shipping expanded, and much of the town's wealth was created. While writers have often referred to the maritime wealth which Poole enjoyed - especially that derived from Newfoundland - there has been no detailed examination of the shipping that made that wealth possible. We need to know more about the port and its facilities during the eighteenth and early nineteenth centuries; ownership and the level of investment in shipping; the cargoes available and the trade routes followed; insurance and risks at sea; recruitment and conditions of employment of the seamen; and the productivity of the shipping. While a short study of this kind may touch upon some of those issues, there is clearly a place for a longer and more comprehensive examination.[1]

Shipping in Poole has already been referred to by some writers, and principal among them were E.F.J. Mathews and R.C. Jarvis. Mathews's evidence - from private sources - was confined to the later part of the eighteenth century, and was never prepared for publication. R.C. Jarvis provided some figures of tonnage in his short article, but no analysis of shipping and trade. Neither writer referred to any previously published work on English shipping, and this is regrettable, for much of value has been accomplished in the pioneering works of Willan, Davis, and considerably extended by scholars in both England and America.[2]

In the eighteenth century Poole, with 'inhabitants of great opulence and respectability', was the largest urban centre in Dorset. The wealth it enjoyed was derived from its port which, out of 73 English and Welsh ports in 1787, ranked eleventh, above that of Dartmouth and Exeter, and so making it 'the most considerable sea-port in all this part of England'. Its origin as a major port rested on the cloth trade, but as that declined it was replaced by the migratory fishery at Newfoundland: 'that great English ship moored near the banks during the Fishing Season for the convenience of the English fishermen'.[3]

To gather wealth from mercantile trade, merchants had to have access to trading areas where goods of high value were available, but those areas were the jealous preserve of the wealthy and powerful. Some Poole merchants, like Samuel White, were influential enough to engage in the sugar trade, but he was exceptional; the politically powerful merchants of London, Bristol, and Liverpool, dominated the trades in sugar, slaves and tobacco, while tea, the remaining high value cargo, was entirely in the hands of the East India Company. The tea trade was wholly from London, and merchants who dealt in sugar, tobacco or slaves, confidently expected net profits of 10%, and they were not inclined to share such trades with the smaller investors in the west country.

Ranking below those trades in profits were cargoes of wine and fruit from southern Europe and the Mediterranean. Those trade routes were fiercely competitive and open to all merchants, but through the Newfoundland fishery, where the market for the sale of dried fish was almost exclusively to be found in the Mediterranean, Poole merchants had the opportunity to gather wine and fruit as return cargoes. Finally came the least desirable trade in which only low value cargoes could be gathered - grain, timber, pitch, tar, hemp, flax, lead, tin, iron, and copper - from the north European and Baltic ports. But that trade was certainly the least profitable: Sweden and Denmark imposed strict protective measures, so that a ton of bar iron cost 16/- when loaded in a Swedish ship, and 20/- when loaded in a foreign ship; and imports into Denmark could only be unloaded if they originated in England. Norwegian ships operated at lower running costs, and easily shrugged off any English competition. In addition, over north Europe the highly competitive Dutch carriers cast their shadow. No west country merchant could safely invest in such unrewarding work, and the Poole merchants usually relied upon pitch, tar, and timber from New England, Newfoundland, and South Carolina, with additional supplies being carried coastwise from London and other provincial ports in the south.[4]

To participate in overseas trades, and to accommodate the varied cargoes from Newfoundland, the West Indies, South Carolina, the Mediterranean, France, the United Provinces, the Channel Islands, and occasionally northern Europe, the merchants of Poole needed adaptable ships of a manageable size. Merchants everywhere faced the same problems: large vessels were cheaper per ton to build, to man, and to operate, yet there was always the risk that they might never secure a full load, or would be delayed while additional cargo was gathered. The advantage of operating a large ship in reducing running costs per ton had to be balanced against the risk of under-utilisation, the failure of the ship to adapt to different trade routes, and the difficulty which ships' masters experienced when they tried to berth a large vessel in an inadequate port. Such problems were not fully resolved by the Poole merchants in the first half of the century, and in their search for the most economical type of ship they operated everything available: Brigantines, Sloops, Ships, Bilanders, Snows, Schooners, Galleys and Pinks. But, increasingly, certain vessels began to be favoured. The merchants discovered that Brigantines and Snows were the most adaptable types of vessels for their needs. Almost identical in rig, with a square rigged fore-mast, and fore-and-aft rigged mainmast, they accounted for 48% of the total fleet in 1750, and 81% only twenty years later. Such vessels were favoured because they operated with small crews, were light on the helm, and gave good performance when close hauled: a matter of great importance for vessels, like those of Poole, having to beat out of the Channel against prevailing sou'westerlies. By 1790, almost 90% of all overseas trading vessels at Poole were Brigantines.[5]

English and colonial vessels, in contrast to the Dutch, were heavily built, gunned and manned, to meet the dual purpose of trade and defence. Poole ships, like all other west country vessels, had to be prepared to meet French privateers in the Channel and at Newfoundland, and Barbary corsairs in the Mediterranean. With such threats to trade there was a need to maintain guns on board, with the consequent rise in crew numbers to be able to man the guns and operate the ship simultaneously. The fishery

[1] C.N. Culliford, *A History of Poole and Neighbourhood*, Phillimore, 1988, p. 109; D. Beamish, J. Hiller and H.F.V. Johnstone, *Merchants and Mansions of Poole and Dorset*, Poole Historical Trust, 1976; F.W. Mathews, 'Poole and Newfoundland', *Poole and Parkstone Standard*, 1936.

[2] E.F.J. Mathews, *The Economic History of Poole, 1756-1815*, University of London unpublished Ph.D., 1957; Rupert C. Jarvis, 'Eighteenth Century Dorset Shipping', *Proceedings Dorset Natural History & Archaeological Society* (*Proc DNHA&S*), vol 92, pp. 250-58; T.S. Willan, *The English Coasting Trade, 1600-1750*, Manchester, 1967; Ralph Davis, *The Rise of the English Shipping Industry in the seventeenth and eighteenth centuries*, David & Charles, 1962. References to trade in Poole may also be found in Glanville J. Davies, 'Salt for the Newfoundland trade', *Notes and Queries, Somerset and Dorset* (*SDN&Q*), XXXI, Part 313, March, 1981, pp. 113-115, and Davies, 'Dorset in the Newfoundland trade', *Proc DNHA&S*, vol 101, 1979, pp.1-5.

[3] J. Claridge, *General View of the Agriculture in the County of Dorset*, 1793, p. 45; D. Defoe, *A Tour through the whole island of Great Britain*, London, 1724-6, Penguin ed, 1971, p. 206; British Library (B.L.), Additional Manuscripts (Add Mss) 38429; K.J. Penn, *Historic Towns in Dorset*, Dorset, 1980 pp. 78-9, 110, 118; *First Report from the Committee appointed to enquire into the state of the Trade to Newfoundland*, House of Commons Report, 26 March, 1793, p. 394.

[4] J.R. Ward, 'The Profitability of Sugar Planting in the British West Indies, 1650-1834', *Economic History Review* (*Econ Hist. R.*), 2nd series, XXXI, No. 2, May, 1978, pp. 197-214; W.R. Savadge, *The West Country and the American Colonies, 1763-1783 with special reference to the merchants of Bristol*, Oxford, unpublished B.Litt., 1951, p. 52; Sven-Erik Astrom, *From Cloth to Iron : the Anglo-Baltic Trade*, Helsingfors, 1965, Pt. II, p. 19; Sven-Erik Astrom, 'North European Timber exports to Great Britain, 1760-1810', in P.L. Cottrell and D.H. Aldcroft, *Shipping, Trade and Commerce*, Leicester, 1981; H.C. Johansen, 'Scandinavian Shipping in the late eighteenth century in a European perspective', *Econ Hist R*, vol XLV, No. 3, 1992, pp. 479-493; Public Record Office (PRO), Exchequer Port books, E 190: E 190/907/9, Poole overseas, 1716-1717.

[5] Davis, *Rise of English Shipping*, p. 73; J.F. Shepherd & G.M. Walton, *Shipping, maritime trade and the economic development of colonial North America*, Cambridge, 1972, p. 76; K. Kemp (ed), *The Oxford Companion to Ships and the Sea*, Oxford, 1976, p. 109; J.H. Parry, *Trade and Dominion*, 1971, Cardinal edn., 1974, p. 280. Percentage calculations of the types of ships are made from PRO, Admiralty Registers of Protection (Adm 7) : Adm 7/86, Adm 7/87, Adm 7/94, Adm 7/96, Adm 7/108.

also added to crew numbers: while some fished from the ship, others were needed ashore to prepare and cure the catch. Manning problems of this kind were not unique, for similar problems existed in the East India trade and the Greenland fishery. In 1740, Poole ships were heavily manned, with a ton/man ratio of 9.5, but by searching for a more economical way of conducting their business, merchants substantially improved this manning level, so that by 1780 the figure was 12.6. This meant that a 120 ton ship leaving Poole in 1740 would have required a crew of 12 to 13 men, but a ship of the same size in 1780 would have operated with only 9 to 10 men.[6]

Part of the lower manning available to the merchants later in the century resulted from the advantages which they found as the Royal Navy was successful against privateers, and as Mediterranean Passes guaranteed safe passage among the north African corsairs. Around 1730, 31% of all Poole vessels operating in overseas trades carried guns; in 1750, this had fallen to 6.7%; and in 1784, fewer than 2% carried guns. Temporarily, the figure rose to 15% during the early years of the American war of Independence, 1775-1783, because the Americans successfully operated privateers off Newfoundland. Eventually, the navy was successful in suppressing this threat, and the Poole ships were able to continue reducing their manning levels.[7]

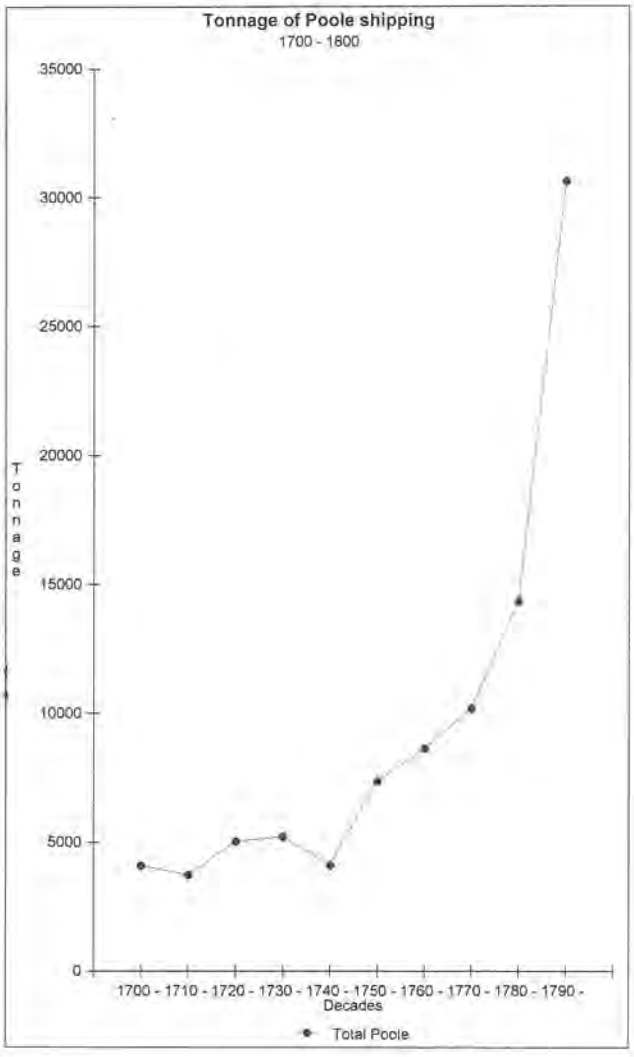
The total tonnage of shipping in England and Wales more than trebled during the eighteenth century, though this was not reflected in the west country ports. Poole was unfortunately placed, for England's traditional enemy, the Dutch, who generally conducted their warfare through fleet actions, gave way to the French, who conducted their warfare mainly by privateering. The nearness of French ports and the persistent threat to merchant shipping hindered west country trade, and Poole's shipping expanded only very slowly: 4,090 tons in 1709, and only 7,592 tons in 1751. After the war of 1740-48, there was a modest expansion, but the Seven Years War, with its disruptive warfare in Newfoundland, checked that growth. After the settlement in 1763, with the British victorious, and the French soundly beaten in Canada and Newfoundland, Poole shipping expanded dramatically. From then until the end of the century, with no pause for the war in America, the expansion of shipping and trade continued, and this reflected the confident mood of the Poole merchants.[8]

The demand for tonnage in the second half of the eighteenth century was partly met by the purchase of new ships from colonial ship-builders. New England had no staple commodity essential to the mother country and desperately needed trade credit for goods which had to be purchased from England. The answer lay in shipbuilding, for the colony possessed abundant timber, pitch and tar. Even as early as 1700 the cost of shipbuilding in New England was some 40% lower than in England. In 1784, the building of a 200 ton ship in a Dorset shipyard would have cost £6. 8. 6d. per ton, whereas in New England the cost was was £4. 13. 6d. per ton. Shipbuilding became the New England staple, and by 1770 the American colonies had constructed almost one-third of the shipping registered in England. When the expansion of the Poole fleet took place after 1763, it was understandable that many colonial vessels were added to their numbers. New England had an elaborate commercial organization established in Newfoundland after 1713, and as Massachusetts was building 70 vessels a year, it is reasonable to assume that some New England ships were taken to the island and sold there to west country merchants. Newfoundland itself supplied new ships, for shipbuilding was one of the winter occupations on the island. William Spurrier of Poole had his own commercial boat-building industry in St. Mary's bay, and throughout the eighteenth century, through supplies of wrought iron, cordage and canvas, Poole merchants had actively supported shipbuilding in the fishery. Many ships registered in Poole after 1763, like the *Unity*, *Endeavour* and *Dolphin*, were New England built, while others, like the *Nancy*, *Margaret*, *William*, *John & Betsy*, *Pheasant*, *John*, *Two Brothers* and *Delight*, were built at Newfoundland.[9]

72% of all Poole registered ships were engaged in overseas trade, and it was in foreign trade - particularly that to

[6] Calculations of ton/man ratio were made from PRO, Miscellanea : Register of Foreign Passes (Adm 7). Entries of 173 Poole ships were examined: 19 between 1740-1; 41 in 1750; 59 between 1759-60; 34 between 1769-70; and 20 in 1780.

[7] All British and colonial ships going into the Mediterranean for trade required passes. These served as protection from the organised piracy conducted by the Barbary states.
427 entries of Poole ships during peacetime, and 287 during wartime were examined in PRO, Adm 7 for the calculations concerning guns/men ratio.



[8] Before 13 Geo. III. c.74, 1773, when a more careful compilation of shipping statistics began, and tonnage was agreed as 'measured' tonnage, all tonnage statistics must be viewed with caution. After 26 Geo. III. c.60, 1786, all ships had to be registered at measured tonnage in the port of ownership, whether or not they traded there. It therefore becomes difficult to compare tonnage after 1773 with tonnage before that date, because they have generally been calculated differently.
Customs records emphasise the activities of overseas trading vessels, for they were the principal carriers of goods which were listed in the Book of Rates. These ships were also among the largest to operate out of the port, and from these overseas trades the principal wealth flowed. Coastal vessels distributed local produce and goods which were imported in the foreign going ships, but their activities - because they did not always involve the payment of Customs duties - were not always recorded in the Exchequer Port books.
Total tonnage includes all the ships - foreign going, coastal and fishing - which operated out of the port, and whatever the imperfections of the statistics - and they are many - they do provide a pointer to the total volume of trade handled by the port, and an indication port by port, and region by region, of relative wealth in trade.

[9] C. Nettels, 'England's trade with New England and New York', *Colonial Society of Massachusetts*, Feb, 1933. Costs per ton were calculated from Davis, *Rise of Shipping*, p. 375. R.G. Lounsbury, 'Yankee trade at Newfoundland', *New England Quarterly*, vol III, Oct, 1930, pp. 607-626; Emory R. Johnson, *History of the Domestic and Foreign Commerce of the United States*, Carnegie Institute, Washington, 1915, pp. 73, 85-6; O.M. Dickerson, *The Navigation Acts and the American Revolution*, Octagon Books, New York, 1974, p. 32; J.J. McCusker, 'Sources of investment capital in the colonial Philadelphia shipping industry', *Journal of Economic History*, vol 32, 1972, pp. 146-157; J. Mannion (ed), *The Peopling of Newfoundland*, Memorial University of Newfoundland, 1977, pp. 18, 78, 253; Mathews, 'Poole and Newfoundland', p. 51. Examples of support for the Newfoundland shipbuilding industry during the eighteenth century may be found in PRO, E 190/898/2, Poole ov, 1701-2; E 190/917/13, Poole ov, 1732-3. Registration of colonial shipping in Poole : PRO, Customs House letter books (Cust), : Cust 60/1, Cust 60/2, Cust 60/3, Cust 60/4, Cust 60/8.

Newfoundland - that the principal expansion in shipping took place. In 1710, Poole cleared only 8 ships to Newfoundland; 29 in 1717; 12 in 1721; and 29 in 1741. Between 1787 and 1792, however, Poole averaged 79 vessels per year to the fishery, and Newfoundland became the chief source of wealth for the port. By 1800 Poole had 851 registered seamen serving 10,735 tons of shipping, and it was the chief west country trader in the fishery, and the chief overseas trading port in the west of England.[10]

Colonists in Newfoundland, the West Indies, and the southern states of America, could spare neither time nor labour for husbandry or manufacture, for they were fully occupied in clearing land, building houses, and producing their staple products. They depended on supplies from England to maintain themselves, and Poole merchants were able to supply their needs. As early as 1698 it was acknowledged in Newfoundland that 'the Collony is no ways able to subsist it selfe', and the settlers there always relied on cargoes carried from the west country. As the population on the island grew, Poole merchants increasingly acted as their chief supplier, trading provisions and clothing in return for fish and oil. In March, 1705, when the settlement numbered 1,130, the Poole ship *Weston Galley* loaded 200 suits of wearing apparel and 15 doz woollen stockings; and in 1732-3, for a population of only 3,602, Poole ships carried 234 tons of fresh provisions (butter, cheese, bread, peas etc.), 2,437 made garments, 432 pairs of stockings, 902 shirts, 108 pairs of gloves, and 96 hats. In 1755, seven ships cleared, carrying 1,825 made garments in addition to hats, shoes, stockings, gloves, and provisions. The items required by the settlers were so extensive and diverse that the Customs Controller at Poole queried his London superiors what duties were to be paid on 108 different articles which he could not classify from his Book of Rates.[11]

But, supplying goods to the colonists in the fishery brought Poole merchants into direct competition with New England traders. In 1715, Poole's indignation about that 'nest of little pedlars' prompted a strongly worded petition to the Board of Trade, in which the merchants pleaded for all trade from New England to be stopped. But such trade was not illegal, for the New Englanders were British subjects and could not be prevented from taking an active part in the free trade of the fishery. Despite much concern among the merchants, Poole did not unduly suffer from this competition, for the New Englanders could not equal the range of produce and manufactured goods available in England. In exchange, Newfoundland planters paid in fish. The *Endeavour* in 1763 traded provisions for 1,150 quintals of fish, and the *Warborn* entered St. John's in August, 1770, with 193 cwts of bread, 3 cwts of wrought iron, and 17 cwts of cork, and left shortly afterwards with 2,800 quintals of dried fish. There were many such examples of trading ships from Poole relying on the fishing catch gathered by the settled population in Newfoundland.[12]

There was a steady trade from Poole with the Leeward Islands, and South Carolina during the greater part of the eighteenth century. Cargoes outward consisted of items which planters had probably ordered in advance, or were commodities for which there would be immediate sales. In 1732-3, ships to South Carolina carried haberdashery, hats, linen, hose, earthenware, wrought iron, bottles, drinking glasses, cheese, copper, grindstones, English salt and strong beer. Return cargoes consisted of South Carolina's staple produce, rice, together with tar, pitch, turpentine, and 'ha'drest Deer Skins'. Bricks, tiles, paving stones, bread, barrel hoops, beans, oats, cheese, and strong beer were in particular demand in the Leeward Islands, and ships then returned to Poole with sugar and cotton wool. In 1720-1, with 41 ships clearing for overseas voyages, 6 went to Barbados, and 3 to South Carolina; in 1751-2, out of 84 clearances, 3 went to Barbados, and 5 to South Carolina. By 1789, however, when America was an independent sovereign state and Poole merchants were more heavily committed to Newfoundland as their main area of trade, out of 104 clearances from the port, only 3 went to New England, and one to the Leeward islands.[13]

The strangely mixed cargoes unloaded at the 'Great Quay' in Poole showed clearly the ports of call which had been made. Ships' holds, first loaded at Newfoundland, were overloaded with goods purchased in the Mediterranean. Train oil, furs, salmon, timber, and a little dried fish, were returned from the fishery, and wine, olive oil, figs, currants, raisins, almonds, lemons and oranges were brought back from the Mediterranean. In 1706, for example, the *John* unloaded skins, furs, train oil, salmon, and 5 Pipes of Viana wine; and in December, 1737, the *Thomas and Richard* unloaded 40 quintals of fish, 'Castile sope', and 100 gallons of Spanish oil.

Between 1730 and 1755, Poole merchants imported some 47,000 gallons of wine each year, and most of that was return cargo from the Mediterranean. But cargoes of wine and fruit were generally lower in value than the fish for which they had been exchanged, so the difference was made up in money and bills of exchange. It was well known that west country merchants freely used Portuguese and Spanish gold and silver coins as part of their day to day currency, and the government was impressed by the favourable trade balance created by the fishery. Supporters of west country petitions were never slow to press home the point that 'returns from Foreign parts brought home great Quantities of Gold and Silver', and that this was to England's advantage. By 1793, Poole enjoyed a trade in which the returns were 'nearly 39/40ths in specie, or in bills of exchange', and this influx of wealth could hardly be equalled by any other English port.[14]

Shipping movement in the port reflected Poole's complex pattern of trade. Before 1760 the port handled about 300 foreign and coastal cargoes every year. Shipping increased as trade expanded, and in 1789, with over 200 vessels plying the foreign trades, the port also had to handle 966 coastal cargoes inward and outward. Warehousing and the handling of goods were not haphazard, nor did the merchants rely upon casual business transactions. Except for items for which there was a steady and predictable demand, all trading was the result of orders placed. Ships were only the carriers, for in and around the port there was a vast network of mercantile dealing, with financiers, brokers, insurers, and chandlers, and a veritable army of carters, hauliers, coopers, seamen and labourers to do the business of the port and its shipping.[15]

Coastal vessels made more frequent voyages, carried a great variety of goods, and traded to more ports of call than the larger overseas trading ships. Consequently, the port handled some 60% more coastal than overseas cargoes. A coaster might carry pipeclay to Newcastle, return with coal, go then to London via Chichester and Hastings, return with general goods, or salt from Lymington, load with naval stores for Plymouth, then return to ship stone to London. By contrast, the overseas trading vessels limited themselves to a small number of routes and ports, and dealt with fewer items. The *Dolphin* in 1757-8 'has been only to Newfoundland and back again', and other ships had similar histories. The *Willing Mind*, for example, plied for 29 years a steady trade: Newfoundland, the Mediterranean, then back to Poole. Even where a variation can be found, it was generally a frequently repeated variation, like the *William*, which though a regular Newfoundland-Mediterranean trader, added another port of call, in Norway, and generally brought home deals as well as

[10] PRO, Board of Trade Miscellanea (CO) : CO 390/38, Vessels clearing from British Ports, 1715-1717; E 190/919/12, Poole ov, 1740-1741; E 190/910/4, Poole ov, 1720-1721; *Report*, 1793, p. 425, Appendix 6 (A), Account of the number and burthen of ships; B.L., Add Mss 11255.

[11] PRO, Colonial Office original correspondence, Newfoundland (CO) : 194/11, pp. 267-272, Capt. Norris, Nov 15, 1698; E 190/896/4, Poole ov, 1705-6; calculated from E 190/917/13, Poole ov, 1732-3; E 190/923/1, Poole ov, 1755-56; Cust 60/10, August, 1798.

[12] Harold A. Innis, *The Cod Fisheries*, Toronto, 1954, p. 145, quoting the Poole petition of 1715; PRO, CO 194/15, Part II, Estimate of Shipping, 1763; PRO, Treasury Miscellanea (T) : T 64/82.

[13] PRO, E 190/917/13, Poole ov, 1732-3; E 190/919/1, Poole iv, 1735-6; E 190/910/4, Poole ov, 1720-21; E 190/921/2, Poole ov, 1751-2; PRO, States of Navigation, Commerce and Revenue : Cust 17/11.

[14] PRO, E 190/896/4, Poole ov, 1705-6; E 190/919/13, Poole ov, 1737-38. Average wine imports into Poole calculated from E 190/917/1, Poole ov, 1730-31, E 190/921/4, Poole ov, 1751-2, and E 190/921/7, Poole ov, 1753-4. A.D. Francis, *The Methuens and Portugal 1691-1708*,Cambridge, 1966, p. 217; *Report*, 1793, p. 394, evidence of Mr Jefferey.

[15] PRO, Cust 17/11.

train oil and wine throughout its 23 year life.[16]

Coastal vessels distributed the cargoes returned by foreign traders, carried large supplies of locally supplied stone, pipeclay, and agricultural produce, and in exchange brought goods for local traders, and for the overseas purchasers. The purchasing power of the port was felt throughout the surrounding region, and buyers were always anxious to secure local items like wheat, barley, oats, malt, bread, beer, cheese, peas, beans, twine, net, cordage, swanskin, cloth, 'made garments', blanketing, buttons, stockings, hats, and shoes. Bulk cargoes of pipeclay and stone from the Purbecks figured prominently, and from 1703 to 1741, Poole shipped 48,980 tons of clay to 57 different ports. Poole abandoned the Virginia tobacco trade about 1726, but coastal vessels continued to distribute tobacco imported into Weymouth, and to supply the Poole-Newfoundland traders as they loaded their ships.[17]

Goods not required immediately were stored in the warehouses and withdrawn when ships became available. The result was that one departing ship might well carry goods, some of which had been recently purchased, and some which had been stored for long periods. One constant demand was for fresh provisions. In 1732, for example, overseas traders loaded 164 tons of bread, 36 tons of butter, 72 tons of wheat, 73 cwts of peas, 24 cwts of malt, and 5½ cwts of oatmeal before departing. In 1699 the *William* loaded fresh provisions, salt out of the *Mary*, canvas out of the *Desire*, and Gothenburg pitch and tar from the warehouse. In March, 1717, the cargoes of three coastal vessels filled the hold of the *Joseph and Elizabeth*. By one merchant importing in bulk and selling smaller quantities, one incoming cargo might eventually be divided up into several holds. In 1751, Benjamin Linthorne's purchase of barley ended up in six vessels bound for Cherbourg, and other ships unloading in London, Jersey, Guernsey, Bilbao, and Cadiz.[18]

Poole purchasers and suppliers were in contact throughout the United Kingdom, Ireland, Europe, the West Indies, the Mediterranean, Newfoundland, and the Americas. Cargoes were traded, and when the price was right, merchants undertook to trade, even if it meant carrying goods to a port which normally acted as a supplier. In 1730, Poole purchased Spanish wine from Bristol, nets and lines from Guernsey, and rum and wheat from Portsmouth, despite the usual abundance of those items in the port. In the same year the *Anne & Mary* took tobacco to London - a port which had its own regular importation of tobacco. In 1741, Robert and William Cleeves and Christopher Jolliff arranged the imports of wheat from Chichester, pork from Portsmouth and Waterford, salt from Lymington, window glass, tobacco and cork from London, cider from Guernsey, Exeter and Swanage, copper and nails from Bristol, narrow German linen, grindstones, and broad Russia linen from Northern Europe, and even children's fiddles from Hamburg. Through the usual trade of the port most of these goods were available, but merchants were always anxious to fill orders and to secure commodities when they had ready purchasers.[19]

Many vessels although registered in Poole, were absent for lengthy periods, and this was often because the masters preferred to operate out of another port. The Thames was a favourite anchorage for some Poole ships, and about five every year between 1729 and 1743 fitted out there before beginning their overseas voyage. Some, like the *Race Horse* (140 tons), remained in the Thames during the late 1730s and never returned to Poole. Others found it convenient to maintain their ships at Bristol, and many examples could be given: between 1710-12, the *John* (48 tons), and *Peter* (40 tons); in 1763-4, the *Joseph* (120 tons), *Hopewell* (70 tons), and *Susannah* of 100 tons. A few established their ships in an overseas port, and there they remained. One ship certainly traded constantly out of Philadelphia: 'there is a large vessel now at this port that belongs to Poole that has not been there this three years. She is in the Newfoundland trade, she loads with fish at Newfoundland, goes with them up the Streights, comes from thence here and loads with provisions for the Fishery at Newfoundland, and its very probable she will continue in this round of trade as long as she lasts, without returning to Great Britain'.[20]

'Many of our merchant ships continue for several years trading from Port to Port in the Mediterranean without returning home'. The *Dolphin* (50 tons) left Poole in October, 1765, for a voyage to 'Madeira, Carolina, and trading', and did not return until November, 1768. The *Sally* (120 tons), left Poole in November, 1765 for 'Georgia and trading voyage', and returned in July, 1771; and the *Jenny*, of 100 tons, cleared for 'S. Carolina & trading voyage', and returned home four and a half years later. Perhaps their journeys were similar to the *Mayhone*. That ship cleared from the Thames in 1733 for Cadiz and Newfoundland, visited the fishery, loaded her hold, and proceeded to Alicant to sell her cargo. She loaded a return cargo of wine, but the Spanish authorities imposed an embargo on the export of wine, and ordered the master to unload. To avoid returning with an empty hold the master took on soldiers and provisions for Naples, and then staves for Alicant. The embargo remained, the new wine was not ready for shipment, so he loaded wool for Genoa, and corn for Cadiz. With no market at Cadiz, he journeyed to Malaga, and finally returned to Alicant for his cargo of wine.[21]

Those who invested in ships did not consider themselves to be shipowners, for the term was little used before the nineteenth century. Those who owned ships, and even captained them - people like Isaac Lester, Joseph White, George Tito, George Durrell - signed any petition to the Board of Trade as 'Merchants of Poole', for it was in that capacity that they invested in ships. The smaller ships generally had single owners, or were divided into two, three or four parts; the larger ships, of about 100 tons or more, could be divided into as many as 64 parts. Share-ownership was an efficient way to purchase ships and of spreading financial risk, and it attracted a wide range of investors. Many were tradesmen linked to the shipping industry, but many were small investors unable, since the 'Bubble' act of 1720, to take part in joint stock enterprises, so were satisfied to be passive investors with a proportionate share of the profits. Because many of the ships were smaller and less valuable than those of the bigger ports like London, Bristol, and Liverpool, shares were often lower in value, and brought within easy reach of the less wealthy. In 1776, Netlam Tory partnered Mr Talbot of Wimborne, who himself attracted minor contributors from the Wimborne area. Among the small Poole investors in 1775, we find Elizabeth Pain, an innkeeper, George Libley of London, John Lake of Ringwood, and Charles Hutchings of Sherborne, all minor tradespeople. In 1729, John Pool of Stalbridge, and Richard Ridout from Somerset, shared the ownership of a second-hand Bristol schooner. Ridout took no interest in the ship, and it was promptly, and significantly, re-named *Pool*. William Hounsell of Poole carefully spread his investment: a 1/16th share of *Alert* and *Fly*, 2/64ths of *Nepean*, and 4/6ths of *Bee*, besides £40 invested in the *Hope*, and £59 in the *Betsey*. Spreading the risk like that among a number of ships was the sensible thing to do. Young Green of Poole, an active ship-master himself, spread his investment between ten ships, but George Penney was less cautious, and he

[16] PRO, Cust 60/1, Poole letterbook, 1758-1762. References to the *Willing Mind* : PRO, Colonial papers, general series, CO 1, & Port Books, E 190 : CO 1/41; CO1/55; CO 194/1; CO 194/2; E 190 885/3; E 190/892/11; E 190/896/4. References to the *William* : CO 1/47; CO 194/2; E 190/892/11; E 190/894/12; E 190/896/4.
While coastal vessels were generally smaller than vessels plying the overseas routes, there were some exceptions. In 1760, the *Samuel & John*, a Poole coasting vessel, 120 tons and 6 crew, was larger than many overseas trading vessels registered in the port. See PRO, Cust 60/106, private letter book of Collector, Poole, 1760-1762.

[17] Glanville J. Davies, 'Tobacco pipe-clay in Poole's coastal trade', *SDN&Q*, XXXI, Part 316, Sept. 1982, pp. 235-238; Davies, 'Dorset's trade in tobacco, 1700-1740', *SDN&Q*, XXXI, Part 315, March 1982, pp. 216-218.

[18] PRO, E 190/917/13, Poole ov, 1732-3; E 190/892/11, Poole ov, 1698-9; E 190/907/9, Poole ov, 1716-17; E 190/193/6, Poole ov, 1722-23; E 190/921/4, Poole ov, 1751-2.

[19] E 190/920/5, Poole ov, 1741-2; E 190/916/13, Poole coastal. 1713; E 190/917/1, Poole ov, 1730-1; E 190/920/5, Poole ov, 1741-2.

[20] Calculations of the ships in the Thames are made from PRO, Adm 7/77 to Adm 7/86 inclusive; *John and Peter*, see CO 194/5, pp. 17-19, 48-50; *Joseph*, *Hopewell*, *Susannah*, see Savadge, 'The west country and the American colonies'; Arthur L. Jensen, *The Maritime Commerce of Colonial Philadelphia*, State Historical Society, Wisconsin, 1963, p. 110.

[21] PRO, Adm 7/91; PRO, High Court of Admiralty, libels, allegations, pleadings etc (HCA) : HCA 24/138.

suffered considerable loss as the sole owner of the *Hope*, for when the ship was captured in 1806 he lost £1,100, one quarter of his total assets.[22]

The Newfoundland trade was widely regarded, and often praised, as a nursery of seamen. Optimistic forecasters thought that the fishery would produce 14,000 men for the Royal Navy, for the merchants were under instruction to recruit a certain proportion of 'green', or inexperienced, men for every voyage, and three Newfoundland voyages was then expected to turn a 'green' man into a seaman. However, the numbers which the Navy obtained were disappointingly small, and as the century continued the government became less willing to exempt Newfoundland seamen from impressment. Recruitment became a problem for the merchants of Poole, for relatively few men were prepared to go to the fishery year after year. Even as early as 1717 it was admitted that 'it is become a rare thing to carry one Man two Voyages' and this problem was not eased by 1758, for then the complaint was that 'seamen are very scarce in this part of the country that they cannot be got at any Rate' and 'Vessells are obliged to goe to sea half mann'd there being no Hands to be got but old Men and Boys'. When recruitment was so difficult, impressment struck hard. Ships entering from abroad had to serve a quarantine period on 'the Motherbank', east of Brownsea, and it was while they were anchored there that the Press could gather their seamen. Many men abandoned their vessels as news of a hot press became known, so the Navy intercepted incoming vessels. When the *Indian Queen* returned from Alicant in Dec, 1759, two men were impressed before the vessel was able to enter harbour. The ship, unfortunately, was not one of the 67 Poole ships of that year which had applied for protection from impressment. Under the pressure of shortage of men, and impressment during time of war, recruitment became keenly competitive, and some of the wages had to be paid before the voyages began. Merchants were appalled at this necessity, for if impressment took place before the ship sailed, then the merchant stood to lose both seaman and money.[23]

By the 1760s it was no longer sufficient for the ships' masters to sit in the 'Antelope' at Poole, and expect seamen to come to them; they had to induce men to call at their homes, send men to scour the countryside in search of recruits, and pay substantially to get apprentices from parish Overseers. Merchants or ships with doubtful reputations found recruitment even more difficult. John Pelly's chances of recruiting plummeted when his ship *Compass* returned from Newfoundland, for the news spread quickly that 'they were all of them near Starved' and so 'none of the Servants will go with them any more'. Leghorn, and ports further east in the Mediterranean, were especially disliked, for there was little chance of replenishing supplies, and crews were often on reduced rations. When a ship, like the *Compass*, acquired a reputation as a 'Starve Gut Galley', recruitment became all that more difficult.[24]

Wages formed the main financial liability for the merchant once a voyage had begin. Throughout the century, except in time of war, wage rates remained fairly stable, and while London wages were always higher by some 10/- a month, Dorset men's wages stood at £3 a month for a mate, 40/- for a boatswain or gunner, and 35/- a month for a foremastman. Seamen's wages, at 30/- a month, were comparable to labouring wages ashore, for labourers might earn between 6/- and 9/- per week according to the season. But, where labourers had to purchase their own food, seamen had theirs provided, and the 16/- per head per month allowed for each man's victualling, raised the seamen's wages above the average labouring wage.[25]

At the close of the eighteenth century, Poole overshadowed all other west country ports, and was still enjoying a golden age of maritime trade. Despite a relatively low population in the immediate region, and the dominance of Bristol as a supplier of goods to Gloucester, Worcester, and the growing population of the midlands, Poole merchants managed to maintain a flourishing overseas fleet and a lively coasting trade. The considerable presence of the Newfoundland fishery as a chief source of wealth was constantly felt, and this showed no signs of diminishing by 1800. Despite the dominance of the fishery, the port continued to fit out ships for voyages to the Mediterranean, France, Spain, Portugal, Holland, Germany, America, and the West Indies, and the cargoes reflected this variety of investment and trade. Throughout the century, shipping expanded to meet the demands of trade, and the ships provided work for the port, profits for the merchants, employment for the seamen, and wealth for the town.

(I am grateful to the Trustees of the Poole Maritime Trust for permission to reproduce this essay which was awarded first place in the 1994 Prize Award.)

[22] Davis, *English Shipping*, pp. 81, 82, 87; Simon Ville, 'The growth of specialisation in English shipowning, 1750-1850', *Econ Hist R*, XLVI, No. 4, Nov, 1993, pp. 702-722; R.C. Jarvis, 'Fractional shareholding in British merchant ships, with special reference to the 64ths', *Mariner's Mirror*, No. 45, 1959, pp. 301-319; PRO, CO 194/13, p. 34 'The Memorial of the merchants of Poole trading to Newfoundland', Nov 8, 1752; PRO, Treasury Board papers : T 1/523; Adm 7/373; Adm 7/96; Adm 7/100; HCA 24/138; Dorset Record Office (DRO), D 203/A 56, Cash book of Wm Hounsell, 1777-1856; D 504/5, Articles of co-partnership between Katherine and George Penney, 1806.

[23] It was confidently but mistakenly believed that the Newfoundland trade would raise 14,000 men, an even greater number than the coal trade. See 'Essay on Manning the Royal Navy without recourse to Impressment', (1774), in *The Tomlinson Papers*, Navy Records Society, vol LXXIV, 1935, pp. 154-157; Gerald S. Graham, *Fisheries and Sea Power*, Toronto, 1941, pp. 27-8, 30; Gerald S. Graham, *The Empire of the North Atlantic*, Toronto, 1950, p. 56; PRO, Colonial Office entry books, Newfoundland : CO 195/6, Feb 28, 1717/18; Cust 59/9, 12 July, 1758. the shortage of seamen was reflected also in naval recruitment. See R.P. Crowhurst, *British Oceanic Convoys in the Seven Years' war, 1756-63*, London unpublished Ph.D., p. 260; PRO, Cust 60/1, 29 Dec, 1759; Adm 7/372, Protection from Impressment, 1758; DRO, D 365/F.3, Lester diary, 5 March, 1776; Poole petition to Board of Trade, 1758, CO 194/14, p. 20. This petition on impressment and wages was supported by the merchants of Exeter, Topsham, and Teignmouth, for they also found that wages and seamen were lost during impressment.

[24] DRO, D 365/F.5, 8 Nov, 1773, diary of Isaac Lester; PRO, Board of Trade Miscellanea, BT 6/189, p. 71. Reference to the 'Antelope' as a recruiting centre for the Newfoundland trade may be found in Isaac Lester's diary, entry of 13 June, 1768.

[25] Davis, *Rise of Shipping*, pp. 102, 134-40. 145, 372-4; G. Coade, *A Letter on Trade*, London, 1747, p. 68. Evidence of wages paid to seamen serving in Dorset ships during the eighteenth century may be found in PRO, HCA 24/133 and HCA 24/139.

Water Meadows of the River Stirchel, Dorset

M.S .ROSS
Shaftesbury and District Archaeological Group

SUMMARY

The presence of a former water meadow in the valley of the River Stirchel at Melbury Abbas, Dorset, was apparent when fieldwork was undertaken following finds of medieval pottery (Ross 1993, 116-9). The sherds were revealed when a ditch, obviously part of a water meadow system, was being excavated to create a conservation pond. Further examination of the river both up- and downstream, showed the remains of other water meadow systems apparently of early 19th century date, which were confirmed by documentary research.

HISTORY

The first references to water meadows in Dorset are found during the 17th century on the River Piddle and thereafter the technique spread rapidly through the following century to the River Frome and the valleys of the Rivers Iwerne, Tarrant and Gussage and also to the Stour (Bettey 1977, 37-43), reaching a peak in the 1860s and finally going out of use in the 20th century (Whitehead 1967, 277-8).

INTRODUCTION

The purpose of water meadows was to provide good grass for sheep in the spring, at least a month early, by passing lime-rich water over the meadows, thereby keeping off frost, neutralising acid soils and providing essential nutrients. Chalk streams coming from deep underground have a fairly constant temperature at 54°-58°F which in winter is warmer than the meadows over which they flow, and acts as a 'hot-bed'. Following the spring feed, the sheep were removed in May due to the risk of becoming infected with liver-fluke which could decimate a flock (Whitehead 1967, 273 n.l). A hay crop was then taken and in late summer cattle were introduced to eat off the coarse vegetation. However, on the meadows at Britford, Wiltshire, Peter Martin feeds cattle only and on the former water meadows, now part of the Dorset College of Agriculture, Kingston Maurward, Mick Legg states that cattle were always put on the meadows first (pers. comm.)

Water meadow systems were formed by damming a stream with a sluice closed by a hatch to create a head of water, which was then forced up appropriately placed channels or carriers to flood the beds. These were a series of largely parallel, convex ridges or panes, of varying width and length, depending on the topography of the site. Each pane was fed by a carrier along its ridge, narrowing towards the end, with turf (clods) or timber stoppages to restrict the flow, and as the water spilled over the curved pane, it was collected in drains at the sides, these in turn being tapered to be wider at their exit, ultimately returning the water to the river. Details of water meadow construction and the skills as well as the hazards involved are described in the 18th century by Warne (1758, 58) and Boswell (1779, 19).

THE GEOLOGY

The east and south-east of the parish of Melbury Abbas spreads over the Chalk escarpment, rising to 262 m on the prominent landmark, Melbury Hill, giving way to the Upper Greensand in the central area from which the numerous springs emanate, and where major landslips affecting the Gault/Upper Greensand around Shaftesbury and Melbury Abbas have recently been mapped and, with alluvial deposits, provide an ideal sub-soil for water meadows. The Melbury Brook rises in the north-east at c. 155 m to join the River Stirchel which then flows west through the parish, where the land on the Gault and Kimmeridge Clay falls from the north and west from 122m to 76 m OD. Two small faults run approximately north-east/south-west through the valley, near Melbury and Cann Mills respectively (British Geological Survey map, Sheet 313 Shaftesbury, 1994).

A necessary drop of 1:100 metres has been calculated on the River Stirchel which is generally only some 3 m wide at present. Downstream it is joined by the Twyford Brook below Woodbridge Mill (Bench Mark 209 feet [64 m] OD) and flows into the Key Brook, thence into the Manston Brook (*c.* 150 feet [45 m] OD), and subsequently into the River Stour at West Orchard.

Stratigraphy described from excavation of the conservation pond in the north-western part of the water meadow (Lower Fens') was described as follows;- Peat at the base; then clay/silt 6 inches (0.16 m); succeeded by peat 2 feet (0.66 m); (John Giles, pers. comm.)

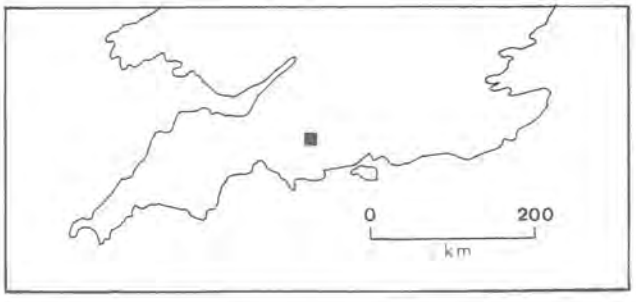


Fig. 1. The River Stirchel: Location Map.

Plate 1 Sluice No. 2 from north-west side, showing bridge with voussoirs.

WATER MEADOWS OF THE RIVER STIRCHEL (Fig. 2)

The difficulty of deciding whether field use described as Water Mead actually referred to a water meadow system is demonstrated at the extreme west of the parish of Melbury, where Richmans Water Mead is listed in an Indenture of 1796 (DRO D/GLY:C T26 1818) for which there is no topographic evidence, but as a subsequent Indenture of 1830 does not refer to Water Mead at all (*ibid.*), it seems unlikely that it existed as such and perhaps the name only referred to its proximity to the river. However, a field called Dry Mead almost adjacent to this water mead appears to emphasise the difference. A further complication appears on the Tithe Map for this farm, describing Broad Mead of 7.1.25. acres as Water Mead (DRO T/MAB 1839), which lies on a steep slope falling to the flood plain. But this in itself might have been suitable for 'catch drains', that is using a ditch, known as a 'draw ditch', aslant the hillside to drain water over land below (Boswell 1779, 88-9 and Kerridge 1953, 255), although there is scant evidence on the ground. In a recent lecture, the archaeologist of the Exmoor National Park, Veryan Heal, described 'gutters' across the contour of the slopes on an estate at Simonsbath on Exmoor, where their use was apparently widespread and which are thought to date from the 19th century or earlier. These were obviously similar to the 'catch drains' described above and, in the same way, were intended to provide early grass for the sheep. They are now being recorded. The owner of the estate in question had invented a plough for maintenance, known as the Acland Gutter Plough, an example of which can be seen in the Allerford Museum, Exmoor National Park. This type of irrigation was described by Marshall (1796, 345).

Other water meadows along the River Stirchel seem to have been completed from 1827 (DRO D/GLY:C T26) and as late as 1843, according to the rents listed in the *Accounts for the Parish of Melbury Abbas and Cann,* 1835-46, (DRO D/GLY:B E5), (Table 1), while those in the parishes of St. James, Shaftesbury and Compton Abbas are only dated from the appropriate Tithe Maps, (T/SY[SJ] 1840 and T/CAN 1841).

With the exception of the water meadow in Fens' (No. 5, see below), it has been virtually impossible to trace the old systems in their entirety even with the help of air photographs, as so much has disappeared following the creation and use of water cress beds from the 1920s until 1970 and their subsequent conversion into lakes, ponds or, unsuccessfully, as pasture.

From the early date of water meadows in other parts of Dorset it was assumed that those on the River Stirchel would be of similar age but no reference has been found before 1801, where a note on the back of a Deed of 1789 describes a 'piece of water meadow of 1.2.27. acres' within a yardland (15-20 acres) leased by Thomas Miles (DRO D/GLY:C T29), although this cannot be precisely aligned with any area recorded in the Accounts 1835-46 *(op. cit.)* or on the Tithe Map, but will be discussed below.

WATER MEADOWS IDENTIFIED (Numbers are shown on Fig. 2)

1. Henry Carter was the tenant of Summers Farm of which Batt Mead, 2.2.27. acres, was listed on the Tithe Map (1839) as Water Meadow and Wood (No. 45), but presumably this was not part of the total of 4.3.7. acres first shown in the Accounts (*op. cit.*) in 1845 for a rent of £6.18.0. per half year, the cost of construction being £231.6.7. From the air photograph (DCM B 3081), as well as partial recognition on the ground, meadows can be identified in Bottom South Close (No. 36), c. ST 884202. Perhaps Batt Mead c. ST 886202 was re-made into water meadows and included, removing the area of wood described above, but this is only speculation in an effort to reconcile the areas listed. It is noted that as late as the 1901 1:2500 County Map, five access bridges, which would be necessary adjuncts to water meadows, were marked over the river in Batt Mead. The actual construction date would seem to be confirmed by the 1846 entry for 'repair to water meadow the first year £3.10.0.' A Bench Mark nearby is 453 feet (138 m) O.D.

2. Catherine Foot, farmer, was the tenant late of Jenkins' or Chambrey's estate (in East Melbury) where water meadow of 3.1.14. acres (? c. ST 88552025) was constructed in 1843 at the expense of £127.3.10. for a rent of £3.16.3. per half year *(op. cit.)* This included her payment for draining stone and work in the water meadows and it has been noted that generally all these meadows were under-drained. Mrs. Foot's meadow would appear to be part of the field called Gasson (No. 47) which had been divided since 1839 (DRO T/MAB). Some confusion has been caused due to three of the four holdings listed on the Tithe Apportionment in East Melbury being occupied by the same members of the Foot family, but the two latter meadows recorded above fall within each tenant's or owner's lands as listed and are, therefore, probably correctly allocated.

3. Grove Farm was in the tenancy of William and Samuel Foot in 1839 but no fields were recorded as water meadow on the Tithe Map. However, the Accounts show rent being paid in 1840 for 6.2.13. acres of land 'made water meadow' at a rent of £9.0.0. per half year *(op. cit.)* As the remains of six sluices have been traced along the River Stirchel below Grove Farm and following the Melbury Brook northwards, the water meadows must have been contiguous, c. ST 88302025 - ST 88502040. It is postulated that the fields in question were those shown on the Tithe Map as Bottom Mead (Nos. 127-8), Coppice (No. 131) and part of Hanging (No. 132), with the woodland mentioned cleared in favour of water meadow and these were probably continuous with No. 4 below.

4. A small area referred to on the Tithe Map as 'Land' of 0.1.19. acres c. ST 882203, just west of Water Mead (5)© (see below), adjoining the Grove Farm meadows (1), was owned by William Young the tenant of Melbury Farm and rented by Richard Mullens for £0.2.1.

5.Higher and Lower Fens' and Water Mead. (Fig. 3)

Higher Fens' ⓑ, No. 148 on the Tithe Map is a meadow of 4.0.17. acres, Lower Fens' ⓐ, No. 149 is described on the Tithe Map as Water Meadow containing 4.2.25. acres and together with the adjacent Water Mead to the east ©, No. 146, also a water meadow of 2.3.30. acres, form a valley some 510 m long and 150 m at its widest c. ST 878206 - ST 882203. The name comes from *fenn* (fen), a surname, recorded in 1564 as *terr[a] voc[ata] Vennes* (Mills 1989, 132) presumably originating from the marshy nature of the ground. An earlier document describes the water meadow ⓐ as Long Mead of

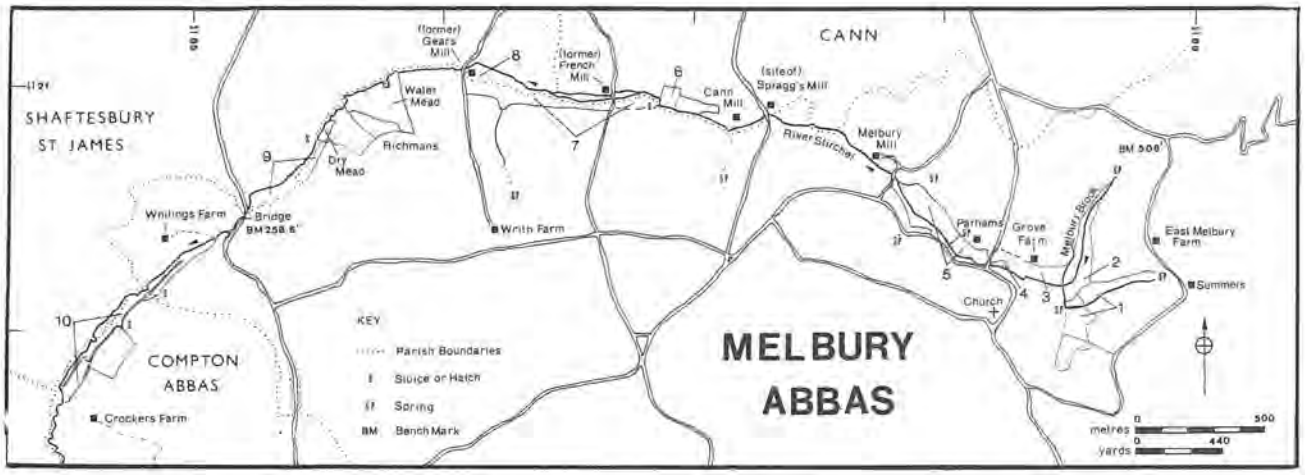


Fig. 2. Water Meadows of the River Stirchel from Melbury Abbas to Compton Abbas. Numbers described in text.

4.2.33. acres, the slight anomaly in size may indicate estimated rather than statute acres (DRO D/GLY:C T26 1827) and the name is more descriptive if somewhat confusing and had obviously been juxtaposed between that date and 1839 (DRO T/MAB).

The Account Book for the estate from 1835-46 provides essential information about the water meadows (*op. cit.*) and records James Whitmarsh of Houses Farm paying 'extra rent here some time in respect of part farm made water meadow, rent £3.7.6. per half year' and helpfully, the name Fens' Mead is listed the following year, as is Deep Mead in Cann, (No. 6, see below.) In 1841, additional water meadow of 1.2.25. acres (Fig. 3 ⓓ) is recorded in Fens' Mead at a rent of £2.0.0. per half year for which the outlay was £67.11.0. The problem of this extra part was resolved when it was realised that part of Higher Fens', incorporating an angular ditch, was the area in question ⓓ and similarly in Water Mead, where an extra 0.1.38. acres ⓔ, (part of No. 147), was added to the system. The small area ⓕ was never part of this parcel of land as the ditch did not extend that far. Logically it would appear that additional water was needed, which involved making a ditch to channel the spring water draining from above, and this was apparent when two large dressed stones, recently disturbed by construction of a small pond in the angle of the ditch (Fig. 3 ⓗ), would appear to have diverted the water to either side. Another sluice some 20 m along the ditch to the west (4) would have controlled the supply. Presumably water then spilled over from the ditch as in the 'catch drain' system and drained into the river, nourishing the grass and increasing the water supply for the mill. At his time it was noticed from the topography that the flatter area below the stones might previously have contained a meander of the river, perhaps straightened when the meadows were originally set out (John Giles, pers. comm.).

It is largely through air photographs that the lay-out of the meadow in Lower Fens' (or Fens' Mead or Long Mead), has been tentatively recorded (*History of Melbury Abbas* 1985, Melbury Abbas Womens' Institute and DCM B 3082), (Fig. 3). A pond of some 0.5 ha has been constructed in the north-western part, but to the east it is still possible to see the outline of some of the panes. The remains of two stone sluices and their adjacent bridges, probably made from the local Upper Greensand with appropriate grooves to receive the hatches, (Plates 1 and 2; Fig. 3, sluices (2), (3) & (7), survive on the river. The bridge near sluice (2) is neatly made with voussoirs of dressed stone (Plate 1). Sluice (3) controls the carrier to the last two series of panes to the north-west, now only traced on the air photograph. A channel near (7) would have needed a sluice to get the required head of water to feed the first set of lengthwise panes, and stones seen in the ground beyond it suggest that one may have existed (8), but this must be conjectural. There is another sluice on the opposing ditch (5), and the remains of what was apparently a connecting sluice (6), disturbed during construction of the pond, which would allow for feeding two other sets of panes as shown, via the ditch, although this too is speculative. The large, curved stone (Fig.3 ⓖ), partially diverts the water in the ditch into an arched stone tunnel to the rear, with grooves for a sluice and a stone-lined floor, and is set into the near-vertical hillside behind. This tunnel continues underground for c. 8 metres, running parallel to the ditch and emerging into it again lower down. Its use, perhaps to divert water, is problematical, although one theory is that there had been a bridge over the ditch at this point, and the tunnel safeguarded the flow of water. It is apparent that the river bed and banks round the various sluices were in all cases stone-lined. This is an attempt, therefore, to show how the meadow was floated (Fig. 3), by interpretation of air photographs and features on the ground,

1.	Carter, Henry,Summer's Farm. 1845 water meadow 4.3.7. acres at cost of £231.6.7. 1846 repair to water meadow the first year £3.10.0.	£13.16. 0.
2.	Foot, Catherine, farmer, Jenkin's or Chambrey's estate 1843 water meadow 3.1.14. acres at expense of £127.4.10.	£7.12. 6.
3.	Foot, William and Samuel, Grove Farm. 1840 water meadow of 6.2.13. acres.	£18. 0. 0.
4.	Young, William, rented Richard Mullens. 1839 water meadow of 0.1.19 acres.	£0. 2. 1.
5.	Whitmarsh, James, Houses' Farm. 1838 water meadow in Fens Mead 4.2.25. acres 1841 additional water meadow of 1.2.25. acres outlay £67.11.0. Miles, Mrs. Anna, widow, Parhams. 1838 in Water Mead 2.3.30. acres 1841 additional water meadow of 0.1.38. acres outlay £15.0.0	£6.15. 0. 4. 0. 0. £6.10. 0 0.18. 0
6.	Whitmarsh, James, Houses' Farm. 1839 water meadow in Deep Mead, Cann, 1.2.27. acres.	£1.10. 0
7.	Young, William, Melbury Farm. 1839 water meadow in part Great Mead 7.1.13. acres.	£20. 0. 0.
8.	Hunt, Thomas, Gears Mill. 1839 water meadow 2.1.15. acres	- - -
9.	Bennett, James, Whiting's Farm, Melbury Abbas/Shaftesbury St. James. 1839 water meadow 3.1.12. acres (Stephen Shute, tenant)	£1. 7. 0.
10.	Baker, Robert, Crocker's Farm, Compton Abbas/Shaftesbury St. James. 1839 water meadow 7.0.35. acres total (Jane or James Miles, tenant)	£2.14. 2.

COSTS (approximate)		
1.	Annual rent £2.18.0. per acre.	Construction £48.14.0 per acre.
2.	Annual rent £2.6.0. per acre.	Construction £38.12.0. per acre.
3.	Annual rent £2.14.0. per acre.	
4.	Annual rent £2.14.0. per acre.	
5.	Annual rent £1.9.0. and £2.9.0. per acre. Annual rent £2.4.0. and £1.14.0. per acre.	Construction £41.0.0. per acre. Construction £30 per acre.
7.	Annual rent £2.14.0. per acre.	
6, 8, 9, & 10, low rents not relevant to these figures.		

Table 1. Rentals of water meadows recorded with estimated costings from Account Book for Melbury Abbas and Cann, D/GLY:B D/E5, Tithe Maps: DRO T/MAB 1839: T/CAN 1841: T/SY[SJ] 1840.

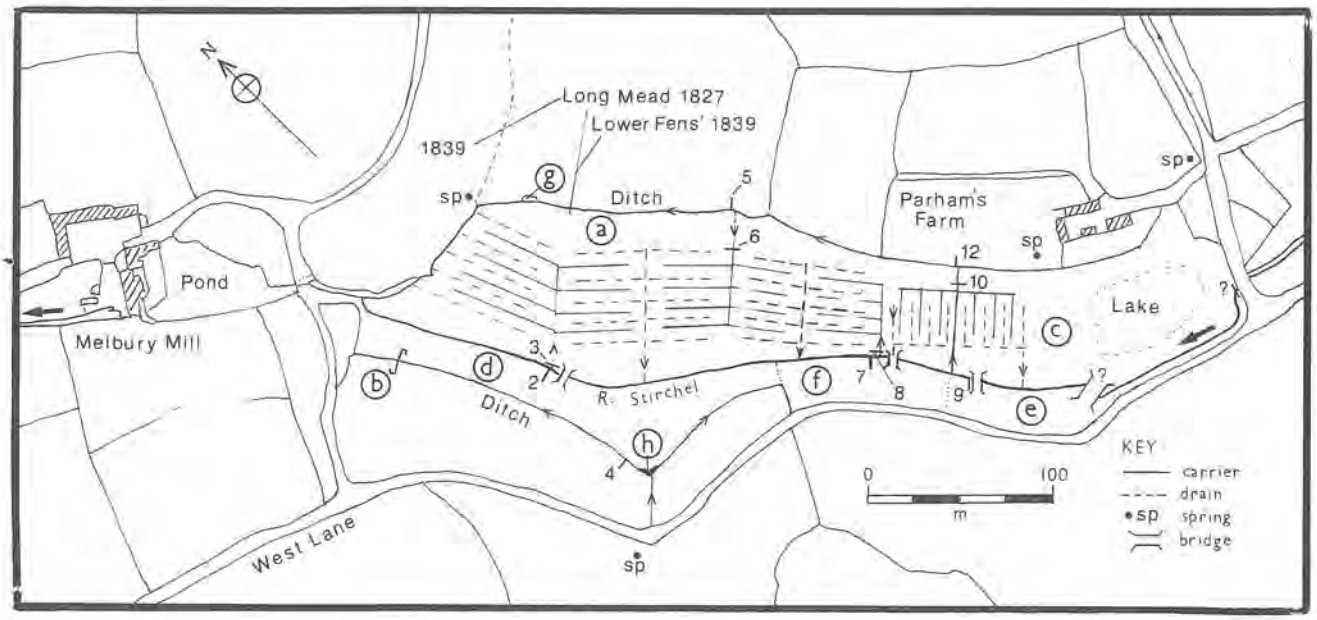


Fig. 3. Speculative reconstruction of system of floating the water meadow at Lower Fens'. The three series of panes to the west are now covered by a lake, but have been drawn from air photographs. The remaining series of panes are just visible on the ground. The lake on the extreme east would appear to cover further areas of water meadow; the bridge shown below no longer exists. It is apparent that sluices 6 and 8, and drains returning water to the river must have been present. KEY: ⓐ Water meadow named Long Mead in 1827; Lower Fens' in 1839 ⓑ Higher Fens' in 1839. ⓒ Water Mead in 1839. ⓓ & ⓔ Additional water meadow in 1841 ⓕ Land not used in water meadow system. ⓖ 'By-pass' - tunnel under bank for some 8 m. ⓗ Stones in angle of ditch. Numbers refer to sluices, excluding Nos. 1 & 11. No. 8 is conjectural.

but it must be emphasised that lack of information such as the position of entry of the drains to the river and other uncertainties make it only an estimation.

Water Mead ⓒ is the extended south-eastern part of the valley (No. 146 on the Tithe Map). Mrs. Anna Miles, widow, was the tenant in 1838 with her son Richard jointly later in the year and in 1840 Eli Miles also became a joint tenant. The meadow has the remains of a sluice (9) by a bridge over the river but use of the area for water cress beds, a trout farm and now a lake of 0.25 ha has removed most of the evidence. Another grooved stone, probably part of a sluice has been found but not *in situ*. The original area was 2.3.30. acres, which is assumed to be the extent of the meadow, and although this was not confirmed in the Account Book, from the rent it would seem likely. An additional 0.1.38. acres ⓒ was recorded as described above. The remains of three panes of water meadow can be traced on the ground and have been shown in Fig. 3 as contiguous with those in Lower Fens' but this position is uncertain. No doubt the meadows originally extended eastwards where the lake is now, and may indeed have been continuous with those higher upstream. A Bench Mark nearby shows 375.2 feet (114 m) OD.

6. Deep Mead, Cann. ST 869209

James Whitmarsh of Houses Farm was the tenant. This area of 3 acres has been traced as part of Spragg's Mill (now demolished) from 1680 when the rent of the mill with garden and land was 15s 3d (WRO 2667/11/231) and similarly in 1748 with 3 acres (WRO 2667/15/24). In 1803 Thomas Miles had the mill and two enclosures with the same rent for 3.0.30. acres (WRO 2667/11/265) and in 1829 James Miles had the same (DRO D/GLY:B M11). In 1836 he had Mr. Glyn's mill (Sir Richard Glyn owned the estate) and the mill was to be re-possessed, so no rent was charged for the meadows 'the same not having been fed since Michaelmas last', so finally in 1839 Deep Mead of 3.0.30. acres became part of James Whitmarsh's tenancy (in Cann, No. 188 on the Tithe Map DRO T/CAN). The original area of 1.2.27. acres, referred to in 1801, must only have been a part but it seems from the continuity of the tenancy, that this is the meadow in question. The air photograph (DCM B 3083) shows the eastern part as a likely water meadow, confirmed on the ground, and rough calculation makes it near to the amount described above. A large sluice shown on the river (County Map 1901, 1:2500) would provide a head of water for flooding, with another sluice identified for the meadow to the west and south of the river. The rent in the Accounts of 15s. per half year would seem to conform to the average of the other meadows, assuming only part had been laid out as water meadow. A Bench Mark some 300 m east is shown as 341.3 feet (104m) OD.

7. Broad Mead, (now Writh Farm). ST 86102095 - ST 86802090

This meadow of 7.1.13. acres was in the tenancy of William Young of Melbury Farm from 1839 (Nos. 310 and 205, DRO T/MAB), for which the rent was £10.0.0. per half year. It lies south of Gear's Mill and runs alongside the river westwards to French Mill and apparently beyond. It is notable that a similar V-shaped ditch, as in Fens' Mead, with stones in the angle perhaps acting as a sluice, forms the southern boundary incorporating and diverting the spring water from above.

The ground is boggy and uneven but traces can be seen of stones with iron bars inserted for hatches in three places, presumably the remains of sluices, and connecting channels are apparent from the darker green of the grass, curving in places to fit the topography. It seems to have continued beyond French Mill to a point opposite Deep Mead which lies on the north side of the river and the total length of this stretch is c. 3.5 km. A Bench Mark at Gear's Mill is shown as 290.4 feet (88.5 m) OD.

8. Water Meadow, Gears Mill. ST 86202105

Thomas Hunt is recorded as tenant of this water meadow of 2.1.15. acres in the parish of Cann (No. 204 on the Tithe Map). His rent in the Account Book *(op. cit.* 1837-45) of £2.0.0. is for two meadow fields but he is credited with £2.17.6. for carriage of limestone used in making a Water Meadow, presumed to be this one. Today the area is a lake so it is not possible to be more specific.

9. Whitings Farm, Shaftesbury St. James and Melbury Abbas.

ST 85502080 - ST 85252050. These fields named Water Mead of 3.1.12. acres are on the flood plain of the River Stirchel, just outside the western fringe of the parish of Melbury Abbas. The parish boundary passes through the upper field, with traces of a bank evident on the ground, but while the area in Shaftesbury St. James is described as water meadow, the small part in Melbury is named 'Land' and its use as meadow.

Stonework of a heavy sluice can be seen at ST 855208 and the landowner, Mr. Garratt, remembers his father using the hatch in the 1930s. The fast-flowing river is at least 2 m below the bank at this point to get the necessary head of water, and over 3 m wide, while lower down the bank is raised up to prevent the river overflowing. There is a bridge adjoining the hatch. Stones in the meadow at right-angles to the river are probably the remains of a sluice, with a possible ditch running south through the meadow, but it is not clear how the system would have worked.

However an attractive brick bridge (Plate 3) some 400 m downstream from the hatch, was at one time said to carry the river under the road, although this is not certain, but it was evidently built as part of the water meadow system, even though the river is now piped separately alongside. The bridge of possibly late-l8th or early-l9th century date, is quite elaborately constructed of header and stretcher brick-work with recessed panels. A Bench Mark is exposed on one side which is shown to be at 258.6 feet [79.5 m] OD, recorded on OS map 1:10,560 of 1886. There are two neat arches with voussoirs, now only a drain, and some 2 m away facing them from the field upstream is a stone embrasure, almost covered with mud and vegetation, and with grooves just visible on the end faces. This was obviously a sluice but it is not evident how the system worked.

10. Crocker's Farm water meadows, Compton Abbas. ST 848202-ST 845198. This system is similar to that described above in that the parish boundary runs through part of it, but in this case both areas, including that in Shaftesbury St. James, are described as water meadow in the same tenancy of James (or Jane) Miles and apparently being worked as one meadow. In Compton Abbas there is 5.3.38. acres with rent of £2.6.0. and in St. James 1.0.37. acres for a rent of 8s.2d. although the total acreage from the 1901 Map is slightly more. This meadow also lies in the flood plain of the River Stirchel c. 212 feet [65 m] OD and has another V-shaped ditch with sluice, taking in water from the hillside above. The purpose of the gaps in the ditch on the south side is not understood unless they were acting as 'stops' to slow down the flow of water. There is no evidence of a sluice at the lower end. The field higher up, beyond the sluice, as shown on the 1:2500 County Map, also had a ditch running part way through the centre, though not evident today, but the owner says it was not a water meadow.

There are likely to be other water meadows further downstream where fields are named 'Hatch' but it has not been part of this study to investigate further Water meadows on other rivers in the county include some known on the River Stour (Peter Irvine, pers. comm.) and evidence from the River Wriggle (Dennis Seaward, pers. comm.)

Plate 2 Sluice No. 2 from south-east side, showing remains of sluice and grooves for hatch.

FINANCIAL ASPECT

From an economic point of view, it is instructive to compare the costs with those noted by Stevenson from various estates in Dorset (1815, 305-367). The spring feed, that is the early grass for the ewes, is recorded by him as valued on average at 20s. to 30s. per acre, (when unimproved meadows would be 10s. to 12s. per acre), whereas the Accounts of 1835-46 for Melbury show rents to average approximately £2.0.0. to £2.15.0. per acre, about double. (It is not clear whether Stevenson's valuation is in fact the rent, so perhaps these figures should not be equated). The charges for construction are enormously inflated in spite of the fact that the tenants seem to have paid some of the costs of under-draining etc. for which it appears they were reimbursed. Both Stevenson and Boswell estimate costs at £4. to £8. per acre (1815, 360 and 1779, 118), with Davis in his *General View of the Agriculture of the County of Wiltshire*) ranging from £12. to £20 per acre (1794, 106), whereas at Melbury calculations show they extend from £30. to £48. (Accounts, *op.cit.)* This huge difference may have been due to the nature of the terrain with the difficulty of converting narrow strips of the flood plain of the River Stirchel into water meadows. It does, however, demonstrate how profitable these meadows were seen to be and what improvement could be made to otherwise useless, boggy land.

Although the hay from the water meadows was coarser and, therefore, of poorer quality fetching lower prices, the yield would still be 1 to 1½ tons or more per acre, whose overall value was greater than the ¾ ton to 1¼ tons per acre from unwatered meadows. (It was, however, stated that if the water meadow grass were cut young, it was never coarse, and only so when left too long, Attwood 1963, 408). The 'after grass' for the cattle in the late summer was estimated at about 15s.0d. per acre but is not recorded at Melbury. Stevenson states, therefore, that if the rent is equal to half the value of the produce, the dry mead would be worth 50s. and the watered mead 67s.6d., a superiority of 17s.6d. per acre (1815, 371).

CONCLUSION

The outstanding facts which emerge about these water meadow systems, are their apparently late date compared with others in the county, the suitability of the river with its chalk-laden water and steep gradient and the enterprise and progressive management of the estate continuing these apparently costly but profitable improvements, following its purchase by Sir Richard Carr Glyn, Bt. in 1829 (DRO D/GLY:C T26).

Boswell's skill and knowledge resulted in an invitation from the newly-established Board of Agriculture to try an experiment of watering Hyde Park and St. James's Park in

Plate 3. Brick bridge near Whitings Farm.

London, which he describes in a letter to his friend George Culley in Northumberland. However flattering this recognition of his skills may have been, Boswell declined saying 'I very much doubt the utility of those things in the hands of Lords and Dukes. Plain Country Farmers are not at home when they are with such sort of Folks...and to answer such Questions as they may deign to ask you ... will not suit the Stomach of Your sincere Friend, An Englishman' (1793, 155-6).

ACKNOWLEDGEMENTS

I extend my grateful thanks to Mr. John Giles, of Barfoot Farm, Melbury Abbas, for permitting all the necessary investigation into the former water meadow and for much advice and practical help. I owe a great debt to Mrs. Hilary Griffiths for her support and hard work in recording and clearing parts of the site. The Principal of the Dorset College of Agriculture, Kingston Maurward, kindly introduced me to Mick Legg, the farm manager, who was able to advise me from his invaluable knowledge of the former water meadows now part of Kingston Maurward, which I greatly appreciate. Much help and co-operation was also given by other landowners in identifying the various meadows, namely Mr. A. Copley, Mr. D. Garrett, Mr. E. Gawler, the Rev. E. Jacson, Mrs. A.M.I. Meaden, Mr. R. Phillips, Mr. B.G. Pike and Mr. J. Stockley. I am grateful to Mrs. S. Dudman of Melbury Abbas Womens' Institute for her interest and discussion about the parish.

It was most instructive to visit the working water meadow at Britford, Wiltshire, and I thank Mr. Peter Martin for making it possible to see the flooding in operation and I also thank Veryan Heal, Archaeologist to Exmoor National Park, for permitting me to quote from her lecture. I am most appreciative of the valuable information, copies of air photographs and advice relevant to the meadows which I have received from Peter Cox, Val Dicker at the Dorset County Museum and the staff of the Dorset Record Office and County Reference Library.

BIBLIOGRAPHY

Attwood, G., 1963, 'A Study of the Wiltshire Water-Meadows', *Wiltshire Archaeological Magazine*, Vol. 58, pp. 403-413.

Bettey, J.H., 1977, 'The Development of Water Meadows in Dorset during the Seventeenth Century', *The Agricultural History Review*, Vol. 25, Part 1, pp. 37-43.

Boswell, George, 1779, *A Treatise on Watering* Meadows.

Boswell, George, 'Letters, 1787-1805', James, J.F. and Bettey, J.H., (ed.), *Farming in Dorset,* (Dorset Record Society).

Kerridge, E, 1967, 'The Floating of the Wiltshire Water Meadows', *Wiltshire Archaeological Magazine,* Vol. 55, pp. 105-118.

Marshall, William, 1796, *The Rural Economy. of the West of England and including Devonshire and parts of Somersetshire, Dorsetshire and Cornwall,* Vol. II.

Mills, A.D., 1989, *The Place-Names of Dorset*, Part Three.

Ross, M.S., 1993, 'Melbury Abbas: Medieval Pottery in Perspective', *Proceedings of the Dorset Natural History and Archaeological Society*, Vol. 115, pp. 111-119.

Stevenson, William, 1815, *General View of the Agriculture of the County of Dorset.*

Warne, James, 'Diary, 1758', James, J.F. and Bettey, J.H., (ed.), *Farming in Dorset,* (Dorset Record Society).

Whitehead, B.J., 1967, 'The Management and Land-use of Water Meadows in the Frome Valley, Dorset', *Proceedings of the Dorset Natural History and Archaeological* Society, Vol. 89, pp. 257-281.

Abbreviations:

DCM - Dorset County Museum
DRO - Dorset Record Office
WRO - Wiltshire Record Office

ARCHIVE

All relevant maps and documents will be lodged in the Dorset County Museum following publication.

Weymouth's Spas - Nottington and Radipole

A Mansel-Pleydell Prize Essay 1994

D.M.H. REEBY

Studies of Weymouth's sulphur springs have concentrated mainly on the qualities of the water and the facilities offered by the spas in the 1830's. Here a more general history is attempted tracing the condition and exploitation of the springs in the eighteenth and nineteenth centuries, considering the parts played by certain individuals and suggesting reasons for the late appearance of the spas.

The history of the spas themselves and the identity of the people involved in their development are examined here. These aspects receive little attention in earlier accounts, which deal mainly with the nature and medicinal use of the water.

For present purposes it is sufficient to describe the very similar water at Nottington and Radipole as sulphurous and slightly saline. It was probably beneficial to some extent in disorders of the skin, eyes, blood and urinary passages for which medicines containing sulphur compounds were used until recently, and being mildly antiseptic it would be good for washing wounds and sores. In the past many other claims, some quite unrealistic, were also made for it.

The accepted history of the two spas, drawn from easily available sources, tells of different beginnings but of parallel development in the 1830's. Nottington's spring was known and used locally in the early years of the eighteenth century. The Radipole source is sometimes said to have been known to the Romans *(Southern Times*, 3.7.1937, 12*)*, but if so it was lost in succeeding centuries and not (re)discovered until 1830. The spas were built in 1830-31 over individual sulphur springs, after the almost identical waters and been analysed by experts from London. Their pump houses offered a similar range of treatments at similar prices (often listed in detail). After some years of popularity they fell into decline. When the spas ceased to function the mineral waters were put to a different use, as both were followed by laundries. Radipole Spa was later demolished but Nottington Spa remains as a curiously shaped private house.

A few individuals receive brief mention in connection with Nottington: Dr Archer, a local physician; Thomas Shore, founder of the spa; and Robert Vining, the architect. The only name given for Radipole is that of the chemist Richard Phillips, who tested the water.

The story seems simple enough, a tale of the rise and fall of twin establishments which achieved brief success at a particular stage of English history. But when attention is directed to the spas' development in relation to eighteenth and nineteenth century ideas, or when an attempt is made to collate the results of exploration in the field with the few details provided by books, the simple picture becomes suspect. Some things seem not to fit.

If Nottington's medicinal spring was known 'for time immemorial' (Crane, 1788, 29), why was it not developed earlier, in the eighteenth century heyday of spas, or at least at the turn of the century when royal patronage of Weymouth would almost certainly have ensured a fashionable clientele? Why, after such a delay, did both spas appear in 1830-31? More puzzling in a material way is the mismatch of Nottington well's known position today, in the Spa House cellar, with a position clearly some twenty yards further to the south east as shown on a precise engraving by Peter Delamotte *c.* 1788. And where are Radipole's medicinal waters now? They seem to have disappeared as completely as the pump house which once graced them. It looks as if one spring has shifted, the other sunk without trace.

As initial enquiries raised these and other questions, it was hoped that further research into the sequence of events and the parts played by individuals would both augment and elucidate the spas' thin history.

From Spring to Well

Nottington spring remained in its natural state during much of the eighteenth century, as can be seen from Hutchins (1774, 420). Earlier accounts, concerned mainly with the water's qualities, yield only scraps of information about the spring but their dates of publication help to establish a chronology.

The first known written record is notable for its occurrence in the Minutes of the Royal Society, in 1719/20. Two flasks of water from 'a spring near Wymouth' had been sent to the Society by a Mr Cruwys, who said in his accompanying letter that the spring rose 'in a small island in the middle of a river' (*Royal Society Journal Book Copy* 1719/20, 445). This was certainly not the case: Mr Cruwys may have mistaken the spring's overflow pond for a widening of the Wey. His further comments, that some gentlemen who had drunk the water had found it more beneficial than Bath water, and that country people used it 'to cure their cattle and doggs of scabb and mange which is done by once washing them in it' suggest that the spring was not enclosed and was freely available for public use at this time.[1]

Thirty years later, in 1749, another much-travelled water sample was examined by Dr John Rutty of Dublin who realised 'the predominant minerals in Nottington water are sulphur and the native alcaline salt' making it 'eminent in curing foulnesses on the skin' (Rutty 1757, 520). He had not visited the source himself and mentions it only as 'the fountain head' where coins or silver objects left lying in the water changed colour. One can hardly infer more here than the presence of clear, shallow water - common to most springs.

Another mid-century work often quoted is Richard Russell's *A Dissertation on the Use of Sea-Water in the Diseases of the Glands*. The Nottington 'fountain head' is mentioned in its fourth and subsequent editions *...to which is added An Account of the Nature, Properties and Medicinal Uses of the MINERAL WATERS in the different parts of England, by an Eminent Physician* (Russell 1760). Extracts from this work are usually introduced as 'Russell, on Mineral Waters, says...', although the added account of mineral waters was from a different pen. The 'Eminent Physician' to whom it is attributed must have been Dr Rutty or someone using his work, as a comparison of texts (Russell, 1760 308, Rutty 1757 519-520) at the British Library shows Russell's section on Nottington water to be a shortened version of Rutty's with identical wording apart from omissions. Further abbreviation in Weymouth guide books, together with slight misquotation, has allowed an assumption of separate authorship to continue. What Russell's addendum contributes to the Nottington story is not more local information, but an impression of the water's increasing reputation as it became known in university circles and was compared with other sulphurous sources as far apart as Moffat and Naples.

Hutchins alone among early writers gives what sounds like a reliable, first-hand description of Nottington spring. 'In this vill is a medicinal spring. The mud and earth about it is blue. In frosty weather it is thick and blackish, and the surface covered with a thick oily film, and never freezes. It has a strong foetid sulphureous smell, not much unlike gunpowder newly inflamed, and a flavour resembling boiled eggs, sometime rotten eggs; its colour, when viewed from above in a tin vessel, is bluish' (Hutchins 1774, 420).

This account of a spring surrounded with mud and earth shows that Hutchins' observations predated the building of an encircling low stone wall to which many later writers refer. 'Dr Archer, who formerly resided in this part of the world,' John Love writes in *The New Waymouth Guide* of 1788, 'and who placed a stone collar about the spring, to prevent the cattle (by

[1] The chemist who tested the water for the Society did not remark any trace of sulphur, the fugitive hydrogen sulphide gas having presumably escaped before the sample reached him (*Royal Society Journal Book Copy*, 1719/20, 455-6). For a discussion of experiments and observations made before accurate analysis was possible, see Osborn 1982, 20-23.

treading there) from filling it up with dirt, said it deserved a collar of gold!' (Dr Archer's alleged exclamation is attributed to various other speakers by nineteenth-century authors.) 'Many others', Love continues 'since that time, have, for the benefit of mankind, endeavoured to rescue it from the despoils of the ignorant and inattentive by similar benedictions'. His wording makes it seem likely that the first wall was built soon after Hutchins wrote his description of the spring (possibly some years before publication).

The stone collar marked the beginning of the source's transformation from a spring to a well. Although as late as the 1820's it was still sometimes termed a spring, after this first constriction it was always enclosed in some way.

Dr Archer's enclosure of the spring is always referred to as an individual undertaking, but an idea of joint action was also floated, as the *Sherborne Mercury* (11.9.1775, pp) reports:

> 'We hear from Weymouth, that a spring has been lately discovered at Nottington ... exactly the same as Harrowgate water, and that the nobility and gentry are raising a subscription to enclose and make it convenient to the public'.

The 1770s and 80s saw an upsurge of interest in both sea water and mineral water treatments. Weymouth was becoming a favoured resort and guide books to the locality appeared. In some of these the entries on Nottington water were revised in successive editions as new treatises were published, notably those by the physicians John Crane and Robert Graves.

John Crane's undated work, *An Account of the Nature, Properties and Medicinal Uses of the Mineral Water at Nottington*, was probably published in 1788 or 1789, as the second edition of Peter Delamotte's guide book cuts short the first edition's extracts from Russell and Rutty and recommends instead 'a very ingenious Treatise on the virtues of these waters ... lately published by Dr Crane, of Dorchester, to whom we refer the reader, (Delamotte 1785, 92-96 and 1789, 145). It was in Mr Delamotte's interest to advertise the new treatise, as he was also its publisher and illustrator.

In the first section of his work, Dr Crane sets down contemporary views on the nature of the water based on 'experiments ... made by different persons at different periods of time'. He had not conducted tests himself; indeed, he says unequivocally that physicians should devote their energies to their patients' welfare rather than indulging in experiments for their own amusement. This is mentioned here because Crane has been criticized for the views on the nature of the water that he sets out, as if he were author rather than retailer of those views (Groves 1896, 142; Osborn 1978, 25). For himself, he admits with engaging candour his belief that the secrets of mineral waters' powers are beyond complete understanding.

Dr Crane's overriding interest was in the use of the water for his patients' benefit, and that use was hindered by the state of the well. One reads 'The well ... in a very bad condition from neglect ... has not been made use of externally for a considerable time past', or 'The approach to the spring is at present extremely inconvenient, it affords no shelter in bad weather ... and many other awkward circumstances ... which all who have occasion to visit it complain of'. One of the awkward circumstances was the local habit of 'washing diseased animals. The abhorred idea of their being dipped in the well, has deterred many people from using the water, ...'

Pondering on how to make the water both sanitary and accessible, Dr Crane envisaged a circular pump room with a stone seat round the inside wall, with glasses provided, the keys to be lodged at a nearby house; a tank for bathing human limbs; and a 'stone cistern sunk at a proper distance to receive the waste water ... for ... washing diseased animals.' So convinced was he of the water's value that he was prepared to raise money by public subscription and put improvements in hand himself.[2]

There was, however, a complication. 'While the writer of this tract, had it in contemplation to submit to the public a plan to render the spring of more general use,' Crane tells his readers, '... he did himself the honour to communicate his design to some gentlemen of fortune [with] property near the spring ... It not only was a mark of respect ... but there were local circumstances with respect to the right of the property, which rendered it incumbent on him to act with becoming attention to each of the gentlemen, *without presuming to understand the validity of either of their claims*'.

Dr Crane's words suggest that it was not known for certain to whom (if to anyone) the spring belonged. This impression is reinforced by recollection that none of the early accounts mentions a proprietor. The medicinal spring, used by 'country people', was first walled around by an interested physician 'who formerly resided in this part of the world', and 'many others' had made some attempt at upkeep. The spring's location may have contributed to its free situation, for it arose at the very edge of Radipole parish, and not in a (private) field but beside a publicly-used track along which the parish boundary ran. Indeterminate or disputed ownership may have been the case through most of the eighteenth century, placing an invisible constraint on development.

Of the 'gentlemen of fortune' to whom Dr Crane communicated his design, *c.* 1788, one is likely to have been Gabriel Steward Esq, M.P. for Melcombe Regis (Harvey 1800, 79). The Steward family's estate, lying mainly in the northern part of Radipole parish, included the fields immediately south and west of the well. (Thirty years later, after piecemeal extension of their estate into Broadwey (DRO, T/BDY), the Stewards owned the land on all sides of the well and were its acknowledged owners). The identity of the second claimant is not known. It is likely to have been a Broadwey landowner, but property descriptions on the Land Tax schedules are too brief to reveal precise land ownership in the vicinity of the well.

In the event, Dr Crane was spared the trouble of improving the well himself, for on the last pages of his treatise he is able to inform his readers, 'Since these sheets went to the press, the well has been properly cleansed, a stone wall has been built round it, and by the same benevolent hand, if the writer is not misinformed, it is further intended to convey the water by a trough to a cistern for external use.' Approval is tinged with a note of regret as he goes on, 'Though the plan on which this has been conducted, falls rather short, of what it is hoped will be hereafter effected; it still redounds much to the credit of this disinterested benefactor ... who does not aim at establishing any claim whatever to the property of the well ...' The benefactor's identity would have been known locally at the time without his name being printed, but cannot be stated with certainty today.

There are two contemporary illustrations of the well enclosed by the benefactor's new wall. The first of these, by P. Delamotte, prefaces Dr Crane's treatise.[3] It shows the stone structure as a single turret standing against the (Stewards') field boundary hedge, at a corner which is now one of the sharp bends on Nottington Lane. The unsurfaced lane slopes down towards the viewer and roofs of surviving houses can be recognized. In the foreground, swans swim on an overflow pond fed by a small outlet at the base of the wall.

This lacks background details but is more informative about the austere enclosure, which was in place throughout the period of royal visits to Weymouth, 1789-1805. King George III and his company stopped at Nottington well to drink the water on several occasions and the Queen sometimes took the princesses separately (Denbigh 1981, 121; *Public Advertiser* 27.9.1791).

The stone enclosure was no novelty when Robert Graves M.D. was in Weymouth in the summer of 1791 in attendance on the court. In his *Experimental Inquiry into the Constituent Principles of the Sulphureous Waters at Nottington* ..., issued the following year, Graves speaks of 'the spring, surrounded by a stone edifice'. He adds details of associated deposits which suggest personal observation: 'On the inside of the well may be clearly distinguished a circular whitish border, which marks the height to which the water commonly rises; and along the channel by which the water is discharged a copious yellowish white deposition may be seen adhering to the blades of grass and stones'.

[2] If Dr Crane nurtured this idea for some years before his treatise was published, it could have given rise to the *Sherborne Mercury* report.

[3] Pale ink on unbleached paper makes reproduction of this delicate drawing difficult. The interested reader is urged not to judge it by the infelicitous representation in *Proceedings* 104, 19 (where it is mistakenly said to show Dr Archer's collar), but to seek out an original print, eg in Hutchins 1803, vol 2, 108.

Drs John Crane and Robert Graves, authors of substantial treatises published only three years apart, were men of different generations. Dr Graves, the younger man, down from London for the season, was a member of several learned societies. He speaks slightingly of 'a late Writer on the Nottington Water', clearly meaning the elderly, provincial physician Dr Crane, with his (to Graves) old-fashioned ideas and limited grasp of chemistry. Scientists were making great advances at this time in their work on the nature of liquids and gases. Graves was conversant with the new ideas and in his treatise quoted from learned papers in British and French medical journals. He was equipped with a 'pneumatic machine' and to his credit was the first person to measure the dissolved 'sulphurated hydrogen' gas which is mainly responsible for Nottington water's special character. (Not all his pronouncements would be acceptable to modern chemists; he also speaks of 'phlogisticated air)'. On the medical side, differences between the two men's views are less marked, although Graves' claims for the water's powers are the less extravagant. Graves sees no point in recommending it for external use 'until some method be taken to remedy the present inconvenience, which would attend the employment of it for the purposes of bathing'. The additional facilities which Dr Crane hoped the benefactor would provide had evidently not materialized and the Grimm enclosure provided only half an answer to the spring's lack of convenience.

The position of the well with its stone edifice is marked by a dot on the fair drawings of the topographical survey of South Dorset (Weymouth area) made by the Royal Military Surveyors and Draughtsmen in the years 1805-1807) (BM 1805)[4]. A rectangular building immediately north of Deutzia Cottage (see Fig. 3), where no trace of a building remains today, is shown as the nearest house to the well and may have been the one at which the key was kept.

(Nottington's building pattern changed greatly between 1805 and 1840, as can be seen from descriptions in Ricketts 1977 55-62.)

After the stone enclosure was built, no major improvement of the well seems to have taken place for twenty-five or thirty years, although from time to time vague intentions were aired. The 1816 edition of Kay's *Weymouth Guide*, for instance, reports 'The present owner of the spring is about to build some baths and apartments for those who may be induced to try its efficacy' (Kay 1816, 37). A treatise written by J. D. Pickford a few years later,[5] leaves no doubt as to the identity of the then 'present owner'. The work is dedicated to Lieut.-Col. Steward, whom Dr Pickford assures, 'I am well acquainted with the benevolent disposition of your mind; and I am happy to be assured that ... you, as Proprietor, intend to put the Wells, containing the Nottington Water, in a state of complete repair, for the better accommodation of the Bathers, and for the more extensive relief of the Afflicted ...' (Pickford, n.d.,v).

Most of Dr Pickford's patients drank the water, which although best drunk fresh from the well, could now if necessary be taken away, well corked· 'By arrangements which the Proprietor has made ... the Water can be bottled fresh every morning for the use of those persons who may not be able to attend on the spot'.

It appears from Dr Pickford's anticipation of 'better' accommodation for bathers that a facility had been provided - some kind of receptacle for spring water, out of the public gaze - where some bathing was carried on. Bathing with Nottington water often meant applying damp cloths or eyebaths, for which sufficient water might be taken home; one example tells of a case where 'some fine rag, constantly wet with it, was always kept on the part afflicted'. Other patients were directed to the well, but even for these, treatment would involve the dipping of limbs or application of damp cloths rather than general immersion. Of a woman with crippled hands and feet, for instance, Pickford says he 'thought it a case in which the Bath at Nottington might be peculiarly serviceable.' The water was not heated. 'As a Warm Bath of this water is absolutely necessary and efficacious in many obstinate complaints, it is in contemplation to render it commodious for this purpose' (*ibid* p.35).

However inconclusive on the state of the well and its facilities, Pickford's treatise leaves the reader in no doubt about the wide interest in Nottington water. Listed among nearly 300 subscribers, who between them ordered 665 copies, are a dozen titled personages, two of them earls, two admirals and four naval captains; fifteen army officers, including two generals; a bishop and no less than forty other reverend gentlemen; twenty medical men (surgeon or M.D.) and five Members of Parliament. Only twenty males are lowly enough to be termed 'Mr' rather than 'Esquire'. Most of the copies ordered were for distribution in Dorset or neighbouring counties, but some forty were destined for London and a score for Bath, with single copies going as far afield as Brighton, Gloucester and even Lisbon.

Pickford's Treatise is mentioned in an 1829 edition of John Commins' *The New Weymouth Guide or Useful Pocket Companion*. Commins, proprietor of a Weymouth Library, attempted to keep his guide book up to date in successive editions and the 1829 version probably reflects the situation up to 1827 or 1828. He quotes Pickford's recommendations of Nottington Water for drinking and of *Sea*-Bathing as 'a very necessary adjunct to brace the general habit', but makes no mention of bathing at Nottington well, instead harking back to Graves' 1792 description of the 'spring ... surrounded by a stone edifice ...'. It seems that in the years after 1822, as in those after 1788 and 1816, intended improvements were only slowly or partially carried out.

That a change of some note did occur in or shortly before 1829 is shown by a book published in that year (Ellis 1829, 252-3).Dr Ellis is unusually explicit in his description of

[4] These fair drawings, at their larger scale of 2 inches: 1 mile, show more detail than the Ordnance Survey First Edition 1 inch: 1 mile maps which are based on them. Buildings such as cottages are represented by hand-coloured pink squares (or other shapes) outlined in black, miscellaneous small structures by black dots

Figure 1 Nottington Well in 1790. A drawing by Samuel Hieronymous Grimm, reproduced by permission of the British Library.
The recently-built enclosure is seen to be open to the sky, to have room inside for one or two people and to contain no facilities apart from the well itself. Besides drawing water to drink, it may have been possible to sit on the stone slabs and bathe hands or feet in the cold water. The building was locked when not in use.

[5] No reference has been found to Pickford's treatise in any publication before Kay's *A New Weymouth Guide* of 1824. Later works ascribe it variously to 1816, 1822 (the most likely date) and 1824.

arrangements for use of the water. 'The usual source from whence the public have been supplied was from a well surrounded by a stone wall, the water so procured, being either drunk on the spot, or conveyed for use, in bottles or jars: this has been lately altered, the well covered over and the water conducted through tubes to a house in the vicinity ...' (Other sources indicate that some payment was involved, but this is believed to have been only a tip for the keeper.) 'It is rather extraordinary,' Dr Ellis remarks, 'that although the spring has been long known to the public, the accommodations for those who have occasion to drink it, should have been upon so limited a scale.' Significantly, he does not mention bathing at all.

Dr Ellis's comment, like Dr Pickford's list of subscribers, underlines the contrast between the keen interest in Nottington spring and the minimal nature of improvements made to it during most of the Georgian period. Uncertain ownership over a period of time has been mentioned as a possible contributory cause. Social attitudes may also have played a part.

Nottington water might be revered by medical men and seekers after health, but to the Steward family, its main proprietors in the late eighteenth and early nineteenth centuries, it was a minor matter. Generations of Stewards featured in local and national politics or pursued distinguished military careers. They had loftier concerns than a small spring on the margin of their lands to which local people (and their scabby or mangy animals) had traditional access. When the well's condition deteriorated, the Stewards, in their benevolence, would from time to time (even before their ownership was established) provide manpower and funds to make it 'decent'. The covering-in of the well in the later 1820s was to be the last such improvement they effected. But it would have been out of character for them to undertake commercial development: involvement in 'trade' was abhorrent to gentlemen such as themselves.

Nottington water had long been drunk direct from the spring, whether it rose among mud and earth or was encircled by a low collar or higher wall. In 1829 the spring was closed in and its water was available only at the end of a pipe in a nearby house.

Fundamental as this change may seem, it was overshadowed by other events of 1829 which intertwined the story of Nottington spring with that of the local tradesmen, father and son, Messrs Thomas and George Nathaniel Shore.

Thomas Shore of Nottington

Thomas Shore is often named as the founder of Nottington Spa but without details of his background. However, the *Salisbury & Winchester Journal* of 19.4.1830 has an account of the laying of the Spa House foundation stone on Good Friday 1830. The ceremony began with a service at Broadwey church followed by a musical procession to the site, where Thomas Shore laid the foundation stone under the architect's direction and his son George made a speech. Then 'the procession retired to Mr Shore's residence where upwards of 100 sat down to a sumptuous and substantial dinner'. Mr Shore evidently lived in a large house within easy walking distance of the Spa, probably in Broadwey parish.

In documents at Dorset County Record Office, Thomas Shore's name is first recorded in the 1814 Land Tax returns for Broadwey. Between the drawing up of the 1813 and 1814 schedules he had bought Nottington Mill from Richard T Steward Esq (DRO QDE/L). An indenture of 1814 (privately owned) styles him Thomas Shore of Haselbury Plunknott, Somerset, Miller; another, of 1818 (DRO 675/D2), Thomas Shore of Nottington, Cornfactor. Over a period of years, Shore acquired several fields and smaller plots in the parish, some dozen parcels in all. Some were on sloping land on the valley side which could be ploughed, others extended onto the damp pastures and willow beds of the valley floor. As was often the case with millers, Mr Shore became involved in lengthy litigation over water rights. His purchases of low-lying land may have been attempts to gain more control of the stream by extending his riparian holdings. The site now occupied by the Spa House, immediately upstream of the meadow Corner Close which had had bought with the mill, would clearly fall within his area of interest.

One transfer of land was made by exchange, with no financial adjustment. A handwritten note on the back of the 1818 indenture mentioned above reads, 'A piece or Parcel of Ground containing three acres two roods and two perches part of the within mentioned Close of Meadow or pasture ground called South Ground was by Indenture bearing date 5th April 1828 granted by the within named Thomas Shore to Richard Augustus Tucker Steward Esquire in exchange for a garden and two willow beds near or adjoining each other and near or adjoining Nottington Mills.'

Did this include the site which was later to support the Spa buildings?

Three small plots shown on the Broadwey Tithe map (DRO T/BDY) could be taken to correspond with Mr Shore's acquisitions. Two, adjoining, could have been a garden and willow bed beside the river, east of the mill (soon to be occupied by the Spa House and Boarding House and their gardens) and the third, near, a willow plot across a small field to the north of the mill, where willows grow today.

Neatly as these plots, seen on the Tithe Map, seem to fit the Spa site hypothesis, a contrary argument cannot be ignored. If the exchange of land included a feature as unusual as a sulphur spring (whether or not walled in or covered), surely it would have been mentioned? Indeed, if the exchange did include the Spa House site, the spring's non-mention in the deed would seem as inexplicable as its delineation in the wrong place on the Delamotte engraving forty years earlier.

Thomas Shore seems to have prospered at Nottington through twenty years which were troubled times for British farmers. He bought the mill before the end of the Napoleonic wars, a time of high wheat prices and of a push for production on every acre of even marginally suitable land. Victory at Waterloo and the re-opening of English ports to foreign goods brought the price of wheat crashing down to less than half its wartime peak. For some farmers a disastrous harvest in rainy 1816 was the last straw, forcing them to sell out. Agriculture was depressed for years, amidst seesaw prices and Corn Law clamour.

Having a foot in each camp, as factor and miller as well as farmer, Thomas Shore could weather the fluctuations of yields and prices better than many. It took him several years to finish paying for his early Broadwey land purchases, but by 1829, when the opportunity of developing the Spa was suddenly presented to him, he had adequate funds for a new venture.

Shore features in contemporary records to an unusual degree for a corn factor or miller. He comes over as a jovial, vigorous character, generous but hot-tempered, who threw himself whole-heartedly into whatever he undertook and liked an excuse to make merry. In the half dozen years around 1830 the *Dorset County Chronicle* carried enthusiastic descriptions of three large parties he gave to celebrate respectively the conclusion of his water rights case, the founding of the Spa House and the coming of age of his son George (*Chronicle* 29.3.1827, 15.4.1830, 3.5.1832). The *Chronicle's* reports of social gatherings were usually confined to those of fashionable society, and no other tradesman of the period was singled out for such attention. In contrast, other reports over the same period showed him in trouble with the law - taken to court for trespass, for destroying the hatches of a farmer who had diverted water from the mill, and (with son George) for assaulting another whose wheat for milling had proved to be damp and sprouting. When Mr Shore's long water rights case ended with a 'triumphal result' at the Assizes, the damages awarded him on that count were outweighed by damages awarded against him on two others (*Chronicle* 22.3.1827).

The exchange of land was effected in 1828. In 1829 Thomas Shore engaged some workmen to repair the riverbank in what is now the Spa House garden (a time sequence compatible with the inclusion of this plot in the exchange).

The story is now taken up by 'Viator', someone of unknown identity who wrote a number of letters-to-editors under a consistent pseudonym (a common practice at the time). The letter quoted here was published in the *Mechanics Magazine* of August 1831.

'Near two years ago, Mr Thomas Shore, of Nottington, had directed the bank of the River Wey, near his residence, to be repaired. In the progress of the work, and within a few feet north

of the original spring, between it and the river, the workmen accidentally discovered another spring. On examining the water, Mr S. found it possessed of properties dissimilar to common spring water; and, as far as he could judge, very like that in the adjoining well. ... He transmitted a sufficient quantity to Alexander Barry, Esq. F.L.S. and Professor of Chemistry and Natural Philosophy in Guy's Hospital, London, who analysed it, and ascertained its properties ... [which included] ... sulphuretted hydrogen in very considerable quantity ... On such authority, Mr Shore ... determined to erect a range of buildings, which might afford the public a proper and convenient opportunity of participating in the full benefit of so valuable an acquisition. He accordingly built the Octangular Spa House ... over the spring.' A catalogue of its facilities follows.

'Viator' touches briefly on the fate of the original source: 'It is worthy of remark, that the old well is of late quite exhausted and become useless'.

Although Viator himself makes no connection here between the discovery of the one and the demise of the other, in a flash he gives the answer to the enigma of the well's precise location. An unexpected answer: the spring had moved. It appears to be in a different position from today's on Delamotte's engraving because it was indeed in a different position then; and at the time of the exchange of land the water still issued on the other side of the lane. Thomas Shore's excavations in 1829 evidently interrupted the sulphurous water's passage underground and provided a shorter route to the surface through a new outlet.

This, then, was the origin of Nottington Spa; for in shifting its position, the spring left the estates of gentlemen and came into the undisputed possession of a local tradesmen who had high regard for the water, adequate funds, and no reservations about commercial development.

Thomas Shore's founding of the spa, according to his son George, 'had for its object the benefit of the community far more than any pecuniary consideration'. ... He sincerely trusted that all who availed themselves of the benefit of the waters would be invigorated thereby and restored to health'. (*Chronicle*, 15.4.1830).

Mr Shore set about the venture with enthusiasm. His new establishment should have a reputable builder, a fine appearance, attractive provisions inside for those able to afford such things - and also, from the outset, free water for the poor. He did not keep quiet about his plans.

'In addition to the great improvements that are in contemplation to be made at our public places of resort, previous to the commencement of the summer season,' ran the *Chronicle's* Weymouth report of 25th February 1830, 'we feel ourselves particularly called on to notice one of considerable importance, as connected with the convenience and comfort of those who visit this fashionable town as valetudinarians. We mean the projected plan of erecting an elegant Octagon Building at Nottington Spa, by Mr Shore. It is intended that the proposed edifice shall contain hot baths, pump-room, and suitable accommodation for those invalids who prefer using this invaluable mineral water at the fountain-head.'

The ceremonial laying of the foundation stone six weeks later was described at length in the *Chronicle* as well as in the *Salisbury & Winchester Journal*, previously quoted, and further comment was made in the Chronicle as work progressed.

Who Built Radipole Spa?

It was only at this juncture, in the autumn of 1830, while the eight walls of the Spa House were rising around Nottington's 'second' spring, that there came the first indication of a similar source at Radipole. The *Chronicle* of 18th November 1830 carries the following item:

'A correspondent informs us that in looking over some old Chronicles, the other day, he met with the following rhymes, which are singular, as he says that a spring of Mineral Water was discovered lately at Radipole -

"When Dorsetshire has two Mineral Springs
The Demon Disease shall take to his wings
And the folk of both country and town
To drink then shall come down,
And everyone shall say
That his sickness has past away,
And the Church-yard no more shall be fed
For there'll be neither sick nor dead."

Although most Weymouth guide books from 1831 onwards deal with both springs, the paragraph quoted above is the first and last mention of Radipole Spring or Spa that the author has found in newspapers of the time - a baffling contrast with Nottington's frequent airing.

Benson's *New Weymouth Guide* of 1831 acquaints us with the sequence of events at Radipole. '... between this village and the Turnpike Road, there has been lately discovered a Mineral Spring; which is called "THE RADIPOLE SPA", and a building is erected for drinking the water; but we do not understand that any analysis of the water has been published yet' (p.56). The account is later elaborated, 'The Radipole Sulphuretted Hydrogen Spa, is situated at the Radipole Estate, near Dorchester Turnpike Road, about a mile and a half from Weymouth, whence it is an easy and pleasant morning walk.

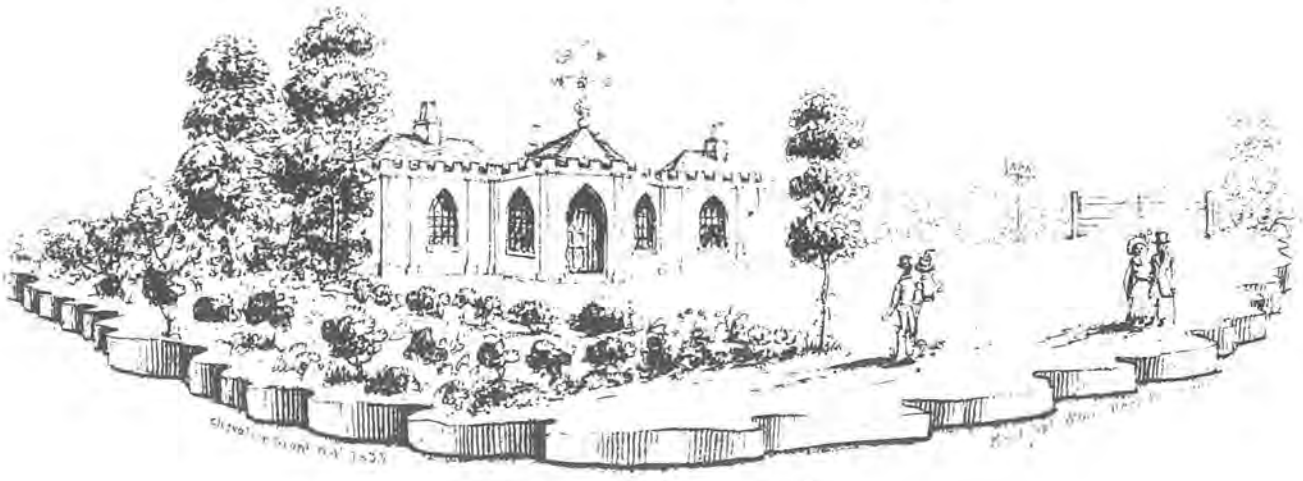


Figure 2. Radipole Spa in 1833. Reproduced by kind permission of the Curator of Weymouth Museum.
This pen and wash sketch by Chevalier Grant is the only known contemporary representation of Radipole Spa. The single storey building, described in Weymouth guide books as 'octangular', is seen from the sketch (and from the Ordnance Survey 1:2500 map of 1864) to have had an octagonal central room flanked by two short wings. The gate on the right gave onto a lane which later became Spa Road. The sulphur well, not seen here, was in the garden.

'The pump-room is a pretty octangular building, tastefully turretted and ornamentally surmounted; the interior neatly finished and conveniently fitted up for the accommodation of the Public. The view is picturesque, particularly at the flow of the tide above the town, which forms a handsome lake, and throws pleasing softness on the surrounding scenery.

'This valuable mineral spring was accidentally discovered, in excavating the rock from which it issues, in the autumn of 1830.

'Its waters have been carefully analysed by respectable practical chemists of London, and were found to contain the same qualities as the Nottington Mineral Water (long and deservedly celebrated for its medicinal virtues) with the sulphuretted hydrogen (the active principle) in greater proportion ...' (p.70).

An analysis of Radipole water eventually appeared in the *Philosophical Magazine* of August 1833, where it was again compared with that of Nottington. The author, 'Richard Phillips, F.R.S. etc' (Lecturer in Chemistry at St Thomas; Hospital), reported that he had made 'repeated trials' and found that the 'proportions of sulphuretted hydrogen ... differed considerably at different times in both. The only circumstance which I have constantly observed respecting the sulphuretted hydrogen is, that the Radipole Spa always contained the larger proportion' (Phillips 1822, 158). Later examinations bore out the somewhat higher level of hydrogen sulphide in Radipole's water. It is, alas, no longer available for analysis.

Radipole Spa, then, was built in 1831: but by whom? No Radipole name is sprinkled over contemporary pages as is that of Mr Shore of Nottington. The absence of attribution is so complete that it looks deliberate. Not until the mid 1840s is a proprietor listed in a Dorset Directory: John Gill, mineral spring, Radipole Spa (Kelly 1846). But John Gill, 'farmer' in successive census returns, was certainly not the spa's creator.

The first person to consider as a possible founder is the owner of the land on which the spa was built. This proves to have been John Henning Esq., Solicitor, of Weymouth - a finding not inconsistent with proprietorial anonymity. As a landed gentleman, Mr Henning would disdain the vulgarity of self-advertisement and wish, like the Stewards, to be distanced from 'trade'; as a lawyer, particularly in view of circumstances outlined below, he would incline towards discretion.

John Henning had acquired his Radipole estate only recently, in the period between the compilation of the 1829 and 1830 Land Tax schedules. Before this his brother Edmund had held the estate for quarter of a century (DRO QDE(L)18). Edmund Henning & Co.'s bank failed in 1826 (information received in private correspondence with Henning descendants) and John was involved in the clearing-up operations; at a function in Weymouth has was complimented on his conduct of the business (*Chronicle* 8.3.1827). The bank failure may have precipitated the passing of the Radipole estate from elderly Edmund to middle-aged John.[6]

At the time of the Radipole Tithe Map and Apportionment, 1839-40, John Henning's 368 acres made him the second largest landowner in the parish (after Edward Balston Esq of Corfe Hill). Most of his estate was tenanted but Henning is shown occupying as well as owning the strip of land forming the Spa plot, which ran down from (present) Spa Road to the old shoreline. The pump room and a nearby rectangular building are roughly shown on the Tithe Map (DRO/T/RAD).

There is no indication that Henning lived there. He carried on his profession from successive addresses in Weymouth and is listed shortly before his retirement as occupying adjoining houses in Clarence Buildings as office and home (Pigot 1844).

Born at Woodsford Castle in 1776, to a Dorset family of fluctuating fortunes - sometime owners of Wolfeton House and Poxwell House - John Henning appears to have been a man of reputation and substance who took an active part in Weymouth life. Dorset Directories show him in 1823 (*Pigot*) as 'Attorney, East Street'; in 1840 (*Robson*) as 'Attorney & Notary Public, Irish Commissioner, Agent to Norwich Insurance Co., Superintendent Registrar of Births, Deaths & Marriages, Esplanade'; and in 1848 (*Kelly*), aged seventy-three, under 'Gentry' as 'John Henning Esq, 11 Clarence Buildings'. He is mentioned in the *Chronicle* a number of times between 1826 and 1843, either as a lawyer, in connection with bank business, election returns or preparation of the parliamentary Bill for erection of a bridge between Weymouth and Portland, or as an individual actively involved in the affairs of the Conservative Association.

With no documentary proof, and although as far as the author knows no such connection has been suggested before, it seems probable that John Henning was behind the Radipole Spa venture. Who more likely than the man who owned and occupied the land, who had recently acquired it and presumably ordered the excavations which led to the discovery of sulphurous water, who had met Mr Shore and must have known of his plans for nearby Nottington; whose upbringing and circumstances were such that he could seek a London chemist's opinion, (possibly) design a building, and meet costs of construction and staffing; who would not wish his reputation to be tainted by whispers of 'trade' and who, as a lawyer, knew how to keep his own affairs confidential while continuing to practise his profession? Some day we may learn that another was the Spa's originator, but until other evidence appears, John Henning seems an ideal candidate.

If the idea of Henning's founding role is correct, the late development of Weymouth's spas rested on coincidence: it was only in 1829/30 that medicinal springs at both Nottington and Radipole happened to be acquired by men interested in their commercial possibilities.

Whether or not Henning built Radipole Spa as well as owning its site, the circumstances of the two spas' beginnings are curiously similar, not only with regard to location, water type and date but also in lesser details. In both cases the land on which the sulphurous water was discovered had recently changed hands. Each new owner was a local man, of late middle age, who earned (rather than having inherited) his living and was well-established in the business which remained his primary occupation. Each instigated workings on his new property which disturbed the ground and unexpectedly brought a spring to light. Each recognized unusual qualities in the water and called on a London expert for advice. When the water's nature was confirmed, both spas were planned and built straight away - Radipole's with remarkable speed - and both opened their doors to the public in 1831.

Temples of Hygeia

It is not known in which month of 1831 Radipole Spa opened, but Nottington was ready for the summer season. The *Chronicle* of 14th April brought it to the notice of potential clients in 22 lines of description and praise, beginning 'We have much pleasure in introducing to public notice, the opening of the elegant and commodious octagon building, erected by Mr Shore, at his Spa, at Nottington ...'

An issue in June of the same year introduced the Manageress: 'Nottington Spa ... is now become quite a fashionable resort ...parties are daily visiting the Spa, to enjoy its medicated water ... The assiduous attention of Mrs Thurman, who presides at the establishment ... contributes materially to render this Temple of Hygeia ... equally attractive to the valetudinarian and the gay votary of pleasure'.

It had been a short step from the laying of foundations in 1830 to moderately fashionable status in 1831.

Illustrations of both spas survive from the early 1830s. The contrast between their buildings illustrates the dichotomy in English architecture at the end of the Georgian period, when plain classical lines were rivalled by the exuberant decorations of the Gothic revival.

Nottington's octagonal Spa House, its foundation stone laid only weeks before George IV's death, arose in severe geometrical style. Solidly built of stone and brick rendered with stucco, with sash windows centrally placed on each wall, it is ornamented only by the parallel lines of panelled pilasters, plain string courses and a moulded cornice. Blind windows included for the sake of symmetry were originally painted with a pattern of crossbars and even curtains. The pyramid roof slopes up in eight triangles to a

[6] In a document of 1826 addressed to John Henning, the signatories, 'we, the undersigned creditors of Messrs Henning [etc], bankers' include names interesting to find in conjunction with John Henning's: Thomas Shore; Robert Shore, his son; Thomas Dade, the Broadwey rector who conducted Nottington Spa's foundation service; Robert Vining, its architect; and Benjamin Jesty, of different fame (DRO 705/B5).

single chimney stack (containing eight separate flues). Apart from the addition of a twentieth century brick porch, now rendered to blend with the main structure, the house has hardly changed externally over the years.

For Robert Vining, usually termed 'builder' before the Spa House and 'architect' afterwards, it was one of his later works. Vining and the better-known James Hamilton built Weymouth Esplanade in the early years of the century and Vining repaired it after the great storm of 1824. Looking at old pictures of octagonal bathing machines ranked beside the esplanade with which Vining was so familiar, one might wonder whether they influenced his design for the Spa House.

Radipole Spa House was very different in character, a romantic building topped with a crenellated parapet. Its windows and doorways were ecclesiastical in appearance, set in pointed arches. No architect is known and as an architect would be unlikely to want his name suppressed one may entertain the fancy that John Henning sketched the design himself, to be fabricated by a practical builder.

The spread of the spa buildings differed, as well as their style. The *Chronicle's* April 1831 account, mentioned above, shows that when Nottington Spa opened, all the provisions were in the one house. The basement, which housed both well and baths has not enough head room for the present generation (the floor has at some time been concreted over) but remnants of stone carving hint at former public use. The pump room was a high-ceilinged octagon partially divided by a spine wall which stopped short of the outside walls. As well as sipping water, conversing, or reading periodicals, clients could promenade all around inside and continue out through arched doorways to a surrounding stone terrace, within decorative railings. The upper floors each provided one large and two smaller rooms, the (limited) accommodation of sitting and bedroom mentioned in the *Chronicle*.

The facilities at Radipole - well, pump room and baths - were in separate places, according to reminiscences recorded earlier this century. (The laundry site and nurseries mentioned below are in 1994 occupied respectively by Jubilee Court flats and St Aldhelm's church.)

A Mr J Gill, born at Radipole Spa about 1850, is reported as saying -

> 'I remember the old place very well. The Spa house stood on the site where the Steam Laundry now stands and the baths were a separate building just above it. There were several baths, such as you will find in public baths today, also a shower bath, and a room for drinking water. A notice was hung up showing the analysis of the water and the ingredients its contained ... The water was recommended by medical men both for drinking and bathing' (Gill 1921).

Another 'hardy veteran', Mr T Downton, former parish clerk and sexton, later recalled -

> '... a little farm where Hayward's nurseries are now ... There was a well there, with a rope and bucket, and the water was brought up from the sulphur springs there. Lots of people used to come there for rheumatism' (*Southern Times*, 20.2.1937).

The well at Radipole was out of doors and water could be sipped in the gardens which ran down to the shore, a pleasant ambience of flower beds and paths near the house and less formal grounds below, with open views over farmland and the tidal waters of the Backwater. Pleasure trips to Radipole Village by boat, with tea ashore, were at that time still listed in guide books under 'Aquatic Excursions'.

The treatments offered at the spas are listed in A Tucker's *The Improved Weymouth Guide* (1851, 77) at prices which are seen by comparison with a Nottington advertisement card of 1833 to have remained unchanged for nearly twenty years. (This may only mean that Tucker reprinted an old list). Charges for drinking the water started at sixpence per person per day, with group and period reductions. Bathers could choose between shower or jet d'eau at one shilling ('with feet in warm water' for sixpence more), marble bath (two shillings cold, three shillings warm) or vapour bath. Water for the latter, clients were assured, 'being heated by steam in an airproof vessel, prevents the escape of its medicinal properties'.

Weymouth guides often recommended 'a pleasant walk' from

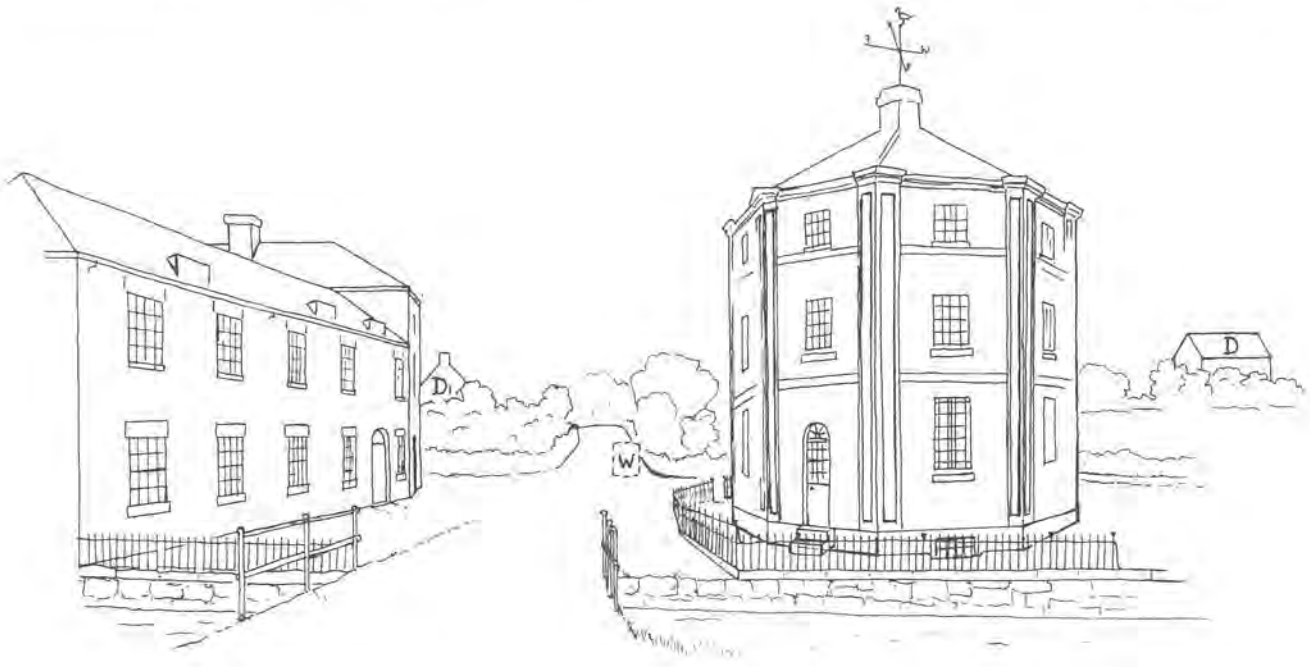


Figure 3. Nottington Spa c. 1840, from the north. A reconstruction, with present-day outlines modified to accord with illustrations of 1831-1842. The octagonal Spa House (built over the 'second' sulphur spring discovered in 1829) had baths in the basement, a ground-floor pump room and accommodation upstairs. The additional boarding and lodging houses (left) included a coach entrance in the earlier (taller) part of the building. The dotted outline at 'W' shows the approximate position of the former Nottington Well (see Fig. 1) at the original springhead. That older well and the still-existing roofs marked D and D' (Deutzia Cottage) are shown on P. Delamotte's drawing of c. 1789. The sulphurous water rising from depth has no connection with the nearby River Wey (foreground), although a pond formed by its overflow water led an early observer to remark that the spring rose in a small island in the middle of a river.

the town to visit the spas, Radipole being the more easily reached in this way. A coach ran daily from Weymouth's Golden Lion Inn to Nottington Spa, fare sixpence - 'Persons returning by the same Conveyance, after drinking the Waters, or using the Baths, will be charged only Half-fare back' (Benson 1831). Other coaches using the Dorchester road passed the ends of the lanes. Some clients came from as far away as Bath by coach, although most were from the local area.

Such were the facilities available to health seekers in the early 1830s who wished to try the effects of Weymouth's medicinal waters; but to do so, they must first have heard of the spas' existence. Both spas were, as we have seen, recommended in guidebooks of the time. This is the only type of publicity which has been found for Radipole, but Nottington was brought to the public eye in additional ways. The *Chronicle* gave staunch support to Nottington Spa for several years. Editorial comment sometimes reinforced the message of private advertisements placed on other pages, but often acted as an advertisement in itself, announcing developments or commending the water's effects.

In 1832 a booklet was produced. 'JUST PUBLISHED, Price 3d', the *Chronicle* announced, 'REMARKS on the MEDICINAL PROPERTIES of the HEPATIC or SULPHUREOUS WATER at NOTTINGTON SPA, near Weymouth' (27.9.1832). The booklet gave details of history, treatment and terms and informed readers that no less a person than Sir Humphrey Davy had 'ascertained' the qualities of the water. It included letters of commendation both from George Taylor M.D., Surgeon Extraordinary to the King and from people whose afflictions had been alleviated. An addendum advised readers, 'A book containing Certificates of CURES performed by Nottington water may be seen at the Pump Room'. Neither booklet is known to survive in original form, but both the 'REMARKS' (with 1836 revisions) and a collection of letters are bound in as extra pages at the back of an 1836 edition of John Commins' guide book in Dorset County Museum.

Nottington's advertising device in 1833 was a pressed paper card, which bore a drawing of the Spa House on one side and crammed a great deal of small print on the reverse. At least one of these cards, dated March 1833, survives in a private collection. (The front is reproduced in the *Southern Times*, 14.1.1933.)

Nottington's exposure lessened for a while after Thomas Shore died. A notice of his death in the *Chronicle* reminds us that the Spa was his second interest: 'DIED, April 30th, at Nottington Mills near Weymouth, Mr Thomas Shore, many years a respectable miller' (*Chronicle* 2.5.1833).

George Nathaniel Shore succeeded his father as the spa's proprietor (and Nottington's miller) at the age of twenty-two. Within two years the volume of business at the spa encouraged him to expand. He commissioned a second building which opened in 1836 to renewed publicity.

The *Chronicle* carried several insertions, through the year, of a forty line advertisement, beginning -

'NOTTINGTON SPA SULPHUR BATHS, CHALYBEATE SPRING, BOARDING & LODGING HOUSE.

THE PUBLIC are respectfully informed that, encouraged by the preference which has been shown towards the celebrated MEDICINAL SULPHUREOUS SPRING at NOTTINGTON, the Proprietor has been induced to augment the accommodations furnished for the visitors by the erection of a SPACIOUS BOARDING & LODGING HOUSE, delightfully situated in immediate contiguity to the Spa House ...'

The revised 'Remarks' of 1836 also mentions the new building's 'Stables and Coach Houses'.

As had been the case in his father's time, George Shore benefited from free coverage in reporters' columns which ran to greater length than the advertisements he paid for. The *Chronicle's* weekly Weymouth reports in the 1836 season carried a planned series of paragraphs which amount to a description, recommendation and history if the Spa. The tone was laudatory, from start to finish:

13th April - 'The Spa, established at the picturesque little village of Nottington ... is, we understand, to be conducted this season in a very superior style. The spirited proprietor, G.N. Shore, Esq ... has erected a suite of boarding houses for the visiters (sic) in which they are provided with every comfort and convenience ...'; 19th October - 'Nottington Spa - It is seldom in the power of a journalist to record an instance of such rapid progress in public estimation as has been made by this Spa in the course of the present season - during which it has emerged from [what] may be almost termed comparative obscurity, to a chosen resort of fashion and a favoured retirement for the invalid ...' Among matters for congratulation were 'the indefatigable attentions and careful arrangements of Mrs Edwards, the conductress of the boarding house, and Mr Webb, the resident surgeon.'

Complimentary coverage in the Chronicle continued through 1837 and 1838, with notes on Nottington Spa, in almost every issue. They sometimes expressed vague, flowery sentiments of approval but more often called attention to a particular point; the mildness of Nottington's climate, the constant flow of the sulphur spring through rainy season or drought, a recent cure, an apparent preventive power - no influenza for Nottington patients! - or the large number of visitors who kept the lodgings full. Still no mention of Radipole.

It seems that Nottington Spa was well received from the outset and soon achieved considerable popularity, reaching its height in the years 1836-40. A Chronicle note in August 1842 again reports the Spa to be 'full', but by then the periods of full occupancy were probably, like the paper's commendation, becoming less frequent.

Although Radipole was not puffed in the same way as Nottington in the *Chronicle*, it received equal treatment in guide books (from 1830 onwards) and would have been almost as well known locally. For a dozen or so years the two little spas were in full operation, with baths, showers and pump rooms in use by both day visitors and residents, treatments prescribed (if wished) by a resident or visiting surgeon, and prices geared to continued use over weeks or months.

Even at their height, however, they were small, local spas in national terms. The grateful letters quoted in 'Remarks' are nearly all from Dorset addresses. A.B. Granville, author of *The Spas of England and Principal Sea Bathing Places*, did not hear of either place while conducting his research, although he stayed nearby. 'The existence neither of Radipole nor of Nottington Spas had ever come to my notice, before or during my short exploring sejour at Weymouth ... It was only after my return to London from my long and fatiguing tour of upwards of three thousand miles which had lasted nearly three months, and had pretty well tired me of all Spas, that I received from persons directly interested in those springs, a printed account of them, and of the analyses of their water' (Granville 1841, 506).

Decline and Change

Both Nottington and Radipole spas changed hands in the early 1840s. Had their owners realised that they were fighting a losing battle? It is possible. John Henning, man of the world, would have had a different view of Radipole Spas's prospects than would his successor John Gill, working farmer, to whose humbler sphere it must have brought a touch of the exotic. Henning was ageing and had already relinquished legal positions. He sold the spa to Gill, one of his tenants, sometime between 1841 and 1846 - a private transaction which allowed the secret of his involvement, if involvement there was, to be preserved.

George Shore of Nottington, approaching thirty, looked further afield. After his whole-hearted efforts to promote the spa in 1836-1838 he divested himself of his Nottington properties, first letting, then selling. On the tithe apportionment (1841) we find the Spa let to Thomas Cook [7], the malthouse to the Devenish family, the mill and land nearby to the Gales, other fields to another local farmer. The whole group of buildings at the Spa was put up for auction in London in 1842. George Shore moved away, eventually dying in London in 1881.

At both establishments, rapid upsurge and a decade of success were followed by a largely undocumented decline under different owners.

[7] Thomas Cook is not shown at the Spa in the 1841 census. Frances Shore (aged 25) is there, with three other ladies and two servants. They may have been either at the Spa House or the Boarding House; 'Spa' which applied to both is written only faintly in the margin.

Their fading prosperity was paralleled at many other small spas around the country. With hindsight it can be seen that the habit of visiting mineral water spas, so marked in Georgian times, was already on the wane when Weymouth's spas were built. Their founders could not have foreseen future advances in medicine and pharmaceutics, nor, more immediately, the coming of railways which changed the number and type of visitors to Weymouth and the early Victorian vogue for hydropathic treatments. Mineral springs had been the essential feature of early spas, whether these were modestly commercialised by rural owners as at Radipole and Nottington, or developed as fashionable resorts with a range of accommodation and entertainments; but mineral water was not needed for hydropathy, in which large quantities of ordinary 'pure' water were used.

In the 1840s, however, Weymouth's sulphur spas were taken over as going concerns. The last known references to (active) Nottington Spa in the *Chronicle* are found in the issue of 18th May 1843. As in the Shores' days, a reporter's paragraph on an inside page underlines the message of a paid advertisement on the front. The new owner's advertisement is a modest one.

> 'NOTTINGTON SPA
> The visitors and Inhabitants of WEYMOUTH are respectfully informed that the celebrated SPA HOUSE at Nottington, having recently been fitted up in a very superior manner for Lodgings, is now open for their reception. Warm, cold, vapour and shower baths. The terms for lodgings, etc, may be known on the Premises; or by letter addressed to the Superintendent.'

Change of proprietor brought no newspaper publicity for Radipole. John Gill, the second owner, appears in Dorset Directories as 'J. Gill, mineral spring, Radipole Spa' (*Kelly* 1846) or 'J. Gill, proprietor of sulphur baths' (eg *Mercer & Crocker* 1871). In census returns from 1841 to 1881 he is styled throughout as 'farmer' although he is not listed on the tithe apportionment of 1840 as either owner or occupier of land. He may have worked with his brother Job (a principal tenant first of Edmund then of John Henning, at the Manor Farm) until the opportunity to buy the spa in ten acres of land afforded him an independent career. It seems likely that managing the Spa would fall mainly to his wife Martha, while 'farmer' John worked his small holding.

The Gills remained at Radipole Spa for many years, growing old in a household which also included two unmarried daughters, Sarah and Emma. John died in 1890, at the age of eighty-six. Before his death he passed the property to his second son: *Kelly's Directory* of 1889 lists 'Gill, Chas' as the proprietor of Radipole's sulphur baths. It is unlikely that the spa's functioning by that time amounted to any more than the provision of an occasional glass of water and the entry may have been mainly a matter of pride. In the 1891 census return Charles Gill of No. 1 Bridge Buildings is described as 'farmer', Sarah and Emma each as 'dairywoman'; the word 'Spa' appears only as the sisters' place of abode.

'The farm and the well disappeared when Eliot's bank failed', Mr Downton recalled, 'and it was then that ... Radipole laundry was build there' (*Southern Times*, 20.2.1937). The failure of the Weymouth Old Bank in 1897 seems indeed to have been the *coup de grace* for Radipole spa. The Spa Estate, then still mainly farmland, stretching from Spa Road to the Backwater and from the spa site to the railway, was put up for auction. It is shown coloured pink and labelled 'Land belonging to the Trustees of Eliot's Estate' on a plan dated April 1898, prepared prior to the sale by Crickmay & Son, Architects of Weymouth and Westminster, which is in the Crickmay Partnership's archives. The sulphur well is clearly marked and buildings existing at the time are shown in outline. The old spa house, the octagon with wings, had already gone. A small rectangular building partly overlapped its site.

As a result of the sale, the estate was split up. New roads were laid out and houses mushroomed. A factory-sized laundry was built on the spa site and was later extended. (By now mains water and drainage were available.) When years had passed and memories faded, it was no longer known for certain which of the various disused wells in the area was the sulphurous one. Conflicting views have been aired, sometimes in connection with hopes that the Spa could be revived (*Southern Times* 18.3.1905, 17.2.1923).

Crickmay's plan, used in conjunction with modern large scale maps, gives a definitive answer to the question of the sulphur well's whereabouts: it is under the present Jubilee Court flats - under flat no. 4 to be precise. John Henning's excavations and Mr Downton's memories also help to explain the loss of Radipole's sulphurous waters. The water did not reach the surface of its own accord. It was found accidentally by digging and was raised at the spa by drawing buckets from a well. In the first years of the twentieth century the old sulphur well, no longer needed, was simply filled in and built over, its position soon forgotten. There is nothing mysterious about its disappearance.

The Gills, with their long guardianship of Radipole Spa, were better known as its proprietors than was its (probable) creator, John Henning. At Nottington this situation was reversed. Later owners of Nottington Spa were less in the public eye than the Shores and mistakes have been made over their sequence. More than one twentieth century writer states, for instance, (Denbigh 1981, Osborn 1982) that Thomas Shore sold the spa to Charles Jesty, mayor of Weymouth, in 1836 or 1842 - although at those dates Thomas Shore was already dead and Charles Jesty, Weymouth's mayor from 1896 to 1898, was as yet unborn. Three intervening families of owners, Furmidge, Kerslake and Tett, have now been traced, although precise dates of purchase are not known. (Current Spa House deeds date only from 1911.)

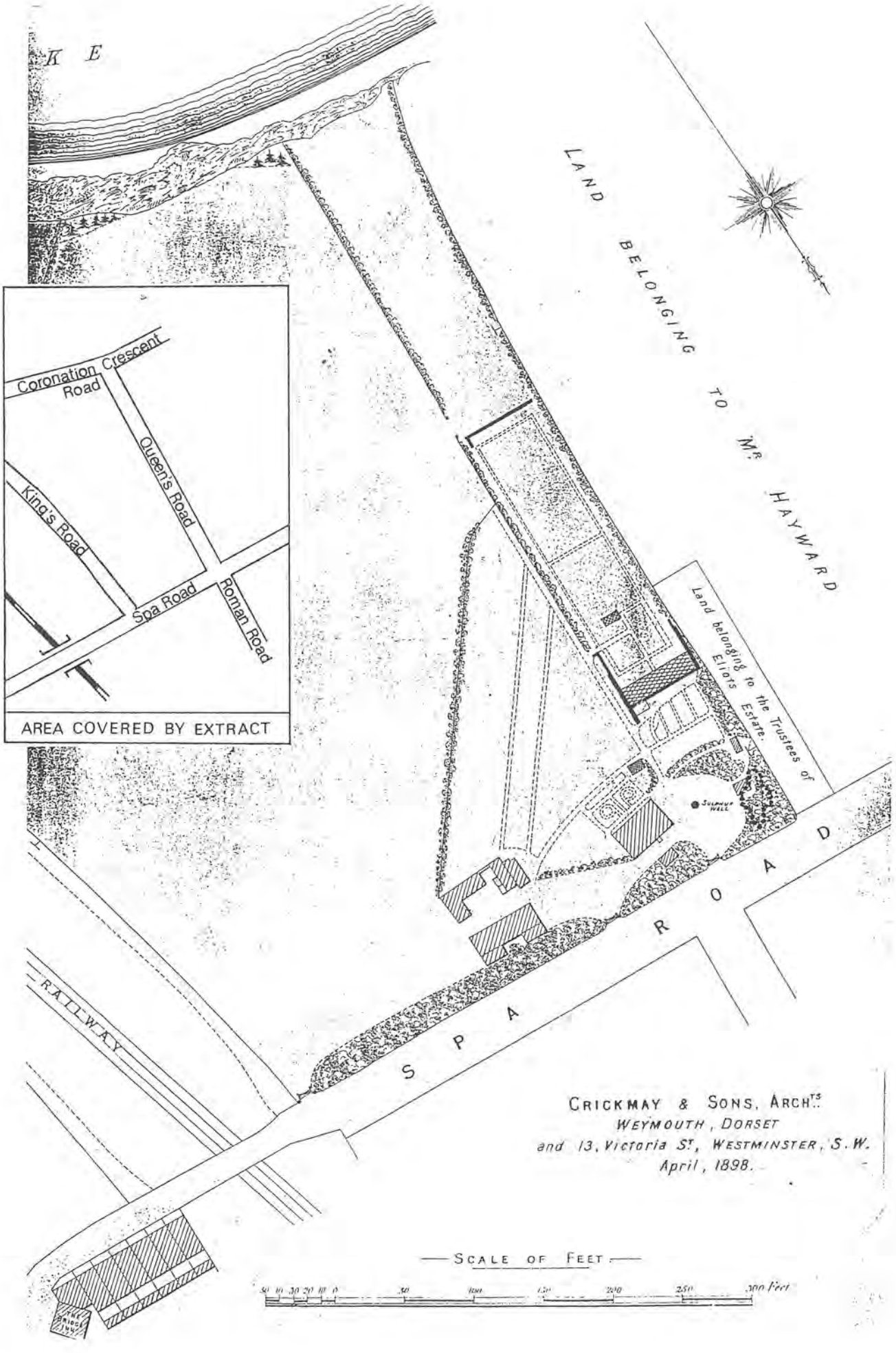
John Furmidge, 'Proprietor of Nottington sulphur baths' in 1846 (*Kelly*), was nearly eighty when he died in 1849. His widow Ann is styled 'Proprietress' etc in *Hunt's Directory* of 1851 but 'Fund Holder' in the census return. She and her daughter soon moved away to Lyme Regis, where both died. (The Furmidges followed the Shores not only to the Spa House but to Broadwey churchyard, where the families lie in adjacent plots).

Margaret Kerslake, another elderly widow with an unmarried daughter, had taken over by 1855 (*Kelly*) and was still styled as 'Proprietor of Nottington Sulphur Baths, Nottington Spa' in 1867 (*Kelly*) at the age of eighty-five. (One Directory, *Mercer & Crocker's* 1871, still has her as proprietress three years after her death.) Anne Kerslake, the daughter who followed her, appears only in the 1871 census return, as 'Independent'. By 1874 Nottington Spa was no longer mentioned as such in Post Office Directories and an entry in 1889 reports that Nottington waters 'have fallen into disuse as a medicinal spring' (*Kelly*).

Although the spa function had ceased, the next occupiers threw light on conditions there. Mr and Mrs Frampton, bricklayer and laundress, were tenants to three landlords in turn, Mr Tett (circa 1875), Mr Jesty (c. 1896) and Colonel Gordon (c. 1903).

A reporter who visited Nottington Spa in 1905 could still make out the old inscription painted over the door, 'Sulphur Baths and Chalybeate Waters' (*Southern Times* 18.3.1905). Interviewing the Framptons, he learned that 'when they first came to the spa house in October 1876, it had long ceased to be used for its original purpose. Indeed, the sulphur and iron water could no longer be drawn and drunk. Here they established a hand laundry' Their account shows that the sulphur well's water was not the basis for the laundry. 'At first Mr and Mrs Frampton and their family had no water to drink but that of the stream flowing close by. Then they applied to their landlord for the restoration of the pump above the old sulphur spring ... and ever since then the family have used the medicinal water for all dietetic purposes. ("It makes delicious tea", Mrs Frampton said, "but we have to take the lid off the kettle after it has boiled, to let the vapour escape".) The Framptons also showed him the second, chalybeate, spring in the cellar, 'not discovered, we believe, until after the erection of the Spa House'. (It is mentioned in advertisements between 1836 and 1843, but has disappeared under twentieth century concrete leaving no clue to its position.) Although the baths were no more, 'a fair number of people still call at the spa-house ... and ask for a glass of water'. This was in 1905, so in one sense the spa with its restored pump was functioning in a minor way into the twentieth century.

Sir Frederick Treves, who evidently did not ask for a glass of water, commented the following year on the 'deserted spa' at Nottington 'looking sadly out of place' (Treves 1906, 233).


K E
LAND BELONGING TO MR. HAYWARD
Coronation Crescent
Coronation Road
Queen's Road
King's Road
Spa Road
Roman Road
AREA COVERED BY EXTRACT
Land belonging to the Trustees of Eliots Estate.
SULPHUR WELL
SPA ROAD
RAILWAY
CRICKMAY & SONS, ARCHTS.
WEYMOUTH, DORSET
and 13, Victoria St, WESTMINSTER, S.W.
April, 1898.
SCALE OF FEET
50 40 30 20 10 0 50 100 150 200 250 300 Feet

Soon afterwards the spa buildings assumed their twentieth century private residential role, at first as a home to the Gordon-Steward family, direct descendants of the Stewards who had owned the site eighty years earlier.

With a roll call of owners established, there remains the question: when did the baths and pump rooms fall silent and the buildings, though occupied, cease to operate as spas?

An exact answer is unlikely to be found, but some narrowing down is possible.

Although Mrs Furmidge (1849) seems to have been an unenthusiastic owner Mrs Kerslake who followed her (c. 1854) assumed the title 'Proprietor of Sulphur Baths' on acquiring the Spa, from which one may infer that the baths were still in working order in the mid 1850s. Guide books in general neither prove nor disprove this. Some include unrevised material which may be misleading (eg Jeffery 1857, 76-79; Sherren 1860, 86-88), others describe the spas in language which leaves it unclear whether they were still functioning or not (Thalasses 1855, 51; Archer 1857, 55-6 & 131-2). Only John Kerridge, writing in 1858 with an idiosyncratic selection of detail and original turn of phrase, gives the impression of first-hand observation. His description of Nottington Spa (containing a rare reference to its gardens) concludes 'apartments may be obtained in the house', depicting the Spa as open for business (Kerridge 1858, 135-40).

Mrs Frampton's testimony sets an end limit: Nottington's medicinal well was out of use long before 1876. (Casual provision of water after subsequent restoration is discounted). Ann Kerslake's repudiation of the 'Proprietor ...' title nudges the date of disuse further back, to her mother's time; and Mrs Kerslake's advanced age, from her seventies on acquisition to eighty-six at her death (while still proprietress) encourages a generous interpretation of Mrs Frampton's phrase 'long ceased' to mean a date nearer 1860 than 1870.

From this scanty evidence, set against the background of a general decline in the popularity of mineral water spas, it seems likely that use of the Nottington sulphur baths slackened in the later 1840s, was much reduced in the 1850s and ceased soon after 1860. Ann Kerslake who had no truck with sulphur baths may also have discontinued the sale of Nottington water for drinking.

Nottington, helped by longer renown and greater publicity, is generally thought to have been busier than Radipole, despite the latter's easier access from Weymouth and the main road. If Nottington's sulphur bath business had become almost non-existent by 1860, so probably had Radipole's [8]. Mr J. Gill, remembering his childhood in Radipole in the 1850s, speaks of taking water from the well to men in the fields during haymaking and harvesting, but of the baths, he simply says they were there (Gill 1921). Mr Downton, born fifteen years later, does not mention baths at all, although he recalls drinking 'many a glass' of the water; this must have been around 1870 (*Southern Times* 20.2.1937). In the case of water for drinking, then, it seems that medicinal water may have continued to be drawn later in the century at Radipole Spa, under the long ownership of the Gills who worked the land and had a thriving extended family living near them, than at Nottington Spa with its several changes of mainly elderly owners, some of whom had independent means and considered it primarily as a residence.

Only a mile separated the two spas, but that distance has proved critical in subsequent development. The twentieth century has seen Radipole Spa's site swallowed up in Weymouth's spreading suburbs. John Gill lies at rest with his family in St Ann's peaceful churchyard, but the farm track which became Spa Road and the Gills' ten acre holding beside it have changed out of all recognition since their day. At Nottington, further out, comparatively little has changed. Although the Spa buildings are occupied as five houses they retain their external character as a distinct group in a rural setting (now a Conservation Area), where streams and meadows largely retain their old outlines. In Broadwey churchyard a massive horizontal stone, weathered into partial illegibility, gives the Spa's founder a title not accorded him in his lifetime: Thomas Shore, Esq. To the south-west, discontinuous roofs frame a view across sleepy fields to the pepperpot shape of his Spa House, still standing proudly over the sulphur spring.

[8] An approximate date of 1860 for the end of the sulphur baths business accords with conclusions already reached by Weymouth local historians (Boddy & West 1977, 110), the present author adding on this point only the detail that Nottington Spa remained nominally open under Mrs Kerslake until 1868 and Radipole Spa, under the Gills, until 1889.

Figure 4 (opposite). Part of the Spa Estate, Radipole, 'To be offered for sale by public auction at the Crown Hotel, Weymouth, on 31st May 1898 at 3.30pm'. Extract from a plan drawn prior to auction by Crickmay & Sons, Architects, reproduced by kind permission of the Crickmay Partnership, Dorchester.
A dotted outline (NW of the sulphur well) has been added to indicate the position of the Spa building shown in Fig. 2, which by 1898 had already been demolished.
Present-day Queen's Road lies along part of the eastern edge of the Spa plot, which stretched from Spa Road to the old Backwater shore.

ADDENDUM

Since the above was written, John Henning's connection with Radipole Spa has been confirmed by recently deciphered correspondence, dating from the early 1830s (in Weymouth Library, ref. L.921/BAR-W). The letters show Henning arranging and paying for Richard Phillips' water analysis and also being called upon to deal with practical problems in the Spa's first years of operation.

D.M.H.R. November 1994.

ABBREVIATIONS

BM	British Museum
BL	British Library
Chronicle	*Dorset County Chronicle & Somersetshire Gazette*
DCM	Dorset County Museum
DRO	Dorset County Record Office
Sherborne Mercury	*The Western Flying Post; or Sherborne and Yeovil Mercury and General Advertiser*

BIBLIOGRAPHY

Archer, D., 1857, *Weymouth as a Watering Place*

Benson, B., 1831, *The New Weymouth Guide*

Boddy, Maureen, & West, Jack, 1983 *Weymouth, An Illustrated History* (Wimborne).

Commins, John, 1829 et seq. *The New Weymouth Guide or Useful Pocket Companion* (Weymouth); 1829, 1834 and 1836 editions.

Crane, John, n.d. (c. 1788), *An Account of the Nature, Properties and Medicinal Uses of the Mineral Water at Nottington, near Weymouth, Dorset* (Dorchester).

Delamotte, Peter, 1785 & 1789 *The Weymouth Guide* (Weymouth); 1st and 2nd edns.

Denbigh, Kathleen, 1981 *A Hundred British Spas.*

Ellis, George A., 1829 *The History and Antiquities of the Borough and Town of Weymouth.*

Gill, J., 1921. Unattributed newspaper cutting of 19.11.1921 (at Dorset County Museum, Weymouth Box).

Granville, A.B., 1841 *The Spas of England and Principal Sea-Bathing Places: Southern Spas.*

Graves, Robert, 1792 *An Experimental Inquiry into the Constituent Principles of the Sulphureous Water at Nottington, near Weymouth: Together with Observations relative to its application in the Cure of Diseases* (Weymouth).

Groves, Thomas B., 1896 'Water Analysis a Hundred Years Ago', *Dorset Proceedings*, **17**.

Harvey, John, 1800 *Harvey's Improved Weymouth Guide* (Dorchester).

Hutchins, John, 1774 *The History and Antiquities of the County of Dorset* vol. 1.

Hutchins, John, 1803 *The History and Antiquities of the County*

of Dorset 2nd edn., vol. 2.
Jeffery, W.V., 1857 *The Illustrated Weymouth Guide*, 2nd edn. (Weymouth).
Kay, G. (printer), 1816 & 1824 *The Weymouth Guide*, 1st & 2nd edns (Weymouth).
Love, John, 1788 *The New Waymouth Guide* (Weymouth).
Ordnance Survey, 1864 1:2500 (1st edn) Dorsetshire Sheet LIII, 6 (Radipole and Chickerell parishes).
Osborn, G.H., 1978, 'The Waters of Illusory Cure', *Dorset, The County Magazine*, 72.
Osborn, G.H., 1982, 'Nottington Spa', *Dorset Proceedings*, 104, 19-24.
Phillips, Richard, 1833, 'An Analysis of Two Sulphureous Springs, near Weymouth', *The Philosophical Magazine*, August 1833, 158-159.
Pickford, J.D., n.d. (c. 1822) *A Treatise on the Quality and Virtues of Nottington Water, near Weymouth* (Weymouth).
Royal Commission on Historical Monuments, 1970 *Dorset, vol.II, South East.*
Russell, Richard, 1760 *A Dissertation on the use of Sea Water in the diseases of the Glands, Fourth Edition, to which is added An Account of the nature, properties and medicinal use of the MINERAL WATER in the Different Parts of England, by an Eminent Physician.*
Rutty, John, 1757 *A Methodical Synopsis of Mineral Waters, comprehending the most celebrated mineral waters both cold and hot, of Great Britain, Ireland, France, Germany and Italy and several other parts of the world.*
Sherren, J, 1860 *The Illustrated Guide to Weymouth, the Isle of Portland and the Adjacent Neighbourhood, A New Edition* (Weymouth).
Thalasses, P., 1855 *The Excursionist's Guide to Weymouth and the Neighbourhood.*
Treves, Sir Frederick, 1906 *Highways and Byways in Dorset.*
Tucker, A., 1851 *The Improved Weymouth Guide.*
"Viator" (pseudonym), 1831, 'Nottington Spa, near Weymouth', *Mechanics Magazine*, **419**, 386-388.

DIRECTORIES
Butcher, Cole & Co.'s *Directory of South Dorsetshire Towns* for 1874-75.
J.G. Harrod & Co.'s *Postal and Commercial Directory of Dorsetshire* 1865.
Hunt & Co., *Directory of Dorsetshire* 1851.
Kelly's *Directory of Dorsetshire*, 1880, 1889.
Kelly, *Post Office Directory*, 1846, 1848, 1855, 1859, 1867, 1875.
Pigot & Co., *Directory of Dorsetshire* 1823-4, 1828, 1830, 1842, 1844.
Mercer & Crocker's *General Topographical & Historical Directory for Hampshire, Dorsetshire, etc.* 1871
Robson, *West Dorset Directory*, 1840.
The Universal British Directory, c. 1797.

UNPUBLISHED MATERIAL
Census Returns for Broadwey and Radipole parishes, 1841-1891.
Chevalier Grant, 1833 (illustration). 'Radipole Spa', original pen and wash sketch, No 34 in the Bussell Collection at Weymouth Museum.
Crickmay & Sons, 1898. Plan, 'The Spa Estate, Radipole', roll no. 392, archive collection of the Crickmay Partnership.
Grimm, Samuel H., 1790 (illustration). 'Nottington Well', Grimm Drawings No. 60, BL Manuscript Collections, Additional MSS 15538.
Kerridge, John, 1858 *Weymouth and Melcombe Regis and Its Environs*, MS at Weymouth County Library.
Royal Military Surveyors & Draftsmen, 1805-1807. Fair drawings of the topographical survey of South Dorset (Weymouth area) at 2 inches:1 mile, BM Map Room, Maps ref. B 4a.
Royal Society Journal Book Copy, vol XI.
Nottington Spa advertisement card, 1833, privately owned.
Deeds of Nottington Mill and Nottington Spa House, privately owned.

DORSET COUNTY RECORD OFFICE
QDE/L18, Land Tax assessments, Broadwey and Radipole, 1780-1832.
T/BDY Tithe Map (1837) and Apportionment (1841), Broadwey.
T/RAD Tithe Map (1839) and Apportionment (1840), Radipole.
PR/BDY Broadwey Parish Records.
PE/RAD Radipole Parish Records.
D 675/D2 Deed of 1818, T Shore.
D 705/B5 Letters to J. Henning, solicitor, of Weymouth, 1819-1836.

ACKNOWLEDGEMENTS
The author is grateful to all the people who have given her advice, encouragement, information or access to sources. She wishes to express particular thanks to Mrs M.M. Gordon-Steward, Mr Rodney Alcock, Mrs Pru Bollam, Mr R. Fewtrell, Mrs M. Monk and Mr N. Dear.

The publication of this article was made possible by a grant from the Mansel-Pleydell Trust.

Observations on the Site of the 'Two Barrows', Fordington Farm, Dorchester; with a Note on the 'Conquer Barrow'.

CHRISTOPHER SPAREY-GREEN
with contributions from Peter J. Woodward and Ann Woodward

A small offering in memory of L.V.G., who did so much for the study of Dorset barrows.

SUMMARY

Observations of road-works in 1978, north of Hardye's School grounds and 300 m west of Fordington Farm revealed part of the mound and western multiple ditches of a round barrow, probably the western of the 'Two Barrows' known from topographical records and antiquarian accounts. A mound structure of at least two phases, each enclosed by a ditch, may have succeeded an initial turf mound. No burials were observed, the centre of the barrow perhaps lying south-east beneath Hardye's School's northern boundary. The only finds consisted of a barbed and tanged arrowhead found incorporated in the turf mound, and a deposit of in situ flint-knapping debris on the old ground surface beneath it. The barrow is identified with the site of a Wessex burial found in the last century, the location of which had been lost.

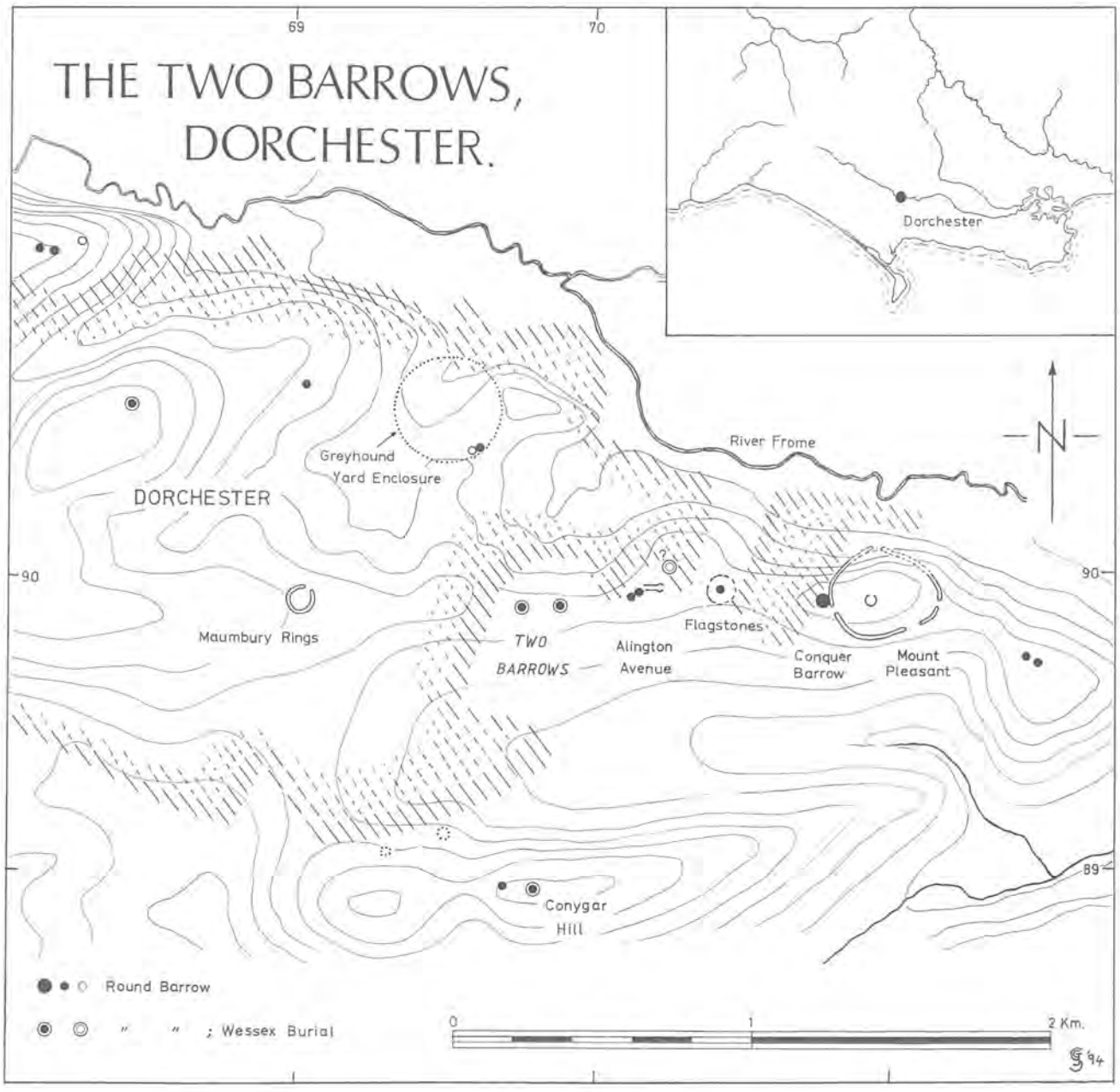


Figure 1 Two Barrows location plan. The hatching indicates the edge of the built-up area.

INTRODUCTION

This report covers observations made during the widening of a road serving the car park north of Hardye's School and south-west of St. Mary's Primary School in 1978 and briefly reported a year later (Green 1979). The observations were centred at SY 6975 8989, although then wrongly cited as SY 6965 8979. In 1986 and 1988, excavations were undertaken on a barrow a short distance to the east, closer to Fordington Farm (Woodward *et al* 1986; Bellamy 1991). Both barrows had been recorded by the Ordnance Survey (O.S.), with antiquity numbers (SY 68 NE 3 and 4, western and eastern respectively) and were published with more precise grid references by Grinsell in 1982 (Grinsell 1982; Dorchester 9 and 10). These barrows can now be fairly certainly recognised as the 'Two Barrows', known from place-name records; in this report the Fordington Farm site will be referred to as the 'eastern barrow', the present site as the 'western barrow'. This report is solely concerned with the latter but it should be noted that study of the soil samples from the latter was included with the report on the eastern barrow (Allen 1991).

Location and Topography

The site of the Two Barrows now lies within the south-eastern suburbs of Dorchester within land that originally formed part of Fordington Farm, close to an old pathway running along the ridge before leading south-east to Came. The area has now been incorporated in school-grounds and, more recently, playing fields for a sports centre. The site lay on a chalk ridge separating the Frome valley to the north from a parallel coombe to the south and the Conygar ridge beyond. The ridge was occupied by a string of prehistoric monuments extending from the henge at Maumbury Rings on the west to the barrow group beyond Mount Pleasant on the east (Fig. 1). This complex includes, besides these and other recently discovered Neolithic monuments, several other round barrows or finds indicating burials of early prehistoric date. The most recent work on the complex is summarised in Woodward and Smith 1987; Davies *et al* 1985, and Bellamy 1991; the sites are generally identified and the context broadly discussed in Woodward 1991 (cf Chapter 10). Further ring-ditches, probably the sites of small round barrows, are now known further west along the ridge beyond Maumbury Rings (Smith *et al* 1992).

History of the Site

Although the place-name preserves the memory of two barrows, the published mapping of the site is confusing. Whether the single barrow shown on Taylor's 1765 map and the 1911 O.S. one inch map was the eastern or western barrow is uncertain, but the 1929 O.S. 1:2500 map (sheet Dorset XL 15) has the antiquity symbol for the 'Site of the Two Barrows' approximately on the site of the western barrow, while the eastern is marked by a trigonometrical station. This information was derived from O.S. records for both barrows, subsequently referred to as antiquity numbers SY 68 NE 3 and 4, western and eastern respectively. Both, however, passed unremarked in the Royal Commission survey. Thereafter, the writer independently recorded the slight earthwork of the eastern mound north-east of the corner of Hardye's grounds in the mid 1970s but it was not until the construction of the new road along the north side of Hardye's grounds in 1978 that the other barrow was recognised (Fig. 2). This work revealed part of the turf mound surviving beneath the road surface, the southern half visible as an irregular mound beneath the tree belt within the school grounds. Both barrows were noted in Woodward 1991 (Appendix 5(F3/1), monuments 539 and 540).

Nature of Construction Work and Method of Recording

The construction work in 1978 entailed the excavation of a

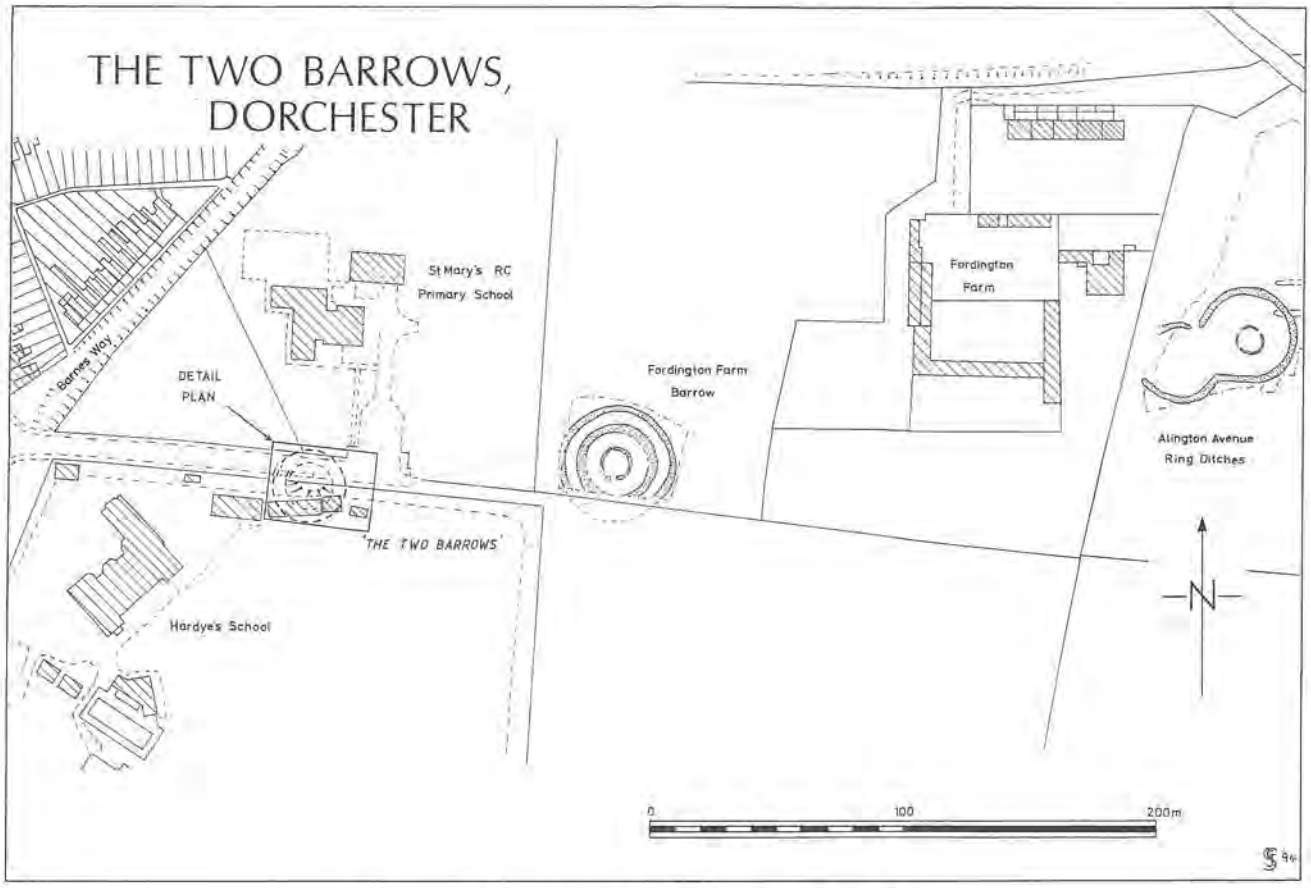


Figure 2 Two Barrows plan.- See figure 3 for detail plan.

trench for the widening of the existing road foundation and the addition of a new southern kerb (Fig. 3). This trench was 2 m wide by approximately 0.65 m deep, the southern section lying some 1.50 m north of the Hardye's School boundary. It extended some 90 m up to a point opposite the south-west corner of St. Mary's School; recording was limited to the eastern 14 m where the trench impinged on the monument.

By the time of the observation, all soils had been removed in the trench to approximately the level of the old ground surface. The southern face of the foundation trench was cleaned and drawn as a measured sketch drawing and the main features were drawn in plan where they crossed the base of the trench (Figs. 3 and 4). The easternmost 3.5 m of the trench was also cleaned in plan. Examination of the section and the base of the trench here revealed that perhaps up to 0.10 m depth of the old ground surface remained *in situ* and that a series of deposits from the initial barrow mound up to 0.5 m deep could be recognised. This was bounded by two phases of ditch on the west and sealed by other later deposits perhaps associated with the enlargement of the initial barrow and its later erosion by agriculture. The northern section was only examined but the ditches and northern edge of the mound were noted apparently continuing beneath the centre of the road. This area was not disturbed in construction work, so part of the northern half of the mound and the ditch system could still survive *in situ* beneath the road.

Some flint working debris and one flint tool were recovered in this work and are described here (Woodward below); samples of the old ground surface and the ditch fill were examined for mollusc content and have already been published (Allen 1991).

DESCRIPTION OF OBSERVATIONS

The Old Ground Surface

Where examined at the east end of the trench, the surface of the natural chalk was friable and fissured, penetrated by small solution features. It was sealed by a layer (10), up to 0.10 m thick consisting of a dark brown clayey soil containing many weathered and shattered flint nodules, chalk flecks and some waste struck flint (Fig. 4). This deposit was exposed over the base of the trench as far west as the inner edge of ditch 1. The base of this deposit contained one discrete scatter of fine flint flakes covering an area perhaps 0.40 m in diameter near the southern section (Woodward, below). Molluscan samples from this layer were unfortunately too small to produce any environmental evidence for the state of the land in the pre-barrow phase (Allen 1991, 125).

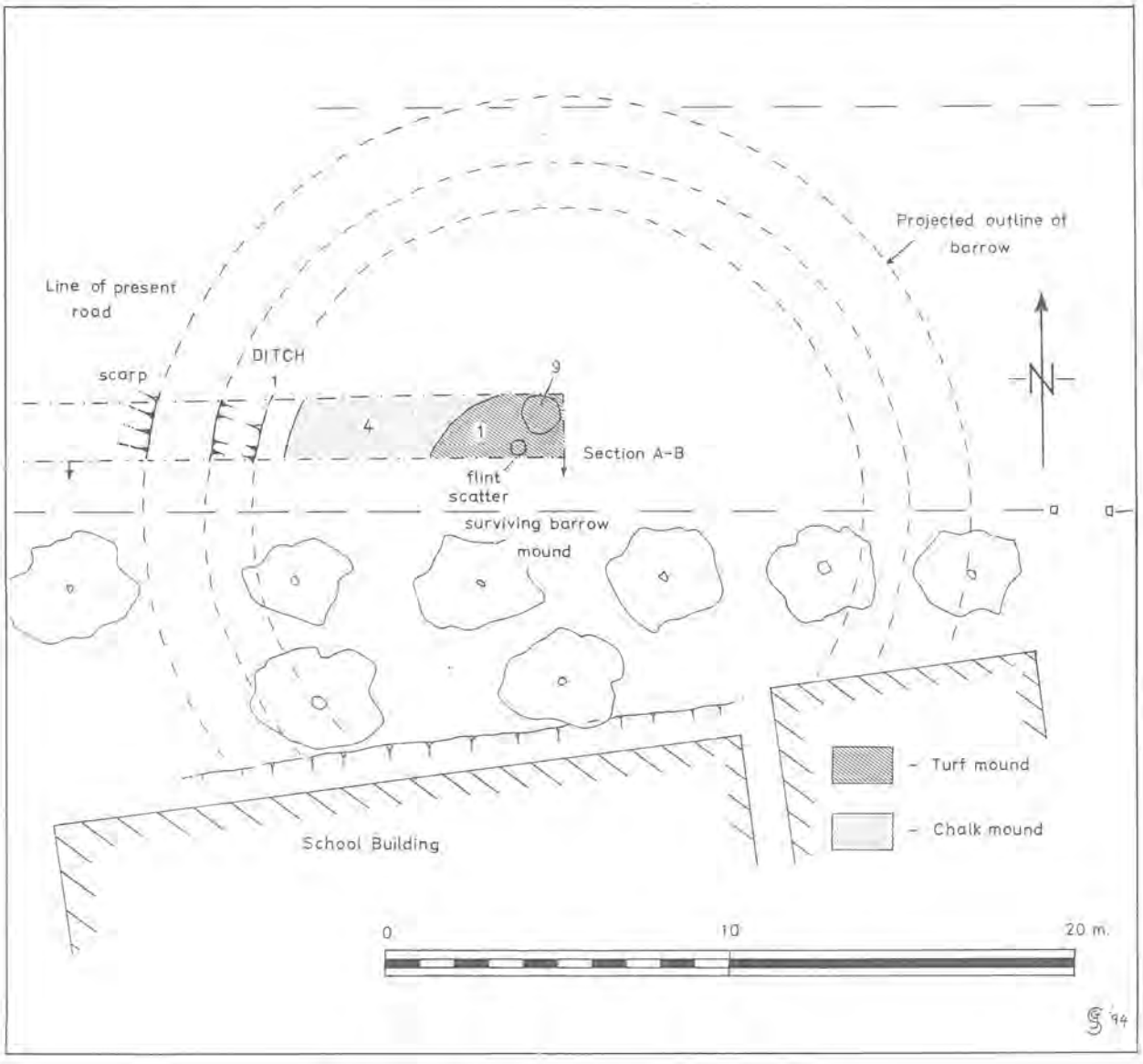


Figure 3 Two Barrows - detailed plan of western barrow.

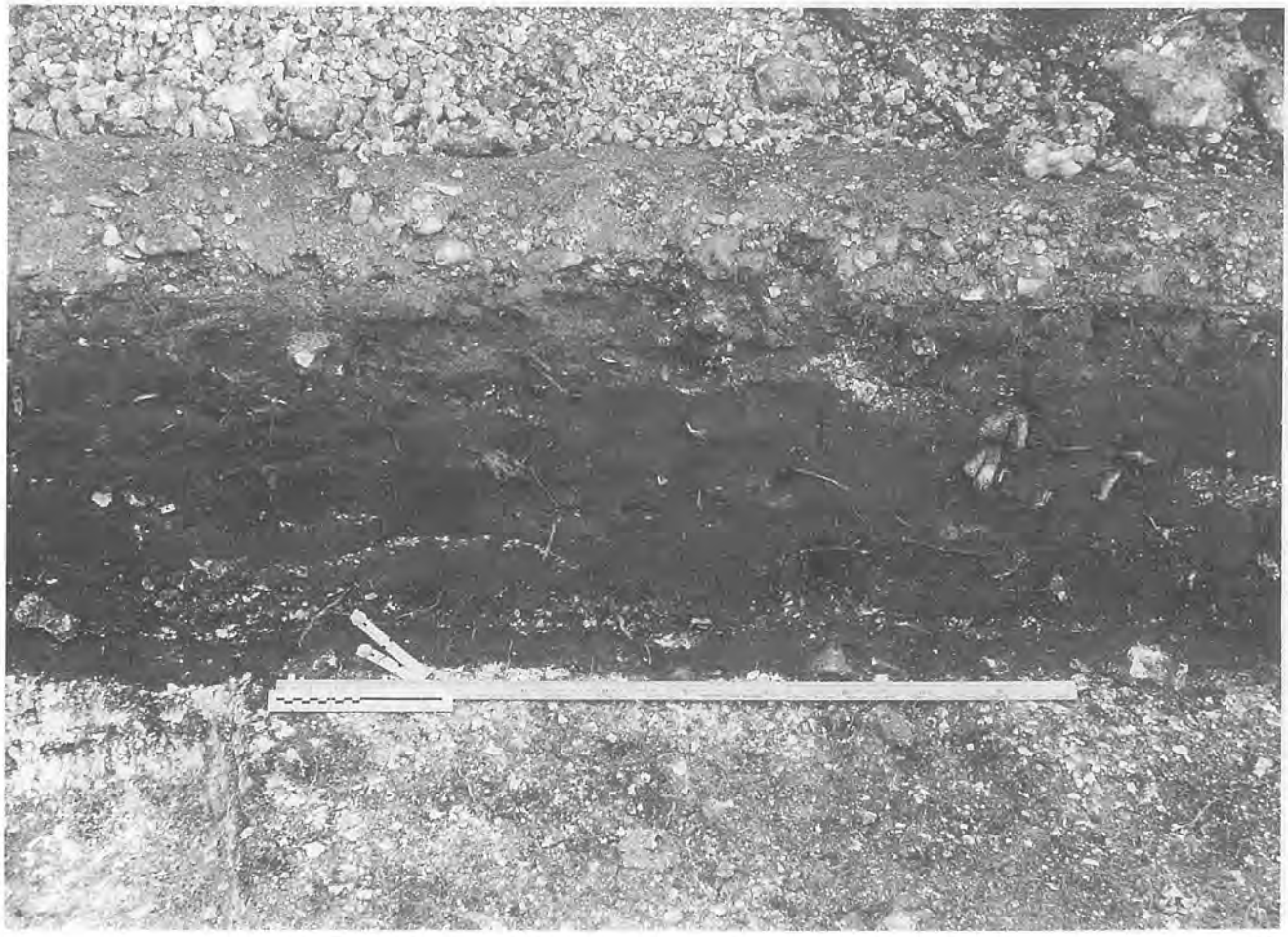


Plate 1 Two Barrows - the turf mound in section, looking south. Scale 1m.

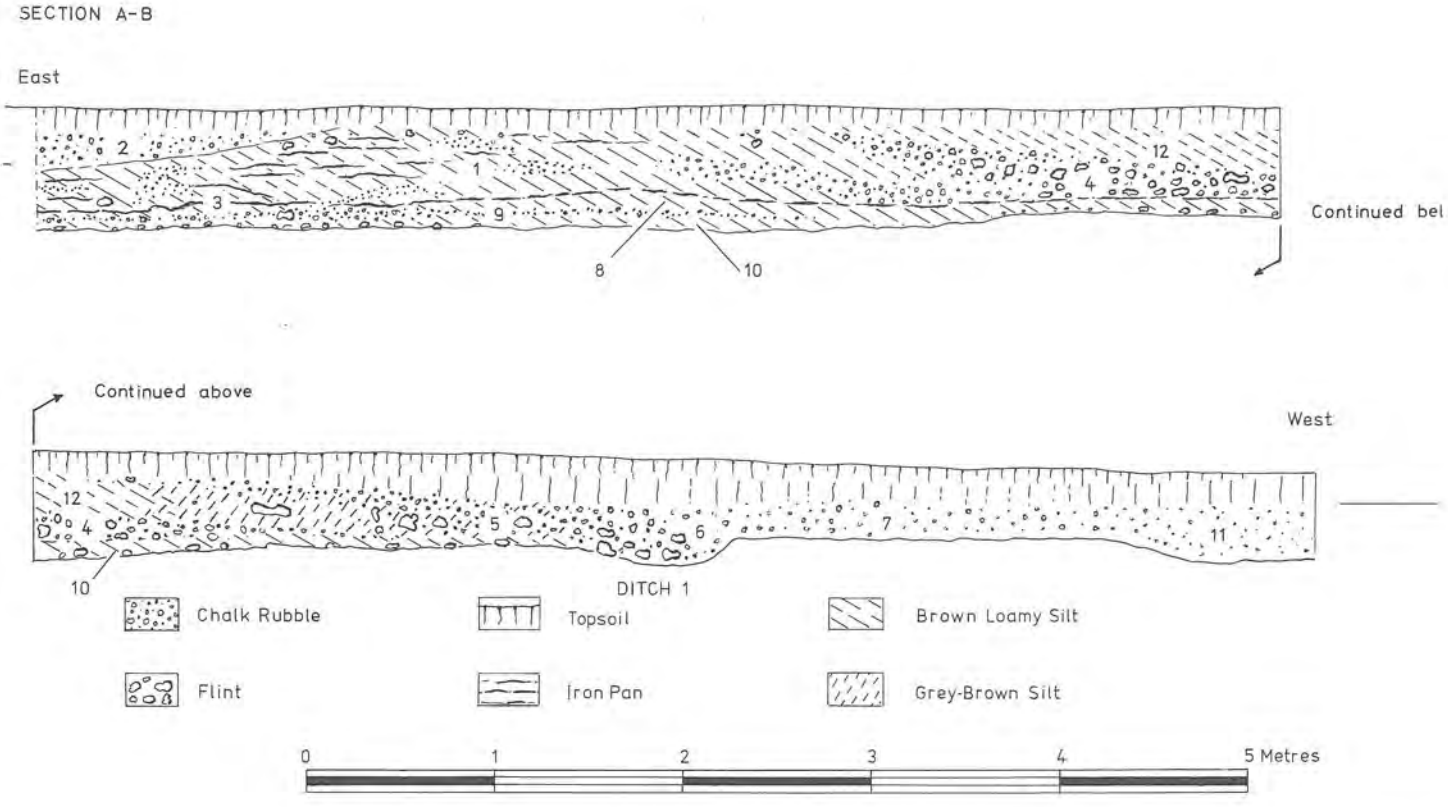


Figure 4 Two Barrows section A-B - for position see figure 3.

SF '94

The Barrow Mound, Phase 1

Layers (8) and (9) were excavated at the east end of the trench where hand excavation of the remaining base of the archaeological deposits was possible over an area 2 m by 3.5 m.

The old ground surface was sealed by a thin scatter of hard-packed fine chalk rubble and brown loam (9) containing some coarser rubble and flint nodules. This was confined to the easternmost 3.5 m of the trench and, at its greatest depth near the north east corner of the trench, formed a lens up to 0.10 m thick.

Layer (9) was sealed by (8), a dark, grey brown soil, 0.30 m thick, containing flecks of chalk and much weathered and shattered flints. This covered much of the base of the trench at the east end, but to the west, it became attenuated and indistinguishable from (10).

The main body of the mound consisted of (1), (3), and (4), these deposits visible to a depth of 0.40 m and extending for 9 m along the southern section and approximately 3 m along the northern section. They were only examined in section. Layer (1) was a hard-packed, dark grey-brown, slightly clayey silt, containing lenses of fine chalk rubble and with frequent lenses of red-brown iron-panning. A very prominent iron pan (layer (3)) extended for 6 m along the section at the base of (1). This material appeared to be mainly redeposited old ground surface, the intermittent bands of red-brown were most clearly visible, giving the impression of individual turves. This deposit was penetrated by frequent small roots from the neighbouring trees.

To the west, (1) interleaved with (4), which comprised two distinct overlapping layers of grey-brown soil, discoloured chalk rubble and flint. The upper surface of (4) was sealed by a brown, humic layer, possibly an old turf line. This deposit extended westward for approximately 4 m before petering out at a point 2 m from the inner edge of ditch 1. Cleaning of the section produced a fine barbed and tanged arrow head from the body of (4); no other finds were made and there was no sign of any intrusions that might have indicated a grave cut into the mound (Fig. 4).

Ditch 1 was a shallow scoop, 0.80 m wide and 0.15 m wide traceable across the base of the trench in an arc to the north-east. The fill comprised grey-brown soil, chalk rubble and flint nodules (6).

Layer (2) at the eastern end of the trench was visible in both sections as a light grey-brown soil flecked with chalk. Its origin is uncertain and it may be a component of the original mound or, from its position, even the fill of a later excavation, partially exposed in the centre of the barrow.

Barrow Mound, Phase 2

A fine, brown soil, similar to layer (1), overlay the possible turf layer in (4). Although not differentiated on site, this appears to have been a discrete deposit and not a further element of the turf of the primary mound; it has here been numbered as layer (12). From 7.5 m to the inner edge of ditch 1, this deposit merged with a grey-brown soil containing an increasing number of flints (5). At its outer edge this overlapped (6), the fill of ditch 1.

The outer western edge of (5) was overlapped by (7), a light brown chalky soil up to 0.20 m deep and extending at least 3.5 m to merge with deposit (11). The latter was a fine, grey soil flecked with chalk and it filled a slight ledge, approximately 0.12 m deep and extending westwards beyond the limits of the trench. A molluscan sample from this deposit indicated an origin for this soil in Roman or post-Roman arable (Allen 1992, 125).

Any outer ditch had been removed, the step in the natural surface probably representing no more than the result of erosion of the natural surface beyond the protective mantle of the barrow mound. Deposit (7) may derive from the latter, representing the spread of a final, now-destroyed chalk capping of the mound.

Deposit (7) was sealed by darker humic soil and a thin layer of disturbed chalky soil, probably an old cultivated soil and the surface of the lane preceding the present metalled road.

Figure 5 Two Barrows - the flint arrowhead at life size. Drawn by Lucia Vinciguerra.

THE FINDS

The Flint

by P.J. Woodward

A total of 150 pieces of worked flint were recovered from the excavation and presented for study. Of particular interest was the barbed and tanged arrowhead from layer (4). The remainder was a group of knapping waste from layers (4), (5), (8)/(10), (9), and (10) which comprised flakes, debitage and core material (Table 1). Layer (10) was noted by the excavator as containing a discrete scatter of flakes. Much of the material in the layers immediately above was probably derived from this deposit below the mound.

The flint, with a thick chalk cortex, was undoubtedly collected locally. Where exposed by breakage, the body of the flint was blue-black in colour. All of the material was patinated to a grey-white. The flint was of good quality and probably carefully selected and carried to the site for knapping. Other than the arrowhead, no retouched flakes or tools were found. The presence of spalls, the homogeneity of the assemblage and deposition suggests *in situ* knapping. No refits, however, were identified.

Table 1 The Flint Assemblage

Context	Flakes	Fire cracked	Misc. flakes and spalls	Broken pieces and worked lumps	Cores	Core rejuvenation flakes	Tools	Totals
(4)	5	3	2	-	-	-	1	11
(5)	4	-	2	-	-	-	-	6
(8)/(10)	39	-	-	2	2	-	-	43
(9)	5	-	-	2	-	-	-	7
(10)	39	-	35	8	-	1	-	83
Totals	92	3	39	12	2	1	1	150

The Arrowhead

The arrowhead (Fig. 5) is a barbed and tanged type, sharp and unbroken. The arrowhead is 24 mm in length, has a maximum breadth measured across the barbs of 23 mm, has a maximum thickness of 4 mm and a weight of 2 g. It is patinated to a white-grey surface. In Green's classification (Green 1980) it can be classed as a 'fancy' type and in this case can be assigned to the Conygar type b. The name of this type group is derived from the type-site some 1 km to the south-east on Conygar Hill where a group of six barbed and tanged arrowheads were recovered by Edward Cunnington from the primary interment (Grinsell 1959, 106; Dorchester 8). These six barbed and tanged arrowheads were associated with a crouched inhumation, a cremation and a Food Vessel (type 3) with the arrowheads placed near the knees of the inhumation (Green 1980, 366, 307). Green discuses the associations of this arrowhead type with a comprehensive discussion of all flint arrowheads in the British Isles. The Food Vessel association with this type of arrowhead is particularly strong (*ibid*, 130), with 71% of instances. This is in contrast with the very low association with Beaker grave groups (*ibid*, 192). Barbed and tanged arrowheads are certainly a Beaker introduction but they are an exclusive Beaker type only in sepulchral contexts. Green also notes the virtual absence of arrowheads from British dagger graves and it is in Wessex in particular that flint arrowheads seem to have the lowest densities. In a detailed discussion he concludes flint arrowheads to have been largely irrelevant to the Wessex Culture in typology, distribution and associations. A similar Conygar type arrowhead from the Fordington Farm barrow to the east (Cleal in Bellamy 1991, 116 Fig. 7.1) was found with a crouched inhumation which was immediately below a later cremation contained within an inverted urn and accompanied by a copper-alloy knife-dagger (*ibid.* 116-117). The crouched inhumation provided a radiocarbon date; UB3306, 3844±30 C14 years BP (Bellamy 1992, 116).

The Cores

Two cores were noted. One was bifacially worked (keeled) from a single platform, the other a single platform type. Both showed deep flake scars.

Table 2 The Flakes

Context	preparation		side trim		distal trim		tertiary		totals
(4)	2		3		-		-		5
(5)	3		1		-		-		4
(8)/(10)	12		9		10		8		39
	long	other	long	other	long	other	long	other	
(9)	-	3	1	-	1	-	-	-	5
(10)	-	10	2	3	4	5	6	9	39
Totals	30		19		20		23		92
	33%		21%		21%		25%		100%

The Flakes

The flake type is summarised in Table 2. This classification is as Harding 1991, 79–80. No detailed metrical analysis was undertaken since the stratified group was so small in number. However, the high percentage of distal thinning flakes (21%) and the high proportion of longer flakes (31% of 9 and 10) is characteristic of an industry of the earlier Neolithic (Harding 1991, 86–87, table 16).

Conclusions

It is probable that the extent of pre-barrow knapping activity was quite widespread in the immediate vicinity of this particular site. Extensive knapping was also recorded in and on the first silt/turf mound of the round barrow to the east (Woodward et al 1986; Woodward 1986; Bellamy 1991, 111). It is unfortunate that this material has not as yet been studied, but it could be earlier than the first later Neolithic phase of barrow construction if earlier knapping debris had already been incorporated in the turfs used to construct the primary barrow stack (noted as phase I *in situ* knapping in Woodward 1986) and that this material had than subsequently weathered out into the phase I surface silts and stabilisation layer (*contra* Bellamy 1991, 111 and noted as phase II *in situ* knapping in Woodward 1986). As Bellamy noted, this assemblage consisted of small flint nodules and knapping debris with no implements recognised. Until, however, the assemblage and context are further analysed, *in situ* knapping on the mound cannot be certainly demonstrated. Further to the east, at the Mount Pleasant henge enclosure, a pre-bank flint industry was recorded. It was concluded, on the basis of flake measurement, that the industry was later Neolithic in date, having a broader flake product in comparison with early Neolithic sites (Wainwright 1979, 141). Although no certain conclusions can be made, it is likely that the assemblage from (9) and (10) derives from earlier Neolithic activity on the site and can therefore can be associated with those earlier structures to the east; Alington long barrow and Flagstones causewayed enclosure.

The arrowhead is of a type which Green has associated with burials of the Early Bronze Age. The arrowhead is also undamaged and occurs in a layer that also yielded three fire-cracked flints and a fragment of Beaker Food Vessel (Woodward, A., below). The arrowhead may well be derived from a burial context.

The Pottery

by Ann Woodward

A single sherd of Early Bronze Age pottery, weighing 1 g, was recovered from layer (4). It consisted of an abraded wall sherd bearing one oval impression. It was of fine fabric with grog inclusions and had oxidised surfaces and a black core. It most probably derived from a Beaker, but possibly from a small Food Vessel.

DISCUSSION

The structure of the Western barrow and its possible contents

Although no detailed survey of the site was carried out, a visual examination and measurements of the road surface gives some indication of the barrow mound size and location. The asymmetry of the north and south sections and the course of ditch 1 across the base of the trench suggests the observations were carried out on the north-western quadrant of the barrow mound, the eastern end of the recorded section lying approximately 2 m north of the centre of the barrow (Fig. 3). The gentle drop in the level represented by the ground surface recorded in the section (Fig. 4) would thus reflect the profile of the western side of the remaining mound, a slope still visible today in the road surface. A steeper drop in the present road surface for 14.2 m from the eastern end of the trench would mark the eastern side of the mound. To the north of the road, the slope of the turf within the south-western corner of the grounds of St. Mary's Primary School may reflect the outer edge of the reserved platform of natural chalk noted in section on the western margin.

To the south, within the boundary fence of Hardye's School grounds, in the area presently occupied by a belt of trees, a perceptible rise in the ground mirrors that under the road. At a distance of 6.5 m south of the fence, an aluminium clad classroom appears to have impinged on the margin of this rise but the bulk of it survives, between the building and the fence. From the records of the trench and surface observations, it would appear that the denuded remains of the barrow mound, approximately 20 m in diameter, survives, the larger proportion lying south of the road within the grounds of Hardye's School. Beneath the road, up to 0.45 m of stratigraphy was recorded sealed by the old surface of the lane; within Hardye's School grounds, beyond the area eroded by traffic, and perhaps originally shielded by an old hedge line, preservation may be enhanced although affected by tree roots.

The limited investigation of this monument allows some reconstruction and phasing of the structure to be attempted. Initial activity, within 2–3 m of the north-west of the estimated centre of the original barrow, comprised the preparation of flint nodules, perhaps from layer (10), the natural brown loam originally covering this ridge (Woodward, above).

A thin spread of chalk rubble (9) may mark the initial spread of debris from the barrows construction, layer (8) representing the base of the mound separated from (1) by the later formation of an iron pan (3) within the basal layers of the mound. While (1) and (8) represented the de-turfing of a considerable area to provide the bulk of the original mound, the chalkier soil (4) could have derived from ditch 1. The original mound may then have been approximately 16 m in diameter, leaving a berm approximately 1m between it and ditch 1. The first barrow would thus have been a bell barrow, 21 m in overall diameter, including its ditch.

The fill of the ditch lacked signs of slow silting and the flinty fill (6) may represent a deliberate fill prior to the second phase when layers (12) and (5) were added to create a mound again largely composed of turf but with an outer edge of chalk and flint rubble. The stratigraphically later layer (7) may, however, derive from a now eroded chalk capping so the original extent of the mound is uncertain. No ditch or berm was recognised but the drop in the chalk layer at (11) could mark the limit of the barrow. The diameter of the mound in this second phase was at least 20 m to the outer edge of layer (5), or as much as 24 m, if the step at (11) marked the edge of the mound. In either case, the second phase would appear to have been a bowl barrow without a ditch. No trace of primary or secondary burials were uncovered in the limited exposure of the mound; any central feature could yet survive, the estimated central point lying approximately 2 m to the south of the east end of the recorded section. Layer (2), visible at this point in the section, dropped down to the east but could hardly represent a deposit on the eastern side of the mound and might represent the fill on the western side of a central feature, perhaps a weathered robbing pit. The barbed and tanged arrowhead derived from the north-western quadrant of

the primary mound and appeared to be isolated rather than part of an assemblage of grave-goods. It was, however, too fine an object to be merely a casual loss from hunting and could yet be a scattered or isolated grave-good from a burial otherwise not visible in the construction work.

Any detailed discussion of the site is precluded by the limited evidence derived from this observation and the lack of funerary remains. The most valuable result is to have identified the position of what must be the more westerly of the Two Barrows and to have shown that a surprising proportion of the monument survives today. With the unfortunate destruction of the eastern barrow after limited excavation, this now represents the last remnant of a barrow group once as important and imposing as the pair on the opposite Conygar ridge to the south (Grinsell 1959, Dorchester Bowl Barrows 7 and 8). Furthermore, although the exact outline of the barrow cannot be defined, it is conceivable that the central area, with any remaining central burials, lies within the Hardye's School grounds. The survival beneath the roadway of deeply set secondary burials cannot be ruled out, but the best chance of their survival must lie in the remaining southern segment of the mound, if they and any primary burial have not already been disturbed.

There are no records of antiquarian investigation specific to the Two Barrows but there is a strong possibility that some 19th-century finds were indeed derived from this site. A confusing account given by the Rev. Bingham of Bingham's Melcombe, Blandford does seem to preserve the record of a grave group comprising two daggers and fragmentary bone implements 'found near Dorchester' and presented to the County Museum by the Rev. H. Moule, his account also embracing a dagger 'found in a tumulus near Came, Dorset' and presented by Col. Damer (Bingham 1848). Two bone pins, one with a ring-shaped terminal from an unspecified Dorset location, may also have formed part of the Dorchester finds group, no separate find spot or donor being named.

Some assistance in locating the find spot is given by H.J. Moule, son of the Rev. Moule, in his *Dorchester Antiquities*, originally produced towards the end of his life-tenure as the first curator of the Dorset County Museum (Moule 1906). This not only provides a valuable insight into Victorian knowledge of the local monuments but also acts as a catalogue of the first museum displays. This important source was unavailable to Gerloff during the production of her comprehensive catalogue (Gerloff 1975). Moule identifies a bronze dagger (Br 30) and a dagger-knife (Br 31) in these displays as those donated by his father and figured by Rev. Bingham, although there is some discrepancy between his presumed figure for the original length of the dagger and the actual length given by the latter. Moule states the exact find spot is not known but then adds that it is likely that they were 'from one of two barrows destroyed many years ago. They stood about half-a -mile south-east of the South Walks, in an enclosed pasture close to the Came footpath' (*ibid.*, 71). Moule may be cautious, perhaps recalling personal knowledge of practically 50 years previously, but his description of the postulated find spot is entirely consistent with the site of the Two Barrows. The six bone objects figure in an earlier chapter, identified by his father's name as donor and their origin in Fordington parish (*ibid.*, 66–67, fig. 21). The only slight inconsistency here is that the objects are described as being of bone or deer-horn and the bigger implement is shown as being complete. Moule also states that 'several bone bodkins, including two stained green, form part of the Fordington find'. The wording here implies that the two other implements figured by the Rev. Bingham were indeed part of this finds group and that it may have included yet more bone implements, not figured by him.

The dagger, dagger-knife and bone implements from Fordington are termed by Piggott as his Wessex Grave Group Dorset 9, although there, only the grooved dagger is listed; the Came dagger is presumably Wessex 21 (Piggott 1938, 102–3). No exact find spot was then accorded to this Fordington find and Grinsell omits mention of it in the absence of specific information linking it to the barrows in his original survey (Grinsell 1959). Gerloff's survey of Early Bronze Age daggers took the Rev. Bingham's account as evidence that the finds formed one group with the dagger from Came, leading to their identification as the grave-goods from Grinsell's lost barrow, Winterborne Came 38 (Gerloff 1975, pl. 47B). Grinsell then corrected this in his supplement, table E, assigning only the Armorico-British dagger, Gerloff 143, to the latter find which he identified with the prominent ring-ditch of a destroyed round barrow, still today visible on the ridge north-west of Came Farm. The Camerton-Snowshill dagger 174 and the flat riveted knife-dagger 248 were assigned to Dorchester 15, a barrow in Fordington, the site of which had been lost (Grinsell 1982, 18 and 39). Finally, in discussing the Fordington Farm barrow, Cleal rightly noted that Gerloff had been misled by the Rev. Bingham's confusing description, but Cleal was herself perhaps over-cautious in not assigning the ring-headed pin and the bone point to the Rev. Moule's Fordington find (Cleal 1991, 117).

The original finds group of dagger, knife-dagger, and bone objects from Fordington can thus be reunited with some certainty. Such a group of finds may, however, be unusual since at Snailwell, Cambridge and Upton Lovell, Wiltshire, bone implements, whether spatulate or pointed, were associated with, in the first case, flint knives and a primary Collared Urn, and in the second, a battle axe, stone axe and bronze awl (Lethbridge 1949; Stone 1957, 59, pl. 13). The Fordington find could then represent a conflation of separate grave-groups, of different date, within the one barrow, the knife and dagger forming a later group than the bone points. The ring-headed pin and the short perforated point, however, had been stained through contact with copper alloy and these objects could have accompanied the metal finds.

Alternatively, the staining could have derived from some small lost object such as an awl. Gerloff's discussion of the 'Two Barrows' dagger and knife-dagger, however, illustrates bone awls associated with bronze daggers from Amesbury G85 and Wilsford G56 so the objects could have originally formed a closed group (Gerloff 1975, plates 46 and 47).

THE WESTERN BARROW IN THE CONTEXT OF THE 'TWO BARROWS' AND THE ALINGTON AVENUE COMPLEX

Detailed consideration of the context of the Two Barrows is to some extent unnecessary in view of the discussion in the South Dorset Ridgeway Survey (Woodward 1991) and accompanying the report on the eastern barrow (Bellamy 1992 129-131). However some specific points about the western of the 'Two Barrows' should be made in relation to its neighbour and other elements of the prehistoric topography, in advance of the mor detailed publication of the Alington Avenue and Flagstones excavations.

Observation of the western barrow revealed nothing at the level of complexity or scale of the eastern; much detail may lie still buried but the western barrow seems, in its final form, to have been physically smaller and less complex in structure. The evidence of the underlying soil is compatible with the earlier environmental evidence for pastoral use of the area, the old ground surface of presumably decayed turf being clearly identified here (Bellamy 1991, 129). Flint knapping debris may be part of the wider industrial activity in the area although the casual preparation of tools on the spot, perhaps the work of an idle herdsman, might also explain small isolated groups as found in (10).

The choice of such a landscape for burial monuments seems hardly surprising, pasture would provide the the

required materials for a primary turf mound while a ridge-top position would make the monument visible while not imposing on valuable arable. *Pace* Bellamy, 'the deliberate siting of this burial monument in an area where it would be protected from agricultural damage' is hardly a consideration in the days before the tractor-drawn plough; there would be more potential for damage from trampling cattle (Bellamy 1991, 130).

The barrow produced no trace of the early, Neolithic style burial customs found beneath the eastern mound nor of the stake circles of phase 2 but then the area observed here was particularly limited. Its history was, however, simpler than its pair, only the two phases being identified, the first bounded by a shallower and poorly-cut ditch, the later enlargement not marked by any surviving boundary. In the absence of *in situ* burial remains, little can be said of the funerary rites. The very fine barbed and tanged arrow head, although seemingly an isolated find from the mound, is likely to have been placed in it as a gravegood rather than casually lost. That consideration begs the question of what lay behind the south section from which this object fell.

On the basis of Moule's cautious identification, the original find-spot of Piggott's Wessex gravegroup 9, discussed above, would appear to have been in one of the Two Barrows, rather than Grinsell's hypothetical Dorchester 15 (Grinsell 1982, 39). The pairing of a dagger and knife-dagger is comparable to the grave group beneath the Laurence Barrow and also, perhaps, to that from the destroyed barrow in Winterborne Came, probably Grinsell's Winterborne Came 38a (*op. cit.* 55).

The nature of the original interment they accompanied is not recorded, possibly the lack of mention of urns or skeletal remains by Bingham or Moule indicates an un-urned cremation but then fragmentary vessels or skeletal remains might not warrant mention in the context of their discussion about metal and bone tools.

Which barrow was the more likely findspot remains uncertain; no trace of recent interference in the eastern, Fordington Farm, barrow was noted and the primary burials were intact. The objects could have been discovered, however, in the demolition of the eastern mound and it is noteworthy that a bone point was found unstratified in clearance of that site (Cleal 1992, 119). On typological grounds the metal finds should fall in the Wessex II period, later than the recently discovered interments; they could thus have been associated with the later enlargement of the barrow in phases 3 or 4, for which no burials were recovered (Bellamy 1992, 129). Less is known of the smaller western barrow's mound or of what burials might remain in situ or have been disturbed in the 19th century; as already noted, layer (2) might represent the fill of a central robbing pit from which objects were recovered. If from the western barrow, the gravegoods could have been associated with its second phase enlargement.

It is now impossible to identify the findspot with any certainty but the relative chances of past survival of either mound could be compared for, from the 18th and early 19th century records, only a single barrow survived at that time. This could have been the eastern barrow, which might then have yielded the objects during agricultural levelling in the 1840s. Alternatively, this might have been long destroyed, the sole survivor being the western barrow which lay on the south boundary of the old lane and could have been incorporated in its hedge line. It is probably now impossible to be precise on the location, but in terms of surviving structures in 1978 - and, indeed, at the present time - the western mound within the school grounds is the more upstanding, although heavily overgrown. Hopefully, this remaining monument will be preserved from further disturbance and not suffer the fate of its pair.

In relation to other nearby Wessex burials and in terms of the final form and diameter of the earthwork, the western would have been a bowl barrow without outer ditch and not much smaller than the Laurence barrow and the Conygar barrow; its diameter of perhaps 20-25m would lie near the average for Wessex graves (Grinsell 1959, 12). The eastern mound was a correspondingly larger bowl with a ditch perhaps buried by the final extension (or slippage?) of the mound, its diameter of 43m lying above the average.

The numerical nomenclature for the barrows is straightforward and appears accurate, although the possibility remains that other long-destroyed barrows once existed to the west and are now buried beneath the school and housing. The pairing of barrows seems a remarkable feature of the immediate distribution for, within a 2 kilometre radius, there are 5 or 6 such groups besides the two 'pit rings' below Conygar Hill and the 'spectacle-shaped' ditch at Alington Avenue. Further west this pattern is broken only by the larger groups in the vicinity of Maiden Castle. The Conygar Hill barrows are the closest, almost duplicating the Two Barrows and inter-visible on the ridge a kilometre to the south (Grinsell 1959, 105-6). The two bowl barrows are similar in size to the western of the latter, the eastern of the Conygar pair, as noted above, producing six arrow heads closely similar to that from this site.

In the context of the Alington Avenue and Mount Pleasant complex the Two Barrows appear to have continued a tradition of activity on the ridge that included funerary monuments originating in the Neolithic and continuing at least to the early Middle Bronze Age. Both Woodward and Bellamy have pointed to some characteristics of the burials in the eastern barrow which link them with older, Neolithic practices (*ibid.*, 139-40 and 127, respectively). In this respect these barrows continue a tradition that may commence with the Alington Avenue long barrow and the Flagstones enclosure but should also include the bulkiest structure in the whole complex, the Conquer barrow. This enigmatic structure has often been seen as a large round barrow and it might be apposite to examine the nature and date of this monument in particular.

THE CONQUER BARROW AND ITS RELATIONSHIP TO THE ALINGTON AVENUE COMPLEX

Although Bellamy perhaps wrongly draws a direct analogy between this exceptional round barrow and Silbury Hill, Conquer Barrow should be considered as belonging to a Late Neolithic phase, as has been pointed out by Woodward (ibid., 140), rather than to the Bronze Age, as assumed by Wainwright (ibid., 130; Wainwright 1979, 65–67).

Woodward has pointed out that '... the excavation at Mount Pleasant did not demonstrate the precise relationship of this barrow to the enclosure but it is clear that this mound was of great importance, since it was set so close to the timber henge and also in rough alignment with the earlier long barrow at Alington'. Woodward goes on to conclude that, 'There is no evidence to link individual Neolithic burial and round barrow construction (in this area) with the bank barrows (and long barrows), but rather, the emergence of this new tradition (round barrows) is to be associated with henge monument construction and the sealing of the long barrows'. The sequence of transition from the Neolithic long barrow tradition and associated burial process to the emergence of the new round barrow tradition of the Late Neolithic and Early Bronze Age has been comprehensively discussed by Woodward for the Fordington Farm, Alington and Flagstones complex (Woodward 1990) and he concludes that the conversion of the earlier Neolithic complex may be associated chronologically with the development of the timber henge and henge enclosure at Mount Pleasant and that the construction of round barrows for individual burial soon followed (*op.cit.* 35).

Although Woodward's conclusions may well prove to be

correct, it is perhaps worth reviewing in detail the problematic relationship of Conquer Barrow to the Mount Pleasant enclosure. The limited investigation of this barrow was not conclusive in showing the relationship to the henge enclosure bank and some elements of the published record would support its data prior to, or contemporary with, the initial construction of the Mount Pleasant henge complex.

Firstly, no direct stratigraphic relationship between the henge and barrow was established, so their relative date can only be deduced from dated finds associated with each. For the barrow this takes the form of finds within the causewayed ditch surrounding the mound and derived from cutting XLVI. The significant finds from the primary fill comprise an antler pick, now dated to 2876–2480 Cal (BM 795) and a sherd of pottery from the secondary silting, categorised as of Bronze Age fabric (Wainwright 1979, 65–67; Pearson and Stuiver 1986). Wainwright chose to believe the evidence of the latter find and discount the antler as a rubbish survival; clearly, the identification of the sherd of pottery is crucial, but to discount the antler evidence seems cavalier, considering the weight put on other samples. The date for the antler is comparable to that from the Neolithic settlement pre-existing the henge (2886–2460 Cal BC (BM 644)) but was significantly earlier than those from the adjacent ditch terminals of the second phase henge (2288–2034 and 2300–1970 Cal BC (BM 645 and 646); Pearson and Stuiver 1986). However, the earliest dates for the henge ditch at the north-east entrance were not significantly different (2881–2460 and 2869–2470 Cal BC (BM 792 and 793); *op. cit.*).

Secondly, the causewayed ditch of the barrow deserves some further comment since its later fill on the south east side may give some clue as to its relationship to the henge. The section of ditch encountered in trenches XLVI and XLVII coincided with the henge's south-west entrance, lying in the space between bank and ditch terminals. The section in fig. 38 shows this sector of barrow ditch to have been filled in with clean, coarse chalk rubble almost to the brim, sealing the primary fill and in turn sealed by a layer containing a Beaker sherd (Wainwright 1979, 65–67). The adjacent ditch section to the south-west, however, outside the henge, contained only fine silts over its primary fill. Wainwright explained the chalk filling as '...a levelling of the enclosure bank at some time in the second half of the second millennium bc, possibly as an aid to cultivation...' but in this case why should the two adjacent sections of ditch be so different in treatment and why should the redeposited bank material comprise a 'mass of chalk blocks' (ibid. 67). An alternative explanation can be proposed, that the barrow ditch, containing its primary silts, pre-existed the henge and the section, coinciding with the new entrance, was filled up with fresh chalk from the henge ditch to overcome this obstacle which otherwise half blocked the outer part of the entrance.

That 'the barrow demonstrably post-dates the enclosure bank' is by no means certain; the contours showing the denuded line of the henge enclosure bank where it impinged on the east side of the barrow mound, prove only that the two coincide at this point. They do not prove their temporal relationship, and the bank on either side could simply be built against a pre-existing mound, rather than the opposite, as assumed by Wainwright (*ibid.*, fig. 37).

This is not the place to discuss the wider question of the relationship of large, early round barrows to henges, suffice it to say that in its size and its association with a larger enclosure, the Conquer Barrow/Mount Pleasant complex is comparable to sites such as Duggleby Howe, Yorkshire, where a somewhat smaller mound, containing Late Neolithic burials, lay central within a larger, apparently causewayed ditched enclosure (Kinnes et al 1983). The location on higher ground overlooking a river valley may also be comparable, although the Dorset complex lay on a more prominent hill overlooking a more major river.

Taking the stratigraphical records and radio-carbon dates from the 1970–71 excavation at face value would support a case for interpreting this exceptionally large earthen mound as a Late Neolithic round barrow (Woodward 1991, 140) and, in addition, placing it at some date prior to the main Mount Pleasant henge enclosure. The construction of Conquer Barrow can be seen to succeed the earlier Alington Avenue long barrow and the Flagstones enclosure but be contemporary with the Mount Pleasant timber henge, which may well have been designed to '...claim primacy over the long barrow tradition' (Woodward 1991, 136).

These two monuments were subsequently separated by the construction of the Mount Pleasant henge enclosure (ibid., 136), but the size of Conquer Barrow ensured that it survived to overshadow the main Mount Pleasant enclosure on the east, while dominating the transformation of the Alington complex on the west. The latter process continued with the development of the Two Barrows, although additional monuments could have existed to their west along the ridge to Maumbury Rings, now buried beneath urban development.

OTHER POSSIBLE WESSEX FINDS FROM THE AREA

Finally, one further find from the area should be noted as indicative of yet another addition to this series of later high-status burials, but outliers to the linear complex. Piggott illustrated an accessory cup from Dorchester amongst his Intrusive Pottery Types associated with Wessex burials, this vessel being identifiable with that illustrated by Moule as found at Wareham House, now the Trumpet Major public house in Alington Avenue (Piggott 1938, 76 and fig. 15, 1; Moule 1906, 48, fig. 2). This vessel was recovered at the same time as other finds including Iron Age and early Roman occupation debris and grave-goods from a series of Saxon burials (Green 1985).

Also surviving within the collections of the Dorset County Museum are fragments of antler, the material labelled as 'found with fragments of a lamp, Case XIIIa 1892'. This correlates with Moule's description of the location of the accessory cup in the early Museum displays and thus holds out the possibility not only to pinpoint the location of yet another potential Wessex Burial, but to obtain more refined dating for the object. If not in a funerary context, the find forms an important and unusual domestic or ritual deposit, from a location 50 m north of the east end of the Alington Avenue long-barrow.

CONCLUSION

The above has been an exercise in relocation and reconstruction based on old records and limited recent observation, intended as a complement to the fuller report on neighbouring excavations of the Alington complex. The above emphasises, as has often been demonstrated, that despite the shortcomings of past records of prehistoric monuments, the surviving material and written records can be refined to complement more recent work and go some way to compensate for what has been lost through the vagaries of past investigations. These few details add some useful information to what increasingly is recognisable as one of the richest prehistoric landscapes in Southern Britain.

Acknowledgements

I am very grateful to Peter Woodward for much helpful advice and discussion in addition to his contributions to this report. I am indebted to Dr. Ann Woodward for her identification of the pot sherd and to Lucia Vinciguerra for the drawing of the arrowhead.

BIBLIOGRAPHY

Allen, M.J., 1991, 'The environmental history' in Bellamy 1991, 123–127.

Bellamy, P.S., 1991, 'The excavation of Fordington Farm round barrow', *Proc. Dorset Natur. Hist. Archaeol. Soc.*, 113, 107–132.

Bingham, C.W., 1848, note in 'Archaeological Intelligence, Early British Period', *Archaeol. Journ.*, 5, 322–325.

Cleal, R.M.J., 1991, 'The Finds' in Bellamy (1991), 116–119.

Davies, S.M., Stacey, L.C. and Woodward, P.J., 1985, 'Excavations at Alington Avenue, Fordington, Dorchester, 1984/85: Interim Report', *Proc. Dorset Natur. Hist. Archaeol. Soc.*, 107, 101–10.

Gerloff, S., 1975, *The Early Bronze Age Daggers in Great Britain* (Praehistorische Bronzefunde, Abteilung VI, 2er Band, Munchen).

Green, C.J.S., 1979, in 'Dorset Archaeology in 1979', *Proc. Dorset Natur. Hist. Archaeol. Soc.*, 101, 135.

Green, C.J. Sparey, 1985, 'Early Anglo-Saxon burials at the Trumpet-Major public house', *Proc. Dorset Natur. Hist. Archaeol. Soc.*, 106, 149–152.

Green, H.S., 1980, *The Flint Arrowheads of the British Isles*, BAR British Series 75, Oxford.

Grinsell, L.V., 1959, *Dorset Barrows*, Dorset Natur. Hist. Archaeol. Soc.

Grinsell, L.V., 1982, *Dorset Barrows: Supplement*, Dorset Natur. Hist. Archaeol. Soc.

Harding, P., 1991, 'The Worked Flint assemblage — stratified groups', in Woodward, 1991, 73–87.

Kinnes, I., Schadla-Hall, T., Chadwick, P. and Dean, P., 1983, 'Duggleby Howe Reconsidered', *Archaeol. Journ.* 140, 83–108.

Lethbridge, T.C., 1949, 'Excavation of the Snailwell group of Bronze Age barrows', *Proc. Cambs. Antiq. Soc.* 43, 30–49.

Moule, H.J., 1906, *Dorchester Antiquities*, Dorchester.

Pearson, G.W. and Stuiver, M., 1986, 'High-precision calibration of the radiocarbon time scale, 500–2500 BC', *Radiocarbon* 28, (2B), 839–862.

Piggott, S., 1938, 'The early Bronze Age in Wessex', *Proc. Prehist. Soc.* 4, pt 1, 52–106.

R.C.H.M., 1970, *An Inventory of the Historical Monuments in the County of Dorset: South East.*

Smith, R.J.C., Rawlings, M. and Barnes, I., 1992, 'Excavations at Coburg Road and Weymouth Road, Fordington, Dorchester, 1988 and 1989', *Proc. Dorset Natur. Hist. Archaeol. Soc.* 114, 19–45.

Stone, J.F.S., 1957, *Wessex Before the Celts*.

Wainwright, G.J., 1979, *Mount Pleasant, Dorset: Excavations 1970–1971*, Rep. Res. Comm. Soc. Antiq. London 37.

Woodward, P.J., 1990, 'The prehistoric monuments at Alington Avenue', Unpubl. discussion prepared for Excavations at Alington Avenue, Dorchester 1984/85, Trust for Wessex Archaeology, Salisbury.

Woodward, P.J., 1991, *The South Dorset Ridgeway, Survey and Excavations 1977–84*, Dorset Natur. Hist. Archaeol. Soc. Monograph 8.

Woodward, P.J., Jenkins, V. and Davies, S.M., 1986, 'Excavations and survey at Fordington Farm and the Trumpet-Major; an interim note', *Proc. Dorset Natur. Hist. Archaeol. Soc.* 108, 169–171.

Woodward, P.J. and Smith, R.J.C., 1987, 'Survey and excavation along the route of the Southern Dorchester By-Pass 1986–1987 — an interim note', *Proc. Dorset Natur. Hist. Archaeol. Soc.*, 109, 79–89.

The excavation of a medieval building at Ower Farm, Corfe Castle, and other archaeological observations during the construction of a new wellsite and pipeline at the Wytch Farm Oilfield, 1994

JACQUELINE DODD
AC *archaeology*

SUMMARY

A further stage of archaeological investigations at Wytch Farm was carried out during 1994. The construction of a new wellsite ('M') on the Goathorn Peninsula and a new water pipeline and cables connecting with the existing installations was preceded by archaeological evaluation in the areas of new land take. In addition further excavation was undertaken at a previously recorded Medieval site at Ower Farm, and a detailed watching brief in other archaeologically sensitive areas. No evidence for archaeological activity was recorded at Wellsite 'M'. The excavation at Ower Farm revealed structural remains of a Medieval Building comprising at least two bays, one with an unusual semicircular wall plan. Occupation debris from the site included pottery of 12th- to 14th-century date. This structure is believed to be part of the Medieval settlement of Ower which is known to have existed by Domesday and which was partially excavated during the previous stage of oilfield development in 1987. Monitoring of new construction areas on the Fitzworth Peninsula recorded limited new evidence for the 18th-century Park Pale but failed to reveal the western extent of the pale in the area of Wytch Moor, as shown on historical maps.

INTRODUCTION

The development of the Wytch Farm Oilfield since the late 1970s has been accompanied by a considerable programme of archaeological investigations: Stage I, carried out from 1978 by British Gas, involved the excavation of the late Iron Age and Romano-British industrial settlement on the Ower Peninsula (Woodward 1987); while the Stage II development from the mid 1980s by BP Exploration and partners, involved an extensive archaeological programme of evaluations, excavations and construction monitoring during the main phase of the oilfield development between 1987 - 1990, the detailed results of which have been published (Cox and Hearne 1991). The Stage III (1994) construction works by BP Exploration and partners comprised; 1) a new wellsite, 'M', on the Goathorn peninsula; and 2) the laying of a water injection pipeline and associated cables between the Gathering Station and the new wellsite. The layout of the principal oilfield installations is shown on Fig. 1.

Prior to the construction of the new wellsite an evaluation was carried out to assess the archaeological potential, by auger survey and hand dug trial pits. The information collected suggested that the site had little archaeological potential. In accordance with the archaeological strategy, however, a watching brief was maintained during the initial construction works. This confirmed the negative evaluation results.

The new Stage III pipeline and cables between wellsite M and the Gathering Station were laid adjacent to the Stage II pipelines. The new working width used for this construction therefore involved only limited or no topsoil disturbance outside of the area previously investigated during the Stage II archaeological works. It was therefore possible to define in advance the likely archaeological impacts with a high degree of precision. Five key areas were identified where archaeological deposits would be affected; the Medieval settlement at Ower Farm (Fig. 1; Sites 1 and 2); the probable site of the failed Medieval settlement at Newton (Site 3); the Fitzworth Deer Park Pale (Site 4); and an area of Medieval occupation to the east of Wytch Moor (Site 5). In these areas archaeological deposits in the new working width had been either totally or partially removed by earlier archaeological excavations, but potential remained for the survival of further deposits within the line of the Stage III pipe trench. In the following sections all references to feature or deposit numbers used in the Stage II report are shown in italics.

In accordance with a programme of archaeological investigation proposed by BP Exploration in consultation with Dorset County Council, the following activities were carried out at the sites:

Site 1 - Ower Farm: SY 99868544 Corfe Castle Parish excavation of medieval building prior to the commencement of construction work.
Site 2 - Ower Farm: SY 99768546 Corfe Castle Parish watching brief during topsoil stripping and excavation of pipe trench.
Site 3 - Newton: SZ 00258520 Studland Parish watching brief during topsoil stripping and excavation of pipe trench.
Site 4 - Fitzworth Park Pale: SY 99258560 Corfe Castle Parish watching brief during topsoil stripping and excavation of pipe trench.
Site 5 - East of Wytch Moor: SY 98558555 Corfe Castle Parish watching brief during topsoil stripping and excavation of pipe trench.

The results from each site are set out below.

SITE 1 - OWER FARM EXCAVATION

Methodology

During the Stage II archaeological works a single Medieval building was recorded in section during the watching brief, in the pipe trench *c.* 15m east of the track to Ower Farm (Cox and Hearne 1991, 88). This was considered to be an outlier of the main area of the Ower Farm Medieval settlement as revealed to the west (referred to here as Site 2). It was evident that this building survived to the south of the trench exposure and would therefore be affected by the Stage III construction works.

Prior to the commencement of excavation the centre line of the existing and proposed new pipelines was marked out under the supervision of the contractors, P.E.C. and the BP Construction Manager. In total 30 metres of the pipe trench was marked for excavation by archaeologists prior to any construction works (Fig. 2). The overburden, including, topsoil and backfill from the 1987 pipeline was removed by mechanical excavator under archaeological supervision. The excavated surface of the trench was then cleaned by hand and planned. All features were then excavated manually.

Excavation Results

The excavation revealed deep deposits of black silty sand, containing Medieval artefacts, in two discrete areas. At the west end of the trench, within a build-up of deep soil a building and associated features were recorded. To the east a single ditch was identified. All phases of the site's use contained pottery of 12th to 14th century date, but on the basis of the stratigraphy five phases can be identified and are described below:

Phase I - Pre-settlement Medieval land surface

A buried soil, which survived to a maximum depth of 0.15 m, was recorded in the western end of the trench, pre-dating the main phase of occupation. It comprised a black, friable, humic sand and here was overlain by a layer of redeposited white sand. The buried soil was not fully exposed as it existed at a depth below the proposed maximum depth of the pipe trench. These two deposits were consistent with

those recorded in the earlier exposure at this location (*3024* & *3025*) and were interpreted at that time as artificial levelling above a buried (and formerly ploughed) land surface, to provide a platform for building. No finds were recovered from these deposits.

Phase II - Medieval settlement

The main feature of the Medieval occupation was building [29], comprising four walls and associated features (Plate 1 and Fig. 3). This was previously observed in section during the Stage II archaeological investigations (walls *3031* and *3032*).

Wall [11] which was aligned north-west to south-east showed the greatest preservation, surviving for five or six courses. The fabric of the wall was mixed, consisting predominantly of large heathstone, mudstone and, several quartz blocks up to 300 x 500 mm, as well as smaller heathstone, limestone, quartz and flint nodules. There was no evidence for the stones having been dressed. Clay bonding was

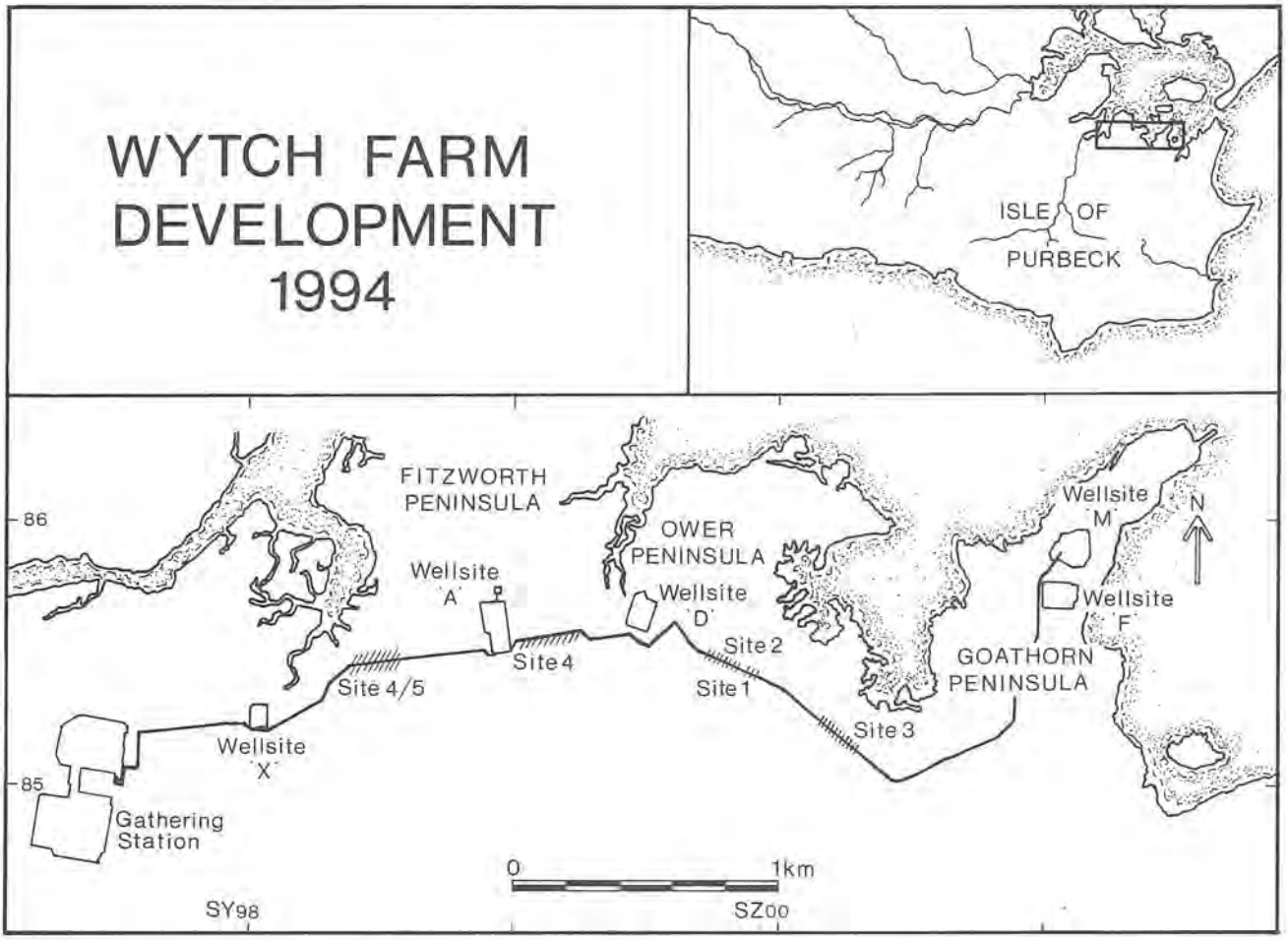


Figure 1 : Wytch Farm Oilfield, site location and oilfield installations

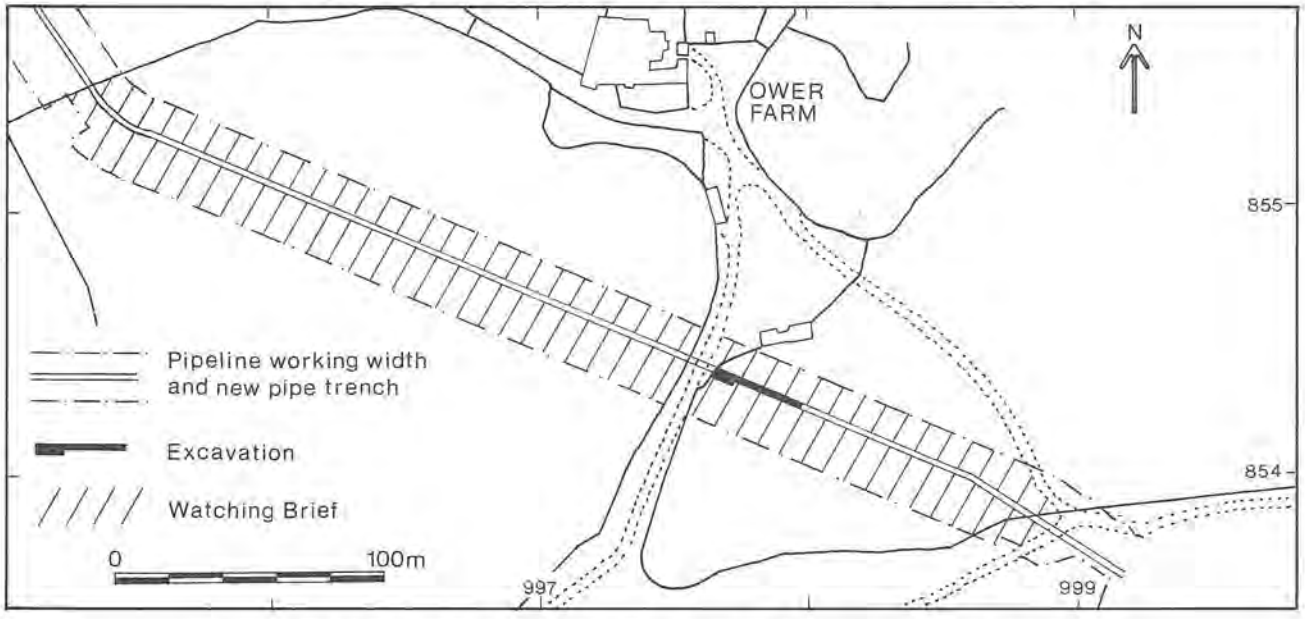


Figure 2 : Wytch Farm Oilfield, Location of excavation and observations south of Ower Farm

Plate 1 : Wytch Farm Oilfield, The Medieval building [29] from the west

apparent between the courses of the wall and in places thick yellow clay was still adhering to the external faces of some of the stones, and may be associated with residue from cob walling. At the west end of the wall it tilted northwards and a discrete area of collapse could be identified at its base. This collapse consisted largely of yellow clay with some stones, suggesting that the wall had suffered a single episode of collapse at a time when much of the cob walling still survived. Traces of a construction trench for the wall are evident only near the junction with wall [13].

Wall [19] was well preserved at the intersection with [11] and was of a similar construction. It extended for 1.40 m, after which it had been truncated, presumably by the excavation of the Stage II pipe trench, (recorded at that time as wall *3032*). Further to the south however the preservation was poor, and at one point appears to have been robbed. Patches of clay were also recorded adhering to the stones, and a further patch of clay lay close to the wall in the interior of the building.

Wall [16] protruded from [11] at its intersection with [13]. It ran for only 0.45 metres in the same alignment as [19]. Although the construction trench [25] was seen to follow around the butt end of this wall, it is likely that it originally continued further, as it was recorded in the Stage II trench section as *3031*.

Wall [13] appeared to have been constructed at the same time as [16], but was only loosely bonded into the NW end of wall [11]. By comparison with [11] it was of a less substantial nature and did not contain the variety of stone types recorded. It was only one stone wide and survived to a height of three courses. The lowest course comprised large, often rounded, heathstone boulders overlain by a course of flat, horizontally placed, limestone and mudstone slabs. The third course was of mixed limestone and heathstone and sloped to the south. The wall was constructed in plan in a semicircular shape with evidence for a return showing at the eastern end. The top of the construction trench [25] was visible and recorded in plan.

A square post hole [22], butting the southern side of wall [11] was noted. The fill was found to be a deposit of orange, possibly burnt, clay with frequent charcoal flecks. On the opposite, internal, side of the wall there was a patch of staining. It is possible that these two features represent the timber supports, used either in the structure, or during the construction, of the cob walling. No internal or external surfaces, such as floor levels, were present in association with this structure. A deposit of humic sand and small stone rubble, layer 6, enclosed by walls [16], [11] and [19] contained fragments of Medieval pottery and may represent contemporaneous occupation material. This deposit appears to equate with layer *3028* in the previous investigation of the site.

An alignment of stones, wall [4], was recorded to the west of building [29]. The stones were predominantly heathstone, and showed no evidence of having been dressed or bonded together. The exposed length of the feature was 1.40 m. although it appeared to continue to the south-east, beyond the limit of excavation. Only one course of the feature, which was probably a wall, survived and no construction trench was present. These may be the vestiges of an additional structure.

At the east end of the trench, 18.80 m east of building [29], a ditch [8] was observed, cutting into the natural sand. It was aligned north to south, 0.80 m wide with a maximum depth of 0.30 m. The fill was a friable black humic sand, which was indistinguishable from the overburden and it was possible therefore that the feature had been cut from a higher level. Three fragments of Medieval pottery were recovered from this feature.

Phase III - Destruction

Much of the stone rubble destruction debris lay close to the walls and mostly within the interior of the structure. Although wall [11] survived with a considerable tilt, the robust construction suggests that this was not caused by accidental slippage, but may have been a deliberate attempt to demolish the building. The patchy survival of wall [19] suggests that some of the stone was robbed, possibly for use elsewhere, but sufficient rubble remained in the vicinity to indicate that this was not exhaustively pursued.

Phase IV - Post-abandonment build up

Deep soil deposits in areas of former settlement in the area is a phenomenon noted during the Stage II archaeological works, and was considered to have occurred predominantly during the post-occupation period of each site. The results from this excavation, with total depths approaching 1.00 m above the subsoil features, are compatible with these conclusions. The effect is almost certainly multi-causal and is discussed more fully by Staines and Allen (1991).

Phase V - Modern

The archaeological deposits were overlain, and in places partly truncated, by backfill and trench cut from the Stage II archaeological works. Although the southern edge of the previous pipe trench was situated almost a metre to the south, the unstable soil conditions and the increased depth of the trench approaching the track to Ower Farm, meant that the disturbance was greater in this area. The main structure [29] is known to have been truncated by the Stage II works, but it is difficult to predict how much was removed at that time. Elements of this structure were only recorded in the south side of the Stage II pipe trench, so it would seem probable that the building extended for no more than a few metres northwards of the present excavation. A few redeposited finds, largely Medieval in date, were recovered from the backfill and also from the overburden.

The finds

The pottery by Jacqueline Dodd with John Hawkes

Introduction

A total of 280 sherds of pottery, weighing 4099g, was recovered from the excavations at Ower Farm. The assemblage was initially sorted by fabric on the basis of type and size of macroscopic inclusions, identified visually. Following quantification, sherds were sorted into rim, base and decorative body, and each category was quantified and recorded individually noting vessel form; surface treatment; decorative treatment and position, where appropriate. For rim sherds the diameter, number of sherds (where conjoining sherds were

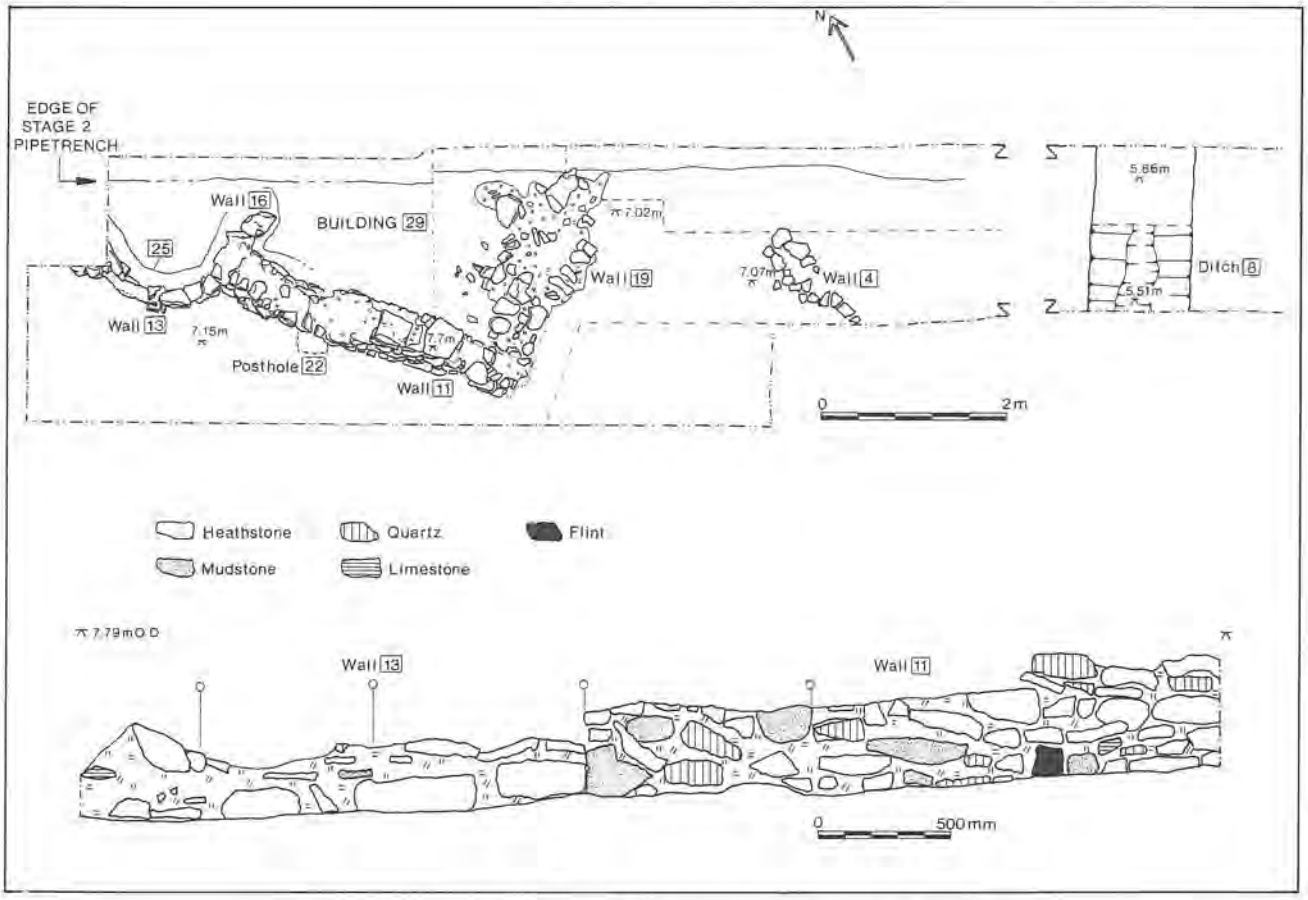


Figure 3 : Wytch Farm Oilfield, Site 1, plan and elevation of Building 29

present), and percentage present of the diameter were recorded. All details of number, weight, form and fabric by context and phase are held in the site archive.

The Fabrics

Six fabrics were identified.

Fabrics 1-3: Abundant quartz sands, slightly micaceous. The divisions adopted here are based on texture and subjective coarseness: Fabric 1 - fine to medium (23 sherds weighing 467g); Fabric 2 - medium to coarse (194/273g); Fabric 3 - coarse (13/213g).

Fabric 4: Texturally similar to the coarser end of the range of fabric 2 or 3, but also including very sparse fine flint and black ?iron oxides in a white-firing clay matrix (34/388g).

Fabric 5: Sparse quartz sand tempered, with occasional larger (up to 1 mm) inclusions of flint and (possibly) chert (15/289g).

Fabric 6: Samian Pottery. Central Gaulish from the Antonine period (1/6g).

Vessel Forms

There were no reconstructable profiles recovered from the excavations and so the forms have largely been established on the basis of rim type. It was possible to identify five vessel forms within the assemblage, these were comparable to the vessel forms established from the larger assemblage from the Stage II excavations (Lancley and Mepham 1991).

Cooking pots / jars

Three distinct vessel forms were noted

Type 1. Long necked vessel with everted rim (38 examples, e.g. Fig. 4 nos 1- 3).

Type 2. Examples where the everted rim springs directly from the body of the vessel (one only, Fig. 4 no. 4).

Type 3. Long necked vessel, similar to type 1, but with more developed rims, with grooved tops, or bifid profile (two examples, e.g. Fig. 4, no. 5)

Bowls and Dishes

The small size of the assemblage and of its component sherds does not allow for accurate differentiation between the types of bowls and dishes. All eleven examples present (type 4) have hammerhead rims, frequently bifid or grooved.

Glazed Pitcher

A single sherd, with green exterior glazing, probably from a pitcher was recovered from the excavations. There were no other glazed sherds, nor any other sherds which can definitely or probably be attributed to pitchers or jugs.

Decoration

Four decoration types were noted within the assemblage;

Type 1 - Multiple incised lines

Type 2 - Broad incised lines

Type 3 - Wavy lines

Type 4 - Incised grooves and impressed dots

Discussion

The pottery assemblage from the excavation is small in size, and many of the sherds were very fragmentary. The changes within the technology and style are gradual and indistinct in the type of local Medieval pottery recovered from Ower Farm, and no significant trends in the relative abundance of fabrics or vessel forms between individual phases can be identified (see archive). These factors along with the absence of fine wares and jugs make accurate dating of the assemblage problematic. The local wares from Ower Farm have been discussed at length by Lancley and Mepham (p. 136f *ibid*) and the pottery recovered from the Stage III archaeological works is broadly speaking from the same period, that is to say the 12th to 14th century. A single sherd of Samian pottery was recovered from the Phase IV build-up.

Illustrated Sherds (Fig. 4)

1. Long necked vessel with everted rim. Fabric 1 / Context 6 / FSN 250

2. Long necked vessel with everted rim. Fabric 2 / Context 3 / FSN 233

3. Long necked vessel with everted rim. Fabric 1 / Context 18 / FSN 207

4. Vessel with everted rim. Fabric 4 / Context 6 / FSN 257

5. Long necked vessel with grooved rim. Fabric 2 / Context 6 / FSN 237

6. Bowl with Hammerhead rim. Fabric 1 / Context 21 / FSN 200

7. Incised grooves and impressed dots decoration. Fabric 3 / Context 3 / FSN 214

The Iron

Two fragments of iron were recovered from the excavation at Ower Farm. Both were from the Phase IV build-up. One was an iron nail, the other a fragmented Medieval 'prick-spur', which is likely to be 13th century in date.

Discussion

The Medieval building, [29], excavated at Ower Farm was first exposed and identified in the Wytch Farm archaeological project during 1987 and referred to as *Building 3* in the complex of Medieval buildings forming the Ower Farm settlement. At that time only two short exposures of wall (here referred to as walls 16 and 19) were examined in relation to a buried soil profile which was presumably of earlier Medieval date. This site may now be confirmed as an unusually constructed building, probably of 13th or 14th century date, and therefore likely to be contemporaneous with the settlement identified in more detail to the west of this site. The general construction technique is similar to the principal structure excavated in 1987 (*Building 2*); comprising a stone core with probable clay/wattle or daub/cob walls. The lack of roof tile is also a consistent feature of this site.

Building 29 differs in three major respects. First, the survival of the stone walling, to as high as 6 courses, is in marked contrast to the earlier excavations, although this might simply reflect the lack of extensive stone robbing for re-use elsewhere on the site after the building's abandonment. Secondly, the building is not associated with features or artefacts that can assist in identifying the probable function of the structure. There is sufficient ceramic material to simply suggest domestic occupation, but no evidence for industrial activity (salt working, potting, shellfish harvesting etc). Thirdly, despite constructional similarities with the previously recorded buildings to the west the plan of the structure has an unusual semicircular bay at the north-west end. Such features appear to be rare and no parallel can be found on other locally-excavated sites in Dorset such as the Leaze, Wimborne (Field 1973) or Holwell (Rahtz 1960). The different styles of construction evident in walls [11] and [13], and the loose bonding between the walls suggest that the structure was a later addition. It is unlikely therefore, to be a base for an external stairway, which in an area of poor local stone sources is most likely to have been wooden. The absence of burning in the vicinity also precludes the presence of a bread oven. It remains a possibility that the structure may be a small bay added to the building during its use and utilised as a fuel store.

SITE 2 - OWER FARM WATCHING BRIEF

The construction of the flowlines between wellsites F and D during the Stage II development revealed evidence for an extensive Medieval settlement at Ower. The line of the 1994 pipe trench ran through an area which had been intensively excavated in 1987 and lay in an area of deep soil overburden. As a consequence the 1994 topsoil strip (see Fig. 2) revealed no new archaeological information. Monitoring during the excavation of the pipe trench, however, revealed a deep deposit of black humic sand which closely resembled the humic overburden described in the Stage II archaeological report, and several buried features. Feature [118], 3.10 m wide with a maximum depth of 0.30m, was filled with a dense packing of shells and overlain by a sealing deposit of dark brown humic sand (maximum depth 0.30 m.) This feature appears to be an unexcavated section of the shell midden (*1242*) recorded in 1987. No further sampling was considered necessary as full environmental analysis had previously been undertaken. Two further features were recorded to the west of the shell midden. Feature [113] was a shallow u-shape, 0.90 m wide with a maximum depth of 0.50 m visible in both faces of the trench. Feature [116] was recorded in a heavily disturbed section of the pipe trench, but appeared to be of a similar shape and size to [113]. Both features had homogenous fills of silty black sand. Although it is not possible to relate these features directly with any of the features recorded during the 1987 excavations, they fall in the area to the south of *Building 1*, and probably are associated with this phase of occupation. No finds or other dating evidence was recovered from these features.

SITE 3 - NEWTON

Monitoring during the excavation of the pipe trench in the low lying area close to Newton cottages revealed a deposit of deeper black humic soil and buried features. The deeper soil deposit is probably colluvial in nature and no finds were

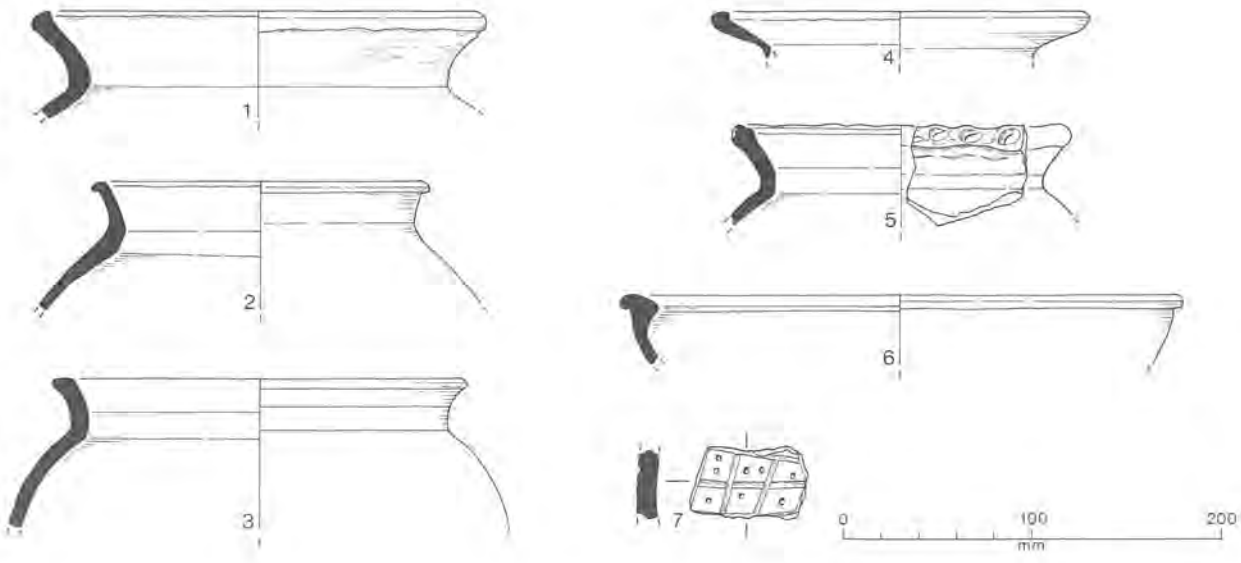


Figure 4 : Wytch Farm Oilfield, Site 1, the Medieval pottery

recovered from it. The recorded section was in the same area as Trench B excavated during the Stage II construction works (Cox and Hearne 1991, 91-92) but the buried features were largely indistinct and in area of the trench which was disturbed. Two recorded features probably relate to ditches (*2036*) and (*2035*) from the Stage II excavations, which were interpreted as a continuation of the major oval enclosure circuit, thought to be associated with the failed Medieval village *Nova Villa*. No finds were recovered from any of the features.

SITE 4 - FITZWORTH DEER PARK PALE

The deer park pale, which originally comprised an earthen bank and ditch, was constructed in 1771. It was excavated in two places, and sampled for environmental evidence, during the 1987 Stage II archaeological works. The Stage III construction works deviated slightly from the previous works, and involved the cutting of a section through a previously unexamined part of the ditch. No new cutting of the bank was involved. The section which was cleaned and recorded revealed a buried soil layer overlain by a stacking of turves. The information was comparable to the previously published section (Cox and Hearne 1991, 108).

To the west of wellsite A (Fig. 5) documentary evidence (Asser's survey of 1803, reproduced in Cox and Hearne 1991, frontispiece) shows the pale running east to west across the Fitzworth Peninsula before turning northwards towards Wytch Moor. Previous attempts to locate archaeological evidence for this return have been unsuccessful, and consequently the trenching in this area was carefully monitored. No evidence for the presence of this feature was visible although the pipe trench was excavated through an area containing many existing (Stage I and Stage II) services and therefore the exposed soil section was heavily disturbed.

SITE 5 - EAST OF WYTCH MOOR

Monitoring of the topsoil stripping and excavation of the trench in this area (Fig, 1) was primarily undertaken to locate the return of the Fitzworth Park Pale (see Site 4 above), but this area had also previously revealed evidence for a possible Medieval saltworking area. Further observations were also noted. Three broad, shallow, features, filled with a homogenous silty back sand were recorded. These were running in a north to south alignment and were bisected by the pipe trench. They corresponded with surface landscape features in the plot and can therefore be interpreted as lynchets. No finds were recovered from this area.

Acknowledgements

The work was commissioned by BP Exploration Operating Company Ltd and partners in the Wytch Farm Oilfield, and carried out in accordance with the archaeological brief agreed with the Dorset County Council Planning Department. The work involved the close co-operation of the Wytch Farm Oilfield HSEQA Department; particularly Mike Mason, Head of Environmental Affairs and Caroline Pollard, Environmental Officer.

The project was supervised in the field by Jacqueline Dodd. The excavation was carried out by Tanya Cottrell, Simon Greenslade and Jemma Metcalfe-Gibson. The watching briefs were undertaken by Tanya Cottrell. The identification of the iron objects was provided by Jo Mills. Site plans were prepared by Andrew Weale and the pottery illustrations by Rob Read.

I am grateful to the contractors, Pipeline and Energy Contractors Ltd, for their co-operation and interest during the excavations at Ower Farm. Tanya Cottrell is also grateful to Steve Boothroyd for his co-operation on the watching briefs.

The site archive will be deposited with Poole Museum under the site reference AC185.

Cox, Peter W. and Hearne, C. M., 1991, *Redeemed from the Heath - The Archaeology of the Wytch Farm Oilfield 1987-90*. Dorset Natural Hist. & Archaeol. Soc. Monograph no. 9

Field N. H., 1973, 'The Leaze, Wimborne - an excavation in a deserted medieval quarter of the town' *Proc. Dorset Natural Hist. & Archaeol. Soc.* Vol. 94 (1972), 49 - 62

Lancley J. and Mepham, L. N., 1991 'Medieval Pottery' in Cox and Hearne 1991, 136-143

Rahtz P. A., 1960 'Holworth Medieval Village Excavation' *Proc. Dorset Natural Hist. & Archaeol. Soc.* Vol. 81 (1959), 127 - 147

Staines S. J. and Allen M. J., 1991, 'Pedological Report' in Cox and Hearne 1991, 197-200

Woodward P. J., 1987 'The Excavation of a Late Iron Age Trading Settlement and Romano-British BBI Pottery Production Site at Ower, Dorset', in *Romano-British Industries in Purbeck*, Dorset Natural Hist. & Archaeol. Soc. Monograph no. 6, 44 - 124

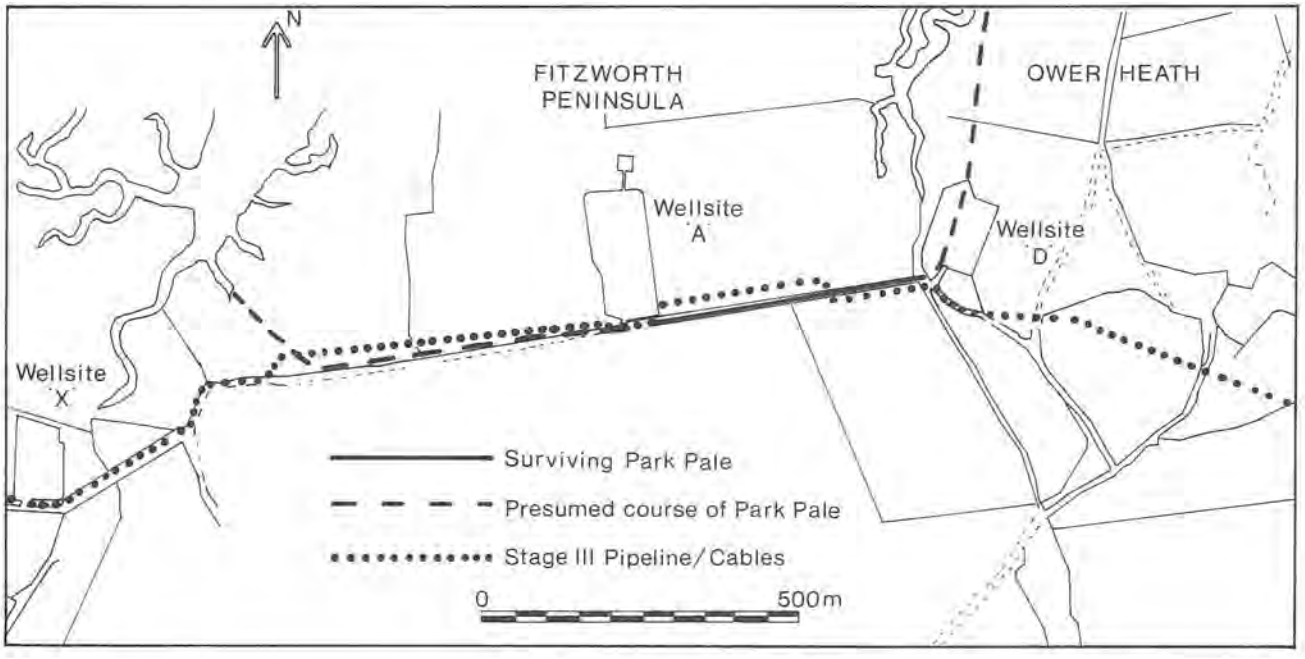


Figure 5 : Wytch Farm Oilfield, Site 4, The Fitzworth deer park pale

Building Stones of Dorset.
Part 3. Inferior Oolite, Forest Marble, Cornbrash and Corallian Limestones.

JO THOMAS.

The parishes inland of the Chesil Bank. Bothenhampton to Chickerell.

The first two parts of this series (Thomas 1993 & 1994) have been concerned with the use of the Upper Greensand chert, and the Lower, Middle and Upper Lias limestones. The parishes studied in detail have been those parts of West Dorset that are underlain by Jurassic rocks. This study was undertaken with the assistance of a grant from the Curry Fund of the Geologists' Association, and involved both visits to the villages concerned and research in the Dorset Records Office, following geological literature search in the Dorset County Museum. In 1993 more detailed study of historic buildings was carried out as part of a pilot project on Dorset Building Materials for Dorset County Council.

Geology.

The Chesil Beach, which formed at the end of the last Ice Age, is at the foot of cliffs at Burton Bradstock, but from the Swannery eastward protects an area of comparatively low-lying land. South of the Chalk ridge running east-north-east from Abbotsbury, a succession of Jurassic limestones form the hills, outlining the fold and faults of the Weymouth anticline.

The oldest limestone quarried in this area is the Inferior Oolite. This occurs on top of the Burton cliffs and in small outcrops running northward towards Beaminster. Except for Burton Bradstock on the coast, the parishes using Inferior Oolite for building will be considered in the second part of this paper. Richardson studied the Inferior Oolite of Dorset in the early years of this century (Richardson 1927-29). The quarries were numbered on his maps and these numbers are quoted in the following lists.

Within the Forest Marble Formation the shelly limestone which has been used for building occurs sporadically between two clay sequences. It is only locally developed and varies considerably in thickness. The character of the stone also varies, as the hard crystalline fossiliferous limestone may grade laterally into less well cemented rock with a considerable clay content. The latter breaks down quickly, especially when it contains lenses of clay. The crystalline limestone has a low porosity and is therefore particularly valuable for foundations, plinth courses and the floors or walls of cellars. The thickest beds have been cut as ashlar, though most are used as roughly squared stone. Forest Marble may be recognised by its grey colour and the closely packed pieces of shell lying flat on top of one another.

The thinnest limestones have been used as roofing tiles. The majority of stone roofing tiles in this area are a fine-grained siltstone from the upper part of the Forest Marble Formation. In the Bothenhampton area the tiles are relatively thin, but at Langton Herring they are about 8 cm thick. These tiles have pronounced ripple marks, often carry trace fossils, and are easily identifiable. However, when viewing a roof from ground level, the absence of ripple marks or the presence of moss will lead to difficulties in the identification of the stone used. It should be remembered that Ham Hill stone has been cut as roofing tiles, that Purbeck stone tiles have been available for centuries, and that the Forest Marble limestone and siltstone are both variable in character and thickness.

Plate 1: Bothenhampton Quarry from a photograph taken in 1913. Mr W.J. Cooper the owner and his quarrymen with their tools show the depth of the quarry which provided hundreds of tons of quality building stone. Reproduced by kind permission of Bridport Museum.

The most important Forest Marble quarries in this area were at Bothenhampton. These have been in use at intervals since the 14th century, the last quarry being worked in living memory. The stone is of such good quality that it has been carried some distance, particularly in the 19th century. The outcrop of Forest Marble is repeated by faults running West to East, and smaller quarries were worked in Burton Bradstock, Swyre, Puncknowle, Bexington, Langton Herring and West Fleet. The faults are associated with the fold of the Weymouth anticline, the centre of the fold running West to East from Herbury Point to Weymouth Bay.

The stone used for building from the Cornbrash Formation is the lowest bed of the lower Cornbrash, in the *intermedia* zone. It is a massive blue-hearted limestone which weathers to a biscuit colour. It has a slightly granular appearance, but is not oolitic. Although a poor quality building stone, Cornbrash limestone has been used in its local area, particularly around Fleet and Chickerell.

The Corallian Formation consists of several cycles of clay, sand and limestone, with many of the limestones being highly fossiliferous. Since large fossils create weak points in a stone, these beds are unsuitable for most building purposes. However in the Abbotsbury area the Osmington Oolite (known here as Abbotsbury Oolite) contains fewer and smaller fossils and has therefore been used as dressed stone for the Abbey and later buildings. The stone is an orange colour and richly oolitic. Several beds have a micrite (powdery calcite) cement but the lowest bed has a sparite cement and is therefore of better quality. The domestic buildings in Abbotsbury also include rubble of similar colour sandy limestones probably taken from the same quarries. The hill formed by Corallian limestones runs from Abbotsbury gardens eastward through Rodden and Broadwey to Bowleaze Cove.

Portland and Purbeck limestones from Portesham and Upwey are used to a lesser extent in Abbotsbury and Chickerell. The quarries in these parishes should be considered in the context of a complete study of the Portland and Purbeck Formations.

In the lists of quarries the O.S dates are those when the quarry first appears on Ordnance Survey maps.

ABBOTSBURY PARISH. Figure 1.

The geological succession at Abbotsbury may be followed from south to north, starting with the Forest Marble and Cornbrash at Chesters Hill. The slope of the hill to the north follows the dip of the northern limb of the Weymouth anticline. Oxford Clay outcrops in the valley, followed by the Corallian succession forming Linton and Chapel hills. Evidence from both the Abbey and more recent buildings shows that Abbotsbury Oolite has been quarried on Linton Hill from the 11th to the 19th centuries. The various Abbey buildings were constructed in the 11th to 15th centuries, though few now remain intact. St. Catherine's chapel was built in the late 14th century, from the hill on which it stands. After the dissolution of the monasteries in the 16th century much of the stone was reused for domestic building throughout the village. The 17th and 18th centuries may have seen little fresh quarrying, as so much ready-cut stone was available, but new building such as the village school (1858) necessitated more quarrying during the 19th century.

The north slope of Chapel Hill is on the Corallian Abbotsbury sandstone, and the valley is floored by the Abbotsbury Iron Ore, giving a rich red soil. The ore may have been quarried in medieval times, and an attempt at exploitation was made in the 19th century (DRO/D124, box 287), but the ore contained too high a proportion of silica to be economic.

The hill slope to the north east of Abbotsbury has an outcrop of Kimmeridge Clay cut by a fault running SW to NE from the coast

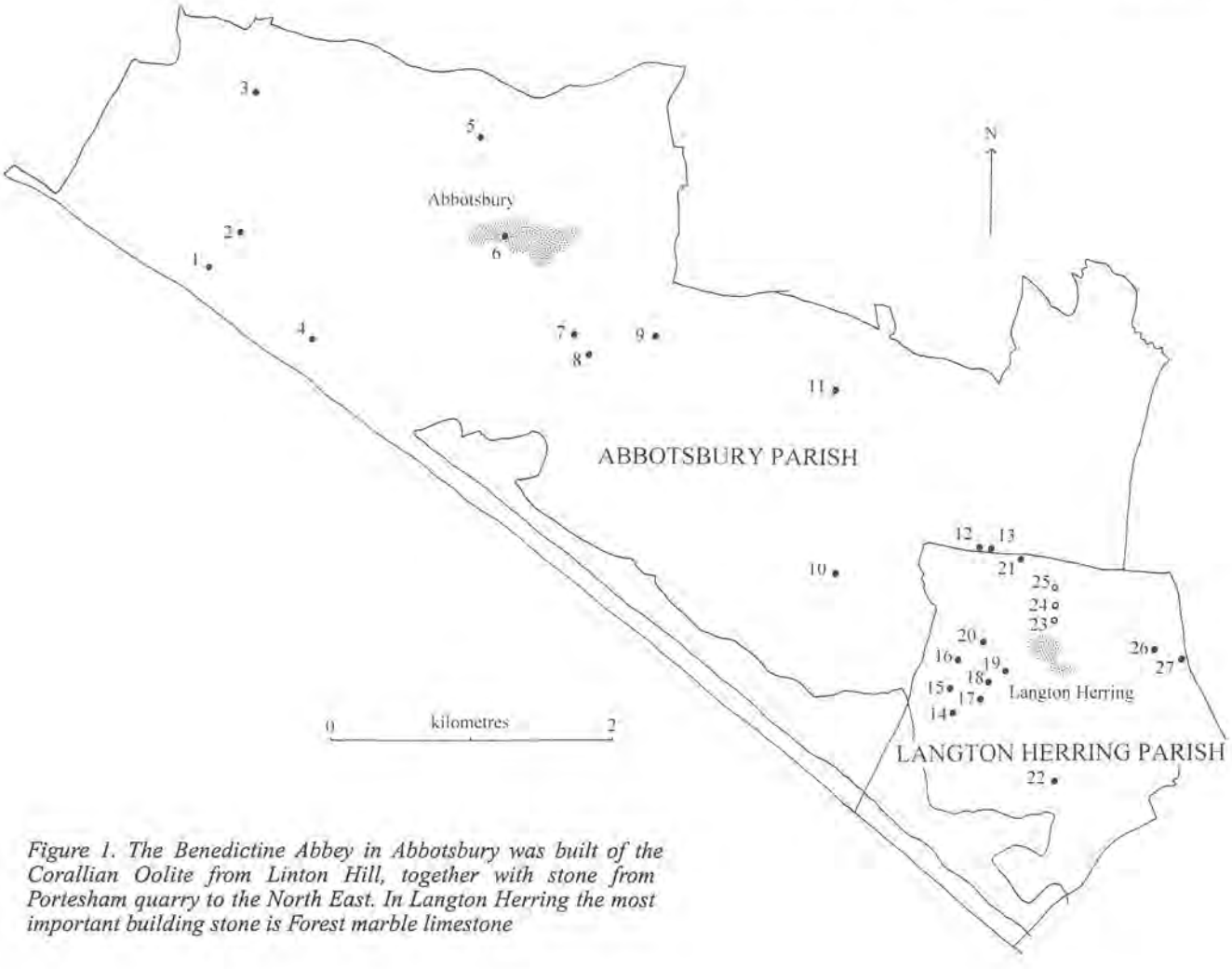


Figure 1. The Benedictine Abbey in Abbotsbury was built of the Corallian Oolite from Linton Hill, together with stone from Portesham quarry to the North East. In Langton Herring the most important building stone is Forest marble limestone

west of Chapel Hill. North of the fault the Forest Marble Formation reaches the surface and this can be seen at the western end of the parish at East Bexington. Most of the slope north of the village is covered by landslip material from the Upper Greensand lying unconformably on the Kimmeridge and Forest Marble Formations. The Chalk forms the peak of White Hill. North of the Chalk ridge, the Forest Marble surfaces again and has been quarried near Looke Farm (Puncknowle).

Quarries.

1. Abbotsbury Oolite, Corallian.
2. Forest Marble. East Bexington. OS 1967.
3. Upper Greensand Chert. OS 1903.
4. Abbotsbury Oolite, Corallian. OS 1890.
5. Upper Greensand. OS 1890.
6. Abbotsbury Iron Ore. Red Lane. OS 1967. Not mapped OS 1890, or 1903.
7. Abbotsbury Oolite, Corallian. Linton Hill. OS 1890.
8. Abbotsbury Oolite, Corallian. Linton Hill. OS 1890.
9. Abbotsbury Oolite, Corallian. OS 1903.
10. Forest Marble. OS 1888.
11. Abbotsbury Oolite, Corallian. Merry Hill. OS 1890.
12. Cornbrash. OS 1888.
13. Cornbrash. OS 1888.

Iron Ore Extraction.

The archives of the Ilchester Estate (DRO/D124, box 287) contain letters, the abstract of a lease and a receipt which refer directly to the 19th century attempt to exploit the Abbotsbury iron ore.

Letter of 13th Jan 1871 states that the best ore has only 30% iron, the top part only 20 - 24% and will be returned to the ground.

22.5.1872. Abstract of lease between Earl of Ilchester and Chas. Moore of city of Bath. This gave the right to mine for iron ore over an area from West Elworth through the village of Abbotsbury across to the Castle Gardens, not exceeding 5 acres at one time, at a rent of £500 per acre. 'With power to open shafts to erect sheds and machinery and take away the Iron Ore and Ironstone and make tramroads etc. over the lands described in the schedule and so far as the Earl could grant authority along over and across the inlet of the sea called the Fleet and thence along the Pebble Beach to Portland Harbour'. Map shows a proposed tramway through Elworth and down to beach through water meadows, just east of Wyke Wood. Schedule of land shows Red Quarry, which indicates previous working. There had been negotiations for the previous four years, including discussions on the use of the tramway by the Earl and his tenants. There was a suggestion of a bridge over the Fleet. A leaflet is enclosed on a 'Wire rope transport system'.

Letter 5th August 1872 giving permission for transfer to George Eliot and Stephen Deed. Moore sold the lease to George Eliot 25.10.1872.

5th Nov 1874 Receipt for 2 years rent to Christmas 1874 under Abbotsbury Iron Lease - £1000.

Additions to lease: restore land every 6 months for agricultural use. A provision for allowing more acreage in next year if there is no ore in one year was objected to, with comment 'It will be his own fault if he does not get the ore.'

References to the building of a railway to convey the ore to South Wales for processing can be found in the *Dorset County Chronicle*:-

3rd October 1872 (vol. 17 (115) 10). Bridport Railway Co. proposing to build a line for the iron ore recently proved at Abbotsbury.

10th October 1872 (vol. 17 (116) 3). Tramway between Abbotsbury and Upwey station on the Great Western Railway line, to convey iron ore to South Wales, proposed in opposition to Bridport Railway Co.

24th January 1878 (vol. 23 (390) 12). Abbotsbury Railway Co. seeking money from prospective shareholders in Dorchester. Discussion shows that exploitation of the ore was still only a proposition.

The OS map of 1888 shows a tramway built from the Upwey direction, including a branch from Portesham quarry, close to a working marked Shale Works. These works, known as Manfield Pit were opened by the farmer in an attempt to augment his income; they were working about 1906.

Red Lane quarry has obviously been worked, as the remains of a quarry can still be seen (1988), but no further record can be found.

The *Victoria County History* (Vellacott 1908, 344) states that iron ore may have been quarried in the medieval period, but there is no documentary evidence.

Geologists from Dorset Environmental Records Centre visiting the SSSI in Blind Lane in 1984 discovered that a local builder was using the Iron Ore 'sand' in order to colour mortar being used for building. This practice may have been common at one time. Nature Conservancy Council insisted that the practice was stopped in order to protect the SSSI.

Buildings.

The Benedictine Abbey founded 1044 is now largely demolished, the stone being used for buildings in the village. The remaining buildings, including the barn, are constructed of Corallian oolitic limestone. The gatehouses also include weathered blocks of a white ashlar which is a 'mush' of broken shells, with ovoid pellets or ooliths. Large shells including oysters and other bivalves are mostly replaced by calcite crystals. This stone is similar to ashlar used in Portesham and for Hardy's Monument. The same stone appears in the Benedictine Abbey at Cerne Abbas. The original roof of the tithe barn, built in 1400, was of stone slates.

St. Nicholas' church originally 12-13th century has been built mainly of Corallian oolitic limestone, but includes some Portesham stone which is white/cream and sandy in texture. The south aisle and interior columns were added in 1636. The columns are also of a white/cream stone with stringers of sand which are disintegrating. A few pieces of Purbeck marble appear in the wall, which may be offcuts from monuments. In 1751 the east window was blocked with Portesham limestone, and in further work to remove tracery in 1973, reconstituted stone has been used.

Strangways Castle by the beach, now demolished, was built by the lst Earl of Ilchester in 1750. It is thought to have been built from a quarry nearby, perhaps Chapel Hill.

In Hutchins' (1861, II, 725) the following descriptions refer to Abbotsbury. 'The stones in the walls about Abbotsbury and Burton are full of shells, mostly of fine red cockle, oysters, some muscles, scollops, vertebrae, aculei of the echini. These stones are generally dug in quarries near the seashore, and some of them rise thin for paving or slating.' This refers to both Corallian and Forest Marble limestone. 'Quarries .. worked.. at an ancient period. 24 Edward III the King appointed Robert de Esshyng to superintend procuring stone from Abbotsbury and Wynesbache [Upwey], and Bere (Devon) for palace at Winchester.' (Hutchins 1861, II, 725).

Most of the buildings are a mix of Corallian Abbotsbury Oolite and Portesham stone, with the oolite predominating. Some of the Corallian stone has a pink tone, and looks more sandy - this may be the sandstone nearest to the Abbotsbury Iron Ore, having been stained by leaching. Stone from the Abbey buildings has been reused since the 16th century. Buildings at East Bexington have used the Forest Marble limestone quarried nearby. Buildings at New Barn have used the Cornbrash from Chesters Hill. Bricks for the farmhouse may have been made in a small brickyard at Merry Hill. Cornbrash and Forest Marble quarries appear on the 1888 OS map, and were probably used for limeburning.

BOTHENHAMPTON PARISH. Figure 2.

Wych Hill south of Bothenhampton is capped by the Forest Marble, a very hard grey/blue shelly limestone, with a crystalline calcite cement, in a series of current-bedded units draped over one another. Thinner beds above and below, separated by variable clays, are a similar shelly limestone. The limestones are not continuous, being found within the blue or grey clays of the Forest Marble Formation at different locations in West Dorset. The development of the massive shelly limestone is particularly thick in the Bothenhampton area, up to 4 metres being visible in photos in Bridport & Dorchester Museums (Plate 1, and DCM photo dated 1929). The uppermost thin beds in the Forest Marble Formation are 'tiles' of a fine sand, with ripple marks and trace fossils on the upper surface.

Bothenhampton quarries have provided stone for the foundations of buildings in villages as far away as Charmouth, Symondsbury and Loders. Closer to the source, the Forest Marble limestone has been used for walls as well as foundations in most of the buildings in Bridport, Bothenhampton, and Burton Bradstock. Evidence from these buildings shows that the quarries have been worked since the 14th century. Wanderwell quarry was last in work during the 1930's.

Roof tiles are made from either the thin siltstone, or the thinnest limestone beds. They can be found throughout West Dorset, but the exact source is not recorded.

The hill north of Bothenhampton village is capped by Inferior Oolite and all the buildings in the village of Walditch are built of this limestone. The earliest farmhouses were built in the 16th century, with other cottages dating from the 17th to 19th centuries but the

extensive complex of buildings at The Hyde show that the quarries on Hyde Hill were mainly used during the 19th century.

The Oxford Clay brickyard at the eastern end of the parish may have been working in the 18th century, as there are 3 brick houses of that date in Burton Bradstock. It does not appear on the OS map of 1888. It has provided many of the bricks required in Bridport during the early 20th century. Although the yard stopped production in 1926, the stock of bricks was still being used up to 1943, to repair wartime bomb damage. The good clay had been worked out, and the deposit remaining contained too many fossils for economic brickmaking.

Quarries.

There are 12 Forest Marble quarries marked on maps of the parish. On the tithe map names such as Wally Close and Rickthorn would not indicate a quarry, but in this case the quarries are actually drawn on the map.

Oxford Clay has been worked in only one pit in an outcrop brought to the surface by a fault to the east of the village.

Three Inferior Oolite quarries have been shown on Ordnance Survey maps from the late 19th century, but evidence from the buildings and records suggest that these or other quarries existed as early as the 16th century.

1. Forest Marble. Wally close: Tithe 1845 (298), quarry drawn on map. Green 1884.
2. Forest Marble. Rickthorn: Tithe 1845 (297), quarry drawn on map. Wanderwell quarry (nature reserve).
3. Forest Marble. Higher & Lower Pit: Tithe 1845 (249).
4. Forest Marble. Tithe 1845 (295).
5. Forest Marble. Quarr: Tithe 1845 (296).
6. Forest Marble. Tithe 1845 (290).
7. Forest Marble. Limekiln & quarry: Tithe 1845 (289), quarry drawn on map.
8. Forest marble. OS 1931.
9. Forest Marble. OS 1889.
10. Forest Marble. OS 1889.
11. Forest Marble. OS 1931.
12. Bridport Sand faulted/Forest Marble. Claypits: Tithe 1845 (264).
13. Bridport Sand faulted/Forest Marble. Marlpit: Tithe 1845 (263).
14. Oxford Clay. Bothenhampton brickpit. OS 1931.

Walditch.

15. Inferior Oolite. OS 1889.
16. Inferior Oolite. Hyde Quarry. OS 1903. Richardson L 1927, records that Walditch quarries were working for lime burning in 1914.
17. Inferior Oolite. Bonscombe Hill. OS 1891.

Buildings

All buildings in Bothenhampton itself are of Forest Marble, and cottages date from the 17th to late 19th centuries. The old church which has a 14th century chancel, has Forest Marble walls, with doorway and north windows of Inferior Oolite, and south window of Ham Hill stone. The south tower is 15th century, of Forest Marble, with Ham Hill stone window. The new church was built in 1889 of Forest Marble. Brick and tile makers, quarry owners, a stonemason and a limeburner have been recorded in Hunt's (1851), and Kelly's (1880, 1885, 1889, 1903, 1920) *Directories*. A sale notice of 1945 (DRO/D599/2/8) refers to working quarries.

Bothenhampton stone has also been used in:

a) Allington. many 19th century cottages, Allington Church 1826-7 (Hutchins IV, (1870) 205).

b) Bridport. Chantry, 14th & 15th century. Forest Marble & Ham Hill stone. Bridport Museum, early 16th century, Forest Marble & Ham Hill stone.

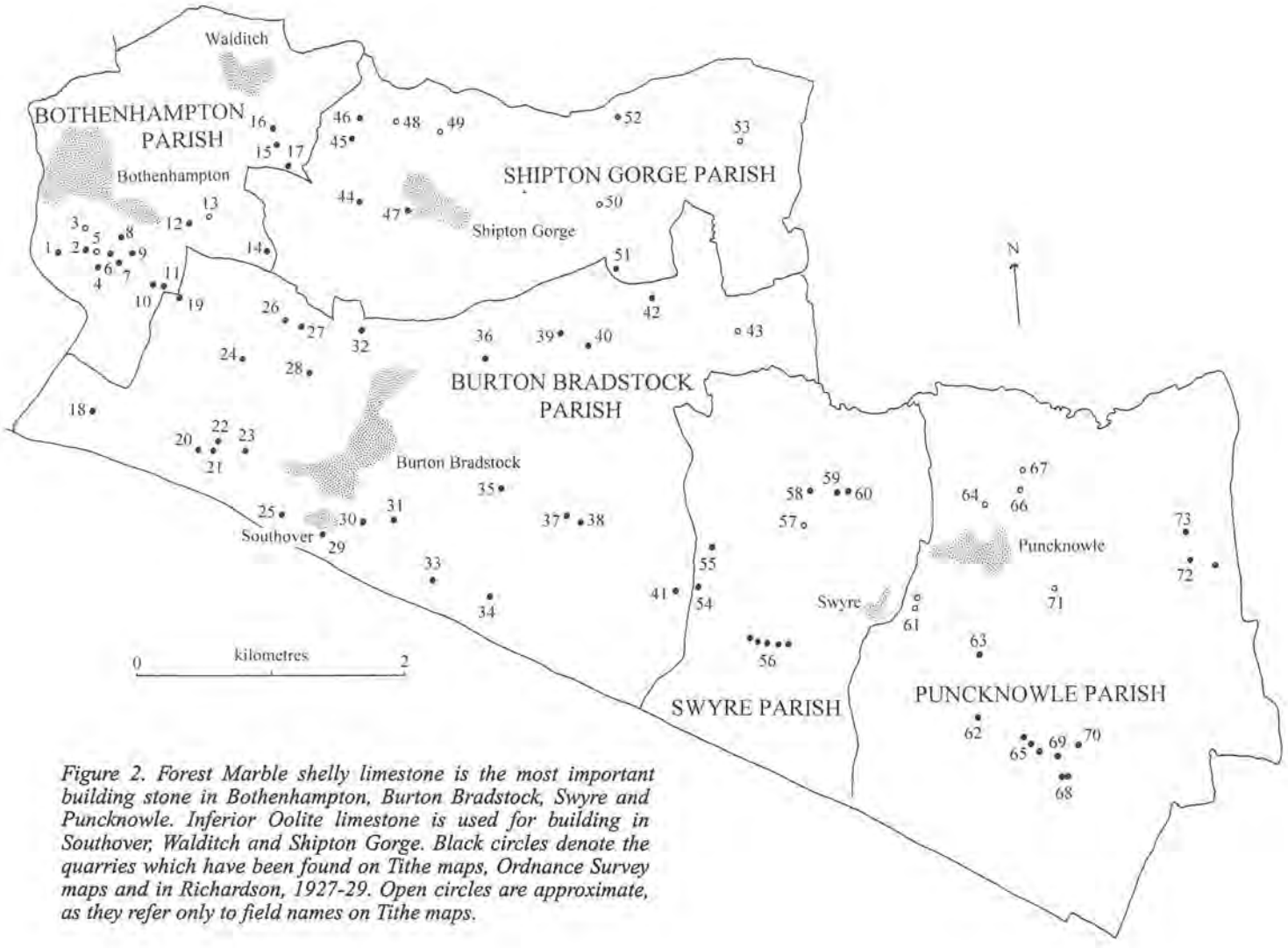


Figure 2. Forest Marble shelly limestone is the most important building stone in Bothenhampton, Burton Bradstock, Swyre and Puncknowle. Inferior Oolite limestone is used for building in Southover, Walditch and Shipton Gorge. Black circles denote the quarries which have been found on Tithe maps, Ordnance Survey maps and in Richardson, 1927-29. Open circles are approximate, as they refer only to field names on Tithe maps.

There are many 17th and 18th century domestic and commercial buildings, including rope walks and factories for net making which use Forest Marble limestone from Bothenhampton. Buildings of the 18th and 19th century use Bothenhampton limestone with brick, or brick alone. Bothenhampton bricks made of Oxford Clay are a very bright red. The bricks from Allington using Down Cliff Clay have a slightly more orange tone.

The specification for rebuilding a house in East Street, Bridport, (DRO/D30/3, 1834) specifies Bothenhampton stone for the cellar floor and walls, plus a pantry under the hall floored with 'Bampton' stone.

c) Bradpole. A raised pavement opposite church; Pymore Mills factory complex 19th century. (D203/A67B 1843-1861)

d) Burton Bradstock. The buildings in Burton Bradstock are a mixture of Forest Marble and Inferior Oolite, but the Forest Marble may have come from quarries on Cogden Farm as well as those on North Hill which are a continuation of the Bothenhampton quarries.

e) Charmouth, church 1835, plinth course and foundations.

f) Eype. church 1865. (Anon 1865.08.31).

g) Litton Cheney. church accounts. (DRO/PE/LIC/CW3 1832) Reference to Bothenhampton stone.

h) Loders. cottages 1858. Plinth of church.

i) Netherbury. Stables 'pitched with Banton stone'. 1828-9. (DRO/D188A/E15).

j) *Shipton Gorge.* Early 19th century surveyors accounts refer to the use of stone in Shipton Gorge (DRO/PE/SHG/SU1)
22.9.1813. Stone from Baunton quarr carter 4s, quarry 2s.
27.8.1814. Mason's bill for building Brig at Plot and Wier at Smakanz, £3.11.6. for load of stone from Banton Quarr to build brig, £2.3.0.
22.12.1831. Agreement to have stone from George Bartlett's quarry in Broadstone (Walditch).

k) *Symondsbury.* 1500 Tithe barn; 18th century stables, cottages in Cemetery lane, row of cottages near Ilchester Arms, for foundations & flagstones; early 19th century rounded steps at Church gate.

l) *Walditch.* All buildings in Walditch are of Inferior Oolite. Broadstone Farm and Berry Farm are 16th century, a quarry being recorded on Broadstone Farm. Remaining cottages date from the 17th to 19th century. The Hyde mansion house (1853), the church (1863) and the real tennis court (1884) were built from the quarries on Hyde Hill. The wall at Hyde house is an Inferior Oolite particularly rich in brachiopods.

BURTON BRADSTOCK PARISH. Figure 2.

The village of Burton Bradstock is built in the valley of the river Bride, sheltered on the north by the Forest Marble hill continuing from Bothenhampton, and on the south by the slope of the Upper Lias beds capped by the Inferior Oolite. Forest Marble is a stronger building stone than the Inferior Oolite and therefore predominates in the buildings. However, Inferior Oolite is used extensively in 19th century walls, where the Forest Marble is used as foundation courses. The Inferior Oolite has not weathered as well as the Forest Marble, the matrix having started to dissolve away, leaving fossils standing 'proud'. Brachiopods are numerous, there are many vertical burrows and it is occasionally red-stained. Buckman (1910) describes Larkfield quarry in which the lowest bed contains many brachiopods. It is most probable that all the Inferior Oolite quarries in this parish showed a similar section.

The Inferior Oolite can now only be seen on Cliff Hill, an SSSI, and above the garage car park at the foot of the same hill (No access). Fallen blocks may be examined on the beach, below the Bridport Sands cliffs.

The Forest Marble may be seen in the most recent quarry on Cogden Farm, off the Bredy Road, or on North Hill west of Pitfold Farm.

Quarries.
18. Inferior Oolite. OS 1888.
19. Forest Marble. Pitfold Farm. Green 1884. OS 1889.
20. Inferior Oolite. OS 1903.
21. Inferior Oolite. Aalensis Beds. Freshwater. Richardson 1928, site 17.
22. Inferior Oolite. Freshwater, Wennett Hill. OS 1888. Richardson 1928, site 16.
23. Inferior Oolite. Green 1884.
24. Forest Marble. North Hill. OS 1888.
25. Inferior Oolite. Green 1884.
26. Forest Marble. Green 1884.
27. Forest Marble. Bennetts Hill Farm. Green 1884. OS 1888.
28. Forest Marble. OS 1888. Forest Marble. North Hill. OS 1888.
29. Inferior Oolite, Parkinsoni Beds. Southover. Green 1884. Richardson 1928, site 15. Cox's Hill.
30. Inferior Oolite. Allotments quarry. Richardson 1928, site 9.
31. Inferior Oolite. Larkfield quarry. OS 1888. Richardson 1928, site 10. Buckman 1910: a feature of the Truelli Bed is 'masses of a rather small form of Terebratula sphaeroidalis just above the bottom'.
32. Cornbrash. OS 1888. Cowpers Lodge.
33. Forest Marble. OS 1888.
34. Forest Marble. OS 1888.
35. Forest Marble. Woollinge quarry, Cogden Farm. OS 1888. Successive maps show that the quarry commenced at the eastern end of the hill and worked westward. Wilson V et al (1958) state that it was working in 1950's. Photos dated 1935 show a 5m working face of limestone in beds 20 to 40cm thick.
36. Forest Marble. OS 1888.
37. Forest Marble. Cogden Farm. OS 1888. Not on Green 1884.
38. Forest Marble. Cogden Farm. OS 1888. Not on Green 1884. 1812: Robert Roberts leased Cogden Farm and quarried the stone.
39. Forest Marble. Cathole Barn. OS 1888.
40. Forest Marble. Bredy North Hill. OS 1888. DRO/518/1-3.
41. Cornbrash. Green Hill. OS 1888.
42. Cornbrash. DRO/518/1-3. Limekiln shown on 1865 map.
43. Forest Marble. Quarry Close: Tithe 1839 (623).

Buildings
The houses and church in Burton Bradstock use both Inferior Oolite and Forest Marble, usually in a random mix. In Girt House, Red House and The Magnolias, the original buildings are of Forest Marble and Inferior Oolite, with brick fronts added in the 18th century.

Parts of the church are 14th century, with a 15th century tower and 16th century chancel. It is possible to recognise 16th, 17th and 18th century parts of many houses in the main village using Forest Marble and Inferior Oolite. The cottages may have been rebuilt several times, but the oldest is Rookery Cottage, built in the 15th century of Forest Marble. It has a fireplace of large blocks which appear to be of Greensand. 19th century buildings again use Forest Marble and Inferior Oolite. In Southover only Inferior Oolite has been used. Although it is not possible to identify the products of particular quarries, the description of Larkfield quarry by Buckman in 1910 seems to match the 1800 weavers cottages.

Earlier houses used more Forest Marble, those of the 19th century used more Inferior Oolite. The Forest Marble has proved to have better weathering qualities.

Lime mortar was used for building with bricks as well as with stone. In this area the Bridport Sands were used in the mortar, being known locally as Foxmould.

CHICKERELL PARISH. Figure 3.

The parish of Chickerell is on the southern limb of the Weymouth anticline and is underlain by Forest Marble, Cornbrash and Oxford Clay. The old village of Chickerell has stone cottages of the 17th to the 19th centuries built mostly of Forest Marble, and some Cornbrash rubble. Several 19th century cottages are built of Cornbrash which is weathering badly, and has been built 'out of bed'. The church has a mixture of all the stone locally available, the north aisle having been rebuilt during the 19th century with Cornbrash built 'out of bed'. Newer buildings in Chickerell, of the 19th and 20th centuries, are built of the Oxford Clay bricks from Putton Lane and Crook Hill brickworks.

Quarries.
4. Cornbrash. Tithe 1839, Limekiln Field.
5. Forest Marble. OS 1888.
6. Cornbrash/Forest Marble fault. OS 1888.
7. Oxford Clay. Crookhill Brick Pit. Not on tithe map or OS 1888. Opened in early 20th c. SSSI.
8. Cornbrash/Forest Marble fault. OS 1888.

9. Cornbrash. OS 1888.
10. Oxford Clay. Putton Lane brickpit. Not marked on Inclosure 1804. (DRO/Ph 678) 1870 Mortgage of shares of land with kilns, west of Putton Lane. (DRO/D188b/T26). OS 1888. Putton Lane closed in the late 1960's and Crookhill in the early 1970's.
11. Oxford Clay. Tithe 1839 (34), Quarry Close.
12. Cornbrash. Tithe 1839 (37) Limekiln Field. OS 1888.
13. Cornbrash. OS 1888.
14. Cornbrash. East Chickerell Quarry.
15. Osmington Oolite, Corallian. Wyke Regis, 1797, quarry marked on Inclosure map dated 1804. (Weymouth).

Buildings.
The church has a late 13th century chancel and nave built of local Cornbrash, but restored in the 19th century with Upwey stone. The 18th century south porch includes Corallian, Cornbrash and Upwey stone, though the southern wall of the church of the same century includes Forest Marble. In the 19th century a north aisle was built of Cornbrash, 'out of bed' which is weathering badly.

Most of the pre-19th century cottages are built of Forest Marble limestone, though Stonebank in West Street, of early 17th century date, mostly of Cornbrash, has a central frontage of Blue Lias.

Buckland Ripers. The church was built in the 15th and 17th centuries, using Corallian, Cornbrash and Portesham limestones. The Manor, originally 17th century with a 1790 north west wing, was built of Forest Marble.

FLEET PARISH. Figure 3.

The parish of Fleet lies on the southern limb of the Weymouth anticline, and is underlain by Forest Marble and Cornbrash, with a small hill of Plateau Gravel north of the tiny village. The old 15th century church was built of Forest Marble, with extraordinarily large and heavy siltstone tiles from the same Formation. This was damaged by a gale in 1824, and the nave demolished in 1827 when a new church was built of Portland stone. East Fleet Farm was built of Cornbrash in the late 18th century. The Cornbrash quarry only appears as a field name on the tithe map.

Quarries.
1. Forest Marble. OS 1888. 1934 map of Fleet Warren shows quarry, with no Fleet House Farm: DRO/D40J/119.
2. Cornbrash. Disused quarry can be seen.
3. Cornbrash. Tithe 1839, east field Limekiln Ground (42). Kiln shown.

Buildings.
Fleet House, known as Moonfleet, has parts which date from the 17th and 18th century. It was remodelled in the late 19th century. The house is rendered, but the garden walls are of Forest Marble. Cottages of village are Forest Marble, may be 18th century, but much altered.

LANGTON HERRING PARISH. Figure 1.

The parish of Langton Herring lies on the northern limb of the Weymouth anticline. The oldest Formation in the parish is the Fullers Earth, with the localised oyster bed on the shore of the Fleet. Herbury Point has an outcrop of the Boueti Bed at the base of the Forest Marble. There are many quarries in the massive limestone bed of the Forest Marble on the hill south of the village, and some of these quarries provided roofing tiles from the calcareous siltstone. The siltstone is in unusually thick slabs in this area. Corallian oolite is available from quarries at Rodden but these are in Abbotsbury parish.

A series of maps deposited in the Dorset County Records Office illustrates the development of several of the Forest Marble quarries. The pre-1762 map shows the position of the quarries as gaps in the old strip fields, painted green. Outlines of the quarries appear on the 1837 tithe map, a new quarry having appeared on Rodden ridge on the northern edge of the parish. The Ordnance Survey map of 1888 shows an additional quarry to the east of Coastguard Road and illustrates the development of the western quarry. A 1920 map also shows that several quarries have been working eastwards.

There are eleven Forest Marble quarries in the parish. Three limekilns use Cornbrash limestone.

Quarries.
14. Forest Marble. Little Barrow. Pre-1762. (DRO/D15/P4) Tithe 1837 (10a).
15. Forest Marble. Little Barrow. Pre-1762. (DRO/D15/P4) Tithe 1837 (10a).
16. Forest Marble. Great Barrow. Pre-1762. (DRO/D15/P4) Tithe 1837 (15a). OS 1888.
17. Forest Marble. OS 1888.
18. Forest Marble. OS 1888.
19. Forest Marble. Middle Eweleaze. Tithe 1837 (14).
20. Forest Marble. Lower Farm, map 1837 (DRO/D15/P7).
21. Forest Marble. Rodden Ridge. Tithe 1837 (79a).
22. Fullers Earth. Under Cross. Tithe 1837 (128a).
23. Cornbrash. Limekiln, Tithe 1837 (84). Referred to in lease of Lower Farm in 1874.
24. Forest Marble. Limekiln Ground. Tithe 1837 (85).
25. Forest Marble. Limekiln Ground. Tithe 1837 (86).
26. Cornbrash. Limekiln, Tithe 1837 (101).
27. Cornbrash. Tatton Farm limekiln. Tithe 1837 (99a).

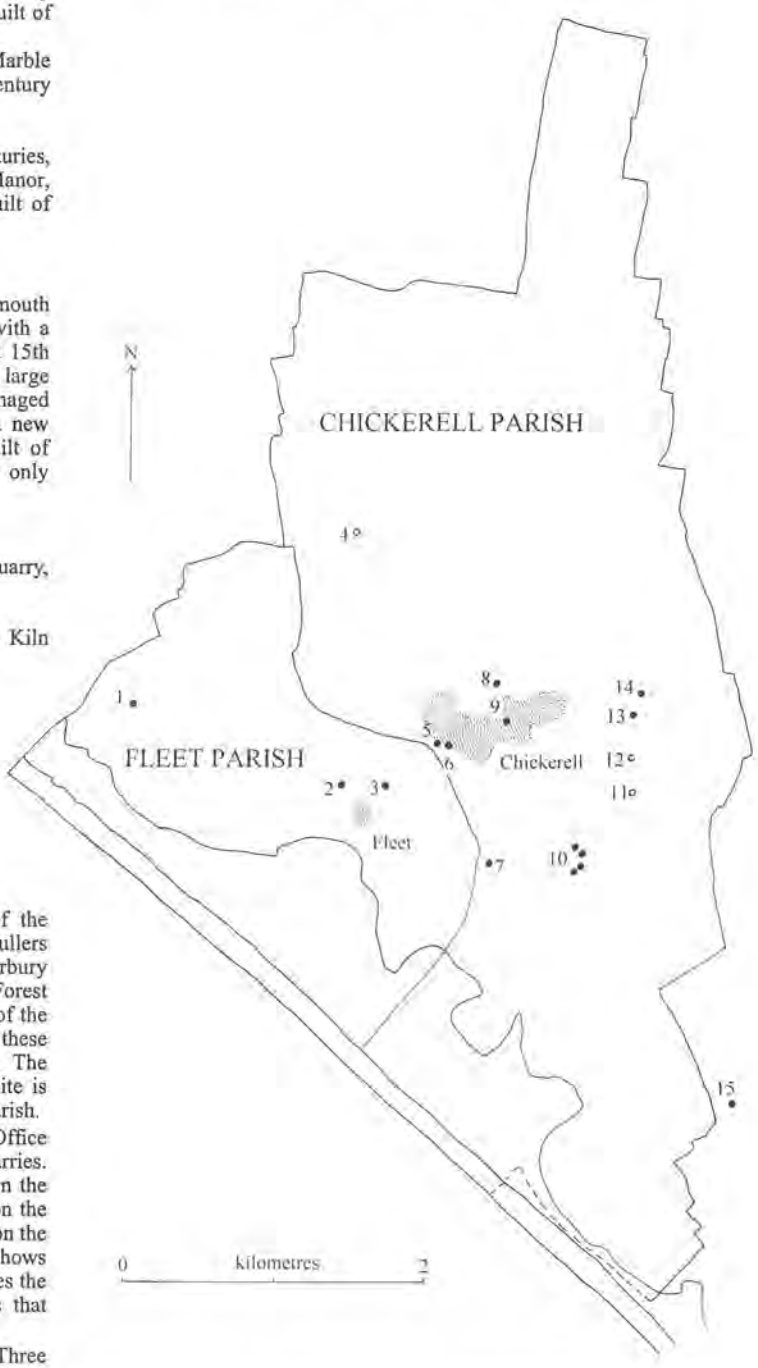


Figure 3. Fleet and Chickerell have little limestone for building within their boundaries, but the brickworks in the Oxford Clay were important to the economy of the area in the early 20th century.

Buildings.
The original church was 14th century, but was drastically restored in the 19th century. Forest Marble and Corallian limestone are both used in the old and newer walls, the Corallian coming from Rodden. The oldest house recorded is Lower Farm (late 17th century) built of Corallian limestone, and Forest Marble. Ivy Cottage (early 18th century) is built of Forest Marble. Other 18th and 19th century houses use both limestones and thick slabs of current bedded siltstone.

In the Dorset County Chronicle of 7th July 1859 (Vol. 5, 965) it is recorded that Richard Carter, quarryman, was killed by a fall of stone on the previous Tuesday. Not having returned to lunch, a boy sent to find him found that he had been buried by a fall of stone. Although extricated alive, but with his leg broken, he died later that day.

PUNCKNOWLE PARISH. Figure 2.

The village of Puncknowle is built on Cornbrash, with a fault between the church and the manor, Forest Marble being on the south side of the fault. There are at least three E-W faults crossing the parish, with a complex of faults around Golly Knap Farm involving the Forest Marble, Cornbrash and Oxford Clay. Most of the buildings are of Forest Marble, though some of the cottages opposite the church include Cornbrash. Sand from Knoll, an outlier of Upper Greensand and Gault, was used for mortar. There are quarries on Limekiln Hill above West Bexington and those at Looke Farm must have been used for the farm in 1700, and its outbuildings shortly afterwards. Wilson V et al (1958) states that the largest quarry was still working at the time of writing prior to 1958.

Quarries.
61. Forest Marble. A sale notice for Golly Knap Farm in 1914 includes: Lot 2, 2 fields with frontage to Bull Lane, building stone underlies these fields, nos. 188, 346 on OS map (DRO/D40J/158).
62. Forest Marble. OS 1903.
63. Upper Greensand. OS 1903.
64. Cornbrash. OS 1902 (111) Quarry Cowleaze. Sale notice 1913 (DRO/D40J/212).
65. Forest Marble. Tithe 1842 (210 & 209) Limekiln Hill. Sale notice 1920 (DRO/D40J/213). OS 1888.
66. Forest Marble. OS 1902 (104) Quar Mead. (DRO/D40J/212).
67. Oxford Clay. Tithe 1842 (306) Quarr Mead, nr Golly Knap Farm.
68. Forest Marble. Tithe 1842 (208) Higher Limekiln ground.
69. Forest Marble. OS 1968.
70. Forest Marble. Tithe 1842 (250) Limekiln Hill. N of road.
71. Forest Marble. (DRO/D40J/158). Lot 3, meadow in The Drives, Puncknowle. 'Building stone is obtainable under this lot.'
72. Forest Marble. Tithe 1845 (Abbotsbury) (96) Quar Close, Look Farm. OS 1888.
73. Forest Marble. Tithe 1845 (Abbotsbury) (98) Mark Mead, Look Farm.
74. Forest Marble. OS 1903. Working 1950's. (Wilson V et al 1958).

Buildings.
St Mary's church has a Norman chancel arch and west tower, with some reconstruction in the 17th century. It is of Forest Marble, with a stone tiled roof. The Manor was built in 1600, with 19th century additions, mostly of Forest Marble. Other buildings of the 17th to 19th century are also of Forest Marble.

SWYRE PARISH. Figure 2.

The parish of Swyre is crossed by four faults running E-W, which repeat outcrops of the Fullers Earth clays, Forest Marble and Cornbrash, with small outliers of Oxford Clay. All the buildings use Forest Marble, and those in the village are all 19th century.

Quarries.
54. Cornbrash. Green Hill. OS 1888.
55. Forest Marble. OS 1903.
56. Forest Marble. OS 1888. New Lane quarry, working in 1950's.
57. Forest Marble. Tithe 1839, Limekiln Close (43).
58. Cornbrash. Tithe 1839, Quarry Close (60). OS 1888.
59. Cornbrash. OS 1888.
60. Cornbrash. OS 1888.

Inferior Oolite.

The second part of this paper concerns the parishes from Shipton Gorge northward to Beaminster, which use Inferior Oolite as a building stone.

In the Burton Bradstock to Beaminster area the building stone beds of the Inferior Oolite are known as the Top Limestones, and are in the Parkinsoni zone. In the few outcrops which are now visible the marker bed at the base of these limestones is the Astarte obliqua Bed, a crumbly ironshot marl with occasional rusty-coloured concretions similar to the 'snuff boxes' near the base of the Formation. The building stones occur as two units of massive limestone with few fossils. Where fossils do occur, they are often characteristic of a particular district, as this Formation shows rapid lateral variation. The quality of the stone varies, but it has been used both as dressed stone and as rubble. Better quality stone is a smooth orange/cream colour, which darkens on weathering. Much of the rubble used tends to be patchy in the same colours. Being micritic, the stone is porous and in some buildings, such as Loders church, Forest Marble limestone has been used as plinth courses. In many cases the 'weather' wall of a house, facing the prevailing westerly rain-bearing winds, has been rendered to keep out the rain.

BEAMINSTER PARISH. Figure 4.

The parish of Beaminster is underlain by Bridport Sands, Inferior Oolite and Fullers Earth Clay, all affected by the Beaminster Fault Belt. The south eastern part of the parish includes the outcrops of Inferior Oolite on Warren Hill. Each outcrop of Inferior Oolite has been quarried. The northern part of the parish is on the higher ground of Gault, Upper Greensand and Chalk, which have also been extensively quarried, though they are not normally used for building in this area. During the late 19th century Chalk was used for carving memorial plaques (Cecil Poole, pers.comm.)

The town of Beaminster is built of Inferior Oolite, as are most of the surrounding farms and villages. The Oolite was quarried within the parish and in the parishes of Stoke Abbott, Netherbury and Broadwindsor. It is not possible to differentiate the source of the stone but buildings in the area date from the 13th to the 19th centuries. Quarrying continued at Barrowfield and Horn Park quarries until 1950, when it was found that the modern method of quarrying using dynamite was unsuitable. No further quarrying has taken place within the parish. Ham Hill stone has also been used at Parnham and in other important buildings.

Fullers Earth Clay, in the fields north of the town, was used for bricks, tiles, pottery and drainage pipes from the 17th century until 1890.

The Chalk and Upper Greensand of Beaminster Down, north of the town, have been extensively quarried and Tunnel Quarry, in the Lower Chalk/Upper Greensand, was opened for the building of Horn Park House in 1911.

Quarries.
1. Inferior Oolite. Horn Park Farm. OS 1890.
2. Inferior Oolite. Horn Park Farm. Tithe 1843 (1117). OS 1890.
3. Inferior Oolite. Barrowfield Quarry. Tithe 1843 (343), Quar Ground. OS 1890. Richardson 1927-9, site 57. Sale of Barrowfield Farm 1920, including Quarry Ground; 5 acres 3 roods 39 perches. 'Right of taking stone let to Mr. G. Symes on payment of a Royalty of ls 6d per yard for Building Stone and 9d per yard for stone taken for Road making.' (DRO/D795/2). In use up to 2nd world war. (Bugler pers.comm.)
4. Inferior Oolite. Cockroad Lane. Tithe 1843 (1124). OS 1890. In use before 1939-45 war.(Perry pers.comm.)
5. Upper Greensand, and Lower Chalk. Tunnel Quarry. OS 1930. Quarry opened for Horn Hill House, built 1914. (Poole pers.comm.)
6. Fullers Earth over Inferior Oolite. Pit Close. Tithe 1843 (1166).
7. Inferior Oolite. Quarry Close. Tithe 1843 (369).
8. Bridport Sands. Clampits - pit for 'Foxmould', yellow, to add to lime in order to plaster walls of cottages, which were then whitewashed. In St. Mary Well Street a cottage next to the sandpit was built in 1781, after the town fire. It was called Clampit after Mr. Clamp. (Poole, pers.comm.)
9. Upper Greensand. Pit Mead. Tithe 1843 (1202).
10. Fullers Earth/Inferior Oolite. Bowgrove Farm. OS 1903 (228) & 1930.
11. Upper Greensand. Stintford Lane, Meerhay. OS 1930.
12. Upper Greensand. Buckham Down. OS 1930.
13. Upper Greensand. White Sheet Hill. OS 1962.
14. Fullers Earth. Pit Mead. Tithe 1843 (616).
15. Inferior Oolite. Storridge Farm. (Perry pers.comm.) Sale document re Mapperton includes 'sandpit', but not marked in field 746. (DRO/D795/17). Storridge Farm is 17th century, possibly quarry used then.
16. Inferior Oolite. Coombe Down. OS 1890. Richardson 1928-9 site 55, in work 1914.

17. Inferior Ooolite. Mapperton Farm Quarry. OS 1890. Richardson 1928-9 site 54.
18. Inferior Oolite. Coombe Quarry. OS 1968. Bomford 1948.
19. Inferior Oolite. Coombe Sheepwash. OS 1968. Charity Ground quarry.

Buildings.
St. Mary's church is built of Inferior Oolite, with Ham Hill stone dressings. Commenced in the 13th century, further work was done in the 15th century and early 16th century. The carvings on the West tower are in Ham Hill stone. Parnham; originally built in 1400, plus end 15th century, in Inferior Oolite, rebuilt in 1554 by Sir Robert Strode using the same stone. Remodelling in the early 19th century was in Ham Hill ashlar.

Other buildings in the town are of Inferior Oolite either in ashlar or dressed stone. Many date from the 16th and 17th centuries, though there was considerable rebuilding after serious fires in the 17th and 18th centuries. (Hutchins 1863, II, 118).

LODERS PARISH. Figure 5.

The parish of Loders lies to the west of the main Cretaceous downlands and includes several small hills capped by Inferior Oolite. Each outcrop has been quarried and the stone used not only for the villages of Loders and Uploders, but also for some of the buildings in Bridport, and for roadmaking in the district.

Quarries.
1. Inferior Oolite. Marl Pits (north and south). Tithe 1846 (107, 108).
2. Inferior Oolite. Green Hill quarry. OS 1891. Richardson (1928) site 24.
3. Inferior Oolite. Stony Head quarry. OS 1891. Richardson (1928) site 25. DRO/D30/3 1834 Rebuilding of house in East Street, Bridport. Walls above shop floor level of stone from Stony Head quarry. In use until A35 driven through in 1975. (C.Poole, Beaminster).
4. Inferior Oolite. Tithe 1846 (244)
5. Inferior Oolite. Knowl Hill. OS 1891.
6. Inferior Oolite. Bell quarry. Tithe 1846 (357). OS 1888. Richardson (1928) site 35, in work 1914. Limekiln, 19th century, restored by present owner. DRO/D40J/162 1916, plan 19.
7. Inferior Oolite. Quarry Mead. Tithe 1846 (338). DRO/D40J/162 1916: sale particulars of Manors of Loders & Uploders, with plan, 44. DRO /D5999A/31 1916: sale particulars of Manors of Loders & Uploders.
8. Inferior Oolite. Bell Lane Farm quarry. DRO/D40J/162 1916, plan 74.
9. Inferior Oolite. Great Quarry. Tithe 1846 (337). DRO/D40J/162, 1916, plan 45.
10. Inferior Oolite. East Bell Quarry. OS 1968. Richardson (1928) site 36.
11. Inferior Oolite. OS 1903, quarry.
12. Inferior Oolite. South of Loders Cross. OS 1891. Richardson (1928) site 26.
13. Inferior Oolite. Chiselcombe quarry. Tithe 1846 (573, 573a, Parish quarry). OS 1891. Richardson (1928) site 27, working 1914; Loders church restored with stone from Scissum Beds at Chiselcombe 1836. Inclosure award and map of Uploders, 1821 indicates that this was the parish quarry for building and road repair. (DRO/Inclosure 4). Plan of limekiln drawn in 1973 (DRO/D612/1).
14. Inferior Oolite. East of Loders Cross. OS 1891.
15. Inferior Oolite. Limekiln quarry, Uploders Farm. OS 1891. Richardson (1928) site 28.
16. Inferior Oolite. Vinney Cross. Inclosure award 1821 (DRO/Inclosure 4). OS 1891. Richardson (1928) site 29, in work 1914. Knights Quarry.
17. Inferior Oolite. Upton Farm. OS 1891. Richardson (1928) site 33
18. Inferior Oolite. Upton Farm. OS 1891. Richardson (1928) site 32. Upton Farm quarries were in use from 16th century to at least 1916, (DRO/D40J/162 & D599A/31 1916) the western one being worked out first (see OS 1891).
19. Inferior Oolite. Perwen Farm (Callington). OS 1891.
20. Inferior Oolite. OS 1891. Richardson (1928) site 30.
21. Fullers Earth clay. Brickkiln House. OS 1968.
22. Inferior Oolite. Quarry Lawns. Tithe 1846 (398).
23. Inferior Oolite. Travellers Rest. OS 1891.

Buildings.
All the buildings in Loders and Uploders are of Inferior Oolite, with the exception of a plinth of Forest Marble in the chancel of the church. Both ashlar and dressed stone have been used in different quality houses. The earliest buildings recorded are the 12th century Priory and church. Cottages at the western end of the village have brick dressings, in the same style as some at Bradpole dated 1910.

In 1858 cottages were built for Pymore Mills Co. in Loders.

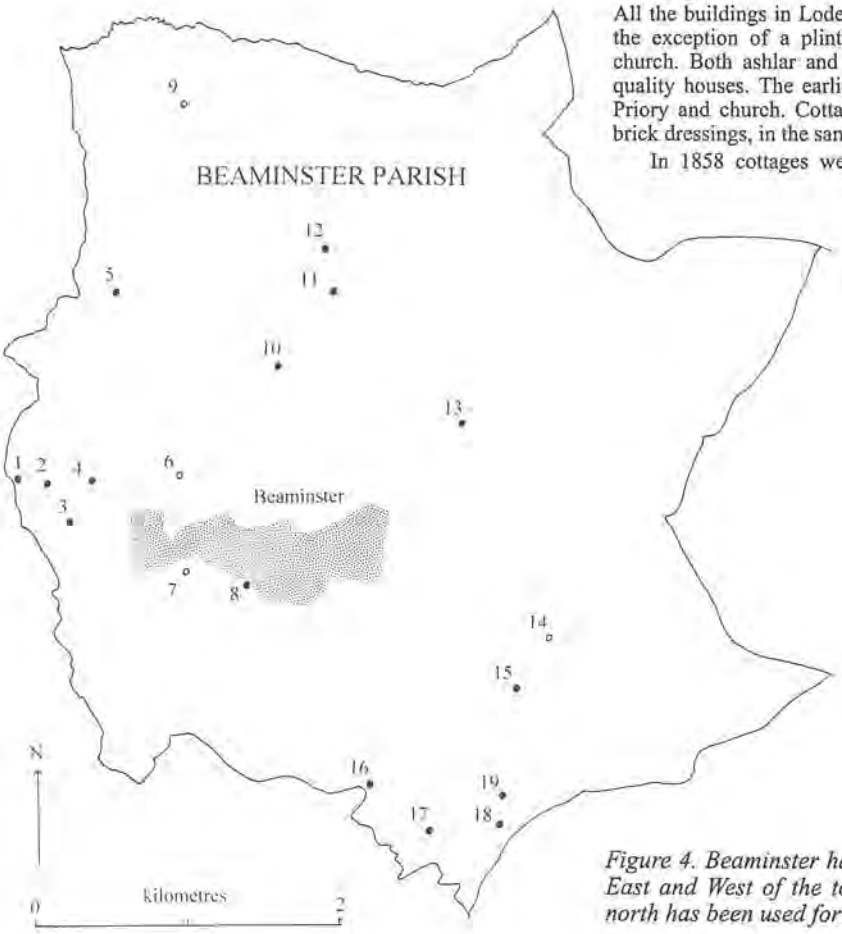


Figure 4. Beaminster has hills of Inferior Oolite limestone both East and West of the town, and the Fullers Earth Clay to the north has been used for pipes and tiles.

Specifications included mortar of Mangerton or Beaminster lime; stone from Mangerton or Bothenhampton for vault and manhole; walls of Mangerton stone; Keinton stone for external doorways and steps; pave privies and court with Bothenhampton stone, roof of Bangor slates. (DRO/D203/A67B).

MAPPERTON PARISH. Figure 5.

The parish of Mapperton lies south east of Beaminster, mostly underlain by the Inferior Oolite and Bridport Sands. The Upper Greensand lies unconformably over the Fullers Earth and Inferior Oolite in the north east part of the parish. The major building is the manor built in the 16th century of the stone on which it stands, with dressings of Ham Hill stone. The other quarries in the parish have probably been used for buildings in Netherbury and Beaminster.

Quarries.

53. Inferior Oolite. Jack's Hill partly in Netherbury. (DRO/D795/17 1919).
54. Inferior Oolite. Mythe Hill. OS 1890. Richardson 1927-9 site 52.
55. Inferior Oolite. Mapperton Rectory. 1699-1703. (Machin 1983).

Buildings.

The church, commenced in the 12th century with later additions, is built of Inferior Oolite with Ham Hill stone dressings. The stables and dovecot at the Manor are also of Inferior Oolite with Ham Hill stone dressings, constructed in the late 17th century. The stone may have come from the site, or from Jacks and Mythe Hills. The Rectory was built of stone from its own garden in 1699-1703. (Machin 1983). Mapperton Dairy Farm, Coltleigh Farm and Mythe Cottage were built of Inferior Oolite in the 17th century.

NORTH POORTON PARISH. Figure 5.

North Poorton parish is situated on three small hills strengthened by the Inferior Oolite, but capped by the Fullers Earth. The valleys have outcrops of the Bridport Sands. Lying unconformably over the eastern part of the parish is a ridge of Upper Greensand and Gault.

Quarries.

49. Inferior Oolite. Ridgeback Lane. OS 1890.
50. Inferior Oolite. OS 1890.
51. Inferior Oolite. OS 1890.
52. Inferior Oolite. Burcombe Farm. Not on Tithe 1839, or OS 1890, 1904, 1962. Richardson 1927-9, site 51. May have been describing only a lane-side exposure, but waste heaps apparent on top of hill.

Buildings.

The buildings use Inferior Oolite, but this could have come from the Powerstock quarries as well as those in the parish.

Specifications for new church 1860. Foundations, 18" - 1 part ground Blue Lias, 6 parts broken stones & gravel. Walls, flat bedded native stone. Dressing of doors, windows, plinths, buttress etc. of Bath stone from Randell & Saunders quarries. Floor of bunched Pennant paving, the chancel of Pool tiles, red, black and buff. Steps to porch, entrance, chancel, of Purbeck. Mortar, use native lime. Use old materials where possible. Roof, Evershot Nib tiles. (DRO/PE/NPO/CW3/1)

Bath Stone Office, Corsham, Wilts. May 14th 1861. 'The rail carriage charge to Poorstock is 2/- per ton more than to Maiden Newton. Price as delivered at Poorstock station. Drawing no. 3, chancel arch - £16.0.0. Drawing no. 1a, vestry, omitting outside door - £4.0.0. Drawing no. 1 as it is £32.4.6. Drawing no. 4 doorway from porch to church, the door into turret - £3.15.0. Worked ashlar 8d per foot super.' May 30th 1861. Porch entrance, delivered £18.0.0. Drawing dated May 25th 1861 thought to be drawn by Thomas Hardy. (DRO/PE/NPO/CW3/5).

POWERSTOCK PARISH. Figure 5.

The parish of Powerstock covers a complex of small hills capped by the Inferior Oolite, with Fullers Earth clay above in some areas, and Bridport Sands on the hillsides and in the valleys. There are several NW-SE, or N-S, faults which repeat the outcrops.

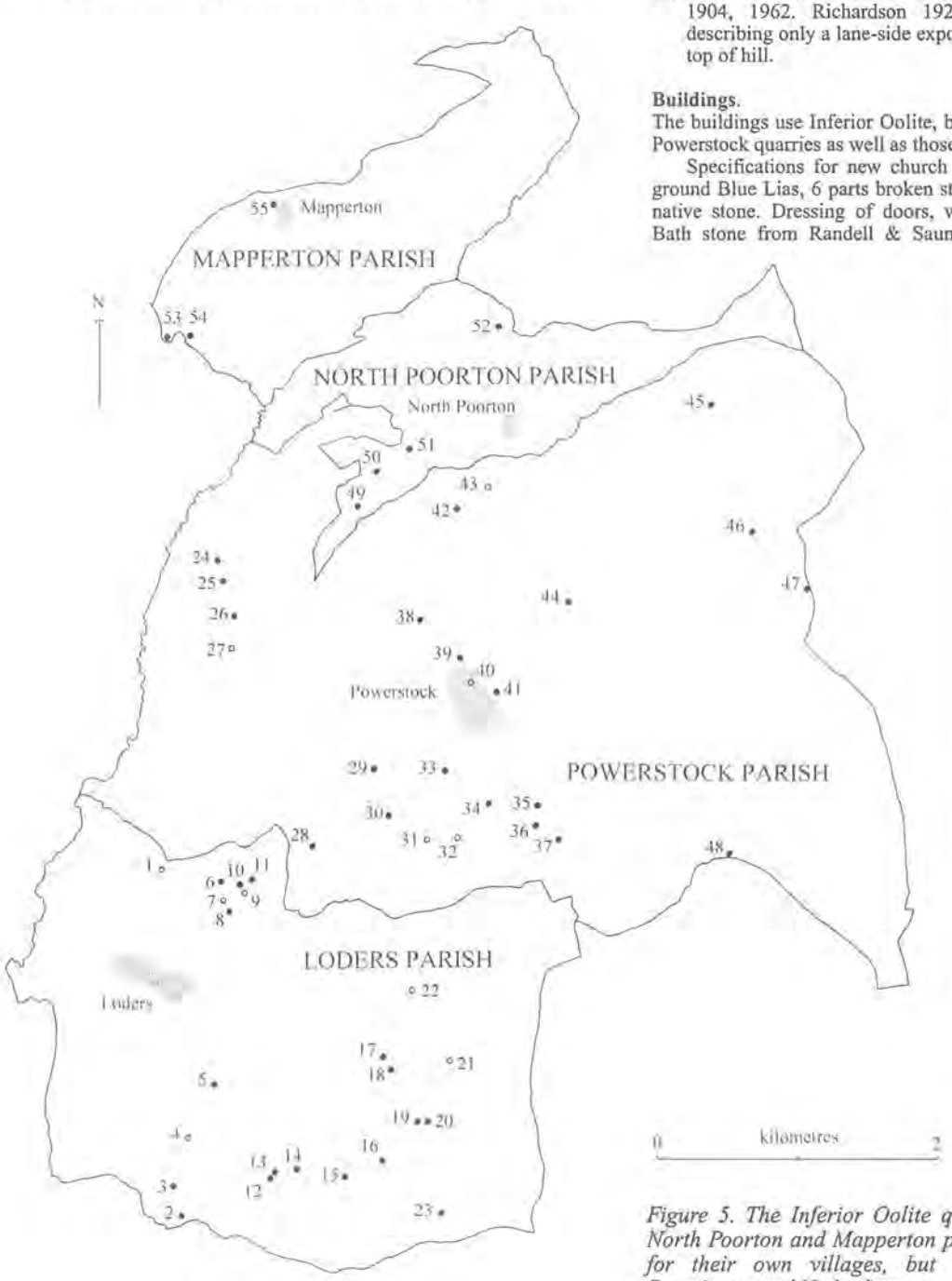


Figure 5. The Inferior Oolite quarries of Loders, Powerstock, North Poorton and Mapperton provided building stone not only for their own villages, but also for Bridport, Bradpole, Beaminster and Netherbury.

All the buildings in Powerstock are of Inferior Oolite, including a delightfully crooked Norman arch in the church. There are several quarries within the parish. A Norman castle was built south of the village but nothing now remains and it may have been of wood. Building and therefore quarrying continued into the 19th century. Quarrying for roadstone continued within living memory, when the stone cutter 'cut up the flints for roads putting them in heaps ready for use and guarding his eyes with dark wire spectacles'. (DRO/D768/1).

Quarries.

24. Inferior Oolite. Marlpits Farm. OS 1890 (old quarries). Richardson 1927-9, site 47, working 1914. Quarry tracks to Mangerton & West Milton. DRO/D795/20 Sale of Marlpits Farm in 1911 has no mention of quarry.
25. Inferior Oolite. Marlpits Farm, yard. Tithe 1839 (306), no building shown. No quarry on OS 1890. Abandoned by 1914 - Richardson L 1927-9, site 48.
26. Inferior Oolite. Quarry Hill. Tithe 1839 (373).
27. Inferior Oolite. New Barn Farm. OS 1890.
28. Inferior Oolite. Welcome Hill. OS 1891.
29. Inferior Oolite. OS 1891. Richardson 1927-9, site 39.
30. Inferior Oolite. OS 1891. Richardson 1927-9, site 38.
31. Inferior Oolite. Quarry Close, Mappercombe. Tithe 1839 (1175).
32. Inferior Oolite. Quarry Close. Tithe 1839 (1174).
33. Inferior Oolite. Hine's Hill. OS 1891.
34. Inferior Oolite. Marquess of Lorne. OS 1891.
35. Inferior Oolite. Nettlecombe. OS 1891.
36. Inferior Oolite. Powerstock station quarry. OS 1891. Richardson 1927-9, site 40. 'Produces Massive Beds similar to Sherborne stone'.
37. Inferior Oolite. Marsh Dairy. OS 1891.
38. Inferior Oolite. OS 1890.
39. Inferior Oolite. Powerstock quarry. OS 1890. DRO/D795/21.
40. Inferior Oolite. Limekiln Orchard. Tithe 1839 (574). Richardson 1927-9, site 42.
41. Inferior Oolite. NE of St. Mary's church. OS 1891.
42. Inferior Oolite. Cliff Coppice. OS 1890.
43. Inferior Oolite. Limekiln plot. Tithe 1839 (213).
44. Inferior Oolite. OS 1890.
45. Upper Greensand. OS 1904.
46. Fullers Earth Rock. Casley's Coppice. OS 1890.
47. Upper Greensand. Dorset Environmental Records Centre 1983.
48. Upper Greensand. OS 1904.

The vicar wrote an account of inhabitants in 1892, including some notes on occupations. (DRO/PE/POW/IN9/2). James Legg, formerly mason, b 1834, partially paralysed. John Cousins, mason. Thomas Gale, b 1827. Road contractor, formerly mason. Henry Charles Gale, b 1858. Works on roads. Henry Pester of Nettlecombe. Mason. Left for Portland 1898. Marlpits Farm was occupied in 1892, but there is no mention of a mason, or of quarrying activities. It might be concluded that quarrying was not carried on after 1898, or perhaps stone was only taken for roadworks after that date.

Buildings.

The Church has a 12th century chancel arch and core of the tower. The Early English font is of Cornish serpentine, with capitals and bases of Caen stone. The pulpit (undated) is of Caen stone. Alterations and additions were made in the 14th and 15th centuries, with some 19th century rebuilding. (DRO/PE/POW/IN9/2). The walls are of Inferior Oolite. West Milton church, 12th to 13th century, of which only the tower remains, is also of Inferior Oolite. A new church was built in 1869 of stone from Nettlecombe. (Anon 1869.07.08: Dorset County Chronicle 15 (50), 6.) This was demolished in 1977 to build a house (Best 1970).

There are no remains of the Castle (1205), though Hutchins (1774), referred to vaults and standing walls of stone. The stone may have been used for other buildings. Bartelot (1945) records that in 1203 the Sheriff of Devon had been ordered to send a vast supply of building materials to Porstock; including 'one hundred thousand nails for building our houses at Porstock.' Earthworks can still be seen.

The houses of the village were built of the local Inferior Oolite in the 17th to 19th centuries. The primary school was built in 1848 of materials from the demolition of West Milton church. Marlpits Farm has been built on the floor of an old quarry, between 1839 and 1892. It has a well 100 ft deep in Bridport sands, and the owners had been told that the men digging the well demanded an extra hogshead of cider for the last 3 feet as it was exceptionally hard rock.

SHIPTON GORGE PARISH. Figure 2.

Shipton Gorge village is built on the Inferior Oolite, which has been extensively quarried from the complex of hills within the parish. At one time there was an inn called the Masons Arms in the middle of the village, and stonemasons from Shipton are said to have built Hardy's Monument (pers.comm), though that is not of Inferior Oolite. As buildings exist in the village dating back to the 16th century, quarrying has been carried on since then.

Quarries.

44. Inferior Oolite. Limekiln Ground, Burbitt Lane. Tithe 1839 (143).
45. Inferior Oolite. OS 1903.
46. Inferior Oolite Eldon Hill. OS 1891.
47. Inferior Oolite. Peas Hill. OS 1891. Richardson 1927-9, site 19. 1910 DRO/PE/SHG/MI1 Sale of Innsacre Farm. Map shows quarry on Eldon Hill and Peas Hill, but there is no mention of quarrying. The village inn is named the Mason's Arms.
48. Inferior Oolite. Quarry Close. Tithe 1839 (196).
49. Fullers Earth. Pit Mead. Tithe 1839 (229).
50. Fullers Earth/Inferior Oolite. Tithe 1839 (284) Cumberlands.
51. Oxford Clay. Hammiton Hill. OS 1891. DRO Photocopy 518/1-3. Maps of estates owned by W, J & T Hussey 1804, 1837, 1865 showing area near Hammiton Hill. Brickkiln appears first on 1865 map.
52. Fullers Earth. OS 1903.
53. Fullers Earth. Hill Pits, Sturthill Farm. Tithe 1839 (389). 1911 DRO/D40J/226 Sale of Sturthill Farm. Quarry shown on map but no mention of quarrying.

Buildings.

The west tower of the church, dated 1553 is of Forest Marble and Inferior Oolite. In 1860 plans of the existing and proposed church (DRO/PE/SHG/CW5, 6.) gave permission to demolish all the church except the tower and rebuild, using old materials. No new material was mentioned. The remainder of the buildings in the village are Inferior Oolite.

Bibliography.

Anon 1865.08.31: 'Local stone from Bothenhampton used in new church at Eype', *Dorset County Chronicle*, 12 (6), 111.

Bartelot RG 1945: 'The vanished mediaeval castles of Dorset,' *Dorset Proceedings* vol. 66, 65-75.

Best R 1970: *Powerstock in Dorset*. (Revised 1983).

Bomford G 1948: 'New sections in the Inferior Oolite', In Sylvester-Bradley PC. *Proc. Geol. Assoc.* vol. 59, 148-50.

Buckman SS 1910: 'Certain Jurassic (Lias-Oolite) strata of south Dorset and their correlation', *Q.J. geol. Soc. Lond.* vol.66, 73.

Eedle M de G 1984: *History of Beaminster*.

Green AH 1884, Pitt-Rivers estate map drawn in 1884 by A H Green of Blandford. DRO/D396/P4.

Groves TB 1887: 'The Abbotsbury iron deposits', *Dorset Proceedings*, Vol. 8, pp 64-6.

Hine R 1914: *History of Beaminster*.

Hutchins J 1774: *History & antiquities of the County of Dorset*. edn. 1. 1796; edn. 2. 1815; edn. 3. 1861-70.

Lamplugh GW, Wedd CB & Pringle J 1920: 'Iron Ores: bedded ores of the Lias, Oolites and later formations', *Mem. geol. Surv. GB Miner. Resour. Rept.* 12, 222.

Lowe, J., 1994: *Dorset Building Materials Survey. A Pilot Project*. Dorset County Council.

Machin R 1983: *The buildings accounts of Mapperton Rectory 1699-1701*. Dorset Record Society.

Newman J & Pevsner N 1972. *The buildings of England. Dorset*.

Richardson L 1927-29: 'Inferior Oolite & contiguous deposits of the Burton Bradstock - Broadwindsor district'. *Proc. Cotteswold Club* 23.

Sanctuary, M., 1956: *This was my village*. DRO/D768/1.

Thomas, J., 1990, 'The lesser known building materials of West Dorset,' *Proc. Geol. Assoc.*, vol. 101 (4), 289-301.

Thomas, J., 1993, 'The Building Stones of Dorset. Part 1. The Western parishes - Upper Greensand Chert and Lower Lias,' *Dorset Proceedings* vol. 114, 161-168.

Thomas, J., 1994, 'Building Stones of Dorset. Part 2. Chideock to Broadwindsor - Middle and Upper Lias,' *Dorset Proceedings* vol. 115, 133-138.

Vellacott CH 1908: *Victoria County History*. Dorset. 2.

Wilson V, Welch FBA, Robbie JA & Green GW 1958. *Geology of the country around Bridport & Yeovil*. Mem.Geol.Surv.UK.

Woodward HB 1886: 'Excursion to Burton Bradstock, Bridport Harbour & Eype'. *Proc. Geol. Assoc.* vol.9 (4), 200-6.

Woodward HB 1894: *The Jurassic Rocks of Britain. 4 The Lower Oolitic Rocks of England*. Mem. Geol. Surv. UK.

Young D 1972: 'Brickmaking in Dorset', *Dorset Proceedings* vol. 93, 231.

A Juvenile Specimen of *?Plesiosaurus* sp. from the Lias (Lower Jurassic, Pliensbachian) near Charmouth, Dorset, England

G. WM. STORRS
Department of Geology, University of Bristol, Wills Memorial Building, Queen's Road, Bristol BS8 1RJ

Abstract

A recently discovered partial skeleton of a Lower Jurassic plesiosaur is one of the smallest individual plesiosaurs known. It is a juvenile individual, perhaps of Plesiosaurus, *and is certainly among the youngest relatively complete plesiosaur specimens found to date. Associated fish skeletal debris are seemingly stomach contents representing the final meal. Small quartz clasts intermingled with the fish remains are potential gastroliths with a role in food processing.*

Introduction

In 1990, portions of an immature plesiosaur were collected from eroding coastal exposures of the Liassic sequence near Charmouth, Dorset, by R.E. Hotchin and L. Brandon of Peterborough. Recently, they have presented the fossil to the Bristol City Museum and Art Gallery, Bristol, Avon, where the specimen is number BRSMG Ce17972a-o. The plesiosaur originated from a fallen block of sediment found at beach level at the eastern point of Wear Cliffs, below Golden Cap, Stanton St. Gabriel, approximately 0.5 km west of Seatown (approximate SY406 918) (Fig. 1). The rocks below Golden Cap comprise units of the uppermost Lower and Middle Lias (Lower Jurassic), while the summit is composed of unconformable Lower Cretaceous strata (Albian Upper Greensand and Gault). Although the rock containing the plesiosaur may have slumped from any point in the cliff, only lithologies from the Lias formations match the grey, nodular, carbonate mudstone matrix of the specimen and the soft, surrounding clay from which it was prised. Some characteristic iron pyrite (FeS_2) is also present in the matrix between several of the bones. Additionally, considering the well articulated nature of the material, it is unlikely that the fossil had fallen from a great height. Therefore, based upon local stratigraphy the fossil is certainly Pliensbachian (uppermost Lower Lias or Middle Lias) in age. An ammonite impression on the top of one of the anterior dorsal vertebrae and its enclosing matrix has been identified (M. J. Simms and D. Donovan, pers. communication, 1994) as *Aegoceras* cf. *A. capricornus* (Schlotheim) (Fig. 2). This identification suggests that the specimen is from the top of the Lower Lias, probably the *Prodactylioceras davoei* Zone (Fig. 3) and potentially the *Aegoceras capricornus* Subzone. *Aegoceras capricornus* occurs within the lower Pliensbachian Green Ammonite Beds of the uppermost Lower Lias which, indeed, do crop out extensively along the cliff face at the base of Golden Cap (Fig. 4).

Description of the specimen

The skeleton is that of a small individual plesiosaur. In total, approximately 68 cm of the neck (25.5 cm) and body (42.5 cm) are preserved. The complete length of the animal during life is estimated at between 1.25 and 1.5 m. As such, it is one of the smallest reported plesiosaur skeletons from Dorset, perhaps the smallest Liassic individual known, and is certainly one of the smallest individual plesiosaurs yet discovered. It presently consists of four fragments of carbonate nodule containing the more or less naturally articulated body (essentially divided between pectrum or shoulder girdle, pelvis, and two middle blocks of gastralia or belly ribs, each of these four including associated vertebrae and/or rib fragments), five smaller blocks comprising fourteen cervical (neck) and pectoral (shoulder) vertebrae, and six isolated cervical vertebrae (Figs. 5 & 6). No trace of the skull is preserved. Additional portions of the skeleton may have been present in the neighbouring shales but were not recovered.

All of the preserved vertebrae of BRSMG Ce17972 are presumed to articulate, although matrix connections are lost between some of the

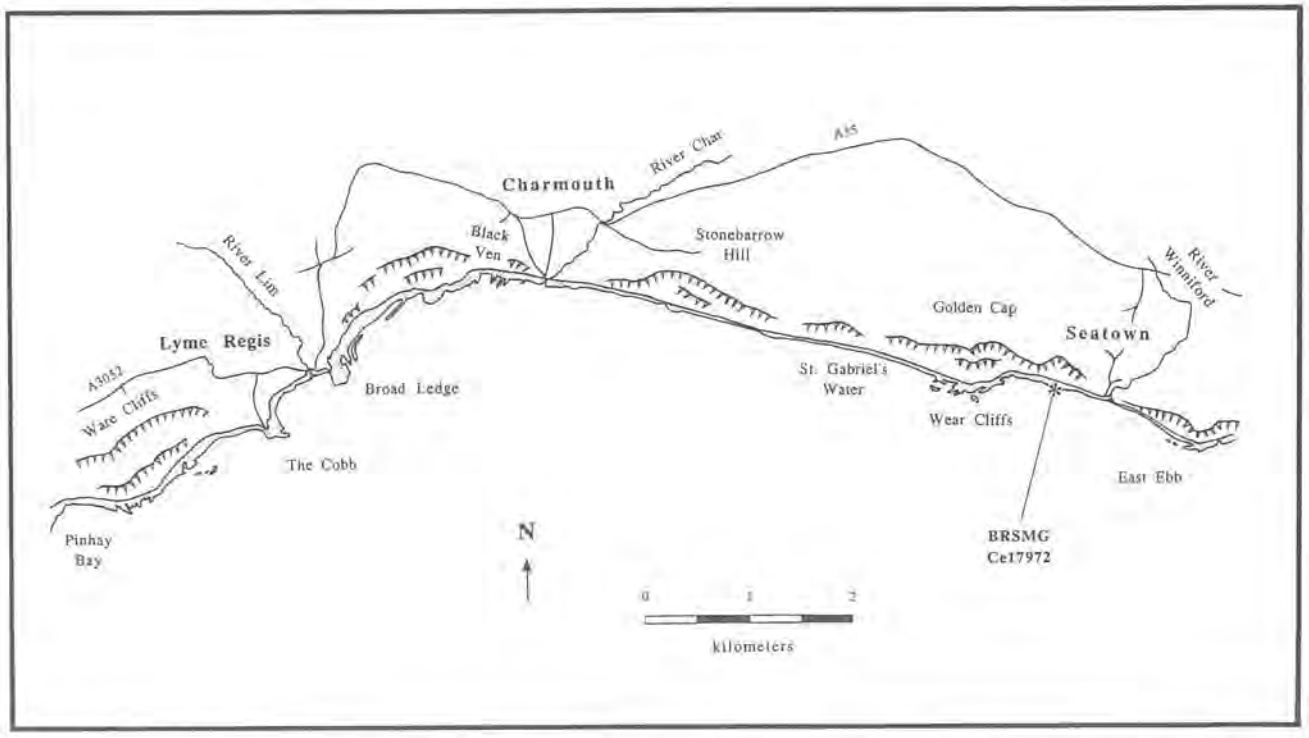


Figure 1. Map of the Dorset coast from Pinhay Bay, near Lyme Regis, to Seatown indicating the approximate position of discovery of BRSMG Ce17972.

Figure 2. Ammonite impression, Aegoceras *cf.* A. capricornus *(Schlotheim), preserved on dorsal surface of juvenile plesiosaur nodule, BRSMG Ce17972d. Distal ends of plesiosaur neural spines are visible along left side of ammonite.*

cervicals so that three potential, although small, gaps in the neck may exist. The first eighteen of the preserved vertebrae are cervicals, while the following four are pectoral or transitional vertebrae leading to the dorsals (thoracic vertebrae). The last two pectorals are the first two vertebrae preserved in the anteriormost body block or nodule. At most, one additional pectoral or shoulder vertebra may be present within this first nodule. By comparison with complete skeletons of *Plesiosaurus dolichodeirus,* perhaps the most common plesiosaur from the Dorset coast and the type species of the genus, approximately 20 cervical vertebrae may be missing anteriorly, including the atlas and axis (first and second neck vertebrae, sometimes fused in adult plesiosaurs).

None of the neural arches (through which passed the spinal chord) of BRSMG Ce17972 are fused to their vertebral centrum (spool-like body of the vertebrae), thus five of the loose cervicals preserve only the centra. Distinct neurocentral sutures (lines of union) between the centrum and neural arch are visible on the remaining vertebrae that possess only partial arches; all of the preserved arches have been broken, *post mortem.* This ubiquitous lack of vertebral fusion between different centres of ossification (bone development) is a clear indication of immaturity. Twenty-three vertebrae, and a small portion of a twenty-fourth, are preserved in the body nodules for a total known vertebral count of forty-four. Distinction between dorsal, sacral (hip) and caudal (tail) vertebrae in the nodules cannot be made because of the surrounding matrix. Similarly, only the cervical vertebrae can be fully described, but the remaining vertebrae do not appear atypical. Most, if not all, of the tail has been lost.

The cervical vertebral centra have shallowly concave articular faces that each possess a small central pit. Each articular surface, for contact with an adjacent vertebra, is subelliptical in shape, i.e. the width across each face is slightly greater than the height. This dimensional inequality is lost amongst the dorsal vertebrae. The smallest (anteriormost) preserved cervical centrum measures only 1.5 cm across the articular face and is approximately 1 cm long, while the last cervical (Fig. 7) is

Group	Formation			Ammonite Zone	Stage
Middle Lias	Down Cliff Sands	*Starfish Bed* *Day's Shell Bed*	27 m	*Amaltheus margaritatus*	upper Pliensbachian
	Eype Clay	*Eype Nodule Bed*	60 m		
	Three Tiers		6 m		
Lower Lias	Green Ammonite Beds	*Red Band*	35 m	*Prodactylioceras davoei*	lower Pliensbachian
	Belemnite Marls	*Belemnite Stone*	23 m	*Tragophylloceras ibex*	
				Uptonia jamesoni	

Figure 3. Stratigraphical succession of the Dorset coast Lias between St. Gabriel's Water and Seatown, with approximate local thicknesses of formations.

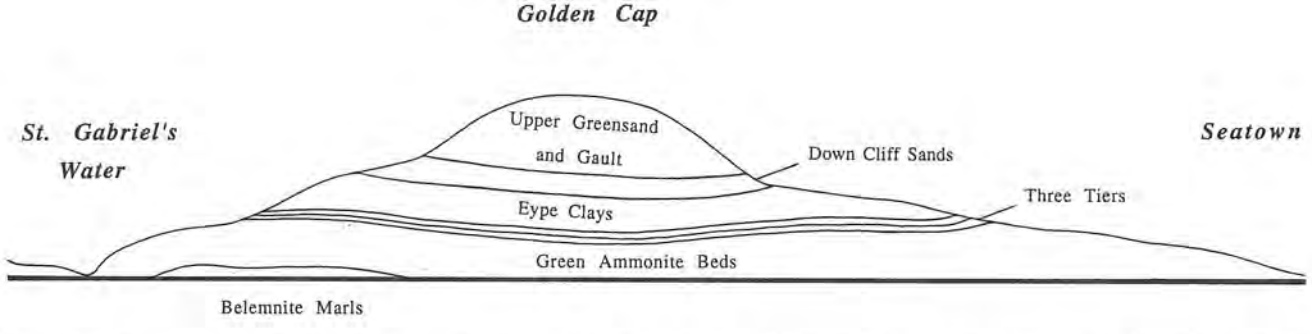


Figure 4. Schematic coastal section of Liassic and Cretaceous strata exposed below Golden Cap between St. Gabriel's Water and Seatown, Dorset. Modified from Melville and Freshney (1982) and Woodward (1893). Vertical scale expanded.

approximately 2.8 cm across by 1.5 cm long. In ventral aspect, the cervical centra appear slightly "bowed" or arched, as the anterior edge of the centrum is slightly convex while the posterior is concave. These edges of the centrum, where they adjoin the articular faces, are each relatively rugose, i.e. have a roughened surface. The characteristically plesiosaurian subvertebral nutritive pits (foramina subcentralia) of the cervicals are deeply recessed on either side of a longitudinal, median ventral ridge.

None of the cervical ribs is preserved because, like the neural arches, they were not fused to the vertebral centra. Indeed, some of the cervical neural arches are lacking as well. The cervical rib facets, or attachment sites, are large and distinct and there is no suggestion of the presumably double-headed rib articulations. The cervical rib heads of all known Lower Jurassic plesiosaur species are pierced by a longitudinal foramen or canal, and thus sometimes described as double-headed, but this may be difficult to see, particularly in juvenile animals. The cervical facets of BRSMG Ce17972 are tear-drop shaped (pointing dorsally), but the body of the articulation is circular and deeply concave. The rims of these facets are prominent and, in the anterior vertebrae, flare outwards whereby the distance between each opposite pair of facets is greatest at the posterior end of their centrum. The single-headed proximal ends of most dorsal (thoracic) ribs are present and nearly in place. They have, however, been displaced ventrally from the ends of the right side transverse processes (lateral spines to which the body ribs articulate). On the left side of the body, some ribs are displaced dorsally, i.e. the vertebral column is now somewhat laterally reclined or twisted. Each rib is robust, circular in transverse section and extremely dense (i.e. seemingly pachyostotic, literally "thick bone"). The dorsal rib heads are not greatly expanded.

The gastralia, or ventral belly ribs, and limb girdles (shoulder arch and pelvis) of the specimen are firmly pressed to the ventral surfaces of the dorsal vertebrae, thus giving the individual an unnaturally flattened appearance. Therefore, no reflection of the original size and shape of the body cavity is present. The gastralia, like the dorsal ribs, are robust and densely constructed. They are arranged in a natural articulation of approximately seven gastral sets that correspond with the seven dorsal vertebrae that are positioned between the girdles. In other words, there is

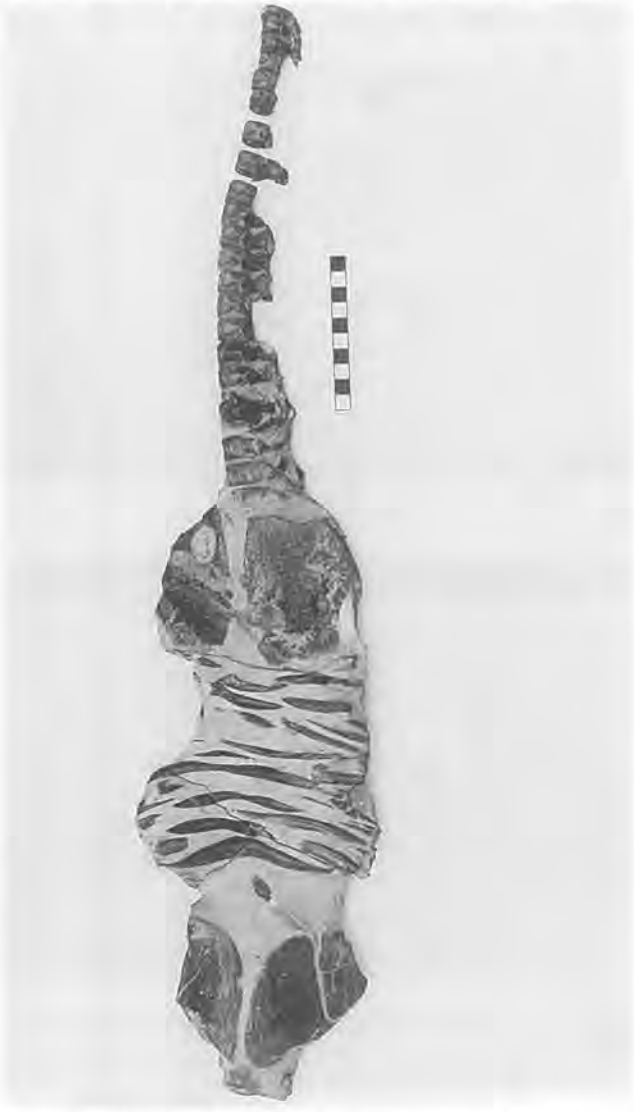


*Figure 5. Juvenile individual of ?*Plesiosaurus *sp., BRSMG Ce17972a-o, in ventral aspect, anterior to top. Gastral basket and portions of coracoids and pubes clearly visible. Scale bar in centimetres.*

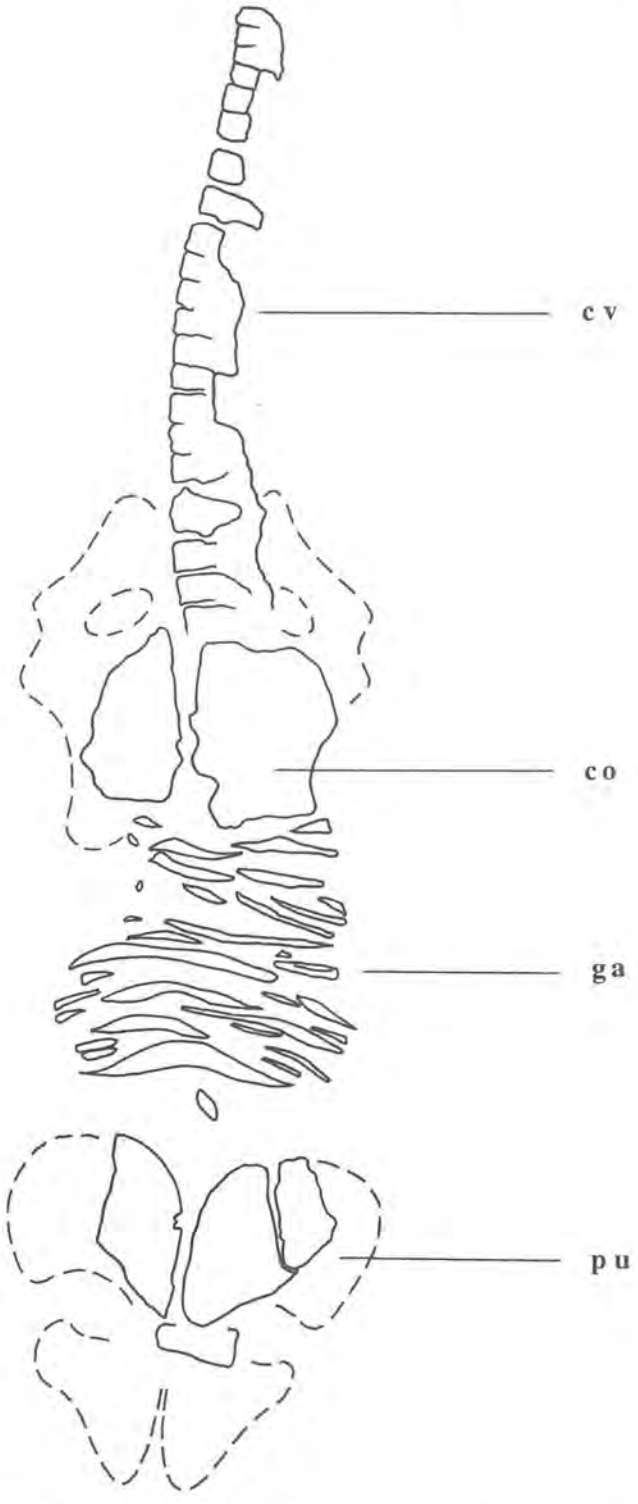


*Figure 6. Schematic diagram of ?*Plesiosaurus *sp., BRSMG Ce17972a-o, in ventral aspect showing reconstructed outlines of limb girdles, anterior to top. co - coracoid; cv - cervical vertebrae; ga - gastralia; pu - pubis.*

a 1:1 correspondence between vertebral count and gastral segments. The V-points of the median elements are directed anteriorly. Each median gastral element is tapered at its extremities and in its middle. One longitudinally grooved, tapering lateral element is associated with each end of the median elements. The last median gastral element is the thickest, at 13 mm; it is 12.5 cm long. At least one incomplete median element in the middle of the ventral basket would have been longer than 12.5 cm in life. One anterior median element is asymmetrically bifurcated (on the left hand side), a common occurrence in sauropterygians such as plesiosaurs and "nothosaurs", and a result of natural variation with no taxonomic significance (see e.g. Storrs, 1991). The length of the entire gastral basket is approximately 12 cm.

Of the pectoral or shoulder arch (pectrum), the medial and posterior portions of both coracoids remain with the specimen. Much of the anterior, lateral and acetabular (shoulder joint) sections of the coracoids have been broken away and lost, prior to the specimen's placement in Bristol City Museum. As noted above, the coracoid remnants are pressed against the vertebral column. The medial, symphysial, edges of the coracoids are approximately 10 cm long. The median width of the posterior coracoid expansion is approximately 6 cm. The left coracoid of the animal has an anomalous notch in its posteromedial edge that, while present, is not similarly large in the right coracoid. The right coracoid also possesses a still smaller notch in front of this. These notches have smoothly finished edges and thus are not artefacts of preservation or breakage, but rather indications of the significant natural variation common to individual plesiosaur limb girdles. There are no remnants of the scapulae preserved. However, a small, plate-like fragment of bone adhering to the left side of the posterior cervical vertebrae represents a portion of the clavicular arch of the pectrum. Assuming that this fragment is approximately in place, the total length of the pectoral arch would have been about 18 cm.

The pelvis is represented only by the broken medial and anteromedial edges of the pubes. Both ilia and ischia are lost. The pubic fragments are again in unnatural contact with the overlying vertebrae. These remnants suggest an approximate length for the pubes of 9.5 cm when entire. The distance between the two limb girdles as preserved is 16 cm; perhaps the pelvis is displaced rearward slightly, thus accounting for the gap of 4 cm between the gastralia and the pubes.

A moderate amount of extremely fine, highly comminuted, bone debris is concentrated between the anteromedial edges of the pubes and amongst the posterior gastralia (Fig. 8). The largest such bone fragment is approximately 4 mm long. Few of these minute scraps can be surely identified, but they are morphologically similar to macerated holostean-grade fish ribs and fin rays. Additionally, the presence of phosphorus within the fragments, identified through energy dispersive analysis, is consistent with a bone interpretation. Indeed, a single 'pholidophorid'-type fish scale is present lying against one gastralium. The bone debris is entirely disarticulated and, in not being randomly distributed throughout the skeleton and its matrix, most likely represents the stomach contents of the plesiosaur. It is visible both on the surface of the fossil nodules and in their cross section. Apparently, juvenile plesiosaurs were piscivorous, as were presumably the adults. Although cephalopod hooklets are known from the stomach contents of English Liassic ichthyosaurs (e.g. Coles, 1853; Moore, 1856; Pollard, 1968), no such hooklets are identifiable in the present specimen.

Numerous very small grains of quartzose gravel or sand (the largest is less than 2 mm long) are also present amongst the fish debris associated with BRSMG Ce17972. These perhaps represent the gastroliths or stomach stones that are well known from adult plesiosaurs

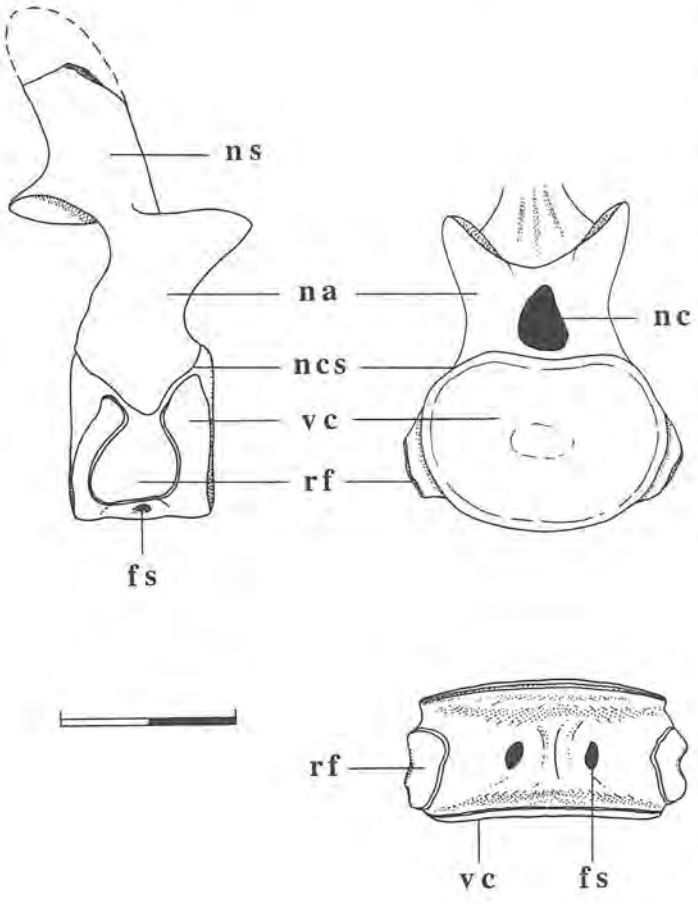


*Figure 7. Last cervical vertebra of ?*Plesiosaurus *sp., BRSMG Ce17972; scale bar = 2 cm. Top left-right lateral aspect; top right - anterior aspect; bottom right - ventral aspect, anterior to top; fs - foramen subcentralium; na - neural arch; nc - neural canal; ncs - neurocentral suture; ns - neural spine; rf - rib facet; vc - vertebral centrum.*

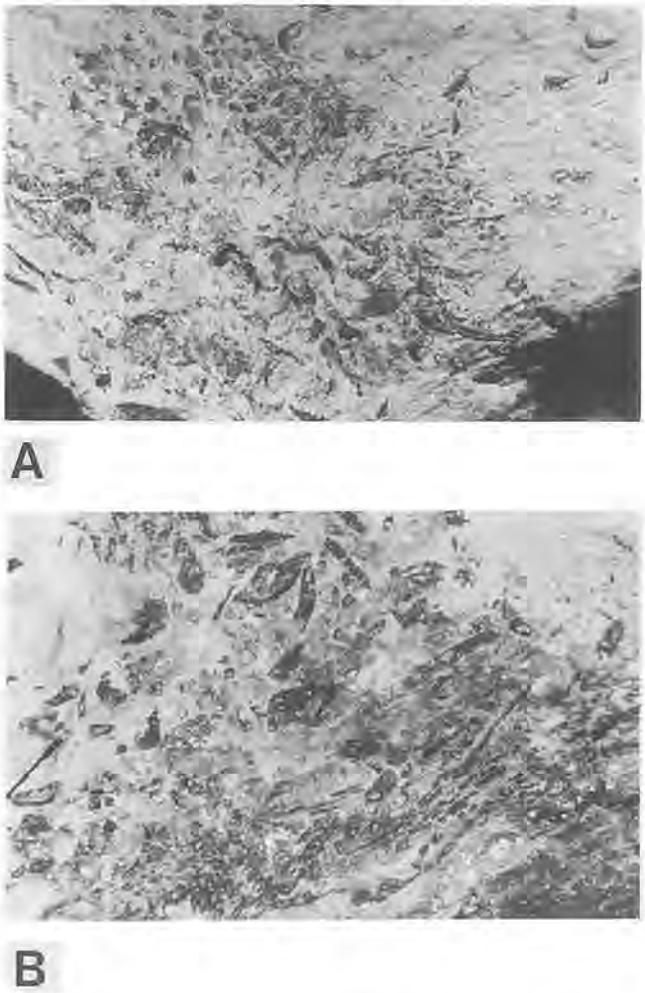


Figure 8. Comminuted fish skeletal debris and presumed stomach contents of plesiosaur BRSMG Ce17972. A - width of field is 20 mm; B - width of field is 10 mm. Small, grey to clear, quartzose grains (gastroliths?) are visible throughout the exposures.

(see Storrs, 1993; Taylor, 1993). The present "stones" are uniform in composition and are also not randomly distributed, but rather concentrated within the bone debris. Although not spherical or ellipsoidal, as are many stones from adult plesiosaurs, the present examples are nonetheless rather rounded.

Virtually every part of the limbs is missing from the specimen with the exception of a small, circular element, undoubtedly a mesopodial (wrist or ankle bone), that is affixed to the ventral surface of the right coracoid. The surface of this appendicular bone is slightly concave, it is without obvious rims and is approximately 1.5 cm across at its maximum dimension. Its circular plan is in accord with the juvenile status of the animal, for immature limb elements are typically poorly formed in plesiosaurs.

Discussion

From its relatively small size and relatively poor ossification, the new Bristol specimen is presumed to have been a juvenile individual. Although certainly a young animal, it was nevertheless too large to be a neonate. Juvenile plesiosaurs are relatively rare in the fossil record. Most known examples have been the isolated occurrences of propodials (i.e. limb elements, either humeri or femora) of recognisably young animals. These are distinguished from the bones of mature individuals not only by the small size of the former, but by their relatively poorly formed proximal and distal ends. The prominent rugosities, "tuberosities" and epipodial facets (lower limb articular surfaces) of adult propodials are lacking (e.g. Williston, 1903, Pl. 23). Although the propodials of BSRMG Ce17972 are not preserved to confirm its juvenile status, the lack of fusion of the neural arches and cervical ribs to the vertebral centra is clearly indicative of immaturity, as is the circular shape of the single mesopodial. All plesiosaur skeletons apparently exhibit an increasing degree of such fusion with advancing ontogenetic age.

A good ontogenetic, or growth, series for plesiosaurs has been documented only for the Oxfordian genus *Cryptoclidus* by Andrews (1910). Few other plesiosaur juveniles have been matched with congeneric adults. Other very young plesiosaur specimens, however, are the holotypes of *Leurospondylus ultimus* (AMNH 5261), an elasmosaur taxon which is a *nomen dubium* because of its lack of generically and specifically diagnostic characters, *Ogmodirus martini* (KUVP 441), an elasmosaur which is similarly uncharacterizable, and *'Plesiosaurus' macrocephalus* (BMNH R.1336), a very young individual of a much larger, but as yet undetermined, large-headed genus. *Leurospondylus* is from the Campanian/Maastrichtian Edmonton Formation of Alberta, *Ogmodirus* from the Cenomanian/Turonian Greenhorn Formation of Kansas (Brown, 1913; Storrs *in press;* Welles, 1952; Williston and Moodie, 1913, 1917) and *'P.' macrocephalus* is, like BRSMG Ce17972, from the Lower Lias of the Dorset coast, in this case Lyme Regis. BMNH R.1336 is also of a similar size to BRSMG Ce17972, but the two cannot profitably be compared because of the lack of comparable diagnostic features. The holotype (Owen, 1840) of *'Plesiosaurus' hawkinsi* (BMNH 2018*, from the Hawkins Collection) is quite small and also represents an immature individual, although in this case merely a subadult and not nearly so young as the current fossil. BMNH 2018* is nearly thirty-five percent larger than the present specimen at Bristol. A notable specimen of *Plesiosaurus dolichodeirus* (YPM-PU 3352) represents an immature, perhaps subadult, individual from Lyme Regis that is approximately 2.25 m long.

Unlike the case for ichthyosaurs, plesiosaur embryos and gravid females are unknown, although Seeley (1888, 1896) reported the discovery of plesiosaur embryos from the Upper Lias (Toarcian) near Whitby, North Yorkshire. The so-called "embryos" had been acquired by Seeley after their passing through the hands of a local fossil dealer. In reality, this group of anomalous mudstone shapes has nothing to do with the Plesiosauria and Thulborn (1982) reinterpreted them as a fossilized crustacean burrow system *(e.g. Thalassinoides).* They had been, furthermore, highlighted or "enhanced" by rather crude preparation, possibly by the dealer. Benton and Taylor (1984), however, rejected any organic origin for the specimen and contended that it was entirely concretionary in nature, because septarian nodules or "doggers" of calcareous mudstone and pyrite are common at Whitby, particularly in the Jet Rock Formation. As yet, there is no answer to the question of "live" vs. oviparous birth in plesiosaurs or other sauropterygians and discussions of their mode of reproduction (e.g. Robinson, 1975; Sander, 1988; Storrs, 1991) have remained speculative. Sadly, the Dorset plesiosaur described here adds nothing to the solution of this riddle.

Because of its size and proportions, the new Bristol fossil represents the young of an indeterminate species of plesiosaur, maybe of *Plesiosaurus* itself. This identification, however, is merely tentative because of the immature nature of the specimen and the current lack of good diagnoses for *Plesiosaurus* and all other Liassic plesiosaur genera. *Plesiosaurus* was originally described by De la Beche and Conybeare (1821) from a variety of specimens from the Lias of the English west country. Subsequently, the taxon has become confused by the addition of countless fragmentary specimens worldwide and is in great need of revision. It may currently be validly recognized only from the European Liassic. At least twelve species of *Plesiosaurus* have been so recognized in Dorset (Delair, 1959), but many of these are probably invalid and certainly not all belong with *Plesiosaurus. Plesiosaurus dolichodeirus* Conybeare, 1824, now the type species for the genus (based upon BMNH 22656 from the Lower Lias of Lyme Regis), is perhaps the only English species that may confidently be included within *Plesiosaurus.* Other plesiosaurian genera reported from the Dorset Liassic include *Archaeonectrus, Eurycleidus* and rather dubiously, *Eretmosaurus.* The first genus *(Archaeonectrus)* is a renaming by Novozhilov (1964) of *Plesiosaurus rostratus* Owen, 1865. *Eurycleidus* is a renaming by Andrews (1922) of *Plesiosaurus arcuatus* Owen, 1840. *Archaeonectrus* and *Eurycleidus* are seemingly distinguished from BRSMG Ce17972 by their more "pliosaurian" proportions. *Eretmosaurus* is based (Seeley, 1874) upon part of the holotype of *Plesiosaurus rugosus* Owen, 1840, and therefore encompasses problematic material (Storrs, 1994).

The growth series of *Cryptoclidus* presented by Andrews (1910) indicates that plesiosaur skeletons exhibit significant changes in degree of skeletal ossification during ontogeny. As such, juvenile skeletal characters are of little use in the identification of individual plesiosaur taxa. Furthermore, the presence of asymmetrical corocoid "notches" in the new Bristol specimen (BRSMG Ce17972) underlines the potential for individual variation in plesiosaur pectra. Unfortunately, however, past attempts at plesiosaur classification and phylogeny have often relied heavily upon limb girdle shape (e.g. Welles, 1943; White, 1940), and it is now known that the great amount of variation in girdle arch ossification makes such classifications unreliable. Indeed, until a rigorous systematics is developed for Liassic Plesiosauria, few skeletal characters can be considered diagnostic at the generic, and still less so the specific, level. Therefore, BRSMG Ce17972 can be identified no more certainly than as an indeterminate plesiosaurian species, although perhaps of *Plesiosaurus.* In fact, the vertebrae cannot be distinguished from those of the type species, *Plesiosaurus dolichodeirus,* and the fossil may indeed pertain to that species.

Although gastroliths, or stomach stones, are commonly preserved in plesiosaur skeletons, it is not clear that the small sand grains in the present specimen are also "stomach stones". They are certainly too small relative to the inferred life mass of BRSMG Ce17972 to have been applied in any hydrodynamic or buoyancy compensation function. However, they may have been useful as grinding aids to digestion. These are the two most likely functions postulated for unequivocal plesiosaur gastroliths (Darby and Ojakangas, 1980; Storrs, 1993; Taylor, 1993). Although the presence of the sand among the presumed dietary remains suggests that it may have been used to grind the plesiosaur's last meal, it is still possible, however, that the grains

were swallowed inadvertently. Perhaps the fish or fishes that now make up the presumed prey item(s) in the animal's abdomen, and among the bones of which the grains occur, possessed their own set of "stomach stones". In any event, such quartz grains are extremely unusual for the otherwise completely argillaceous/calcareous sedimentary facies of the Lias. The original derivation of such grains must have been from the coastal environments that are presumed to have lain at some distance from the quiet shelf seas of Dorset.

Accepting for the sake of argument that the "stones" are true plesiosaur gastroliths, their presence in a potentially juvenile animal could have implications for the function of such stones in all plesiosaurs. In the present specimen, it is clear that the primary buoyancy compensating factor in this aquatic animal was the relatively great mass of the dense ribcage and gastral basket. Unless larger stones were once present that have now been lost, a circumstance considered unlikely in light of the generally excellent preservation of the remains, the added weight of swallowed "stones" would have been comparatively negligible. Although adult plesiosaurs may have adapted the larger stones which they swallowed to a dual purpose including hydrodynamic considerations, the Bristol juvenile hints that trituration of unprocessed food may have been the primary function of ingested rock debris in at least small individuals.

Repository Abbreviations

AMNH - The American Museum of Natural History, New York
BMNH - The Natural History Museum, London
BRSMG - Bristol City Museum and Art Gallery, Bristol
KUVP - Kansas Museum of Natural History, Lawrence, Kansas
YPM-PU - Yale Peabody Museum of Natural History (Princeton University Collection), New Haven, Connecticut

Acknowledgements

I am grateful to P.R. Crowther and R.D. Clark for calling the specimen to my attention and for providing access to it. I also thank M.A. Taylor for laying the ground work for acquisition of the specimen by Bristol City Museum, and for making his notes available to the museum and me. R.E. Hotchin and L. Brandon kindly donated the fossil to Bristol and D.T. Donovan and M.J. Simms helped place the specimen in its proper stratigraphic context. D.S. Draper ran a microprobe analysis of the stomach contents of the plesiosaur. R.D. Clark, P.R. Crowther, A.R.I. Cruickshank and M.A. Taylor provided useful comments on the manuscript. This research was supported by the University of Bristol Department of Geology, the Leverhulme Trust, and the Natural Environment Research Council.

References

Andrews, C.W., 1910, *Descriptive Catalogue of the Marine Reptiles of the Oxford Clay,* Vol. 1, British Museum (Natural History) Monograph series.

Andrews, C.W., 1922, 'Description of a new plesiosaur from the Weald Clay of Berwick (Sussex)', *Quart. Jour. Geol. Soc. Lond.,* Vol. 78, pp. 285-298.

Benton, M.J. and Taylor, M.A., 1984, 'Marine reptiles from the Upper Lias (lower Toarcian, Lower Jurassic) of the Yorkshire coast', *Proc. Yorks. Geol. Soc.,* Vol. 44, pp. 399-429.

Brown, B., 1913, 'A new plesiosaur, *Leurospondylus,* from the Edmonton Cretaceous of Alberta', *Bull. Amer. Mus. Nat. Hist.,* Vol. 32, pp. 605-615.

Coles, H., 1853, 'On the skin of *Ichthyosaurus*', *Quart. Jour. Geol. Soc. Lond.,* Vol. 9, pp. 79-82.

Conybeare, W.D., 1824, 'On the discovery of an almost perfect skeleton of the *Plesiosaurus', Trans. Geol. Soc. London.,* Vol. 1, pp. 381-389.

Darby, D.W. and Ojakangas, R.W., 1980, 'Gastroliths from an Upper Cretaceous elasmosaur', *Jour. Paleont.,* Vol. 54, pp. 548-556.

De la Beche, H.T. and Conybeare, W.D., 1821, 'Notice of the discovery of a new fossil animal, forming a link between the *Ichthyosaurus* and crocodile, together with general remarks on the osteology of the *Ichthyosaurus', Trans. Geol. Soc. London.,* Vol. 5, pp. 559-594.

Delair, J.B., 1959, 'The Mesozoic reptiles of Dorset. Part two', *Dorset Proceedings,* Vol. 80, pp. 52-90.

Melville, R.V. and Freshney, E.C., 1982, *The Hampshire Basin and Adjoining Areas,* 4th Ed., British Regional Geology.

Moore, C., 1856, 'On the skin and food of ichthyosauri and teleosauri', *Rept. Brit. Assoc. Advmt. Sci.,* Vol. 1856, p. 69.

Novozhilov, N., 1964, 'Order Sauropterygia' [Russian] in Y.A. Orlov, *Osnovy Paleontologii,* Amphibians, Reptiles and Birds, Vol. 12, pp. 309-332, Nauka, Moscow.

Owen, R., 1840, 'Report on British fossil reptiles', *Rept. Brit. Assoc. Advmt. Sci.,* Vol. 1839, pp. 43-126.

Owen, R., 1865, 'The fossil Reptilia of the Liassic formations', *Palaeontogr. Soc. Mon.,* Vol. 17, pp. 1-40.

Pollard, J.E., 1968, 'The gastric contents of an ichthyosaur from the Lower Lias of Lyme Regis, Dorset', *Palaeont.,* Vol 11, pp. 376-388.

Robinson, J.A., 1975, 'The locomotion of plesiosaurs', *Neues Jahrb. Geol. Palaont., Abh.,* Vol. 149, pp. 286-332.

Sander, P.M., 1988, 'A fossil reptile embryo from the Middle Triassic of the Alps', *Science,* Vol. 239, pp. 780-783.

Seeley, H.G., 1874, 'Note on some generic modifications of the plesiosaurian pectoral arch', *Quart. Jour. Geol. Soc. Lond.,* Vol. 30, pp. 436-449.

Seeley, H.G., 1888, 'On the mode of development of the young in *Plesiosaurus.', Rept. Brit. Assoc. Advmt. Sci.,* Vol. 1887, pp. 697-698.

Seeley, H.G., 1896, ' On a pyritious concretion from the Lias of Whitby, which appears to show the external form of the body of embryos of a species of *Plesiosaurus.', Ann. Rept. Yorks. Philos. Soc.,* Vol. 1895, pp. 20-29.

Storrs, G.W., 1991, 'Anatomy and relationships of *Corosaurus alcovensis* (Diapsida: Sauropterygia) and the Triassic Alcova Limestone of Wyoming', *Bull. Peabody Mus. Nat. Hist.,* No. 44, pp. 1-151.

Storrs, G.W., 1993, 'Function and phylogeny in sauropterygian (Diapsida) evolution', *Amer. Jour. Sci.,* Vol. 293-A, pp. 63-90.

Storrs, G.W., 1994, 'Fossil vertebrate faunas of the British Rhaetian (latest Triassic)', *Zool. Jour. Linn. Soc.,* Vol. 112, pp 217-259.

Storrs, G.W., *in press,* 'An examination of Plesiosauria (Diapsida: Sauropterygia) from the Niobrara Formation (Upper Cretaceous) of central North America', *Bull. Geol. Surv. Kansas,* Niobrara Symp. Vol.

Taylor, M.A., 1993, 'Stomach stones for feeding or buoyancy? The occurrence and function of gastroliths in marine tetrapods', *Philos. Trans. R. Soc. Lond.* B, Vol. 341, pp. 163-175.

Thulborn, R.A., 1982, 'Liassic plesiosaur embryos reinterpreted as shrimp burrows', *Palaeont.,* Vol. 25, pp. 351-359.

Welles, S.P., 1943, 'Elasmosaurid plesiosaurs with description of new material from California and Colorado', *Mem. Univ. Calif.,* Vol. 13, pp. 125-254.

Welles, S.P., 1952, 'A review of North American Cretaceous elasmosaurs', *Univ. Calif. Publ. Geol. Sci.,* Vol. 29, pp. 47-144.

White, T.E., 1940, 'Holotype of *Plesiosaurus longirostris* Blake and classification of the plesiosaurs', *Jour. Paleont.,* Vol. 14, pp. 451-467.

Williston, S.W., 1903, 'North American plesiosaurs. Part I', *Publ. Field Columbian Mus., Geol. Ser.,* Vol. 2, pp. 1-77.

Williston, S.W., and Moodie, R.L., 1913, 'New plesiosaurian genus from the Niobrara Cretaceous of Nebraska [sic] (Abstract)', *Bull. Geol. Soc. Amer.,* Vol. 24, pp. 120-121.

Williston, S.W., and Moodie, R.L., 1917, *'Ogmodirus martinii,* a new plesiosaur from the Cretaceous of Kansas', *Kansas Univ. Sci. Bull.,* No. 10, pp. 61-73.

Woodward, H.B., 1893, *The Jurassic Rocks of Britain,* Vol. 3, 'The Lias of England and Wales', Memoir of the Geological Survey of Great Britain.

Dinosaur Footprints in the Purbeck Limestone Group (?Upper Jurassic - Lower Cretaceous) of Southern England

P C ENSOM, THE YORKSHIRE MUSEUM, YORK, YO1 2DR.

ABSTRACT

Together with skin impressions, feeding traces, gastroliths, coprolites and egg-shell remains, footprints and rare tail drags are one element of the trace fossil set now associated with dinosaurs. Within the Purbeck Limestone Group dinosaur tracks have been long known, though the full value of these 'dynamic trace fossils' has even now to be fully realised. Previous discoveries and work are reviewed. The stratigraphy and distribution of the Purbeck Limestone Group in Dorset upon which this paper is based is briefly considered along with the palaeoenvironments represented.

Footprint distribution is discussed in relation to both their formation and the preservational and observational opportunities provided by the distribution, and exposure of the Purbeck strata. Their stratigraphic distribution, both vertically and laterally, is examined in the light of the different lithologies present in the Purbeck Limestone Group. The problems of footprint recognition within lithologically homogeneous sequences is identified as an area of potential weakness in footprint studies.

Consideration is given to the value of these trace fossils in interpreting environments. The problem of deducing what species may have been present is highlighted with examples from two major sites excavated during the 1980s. The evidence from these and other trackway sites can be used to provide information on aspects of dinosaur biology which skeletal remains do not provide.

The appendix provides a major catalogue and index of the Lower Cretaceous (Purbeck Limestone Group and Wealden) dinosaur, and other vertebrate, footprint fossils from Dorset. While principally a Catalogue of the literature citations, it includes specimens held by museums etc. In addition there are references to photographs of specimens and information recorded during conversations between quarry owners and others and the compiler. This brings together a wealth of information, some previously unpublished, with the aim of providing a firm foundation and springboard for further studies.

1. INTRODUCTION AND PREVIOUS WORK

The value of dinosaur trackways has been increasingly appreciated in recent years and has been marked by the publication of volumes such as those edited by Leonardi (1987) and Gillette and Lockley (1989) and books by Thulborn (1990) and Lockley (1991). In addition there has been a rise in the number of papers dealing with footprint discoveries and the organisation of symposia to further this field of research.

In the absence of skeletal remains they may provide the only evidence for the presence of dinosaurs. With careful interpretation they may assist in identifying what groups of dinosaurs were present, elucidating aspects of their biology and especially their biomechanics. They are a valuable indicator of palaeoenvironment. They have the potential to be used alone, or in conjunction with other data, for basic correlation and may aid our understanding of the palaeogeography of a region.

Dinosaur footprints have frequently been recorded from the Purbeck Limestone Group. The earliest record was made by Samuel Beckles (1854, footnote on p.456) who alluded to a specimen of Purbeck Limestone at the Geological Societys premises in London with two large, 'trifid, pachydactylous footprints, ... , each 12 inches in length.' Interestingly he notes that the surface [=?undersurface][1] is covered with coarse fucoidal(?) markings [=burrows] a description which suggests the undersurface of DB 103 of Clements (1993). Damon (1884) also refers to this specimen.

Seven years after Beckles' first report, the Minutes of the Purbeck Society (Report of the Committee for 1861) record: 'We have also accidentally met with two specimens of footprints upon slabs of stone from the Corbula Beds [Middle Purbeck Beds] in Durlestone [*sic*] Bay. One had been built into the sea wall in Swanage Bay and was the property of Mr Mowlem who has most kindly had it removed, and presented it free of all expense to the [Corfe Castle] museum [of the Purbeck Society]. The other (from the same rock) was observed lying near the pier'. These specimens are presumably those referred to by Mansel-Pleydell in 1896, p.115.

Numerous other records exist for footprint discoveries made between this time and 1980. Accounts of these are given in Calkin (1933), Charig and Newman (1962), Delair (1960, 1963, 1966 & 1982), Delair and Brown (1975), Delair and Lander (1973), and Walkden & Oppé, (1969). A history and bibliography of footprints in the British Isles by Sarjeant (1974) and a supplement by Delair and Sarjeant (1985) covering the years 1973 - 1983 provide useful reviews of the literature. In an account of the bivalve shell beds and their diagenesis El-Shahat and West (1983) used the Delair and Lander (1973) paper to show the distribution of footprints against Clements' (1969) section of the Purbeck Limestone Group in Durlston Bay. This distribution drew heavily upon inland sites and assumed their successful correlation with the coastal stratotype. A comprehensive listing of published accounts of vertebrate trace fossils was given in Thomas and Ensom 1989.

The appendix attempts to catalogue, cross reference and index certain key information on all material cited in the literature and some which is not published. The result is a reference set which will inform future researchers which footprints and trackways have been referred to, where and when, whether there are published photos/descriptions and where specimens are now located. It also illuminates some inconsistencies which have inevitably crept into the accounts and an attempt to clarify them is made. A full explanation appears with the appendix.

2. THE PURBECK LIMESTONE GROUP

2.1. Stratigraphy

The type section of the Purbeck Limestone Group has been redescribed by Clements (1993) and his stratigraphic nomenclature is used here. Casey (1963) had suggested that the Dorset succession spanned the Jurassic - Cretaceous boundary. The Cherty Freshwater Member at the top of the Lulworth Formation was regarded as Jurassic (Tithonian), and the Cinder Member as the basal unit of the Cretaceous Durlston Formation (Berriasian) (Cope *et al.* 1980). Allen and Wimbledon (1991) considered that this boundary required reassesing, probably being placed much lower in the sequence, just above the Portland Limestone Formation. Charophyte evidence supports this conclusion (Lake and Shephard-Thorn 1987 and Chris Wood pers.comm.)

Numbers prefixed DB (= Durlston Bay) and WB (= Worbarrow Tout) are the bed numbers of Clements 1993 and Ensom 1985 respectively.

[1] [ ] indicate author's interpretation.

2.2. Distribution

West of Durlston Bay parts of the succession are exposed in inland quarries. In the past limestones were extracted from many horizons for very varied uses (Hutchins 1861, Austen 1852 and Arkell 1945). With the advent of pre-cast concrete and mass produced pipe-clay products, the diverse range of products from this local industry has declined. This has led to the working of relatively fewer horizons which has in turn restricted the opportunity for the study of the Purbeck Limestone Group at inland sites. The majority are now opened to remove the commercially valuable limestones of the Middle Purbeck Beds and especially the 'Freestone Vein' of the Intermarine Member.

Quarries are rare west of a line from Harmans Cross to Worth Matravers. Coastal exposures are present between Worbarrow Tout (Ensom 1985) and Lulworth. Further west the strata are present, though generally poorly exposed, along the southern flank of the Ridgeway from Ringstead westwards to Friar Waddon. To the south, on Portland, the Lower Purbeck Beds are present and residual blocks of a former cover of Middle Purbeck Beds are recorded in the drift deposits (West *et al.* 1969).

2.3. Palaeoenvironment

The Purbeck strata comprise a sequence of clays, shales and limestones deposited in a range of environments from marginal-marine to freshwater. Palaeosalinities were reviewed by Allen and Keith (1965), and the palaeoecological significance of the bivalves by Morter (1984). Bivalves and other fauna recognized as being polystenohaline species are known from the Cinder and Scallop Members (Kelly 1983, Ensom 1985b,c,d).

Platt and Pujalte (1994, p.722) consider environmental models for the deposition of the "'Purbeckian' marginal marine carbonate rocks" of western and central Europe. One analogue is the Florida coast and the Everglades and the other a more arid environment juxtaposed to freshwater marshlands as in southern Iraq. Climatic conditions for the lower part of the sequence are known to have been arid at times with sabkha deposits forming (West 1975). Studies by Francis (1983, 1984 & 1986) of basal Purbeck sediments and in particular, analysis of growth rings in fossil conifer wood, indicates that the climate was strongly seasonal. Support for this comes from evaporite pseudomorphs associated with a freshwater flora and fauna recorded in the Great Dirt Bed at Portesham (West 1975) and in WB114 (Ensom 1985). Andrews (1986) also suggested that during the deposition of the Corbula Member, 'Middle' Purbeck Group, there were periods of aridity, probably of a seasonal nature.

Mudcracked sediments (not synaresis cracks which are subaquatic dewatering cracks) provide unequivocal evidence for periods of subaerial exposure with dessication and are frequently encountered in parts of the sequence (Ensom 1985). Occasionally footprints are associated with them. There are many footprint horizons which lack any evidence of subaerial exposure but where the water must have been sufficently shallow for some dinosaurs, if not all, to remain in contact with the sediment water interface. Swimming traces have not been recorded.

3. FOOTPRINT DISTRIBUTION IN THE PURBECK LIMESTONE GROUP

3.1. Footprint types

A vertebrate walking on unconsolidated sediment will have a variety of effects on that sediment. The pressure applied to the surface through the fore and hind limbs will compact and displace the sediment both at the surface and not unusually to a depth of several centimetres. Bedding-planes may be deformed in this way (Walkden and Oppé 1969). In addition claws may rupture sediment layers and bedding-planes and so permit sediment to move to the surface through these perforations. A poorly consolidated 'soupy' sediment may permit partial or complete penetration of sediment layers below the surface by the *pes* or *manus* (see 4.1).

The terminology used to describe footprint fossils is varied. In the context of this paper the terms *primary mould/cast*, and *transmitted mould/cast* (or *mould/cast* if undifferentiated) are used. 'Transmitted' is applied to those footprints which result from the distortion of sediments and bedding planes below the surface upon which the dinosaur walked as previously used by Ensom (1982 and 1983, Cat.No.50).

3.2. Observational considerations

Our knowledge of the distribution of footprints is the sum of decades of field observation limited by exposures of these strata and being in the right place at the right time.

The potential for recognizing footprints is very variable, e.g. moulds on upper surfaces (bedding planes) and casts on lower surfaces (overhangs/fallen blocks), and may even depend on the time of day and weather conditions when an outcrop is visited. To see a particular bedding plane lit by the sun at a low angle can be very enlightening. Equally, pools of water in shallow footprints on an horizontal surface may reveal the unexpected.

Of significance is the geometry of the Purbeck depositional basin where tectonic controls on sedimentation included east-west trending structures (Melville and Freshney 1983 and House 1989). The South Dorset and Cornubian Highs were emergent areas postulated both to the west and probably to the north of Dorset (Bradshaw *et al.* 1992, J11d, p.129). The Purbeck sediments reflect this, thinning significantly to the west from 119.8 m at Durlston Bay (Clements 1993) to 77.47 m at Worbarrow Tout (Ensom 1985). As the outcrop converges with the Isle of Purbeck Disturbance/fold axis in a westerly direction we should be provided with an opportunity to examine both the westward and ?northward thinning of strata across the sedimentary prism and therefore the distribution of dinosaur footprints across the basin. In fact observational potential is reduced due to increased angle of dip and consequent reduction in quarrying potential (Text fig. 1).

3.3. Preservational considerations

The greatest opportunity for footprint discovery occurs where mudrocks interface with overlying carbonate. Depending on the grain size of the casting sediment (eg. micrite versus biosparrudite) there will often be enhanced potential for the preservation of details of the morphology of the *pes* and *manus*. Footprints made on medium to coarse grained carbonate sediments will generally be less deeply impressed and reveal less morphological detail.

Footprints made within (ie. during the deposition of) homogeneous mudrocks and micrites are less likely to be recognized in the course of field-work. Deposits of poorly consolidated argillaceous sediment over a certain thickness probably would have been an effective environmental barrier to dinosaurs.

Sediments, especially argillaceous ones, were affected by subaquatic dewatering or subaerial drying. In addition, El-Shahat and West (1983) described early lithification of aragonitic bivalve shell beds in the supratidal zone. Early lithification would have reduced the potential for sediment compaction by dinosaurs.

Walkden and Oppé, (1969 p.29) suggest that for any one species 'there would be a critical footprint size below which none [footprints] would be found' this being dependent 'on the relationship between foot size and body weight'. In fact the depth of impression is a function of the propagators weight and foot size in relation to the physical properties of the sediment upon which it is moving, ie. the degree to which a sediment can be compacted or deformed by the given weight.

Walkden and Oppé, point out that for a footprint of *Iguanodon*, 6 - 7 ins is the normal minimum size, in keeping with the other footprint types they recognize. While accepting that this may be a general rule, there is no doubt that very small footprints can be made and survive, eg. the tracks described from the Intermarine Member (Ensom 1994, see appendix, Cat.Nos 131 and 132) where individual prints had a maximum dimension of 80 mm.

Also at work are destructive processes such as synsedimentary reworking and erosion which may modify or destroy primary moulds and/or casts. Transmitted casts and moulds may escape these processes. The implications of this are clear and highlight the need for accurate identification of primary and transmitted footprints.

The first occurrences of footprints in the Purbeck Limestone Group are at a similar stratigraphic level within the Cherty Freshwater Member across the Isle of Purbeck and may be no more than a reflection of a lithological change which provides the ideal mudrock/carbonate combination for preservation. Within the Cherty Freshwater Member there is an increase of shell biosparrudites, biosparites and biomicrites interbedded with clays and shales. This follows a sequence which consists predominantly of shales, calcareous shales and argillaceous micrites (Soft Cockle, Marly Freshwater and lower part of Cherty Freshwater Members). The former lithologies enhance the chances of preservation and hence observation.

Are the presence of footprints at certain sediment interfaces significant? The nature of the sediment will be a response to closely related factors such as tectonism, variations in water depth with emergence or isolation of the sedimentary basin and both long term and seasonal climate change in addition to exceptional events. The presence or absence of dinosaurs may be a response to these factors rather than the preservational opportunities created by sediment type.

3.4. Stratigraphic distribution

In the literature, the lowest stratigraphic occurence in the Purbeck strata is recorded by Mansel-Pleydell (1896, p.122) who states that 'Mr Hardy of Swanage tells me that he has seen similar footprints in the Lower Purbecks ...'. None of the specimens in museum collections which the writer has examined can be assigned to the Lower Purbeck Beds and to date I have not found any footprints in the Lower Purbeck Beds. The record of a footprint from the Lower Purbeck Beds of Worbarrow Tout (Delair and Brown 1975) was reassigned to the Middle Purbeck Beds (Ensom 1982a,1983a, West and El Shahat 1985), ie WB 121 of Ensom (1985)(Cat. No. 51).

During the summer of 1994, Dr Jane Francis discovered a trackway in the transitional strata of the top Portland Limestone Formation\basal Purbeck Limestone Group on the Isle of Portland (J Francis pers.comm.). Arguably this exciting new discovery could be seen as the earliest evidence of dinosaurs within the Purbeck Limestone Group.

The first appearance of dinosaurs within the Purbeck strata may be climate-related. The work of West (1964, 1965, 1975) has shown that evaporites were deposited in the basal Purbeck strata. The Broken Beds Member is considered to be the product of the contortion and brecciation of evaporites and adjacent strata (West 1975) and there is ample evidence of strongly evaporating conditions in the Cypris Freestone and Soft Cockle Members. The latter Member contains massive gypsum and numerous bands of altered evaporites. Though reptiles today inhabit an extraordinary range of environments including arid ones, the possibility that lack of freshwater and high temperatures during deposition of the Lower Purbeck Group may have been a significant deterrent to dinosaurs cannot be ruled out.

Bearing this in mind, the first appearance in the Marly Freshwater Member of a fauna equated with freshwater conditions which continues up into the Cherty Freshwater Member (Clements 1969) where the first dinosaur tracks are at present recorded may be no more than coincidence. These lowest occurences of footprints are recorded in the Cherty Freshwater Member in Durlston Bay (DB93/94 Ensom 1984) (Cat. Nos. 100 and 101) and at Worbarrow Tout footprints have been recorded from WB113/114 (Ensom 1985a and 1987a) (Cat. Nos. 113 and 113a) (Text fig. 2). At the latter location I have suggested that sauropod tracks may be present at this horizon along with tridactyl prints of a bipedal dinosaur. Delair and Lander (1973, fig.2) record footprints from the slightly higher New Vein (≡ DB 101)(Cat. Nos. 90 and 94) of the Cherty Freshwater Member in quarries around Gallows Gore near Langton Matravers (see appendix,

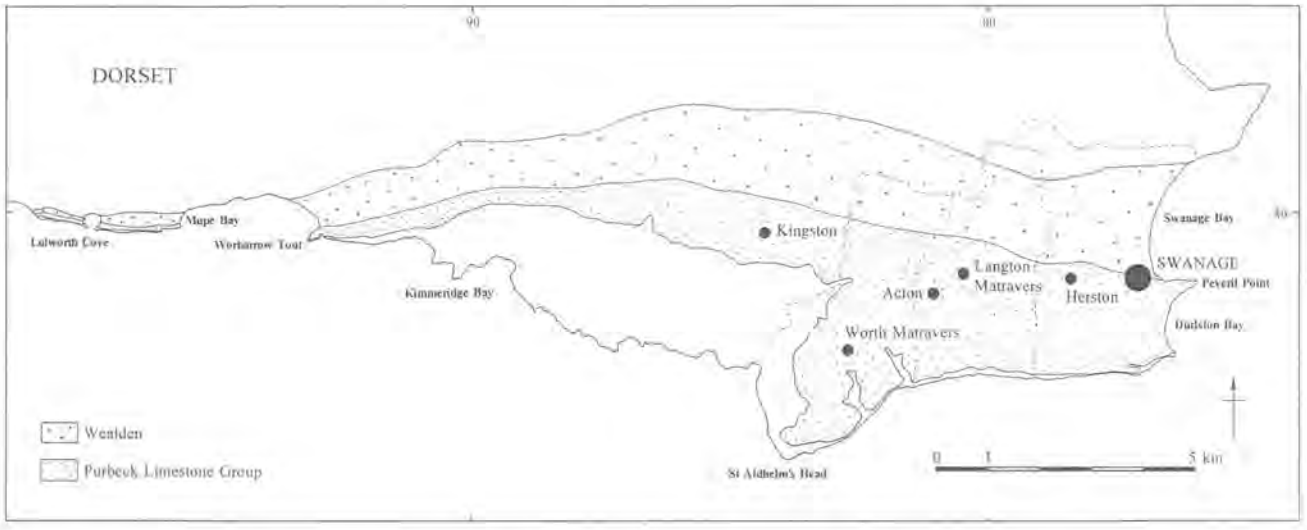


Figure 1. Distribution of the Purbeck Limestone Group (and Wealden) across the Isle of Purbeck, Dorset. Note the broad outcrop of Purbeck strata in the area east of a line from Kingston to St Aldhelm's Head. Here these strata form an almost horizontal plateau before dipping more steeply to the north below the Wealden. Settlements identified are, with the exception of Kingston, those where quarrying has been a significant industry. The parish boundaries of Swanage, Langton Matravers and Worth Matravers are shown to provide an insight into the way in which quarry localities have been described in the literature. The geological information is reproduced by kind permission of the Director, British Geological Survey.

Cat.Nos.90 & 94). Only slightly higher is the DB102/3 = WB116/117 horizon which has yielded a varied fauna of both trace and body fossils (see 4.1.below). This first record of footprints within the sequence is noteworthy for being relatively species/morph-rich, whereas higher in the sequence within the Intermarine Member, where footprints are relatively prolific, the fauna seems to be less diverse. Of course numbers of prints and diversity may be a function of exposure time. The longer a surface is available to be walked on, the more footprints may be made by a more diverse range of species, though drying of sediment will reduce that potential especially for the smaller and lighter animals (see 3.3 above).

The highest recorded footprints prior to 1980 were from the Upper Purbeck Beds near the Coastguard Station (Ord 1913)(Cat. No. 133)) and at Peveril Point (Sarjeant 1974)(Cat. No. 37). A large primary mould was also recovered from the Upper Cypris Clays and Shales Member near Harmans Cross in 1985 (Ensom 1986)(Cat.No. 124).

The distribution of footprints presented here is based principally on my observations since 1981 (Ensom this volume). At Durlston Bay 9 horizons (in 45 m) have yielded footprints, at Worbarrow Tout 10 horizons (in 25 m) are recognised and in the area between Swanage and Kingston 12 horizons are recorded. I believe that there are likely to be many undescribed footprint horizons between the lowest and highest occurences so far recorded as also suggested by Sarjeant (1974). This should be kept in mind when assessing what follows. Text fig. 2 shows the distribution of footprints and their lithological signature, ie. whether they appear as moulds on a limestone surface, or are cast by a limestone overlying argillaceous sediment.

3.5. Lateral distribution

Beds DB121 - 125 of the Intermarine Member are equated with the 'Freestone Vein' of the inland quarries around Swanage, Herston and Langton Matravers (El-Shahat and West 1983). Many trackways have been recorded from these strata (Delair and Lander 1973 and this paper, Appendix). The equivalent strata in Durlston Bay contain similar traces. While the area covered may be in the region of 4-5 sq km, it has not been possible unequivocally to correlate these strata with the section at Worbarrow Tout.

The footprint horizon of Bed DB102/3 has been shown to contain footprints in Durlston Bay (Ensom 1984 and Nunn 1990), in quarries at Gallows Gore (Ensom 1987 & 1988) and at Worbarrow Tout (Ensom 1984), a strike exposure of 16 km (Kielan-Jaworowska and Ensom 1992). This is the most laterally extensive footprint-bearing horizon recognized in these strata so far and occurs within a part of the sequence which shows remarkably little variation in thickness between Durlston Bay and Worbarrow Tout.

The writer is not aware of any confirmed footprints occurring in the Purbeck strata east of Worbarrow Tout. Whether any significance can be attached to this apparent absence of footprints is debatable. Exposure cannot be blamed as westerly coastal exposures are good. The Purbeck Limestone Group thins slightly between Worbarrow (77.47 m, Ensom 1985) and Mupes Bay/Bacon Hole (77.1 m, Melville and Freshney 1982), although the lithology of many of the individual members are less easily matched than between Worbarrow and the more distant and still thicker sequence at Durlston Bay. West of Mupes Bay the thinning is more rapid. These changes are apparent in the lowest beds where the 'fossil forest facies' of Lulworth are absent at Worbarrow Tout which stood on the edge of the lagoonal facies to the east (Francis pers.comm.).

4. THE VALUE OF FOOTPRINT FAUNAS

The importance of footprint faunas has been well documented by Sarjeant (1975), Thulborn (1990) and Lockley (1991). For example, they may provide information on faunal composition, dinosaur populations, on morphology, movement and behaviour, and the nature of the sediment upon which they were walking.

4.1. Faunal implications

Unlike the Wealden of the Isle of Wight where dinosaur trackways and their remains are both abundant, in Dorset there is a paucity of dinosaur remains within the Purbeck Limestone Group. In such a case the trackways do at least offer firm evidence for the existence of dinosaurs during a substantial part of this period, and that they were living in or moving through the area. Skeletal remains do not provide unequivocal evidence for the presence of dinosaurs in an area as they may be washed in from some distance away.

The following have been recorded:

Echinodon (Thyreomorpha *cf. Scutellosaurus*) (Owen 1861, Galton 1981, Ensom *et al.* 1994). DB 83, and ≡DB 102.

Iguanodon hoggii. (Owen 1874). DB 107 & 108.

Megalosaurus sp. (Delair 1959).

Nuthetes destructor (?=*Megalosaurus*). Owen 1861, Owen 1871, Galton 1981, Ensom *et al.* 1994). ?DB 110, and ≡DB 102.

Nodosaurid ankylosaur. (Galton 1980). Dirt Bed of the Lower Purbeck Beds.

Figure 2 carries details of their distribution.

The association of footprints and tracks with particular species of dinosaur is notoriously difficult. Observation of trackways by the writer has shown marked differences in trace morphology at different points along the same track, even over very short distances. A probable sauropod track at Sunnydown Farm (see below) shows extreme variation over a relatively short distance (Ensom 1988 fig.2)(Cat. No. 125). *Manus* prints are preserved as almost imperceptible crescent-shaped primary casts at one point but become substantial primary casts on the underside of the limestone pavement, and then detached crescentic pods (=?penetration casts, where the animals limb has penetrated to a lower level leaving a detached trace fossil), over a distance of only 8 m. Over the same distance the casts of the *pes* prints are seen to show 3 reasonably distinct digits where slightly impressed, but 5 digits in the more deeply impressed prints. Trackways exposed at Townsend Road (Ensom 1982)(Cat No. 50) also revealed remarkable variation along what was interpreted as one trackway made by a bipedal, tridactyl, dinosaur. Surface traces ranged from barely impressed moulds with broad digits and rounded outlines similar to those on Worbarrow Tout (assigned to an Iguanodont, Delair 1982, p.67) to more deeply incised and ?megalosaurid-like (Ensom, personal observation). Distinguishing between primary (natural) moulds and casts and those produced by transmission or penetration (see 3.1) is essential if any serious attempt is to be made at identifying footprint makers.

Within the Purbeck Limestone Group the majority of tracks are of tridactyl (three toed) prints. *Iguanodon* and, more recently, *Megalosaurus* have been suggested as producers (see review of Delair and Lander 1973). Sauropods are thought to have made trackways (Cat. No. 125) at Sunnydown Farm (Ensom 1987, 1987b & 1988, Thulborn 1990, Lockley 1991) and possibly their tracks at two horizons at Worbarrow Tout (Ensom 1987a)(Cat Nos 113, 113a, 127). The former site has examples of at least 3 other tridactyl footprint types, the richest footprint fauna at any single horizon or locality that the writer has recorded within the Purbeck strata. This horizon has also yielded a diverse and abundant microvertebrate fauna (Ensom 1988, Ensom *et al.* 1994, Kielan-Jaworowska and Ensom 1992 and 1994, Sigogneau-Russell and Ensom 1994).

Further work is required on the provision of a simple classificatory system for footprint description. This would enable workers to apply an identification based on footprint

morphology. This would provide better quality information and reduce the temptation of simply placing tracks into the 'iguanodont/megalosaurid' bracket each time.

Particular associations of dinosaur tracks and sediments may be pointers to environments in which microvertebrates are preserved, eg. the occurence of the microvertebrate-rich clays at Sunnydown Farm at an horizon where dinosaur tracks are varied and abundant.

4.2. Behavioural implications

Assuming that the sediment upon which dinosaurs moved was deformed sufficently to record their presence and that the

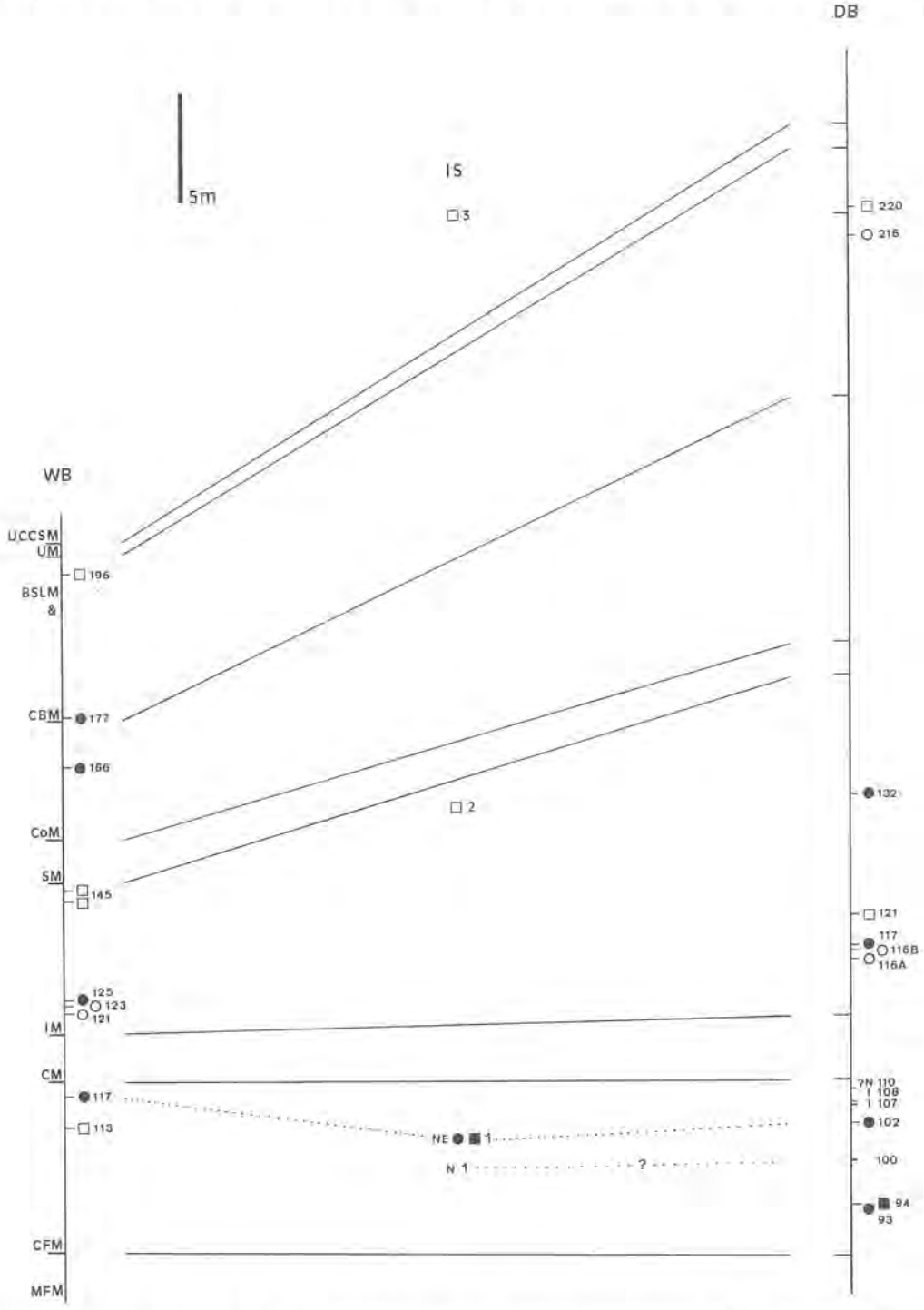


Figure 2. Footprint horizons recorded by the author since 1981 (see Ensom this volume). **WB** = *Section at Worbarrow Tout after Ensom 1985;* **IS** = *Inland sections: 1. Quarries at and in vicinity of Sunnydown Farm; 2. Townsend Road, Swanage; 3. Temporary exposure at Woodyhyde near Harman's Cross.* **DB** = *Section in Durlston Bay after Clements 1969 & 1993.*
● *F/P on clay/shale with carbonate above.* ○ *F/P on carbonate with clay/shale above.* □ *F/P within carbonate.* ■ *F/P on/in carbonate trodden down into clay/shale.*
Dinosaur remains: **N** = **Nuthetes**; **E** = **Echinodon**; **I** = **Iguanodon**. *In addition* **Megalosaurus** *sp.(Delair 1959) and a nodosaurid ankylosaur (Galton 1980) are recorded from the Purbeck Limestone Group of Dorset.*
Stratigraphic abbreviations: **MFM** *Marly Freshwater Member;* **CFM** *Cherty Freshwater Member;* **CM** *Cinder Member;* **SM** *Scallop Member;* **CoM** *Corbula Member;* **CBM** *Chief Beef Member;* **BSLM** *Broken Shell Limestone Member;* **UM** *Unio Member;* **UCCSM** *Upper Cypris Clays and Shales Member.*

trackways then survived as part of the rock record, that record, which we now glimpse by constantly monitoring cliff exposures and the 'key-hole surgery of quarrying', can give us a valuable insight into aspects of the biology of an extinct group of reptiles which achieved world domination for over 100 million years.

Despite the attempts of the press to have us believe otherwise, the finds at Townsend Road (Ensom 1982) did not tell of a giant lizard fight (Anon 22.08.1981), neither did they provide evidence for the dinosaurs' graveyard of Regan (1981) in Swanage Bay (see also Ensom 1981 and Delair and Sarjeant 1985). However, we may have come closer to finding evidence for the British Associations 1987 demonstration by the late Bev, and Jenny Halstead of the 'The dinosaurs romantic entanglements' (Anon 1987). Delair (1963, p.100) reported a circle of footprints 'with footprints of similar type promiscuously disposed near it'! (see appendix, Cat.No.83).

Trackways do have the potential to surprise as at Townsend Road (Cat. No. 50) where both a jump and very sudden change of direction were recorded (PCE pers. obs. and Thomas 1981 for the former). Trackways provide the means for estimating speed (eg. Alexander 1976, Lockley *et al.* 1986) and individual or group behaviour. An example of the former was the preliminary calculation of the speed of the Sunnydown Farm sauropod. Using the formula of Alexander (1976) modified by Lockley *et al.*, (1986, Tab.1, p.1172) where $v = 0.25g^{0.5}.\lambda^{1.67}.h^{-1.17}$. (where v = speed in metres/second and h = hip height = 2.4 m) we find that the Sunnydown Farm sauropod was moving at around 3.75 km/hour, falling within the range of speeds given for *Diplodocus* by Thulborn 1990, Tab.10.3) but slower than those presented by Lockley *et al.* (1986, Tab 1, p.1172). Dinosaur tail traces are extremely rare in the Purbeck strata. At Townsend Road, Swanage (Ensom 1982), the earliest trackway on the site was made before the sediment surface had dried out. For much of the length of this trackway, a thin sinuous groove connected each footprint. Two other tail traces are recorded (see appendix, Cat.Nos.144 & 145).

The equivalent of the Queensland dinosaur stampede site (Thulborn and Wade 1984) where a mixed group of dinosaurs (estimated at 150) seems to have run off in one direction to escape from a much larger carnosaur has yet to be discovered in Dorset. However, as can be seen in the appendix, there are already substantial numbers of records for tracks and their directions. A standard approach for recording them would be helpful, especially where folded strata (eg Worbarrow Tout) has introduced a distortion so that the dip has to be taken into account and the footprint or the trackway returned to the horizontal. Clearly the value of directional information taken from the long axis of a single footprint is not as great as that derived from a trackway, nevertheless the accumulated data will at least permit the recognition of patterns or trends.

4.3. Sedimentological and environmental implications

Footprints have the potential to provide sedimentological information. Walkden and Oppé, (1969) give an excellent account, based on observation of the Purbeck strata, of the nature and mode of formation of Purbeck footprints. The degree of sediment deformation associated with the trackways is related to sediment type and water content. Walkden and Oppé, (1969) point out the importance of there being sufficient body weight to cause sediment deformation (see 3.3.).

In the case of shell beds, El Shahat and West (1983) suggest a possible correlation between dinosaur footprints and a supratidal environment where shell accumulations were subjected to early cementation from meteoric waters while at the same time were prone to the trampling effects of dinosaurs. Examination of early cements around shell framents trampled by dinosaurs may reveal the relative timing of trampling and cementation. Conversely, the shell beds which were laid down in the relatively deeper waters of the Purbeck lagoon were cemented later, if at all, and consequently suffered greater compaction. These sediments might be expected to contain relatively few dinosaur tracks because of their depositional, environmental or consequent diagenetic history.

Replication of footprints below the original surface by a process which I prefer to call transmission is referred to in sections 3.1 and 3.3 above. The process is discussed by Walkden and Oppé, (1969).

Footprints within a sequence permit conclusions to be drawn regarding environments when the footprints were left; this was demonstrated by West (1988) for the sediments at Sunnydown Farm. Locally or regionally the sedimentary basin must have been subsiding in order to preserve these trace fossils. The sediment was either exposed (dessication cracks are common at many horizons) or covered by relatively shallow water. The association of tracks with mudcracks where both concentric ring-fractures around footprints of one trackway (pre-dessication tracks) and footprint-distorted fractures (post-dessication tracks) on another trackway on the same bedding plane at 19 Townsend Road, Swanage, (pers. obs.) is good evidence of a transition from wet to dry environments and movement on different occasions. Thulborn (1990) gives a useful review of traces of swimming dinosaurs. Such traces have recently been reported from the Middle Jurassic (Ravenscar Group) of the North Yorkshire coast (Romano and Whyte pers. comm.) but none have been recorded in the Purbeck strata.

There are good environmental grounds for suggesting that the late or non-lithification shell beds 'low on the "tidal" flats which were not raised appreciably above the lagoon water level' (El Shahat and West 1983, p.37) would be the most likely prospect for swimming traces, assuming that any survived the aggressive processes of burial and diagenesis.

4.4. Palaeogeographical implications

As the marginal marine Purbeck Limestone Group follows the fully marine Portland Stone, the first appearance of these trace fossils is of palaeogeographic and palaeoenvironmental significance. Prothero and Estes (1980) and Galton (1981) discuss the probablity of land bridges existing between the USA and Western Europe at the close of the Jurassic/early Cretaceous. Within Europe, Platt and Meyer (1991) record sauropod remains and ?ornithopod dinosaur footprints within the Berriasian Rupelo Formation, Tierra de Lara Group, of the Cameros Basin of Northern Spain. Platt and Pujalte (1994) use charophyte assemblages to suggest a correlation between freshwater carbonate sequences of the Cameros Basin and those of southern England, ie. the Purbeck Limestone Group. Our increasingly detailed knowledge of the faunas and floras of these regions, should help elucidate these issues.

5. CONCLUSIONS

The remarkable concentration of these trace fossils within Dorset (the site is probably one of the three richest dinosaur trackway sites in the UK), in a terrestrial - marginal marine sequence and the excellent opportunities for further discoveries both along the coast and at inland sites provides an unprecedented opportunity for further research. Their presence within an essentially carbonate and clay/shale sequence provides a valuable contrast for work being undertaken in North Yorkshire, by a research team based at Sheffield University, where the sequence consists of sand sheets and mudrocks laid down in an alluvial environment along a coastal plain during the Middle Jurassic.

Howse and Milner (In press) draw attention to the significance of the vertebrate fauna of the Purbeck Limestone Group. '.... the Purbeck fauna is becoming one of the richest mid-Mesozoic continental tetrapod assemplages known, comparable to those of the Late Cretaceous of North America

and Mongolia.' They go on to point out that the existence of such a diverse fauna within a restricted range of strata and in a discrete geographical area is likely to represent a genuine fauna of coexisting vertebrates. The footprint fauna provides evidence of missing fauna (no sauropod remains have yet been found) and tangible support for their thesis.

The continuing and detailed recording of vertebrate traces, especially of dinosaurs, in the late Jurassic- early Cretaceous Purbeck Limestone Group has an important role to play in our understanding of these strata and aspects of dinosaur biology. The successful application of footprint studies will require accurate identification and recording of footprint types.

I have pointed to gaps in the record within the Purbeck Limestone Group and suggested why traces of these animals may not have been found. This should be regarded as a challenge. Serious efforts need to be made to fill the gaps and to show that suggestions that basin geometery, climate etc. may have been significant are irrelevant. As my own work has shown, there are abundant horizons waiting to be identified; the need is for eyes to watch for them and the ability to recognise them when they see them.

ACKNOWLEDGMENTS:

I am very grateful to Professor Perce Allen who encouraged me to develop an earlier version of the paper. The catalogue has been inspired by the compilations of Sarjeant and Delair, and the desire to integrate and rationalise the wealth of information available from different sources.

The author owes much to the kindness and patience of a great many individuals who have answered enquiries by letter or 'phone or who have shared their own knowledge of the Isle of Purbeck, its quarries and footprint discoveries, over the last 13 years.

They include the following quarry and footprint site owners: H. Bonfield, R.R. (Bobby) Cobb, the late W.J. Haysom, W.T. Haysom, Mr Hayward, K. Keates, Mr & Mrs R. Notley, S. Paine, D. Selby, and the Commandent and staff of the RAC Gunnery School at West Lulworth who provided access to coastal sections in their care. Museum staff and researchers : A.T. Batty, Mrs M. Bennett, Ms Jo. Chaplin, Ms S. Chapman, Dr N.D.L. Clark, Mrs V.E. Copp, A. Cross, J.B. Delair, Miss V. Dicker, Ms K. Hebditch, Dr K. Ingham, J. Lockett, P. Manning, J. Martin, D. Mellor, Dr A Milner, Dr P.J. Osborne, Dr Paton, G.D. Phillips, H.P. Powell, D. Shearer, D. Smale, Dr P. Smith, Dr M.A. Taylor, C.A. Walker, Dr C. Waterston and F.R. Woodward. In addition the following have contributed in various ways, Dr J. Alexander, Mrs C. Brown, D. Sole, Bunny Teagle, Mrs J. Thomas, R. Tarr, M. Turnbull and K. Woodhams.

A. Wild hand printed numerous record cards which provided the basis of the catalogue presented in the appendix. Justin Delair, Dr Jane Francis and Professor Michael House read drafts of this paper I am very grateful to them for providing constructive criticsms.

Figure 1 is based on Geological Survey Sheet 343 and part 342 Swanage, 1:50,000, and is reproduced by permission of the Director, British Geological Survey: NERC copyright reserved.

I acknowledge with gratitude the financial support of the Sylvester-Bradley Fund of the Palaeontological Association when I first embarked on this work. Finally, I pay tribute to my family who have coped with my absences and tunnel vision while this paper and catalogue were being completed.

REFERENCES:

Alexander, R.McN., 1976, Estimates of the speeds of dinosaurs, *Nature*, Vol. 261, pp.129-30.

Allen, P. and Keith, M.L., 1965, Carbon isotope ratios and palaeosalinities of Purbeck-Wealden carbonates, *Nature*, Volume 208, pp.1278-1280.

Allen, P. and Wimbledon, W.A., 1991, Correlation of NW European Purbeck-Wealden (non-marine Lower Cretaceous) as seen from the English type-areas, *Cretaceous Research*, Volume 12, pp.511-526.

Andrews, J.E., 1986, Algal laminae with calcite pseudomorphs after gypsum from the Middle Purbeck of Durlston Bay, Dorset, *Dorset Proceedings*, Volume 107, pp. 187-189.

Anon, 1862, [Review of] On some natural casts of footprints from the Wealden of the Isle of Wight, and of Swanage, by S H Beckles, *The Geologist*, Volume 5, pp.310-311.

——— 1957, Monster finds in Purbeck, *Swanage Times*, Swanage. 31.07.1957.

——— 1962, The slow march of a Purbeck Iguanodon, *New Scientist*, Volume 271, p. 186.

——— 1981, Builder digs up giant lizard fight, *Daily Mail*, 22.08.1981.

——— 1987, The dinosaurs romantic entanglements, *The Independent*, 29.08.1987.

Arkell, W.J., 1945, The names of the strata in the Purbeck & Portland stone quarries, *Dorset Proceedings*, Volume 66, pp.158-168.

Austen, J.H., 1852, *A guide to the geology of the Isle of Purbeck and the south-west coast of Hampshire*. Blandford.

Beckles, S.H., 1854, On the Ornithoidichnites of the Wealden. *Quarterly Journal of the Geological Society of London*, Volume 8, pp.456-464.

——— 1862, On some natural casts of reptilian footprints in the Wealden Beds of the isle of Wight and of Swanage. *Quarterly Journal of the Geological Society of London*, Volume 18, pp.443-447.

Bradshaw, M.J., Cope, J.C.W., Cripps, D.W., Donovan, D.T., Howarth, M.K., Rawson, P.F., West, I.M. and Wimbledon, W.A., 1992, Jurassic. *In* Cope, J.C. W., Ingham, J.K. and Rawson, P.F., (Eds) *Atlas of Palaeogeography and Lithofacies*. Geological Society of London, Memoir 13, pp.107-129.

Bristow, H.W. and Fisher, O., 1857, Vertical section sheet 22, *Geological Survey UK*.

Bury, H., 1934, The geology of Bournemouth and the Isle of Purbeck, In *The Book of Bournemouth*.

Calkin, J.B., 1933, Iguanodon footprints in Dorset, *Discovery*, Volume 14, p. 13.

——— 1968, *Ancient Purbeck*, Friary Press, Dorchester.

Casey, R., 1963. The dawn of the Cretaceous Period in Britain, *Bulletin of the South-Eastern Union of Scientific Societies*, Volume 15.

Charig, A.J., 1983, *A new look at the dinosaurs*, Heineman, London.

——— and Newman, B.H., 1962, Footprints in the Purbeck, *New Scientist*, Volume 14, pp.234-235.

Clements, R.G., 1969, Annotated cummulative section of the Purbeck Beds between Peverill Point and the Zig-Zag Path, Durlston Bay. Fig A35a-35d. *In* Torrens, H. S. (ed.). *International Field Symposium on the British Jurassic. Excursion No. 1, Guide for Dorset and South Somerset*, pp.A1-A71.

——— 1993, Type section of the Purbeck Limestone Group, Durlston Bay, Swanage, Dorset, *Dorset Proceedings*. Volume 114, pp.181-206.

Cope, J.C.W., Duff,K.L., Parsons, C.F., Torrens, H.S., Wimbledon, W.A. and Wright, J.K., 1980, A correlation of the Jurassic rocks in the British Isles. 2. Middle and Upper Jurassic, *Geological Society of London Special Report* No 15.

Damon, R., 1884, *The Geology of Weymouth, Portland and coast of Dorsetshire from Swanage to Bridport-on-the-Sea*, London.

Delair, J.B., MS Catalogue of vertebrates in the Dorset County Museum. Dorset County Museum Geology Manuscript Collection GMS 315/1.

——— 1959, The Mesozoic Reptiles of Dorset, part 2, *Dorset Proceedings*, Volume 80, pp.52-90.

——— 1960, The Mesozoic Reptiles of Dorset.3, *Dorset Proceedings*, Volume 81, pp.59-85.

——— 1963, Notes on Purbeck fossil footprints with descriptions of two hitherto unknown forms from Dorset, *Dorset Proceedings*, Volume 84, pp.92-100.

——— 1966, New records of dinosaurs and other fossil reptiles from Dorset, *Dorset Proceedings*, Volume 87, pp.57-66.

——— 1966a, *Collecting rocks and fossils*, Batsford.

——— 1982, Multiple dinosaur trackways from the Isle of Purbeck, *Dorset Proceedings*, Volume 102, pp.65-67.

——— 1989, A history of dinosaur footprint discoveries in the British Wealden, pp.19-25. *In* Gillette, D.D. and Lockley, M.G., (eds), 1989, *Dinosaur tracks and traces*, CUP.

——— and Brown, P.A., 1975, Worbarrow bay footprints, *Dorset Proceedings*, Volume 96, pp.14-16.

——— and Lander, A.B., 1973, A short history of the discovery of reptilian footprints in the Purbeck Beds of Dorset, with notes on

their stratigraphical distribution, *Dorset Proceedings*, Volume 94, pp.17-20.

——— and Sarjeant, W.A.S., 1985, History and bibliography of the study of fossil vertebrate footprints in the British Isles: Supplement 1973 - 1983, *Palaeogeography, Palaeoclimatology, Palaeoecology.*, Volume 49, pp.123-60.

El Shahat, A., 1977, *Petrography and geochemistry of a limestone-shale sequence with early and late lithification: the Middle Purbeck of Dorset, England.* Unpublished PhD thesis, Southampton.

——— and West, I.M., 1983, Early and late lithification of aragonitic bivalve beds in the Purbeck Formation, (Upper Jurassic - Lower Cretaceous) of Southern England, *Sedimentary Geology*, Volume 35, pp.15-41.

Ensom, P.C., 1981, A grave mistake [letter to the] *Sunday Times*, 11.10.1981.

——— 1982, Dinosaur footprints at 19 Townsend Road, Swanage, *Dorest Proceedings*, Volume 103, p.141.

——— 1982a, *Ichnites* sp. from Worbarrow Tout, near West Lulworth, *Dorset Proceedings*, Volume 103, p.141.

——— 1983, Ichnites spp. from the Chief Beef Beds and Broken Shell Limestone, Durlston Beds, Purbeck Limestone Formation, Durlston bay, Swanage, *Dorset Proceedings*, Volume 104, p.201.

——— 1983a, Correction to 'Multiple trackways from the Isle of Purbeck', J. B. Delair, *Dorset Proceedings*, Volume 102, 1982, *Dorset Proceedings*, Volume 104, pp.201-202.

——— 1984, *Ichnites* spp. in Durlston Bay and on Worbarrow Tout, *Dorset Proceedings*, Volume 105, pp.166-7.

——— 1984a, *Purbeckopus pentadactylus* Delair, *Dorset Proceedings*, Volume 105, p.166.

——— 1985, An annotated section of the Purbeck Limestone Formation at Worbarrow Tout, Dorset, *Dorset Proceedings*, Volume 106, pp.87-91.

——— 1985a, A correction and additions to the distribution of *Ichnites* spp. in the Purbeck Limestone Formation of Worbarrow Tout and Durlston Bay, Dorset, *Dorset Proceedings* Volume 106, pp.166-167.

——— 1985b, *Pyriporopsis portlandensis* Pohowsky 1973, a bryozoan from the Scallop Member, Purbeck Limestone Formation of Worbarrow Tout, Dorset, *Dorset Proceedings*, Volume 106, p.167.

——— 1985c, New bivalve records from the Purbeck Limestone Formation, Dorset, *Dorset Proceedings*, Volume 106, p.167.

——— 1985d, A barnacle from the Cinder Member, Purbeck Limestone Formation, Worbarrow Tout, Dorset, *Dorset Proceedings*, Volume 106, p.167-168.

——— 1986, *Ichnites* sp. from the Upper Cypris Clays and Shales Member (Purbeck Limestone Formation), near Harman's Cross, Dorset, *Dorset Proceedings*, Volume 107, p.183.

——— 1986a, *Purbeckopus pentadactylus* Delair; a figured specimen re-discovered, *Dorset Proceedings*, Volume 107, p.183.

——— 1987, A remarkable new vertebrate site in the Purbeck limestone Formation on the Isle of Purbeck, *Dorset Proceedings*, Volume 108, pp.205-206.

——— 1987a, Notes on *Ichnites* spp. in the Purbeck Limestone Formation, Dorset, *Dorset Proceedings*, Volume 108, p.206.

——— 1987b, Dinosaur tracks in Dorset, *Geology Today*, Volume 3, pp.182-183.

——— 1988, Excavations at Sunnydown Farm, Langton Matravers, Dorset: amphibians discovered in the Purbeck Limestone Formation, *Dorset Proceedings*, Volume 109, pp.148-50.

——— 1994, A new vertebrate trackway from the Intermarine Member, Purbeck Limestone Formation, Dorset, *Dorset Proceedings*, Volume 115, pp.183-4.

——— Evans, S.E., Francis, J.E., Kielan-Jaworowska, Z. and Milner, A.R., 1994, The fauna and flora of the Sunnydown Farm footprint site and associated sites: Purbeck Limestone Formation, Dorset, *Dorset Proceedings*, Volume 115, pp.181-182.

Francis, J.E., 1983, Reconstruction of the dominant conifer of the "Fossil Forests" of the Lower Purbeck Formation (Upper Jurassic) Dorest, *Palaeontology*, Volume 26, pp.277-294.

——— 1984, The seasonal environment of the Purbeck (Upper Jurassic) fossil forests, *Palaeogeography, Palaeoclimatology, Palaeoecology*, Volume 48, pp. 285 -307.

——— 1986, The calcareous paleosols of the basal Purbeck Formation (Upper Jurassic), southern England. In Wright, V.P. (Editor), *Paleosols*, pp.112-138.

Galton, P.M., 1980, Armored dinosaurs (Ornithischia: Ankylosauria) from the Middle and Upper Jurassic of England, *Geobios*, Volume 13, pp.825-837.

——— 1981, A juvenile stegosaurian dinosaur, "Astrodon pusillus" from the Upper Jurassic of Portugal, with comments on Upper Jurassic and Lower Cretaceous biogeography, *Journal of Vertebrate Paleontology*, Volume 1, pp.245-256.

Gillette, D.D. and Lockley, M.G., (eds), 1989, *Dinosaur tracks and traces*, CUP.

Halstead, B., 1975, *The Evolution and Ecology of the Dinosaurs*, London.

Haubold, H., 1971, Ichnia Amphibiorum et Reptiliorum fossilium, *In* Kuhn, O., (ed.), *Encyclopedia of Paleoherpetology*, Gustav Fischer Verlag.

House, M.R., 1989, Geology of the Dorset Coast, *Geologists' Association Guide.*

Howse, S.C.B. and Milner, A.R., In press, The Pterodactyloids from the Purbeck Limestone Formation of Dorset, *Bulletin of the British Museum (Natural History)*, Geology Series, Volume 51, part 1, pp.73-88.

Hunter, S., 1967, Pardon old thing but your slip is still showing, *Glasgow Herald*, 13,03,1967.

Hutchins, J., 1861, *History and antiquities of the County of Dorset*, 3rd Ed., Volume 1.

Kelly, S.R.A., 1983, Boreal influence on English Ryazanian bivalves, *Zitteliana*, Volume 10, pp.285-92.

Kielan-Jaworowska, Z. and Ensom, P.C., 1992, Multituberculate mammals from the Purbeck Limestone Formation (Upper Jurassic of Southern England), *Palaeontology*, Volume 35, pp.95-126.

——— and 1994, Tiny plagiaulacoid multituberculate mammals from the Purbeck Limestone Formation of Dorset, England, *Palaeontology*, Volume 37, pp. 17-31.

Lake, R.D. and Shephard-Thorn, E.R., 1987, Geology of the country around Hastings and Dungeness, *Memoir of the Geological Survey.*

Lockley, M., 1991, *Tracking dinosaurs. A new look at an ancient world.* UCP.

Houck, K.J., and Prince, N.K., 1986, North Americas largest dinosaur trackway site: Implications for Morrison Formation paleoecology, *Geological Society of America Bulletin*, Vol. 97, pp.1163-1176.

MacFadyen, W.A., 1970, *Geological highlights of the West Country*, David and Charles.

Mansel-Pleydell, J.C., 1888, Fossil reptiles of Dorset, *Dorset Proceedings*, Volume 9. pp.1-40.

——— 1895, Presidents Address, *Dorset Proceedings*, Volume 16, pp.liii-lxvi.

——— 1896, On the footprints of a dinosaur (Iguanodon?) from the Purbeck Beds of Swanage, *Dorset Proceedings*, Volume 17, pp.115-122.

Melville, R.V., and Freshney, E.C., 1983, *British Regional Geology. Hampshire Basin and adjoining areas*, HMSO.

Morter, A.A., 1984, Purbeck - Wealden beds mollusca and their relationship to ostracod biostratigraphy, stratigraphical correlation and palaeoecology in the Weald and adjacent areas, *Proceedings of the Geologists Association*, Volume 95, pp.217-234.

Mossman, D.J. and Sarjeant, W.A.S., 1983, The footprints of extinct animals. *Scientific American*, Volume 248, pp.64-74.

Moule, H.J. 1896, *Dorset Proceedings*, Volume XVII, pp.xxiv-xxv 1898, *Dorset Proceedings*, Volume XIX, p.xxiii.

Newman, B.H., 1990, A dinosaur trackway from the Purbeck Beds of Swanage, England, *Palaeontologia africana*, Volume 27, pp.97-100.

Norman, D.B., 1980, On the Ornithischian dinosaur Iguanodon bernissartensis from the Lower Cretaceous of Bernissart (Belgium), *Institut Royal des Sciences Naturelles de Belgique, Memoir* No 178 - 1980.

Nunn, J.F., 1990, A new tridactyl footprint impression in Durlston Bay, Swanage, *Dorset Proceedings*, Volume 111, pp.133-134.

Oppé, E.F., MS scrapbook. Dorset County Museum Natural History Manuscript Collection. NHMS LXVIII.

——— 1965, *Isle of Purbeck. Sunny spaces and dinosaur traces*, Bournemouth Guardian Ltd.

Ord, W.T., 1913, [Excursion to] Durlston Bay, *Proceedings of the Bournemouth Natural Science Society*, Volume 5, p.51.

Owen, R., 1861, Fossil reptilia of the Wealden and Purbeck Formations, Lacertilia. *Monograph of the Palaeontographical Society.*

——— 1871, Fossil mammalia of the Mesozoic formations, *Monograph of the Palaeontographical Society.*

——— 1874, Reptilia of the Mesozoic formations, Monograph of the Palaeontographical Society *London.*

Paton, R.L., 1975, *A Catalogue of fossil vertebrates in the Royal Scottish Museum, Edinburgh. Pt. Four. Amphibia and Reptilia.* Edinburgh.

Platt, N.H. and Meyer, C.A., 1991, Dinosaur footprints from the Lower Cretaceous of northern Spain; their sedimentological and palaeoecological context. *Palaeogeography, Palaeoclimatology, Palaeoecology*, Volume 86, pp.321- 333.

——— and Pujalte, V., 1994, Correlation of Upper Jurassic - Lower Cretaceous continental sequences from the southern Biscay margin, northern Spain, *Journal of the Geological Society, London*, Volume 151, pp.715-726.

Prothero, D.R. and Estes, R., 1980, Late Jurassic lizards from Como Bluff, Wyoming and their palaeobiogeographic significance, *Nature*, Volume 286, pp.484 -86.

Purbeck Society Minutes. Dorset County Muniment Room No 11022, Dorset County Records Office, Dorchester.

Regan, Simon, 1981, Dinosaurs' graveyard discovered, *Sunday Times*, 20.09.1981.

Rolfe, W.D.I., 1969, A university's museum, *Museums Journal*, Volume 69, p.9.

Sarjeant, W.A.S., 1974, A history and bibliography of the study of fossil vertebrate footprints in the British Isles, *Palaeogeography, Palaeoclimatology, Palaeoecology*, Volume 16, pp.265-378.

——— 1975, Fossil tracks and impressions of vertebrates, pp. 283-324. *In* Frey, R.W. (Ed), *The Study of Trace Fossils*, Springer-Verlag.

——— 1983, British fossil footprints in the collections of some principal British Museums, *The Geological Curator*, Volume 3, pp.541-560.

Sigogneau-Russell, D. and Ensom, P.C., 1994, Découverte, dans le Groupe de Purbeck (Berriasien, Angleterre), du plus ancien témoignage de lexistence de mammifères tribosphéniques, *Compte rendu de l'Académie des sciences Paris*, tom, 319, série II, pp.833-838.

Stuart-Gray, M.G., 1902, In memoriam. The late John Clavel Mansel-Pleydell Esq. of Whatcombe, *Dorset Proceedings*, Volume 23, pp.lxii-lxxii.

Suttle, J., 1963, Dinosaur Footprints, *Proceedings of the Purbeck Society*, 1957-63, pp.15-16.

Swaine, J., 1962, Iguanodon footprints, *New Scientist*, Volume 13, p.520.

Swinton, W.E., 1961, *Instructions to Young Naturalists IV: Fossils*. London.

Thomas, J., 1981, The dinosaurs of Swanage, *Open University Geological Society Journal*, Volume 3, pp.23-24.

——— and Ensom, P.C., 1989, *Bibliography and Index of Dorset Geology*, Dorset Natural History & Archaeological Society. 102pp.

Thulborn, T., 1990, *Dinosaur tracks*, Chapman Hall.

Thulborn, R.A. and Wade, M., 1984, Dinosaur tracks in the Winton Formation (mid Cretaceous) of Queensland, *Memoirs of the Queensland Museum*, Volume 21, pp.413-517.

Walkden, G. and Oppé, E.F., 1969, In the footprints of the dinosaurs, *The Amateuar Geologist*, Spring 1969.

West, I.M., 1964, Evaporite diagenesis in the Lower Purbeck Beds of Dorset, *Proceedings of the Yorkshire Geological Society*, Volume 34, pp.315-330.

——— 1965, Macrocell structure and enterolithic veins in British Purbeck Gypsum and Anhydrite, *Proceedings of the Yorkshire Geological Society*, Volume 35, pp. 47-58.

——— 1975, Evaporites and associated deposits of the basal Purbeck Formation (Upper Jurassic) of Dorset, *Proceedings of the Geologists Association*, Volume 86, pp. 205 - 225.

——— 1988, Notes on some Purbeck sediments associated with the dinosaur footprints at Sunnydown Farm, near Langton Matravers, Dorset, *Dorset Proceedings*, Volume 109, pp.153-154.

——— and El-Shahat, A., 1985, Dinosaur footprints and early cementation in Purbeck bivalve beds, *Dorset Proceedings*, Volume 106, pp.196-70.

Shearman, D.J. and Pugh, M.E., 1969, Whitsun field meeting in the Weymouth area, 1966, Report by the directors, *Proceedings of the Geologists Association*, Vol.80, pp.331-340.

W[ills], L.J., 1962, [Obituary for Frank Raw], *Proceedings of the Geologists' Association*, Volume 73, pp.158-159.

APPENDIX.

CATALOGUE OF DINOSAUR AND OTHER VERTEBRATE TRACE FOSSILS FROM THE LOWER CRETACEOUS PURBECK LIMESTONE GROUP AND WEALDEN OF DORSET

INTRODUCTION:

This catalogue and index has been produced to provide a springboard for studies on the vertebrate trace fossils of the Purbeck Limestone Group and Wealden of Dorset.

The bulk of the catalogue consists of individual entries for nearly every published reference. This thorough coverage is necessary because of the variations, ambiguities and errors which have arisen in the literature. A very considerable number of published, manuscript and even photographic records have been brought together and sorted by catalogue numbers variously allocated to individual specimens, trackways or multiple trackway discoveries. Only a few newspaper articles have been included. Thomas and Ensom (1989) provide a more comprehensive listing of newspaper coverage. As much detail is provided as the format of the Catalogue permits. Cross referencing has been carried out where appropriate. In addition details of conversations between the compiler and several quarry owners in the Isle of Purbeck have been included. The framework provided by this Catalogue should permit a more effective and rational approach to their study.

An appeal for records was made by the compiler through 'Lost and Found' [no] 139, *Geological Curator*, Vol. 3, No. 8, p. 487, (1983) and the *Palaeontological Association Circular*, **110**, pp. 5-6, (1982). Museum specimens are recorded where known and appropriate museum acronyms prefix their accession numbers, eg. DORCM. Some hitherto unpublished specimens are recorded for the first time. Wherever possible accession numbers are given to enable workers to provide data which can be subjected to further investigation in the knowledge that the same specimen is being referred to.

Not included are specimens in 'private collections' etc. which have not been cited in the literature. An example are the numerous individual specimens from the Suttle's Quarry discoveries in the 1960s (Cat.no. 20) which were sold by quarrymen to 'all and sundry' Delair (pers. comm.). While of undoubted curiosity value, these will only serve to clutter the literature if listed now.

There are already potential problems with the considerable volume of material which has not been collected but which has been recorded in the literature. Such specimens may be open to re-recording as a 'new discovery', both here and in the future. There is every likelihood that some specimens will appear under more than one Cat.No.. Where appropriate I have indicated possible duplication and I hope that users who recognize such 'duplications', or other errors, will draw attention to them through publication or by supplying details to the compiler.

Short explanatory texts are included where a fuller explanation is thought desirable.

The catalogue is based on 13 fields. Not all are used each time and these have been edited out. Below is the full set of fields with explanations where appropriate.

CATALOGUE No: Theoretically unique, but in practice there may be duplication, ie two numbers for one specimen.

REFERENCES: Published and MS references are in the REFERENCES. Photographswill be listed here.

STRATIGRAPHY: Usually given as recorded. Sometimes additional information is given in []. For DB numbers see Clements 1993 and WB numbers Ensom 1985.

LOC^{n}:NGR:

No OF PRINTS:PHOTOGRAPH/PLAN:

No OF TRACKS: Only used for multiple trackways.

DATE DISCOVERED:

BY: NB When appearing without 'DATE DISCOVERED:' it still referrs to the discoverer.

PRINT/TRACK TYPE: m = mould, c = cast, p = primary which is preferred to n = natural (the latter has been used where it was used in the original reference), t = transmitted. Where the reference makes it reasonably clear what the print/track type is, [] are not used.

CLASSIFICATION:PRODUCER: Classification = tridactyl, pentadactyl etc:

MEASUREMENTS L/B: + variations on, including pace and stride. NB units are those recorded. L = length B= breadth.

DIRECTION(S):

REPOSITORY:ACC No: In addition to museum collections this includes reference to specimens seen in situ/loose on shore and in private collections.

[ ] indicate information which has been added, eg. interpretations of, or comments upon, the record.

( ) are used to provide information of a non-interpretive kind, eg. references and enlightening information gleaned from elsewhere in the text of an article.

INDEX FOR THE CATALOGUE

NB. The presence of a Catalogue Number under a subject heading does not necessarily mean that the specimen was from that horizon or found by the individual named etc., the entries should be consulted.

CATALOGUE

CATALOGUE No: 1.
REFERENCES: Purbeck Society Minutes (for 1861).
STRATIGRAPHY: Corbula Beds.
LOC^{n}:NGR: Built into sea-wall in Swanage Bay, formerly in Durlestone [*sic*] *Bay*.
DATE DISCOVERED: [*c.*]1861 (based on Minutes of the Purbeck Society 1861).
REPOSITORY:ACC No: Corfe Castle Colln given by Mr Mowlem [colln transferred to Dorset County Museum 1894 and specimen not recognized there].

CATALOGUE No: 1.
REFERENCES: Mansel-Pleydell 1895, p.lxvi.
STRATIGRAPHY: Purbeck Stone.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
CLASSIFICATION:PRODUCER:
:*?Iguanodon.*
REPOSITORY:ACC No: Dorset County Museum acquired from Corfe Castle Colln 1894 [not recognized in colln].

CATALOGUE No: 1.
REFERENCES: Moule 1896, pp.xxiv-xxv.
STRATIGRAPHY: Purbeck strata.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
PRINT/TRACK TYPE: nc.
CLASSIFICATION:PRODUCER:
:*?Iguanodon.*
REPOSITORY:ACC No: Dorset County Museum, acquired from Corfe Castle Museum 1894 [not recognized in colln].

CATALOGUE No: 1.
REFERENCES: Mansel-Pleydell 1896, pp.114-122. Also Oppé, 1965, p.26 based on this reference.
STRATIGRAPHY: Purbeck stone; Corbula Beds; slab with coarse fucoidal markings.
No OF PRINTS:PHOTOGRAPH/PLAN: 1:Ph [presumably of this specimen as it has numerous 'fucoidal markings'].
PRINT/TRACK TYPE: c.
CLASSIFICATION:PRODUCER:
:*Iguanodon.*
MEASUREMENTS L/B: L=12".
REPOSITORY:ACC No: Dorset County Museum acquired from Corfe Castle Colln [not recognised in colln].

CATALOGUE No: 1.
REFERENCES: Delair and Lander 1973, p.17 based on Mansel-Pleydell 1896.
STRATIGRAPHY: Corbula Beds. Bed nos 69/70 of Bristow & Fisher 1857.
LOC^{n}:NGR: Swanage.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
CLASSIFICATION:PRODUCER:
:*Iguanodon* sp.
REPOSITORY:ACC No: Dorset County Museum (Delair & Lander 1973 p.17 & fig.2) [not recognized in colln]. Delair (pers.comm. 10.07.1982) says that this specimen was seen by him in the DORCM in the mid 1950s.].

CATALOGUE No: 1.
REFERENCES: Sarjeant 1974, p.353 based on Mansel-Pleydell 1896.
STRATIGRAPHY: Purbeck Beds.
CLASSIFICATION:PRODUCER:
:*Iguanodon.*
REPOSITORY:ACC No: Formerly in Corfe Castle Museum now Dorset County Museum (Sarjeant 1974) [not recognised in colln],

CATALOGUE No: 1 or 2 [only one specimen is noted (Moule 1898 p.xxiii) against 2 originally (Mansel-Pleydell 1895 & Moule 1896)].
REFERENCES: Moule 1898, p.xxiii.
STRATIGRAPHY: Middle Purbeck.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
PRINT/TRACK TYPE: c.
REPOSITORY:ACC No: Dorset County Museum acquired from Corfe Castle Colln 1894. [see Cat.nos 1 and 2].

CATALOGUE No: 1 & 2.
REFERENCES: Delair & Sarjeant 1985, p 148.
STRATIGRAPHY: Middle Purbeck.
REPOSITORY:ACC No: Dorchester Museum.

CATALOGUE No: 1, 2 & ?3.
REFERENCES: West & El Shahat 1985, p.169.
STRATIGRAPHY: Corbula Beds. (This was a clarification of the article in El Shahat & West 1983 where basing their information on Delair & Lander 1973, fig.2, they identified beds 69 & 70 of Bristow & Fisher (1857)).

CATALOGUE No: 2.
REFERENCES: Purbeck Society Minutes (for 1861).
STRATIGRAPHY: Corbula Beds.
LOC^{n}:NGR: Lying near the [Swanage] pier, formerly in Durlestone [*sic*] Bay.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: [*c.*].1861.
REPOSITORY:ACC No: Corfe Castle Colln [transferred to Dorset County Museum 1894].

CATALOGUE No: 2.
REFERENCES: Mansel-Pleydell 1895, p.lxvi).
STRATIGRAPHY: Purbeck Stone.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
CLASSIFICATION:PRODUCER:
:*?Iguanodon.*
REPOSITORY:ACC No: Dorset County Museum acquired from Corfe Castle Museum 1894.

CATALOGUE No: 2.
REFERENCES: Moule 1896, pp.xxiv-xxv.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
PRINT/TRACK TYPE: nc.
REPOSITORY:ACC No: Dorset County Museum acquired from Corfe Castle Museum 1894.

CATALOGUE No: 2.
REFERENCES: Mansel-Pleydell 1896, pp.114 - 122. Also Oppé, 1965, p.26 based on this reference.
STRATIGRAPHY: Purbeck Stone; Corbula Beds.
No OF PRINTS:PHOTOGRAPH/PLAN: 1 (Mansel-Pleydell 1896 pp.114-122).
PRINT/TRACK TYPE: c.
CLASSIFICATION:PRODUCER:
Iguanodon.
MEASUREMENTS L/B: L12".
REPOSITORY:ACC No: Dorset County Museum acquired from Corfe Castle Museum 1894.

CATALOGUE No: 2.
REFERENCES: Sarjeant 1974 based on Mansel-Pleydell 1896.
STRATIGRAPHY: Purbeck Beds.
CLASSIFICATION:PRODUCER:
:*Iguanodon.*
REPOSITORY:ACC No: Formerly Corfe Castle Museum now Dorset County Museum.

CATALOGUE No: 2.
REFERENCES: Dorset County Museum Accession Register. Geology Vol 1. (Based on documentary material attached to the specimens).
STRATIGRAPHY: Middle Purbeck. Corbula Beds.
LOC^{n}:NGR: Durlestone [*sic*] Bay.
No OF PRINTS:PHOTOGRAPH/PLAN: 1:
PRINT/TRACK TYPE: pc.
CLASSIFICATION:PRODUCER:
:[*?Megalosaurus*].
REPOSITORY:ACC No: Dorset County Museum: DORCM G 2401. ex Corfe Castle Museum Collection. Transferred 1894. Cited Mansel-Pleydell 1896, pp.115,117,121 & 122.

CATALOGUE No: 3.
REFERENCES: Mansel-Pleydell 1896, p.122.
STRATIGRAPHY: Upper Purbecks (Mansel-Pleydell 1896 p.122 ie 'actual footprint') [Plate caption states Middle Purbeck for both specimens. See also Stuart-Gray 1902. The Corfe Castle Museum specimens Cat.nos 1 & 2 are recorded as casts].
No OF PRINTS:PHOTOGRAPH/PLAN: 1:Ph.
PRINT/TRACK TYPE: nm.
REPOSITORY:ACC No: In possession of J C Mansel-Pleydell: [DORCM G 126].

CATALOGUE No: 3.
REFERENCES: Moule 1898, p.xxiii.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
PRINT/TRACK TYPE: m 'a footprint itself' [as opposed to the casts being discussed].
REPOSITORY:ACC No: Dorset County Museum. Presd J C Mansel-Pleydell 1896 per Mr Hardy: [DORCM G 126].

CATALOGUE No: 3.
REFERENCES: Stuart-Gray 1902, p.lxix.
STRATIGRAPHY: Middle Purbecks [this is at variance with Mansel-Pleydell 1896 p.122].

No OF PRINTS:PHOTOGRAPH/PLAN: 1.
CLASSIFICATION:PRODUCER:
:*Iguanodon*.
REPOSITORY:ACC No: Dorset County Museum presented by J C Mansel-Pleydell: [DORCM G 126].

CATALOGUE No: 3.
REFERENCES: Delair 1960, p.78.
STRATIGRAPHY: Middle Purbeck [this is at variance with Mansel-Pleydell 1896 p.122].
LOC^{n}:NGR: Swanage.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: pre 1896.
BY: Mr Hardy.
PRINT/TRACK TYPE: m.
REPOSITORY:ACC No: Dorset County Museum: DORCM G 126.

CATALOGUE No: 3.
REFERENCES: Delair & Lander 1973, p.17 based on Mansel-Pleydell 1896.
STRATIGRAPHY: Corbula Beds. Beds 69/70 of Bristow & Fisher 1857. [based erroneously on Mansel-Pleydell 1896. This is at variance with Mansel-Pleydell 1896 p.122. The Corbula Beds specimens are both described as casts. The photograph shows, in addition to 1 cast, a mould - presumably that obtained from the 'Upper Purbecks' ie. Cat.No.3. The plate caption states 'Middle Purbeck'. Information with the specimen figured, DORCM G 126: Purbeck Beds, nr Swanage. Collected Mr Hardy. Presented J C Mansel-Pleydell 1896].
LOC^{n}:NGR: Swanage.
CLASSIFICATION:PRODUCER:
:*Iguanodon*.
REPOSITORY:ACC No: Dorset County Museum (Delair & Lander 1973).

CATALOGUE No: 3.
REFERENCES: Delair & Lander 1973, p.17 based on Mansel-Pleydell 1896.
STRATIGRAPHY: Upper Purbeck series.
REPOSITORY:ACC No: Missing (Delair & Lander 1973 p.17).

CATALOGUE No: 3.
REFERENCES: Delair & Brown 1975 based on Mansel-Pleydell 1896.
STRATIGRAPHY: Upper Purbeck beds.
LOC^{n}:NGR: Dorset.
REPOSITORY:ACC No: Now lost (Delair and Brown 1975).

CATALOGUE No: 3.
REFERENCES: Sarjeant 1974, p.353 based on Mansel-Pleydell 1896.
STRATIGRAPHY: Upper Purbecks.
REPOSITORY:ACC No: Collection of J C Mansel-Pleydell.

CATALOGUE No: 3.
REFERENCES: Delair & Sajeant 1985, p.148, based on Mansel-Pleydell 1896.
STRATIGRAPHY: Upper Purbeck.
BY: J C Mansel-Pleydell.

CATALOGUE No: 3.
REFERENCES: Delair ms catalogue of vertebrate fossils in the Dorset County Museum.
STRATIGRAPHY: Middle Purbeck.
LOC^{n}:NGR: Swanage.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
BY: Mr Hardy.
CLASSIFICATION:PRODUCER: three toed footprint: resembles others ascribed to *Iguanodon*.
REPOSITORY:ACC No: Dorset County Museum: DORCM G 126. Presented Mansel-Pleydell. Described and figured by Mansel-Pleydell 1896, pp.115-122, pl. opp. p.115. [This specimen can be assigned with confidence, on the basis of the details in the Delair entry, to Cat.No 3].

CATALOGUE No: 3.
REFERENCES: Dorset County Museum Accesssion Register. Geology Volume 1. (Based on Delair's ms catalogue of fossil vertebrates in the DORCM and associated documentation.).
STRATIGRAPHY: [Purbeck Beds].
LOC^{n}:NGR: near Swanage.
No OF PRINTS:PHOTOGRAPH/PLAN: 1
BY: Mr Hardy of Swanage.
PRINT/TRACK TYPE: m.
CLASSIFICATION:PRODUCER: tridactyl: [?*Megalosaurus*].
REPOSITORY:ACC No: Dorset County Museum: DORCM G 126. Given by Mansel-Pleydell 1896. Figured Mansel-Pleydell 1896, pl. opposite p.115, and recorded on p.122. Cited Delair 1960, p.79 and Delair & Lander 1973.

CATALOGUE No: 4.
REFERENCES: Moule 1898, p.xxiii.
STRATIGRAPHY: Upper Purbecks.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
PRINT/TRACK TYPE: c.
REPOSITORY:ACC No: Dorset County Museum. Presd J C Mansel-Pleydell per Mr Hardy 1894.

CATALOGUE No: 4.
REFERENCES: Delair 1960, p.79.
STRATIGRAPHY: Middle Purbeck.
LOC^{n}:NGR: Swanage.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
REPOSITORY:ACC No: Dorset County Museum: DORCM G 127.

CATALOGUE No: 4 or 5.
REFERENCES: Delair ms catalogue of vertebrate fossils in the Dorset County Museum.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
BY: Mr Hardy.
CLASSIFICATION:PRODUCER:
: ?*Iguanodon*.
REPOSITORY:ACC No: Dorset County Museum: DORCM G 127. Delair states that this specimen may have been the one alluded to by Mansel-Pleydell 1896, p.36. [This reference appears wrong and is thought to be to Mansel-Pleydell 1888, p.36 where he refers to a footprint from the Wealden of Swanage/Worbarrow. See Cat.No.8. The assumption is that this is Cat.No.4].

CATALOGUE No: 4.
REFERENCES: Dorset County Museum Accession Register. Geology Vol.1. (Based on Delair's ms catalogue of fossil vertebrates in the DORCM and associated documentation).
STRATIGRAPHY: Purbeck Beds (Upper).
LOC^{n}:NGR: nr Swanage.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
BY: Colld Mr Hardy.
PRINT/TRACK TYPE: pc.
CLASSIFICATION:PRODUCER:
[*Megalosaurus* sp.].
REPOSITORY:ACC No: Dorset County Museum: DORCM G 127. Presd Mansel-Pleydell (?1896). Cited Delair 1960, p.79.

CATALOGUE No: 5.
REFERENCES: Moule 1898, p.xxiii.
STRATIGRAPHY: Wealden.
LOC^{n}:NGR: near Swanage.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
BY: ?Mr Hardy.
PRINT/TRACK TYPE: c.
REPOSITORY:ACC No: Dorset County Museum. Presented J C Mansel-Pleydell per Mr Hardy: [DORCM G 128].

CATALOGUE No: 5.
REFERENCES: Oppé, ms scrapbook, Extract p.4.
STRATIGRAPHY: [ambiguous but could be] Purbeck [Beds].
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
MEASUREMENTS L/B: L 18".
REPOSITORY:ACC No: Dorset County Museum since *c.*1896: [DORCM G 128].

CATALOGUE No: 5.
REFERENCES: Delair 1960, p.79.
STRATIGRAPHY: Middle Purbeck [G 128 is a large 18" long cast in sandstone characteristic of the Wealden].
LOC^{n}:NGR: Swanage.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
REPOSITORY:ACC No: Dorset County Museum: DORCM G 128.

CATALOGUE No: 5.
REFERENCES: Delair ms catalogue of vertebrate fossils in the Dorset County Museum.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
PRINT/TRACK TYPE: pc.
CLASSIFICATION:PRODUCER: three toed footprint: ?*Iguanodon*.
REPOSITORY:ACC No: Dorset County Museum: DORCM G 128.

CATALOGUE No: 5.
REFERENCES: Dorset County Museum Accession Register. Geology Volume 1. (Based on Delair's ms catalogue of vertebrate fossils in the DORCM and associated documentation).
STRATIGRAPHY: Wealden.
LOC^{n}:NGR: near Swanage.
No OF PRINTS:PHOTOGRAPH/PLAN: 1
BY: Mr Hardy.
PRINT/TRACK TYPE: pc.
CLASSIFICATION:PRODUCER:
:?*Iguanodon*.
REPOSITORY:ACC No: Dorset County Museum: DORCM G 128. Given by Mansel-Pleydell. Cited Delair 1960, p.79.

CATALOGUE No: 6.
REFERENCES: Beckles 1854, p.456. Also Damon 1884, p.127, Walkden & Oppé, 1969, p.24 are based on this reference. Sarjeant 1974, p.353 reprints the reference.
STRATIGRAPHY: Purbeck limestone [see also PRINT/TRACK TYPE].
No OF PRINTS:PHOTOGRAPH/PLAN: 2 on one slab.
DATE DISCOVERED: [Before 1854].
PRINT/TRACK TYPE: [ambiguous; Beckles says 'surface of which is shaly and covered with coarse fucoidal(?) markings. In this shaly portion are two large, trifid, pachydactylous foot-marks resembling those from the Wealden...' Surfaces with fucoidal markings are quite probably where shale is overlain by limestone (cf DB102/103) in which case the 'foot-marks' are presumably casts.].
MEASUREMENTS L/B: L 12".
REPOSITORY:ACC No: Geological Society's Collection.

CATALOGUE No: 7a&b.
REFERENCES: Beckles 1862, p.446. Also review by Anon 1862, pp.310-311 which is noted by Delair and Sarjeant 1985, p.148. Also Sarjeant 1974, p.353 and Delair 1989, p.20 and Tab. 2.1 is based on Beckles 1862.
STRATIGRAPHY: Wealden beds. Occuring in two bands of sand-rock, usually about 1 foot thick, separated by about 20 feet of clay.
LOC^{n}:NGR: Swanage Bay, at about 200 yards from the western end of the Wealden cliff there.
No OF PRINTS:PHOTOGRAPH/PLAN: 'other natural casts of footprints'.
DATE DISCOVERED: [Before 1862].
PRINT/TRACK TYPE: c.
CLASSIFICATION:PRODUCER: 'thick toed trifidal shape'.
MEASUREMENTS L/B: L about 15".
REPOSITORY:ACC No: [observation only?].

CATALOGUE No: 7a&b.
REFERENCES: Mansel-Pleydell 1896, p.117 [presumably based on Beckles 1862 as information given is identical]. Delair & Brown 1975, p.14 is also based on this reference.
STRATIGRAPHY: Wealden Sandstone, two beds separated by 20 feet of clay.
LOC^{n}:NGR: Swanage Bay.
No OF PRINTS:PHOTOGRAPH/PLAN: several.
DATE DISCOVERED: [Before 1862].
CLASSIFICATION:PRODUCER: tridactyl.

CATALOGUE No: 8.
REFERENCES: Mansel-Pleydell 1888, p.36.
STRATIGRAPHY: Wealden beds.
LOC^{n}:NGR: Swanage and [?or] Worbarrow [Bay]. [Mansel-Pleydell states] 'Dissociated remains as well as foot-prints have been recovered in the Wealden beds of Swanage and Worbarrow.' [This is open to interpretation but cannot be taken as a catagorical statement that dinosaur footprints had been found in Worbarrow Bay].
DATE DISCOVERED: [before 1888 if record is correct].

CATALOGUE No: 8.
REFERENCES: Sarjeant 1974, p.353 and Delair 1989, p.20 and Tab.2.1. based on Mansel-Pleydell 1888.
STRATIGRAPHY: Wealden.
LOC^{n}:NGR: Worbarrow Bay [but see Mansel-Pleydell 1888 entries for Cat. No.8]
DATE DISCOVERED: 1888 [this is the date of the article by Mansel-Pleydell who gives no date of discovery].
BY: Mansel-Pleydell [There is no evidence for this in the article by Mansel-Pleydell 1888].

CATALOGUE No: 8.
REFERENCES: Delair & Brown 1975, p.14 based on Mansel-Pleydell 1888.
STRATIGRAPHY: Wealden.
LOC^{n}:NGR: Worbarrow Bay [but see Mansel-Pleydell 1888 entries for Cat.No.8].

CATALOGUE No: 9.
REFERENCES: Sarjeant 1974, p.354 based on address by Sir Arthur Smith Woodward to the Bournemouth & District Society of Natural Science printed in Bournemouth Visitors Directory. Bournemouth Jan 23, 1904.
LOC^{n}:NGR: Built into wall of cottage.
No OF PRINTS:PHOTOGRAPH/PLAN: footprints.
DATE DISCOVERED: [prior to 1904].
CLASSIFICATION:PRODUCER: :*Iguanodon*.
REPOSITORY:ACC No: Removed from wall by owner and given to BM(NH).

CATALOGUE No: 10.
REFERENCES: Oppé ms scrapbook, Extract p.4.
STRATIGRAPHY: Roach [Intermarine Member, Purbeck Limestone Group].
LOC^{n}:NGR: [?] Landers Quarries, Gallows Gore, Langton. [Oppé, ms seems to indicate this as source].
No OF PRINTS:PHOTOGRAPH/PLAN: 5 [overlapping and or superimposed prints may be present].
DATE DISCOVERED: [*c.*1929 or earlier].
MEASUREMENTS L/B: L 12",10",8"x2", <8".
REPOSITORY:ACC No: 'Taken to the Old Tea Shop, Corfe Castle, *c.*1929 by the father of the present Mr Sheasby in co-operation with (then) G & T Lander, now Landers Quarries, Gallows Gore, Langton'.

CATALOGUE No: 10.
REFERENCES: Delair 1960, p.79. Also Sarjeant 1974, p.354 is based on this reference.
STRATIGRAPHY: Purbeck Roach [Intermarine Member, Purbeck Limestone Group].
LOC^{n}:NGR: Lander's Quarry, Gallows Gore, nr Langton Matravers.
No OF PRINTS:PHOTOGRAPH/PLAN: 5.
DATE DISCOVERED: *c.*1929.
PRINT/TRACK TYPE: [m] impressions.
CLASSIFICATION:PRODUCER: :*Iguanodon*-like.
REPOSITORY:ACC No: 'now owned by Mr Sheasby of Corfe'.

CATALOGUE No: 10.
REFERENCES: Conversation between W J and W T Haysom and PCE on 05.04.1983.
LOC^{n}:NGR: Lander's Quarries, Gallows Gore: NGR SY 9820 7895 [WJ&WTH warn that much stone was imported into this quarry from other sites].

CATALOGUE No: 11.
REFERENCES: Calkin 1933, p.13. Also Delair 1963, p.98 and Oppé 1965, p.26 are based on this reference.
STRATIGRAPHY: Middle Purbeck, Pink Bed [Intermarine Member].
No OF PRINTS:PHOTOGRAPH/PLAN: 14: Plan.
No OF TRACKS: 2 complete or 1 complete and parts of 2 others [Infact 4 in total].
DATE DISCOVERED: Autumn 1932.
CLASSIFICATION:PRODUCER: :*Iguanodon*.
MEASUREMENTS L/B: B *c.*11".

CATALOGUE No: 11.
REFERENCES: Delair 1960, p.79.
STRATIGRAPHY: Pink Bed associated with the so-called 'Roach' [Intermarine Member].
No OF TRACKS: 2 or 3.
CLASSIFICATION:PRODUCER: :*Iguanodon* - like.

CATALOGUE No: 11.
REFERENCES: Calkin 1968, pp.2-4.
LOC^{n}:NGR: Herston (see fig.3).
No OF PRINTS:PHOTOGRAPH/PLAN: 9.
No OF TRACKS: 2 'at the time'.
DATE DISCOVERED: [1932?].
CLASSIFICATION:PRODUCER: :*Iguanodon*.
REPOSITORY:ACC No: One slab with 9 prints on it (?+ other slabs) destroyed by high explosive shell during 2nd World War.

CATALOGUE No: 11.
REFERENCES: Walkden & Oppé, 1969, Tab 1 and p.24 [probably based on Calkin 1933].
STRATIGRAPHY: Purbeck Roach [Intermarine Member, Purbeck Limestone Group].
LOC^{n}:NGR: Loc. indet.
No OF PRINTS:PHOTOGRAPH/PLAN: 14 prints in 4 rows.
No OF TRACKS: 2 or 1 + parts of 2 others after Calkin but 4 tracks based on evidence of Cat.no.20.
DATE DISCOVERED: 1932.
CLASSIFICATION:PRODUCER: :*Iguanodon*.
MEASUREMENTS L/B: B 11".
REPOSITORY:ACC No: Part of this specimen was destroyed by a high explosive shell.

CATALOGUE No: 11.
REFERENCES: Delair & Lander 1973, pp.17-18 and fig. 2, based on Calkin 1933 & 1968.
STRATIGRAPHY: Middle Purbeck 'Pink' bed at base of 'roach' stone.
LOC^{n}:NGR: quarry at Herston.
REPOSITORY:ACC No: they were destroyed by a high explosive shell during last world war.

CATALOGUE No: 11.
REFERENCES: Sarjeant 1974, p.354 based on Calkin 1933 & Oppé 1965.
STRATIGRAPHY: Pink Bed Middle Purbeck.
No OF TRACKS: 4.
CLASSIFICATION:PRODUCER: :*Iguanodon*.
REPOSITORY:ACC No: Destoyed by high explosive shell during Second World War.

CATALOGUE No: 11.
REFERENCES: Conversation between W J & W T Haysom and PCE, 05.04.1983.
LOC^{n}:NGR: May have come from Bill Tomes mine at Belle Vue Farm [Herston].

See also comments under final entry of Cat.No. 29 re fate of this specimen.

CATALOGUE No: 12.
REFERENCES: Oppé ms scrapbook, Extract p.5.
PRINT/TRACK TYPE: 5 digit/imprint [m].

CATALOGUE No: 12.
REFERENCES: Delair 1960, pp.79-80.
STRATIGRAPHY: Middle Purbeck, "Pink Bed" of the "Roach" layer [Intermarine Member].
LOC^{n}:NGR: Quarry owned by Mr Chinchen, south side of road from Langton to Kingston, opposite lane leading to Old Court Pound.
No OF PRINTS:PHOTOGRAPH/PLAN: 2:
DATE DISCOVERED: *c.*1939.
BY: 'secured .... by W J Haysom'.
CLASSIFICATION:PRODUCER: pentadactyl: 'may have had a crocodilian origin.'
REPOSITORY:ACC No: little used path in Mr W J Haysom's garden at Langton.

CATALOGUE No: 12.
REFERENCES: Delair 1963, pp.92-99.
STRATIGRAPHY: 'pink' bed of the 'Roach' layer, Middle Purbeck, [Intermarine Member].
LOC^{n}:NGR: quarry long filled in on south side of Langton Kingston road, opposite lane to Old Court Pound, owned and worked by Mr Chinchen.
No OF PRINTS:PHOTOGRAPH/PLAN: 2:ph (fig.6, p.99 of one print)/plan p.93 [inaccurate] and detailed drawings of 2 impressions figs 2&3, p.95.
DATE DISCOVERED: *c.* 1936.
BY: secured by W J Haysom.
PRINT/TRACK TYPE: impressions [m].
CLASSIFICATION:PRODUCER: pentadactyl :[Ichnogenus] *Purbeckopus pentadactylus* (Holotype). Crocodile or lizard suggested but considered unlikely.
MEASUREMENTS L/B: see Delair 1963, pp.93-4.
REPOSITORY:ACC No: propped against wall in garden of W J Haysom.

CATALOGUE No: 12.
REFERENCES: Walkden & Oppé 1969, p.27.
CLASSIFICATION:PRODUCER: :uncertain.

CATALOGUE No: 12.
REFERENCES: MacFadyen 1970, p.143.
CLASSIFICATION:PRODUCER: :possibly crocodile.

CATALOGUE No: 12.
REFERENCES: Haubold 1971, p.103 and Abb.63a(3).
STRATIGRAPHY: Middle Purbeck.
LOC^{n}:NGR: Acton district of Langton Matravers, Dorset.
No OF PRINTS:PHOTOGRAPH/PLAN: :text fig.
CLASSIFICATION:PRODUCER: :*Purbeckopus*. Ichnia div. indet.

CATALOGUE No: 12.
REFERENCES: Delair & Lander 1973, p.18

and fig.2, based on Delair 1960 and 1963 and MacFadyen 1970.
STRATIGRAPHY: "pink" bed of the "roach" stone [Intermarine Member].
LOC^{n}:NGR: long disused quarry (Chinchen's) at Acton.
CLASSIFICATION:PRODUCER: pentadactyl :possibly crocodilian.
REPOSITORY:ACC No: owned by W J Haysom Esq of Langton Matravers.

CATALOGUE No: 12.
REFERENCES: Sarjeant 1974, pp.354 - 356.
STRATIGRAPHY: Pink Bed.
LOC^{n}:NGR: abandoned quarry at Acton.
No OF PRINTS:PHOTOGRAPH/PLAN: 2:
DATE DISCOVERED: before 1939.
CLASSIFICATION:PRODUCER: :*Purbeckopus pentadactylus* possibly manus impressions of an *Iguanodon* [Sarjeant is first proponent of this idea. Later in the same paper, not an *Iguanodon* but an habitiually plantigrade reptile.
REPOSITORY:ACC No: cemented into garden path of W J Haysom, Langton Matravers.

CATALOGUE No: 12.
REFERENCES: conversation between W J & W T Haysom and P Ensom 05.04.1983.
STRATIGRAPHY: 5 toed specimens from a different horizon to the 3 toed forms in Pink Bed.
LOC^{n}:NGR: Mr Chinchens Quarry (underground workings), Old Court Pound: NGR SY 9919 7872.
No OF PRINTS:PHOTOGRAPH/PLAN: lots of them:
DATE DISCOVERED: *c.*1936 - 1939.

CATALOGUE No: 12.
REFERENCES: Ensom 1984a, p.166 and pl 2.1.- 4.
STRATIGRAPHY: Purbeck Limestone Formation.
LOC^{n}:NGR: underground workings in vicinity of Old Court Pound: NGR SY 9919 7872.
No OF PRINTS:PHOTOGRAPH/PLAN: 3 + other features: Phs.
PRINT/TRACK TYPE: m.
MEASUREMENTS L/B: Photographs have scale bar.
CLASSIFICATION:PRODUCER: ?tetradactyl.
REPOSITORY:ACC No: Dorset County Museum: DORCM G 6664. Presd W J Haysom.

CATALOGUE No: 13.
REFERENCES: Oppé ms scrapbook, Extract p.4.
STRATIGRAPHY: Roach, Pink Bed (Oppé, suspects transmitted prints which would mean that the Pink Bed is incorrect).
LOC^{n}:NGR: Acton.
No OF PRINTS:PHOTOGRAPH/PLAN: 2: Oppé, refers to plan and photograph of slab.
No OF TRACKS: 1.
DATE DISCOVERED: 1957.
BY: quarried by Mr L C Lock.
PRINT/TRACK TYPE: m ?tm.
MEASUREMENTS L/B: L 18" about 11" apart.
REPOSITORY:ACC: No: Worth [presumably Oppé Colln] where moved to in Feb 1959 by generosity of Mr Reginald Cobb and finder. [Oppé Colln was deposited in the Paisley Museum (Delair and Lander 1973, p.18). See note after Cat.No.81].

CATALOGUE No: 13.
REFERENCES: Delair & Lander 1973, p.18 and fig.2.
STRATIGRAPHY: 'roach' stone.
LOC^{n}:NGR: Cobb's Quarry, Acton.
No OF PRINTS:PHOTOGRAPH/PLAN: (several).
DATE DISCOVERED: *c.*1957.
CLASSIFICATION:PRODUCER: tridactyl: *Iguanodon.*
MEASUREMENTS L/B: variously sized.

CATALOGUE No: 13.
REFERENCES: conversation between R R Cobb and P Ensom 30.04.1983.
LOC^{n}:NGR: Acton. A joint venture between L C Lock and Mr Cobb on land between their 2 quarries: SY 9890 7830.
DATE DISCOVERED: 1957.

CATALOGUE No: 14.
REFERENCES: Oppé ms scrapbook, Extract p.4.
LOC^{n}:NGR: Langton area.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
MEASUREMENTS L/B: L 8".
REPOSITORY:ACC No: displayed by Mr Parrish outside offices of Purbeck Press, Station Road, Swanage.

CATALOGUE No: 14.
REFERENCES: Anon, 31.07.1957. Also Sarjeant 1974, p.354 is based on this reference.
SRATIGRAPHY: Middle Purbeck beds.
PRINT/TRACK TYPE: actual footprint [nm].
CLASSIFICATION:PRODUCER: :*Iguanodon.*
REPOSITORY:ACC No: in window of Purbeck Press, Station Road, [Swanage]: On loan from E F Oppé. Sarjeant records the specimen as on display outside the newspaper offices.

CATALOGUE No: 14.
REFERENCES: Delair 1960, p.79.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
REPOSITORY:ACC No: Purbeck Press, Station Road, Swanage.

CATALOGUE No: 15.
REFERENCES: Oppé ms scrapbook, Extract p.4.
PRINT/TRACK TYPE: m & c.
MEASUREMENTS L/B: 12" or less.
REPOSITORY:ACC No: Collector in Brighton (see also Cat.No.68).

CATALOGUE No: 15.
REFERENCES: Delair 1960, p.79 based on Oppé pers.comm.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
PRINT/TRACK TYPE: m & part of c.
MEASUREMENTS L/B: larger than Cat no. 16.
REPOSITORY:ACC No: Brighton.

CATALOGUE No: 15.
REFERENCES: Sarjeant 1974, p.354. [original source not given but presumably Delair 1960 and/or Oppé ms scrapbook].
REPOSITORY:ACC No: Brighton.

CATALOGUE No: 16.
REFERENCES: Oppé ms scrapbook, Extract p.4.
LOC^{n}:NGR: Langton area.
No OF PRINTS:PHOTOGRAPH/PLAN: 1: Oppé notes Ph available.
MEASUREMENTS L/B: L 8".
REPOSITORY:ACC No: Bristol.

CATALOGUE No: 16.
REFERENCES: Delair 1960, p.79. Also Sarjeant 1974, p.354 presumably based on this reference or on Oppé ms scrapbook.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
MEASUREMENTS L/B: smaller than Cat.no.15.
REPOSITORY:ACC No: Bristol [? collector].

CATALOGUE No: 17.
REFERENCES: Oppé ms scrapbook, Extract p.5.
BY: one of the staff.
REPOSITORY:ACC No: Miniature Golf Green, Pierhead [Swanage].

CATALOGUE No: 17.
REFERENCES: Delair 1960, p.79 based on Oppé, pers.comm.
REPOSITORY:ACC No: by the Clock Golf Green near Swanage pier.

CATALOGUE No: 18.
REFERENCES: Oppé ms scrapbook, Extract p.4.
STRATIGRAPHY: top slab of Roach, intermediate slab roof tile type and lowest slab solid Pink Bed.
LOC^{n}:NGR: Acton quarry of Mr Reginald Cobb.
No OF PRINTS:PHOTOGRAPH/PLAN: 2: Reference to Diagram 3.
No OF TRACKS: 1.
DATE DISCOVERED: 1959.
PRINT/TRACK TYPE: pm*, tm, tc. (*Oppé notes pm is shallower than would be expected). [eroded or made in water?].
MEASUREMENTS L/B: L *c.* 9" and *c.*9" apart. Oppé notes decrease to L 7" on bottom slab.
DIRECTION(S): N or slightly west of north.
REPOSITORY:ACC No: taken to Worth [?Oppé Colln].

CATALOGUE No: 18.
REFERENCES: Delair 1960, p.79. Also Sarjeant 1974, p.354 based on this reference.
STRATIGRAPHY: Roach [Intermarine Member].
LOC^{n}:NGR: Mr Reginald Cobb's quarry at Acton.
DATE DISCOVERED: 1959.

CATALOGUE No: 18.
REFERENCES: Oppé 1965, p.27.
STRATIGRAPHY: Pink Bed and overlying beds.
LOC^{n}:NGR: Acton quarry of G & R Cobb.
No OF PRINTS:PHOTOGRAPH/PLAN: 2.
PRINT/TRACK TYPE: Oppé draws attention to the transmission of the prints.

CATALOGUE No: 18.
REFERENCES: conversation between W J & W T Haysom and PCE 05.04.1983.
LOC^{n}:NGR: Acton quarry of Mr Roy Cobb: NGR SY 9895.7830.
DATE DISCOVERED: 1959.

CATALOGUE No: 19.
REFERENCES: Oppé ms scrapbook, Extract p.3.
STRATIGRAPHY: upper slats of Roach [Intermarine Member].
LOC^{n}:NGR: Queen's Ground No 7 of Mr Hayward, Spyways, Langton.
No OF PRINTS:PHOTOGRAPH/PLAN: 5 [or more?].
No OF TRACKS: 5 [deduced from text].
DATE DISCOVERED: 10.1959.
BY: [?] Mr A Hayward.
PRINT/TRACK TYPE: pm, tm and tc.
CLASSIFICATION:PRODUCER: :[adult] and juvenile.
MEASUREMENTS L/B: L 3@ 9" and 2 baby(?)
DIRECTION(S): West or slightly N of W.

CATALOGUE No: 19.
REFERENCES: Delair 1960, p.79. Also Sarjeant 1974, p.354 is based on this reference.
STRATIGRAPHY: Roach.
LOC^{n}:NGR: quarry in Spyways area of Langton Matravers.
DATE DISCOVERED: 1959/60.
MEASUREMENTS L/B: large and small.

CATALOGUE No: 19.
REFERENCES: Delair & Lander 1973, p.18 and fig.2, based on Delair 1960.
STRATIGRAPHY: 'roach' stone [Intermarine Member].
LOC^{n}:NGR: Spyways quarry.
DATE DISCOVERED: 'about 1957'.
CLASSIFICATION:PRODUCER:
:*Iguanodon.*

CATALOGUE No: 19.
REFERENCES: conversation between W J & W T Haysom and PCE 05.04.1983.
LOC^{n}:NGR: Mr Hayward's quarry, No 7 Queen's Ground: NGR SY 9955 7750. [WJH & WTH give the same NGR for Cat.No.32].
DATE DISCOVERED: October 1959.

NB. Cat.No.20: The trackways at this site are subdivided into 20, the discovery in general, and 20a-e which documents individual discoveries from 1961 - 1963.

CATALOGUE No: 20.
REFERENCES: Oppé ms scrapbook.
STRATIGRAPHY: M Purbeck, Roach, Pink Bed.
LOC^{n}:NGR: Suttles Quarry, Swanage, on high ground at top end of Hillsea Road, Herston, Swanage.
No OF PRINTS:PHOTOGRAPH/PLAN: Plans see Oppé: Suttle, Brown, Oppé & White; Delair; Oppé.
No OF TRACKS: 3 sets removed by BM(NH).
DATE DISCOVERED: Nov - Dec 1961.
PRINT/TRACK TYPE: m.
CLASSIFICATION:PRODUCER:
:*Iguanodon* type (Oppé), *Megalosaurus* BM(NH).
MEASUREMENTS L/B: see Oppé.
DIRECTION(S): ENE to WSW.

CATALOGUE No: 20.
REFERENCES: Suttle 1963, pp.15 - 16.
STRATIGRAPHY: freestone vein of the Middle Purbeck.
LOC^{n}:NGR: quarry near Herston (on lease from Council).
No OF PRINTS:PHOTOGRAPH/PLAN: :Ph p.15.
No OF TRACKS: 3 removed by BM(NH). [does not specify which].
DATE DISCOVERED: 1961.
PRINT/TRACK TYPE: m.
CLASSIFICATION:PRODUCER:
Iguanodon half grown.
REPOSITORY:ACC No: BM(NH) [see No OF TRACKS above].

CATALOGUE No: 20.
REFERENCES: Delair 1963, p.100.
STRATIGRAPHY: 'Roach' [Intermarine Member, Purbeck Limestone Group].
LOC^{n}:NGR: Suttles quarry overlooking Herston.
DATE DISCOVERED: late 1961 early 1962.

CATALOGUE No: 20.
REFERENCES: Delair 1966, pp.62-3. [Delair also refers to accounts in *Discovery*, Vol. 24, p.8 (1963) and Diamond News Vol. 26, pp.26-27 (1963)].
STRATIGRAPHY: 'Pink Bed' stone in the 'Roach', 50d of Damon.
LOC^{n}:NGR: Messrs J & E W Suttle's quarry on high ground above upper Hillsea Road, Herston, in an area formerly know as Mutton Hole.
No OF TRACKS: 3.
DATE DISCOVERED: Summer 1961 (quarry had been reopened in 1961).

CATALOGUE No: 20.
REFERENCES: Walkden & Oppé 1969, Tab 1 and p.25 probably based in part on Delair 1966.
STRATIGRAPHY: Purbeck Roach.
LOC^{n}:NGR: Suttles, Herston.
No OF PRINTS:PHOTOGRAPH/PLAN: 13, 13 & 9.
No OF TRACKS: [3].
DATE DISCOVERED: 1961.
CLASSIFICATION:PRODUCER:
:*Megalosaurus* x2, *Iguanodon* x1 [the latter is crossed through in my copy and altered to *Megalosaurus*.
MEASUREMENTS L/B: 10-11" diam x2 with pace 3'6" and 8-9" long, 10" wide with 3'1" pace [for 'pace' read stride].
DIRECTION(S): all SW.

CATALOGUE No: 20.
REFERENCES: Sarjeant 1974, pp.354-6 reviews discoveries.
LOC^{n}:NGR: Messrs Suttle's Mutton Hole quarry at Herston.
DATE DISCOVERED: 1962.

CATALOGUE No: 20.
REFERENCES: Charig 1979, plate on p.32 (also used by GBR Educational 1979 and Suttle 1963).
STRATIGRAPHY: Purbeck Stone.
LOC^{n}:NGR: Swanage, Dorset.
No OF PRINTS:PHOTOGRAPH/PLAN: 10; 9; 10 visible in Ph.
No OF TRACKS: 3.
DATE DISCOVERED: 1962.
PRINT/TRACK TYPE: m.
CLASSIFICATION:PRODUCER: tridactyl :*Megalosaurus*.

CATALOGUE No: 20.
REFERENCES: Norman 1980, p.78.
STRATIGRAPHY: Wealden [implied].
CLASSIFICATION:PRODUCER:
:Megalosaurian. Slender pointed digits with characteristically hooked end to digit and *Iguanodon* with broader rounded ends to digits.

CATALOGUE No: 20.
REFERENCES: Sarjeant 1983, pp.544 & 558.
STRATIGRAPHY: Purbeck Limestone.
No OF TRACKS: 4.
REPOSITORY:ACC No: that part of Herston Quarry track 'described by Swaine 1962 and Charig & Newman 1962 and discussed in Sarjeant 1974 is on long term loan to the Manchester Museum.'

CATALOGUE No: 20.
REFERENCES: Mossman & Sarjeant 1983, p.74.
STRATIGRAPHY: ' Purbeck Beds [then accidentally stated to be Late Cretaceous but corrected to Early by Delair & Sarjeant 1985, p.149].
LOC^{n}:NGR: nr Herston, Dorset.
No OF TRACKS: 2.

CATALOGUE No: 20.
REFERENCES: conversation between W J & W T Haysom and PCE 05.04.1983.
LOC^{n}:NGR: Suttle's quarry (corporation concession): NGR SZ 022 782 (approx).

CATALOGUE No: 20.
REFERENCES: C A Walker (pers.comm.) 13.04.1983.
REPOSITORY:ACC No: BM(NH): Not as yet accessioned but referred to as 'A' track (single megalosaur); 'B' track (single Iguanodon) [see Cat.No.21]; and 'C' or 'Double' track (2 megalosaurs). Section of 'A' and 'C' tracks lifted lay in the unquarried area [top left quarter of figure] of Delair and Lander 1973, fig.1.

CATALOGUE No: 20.
REFERENCES: Delair and Sarjeant 1985, p.149. They also refer to an account by Halstead 1975 in which these tracks were figured.
STRATIGRAPHY: Early Cretaceous rather than Late Cretaceous.
CLASSIFICATION:PRODUCER:
Iguanodon and *Megalosaurus*.
REPOSITORY:ACC No: Portions of the tracks were acquired by the BM(NH) and have since been loaned to the Manchester Museum. The 'remaining footprints were disposed of piecemeal, being widely distributed among academic, commercial and private collections'. Ref to Cat.No. 137.

CATALOGUE No: 20.
REFERENCES: Newman 1990, pp.97-100.
STRATIGRAPHY: known locally as 'roach' or 'pink bed'.
LOC^{n}:NGR: quarry of Messrs J & E W Suttle at Mutton Hole, Herston, nr Swanage.
No OF TRACKS: 3 & 1.
DATE DISCOVERED: Jan 1962.
PRINT/TRACK TYPE: no tail drag noticed.
CLASSIFICATION:PRODUCER:
:megalosaurid (3 tracks - 20a,b,c) & iguanodontid (1 track above main print horizon - 21).
MEASUREMENTS L/B: 300 mm; Pace 600 - 720 mm; Stride 1442 mm. [measurements for pair of tracks - 20a].
REPOSITORY:ACC No: BM(NH).

CATALOGUE No: 20.
REFERENCES: Thulborn 1990, pp.52, 108, 318 and 319. (Thulborn also refers to Thulborn 1984, *Alcheringa*, Volume 8, pp.243-52, and Haubold, H., 1984, *Saurierfährten*, A. Ziemsen Verlag.).
No OF PRINTS:PHOTOGRAPH/PLAN: :Plan, fig.11.7.b&c.
CLASSIFICATION:PRODUCER: Problems of identity and relative ages of tracks discussed.

CATALOGUE No: 20a.
REFERENCES: Anon in *New Scientist*, 1962, p.186. Also Lockley 1991, pp.167-168 is based on this reference.
STRATIGRAPHY: Pink Bed, Purbeck Limestone.
LOC^{n}:NGR: Herston, quarry at.
No OF PRINTS:PHOTOGRAPH/PLAN: 13 pairs of footprints.
DATE DISCOVERED: July 1961.
PRINT/TRACK TYPE: m, tm and tc.
CLASSIFICATION:PRODUCER: tridactyl: *Iguanodon*.
MEASUREMENTS L/B: approx. 10" each way. Stride of about 2' [incorrect interpretation].

CATALOGUE No: 20a.
REFERENCES: Delair ms plan in Oppé, ms scrapbook as 'Group B'.
STRATIGRAPHY: same level as 20b,c & e.
LOC^{n}:NGR: Suttle's Quarry.
No OF PRINTS:PHOTOGRAPH/PLAN: 15+, 11: Pl.
No OF TRACKS: 2.

CATALOGUE No: 20a.
REFERENCES: Delair 1966, p.63.
STRATIGRAPHY: Pink Bed, Roach, Bed 50d of Damon.
LOC^{n}:NGR: quarry worked by Messrs J & E W Suttle on highground above upper end of Hillsea Road, Herston, in area formerly known as Mutton Hole.
No OF PRINTS:PHOTOGRAPH/PLAN: 26.
No OF TRACKS: [2].
DATE DISCOVERED: 1961 summer.
PRINT/TRACK TYPE: Delair notes footprints visible in underlying 'dirt'

[=transmission].
CLASSIFICATION:PRODUCER: :?*Megalosaurus*.

CATALOGUE No: 20a.
REFERENCES: Calkin 1968, p.4.
LOC^{n}:NGR: quarry of Messrs J & E W Suttle at Herston.
No OF PRINTS:PHOTOGRAPH/PLAN: 26.
No OF TRACKS: 2.
DATE DISCOVERED: 1961.
CLASSIFICATION:PRODUCER: :?*Megalosaurus* longer and narrower footprint than the earlier ones [Cat.nos 11 & 58].

CATALOGUE No: 20b.
REFERENCES: Delair ms plan in Oppé ms scrapbook as 'Group B'.
STRATIGRAPHY: [same level as 20a,c&e].
No OF PRINTS:PHOTOGRAPH/PLAN: 13.
No OF TRACKS: 1.

CATALOGUE No: 20b.
REFERENCES: Delair 1966, p.63.
STRATIGRAPHY: Pink Bed.
LOC^{n}:NGR: quarry worked by Messrs J & E W Suttle on highground above upper end of Hillsea Road, Herston in area formerly known as Mutton Hole.
No OF TRACKS: 1.
DATE DISCOVERED: 1962.
CLASSIFICATION:PRODUCER: :?*Megalosaurus*.

CATALOGUE No: 20b.
REFERENCES: Calkin 1968, p.4.
LOC^{n}:NGR: quarry of Messrs J & E W Suttle at Herston.
No OF TRACKS: 1 70ft long.
CLASSIFICATION:PRODUCER: :?*Megalosaurus* longer and narrower footprint than earlier ones [Cat.nos 11 & 58].

CATALOGUE No: 20a&b.
REFERENCES: Swaine 1962.
STRATIGRAPHY: quarry known locally as 'Mutton Hole'.
No OF PRINTS: 20a=?, 20b=11.
DATE DISCOVERED: [before 03.1962].

CATALOGUE No: 20a&b.
REFERENCES: Charig & Newman 1962. Also Lockley 1991, pp.167-168 is based on this reference.
LOC^{n}:NGR: quarry at Herston.
CLASSIFICATION:PRODUCER: :?*Megalosaurus*.
MEASUREMENTS L/B: stride of about 46". Angle between outer toes >90°.

CATALOGUE No: 20c.
REFERENCES: Delair ms plans in Oppé ms scrapbook as 'Group A'.
STRATIGRAPHY: [same level as 20a,b,&e.
LOC^{n}:NGR: Suttle's quarry.
No OF PRINTS:PHOTOGRAPH/PLAN: 7, 3, & 4.
No OF TRACKS: 3.
MEASUREMENTS L/B: much detail recorded on Delair plans as 'Group A'.
DIRECTION(S): NNE - SSW and NE - SW.

CATALOGUE No: 20c. A continuation of 20a & 20b.
REFERENCES: Delair 1966, p.63.
STRATIGRAPHY: 'Pink Bed' stone (in the 'Roach') Bed 50d of Damon's (1884) Purbeck Sequence. [Intermarine Member].
LOC^{n}:NGR: quarry worked by Messrs J & E W Suttle on highground above upper end of Hillsea Road, Herston, in area formerly known as Mutton Hole.
No OF TRACKS: 3.
DATE DISCOVERED: 1962.
CLASSIFICATION:PRODUCER: :?*Megalosaurus*
MEASUREMENTS L/B: Delair records measurement of tracks by Charig, Suttle, Oppé, and himself.

CATALOGUE No: 20a, b & c.
REFERENCES: Oppé 1965 pp.27 - 28.
LOC^{n}:NGR: quarry (old one) on the heights above Herston Cross.
No OF PRINTS:PHOTOGRAPH/PLAN: :Ph.pl IV, p.17.
DATE DISCOVERED: 1961.
CLASSIFICATION:PRODUCER: tridactyl :*Megalosaurus* and *Iguanodon*.
MEASUREMENTS L/B: 10" - 12" circumference; 3'6" pace.
DIRECTION(S): NE - SW.

CATALOGUE No: 20d. [presumably part of 20a, b, c or a newly excavated section from these trackways].
REFERENCES: Delair 1966, p.64.
LOC^{n}:NGR: quarry on highground above upper end of Hillsea Road, Herston in area formerly known as Mutton Hole, worked by Messrs J & E W Suttle.
No OF TRACKS: 70 ft long section.
DATE DISCOVERED: June & July 1963.
BY: J & E W Suttle and BM(NH).
CLASSIFICATION:PRODUCER: :?*Megalosaurus*.

CATALOGUE No: 20d.
REFERENCES: Delair & Lander 1973, pp.18-19 and fig.2.
STRATIGRAPHY: 'Pink Bed'stone in the 'Roach' Bed 50d of Damon 1884 [Intermarine Member].
LOC^{n}:NGR: quarry of J & E W Suttle at Herston.
DATE DISCOVERED: 1963.
BY: BM(NH).
CLASSIFICATION:PRODUCER: :*Megalosaurus*.
REPOSITORY:ACC No: BM(NH).

CATALOGUE No: 20d.
REFERENCES: Norman 1980, p.78.
STRATIGRAPHY: implies Wealden.
No OF PRINTS:PHOTOGRAPH/PLAN: :Pl on p.92-3.
No OF TRACKS: 2.
CLASSIFICATION:PRODUCER: :*Megalosaurus* and *Iguanodon* of which forelimbs and hindlimbs are present. [C A Walker pers. comm. states that the *Iguanodon* track of Norman became typically megalosaurid before it disappeared under the overburden].

CATALOGUE No: 20e.
REFERENCES: Delair ms in Oppé ms scrapbook as 'Group C'.
STRATIGRAPHY: drawn as if at same level as 20a,b&c [ie Pink Bed but later altered to 'sugar' bed, Delair & Lander 1973].
LOC^{n}:NGR: Suttles quarry.
No OF PRINTS:PHOTOGRAPH/PLAN: 8 and 4: Pl (Delair ms) in Oppé, scrapbook.
No OF TRACKS: 2.
DATE DISCOVERED: Plan drawn J B Delair 1962.
MEASUREMENTS L/B: see Delair ms plan in Oppé ms scrapbook.
DIRECTION(S): NE-SW.

CATALOGUE No: 20e.
REFERENCES: Delair 1966, p.63.
STRATIGRAPHY: Pink Bed [Intermarine Member] [but later corrected to 'sugar' bed Delair & Lander 1973, p.19.
LOC^{n}:NGR: quarry on high ground above upper end of Hillsea Road, Herston in area known as Mutton Hole, quarried by Messrs J & E W Suttle.
No OF TRACKS: 'additional "single" tracks then newly exposed ... elsewhere in the quarry'.
DATE DISCOVERED: [before May 19th 1962].
MEASUREMENTS L/B: [does not specifically state that these tracks were measured but they were inspected and the presence of them on the ms plans and in Delair & Lander 1973 supports the notion that they were].

CATALOGUE No: 20e.
REFERENCES: Delair and Lander 1973, p.19 and figs 1 & 2.
STRATIGRAPHY: 'sugar' bed underlying the 'roach' stone [Intermarine Member. Previously referred to 'pink' bed Delair 1966. p.63].
LOC^{n}:NGR: quarry of J & E W Suttle at Herston.
No OF PRINTS:PHOTOGRAPH/PLAN: 8 and 4 : Pl. [NB This plan shows these two tracks lying 'approx 85 yds' east of the first appearance of the 'pink' bed tracks. This is at variance with the ms plan in Oppé's ms scrapbook where they are on the same alignment. If carried out to enable the prints to be included in the figure it is not made clear. See also 'Direction' below].
No OF TRACKS: 'single track' p.19, 2 tracks on plan.
CLASSIFICATION:PRODUCER: :Iguanodont.
DIRECTION(S): NNE-SSW [see notes under plan above. The 8 fp track's direction is not the same on the ms plans as in the published plan, ie NE-SW] The 4 fp track is more difficult to ascertain.
REPOSITORY:ACC No: broken and disposed of piecemeal.

CATALOGUE No: 20a,b,c,d,& e.
REFERENCES: Delair & Lander 1973.
STRATIGRAPHY: 'pink' bed of 'roach' stone and 'sugar' bed (Thornback).
LOC^{n}:NGR: quarry of J & E W Suttle at Herston.
No OF PRINTS:PHOTOGRAPH/PLAN: :Pl = fig.1. [see notes under 20e Delair & Lander].
DATE DISCOVERED: 1961-1963.
CLASSIFICATION:PRODUCER: :*Megalosarus* 3 tracks [20a,b,c,d] and Iguanodont 1 or 2 tracks [20e].

CATALOGUE No: 20f.
REFERENCES: Walkden & Oppé 1969, p.25.
STRATIGRAPHY: 'the same surface' [ie Roach].
LOC^{n}:NGR: [?]Suttle's quarry Herston.
No OF PRINTS:PHOTOGRAPH/PLAN: 'a very faint third row of ... prints'.
No OF TRACKS: 1.
DATE DISCOVERED: 'earlier discovery'.
CLASSIFICATION:PRODUCER: :*Iguanodon*.

CATALOGUE No: 21.
REFERENCES: Oppé 1965, p.28.
LOC^{n}:NGR: quarry (old one) on the top heights above Herston Cross.
DATE DISCOVERED: [Summer 1963].
BY: BM(NH).
CLASSIFICATION:PRODUCER: :*Iguanodon* 'the digits taper more narrowly towards the rear (heel)'.
REPOSITORY:ACC No: BM(NH).

CATALOGUE No: 21.
REFERENCES: C A Walker (pers.comm.) 13.04.1983.
CLASSIFICATION:PRODUCER: :An *Iguanodon* track was recovered from above the three parallel megalosaur tracks crossing nearly at right angles.
DIRECTION(S): *c.* north west to south east.
REPOSITORY:ACC No: BM(NH): Referred

to as "'B' track (single *Iguanodon*)."

CATALOGUE No: 22.
REFERENCES: Walkden & Oppé 1969, p.27.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
CLASSIFICATION:PRODUCER: tridactyl 'T' shaped: uncertain.

CATALOGUE No: 22.
REFERENCES: Delair 1963, pp.94-98. Also Sarjeant 1974, pp.355-6 and Thulborn 1990, pp.52, 157-8, & 225 + fig.6.10.e are based on this reference.
STRATIGRAPHY: 'Roach' stone [Intermarine Member].
LOC^{n}:NGR: Lander's Quarry, Worth Matravers 'his [ABL] neighbouring [to Worth Matravers village] quarry'.
No OF PRINTS:PHOTOGRAPH/PLAN: 1. similar ones exposed in association were destroyed: Pl text fig.4.
DATE DISCOVERED: 06.1960.
PRINT/TRACK TYPE: m.
CLASSIFICATION:PRODUCER: tridactyl 'T' shaped: [Ichnogenus =] *Taupezia landeri*.
MEASUREMENTS L/B: L 6" / B 6.2".
REPOSITORY:ACC No: in possesion of J B Delair (Holotype).

CATALOGUE No: 22.
REFERENCES: Haubold 1971, p.75 & Abb.63a.4.
STRATIGRAPHY: Middle Purbeck.
LOC^{n}:NGR: Worth Matravers, Dorset.
No OF PRINTS:PHOTOGRAPH/PLAN: 1:text fig.
CLASSIFICATION:PRODUCER: tridactyl: [Ichnogenus] *Taupezia*. Order Saurischia. Family indet.
MEASUREMENTS L/B: L & B 150 mm.

CATALOGUE No: 22.
REFERENCES: Delair & Lander 1973, p.18 and fig.2.
STRATIGRAPHY: 'roach' stone.
LOC^{n}:NGR: Burt's Quarry, Worth Matravers. Delair (pers.comm. 11.11.1983) states that by 1973 Lander's quarry had been sold to Nelson Burt and was then called Burt's quarry. [but see also note of conversation between Messrs Haysom & PCE 05.04.1983 recorded under Cat.No.22 below].
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
CLASSIFICATION:PRODUCER: :[Ichnogenus] *Taupezia landeri*.
REPOSITORY:ACC No: Hunterian Museum, Glasgow.

CATALOGUE No: 22.
REFERENCES: Sarjeant 1974, pp.355-6 based on Delair 1963.
LOC^{n}:NGR: his [A B Lander's] quarry at Worth Matravers.
DATE DISCOVERED: early June 1960.
BY: A B Lander.
CLASSIFICATION:PRODUCER: : [Ichnogenus] *Taupezia landeri*.

CATALOGUE No: 22.
REFERENCES: conversation between W J & W T Haysom and PCE 05.04.1983.
LOC^{n}:NGR: Burt's Quarry, NGR SY 9846 7825 is not the same as Lander's Quarry. (NGRs given for the two sites are the same).

CATALOGUE No: 22.
REFERENCES: Pers. comms from P Manning and Dr N D L Clark.
No OF PRINTS:PHOTOGRAPH/PLAN: 2. 1 on upper surface and another on under surface of slab *c.* 37 mm thick.
REPOSITORY:ACC No: Hunterian Museum, Glasgow: GLAHM x889.

CATALOGUE No: 23.
REFERENCES: Delair 1963, pp.92-95. Also Thulborn 1990, p.52 is based on this reference.
STRATIGRAPHY: 'Roach'.
LOC^{n}:NGR: quarry at Gallows Gore or same location that yielded Cat.no.12.
No OF PRINTS:PHOTOGRAPH/PLAN: 2: Ph fig.5 of Delair 1963.
DATE DISCOVERED: in existence *c.*1936.
CLASSIFICATION:PRODUCER: :[Ichnogenus] *Purbeckopus pentadactylus*.
MEASUREMENTS L/B: see photo.
REPOSITORY:ACC No: Specimen lost [subsequently recovered. See Ensom 1986a].

CATALOGUE No: 23.
REFERENCES: MacFadyen 1970, p.143.
CLASSIFICATION:PRODUCER: :possibly crocodilian.

CATALOGUE No: 23.
REFERENCES: Sarjeant 1974.
LOC^{n}:NGR: Uncertain provenance.
No OF PRINTS:PHOTOGRAPH/PLAN:>1.
CLASSIFICATION:PRODUCER: :[Ichnogenus] *Purbeckopus pentadactylus*.

CATALOGUE No: 23.
REFERENCES: Ensom 1986a, pp.182-3 and Pl.3a.
STRATIGRAPHY: ?Roach, Intermarine Member.
LOC^{n}:NGR: ?originally from the mine at Old Court Pound, nr Acton: NGR SY 9919 7872.
No OF PRINTS:PHOTOGRAPH/PLAN: 3: Ph. see Ensom 1986, Pl. 3a.
DATE DISCOVERED: rediscovered 1985.
BY: Mr and Mrs A Kirk and PCE.
PRINT/TRACK TYPE: ?pm.
CLASSIFICATION:PRODUCER: :[Ichnogenus] *Purbeckopus pentadactylus*.
REPOSITORY:ACC No: Dorset County Museum: DORCM G 9481. Presented by Mr and Mrs A Kirk.

CATALOGUE No: 24.
REFERENCES: Anon 31.07.1957.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: pre 1957.
REPOSITORY:ACC No: Hancock G. & Sons, Kings Road, Swanage.

CATALOGUE No: 24.
REFERENCES: Delair 1960, p.79.
MEASUREMENTS L/B: very large.
REPOSITORY:ACC No: Private collection Winchester, recently sent.

CATALOGUE No: 24.
REFERENCES: Delair 1963, p.98.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
CLASSIFICATION:PRODUCER: tridactyl.
MEASUREMENTS L/B: very large.
REPOSITORY:ACC No: formerly displayed outside the showroom of G Hancock & Sons, Swanage.

CATALOGUE No: 25.
REFERENCES: Delair 1960, p.79.
STRATIGRAPHY: Middle Purbeck.
LOC^{n}:NGR: Durlston Bay.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
CLASSIFICATION:PRODUCER: indet dinosaurian reptile.
REPOSITORY:ACC No: BM(NH): R 3957.

CATALOGUE No: 25.
REFERENCES: Letter from C A Walker (based on accession register) to PCE 13.04.1983.
STRATIGRAPHY: M Purbeck Beds.
LOC^{n}:NGR: Durlestone [*sic*] Bay, Swanage.
No OF PRINTS:PHOTOGRAPH/PLAN: 'prints'.

CLASSIFICATION:PRODUCER: :dinosaur.
REPOSITORY:ACC No: BM(NH): R 3957. Presd Stanley C Bailey Oct. 1912.

CATALOGUE No: 26.
REFERENCES: Delair 1960, p.79.
STRATIGRAPHY: Middle Purbeck.
LOC^{n}:NGR: Swanage.
No OF PRINTS:PHOTOGRAPH/PLAN: 'Footprints'.
REPOSITORY:ACC No: BM(NH): R.3119.

CATALOGUE No: 26.
REFERENCES: Letter from C A Walker (based on accession register) to PCE 13.04.1983.
STRATIGRAPHY: Purbeck.
LOC^{n}:NGR: Swanage.
No OF PRINTS:PHOTOGRAPH/PLAN: prints and suncracks.
CLASSIFICATION:PRODUCER: : ?*Iguanodon*.
REPOSITORY:ACC No: BM(NH): R.3119. Presd by Sir J Mowlem Burt, 1903.

CATALOGUE No: 27.
REFERENCES: Delair 1960, p. 79.
STRATIGRAPHY: Middle Purbeck.
LOC^{n}:NGR: Swanage.
No OF PRINTS:PHOTOGRAPH/PLAN: 'A footprint'.
REPOSITORY:ACC No: BM(NH): R.3695.

CATALOGUE No: 27.
REFERENCES: Letter from C A Walker (based on accession register) to PCE 13.04.1983.
STRATIGRAPHY: M Purbeck (Feather Shale), 4'9" below Cinder Bed; 2' above Turtle Bed.
LOC^{n}:NGR: Swanage.
No OF PRINTS:PHOTOGRAPH/PLAN: prints.
CLASSIFICATION:PRODUCER: :*Iguanodon*.
REPOSITORY:ACC No: BM(NH): R.3695. Purchd from W M Hardy Aug. 1909.

CATALOGUE No: 28.
REFERENCES: Delair 1960, p.79.
STRATIGRAPHY: Middle Purbeck [but see next entry].
LOC^{n}:NGR: Swanage.
No OF PRINTS:PHOTOGRAPH/PLAN: 'Footprints'.
REPOSITORY:ACC No: BM(NH): R.3696.

CATALOGUE No: 28.
REFERENCES: Letter from C A Walker (based on accession register) to PCE 13.04.1983.
STRATIGRAPHY: Wealden. [Looks like a Purbeck Limestone Group specimen in photo - see next entry].
LOC^{n}:NGR: near side of Swanage Bay.
No OF PRINTS:PHOTOGRAPH/PLAN: prints.
CLASSIFICATION:PRODUCER: :*Iguanodon*.
REPOSITORY:ACC No: BM(NH): R.3696. Purchd from W M Hardy Aug. 1909.

CATALOGUE No: 28.
REFERENCES: Charig, 1983, plate on p.31. (Also in GBR Educational 1979).
STRATIGRAPHY: Lower Cretaceous.
LOC^{n}:NGR: Dorset.
No OF PRINTS:PHOTOGRAPH/PLAN: 1: Ph.
PRINT/TRACK TYPE: m.
CLASSIFICATION:PRODUCER: tridactyl: *Iguanodon*.
MEASUREMENTS L/B: B 240 mm.
REPOSITORY:ACC No: British Museum

(Natural History): BM(NH) R. 3696. [Sandra Chapman pers.comm.].

CATALOGUE No: 29.
REFERENCES: Delair 1960, p.79.
LOC^{n}:NGR: Middle Purbeck.
No OF PRINTS:PHOTOGRAPH/PLAN: 'Footprints'.
REPOSITORY:ACC No: BM(NH): R.5813.

CATALOGUE No: 29.
REFERENCES: Letter from C A Walker (based on accession register) to PCE 13.04.1983.
STRATIGRAPHY: Purbeck.
LOC^{n}:NGR: Herston, Swanage.
No OF PRINTS:PHOTOGRAPH/PLAN: prints.
CLASSIFICATION:PRODUCER: :*Iguanodon*.
REPOSITORY:ACC No: BM(NH): R.5831. Purchd J B Calkin, Esq., June 1934 [Though at no time is there a reference to any part of Cat.No.11 going to the BM(NH), the temptation must be to wonder if this specimen is a part of the find described by Calkin 1933 and figured in the same. The locality of Herston is common to both and the acquisition date just after the publication of the *Discovery* article.

CATALOGUE No: 30.
REFERENCES: Delair 1960, p.79 based on Oppé,, pers.comm.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
REPOSITORY:ACC No: Specimen in private house in Swanage.

CATALOGUE No: 31.
REFERENCES: Delair 1960, p.79 based on Oppé, pers.comm.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
REPOSITORY:ACC No: Specimen in private house in Swanage.

CATALOGUE No: 32.
REFERENCES: Oppé 1965, p.29, plates V, VI & VII and p.13.
LOC^{n}:NGR: Mr Arthur Hayward's Queensground Quarry.
No OF PRINTS:PHOTOGRAPH/PLAN: 6+4+[?]4=14: Ph (plates V, VI & VII).
No OF TRACKS: 1 [exposed at various times from 1963 - 4].
DATE DISCOVERED: 1963 - 64.
BY: Arthur, Noel & John Hayward.
PRINT/TRACK TYPE: m.
MEASUREMENTS L/B: L 8" 'perhaps a little smaller'[than Cat.No.20]. Pace [*sic* ie. stride] 3'3" and 3'2". Stride [*sic* ie. pace] 15", 16" and 14".
DIRECTION(S): NW-SE.

CATALOGUE No: 32.
REFERENCES: Delair 1966, p.64.
STRATIGRAPHY: upper part of the 'Roach' stone.
LOC^{n}:NGR: Arthur Hayward's quarry at Queensground.
No OF PRINTS:PHOTOGRAPH/PLAN: :Ph fig.1 = Oppé 1965 pl.V. Photographic record made by Mr Raymond Newman.
No OF TRACKS: 1.
DATE DISCOVERED: June 1963 - October 1964 [at least].
BY: [?Mr A Hayward],
PRINT/TRACK TYPE: m.
MEASUREMENTS L/B: 'average maximum width of 8 in'. 15 in intervals between footprints.
REPOSITORY:ACC No: destroyed.

CATALOGUE No: 32.
REFERENCES: Walkden & Oppé, 1969, Tab 1 and p.25.
STRATIGRAPHY: Purbeck Roach.
LOC^{n}:NGR: Hayward's Queensground.
No OF PRINTS:PHOTOGRAPH/PLAN: 14:
No OF TRACKS: 'single sequence'.
DATE DISCOVERED: 1963.
CLASSIFICATION:PRODUCER: :*Megalosaurus*.
MEASUREMENTS L/B: 8-9" diameter. Pace 3'2" [= stride].
DIRECTION(S): SE.

CATALOGUE No: 32.
REFERENCES: Delair & Lander 1973, p.19 and fig.2.
STRATIGRAPHY: 'roach' stone.
LOC^{n}:NGR: Hayward's Quarry, Queensground.
No OF TRACKS: 1.
CLASSIFICATION:PRODUCER: :Megalosaurian type.
REPOSITORY:ACC No: not preserved.

CATALOGUE No: 32.
REFERENCES: Sarjeant 1974, p.356 (based in part on Oppé, 1965).
LOC^{n}:NGR: Hayward's Quarry, Queensground, Langton Matravers Parish.
CLASSIFICATION:PRODUCER: :'probably again attributable to megalosaurs'.
REPOSITORY:ACC No: not preserved.

CATALOGUE No: 32.
REFERENCES: conversation between W J & W T Haysom and PCE 05.04.1983.
LOCn:NGR: Hayward A + N & J (Sons) Queensground Quarry 1963-4: NGR SY 9955 7750. [WJH & WTH give the same NGR for Cat.No.19].

CATALOGUE No: 33.
REFERENCES: Delair 1966, p.65. Sarjeant 1974 p.356 is based on this reference and Delair & Lander 1973, fig.2 adds nothing new.
STRATIGRAPHY: upper part of the 'Roach' stone.
LOC^{n}:NGR: quarry of Mr Ronald Bowyer [*sic*] north-east of Worth Matravers.
No OF PRINTS:PHOTOGRAPH/PLAN: more than one:
DATE DISCOVERED: recently exposed [*c.*1966].
PRINT/TRACK TYPE: m & c.
CLASSIFICATION:PRODUCER: :*Iguanodon*-like with long middle digit.
REPOSITORY:ACC No: a well preserved impression and matching cast of one of these footrpints can be inspected at the quarry.

CATALOGUE No: 33.
REFERENCES: conversation between W T & W J Haysom and PCE 05.04.1983.
LOC^{n}:NGR: Mr Ronald Bower's quarry NE of Worth Matravers [NB Bower is correct spelling *fide* Messrs Haysom: NGR SY 9823 7835.
DATE DISCOVERED: 1965/6.

CATALOGUE No: 34.
REFERENCES: Delair 1966, p.65 & fig.2.
STRATIGRAPHY: surface of a freestone bed in the Middle Purbeck series (bed 50b of Damon [1884]).
LOC^{n}:NGR: quarry of Messrs W J & K W Norman, No 9 Queensground.
No OF PRINTS:PHOTOGRAPH/PLAN: 7 = 3 right & 4 left: Ph fig.2 on p 65.
No OF TRACKS: [1].
DATE DISCOVERED: early September 1965.
CLASSIFICATION:PRODUCER: tridactyl with bluntly tapered digits.
MEASUREMENTS L/B: L *c.*16.5"/ B *c.*12.5". Pace 22" - 24".
DIRECTION(S): SSE - NNW.
REPOSITORY:ACC No: in hand to go to the Hunterian in Glasgow.

CATALOGUE No: 34.
REFERENCES: Delair 1966a, fig.36.
LOC^{n}:NGR: Norman's quarry, Queensground, Langton Matravers.
No OF PRINTS:PHOTOGRAPH/PLAN: :Ph.

CATALOGUE No: 34.
REFERENCES: Hunter 1967 (reference from Delair and Sarjeant 1985, p.149).
PRINT/TRACK TYPE: skid-mark preserved.
REPOSITORY:ACC No: Hunterian Museum, Glasgow.

CATALOGUE No: 34.
REFERENCES: Walkden & Oppé 1969, Tab 1 & p.25.
STRATIGRAPHY: in the Freestone bed, a full five feet below the Roach.
LOC^{n}:NGR: Normans Queensground.
No OF PRINTS:PHOTOGRAPH/PLAN: 8:
No OF TRACKS: 1.
DATE DISCOVERED: 1965.
CLASSIFICATION:PRODUCER: :*Iguanodon*.
MEASUREMENTS L/B: L. 16-17"/ B. 12-13". Pace 5' [=stride].
DIRECTION(S): NNW.
REPOSITORY:ACC No: removed in 1966 to the Hunterian.

CATALOGUE No: 34.
REFERENCES: Rolfe 1969.
STRATIGRAPHY: Middle Purbeck Beds.
No OF PRINTS:PHOTOGRAPH/PLAN: 7: Ph on p.9.
No OF TRACKS: 1.
REPOSITORY:ACC No: Hunterian Museum, Glasgow.

CATALOGUE No: 34.
REFERENCES: Delair & Lander 1973, p.19 and fig.2.
STRATIGRAPHY: 'freestone' bed.
LOC^{n}:NGR: Messrs W J & K W Norman's quarry No 9, Queensground.
No OF TRACKS: 1.
DATE DISCOVERED: *c.*1965.
CLASSIFICATION:PRODUCER: :typical Iguanodont.
MEASUREMENTS L/B: large.
REPOSITORY:ACC No: Hunterian Museum, Glasgow.

CATALOGUE No: 34.
REFERENCES: Sarjeant 1974, p.356 based on Delair 1966.
LOC^{n}:NGR: Messrs W J & K W Norman's quarry, Queensground, Langton Matravers.
No OF PRINTS:PHOTOGRAPH/PLAN: :Ph fig.33, p.356 is same as in Rolfe 1969.
CLASSIFICATION:PRODUCER: :'*Iguanodon*' type.
REPOSITORY:ACC No: Hunterian Museum [Glasgow].

CATALOGUE No: 34.
REFERENCES: Norman 1980, p.78.
CLASSIFICATION:PRODUCER: *Iguanodon*. Impressions of hind feet and forelimb impressions (pers comm. from Dr W D Rolfe to DBN).
REPOSITORY:ACC No: Hunterian, Glasgow.

CATALOGUE No: 34.
REFERENCES: conversation between W J & W T Haysom and PCE 05.04.1983.
LOC^{n}:NGR: Messrs W J & K W Norman, quarry no 9, Queensground, now taken over by Mr R Lewis. N of Dancing Ledge. NGR SY 9965 7750. [This is the same NGR as Cat.No.36 according to WJH & WTH. Delair & Lander 1973, fig.2, show Cat.No.91 from this site].
DATE DISCOVERED: September 1965.

CATALOGUE No: 34.
REFERENCES: Delair & Sarjeant 1985, p.149.

LOC^{n}:NGR: Norman's quarry, Queensground, Langton Matravers.
CLASSIFICATION:PRODUCER: :*Iguanodon*.
REPOSITORY:ACC No: Hunterian Museum, Glasgow.

See also Cat.No.75.

CATALOGUE No: 35.
REFERENCES: Calkin 1968, p.4.
LOC^{n}:NGR: quarry of L C Lock, Acton.
No OF PRINTS:PHOTOGRAPH/PLAN: :Ph [Incorrectly identified as Cat.No.36 (Reynold's quarry trackways) by Delair & Lander 1973, p.20].
PRINT/TRACK TYPE: m.

CATALOGUE No: 35.
REFERENCES: Walkden & Oppé 1969, Tab 1, pp.25-6.
STRATIGRAPHY: Roach.
LOC^{n}:NGR: Lock's Acton.
No OF PRINTS:PHOTOGRAPH/PLAN: 13 & 16.
No OF TRACKS: [2].
DATE DISCOVERED: 1967.
CLASSIFICATION:PRODUCER: :*Megalosaurus*.
MEASUREMENTS L/B: 11-12" diam. Pace 3' [= stride].
DIRECTION(S): NE & NE.
REPOSITORY:ACC No: Purchd Royal Scottish Museum, Edinburgh.

CATALOGUE No: 35.
REFERENCES: Delair & Lander 1973, p.20 and fig.2.
STRATIGRAPHY: 'roach' stone.
LOC^{n}:NGR: Lock's Quarry, Acton.
No OF PRINTS:PHOTOGRAPH/PLAN: >24.
No OF TRACKS: 2.
DATE DISCOVERED: 1967.
CLASSIFICATION:PRODUCER: :Megalosaurian type.
MEASUREMENTS L/B: 'measured in detail whilst still in situ'.
REPOSITORY:ACC No: Royal Scottish Museum.

CATALOGUE No: 35.
REFERENCES: Sarjeant 1974, p.357.
LOC^{n}:NGR: Lock's Quarry.
MEASUREMENTS L/B: measured in detail while in situ.
REPOSITORY:ACC No: Royal Scottish Museum, Edinburgh.

CATALOGUE No: 35.
REFERENCES: Paton 1975.
STRATIGRAPHY: Upper Jurassic. Purbeck Roach. Tithonian.
LOC^{n}:NGR: Lock's Quarry, Acton, Langton Matravers, Dorset.
No OF TRACKS: 1 double trackway.
CLASSIFICATION:PRODUCER: *Megalosaurus* sp.
REPOSITORY:ACC No: Royal Scottish Museum.

CATALOGUE No: 35.
REFERENCES: Delair 1982, pp.65-6.
STRATIGRAPHY: 'pink bed' of the Roach Stone (Bed 50d of Damon 1884).
LOC^{n}:NGR: Lock's Quarry, Langton Matravers.
No OF PRINTS:PHOTOGRAPH/PLAN: 15 & 16: Ph fig.1 & 3. Pl fig.2.
No OF TRACKS: 2.
DATE DISCOVERED: June 1967.
PRINT/TRACK TYPE: m.
CLASSIFICATION:PRODUCER: :Megalosaurid dinosaurs.
MEASUREMENTS L/B: L *c.*11"/ B *c.* 13.5".
DIRECTION(S): [NNW/N based on fig. 2].
REPOSITORY:ACC No: Royal Scottish Museum: RSM 1974.16.1.

CATALOGUE No: 35.
REFERENCES: conversation between W J & W T Haysom and PCE 05.04.1983.
LOC^{n}:NGR: Lock's, Acton : NGR SY 9884 7830.

CATALOGUE No: 35.
REFERENCES: Delair & Sarjeant 1985, p.149. They give additional newspaper references.
LOC^{n}:NGR: Lock's quarry, Acton.
REPOSITORY:ACC No: Royal Scottish Museum.

CATALOGUE No: 36.
REFERENCES: Walkden & Oppé 1969.
STRATIGRAPHY: Roach.
LOC^{n}:NGR: Reynold's Queensground.
No OF PRINTS:PHOTOGRAPH/PLAN: 9.
No OF TRACKS: [1].
DATE DISCOVERED: 1967.
CLASSIFICATION:PRODUCER: :*Megalosaurus*.
MEASUREMENTS L/B: 9-10" diam. Pace 2'9" [=stride].
DIRECTION(S): NE.
REPOSITORY:ACC No: Not preserved.

CATALOGUE No: 36.
REFERENCES: Delair & Lander 1973, p.20 and fig.2.
STRATIGRAPHY: 'roach' stone.
LOC^{n}:NGR: Reynold's quarry.
No OF PRINTS:PHOTOGRAPH/PLAN: [NB Delair & Lander state that this track was figured by Calkin 1968, p.3 fig. 3c. This is incorrect. Calkins's fig.3c is of Lock's 1967 find, Cat.No.35].
No OF TRACKS: 1.
DATE DISCOVERED: *c.*1967 after Cat.no. 35.
CLASSIFICATION:PRODUCER: :Megalosaurian. Close resemblence to Cat.No.35 pointed out [but this was based on the misidentified photo].
REPOSITORY:ACC No: not preserved.

CATALOGUE No: 36.
REFERENCES: Sarjeant 1974, p.357 (based on Delair & Lander 1973) [and therefore incorporating the same error re Calkins 1968 fig. 3c].
LOC^{n}:NGR: Reynold's quarry (near to Lock's quarry).
CLASSIFICATION:PRODUCER: similar type to [Cat.No.35] [but NB comment under REFERENCES above].

CATALOGUE No: 36.
REFERENCES: conversation between W J & W T Haysom and PCE 05.04.1983.
LOC^{n}:NGR: Reynold's Queensground, 1967. NGR SY 9965.7750. [This is the same NGR as they give for Cat.No.34 which Delair & Lander 1973, fig.2, show as the site for Cat.No.91].

CATALOGUE No: 36.
REFERENCES: Delair & Sarjeant 1985, p. 149 refer to a newspaper article in the *Bournemouth Evening Echo* 21.07.1967, p.43
LOC^{n}:NGR: Reynold's quarry.

CATALOGUE No: 37.
REFERENCES: Sarjeant 1974, p.357.
STRATIGRAPHY: Upper Purbeck, not in situ.
LOC^{n}:NGR: Peveril Point, Swanage.
No OF PRINTS:PHOTOGRAPH/PLAN: 1: Ph fig.34.
DATE DISCOVERED: 23rd [*sic*] March 1967.
BY: Mr Geoffrey Tyers from party of Adult Education students from Nottingham.
PRINT/TRACK TYPE: m.
CLASSIFICATION:PRODUCER: :iguanodont.
REPOSITORY:ACC No: Collection of Mr E Fuller.

CATALOGUE No: 37.
REFERENCES: Delair & Brown 1975, p.14.
STRATIGRAPHY: Upper Purbeck almost certainly.
LOC^{n}:NGR: Peveril Point, Swanage.
No OF TRACKS: 1.
DATE DISCOVERED: 3rd [*sic*] March 1967.
BY: Mr Geoffrey Tyers from Nottigham.
CLASSIFICATION:PRODUCER: :Iguanodont.
REPOSITORY:ACC No: Mr E Fuller collection.

CATALOGUE No: 37.
REFERENCES: Delair & Sarjeant 1985, p.148.
STRATIGRAPHY: Upper Purbeck.
LOC^{n}:NGR: Peveril Point, Swanage.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: 1967. Delair & Sarjeant suggest that the track might be from the same trackway as the print mentioned by Ord 1913 [Cat. No. 133].
BY: Geoffrey Tyers.

CATALOGUE No: 38a&b.
REFERENCES: Delair & Lander 1973, p.20 and fig.2.
STRATIGRAPHY: 'roach' stone.
LOC^{n}:NGR: Harden's quarry near Worth Matravers. [But see 38a].
DATE DISCOVERED: Summer 1970.
CLASSIFICATION:PRODUCER: :Iguanodont.
REPOSITORY:ACC No: 38a Leicester Museum; 38b Worcester Museum.

CATALOGUE No: 38a [formerly Cat.No.139].
REFERENCES: Sarjeant 1983, pp.554-5.
STRATIGRAPHY: Early Cretaceous, Purbeck series, Lulworth Beds.
LOC^{n}:NGR: Suttle's quarry, Swanage, Dorset.
No OF PRINTS:PHOTOGRAPH/PLAN: 2 specimens.
REPOSITORY:ACC No: Leicester City Museum: 317'1970.

CATALOGUE No: 38a.
REFERENCES: John Martin pers.comm. and day book entry to PCE 31.10.1994
STRATIGRAPHY: 'Roach' Series. Middle Purbeck.
LOC^{n}:NGR: Suttle's Quarry: NGR SY 7798 0102 [*sic.* = 0102.7798]. [This is at variance with some of the published accounts which give Harden's Quarry].
No OF PRINTS:PHOTOGRAPH/PLAN: 2 part/counterpart sets.
DATE DISCOVERED: *c.*1970.
PRINT/TRACK TYPE: m & c.
CLASSIFICATION:PRODUCER: :Iguanodont.
REPOSITORY:ACC No: Leicestershire Museums and Art Galleries: LEICS G317.1970. Acquired through J B Delair.

CATALOGUE No: 38b.
REFERENCES: pers.comm between G Phillips (Worcester Museum) & PCE 10.1994.
STRATIGRAPHY: 'pink' bed of the Middle Purbeck Roach layer. 54d [*sic* = 50d] of Bristow in Damon 1884.
CLASSIFICATION:PRODUCER: :Iguanodont.
REPOSITORY:ACC No: 38b Worcester Museum: no 1076 A & B. Acquired via J B Delair.

CATALOGUE No: 38a & b.
REFERENCES: Sarjeant 1974, p.358 (based on Delair & Lander 1973).
LOC^{n}:NGR: Harden's quarry, near Worth Matravers. [But see 38a].
No OF PRINTS:PHOTOGRAPH/PLAN: [several].
DATE DISCOVERED: Summer 1970.
PRINT/TRACK TYPE: m & c.
REPOSITORY:ACC No: Worcester and Leicester Museums.

CATALOGUE No: 39, 40, 41, 42.
REFERENCES: Delair 1963, p.98.
No OF PRINTS:PHOTOGRAPH/PLAN: 4 [?separate].
CLASSIFICATION:PRODUCER: tridactyl prints.
MEASUREMENTS L/B: smaller than Cat.No.24.
REPOSITORY:ACC No: Showroom of G Hancock & Sons, Swanage.

CATALOGUE No: 43, 44, 45.
REFERENCES: Delair 1963, p.98.
No OF PRINTS:PHOTOGRAPH/PLAN: 3 [?separate].
PRINT/TRACK TYPE: nc x2, m x1.
CLASSIFICATION:PRODUCER: tridactyl.
REPOSITORY:ACC No: owned by Mr Lander of Worth Matravers.

CATALOGUE No: 46.
REFERENCES: Delair 1963, p.98.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
CLASSIFICATION:PRODUCER: 4 digit:
REPOSITORY:ACC No: Oppé Colln, Worth Matravers.

CATALOGUE No: 46.
REFERENCES: Delair & Lander 1973, p.18 and fig.2.
STRATIGRAPHY: 'roach' stone.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
CLASSIFICATION:PRODUCER: 4 toed form.
REPOSITORY:ACC No: Oppé Colln, now in Paisley Museum [see note at end of Cat.No.81].

CATALOGUE No: 47 [a collection of specimens made by Mr E F Oppé - see REPOSITORY below].
REFERENCES: Delair 1963, p.98.
PRINT/TRACK TYPE: m & c.
REPOSITORY:ACC No: E F Oppé Collection, Worth Matravers. [probably contained Cat.Nos 13, 14, 18, 46, 47, 66, 69, 70, 72, 81, 82, 136, 140, 141].

CATALOGUE No: 48.
REFERENCES: Oppé ms scrapbook, Extract p.3.
CLASSIFICATION:PRODUCER: trackway with deformed foot.

CATALOGUE No: 48.
REFERENCES: Delair 1963, p.100.
LOC^{n}:NGR: quarry near Langton Matravers.
No OF TRACKS: 1.
DATE DISCOVERED: 'some years ago' according to Mr Alec B Lander.
CLASSIFICATION:PRODUCER: track with three toed footprints one of digits of which was 'imperfect'. 'Thought at the time that the animal must have had a crippled or deformed foot.
REPOSITORY:ACC No: none preserved.

CATALOGUE No: 49 [not used].

CATALOGUE No: 50.
REFERENCES: Thomas 1981, pp.23-24.
STRATIGRAPHY: between Red Rag and Laning Vein.
LOC^{n}:NGR: Townsend Road, Swanage.
PRINT/TRACK TYPE: tail drag and leaping dinosaur.
CLASSIFICATION:PRODUCER: :iguanodon and megalosaurs.
REPOSITORY:ACC No: main trackway surface to Dorset County Museum.

CATALOGUE No: 50.
REFERENCES: Anon, 1981.
LOC^{n}:NGR: Swanage.
DATE DISCOVERED: 1981.
BY: David Selby.
CLASSIFICATION:PRODUCER: three toed :megalosaur and iguanodon in 'giant lizard fight' [an extraordinary story without any foundation!].

CATALOGUE No: 50.
REFERENCES: Regan 1981.
STRATIGRAPHY: Upper Beds [*sic.* incorrect].
LOC^{n}:NGR: outskirts of Swanage.
DATE DISCOVERED: 1981.
DIRECTION(S): 'nearly all point south' [incorrect].

CATALOGUE No: 50.
REFERENCES: Ensom 1981 (response to Regan 1981).
STRATIGRAPHY: Middle Purbeck Beds.
DIRECTION(S): many NW-SE; two N-S; others SE-NW.

CATALOGUE No: 50.
REFERENCES: Ensom 1982, p.141 and pers. knowledge. Also Thulborn 1991, p.52 is based on this reference, though the reference to tracks both 'large and small' is not noted by Ensom.
STRATIGRAPHY: Laning Vein [Intermarine Member ≈DB 143/144], Purbeck Limestone Formation.
LOC^{n}:NGR: 19 Townsend Road, Swanage: NGR SZ 0265.7835.
No OF PRINTS:PHOTOGRAPH/PLAN: 170+ on 4 horizons: Phs/ms plans.
No OF TRACKS: >17 over *c.*120 m^{2}.
DATE DISCOVERED: 1981.
BY: D W Selby.
PRINT/TRACK TYPE: pm, pc, tc, tm.
CLASSIFICATION:PRODUCER: tridactyl: possibly *Iguanodon* and *Megalosaurus*.
DIRECTION(S): various - no predominant direction.
REPOSITORY:ACC No: [Dorset County Museum: DORCM G 11047].

CATALOGUE No: 50.
REFERENCES: Delair & Sarjeant 1985, pp.150-51.
STRATIGRAPHY: 'Roach Stone'. [this is incorrect; see Ensom 1982, p.141].
LOC^{n}:NGR: Towsend Road, Swanage.
No OF TRACKS: 'an extensive series of large and small reptilian trackways and imprints'. [little variation in size was actually noted for the footprints on the site].
DATE DISCOVERED: 1981.
REPOSITORY:ACC No: 'the greater part of this series was retrieved' and transported to the Dorset County Museum.

CATALOGUE No: 51.
REFERENCES: West, Shearman & Pugh 1969, p.338.
STRATIGRAPHY: Upper Building Stones, Middle Purbeck.
LOC^{n}:NGR: Worbarrow Tout.
No OF PRINTS:PHOTOGRAPH/PLAN: a series:
DATE DISCOVERED: prior to 1966.
CLASSIFICATION:PRODUCER: 3 toed dinosaur footprints.
REPOSITORY:ACC No: in situ.

CATALOGUE No: 51.
REFERENCES: Delair & Brown 1975, pp.14 - 15.
STRATIGRAPHY: Bed no 6 of Arkell (Mem.Geol.Surv.), basal Purbeck Beds [incorrect].
LOC^{n}:NGR: Worbarrow Bay.
No OF PRINTS:PHOTOGRAPH/PLAN: 3, 4, 3 (=10): location map and plan, figs 1 & 2.
No OF TRACKS: 3.
DATE DISCOVERED: examined 1973.
PRINT/TRACK TYPE: m.
CLASSIFICATION:PRODUCER: tridactyl: Iguanodont type.
MEASUREMENTS L/B: B *c.*7".
DIRECTION(S): 'general north-easterly direction'.
REPOSITORY:ACC No: in situ.

CATALOGUE No: 51.
REFERENCES: Delair 1982, pp.65-7.
STRATIGRAPHY: Lower Purbeck [this was an error which went uncorrected at proof stage. see Ensom 1983a].
LOC^{n}:NGR: western face of Worbarrow Tout.
No OF PRINTS:PHOTOGRAPH/PLAN: 3, 4, 3 (=10): plan with measurements, fig. 4.
No OF TRACKS: 3.
DATE DISCOVERED: examined 1973.
BY: Delair and Brown.
PRINT/TRACK TYPE: m.
CLASSIFICATION:PRODUCER: :Iguanodont.
MEASUREMENTS L/B: L *c.*5.75"/ B *c.*7".
DIRECTION(S): ENE-NE.
REPOSITORY:ACC No: in situ.

CATALOGUE No: 51.
REFERENCES: Ensom 1982a, p.141 & 1983a, pp.201-2.
STRATIGRAPHY: 0.92m above top of Cinder Bed.
LOCn:NGR: Worbarrow Tout: NGR SY 869 796.
REPOSITORY:ACC No: In situ on Worbarrow Tout.

CATALOGUE No: 51.
REFERENCES: Delair and Sarjeant 1985, pp. 149-150, fig. 12.
STRATIGRAPHY: middle rather than early Purbeck age.
LOC^{n}: NGR: Worbarrow Bay [= Tout].
No OF PRINTS: PHOTOGRAPH/PLAN: :Ph Fig 12.
CLASSIFICATION:PRODUCER: :iguanadont.
REPOSITORY:ACC No: In situ. Changes to exposure noted.

CATALOGUE No: 51.
REFERENCES: West & El Shahat 1985, pp.169-170.
STRATIGRAPHY: 'top surface of bivalve biosparrudite 27b of El-Shahat (1977, p.27 & Fig 13)(WB 121b, Ensom [1985]) which may correlate with Clements' Durlston Bay bed 113 ('Rotten Grey Bed' of Fisher 1856 or 'Upper Tombstone Bed' of Bristow in Damon 1884' Intermarine Beds of the Middle Purbeck Beds.
LOC^{n}:NGR: Worbarrow Tout.
DATE DISCOVERED: prior to 1969.

CATALOGUE No: 51.
REFERENCES: Thulborn, 1990, p.318. (also fig.11.7a on p.319 based on Delair & Brown 1975).
DIRECTION(S): northeasterly at between 0.6 and 0.8 m/sec.

CATALOGUE No: 52.
REFERENCES: Delair & Brown 1975, p.14.
STRATIGRAPHY: Cypris Freestones or Broken Beds, Beds 12 & 13 of Arkell,

Mem.Geol.Surv.. [Lower Purbeck unlikely].
LOC^{n}:NGR: Worbarrow Tout.
DATE DISCOVERED: *c.*1973.
BY: P A Brown.
CLASSIFICATION:PRODUCER: :Iguanodont type.
MEASUREMENTS L/B: B *c.*8".
REPOSITORY:ACC No: P A Brown Colln. [transferred to Martin Green *fide* J B Delair].

CATALOGUE No: 52.
REFERENCES: letter from P A Brown to PCE 28.03.1983.
STRATIGRAPHY: Cypris Freestone based on Delair. [Unlikely].
LOC^{n}:NGR: Worbarrow Tout; boulder scatter below broken cliff edge.
BY: P A Brown.
REPOSITORY:ACC No: P A Brown Colln. [transferred to Martin Green *fide* J B Delair].

CATALOGUE No: ?53.
REFERENCES: Delair and Lander 1973, p.19 & fig.2.
STRATIGRAPHY: Soft Burr [Upper Purbeck].
LOC^{n}:NGR: 'not noted'.

CATALOGUE No: 53.
REFERENCES: Delair & Brown 1975, p.14.
STRATIGRAPHY: 'Soft Burr'.
LOC^{n}:NGR: 'Marble Quarry', north of Langton Matravers.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: 'recently'.
PRINT/TRACK TYPE: c.
CLASSIFICATION:PRODUCER: :typical Iguanodont.
REPOSITORY:ACC No: Colln of David Sole, [then of] Langton Matravers.

CATALOGUE No: 53.
REFERENCES: conversation between W J & WT Haysom and PC 05.04.1983.
LOC^{n}:NGR: Marble Quarry, N of Langton Matravers: NGR SY 9980 7925.

CATALOGUE No: 53.
REFERENCES: PCE based on corresp. with David Sole 25.04.1983.
STRATIGRAPHY: Soft Burr [det Delair].
LOC^{n}:NGR: Marble Quarry: [NGR SY 9980 7925 PCE based on David Sole].
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
CLASSIFICATION:PRODUCER: very curious print.
REPOSITORY:ACC No: David Sole's ex house at Langton Matravers.

CATALOGUE No: 53.
REFERENCES: Delair & Sarjeant 1985, p.150 based on Delair & Brown 1975.
STRATIGRAPHY: 'Soft Burr', Middle Purbeck [*sic* = Upper Purbeck].
LOC^{n}:NGR: Marble quarry north of Langton Matravers.
CLASSIFICATION:PRODUCER: :typical iguanodont.

CATALOGUE No: 54.
REFERENCES: Delair & Brown 1975, p.14.
STRATIGRAPHY: 'Roach' [Intermarine Member].
LOC^{n}:NGR: Worth Gate Quarry.
No OF PRINTS:PHOTOGRAPH/PLAN: several.
DATE DISCOVERED: 'recently'.
PRINT/TRACK TYPE: c.
CLASSIFICATION:PRODUCER: :Iguanodont.
REPOSITORY:ACC No: Mr David Sole, [then of] Langton Matravers.

CATALOGUE No: 54.
REFERENCES: Delair & Sarjeant 1985, p.150 based on Delair & Brown 1975.
STRATIGRAPHY: 'Roach Stone', Middle Purbeck.
LOC^{n}:NGR: Worth Gate Quarry, Acton.
No OF PRINTS:PHOTOGRAPH/PLAN: several.
CLASSIFICATION:PRODUCER: tridactyl.

CATALOGUE No: 55.
REFERENCES: Mansel-Pleydell 1896, p.122. Also Sarjeant 1974, p.353 based on this reference.
STRATIGRAPHY: Lower Purbecks.
No OF PRINTS:PHOTOGRAPH/PLAN: footprints.
DATE DISCOVERED: pre 1896.
BY: seen by Mr Hardy of Swanage.

CATALOGUE No: 55.
REFERENCES: Delair & Lander 1973, p.17.
STRATIGRAPHY: Lower Purbeck Series.
No OF PRINTS:PHOTOGRAPH/PLAN: >1.
REPOSITORY:ACC No: not known.

CATALOGUE No: 56.
REFERENCES: L J W[ills] 1962, p.159. Also Delair & Brown 1975, p.14 and Delair 1989, p.22 and Tab.2.1. are based on this reference.
STRATIGRAPHY: Wealden Sandstone.
LOC^{n}:NGR: Swanage (promenade area).
BY: Frank Raw [by implication].
CLASSIFICATION:PRODUCER: :*Iguanodon.*
MEASUREMENTS L/B: L. 18".
REPOSITORY:ACC No: specimen was collected for his collection.

CATALOGUE No: 56.
REFERENCES: correspondence between P J Osborne and PCE 29.07.1982 and P Smith & PCE. 19.10.1994.
STRATIGRAPHY: Wealden [see also Cat.No.63].
LOC^{n}:NGR: Sea shore, Swanage.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: 1924.
BY: F Raw.
PRINT/TRACK TYPE: c. Deeply impressed.
CLASSIFICATION:PRODUCER: pes :*Iguanodon.*
MEASUREMENTS L/B: L max 440 mm/ B 350 mm/ max depth 100 mm.
REPOSITORY:ACC No: F Raw Collection, University of Birmingham: BU 2296.

CATALOGUE No: 57a,b,c.
REFERENCES: Delair 1982, pp.65-7, fig.5. Also Delair & Sarjeant 1985, p.150 based on this reference.
STRATIGRAPHY: 'pink bed' of Roach Stone. 18' below surface.
LOC^{n}:NGR: quarry at Queensground, Acton, worked by Mr Ronald Lewis.
No OF PRINTS:PHOTOGRAPH/PLAN: a 6; b 8; c 5; + 1.
No OF TRACKS: 3 [+1].
DATE DISCOVERED: September 1976.
CLASSIFICATION:PRODUCER: :Iguanodont type.
MEASUREMENTS L/B: a L 9"/B 10"; b&c L 7.5"/B 8.5". Measured on site.
DIRECTION(S): SE.
REPOSITORY:ACC No: destroyed.

CATALOGUE No: 58.
REFERENCES: Calkin 1968, p.3, fig.3a.
STRATIGRAPHY: Purbeck Beds.
LOC^{n}:NGR: Herston.
No OF PRINTS:PHOTOGRAPH/PLAN: [6] :Ph fig.3a.
No OF TRACKS: [3].
DATE DISCOVERED: 1932.
PRINT/TRACK TYPE: c.
CLASSIFICATION:PRODUCER: :*Iguanodon.*
REPOSITORY:ACC No: [A calkin specimen is in the BM(NH) Cat.No.29 though Calkin 1968 makes no metion of having deposited this specimen nor any other].

CATALOGUE No: 58.
REFERENCES: conversation between W J & W T Haysom and PCE 05.04.1983.
LOCn:NGR: ?Bill Tomes mine at Belle Vue Farm.

CATALOGUE No: 59.
REFERENCES: Ensom 1982a, p.141 & 1985a, p.166.
STRATIGRAPHY: fallen block which was recorded as from 5.96 m above Cinder Bed. [This is incorrect. Source was WB 165/166 in the Corbula Member Ensom 1985, 1985a].
LOC^{n}:NGR: Worbarrow Tout: NGR SY 869 796.
No OF PRINTS:PHOTOGRAPH/PLAN: 2.
DATE DISCOVERED: [13.09.1981].
BY: Mr [W] T Haysom.
PRINT/TRACK TYPE: nc.
CLASSIFICATION:PRODUCER: tridactyl: ?*Megalosaurus.*
MEASUREMENTS L/B: L 0.26m/B 0.2m.
REPOSITORY:ACC No: The specimen was loaned for display at Tyneham Church on the Lulworth Gunnery Ranges. Sadly the block was cut in two and built into the fireplace of the schoolroom. The footprints are still visible: DORCM G 866.

CATALOGUE No: 60.
REFERENCES: Delair 1966, p.65.
STRATIGRAPHY: upper part of Roach.
LOC^{n}:NGR: quarry of Ronald Bowyer [*sic*, = Bower], north-east of Worth Matravers.
No OF PRINTS:PHOTOGRAPH/PLAN: many around bowl-like depression suggesting site of Purbeck water-hole.
DIRECTION(S): all directions.

CATALOGUE No: 60.
REFERENCES: Calkin 1968, p.4.
No OF PRINTS:PHOTOGRAPH/PLAN: overlapping footprints ... suggest the site of an ancient waterhole.
DIRECTION(S): different directions.

CATALOGUE No: 61a.
REFERENCES: only cited in Ensom 1983, p.201.
STRATIGRAPHY: [?Upper Purbeck Beds; likely to be from DB220].
LOC^{n}:NGR: Durlston Bay (fallen block):NGR SZ 0395 7853.
No OF PRINTS:PHOTOGRAPH/PLAN: 1 + 1.
DATE DISCOVERED: *c.* December 1981.
BY: observed by S R A Kelly 1981 & relocated by PCE 16.01.1982.
PRINT/TRACK TYPE: pm or tm.
CLASSIFICATION:PRODUCER: tridactyl:
MEASUREMENTS L/B: L *c.*0.25m/B 0.29m.
REPOSITORY:ACC No: not collected.

CATALOGUE No: 61b.
REFERENCES: Ensom 1983, p.201.
STRATIGRAPHY: Chief Beef Beds. DB 216.
LOC^{n}:NGR: Durlston Bay [northern end], Swanage: NGR SZ 0395 7853.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: 17.01.1983.
BY: PCE.
PRINT/TRACK TYPE: m.
MEASUREMENTS L/B: [L 0.34m/B 0.31m].
REPOSITORY:ACC No: loose block.

CATALOGUE No: 61c.
REFERENCES: Ensom 1983, p.201.
STRATIGRAPHY: Chief Beef Beds. DB 216.

LOC^{n}:NGR: Durlston Bay [northern end], Swanage: NGR SZ 0395 7853.
No OF PRINTS:PHOTOGRAPH/PLAN: 4+?
DATE DISCOVERED: 17.01.1983.
BY: PCE.
PRINT/TRACK TYPE: tc superimposed.
CLASSIFICATION:PRODUCER: [tridactyl]: similar to prints currently assigned to *Megalosaurus*.
MEASUREMENTS L/B: L 0.19 - 0.23 m/B 0.21 - 0.26.
REPOSITORY:ACC No: Dorset County Museum: DORCM G 6537.

CATALOGUE No: 61a,b,c.
REFERENCES: Delair & Sarjeant 1985 p.151 based on Ensom 1983.
LOC^{n}:NGR: Durlston Bay.

CATALOGUE No: 62 a,b,c.
REFERENCES: Ensom 1983, p.201. Also Delair & Sarjeant 1985, p.151 is based on this reference.
STRATIGRAPHY: Broken Shell Limestone. 0.17m above base.
LOC^{n}:NGR: Durlston Bay [northern end], Swanage: NGR SZ 0395.7853.
No OF PRINTS:PHOTOGRAPH/PLAN: 15.
No OF TRACKS: 3+?
DATE DISCOVERED: 16.01.1982.
BY: PCE.
PRINT/TRACK TYPE: tc and ?pc.
CLASSIFICATION:PRODUCER: tridactyl:
MEASUREMENTS L/B: a L 0.33m, Stride [=Pace, ie distance between reference points on 2 consecutive prints] 0.57m & 0.64m; b L 0.27m/B 0.22m & L 0.3m/B 0.22; c featureless bulges - no measurements.
DIRECTION(S): a east and b west on the same bearing of N088°E; c with no sense of direction but on a bearing of N038°-048°E (all bearings true).
REPOSITORY:ACC No: all left in situ except a sample from track a. which is in the Dorset County Museum: DORCM G 6538a-c.

CATALOGUE No: 63.
REFERENCES: correspondence from P J Osborne to PCE on 29.07.1982 and P Smith pers.comm.
STRATIGRAPHY: Wealden (same material as Cat.No.56).
LOC^{n}:NGR: Swanage sea shore.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: ?1924.
BY: ?F Raw.
PRINT/TRACK TYPE: c. deeply impressed.
CLASSIFICATION:PRODUCER: manus: *Iguanodon*. Carnosaur pes is suggested by I Sansom via Paul Smith.
MEASUREMENTS L/B: L max. 210 mm/ B max 140 mm/ max depth 40 mm.
REPOSITORY:ACC No: F Raw Colln, Birmingham University Collection: BU 2297.

CATALOGUE No: 64.
REFERENCES: Calkin, 1933, p.13.
STRATIGRAPHY: Roach Bed.
LOC^{n}:NGR: same quarry as Cat.No.11 [at Herston].
No OF PRINTS:PHOTOGRAPH/PLAN: 'other traces'.
DATE DISCOVERED: since the discovery of Cat.No.11, [= *c.*1932].

CATALOGUE No: 65.
REFERENCES: Calkin 1933, p.13.
STRATIGRAPHY: Skirt Bed below Pink Bed [Intermarine Member].
LOC^{n}:NGR: ⅓ mile distant from quarry where Cat.Nos 11 & 64 were found.
No OF PRINTS:PHOTOGRAPH/PLAN: 'a few footprints accompanied by mud-cracks'.
DATE DISCOVERED: 1931.

CATALOGUE No: 66.
REFERENCES: Oppé ms scrapbook, Extract p.4.
PRINT/TRACK TYPE: exhibits transmission - 'collected in form of two detached slabs, an upper and a lower'.
REPOSITORY:ACC No: [?]Oppé Colln, Worth Matravers [which went to Paisley Museum *fide* Delair 1973 p.18 and F R Woodward pers.comm. See also note at end of Cat.No.81].

CATALOGUE No: 67.
REFERENCES: Oppé ms scrapbook, Extract p.4.
STRATIGRAPHY: 'Laning Vein, Bottom Bed, Mock'.
LOC^{n}:NGR: quarried in area of Swanage.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
PRINT/TRACK TYPE: pc.
MEASUREMENTS L/B: 'medium & small. 12" and under.
REPOSITORY:ACC No: preserved in Swanage.

CATALOGUE No: 68.
REFERENCES: Oppé ms scrapbook, Extract p.4.
No OF PRINTS:PHOTOGRAPH/PLAN: prints.
PRINT/TRACK TYPE: m & c.
MEASUREMENTS L/B: 'medium & small. 12" and under'.
REPOSITORY:ACC No: supplied to collector in Southall [see also Cat.no.15].

CATALOGUE No: 69.
REFERENCES: Oppé ms scrapbook, Extract p.4.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
PRINT/TRACK TYPE: imprint [=m].
MEASUREMENTS L/B: larger than Cat. No.70.
REPOSITORY:ACC No: Worth [Oppé Colln which later went to Paisley Museum *fide* Delair 1973, p.18 and F R Woodward pers.comm.. See also note at end of Cat.No.81].

CATALOGUE No: 70.
REFERENCES: Oppé ms scrapbook, Extract p.4.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
PRINT/TRACK TYPE: [m] '...is believed to be of exceptional interest'.
MEASUREMENTS L/B: smaller than Cat.No.69.
REPOSITORY:ACC No: Worth [Oppé Colln which later went to Paisley Museum *fide* Delair 1973, p.18 and F R Woodward pers.comm.. See also footnote at end of Cat.No.81].

CATALOGUE No: 71.
REFERENCES: personal information.
STRATIGRAPHY: ?top bed of Roach. Intermarine Member.
LOC^{n}:NGR: Eastington Cowleaze Quarry (K Keates): NGR SY 9788 6455.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: ?1970s.
BY: K Keates.
PRINT/TRACK TYPE: pm with small fossil fish in mould - ?trapped.
CLASSIFICATION:PRODUCER: tridactyl.
REPOSITORY:ACC No: Colln of Mr S M Etches.

CATALOGUE No: 72.
REFERENCES: Observation by PCE on Dorset County Museum Collection.
STRATIGRAPHY: [?Roach, Intermarine Member].
No OF PRINTS:PHOTOGRAPH/PLAN: ?1.
BY: ? E F Oppé.
PRINT/TRACK TYPE: m.
MEASUREMENTS L/B: very small f/p suggested by E F Oppé.
REPOSITORY:ACC No: Dorset County Museum: DORCM G 6291. Presented by E F Oppé.

CATALOGUE No: 73. (see also Cat.No.104).
REFERENCES: personal observation and conversation between Steve Paine and PCE.
STRATIGRAPHY: Roach. Intermarine Member.
LOC^{n}:NGR: California Farm Quarry (Steve Paine's quarry).
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: *c.*1983.
PRINT/TRACK TYPE: pc.
CLASSIFICATION:PRODUCER: tridactyl:
MEASUREMENTS L/B: L 0.3m/ B 0.31m.
REPOSITORY:ACC No: Bar wall of Castle Inn, West Lulworth.

CATALOGUE No: 74.
REFERENCES: personal observation, data at DORCM and verbal evidence of Mr H Bonfield.
STRATIGRAPHY: from bottom ½ of Roach Beds, ie bed 6"-7" thick and specifically from the top 3" of this bed.
LOC^{n}:NGR: quarry at Belle Vue Farm, near Swanage: NGR SZ 015 773.
No OF PRINTS:PHOTOGRAPH/PLAN: 2.
DATE DISCOVERED: find reported by Roland Tarr 1975.
PRINT/TRACK TYPE: m.
CLASSIFICATION:PRODUCER: 3 toed - parallel: ?dinosaur.
REPOSITORY:ACC No: plaster casts in Dorset County Museum: DORCM G 6290 i & ii.

CATALOGUE No: 75.
REFERENCES: conversation between Bunny Teagle and PCE.
STRATIGRAPHY: Roach.
LOC^{n}:NGR: Norman's Quarry [Queensground No 9] [NGR SY 9965 7750]. Said to be from the trackway Cat.No.34 [but size and preservation do not support this].
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: [*c.*1965].
PRINT/TRACK TYPE: m.
CLASSIFICATION:PRODUCER: tridactyl.
REPOSITORY:ACC No: Dorset County Museum: DORCM G 6390. Presd Bunny Teagle.

CATALOGUE No: 76.
REFERENCES: Personal observation and conversation with Harold Bonfield on 09.04.1983.
STRATIGRAPHY: ?Laning Vein (PCE), ?Mock (HB) [looks like type of print seen in upper layer at Townsend Road Cat.No.50].
LOC^{n}:NGR: Gully Ground [Coombe, near Swanage]: [NGR SZ 0092 7869].
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: 1982.
BY: Thomas Bonfield.
PRINT/TRACK TYPE: looks like tm & tc (top cast bed 0.094m thick, lower mould's bed 0.085m thick with slightly convex base to bed. Cast & mould separated by marly parting].
CLASSIFICATION:PRODUCER: tridactyl:
REPOSITORY:ACC No: Herston shop, Ben Lease Rd (09.04.1983).

CATALOGUE No: 77.
REFERENCES: conversation with H Bonfield on 09.04.1983.
STRATIGRAPHY: between Freestone (8'-10' below) and Downs Vein in Mock layer.
LOC^{n}:NGR: Belle Vue Quarry.
DATE DISCOVERED: *c.*1980.
BY: H or T Bonfield.
PRINT/TRACK TYPE: bulges [=c] may have been f/ps.

CLASSIFICATION:PRODUCER: 'claw' marks also found.

CATALOGUE No: 78.
REFERENCES: Oppé ms scrapbook, Extract p.2.
STRATIGRAPHY: New Vein [Cherty Freshwater Member].
PRINT/TRACK TYPE: natural casts.
MEASUREMENTS L/B: 'large'.
REPOSITORY:ACC No: no specimens known to be extant.

CATALOGUE No: 79.
REFERENCES: Oppé ms scrapbook, Extract p.4.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
PRINT/TRACK TYPE: m.
MEASUREMENTS L/B: L 18".
REPOSITORY:ACC No: not known; was in Swanage.

CATALOGUE No: 80.
REFERENCES: Correspondence between F R Woodward and PCE 05.03.1983 & 13.01.1984 and David Mellor (Paisley Museum) 26.04.1983.
LOC^{n}:NGR: same as Hunterian Cat.No.34 [ie Norman's Queensground].
No OF PRINTS:PHOTOGRAPH/PLAN: ?2.
DATE DISCOVERED: [1965].
CLASSIFICATION:PRODUCER:
:*Iguanodon*.
REPOSITORY:ACC No: Paisley Museum. DM says donated 1953. FRW says no *Iguanodon* footprints at Paisley when he went there in 1965 (FRW 13.01.1984). FRW 05.12.1983 states 'a large slab with two? footprints from the same quarry [ie same as Cat.No.34] obtained via T Pain & myself + 3 or 4 further single footprints.' [See Cat.Nos.81 & 82]. [See note at end of Cat.No.81].

CATALOGUE No: 81.
REFERENCES: correspondence between F R Woodward (05.12.1984 & 13.01.1984) and D Mellor (26.04.1983).
STRATIGRAPHY: [?Roach, Intermarine Member. PCE based on photo of specimen].
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
PRINT/TRACK TYPE: m.
CLASSIFICATION:PRODUCER: tridactyl.
REPOSITORY:ACC No: Paisley Museum. [presumably one of the specimens presd by T Pain on behalf of E F Oppé. D Mellor states that the specimens have no numbers or associated documentation. see also Cat.No.82].

'3 or 4 further single footprints' [Cat.Nos 81 & 82 = the 2 specimens noted by DM (pers.comm.26.04.1983)] were obtained via Tom Pain on behalf of EFO (FRW pers.comm. 05.12.1983). Of the 3 or 4 EFO specimens which FRW recalls going to the Paisley Museum, of which 81 & 82 are presumably 2, there must have been other Oppé specimens listed in this catalogue (see 'Collections Index' for list of Oppé specimens listed). What seems certain is that not all the Oppé Collection came to Paisley. There is a high probability that amongst the Oppé items catalogued in this list, one or more items may have been catalogued under 2 or more Cat.Nos.

CATALOGUE No: 82.
REFERENCES: correspondence between F R Woodward (05.12.1984 & 13.01.1984) and D Mellor (26.04.1983).
STRATIGRAPHY: [?Roach, Intermarine Member. PCE based on photo of specimen].
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
PRINT/TRACK TYPE: m.
CLASSIFICATION:PRODUCER: tridactyl.
REPOSITORY:ACC No: Paisley Museum. [presumably one of the specimens presd by T Pain on behalf of E F Oppé. D Mellor states that the specimens have no numbers or associated documentation. see also Cat.No.81]. See note at end of Cat.No.81.

CATALOGUE No: 83.
REFERENCES: Oppé ms scrapbook, Extract p.3.
DATE DISCOVERED: before 1960, but first hand recollection.
CLASSIFICATION:PRODUCER: 'one track is said to have performed a complete circle.'

CATALOGUE No: 83.
REFERENCES: Delair 1963, p.100.
No OF TRACKS: 'a series of three-toed footprints which formed nearly a complete circle with other footrpints of similar type promiscuously disposed near it.' This was based on repeated enquiries among several persons who all gave the same account.
CLASSIFICATION:PRODUCER: three toed footprints.

CATALOGUE No: 84.
REFERENCES: Charig & Newman 1962, p.235.
STRATIGRAPHY: 'a different horizon'[to 20a&b].
LOC^{n}:NGR: quarry at Herston [same as 20, ie. Suttle's].
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: [before May 1962].
PRINT/TRACK TYPE: 'distinct impression' [=m].
CLASSIFICATION:PRODUCER: :shows '(the distinct impression of the characteristic terminal phalange of an iguanodon toe;)': *Iguanodon*.

CATALOGUE No: 85.
REFERENCES: Delair & Lander 1973, fig.2, p.19.
STRATIGRAPHY: Laning Vein, Bed 57 of Bristow & Fisher 1857.
LOC^{n}:NGR: Downshay Lane Quarry.
CLASSIFICATION:PRODUCER:
:*Megalosaurus*.

CATALOGUE No: 85.
REFERENCES: conversation between W J & W T Haysom and PCE 05.04.1983.
LOC^{n}:NGR: Downshay Lane Quarry, Quarr Farm: NGR SY 9965 7905.

CATALOGUE No: 86.
REFERENCES: Delair & Lander 1973, fig.2, p.19.
STRATIGRAPHY: Crab or Grub of Freestone Vein. Bed 50 of Bristow & Fisher 1857.
LOC^{n}:NGR: Gallows Gore Quarry.
CLASSIFICATION:PRODUCER:
:*Iguanodon*.

CATALOGUE No: 87.
REFERENCES: Delair & Lander 1973, fig.2, p.19.
STRATIGRAPHY: Under Picking of Freestone Vein. Bed 50 of Bristow & Fisher 1857.
LOC^{n}:NGR: Gallows Gore Quarry.
CLASSIFICATION:PRODUCER:
:*Megalosaurus*.

CATALOGUE No: 88.
REFERENCES: Delair & Lander 1973, fig.2, p.19.
STRATIGRAPHY: Under Picking of Freestone Vein. Bed 50 of Bristow & Fisher 1857.
LOC^{n}:NGR: Gallows Gore Quarry.
CLASSIFICATION:PRODUCER:
:*Iguanodon*.

CATALOGUE No: 89.
REFERENCES: Delair & Lander 1973, fig.2, p.19.
STRATIGRAPHY: Roach Stone (inc. the 'Pink' bed) of Freestone Vein. Bed 50 of Bristow & Fisher 1857.
LOC^{n}:NGR: Suttle's Quarry [same location as Cat.No.20].
CLASSIFICATION:PRODUCER:
:[Ichnogenus] *Purbeckopus*.

CATALOGUE No: 90.
REFERENCES: Delair & Lander 1973, fig.2, p.19.
STRATIGRAPHY: New Vein [Cherty Freshwater Member]. Bed 34 of Bristow & Fisher 1857.
LOC^{n}:NGR: Harden's Quarry.
CLASSIFICATION:PRODUCER:
:*Iguanodon*.

CATALOGUE No:90.
REFERENCES: conversation between W J & W T Haysom and PCE 05.04.1983.
STRATIGRAPHY: New Vein.
LOCn:NGR: Harden's Quarry: NGR SY 9810 7900.

CATALOGUE No: 91.
REFERENCES: Delair and Lander 1973, fig.2, p.19.
STRATIGRAPHY: Roach Stone (inc. the 'Pink' bed) of Freestone Vein. Bed 50 of Bristow & Fisher 1857.
LOC^{n}:NGR: Norman's Quarry [is essentially the same quarry area as Reynold's Quarry, see Cat.No.34].
CLASSIFICATION:PRODUCER:
:*Iguanodon*.

CATALOGUE No: 92.
REFERENCES: Delair and Lander 1973, fig.2, p.19.
STRATIGRAPHY: Roach Stone (inc. the 'Pink' bed) of Freestone Vein. Bed 50 of Bristow & Fisher 1857.
LOC^{n}:NGR: South Barn Quarry.
CLASSIFICATION:PRODUCER:
:*Iguanodon*.

CATALOGUE No: 93.
REFERENCES: Delair & Lander 1973, fig.2, p.19.
STRATIGRAPHY: Downs Vein or Laper [Intermarine Member]. Bed 46 of Bristow & Fisher 1857.
LOC^{n}:NGR: Kingston.
CLASSIFICATION:PRODUCER:
:?*Iguanodon*.

CATALOGUE No: 94.
REFERENCES: Delair & Lander 1973, fig.2, p.19.
STRATIGRAPHY: New Vein [Cherty Freshwater Member]. Bed 34 of Bristow & Fisher 1857.
LOC^{n}:NGR: nr Gallows Gore.
CLASSIFICATION:PRODUCER:
:*Iguanodon*.

CATALOGUE No: 95.
REFERENCES: Conversation between Mike Crane (Bristol City Museum & Art Gallery) and PCE & PCE pers.observation of specimen in display case.
STRATIGRAPHY: ?Pink Bed *c*.2" thick [PCE].
LOC^{n}:NGR: Herston Quarry, Swanage.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: 1957
BY: Bristol Univ. F/T led by W H Turner.
CLASSIFICATION:PRODUCER:
:*Iguanodon* type.
MEASUREMENTS L/B: L *c*.12"/B <12" [PCE].
REPOSITORY:ACC No: Bristol City Museum & Art Gallery: CB 4070.

CATALOGUE No: 96.
REFERENCES: details from Oxford University Museum, on the specimen and PCE pers.observation.
STRATIGRAPHY: Pink Bed, Roach Stone. Damon's Bed 50d [= Bristow & Fisher Bed 50d, 1857. Intermarine Member].
LOC^{n}:NGR: Alec Lander's quarry, ¼ mile NNW of Langton Matravers.
No OF PRINTS:PHOTOGRAPH/PLAN: 1 [+ ?1 overlapping or superimposed].
PRINT/TRACK TYPE: m.
CLASSIFICATION:PRODUCER: [?4 digit print :cf *Purbeckopus pentadactylus*].
MEASUREMENTS L/B: [estimates of poorly defined print L 170mm/B110 mm].
REPOSITORY:ACC No: Oxford University Museum: OUM.J 21791. Presd J B Delair May 1967.

CATALOGUE No: 97.
REFERENCES: personal knowledge.
STRATIGRAPHY: Purbeck Limestone Group. ?Intermarine Member.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
PRINT/TRACK TYPE: m & c.
REPOSITORY:ACC No: Dorset County Museum: DORCM G 11375a&b [Donated by the Hampshire County Museum Service, (ex Red House Museum, Christchurch) 16.04.1983. There is a possibility that the specimen is one deposited in the Red House Museum by Calkin. But see also Cat.No.137.].

CATALOGUE No: 98.
REFERENCES: Ensom 1984, pp.166-7.
STRATIGRAPHY: Cherty Freshwater Member, [WB 116/117].
LOC^{n}:NGR: Worbarrow Tout: NGR SY 869 796.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: 18.06.1983.
BY: PCE.
PRINT/TRACK TYPE: pc.
CLASSIFICATION:PRODUCER: tridactyl. Digits broad and rounded at extremeties.
MEASUREMENTS L/B: L 0.35 m/ B not taken as specimen was damaged.
DIRECTION(S): loose block.
REPOSITORY:ACC No: Sample from heel of cast in Dorset County Museum: DORCM G 7373i&ii.

CATALOGUE No: 99.
REFERENCES: Ensom 1984, pp.166-7.
STRATIGRAPHY: Cherty Freshwater Member, [WB 116/117].
LOC^{n}:NGR: Worbarrow Tout: NGR SY 869 796.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: 18.06.1983.
BY: PCE.
PRINT/TRACK TYPE: pc.
CLASSIFICATION:PRODUCER: tridactyl. Digits tapered distally.
MEASUREMENTS L/B: L 0.29m/ B 0.37m.
DIRECTION(S): loose block.

CATALOGUE No: 100.
REFERENCES: Ensom 1984, p.166.
STRATIGRAPHY: Cherty Freshwater Beds. DB 93/4.
LOC^{n}:NGR: Durlston Bay: NGR SZ *c.* 0360 7835.
No OF PRINTS:PHOTOGRAPH/PLAN: 4.
DATE DISCOVERED: 04.09.1983.
BY: PCE.
PRINT/TRACK TYPE: pc or tc.
CLASSIFICATION:PRODUCER: tridactyl.
MEASUREMENTS L/B: on one only L 0.3m/B 0.21m.
DIRECTION(S): east-north-easterly direction on a true bearing of N068°E taken on best preserved cast.
REPOSITORY:ACC No: not collected.

CATALOGUE No: 101.
REFERENCES: Ensom 1984, p.166.
STRATIGRAPHY: Cherty Freshwater Beds. DB 93.
LOC^{n}:NGR: Durlston Bay: NGR SZ *c.* 0360 7835.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: 04.09.1983.
BY: PCE.
PRINT/TRACK TYPE: penetration cast (pod of DB 94 in DB 93).
REPOSITORY:ACC No: part recovered. Dorset County Museum: DORCM G 7261.

CATALOGUE No: 102.
REFERENCES: Ensom 1984, p.166.
STRATIGRAPHY: Cherty Freshwater Member. Base of DB 103.
LOC^{n}:NGR: Durlston Bay: NGR SZ *c.*0360 7835.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: 04.09.1983.
BY: A Poland, M Cook, and R Coram.
PRINT/TRACK TYPE: pc or tc.
CLASSIFICATION:PRODUCER: tridactyl.
MEASUREMENTS L/B: L 0.22m/ B 0.17m.
DIRECTION(S): NE on a true bearing of N058°E along axis of f/p).
REPOSITORY:ACC No: not collected.

CATALOGUE No: 103.
REFERENCES: personal observation.
STRATIGRAPHY: Intermarine Member. Roach
LOC^{n}:NGR: Eastington Cowleaze Quarry (K Keates): SY 9788 6455.
No OF PRINTS:PHOTOGRAPH/PLAN: 1
DATE DISCOVERED: 02.04.1983.
BY: K Keates/PCE.
PRINT/TRACK TYPE: pm & tc.
CLASSIFICATION:PRODUCER: tridactyl:
REPOSITORY:ACC No: Dorset County Museum: DORCM G 11389. ex PCE G 68i & ii.

CATALOGUE No: 104. (see also Cat.No.73).
REFERENCES: personal knowledge.
STRATIGRAPHY: Intermarine Member. Roach.
LOC^{n}:NGR: California Farm Quarry, Steve Paine: SZ 019 775.
No OF PRINTS:PHOTOGRAPH/PLAN: 1
DATE DISCOVERED: Collected summer 1983.
BY: PCE (Given by S Paine).
PRINT/TRACK TYPE: pc
CLASSIFICATION:PRODUCER: tridactyl:
MEASUREMENTS L/B: L 0.31 m/ B 0.25 m incomplete. Max depth impressed *c.* 50 mm. (Slab from same horizon with 2 casts on it with burrows preserved provided the following measurements: a. L 0.24 m/ B 0.23 m; b. L 0.26/ B 0.31. Distance between respective heels 0.68 m. Not collected).
REPOSITORY:ACC No: PCE research material destined for Dorset County Museum: PCE G 69.

CATALOGUE No: 105.
REFERENCES: conversation between R R (Bobby) Cobb and PCE on 30.04.1983.
LOC^{n}:NGR: quarry behind Bobby Cobb's shed, nr Acton: NGR SY 9850 7835.
No OF PRINTS:PHOTOGRAPH/PLAN: many prints.
CLASSIFICATION:PRODUCER: depression with many tracks around it. ?water-hole. Compare with Cat.No.60.

CATALOGUE No: 106.
REFERENCES: conversation with P A Brown 29.06.1984.
STRATIGRAPHY: ?Roach [Intermarine Member].
LOC^{n}:NGR: Hayward's Quarry, Queensground: NGR SY 996 775.
No OF PRINTS:PHOTOGRAPH/PLAN: ?1.
PRINT/TRACK TYPE: ?pc.
CLASSIFICATION:PRODUCER: appears to be a pad with several toes around it: unknown.
MEASUREMENTS L/B: oval shaped & incomplete. max visible dimensions L 100mm & B 140mm.
REPOSITORY:ACC No: Dorset County Museum: DORCM G 9495. Presented by P A Brown 29.06.1984.

CATALOGUE Nos: 107 - 110 neither published nor in a museum collection.

CATALOGUE No: 111.
REFERENCES: West, Shearman & Pugh, 1969, p.339.
STRATIGRAPHY: Middle Purbeck.
LOC^{n}:NGR: a little distance north of the headland (Durlston), Durlston Bay.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: 30.05.1966.
BY: Geologists' Association F/T.

CATALOGUE No: 112.
REFERENCES: Ensom 1985a, p.166.
STRATIGRAPHY: Cherty Freshwater Member. WB113/114 contact.
LOC^{n}:NGR: Worbarrow Tout: SY 869 796.
No OF PRINTS:PHOTOGRAPH/PLAN: 2.
DATE DISCOVERED: 1984/5.
BY: PCE.
PRINT/TRACK TYPE: c.
CLASSIFICATION:PRODUCER: tridactyl.
REPOSITORY:ACC No: on cliff.

CATALOGUE No: 113.
REFERENCES: Ensom 1985a, p.166.
STRATIGRAPHY: Cherty Freshwater Member (loose block) ?base of WB 114.
LOC^{n}:NGR: Worbarrow Tout: SY 869 796.
No OF PRINTS:PHOTOGRAPH/PLAN: ?1.
DATE DISCOVERED: 1984/5.
BY:PCE.
PRINT/TRACK TYPE: c.
CLASSIFICATION:PRODUCER: putative footprint cast.
REPOSITORY:ACC No: on shore.

CATALOGUE No: 113.
REFERENCES: Ensom 1987a, p.206.
STRATIGRAPHY: Cherty Freshwater Member. ?base of WB 114 (= WB 113/114 contact).
LOC^{n}:NGR: Worbarrow Tout: SY 869 796.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: 1984/5.
BY: PCE.
PRINT/TRACK TYPE: c.
CLASSIFICATION:PRODUCER: :?sauropod.
MEASUREMENTS L/B: L *c.* 0.55 m/ B *c.* 0.53 m.
REPOSITORY:ACC No: fallen block on shore.

CATALOGUE No: 113a.
REFERENCES: Ensom 1987a, p.206.
STRATIGRAPHY: Cherty Freshwater Member. ?base of WB 114 (= WB 113/114 contact).
LOC^{n}:NGR: Worbarrow Tout: SY 869 796.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: *c.*1986.
BY: PCE.
PRINT/TRACK TYPE: c.
CLASSIFICATION:PRODUCER: :?sauropod.
MEASUREMENTS L/B: max diam 0.5 m. min diam. *c.* 0.42 m.
REPOSITORY:ACC No: fallen block.

CATALOGUE No: 114.
REFERENCES: Ensom 1985a, pp.166-167.
STRATIGRAPHY: Intermarine Member. WB

124/125.
LOC^{n}:NGR: Worbarrow Tout: SY 869 796.
No OF PRINTS:PHOTOGRAPH/PLAN: 2.
No OF TRACKS: two different tracks.
DATE DISCOVERED: 1984/5.
BY: PCE.
PRINT/TRACK TYPE: c. probably pc. Superimposed.
CLASSIFICATION:PRODUCER: tridactyl.
MEASUREMENTS L/B: a. L 0.35 m/ B 0.29 m; b. L not visible/ B 0.37 m.
REPOSITORY:ACC No: Dorset County Museum: DORCM G 11374 (ex PCE G 76).

CATALOGUE No: 115.
REFERENCES: Ensom 1985a, p.167.
STRATIGRAPHY: Intermarine Member. WB 145, 0.66 - 0.7 m below top (see also 116).
LOC^{n}:NGR: Worbarrow Tout: SY 869 796.
No OF PRINTS:PHOTOGRAPH/PLAN: many.
DATE DISCOVERED: 02.06.1984.
BY: PCE.
PRINT/TRACK TYPE: pm.
CLASSIFICATION:PRODUCER: [tridactyl]:
MEASUREMENTS L/B: one measured L 0.27 m / B 0.25 m.
REPOSITORY:ACC No: in situ.

CATALOGUE No: 116.
REFERENCES: Ensom 1985a, p.167.
STRATIGRAPHY: Intermarine Member. WB 145, 0.7m below surface (same horizon as Cat.No.115).
LOC^{n}:NGR: Worbarrow Tout: SY 869 796.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: 13.10.1984.
BY: PCE.
PRINT/TRACK TYPE: c.
CLASSIFICATION:PRODUCER: tridactyl:
MEASUREMENTS L/B: L 0.24 m/ B 0.23 m.
DIRECTION(S): SW on a true bearing of N 229°E after correction for dip.
REPOSITORY:ACC No: in situ.

CATALOGUE No: 117.
REFERENCES: Ensom 1985a, p.167.
STRATIGRAPHY: Intermarine Member. WB 145, 0.11 m below top of bed.
LOC^{n}:NGR: Worbarrow Tout: SY 869 796.
No OF PRINTS:PHOTOGRAPH/PLAN: 2.
No OF TRACKS: ?2.
DATE DISCOVERED: 10.08.1984.
BY: Stuart Lake & PCE.
PRINT/TRACK TYPE: ?pm.
CLASSIFICATION:PRODUCER: tridactyl.
MEASUREMENTS L/B: a.L *c.* 0.23 m / B *c.* 0.3 m; b. badly weathered but apparently smaller than a.
DIRECTION(S): both southerly: a. N191°E and b. N183°E. Both are true bearings after correction for dip.
REPOSITORY:ACC No: in situ.

CATALOGUE No: 118.
REFERENCES: Ensom 1985a, p.167.
STRATIGRAPHY: Chief Beef Member. WB 177/178.
LOC^{n}:NGR: Worbarrow Tout: SY 869 796.
No OF PRINTS:PHOTOGRAPH/PLAN: >1.
DATE DISCOVERED: 10.08.1984.
BY: PCE.
PRINT/TRACK TYPE: c.
REPOSITORY:ACC No: in situ.

CATALOGUE No: 119.
REFERENCES: Ensom 1985a, p.167.
STRATIGRAPHY: Chief Beef Member or Broken Shell Limestone Member. WB 196. 0.06 m below top of bed.
LOC^{n}:NGR: Worbarrow Tout: SY 869 796.
No OF PRINTS:PHOTOGRAPH/PLAN: 2 distortions of the sediment.
DATE DISCOVERED: 1984.
BY: PCE.
PRINT/TRACK TYPE: ?pm & tc.
CLASSIFICATION:PRODUCER: :?dinosaur.
MEASUREMENTS L/B: seen in section only; disturbance was 0.25 m wide. Sediment disturbed to 0.09 m.
REPOSITORY:ACC No: in situ.

CATALOGUE No: 120.
REFERENCES: Ensom 1985a, p.167.
STRATIGRAPHY: Intermarine Member. DB 116b.
LOC^{n}:NGR: Durlston Bay: SZ 0360 7835.
No OF PRINTS:PHOTOGRAPH/PLAN: 3.
DATE DISCOVERED: 02.12.1984.
BY: PCE.
PRINT/TRACK TYPE: pm.
CLASSIFICATION:PRODUCER: tridactyl:
MEASUREMENTS L/B: 1. L *c.*0.2 m/ B 0.33 m; 2. L 0.21 m/ B 0.25 m; 3. L 0.19 m/ B 0.28 m.
DIRECTION(S): 1. north westerly on a true bearing of N299°E.
REPOSITORY:ACC No: loose block and in situ.

CATALOGUE No: 121.
REFERENCES: Ensom 1985a, p.167.
STRATIGRAPHY: Intermarine Member. DB 117/118.
LOC^{n}:NGR: Durlston Bay: SY 0360 7835.
No OF PRINTS:PHOTOGRAPH/PLAN: >1.
DATE DISCOVERED: 14.10.1984.
BY: PCE.
PRINT/TRACK TYPE: pc.
CLASSIFICATION:PRODUCER: tridactyl.
MEASUREMENTS L/B: L 0.26 m/ B 0.19 m.
DIRECTION(S): SW on a true bearing of N229°E.
REPOSITORY:ACC No: in situ.

CATALOGUE No: 121a.
REFERENCES: Ensom 1985a, p.167.
STRATIGRAPHY: Intermarine Member. Fallen block of DB 118 with casts of prints made in DB 117.
LOC^{n}:NGR: Durlston Bay: SZ 0360 7835.
No OF PRINTS:PHOTOGRAPH/PLAN: 2.
No OF TRACKS: 1.
DATE DISCOVERED: 31.10.1984.
BY: PCE.
PRINT/TRACK TYPE: c.
CLASSIFICATION:PRODUCER: tridactyl.
MEASUREMENTS L/B: 1. L *c.*0.38 m/ B >0.3 m; 2. L *c.*0.3 m/ B >0.3 m. Pace 1.09 m (toe to toe) & 1.14 m (heel to heel). As print preservation was imperfect these figures are thought to be slightly lower than they should be.
REPOSITORY:ACC No: loose block on shore.

CATALOGUE No: 122.
REFERENCES: Ensom 1985a, p.167.
STRATIGRAPHY: Intermarine Member. DB 121 (=?Freestone).
LOC^{n}:NGR: Durlston Bay: SZ 0360 7835.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: 02.12.1984.
BY: PCE.
PRINT/TRACK TYPE: m & c.
CLASSIFICATION:PRODUCER: tridactyl.
MEASUREMENTS L/B: L 0.21 m/ B 0.28 m.
DIRECTION(S): W on a true bearing of N279°E.
REPOSITORY:ACC No: fallen block on shore and in situ in cliff.

CATALOGUE No: 123.
REFERENCES: Ensom 1985a, p.167.
STRATIGRAPHY: Intermarine Member. DB 116a.
LOC^{n}:NGR: Durlston Bay: SZ 0360 7835.
No OF PRINTS:PHOTOGRAPH/PLAN: ?1.
DATE DISCOVERED: 02.12.1984.
BY: PCE.
PRINT/TRACK TYPE: m.
CLASSIFICATION:PRODUCER: presumed dinosaur origin.
MEASUREMENTS L/B: [incomplete feature. Measurements obtained were ?L 0.31 m/ ?B 0.18 m incomplete].
DIRECTION(S): possible axial orientation had a true bearing of N044°E.
REPOSITORY:ACC No: in situ.

CATALOGUE No: 124.
REFERENCES: Ensom 1986, p.183.
STRATIGRAPHY: Upper Cypris Clays and Shales Member [≡DB244, W.T. Haysom pers. comm.].
LOC^{n}:NGR: NW corner of small copse at Woodyhyde Farm, Harman's Cross: SY 9750 7978.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: summer 1985.
BY: W T Haysom.
PRINT/TRACK TYPE: m & c.
CLASSIFICATION:PRODUCER: tridactyl:
MEASUREMENTS L/B: L 0.41 m/ B 0.45 m.
REPOSITORY: ACC No: Dorset County Museum: DORCM G 9724 a&b.

CATALOGUE No: 125.
REFERENCES: Ensom 1987, pp.205-6 & 1988, pp.148-150.
STRATIGRAPHY: Cherty Freshwater Member. 'Sly/Cap' junction. ≡DB 102/103, Ensom 1988, fig.1.
LOC^{n}:NGR: Sunnydown Farm Quarry, Gallows Gore, Langton Matravers: SY 9822 7880.
No OF PRINTS:PHOTOGRAPH/PLAN: numerous: Ph of sauropod *pes*, Ensom 1988, Pl. 5. & Plan of sauropod track, fig 1.
No OF TRACKS: several.
DATE DISCOVERED: 21.07.1986.
BY: PCE & Dr W A Wimbledon.
PRINT/TRACK TYPE: pcs & ?penetration casts.
CLASSIFICATION:PRODUCER: quadrupedal with five toes and bipedal with tridactyl: ?sauropod, ?iguanodon, ?megalosaur & small ?carnosaur.
MEASUREMENTS L/B: sauropod L *c.*0.56 m. Stride 2.2 m.
REPOSITORY:ACC No: Dorset County Museum (mainly stored on site): DORCM G 11050.

CATALOGUE No: 125.
REFERENCES: [Ensom] 1987b, pp.182-3.
STRATIGRAPHY: Cherty Freshwater Member.
LOC^{n}:NGR: Sunnydown Farm Quarry.
No OF PRINTS:PHOTOGRAPH/PLAN: Phs. Figs 1 & 2.
No OF TRACKS: 3 (sauropod).
PRINT/TRACK TYPE: c.
CLASSIFICATION:PRODUCER: four or five toed footprint casts of both fore and hindlimbs, + 3 toed casts: sauropod or nodosaurid ankylosaur. Lack evidence of claws [later one was observed on one cast] + more than one species of bipedal dinosaur.
MEASUREMENTS L/B: sauropod L 0.77 m/ B 0.6 m.

CATALOGUE No: 125.
REFERENCES: Thulborn 1990, pp.53, 207 (fig.6.42(a)), and 209 based on Ensom 1987.
No OF PRINTS:PHOTOGRAPH/PLAN: :Figure based on Ph in Ensom 1987b. See CLASSIFICATION.
CLASSIFICATION:PRODUCER: Placed in figure of prints attributed to ankylosaurs; on p.209 Thulborn accepts that a sauropod origin is more likely.

CATALOGUE No: 125.
REFERENCES: Lockley 1991, pp.58 + text fig. 5.4 based on Ensom 1987b and p.141 based without foundation on Ensom 1988.
No OF PRINTS:PHOTOGRAPH/PLAN: Part of Ensom 1988, fig 2 reproduced in fig 5.4.
CLASSIFICATION:PRODUCER: m: illustrated as a probable ankylosaur based on discussion in Ensom 1987b.

CATALOGUE No: 126.
REFERENCES: Ensom 1987a, p.206.
STRATIGRAPHY: Intermarine Member. Base of DB 133 = DB 132/133 (see also Cat.No.138).
LOC^{n}:NGR: Durlston Bay: SZ 0360 7835.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: 11.05.1986.
BY: PCE.
PRINT/TRACK TYPE: ?pc.
CLASSIFICATION:PRODUCER: ?tridactyl:
MEASUREMENTS L/B: greatest measurements on incomplete specimen are L >0.28 m/ B >0.41 m.
REPOSITORY:ACC No: fallen block.

CATALOGUE No: 127.
REFERENCES: Ensom 1987a, p.206.
STRATIGRAPHY: Corbula Member. base of WB 166 = WB 165/166.
LOC^{n}:NGR: Worbarrow Tout: SY 869 796.
No OF PRINTS:PHOTOGRAPH/PLAN: 1 [+2].
DATE DISCOVERED: 18.10.1986.
BY: PCE.
PRINT/TRACK TYPE: ?pc.
CLASSIFICATION:PRODUCER: large circular bulge: ?sauropod.
MEASUREMENTS L/B: 1. ?L 0.52 m/?B 0.56 m; [2. incomplete 2nd bulge on same block as 1 not recorded; 3. L 0.24 m/B 0.31m. Max depth of impression 1 is 0.06 m; 3. max depth of impression is 0.09 m].
REPOSITORY:ACC No: shore of Worbarrow Tout.

CATALOGUE No: 128.
REFERENCES: Nunn 1990, pp.133-134.
STRATIGRAPHY: Intermarine Member. DB 117/118. Lias Bed.
LOC^{n}:NGR: Durlston Bay: SZ 03479 78055.
No OF PRINTS:PHOTOGRAPH/PLAN: 1: Ph.
DATE DISCOVERED: *c.*1989.
BY: J F Nunn.
PRINT/TRACK TYPE: ?pc.
CLASSIFICATION:PRODUCER: tridactyl.
MEASUREMENTS L/B: L 0.31 m/B 0.23 m.
DIRECTION(S): S on a true bearing of N208°E.
REPOSITORY:ACC No: Durlston Bay.

CATALOGUE No: 129.
REFERENCES: Nunn 1990, p.134.
STRATIGRAPHY: Cherty Freshwater Member. DB 102/103.
LOC^{n}:NGR: Durlston Bay: SZ 03656 78390.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: prior to 1989.
BY: reported by J F Nunn.
PRINT/TRACK TYPE: c.
CLASSIFICATION:PRODUCER: tridactyl.
REPOSITORY:ACC No: in situ.

CATALOGUE No: 130.
REFERENCES: Ensom 1986a, pp.182-3 & Pl 3b.
STRATIGRAPHY: ?Intermarine Member, Roach.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: rediscovered 1985.
BY: Mr A Kirk and PCE.
PRINT/TRACK TYPE: ?pm.
CLASSIFICATION:PRODUCER:
:[Ichnogenus] *Purbeckopus pentadactylus*.
REPOSITORY:ACC No: Dorset County Museum: DORCM G 9482. Presented by Mr and Mrs A Kirk.

CATALOGUE No: 131.
REFERENCES: Ensom 1994, pp.183-4 and fig 2.
STRATIGRAPHY: Intermarine Member. (Downs Vein, 0.255 m from base of bed, *fide* W T Haysom).
LOC^{n}:NGR: excavation south of Downshay Wood: SY 979 792.
No OF PRINTS:PHOTOGRAPH/PLAN: 12 *pes*; 6 *manus*: Plan of casts in fig 2.
No OF TRACKS: 1 (= two parallel rows of prints).
DATE DISCOVERED: 1992.
BY: W T Haysom.
PRINT/TRACK TYPE: c & m.
CLASSIFICATION:PRODUCER:
:quadruped. Two parallel lines of prints with pes and manus.
MEASUREMENTS L/B: L 50-80 mm/ B 30-50 mm. Stride average 155 mm. 100 mm between median points of two rows of prints.
REPOSITORY:ACC No: cast slab is in the Dorset County Museum: DORCM G 11045 (see also Cat.No.132). Presented W T Haysom.

CATALOGUE No: 132.
REFERENCES: Ensom 1994, pp.183-4 and fig 3.
STRATIGRAPHY: Intermarine Member. (Downs Vein, 0.255 m from base of bed, *fide* W T Haysom).
LOC^{n}:NGR: excavation south of Downshay Wood: SY 979 792.
No OF PRINTS:PHOTOGRAPH/PLAN: 15: Plan of casts in fig 3.
No OF TRACKS: 1 (= 2 parallel lines of prints).
DATE DISCOVERED: 1992.
BY: W T Haysom.
PRINT/TRACK TYPE: c & m.
CLASSIFICATION:PRODUCER:
:quadruped. Two parallel lines of prints.
MEASUREMENTS L/B: Stride average 155 mm. 100 - 120 mm between median points of two rows of prints.
REPOSITORY:ACC No: counterpart of slab in fig.3 is in the Dorset County Museum: DORCM G 11046 (see also Cat.No.131). Presented W T Haysom.

CATALOGUE No: 133.
REFERENCES: Ord 1913. Also Delair & Sarjeant 1985, p.148 based on Ord 1912 [*sic*] = this reference.
STRATIGRAPHY: Upper Purbeck Beds.
LOC^{n}:NGR: Durlston Bay, near coastguard station.
No OF PRINTS:PHOTOGRAPH/PLAN: >1.
DATE DISCOVERED: June 14 1913.
BY: Geological Section of Bournemouth Natural Science Society.
CLASSIFICATION:PRODUCER: large dinosaur footprints.
REPOSITORY:ACC No: on shore where Ord reports 'the passage of many modern leather-shod feet was seen to be rapidly effacing them'.

CATALOGUE No: 134.
REFERENCES: Delair & Sarjeant 1985, p.148 based on Anon, *Dorset Proceedings*, Vol 16, 1896 pp.xxiv - xxv. [This reference has not been found. Vol 17 was published in 1896 and on pp.xxiv - xxv 2 natural casts are recorded but not as an exhibit].
STRATIGRAPHY: Middle Purbeck.
No OF PRINTS:PHOTOGRAPH/PLAN: single.
PRINT/TRACK TYPE: imprint.
CLASSIFICATION:PRODUCER: tridactyl imprint.
REPOSITORY:ACC No: Delair & Sarjeant suggest that J C Mansel-Pleydell was the exhibitor.

CATALOGUE No: 135.
REFERENCES: Bury 1934, p.7 referred to by Delair & Sarjeant 1985, p.148 upon which this entry is based.
STRATIGRAPHY: Purbeck Beds.
CLASSIFICATION:PRODUCER:
:*Iguanodon*.

CATALOGUE No: 136.
REFERENCES: Swinton 1961 (this reference is based on Delair & Sarjeant 1985, p.148 'figured without any statement of provenance').

CATALOGUE No: 136.
REFERENCES: Delair & Sarjeant 1985, p.148 (based on Swinton 1961 with Delair providing additional details from pers. knowledge).
STRATIGRAPHY: Middle Purbeck Beds. 'Roach' stone.
LOC^{n}:NGR: Haysom's quarry, Langton Matravers.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
CLASSIFICATION:PRODUCER: typical trifid iquanodontid footprint.
REPOSITORY:ACC No: 'formerly a part of the collection of Ernest F Oppé, who later presented it to Paisley Museum, Scotland.' [See note at end of Cat.No.81].

CATALOGUE No: 137 (ex Cat.No.20 *s.l.*).
REFERENCES: Delair & Sarjeant 1985, p.149.
LOC^{n}:NGR: Suttles 'Mutton Hole' quarry at Herston.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: 1962.
CLASSIFICATION:PRODUCER:
:'Iguanodon or Megalosaurus' footprint.
REPOSITORY:ACC No: Red House Museum, Christchurch, Hampshire: Part of the Cat.No.20 discovery donated by Mr J Suttle in 1967.

CATALOGUE No: ?137.
REFERENCES: pers.comm. between Tony Cross & PCE 24.01.1984 & 10.1994.
STRATIGRAPHY: Purbeck.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
PRINT/TRACK TYPE: tc.
CLASSIFICATION:PRODUCER: tridactyl:
REPOSITORY:ACC No: Red House Museum, Christchurch: CRH.1967.111. [Given the date which Delair & Sarjeant (1985) give as the donation date (based on a newspaper article) for the donation of Cat.No.137, it seems highly likely that this is the same specimen. See also Cat.No.97.].

CATALOGUE No: 138.
REFERENCES: Ensom 1987a, p.206 based on pers. comm. from M Turnbull.
STRATIGRAPHY: Intermarine Member. [≡DB 133].
LOC^{n}:NGR: small quarry on Round Down, Durlston Country Park. SZ 024 771.
DATE DISCOVERED: *c.* 1986.
BY: observed by Malcom Turnbull, Heritage Coast Warden, Durlston Country Park.

CATALOGUE No: 139 transferred to Cat No.38a.

CATALOGUE No: 140.
REFERENCES: Correspondence between Dr N D L Clark and PCE 25.10.1994 and accession register entry.
STRATIGRAPHY: Middle Purbeck 'Roach' bed.
LOC^{n}:NGR: Reg Cobb's Quarry, Langton

Matravers, Dorset.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
DATE DISCOVERED: Collected 1962.
BY: E F Oppé.
PRINT/TRACK TYPE: footprint.
CLASSIFICATION:PRODUCER: 3 toed.
REPOSITORY:ACC No: Hunterian Museum, Glasgow: V1600. Acquired by Mr Delair, Oct. 1964.

CATALOGUE No: 141.
REFERENCES: Correspondence between Dr N D L Clark and PCE 25.10.1994 and accession register entry.
STRATIGRAPHY: M Purbeck. Pink Bed [of] Roach layer.
LOC^{n}:NGR: Alec Lander's Qy, Langton Matravers, nr Swanage, Dorset.
No OF PRINTS:PHOTOGRAPH/PLAN: 'Track: one of trail'.
DATE DISCOVERED: Collected iii.1966.
BY: E F Oppé,.
REPOSITORY:ACC No: Hunterian Museum, Glasgow: X909. Donated 18.iv.1966 *via* Mr J Delair.

CATALOGUE No: 142.
REFERENCES: Inscription by E F Oppé on reverse of photograph in the Dorset County Museum Collection (P.14,200) and discussion between Kevin Keates and PCE 02.04.1983.
STRATIGRAPHY: Upper Building Stone Series (EFO). ?Roach (KK). [Intermarine Member].
LOC^{n}:NGR: Quarry [in] Eastington Farm Group, Worth Matravers, Dorset (EFO). Eastington Cowleaze Quarry (KK).
No OF PRINTS:PHOTOGRAPH/PLAN: ?1 ?footprint.
DATE DISCOVERED: 1961 or before.
BY: ?Nelson Burt.
PRINT/TRACK TYPE: m & c (Oppé notes that no bulge/distortion of the bedding plane beneath the mould has occured) [Examination of the 2 photographs leads me to suggest that this may be a tc/tm. If this diagnosis is correct, the original pm was possibly/probably reworked and only the transmitted cast and mould remained, with a larger-than-life appearance. Dr R G Clements (pers.comm.) suggests its origin may be as a load cast].
CLASSIFICATION:PRODUCER: Problematic.
MEASUREMENTS L/B: Estimated max dimensions ?L 13"/ ?B 16" based on rulers in the photograph DORCM. P.14,201.
REPOSITORY:ACC No: The mould was given to Kingston Lacy & Corfe Castle Estates, Office, Hillbutts, Wimborne, Hampshire (Agent [in] 1966 Mr F O Rhodes) by Mr Nelson Burt of Langton Matravers. The cast 'has now, Sept.1966, been accepted by and received at, Paisley Museum & Art Gallery, High Street, Paisley, Renfrewshire. See also Cat.Nos 80 - 82. Photographs of the mould and cast are present in the Dorset County Museum (DORCM. P.14,200 & P.14,201).

CATALOGUE No: 143.
REFERENCES: pers.comm. from M A Taylor to PCE, 09.07.1984.
STRATIGRAPHY: Purbeck limestone.
LOC^{n}:NGR: Swanage.
No OF PRINTS:PHOTOGRAPH/PLAN: 1.
PRINT/TRACK TYPE: print.
CLASSIFICATION:PRODUCER: :*Iguanodon*.
REPOSITORY:ACC No: Ludlow Museum. Donated by Mr Danny Kessler, 26.10.1981.

CATALOGUE No: 144.
REFERENCES: Photograph in Dorset County Museum. DORCM P.20,279.
STRATIGRAPHY: [Intermarine Member].
LOC^{n}:NGR: Suttle's Quarry, Herston.
No OF PRINTS:PHOTOGRAPH/PLAN: 1: Ph.
DATE DISCOVERED: date photographed July 1967.
BY: J B Calkin.
PRINT/TRACK TYPE: c.
CLASSIFICATION:PRODUCER: tridactyl. 'Cast of footprint and ?tail in front'.
MEASUREMENTS L/B: B *c.*12" based on scale bar in 'photo.
REPOSITORY:ACC No: Specimen repository not known.

CATALOGUE No: 145
REFERENCES: conversation between D Smale and PCE 11.04.1983.
STRATIGRAPHY: base of the Grub (Freestone. Intermarine Member).
LOC^{n}:NGR: mine roof in or near Swanage.
No OF PRINTS:PHOTOGRAPH/PLAN: >1 + tail drag.
BY: Observed by Denis Smale.
PRINT/TRACK TYPE: c.

CATALOGUE No: 146 [see also 125].
REFERENCES: Ensom 1988, p.149.
STRATIGRAPHY: Cherty Freshwater Member. 'Sly/Cap' junction. ≡DB 102/103.
LOC^{n}:NGR: Lovell's quarry [formerly Harden's Quarry, Gallows Gore, Worth Matravers]: NGR SY *c.*980 790.
No OF PRINTS:PHOTOGRAPH/PLAN: several.
DATE DISCOVERED: 29.09.1987.
BY: PCE.
PRINT/TRACK TYPE: pc.
CLASSIFICATION:PRODUCER: five toed and tridactyl: ?sauropod [quadrupedal and bipedal dinosaurs].

CATALOGUE No: 147.
REFERENCES: Accession Register of Bournemouth Natural Science Society. Mrs V E Copp, pers. comm. March 1995. Pictured in Bournemouth Evening Echo, 1986.
STRATIGRAPHY: Middle Purbeck stone.
LOC^{n}:NGR: Lock's Quarry, Langton Matravers, nr Swanage, Dorset.
No OF PRINTS:PHOTOGRAPH/PLAN: 1: Ph. see REFERENCES above.
DATE DISCOVERED: 1986 (in stone delivered for fireplace).
PRINT/TRACK TYPE: worn and indistinct impression.
CLASSIFICATION:PRODUCER: :*Iguanodon*.
REPOSITORY:ACC No: Museum of Bournemouth Natural Science Society: BNSS.1252. Presented by Mr and Mrs W T Crompton, May 1986.

CATALOGUE No: 148.
REFERENCES: Dr M J Le Bas, pers.comm. 28.09.1992.
STRATIGRAPHY: [Intermarine Member]
LOC^{n}:NGR: near Swanage, based on information given to Ben Cox by David Wright, the donor.
No OF PRINTS:PHOTOGRAPH/PLAN: 1
DATE DISCOVERED: before 1986.
PRINT/TRACK TYPE: [tc].
CLASSIFICATION:PRODUCER: [tridactyl: ?iguanodont]
MEASUREMENTS L/B: L *c.*0.2 m.
REPOSITORY:ACC No: Blandford Museum: GL2. Presented Mr David Wright.

This article is published with the aid of a grant from the Mansel-Pleydell Trust.

Environmental Quality Assessment of the Win Stream (Dorset) Using Macroinvertebrate Data

PATRICK D. ARMITAGE, KAY L. SYMES, JOHN H. BLACKBURN
Institute of Freshwater Ecology, River Laboratory, East Stoke, Wareham, Dorset BH20 6BB

SUMMARY

The macroinvertebrate fauna of a small stream, the Win in South Dorset was examined at six sites from near the source to its confluence with the River Frome. 178 taxa were recorded with species richness highest (98) at the lowest site and lowest (47) at the top site. A new species of worm to Britain, Amphichaeta leydigi Tauber was found at one of the sites. Information on the macroinvertebrate assemblages was used with RIVPACS (a computer-based assessment technique) to evaluate the environmental quality of the stream. It was found that the top three sites were of lower quality (B) than the bottom three sites which fell into the high quality band A. In general quality was higher than expected.

INTRODUCTION

Agricultural activities have frequently been cited as a cause of the biological deterioration of rivers (National Rivers Authority, 1992). The application of pesticides and fertilizers and the movement of organic waste into streams can have radical effects on the quality of instream biota by increasing nutrient loadings. These events may be accompanied by land drainage schemes and abstraction for supply and/or irrigation which in themselves may affect the biological quality of the stream by altering its natural discharge pattern (Armitage & Petts 1992). Small streams are particularly subject to these effects which can be assessed with information on the resident macroinvertebrate fauna.

In Britain early attempts to detect pollution used both faunal and floral data (Butcher *et al.* 1937) but gradually macroinvertebrates dominated biological assessment methods. The advantages of macroinvertebrates for pollution assessment have been cited by Hellawell (1977) and Hellenthal (1982), and summarised by Furse *et al.*(1990) and the main ones are listed below.

1) The wide diversity and abundance of species in almost all freshwater habitats.
2) Their relatively sedentary habit which allows the presence of most taxa to be related directly to conditions at their place of capture.
3) The length of many species life-cycles which allows for an overview of conditions at a site over several months.
4) The ability of invertebrate communities to integrate and to respond to a range of environmental stresses simultaneously.
5) Qualitative sampling is easy and inexpensive.

This ease of sampling and response to pollution makes them natural indicators of water quality. In this present study our primary aim was to carry out a survey of the macroinvertebrate fauna of the River Win and to use this information to assess the environmental quality of the stream from near the source to its confluence with the River Frome. It is hoped that this will be the start of a series of reports on local streams.

STUDY AREA AND METHODS

The Win, a tributary of the River Frome, is a lowland stream situated in South Dorset rising at an altitude of 90m O.D. in Cretaceous strata. The catchment area is approximately 27.5km^2 consisting largely of pasture with some arable land in the upper reaches. About 8km from its source the stream flows through the village of Winfrith Newburgh onto the alluvial floodplain (Palaeocene and Eocene gravel and sand deposits) of the River Frome. Here the stream runs through arable and pasture land (some of which is 'reclaimed' heathland) for about 2.5 km before flowing through the grounds of the Winfrith Atomic Energy Establishment.

No discharge data were available for the present study but historical data collected between 1974 and 1980 (Ian Farr pers. comm.) suggest that discharge fluctuates widely with season. Between April and September values range between 0.01 and 0.05 m^3s^{-1}. During the autumn and winter, discharge is about 0.1 m^3s^{-1} with peak flows in excess of 0.7 m^3s^{-1}. The response of the stream to high rainfall is very rapid and this combined with several barriers to free flow (culverts, bridges, and obstacles in the stream) may lead to local flooding downstream of Winfrith Newburgh. The low flows experienced over summer periods result in the stream substratum being covered in a fine silty material, an important factor when considering the fauna found in the stream.

Six sites were sampled between the source and the confluence with the River Frome (Fig.1, Table 1). Since three seasons samples

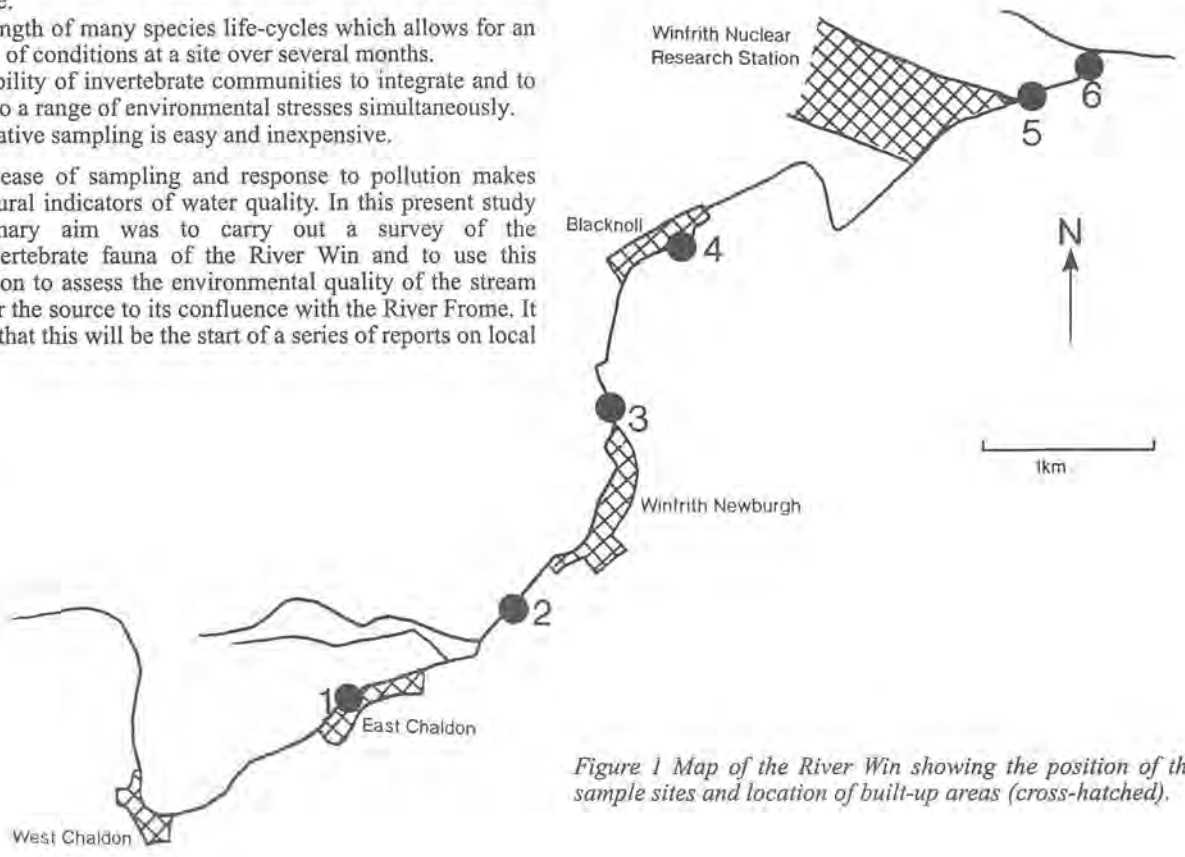


Figure 1 Map of the River Win showing the position of the 6 sample sites and location of built-up areas (cross-hatched).

were needed for the survey the first site was chosen 3.5 km from the source where there was flow throughout the year.

Site 1 at East Chaldon has a width of 1.0m and consists of riffles of up to 4cm deep running over a substratum of mostly cobbles and pebbles (derived largely from eroded road stone). The sample area is just downstream of a small road along each side of which are two ditches which both feed into the main stream channel. Along the right hand bank (looking downstream) of the sample area are a number of trees which provide moderate shade.

Site 2 is located 0.5km upstream of Winfrith Newburgh village. The sample area is 1.4m wide consisting of riffles and glide up to 16cm deep running over a substratum of cobbles and pebbles. The sample site runs through open grassland and is therefore not shaded. Both banks show erosion and there is evidence of cattle crossing just upstream of the sample area. Instream macrophyte growth was well developed and about 20% of the substratum was covered with small stands of *Apium/Berula* sp. and *Callitriche* sp.

Between sites 1 and 2 the Win receives water from two small tributaries and some drainage ditches flowing from the west and a small ditch/tributary entering from the east. Inputs from these sources are minimal in dry weather indicating a surface rather than a groundwater supply. The substratum of the eastern flowing tributaries is stained with iron oxides.

The sample site in Winfrith Newburgh (3) is adjacent to the road which passes through the village. The stream has a width of 1.8m and consists mainly of glide with some areas of riffle running over a substratum of cobbles, pebbles and gravel, where the largest stones originated from builders rubble. Along the right hand bank are trees which provide shade for about half the width of the stream. A road runs along the left bank of the stream which is retained with a 1m high wall. Macrophytes (*Apium/Berula*) occurred at low densities (15% cover) and filamentous algae covered most of the stream bottom (70%) in the summer.

Site 4 is situated at Blacknoll Lane in an area of low density housing. The site is sampled downstream of a sewage pumping station. No effluent enters the stream during normal flows but in times of flood the system is overloaded and raw sewage may enter the stream. The stream has a width of 2.4m and consists of riffles and some glide up to a depth of 11cm running over a substratum consisting mainly of cobbles and pebbles. Some small patches of *Callitriche* sp. occurred on the stream bed (2% cover) but filamentous algae covered about 70 % of the substratum in summertime. On the left hand bank is a wooded area which provides shade for over half the stream width. The right hand bank consists of low plants which in summer may overhang the stream.

The sample site near the Seven Stars Public House, East Burton (5) is downstream of a railway bridge and a small weir. The stream at this location has a width of 2.0m and consists of riffles of up to 23cm deep running over a substratum of mostly pebbles and gravel but with a high proportion of sand admixed. The left hand bank is bordered by a road which is about 1.0m above the level of the stream bed. Along the right hand bank of the stream is a large overgrown bramble hedge behind which is pasture. Shading is minimal at the site. The stream water and stones on the bed are discoloured with an orange deposit which derives from the iron rich gravels through which the stream flows.

Site 6 is located in pasture land on the outskirts of East Burton village about 30m upstream of the confluence of the Win and Frome. The sample area is enclosed by fencing which prevents livestock from eroding the banks. The stream has a width of 2.1m and consists of riffles of a depth of up to 31cm running over a substratum of mostly pebbles and gravel. Macrophytes (mostly *Apium/Berula*) covered about 10% of the stream bed in summer but algal growths were absent.

The physical and chemical features of the sites are summarized in Table 1. Of particular interest is the high phosphate value at the top site. Between site 1 and 2 the stream receives water from tributaries and drainage ditches and the phosphate levels at the next chemical monitoring site, site 3 were reduced by a factor of 7. This reduction of phosphate levels continues downstream and the lowest values were found at site 6.

Samples were collected in April June and September using a standard 3 minute kick/sweep technique (Wright *et al.* 1993) with a pond net of 900 µm mesh. Samples were fixed in 5% formaldehyde solution and sorted into 70% alcohol. Identifications were made to species level wherever keys and life-history stage allowed.

RESULTS AND DISCUSSION

The fauna

A total of 178 taxa were recorded from the six sites in the three seasons (Table 2). The groups contributing most species were Chironomidae (36) and Oligochaeta (26). Other well represented groups were Trichoptera with 23 taxa and Coleoptera with 19. The distribution of species amongst major groups is shown in Table 3.

The composition in terms of major faunal groups and total abundance (based on three seasons) of the benthic macroinvertebrate fauna is shown in Fig. 2. The upstream site, 1, is dominated by Crustacea (*Gammarus pulex*) with oligochaetes, gastropods (mainly *Potamopyrgus jenkinsi*), and Planariidae subdominant. Site 2 which is faster flowing is dominated by baetid mayflies and simuliid larvae are found in large numbers for the first time. Site 3 is dominated by *Potamopyrgus jenkinsi* and the chironomid sub-tribe Tanytarsini. Site 4 supports the highest densities of macroinvertebrates with the fauna dominated by Tanytarsini and Oligochaetes. Site 5 is characterised by a sandy bottom and here the faunal density is low with chironomids and oligochaetes numerically dominant. The bottom site just upstream of the confluence with the River Frome, has a varied

Table 1 Physical and chemical characteristics of 6 sites on the Win stream

Site	1	2	3	4	5	6
Grid Reference	SY791834	SY801839	SY806852	SY810861	SY830869	SY834872
Altitude (m O.D.)	58	48	37	29	20	17
Distance from Source (km)	3.50	5	6	7	9.70	10.10
Slope (m/Km)	8.30	10	5.40	4	3.90	20:34
Water Width (m)	1.00	1.40	1.80	2.40	2.10	2.20
Mean Depth (cm)	2.80	13.60	10.40	10.00	18.00	20.40
Surface Velocity (cm/s)	10-25	25-50	25-50	10-25	25-50	25-50
Subtratum Cover %						
Boulders & Cobbles	60	57	31	35	0	7
Pebbles & Gravel	35	35	32	46	53	75
Sand	5	3	13	5	37	10
Silt & Clay	0	6	14	13	10	8
pH	8.00	-	8.30	-	-	7.80
Calcium (mg/l Ca)	105.90	-	98.80	-	-	95.40
Alkalinity (mg/l CaCO3)	239.00	-	212.30	-	-	183.30
Chloride (mg/l Cl)	40.00	-	33.90	-	-	34.20
Nitrate (mg/l N)	3.80	-	6.40	-	-	4.00
Phosphate (ug/l P)	176.00	-	24.10	-	-	11.60

fauna with chironomids forming the largest proportion of the whole.

The fauna generally was typical of lowland headwater streams and although many species were found none of these was particularly rare. An exception is the record of a naid worm *Amphichaeta leydigi* Tauber from site 5. This is the first record of this species for the British Isles. The species keys out according to Cekanovskaya (1962) and Brinkhurst & Jamieson (1971) on the 5 dorsal chaetae in segment V, and the two in ventral bundles IV and V. In all other respects it looks very similar to *A. sannio* Kallstenius which was found recently in the Humber Estuary (G.Bird pers. comm.). The latter species occurs in brackish/estuarine waters, whereas *leydigi* is typically a denizen of freshwater.

There are no consistent trends in faunal composition from top to bottom of the stream but there is a tendency for total species richness to increase downstream (Fig.3) although this varied from group to group (Table 3). At site 6 near the confluence of the Win with the Frome 98 'species' were recorded compared to the top site where only 47 'species' were found. The increased richness at site 6 is due to the proximity of the Frome which provides a greater pool of potential colonizers. Several taxa occur only at this bottom site and these include 3 species of naid worm, 1 mayfly (*Centroptilum pennulatum*), the hemipteran *Aphelocheirus aestivalis*, 4 Coleoptera, 2 Trichoptera and 2 Chironomidae.

There are three clear examples of discontinuity in species distribution. *Asellus meridianus* occurred at sites 1-3 and was replaced at sites 4-6 by *A. aquaticus*. Both species have rather similar ecological requirements but *A. aquaticus* is thought to be slightly more tolerant to stagnant water and polluted conditions. There were no obvious signs of pollution at sites 4-6 so the observed distribution of the two species is unexplained. *Crangonyx pseudogracilis*, a crustacean accidentally introduced from America in the first half of this century and now fairly widespread throughout Great Britain occurred only at the two lower sites in the Win. It is probable that the species has spread into the Win from the River Frome. An increase in the abundance and range of this species in the Win is to be expected in the future. The third case of discontinuous distribution is seen in the most abundant gastropod mollusc *Potamopyrgus jenkinsi* which although very numerous at sites 1,3,and 4 (see Fig 2) is absent from 5 and 6. These two downstream sites have relatively unstable substrata and moderate flows conditions which do not favour this species. This fact is supported by the situation at site 2 which also has relatively fast flows and very low numbers (only 5 specimens recorded in 3 seasons) of *P. jenkinsi*.

The fauna is dominated numerically by macro-invertebrates characteristic of soft sediments or tolerant to such conditions (oligochaetes, many chironomids, and *Potamopyrgus jenkinsi*. This is not because sand and silt are the dominant substrata in the catchment but because the summer flows are so low that a fine layer of silt develops on the surface of both sand and gravel. Only in the faster flowing areas such as at site 2 does the bottom remain relatively silt-free but this site is so far from potential colonizers of fast flowing water that the site remains relatively poor in species. The porosity of the catchment and surrounding land means that tributaries are scarce and this contributes to the isolation of the stream.

Environmental assessment

RIVPACS (River Invertebrate Prediction And Classification System) a software program developed by the Institute of Freshwater Ecology at their Dorset River Laboratory for the classification and prediction of macroinvertebrate communities in running water (Wright *et al.* 1993) was used to assess the environmental quality of the sites. Over the past 15 years about 600 species of macroinvertebrate have been identified from more than 400 substantially unpolluted sites throughout Great Britain. The species lists have been used to construct a national classification of running-water sites and to develop a technique for predicting the probabilities of occurrence of individual taxa at sites of known environmental characteristics.

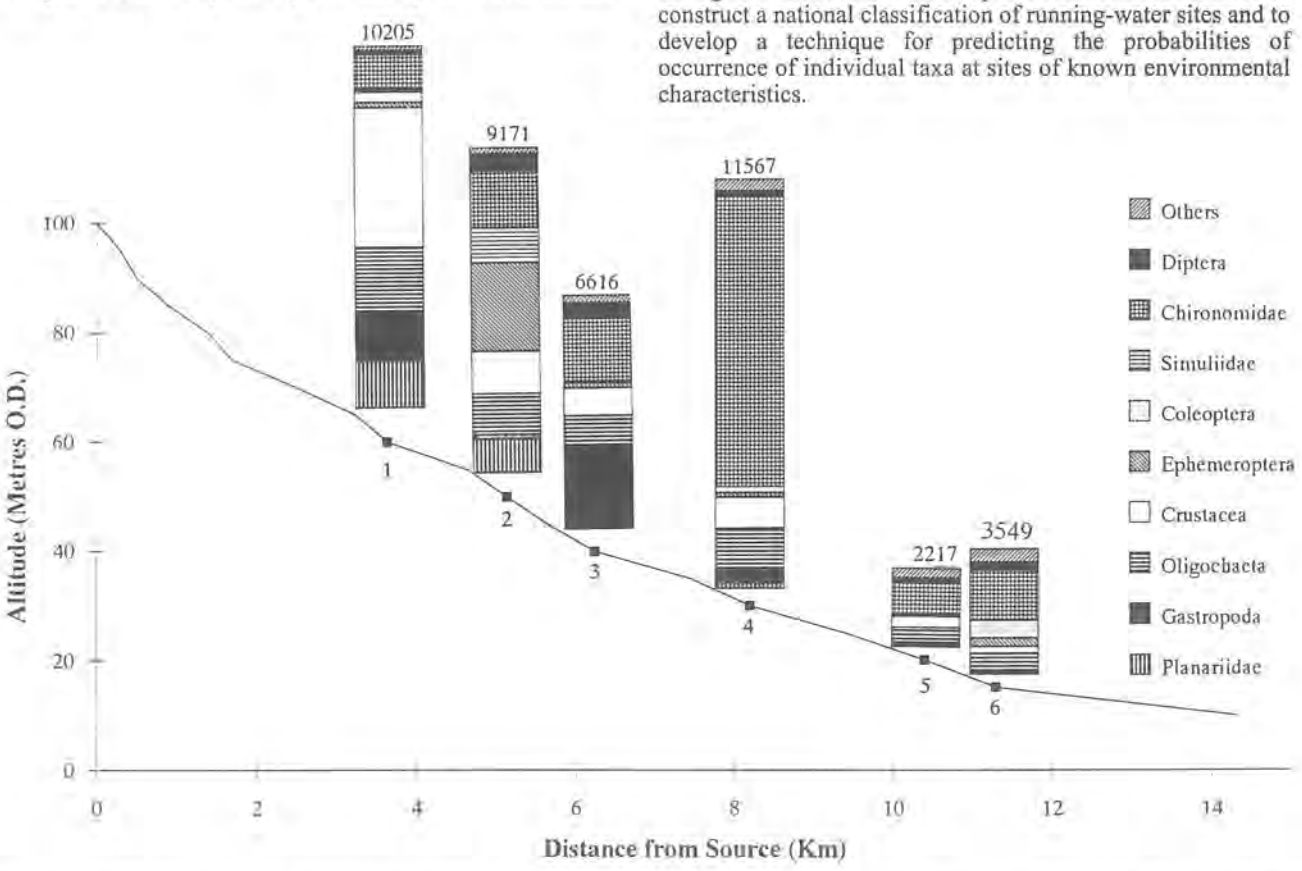


Figure 2 Faunal composition (relative numbers of major groups) at the 6 sites along a profile of the River Win, based on data collected in April, June and September 1993.

Table 2 The occurrence of macroinvertebrates at 6 sites on the Win stream based on 3 minute kick/sweep samples taken in spring, summer and autumn.

	1	2	3	4	5	6
Tricladida						
Planariidae						
Dugesia polychroa /lugubris	0	0	0	1	0	0
Polycelis felina (Dalyell)	1	1	0	1	0	1
Polycelis nigra/tenuis	1	1	0	1	1	1
Nematomorpha						
Chordodidae	0	0	1	0	0	1
Gastropoda						
Valvatidae						
Valvata cristata Muller	0	0	1	0	0	0
Hydrobiidae						
Potamopyrgus jenkinsi (Smith)	1	1	1	1	0	0
Lymnaeidae						
Lymnaea palustris (Muller)	0	1	0	0	0	0
Lymnaea peregra (Muller)	0	0	1	0	1	1
Planorbidae						
Hippeutis complanatus (L)	0	0	0	1	0	0
Ancylidae						
Ancylus fluviatilis Muller	0	1	1	1	1	1
Succineidae						
Succinea/Oxyloma sp.	1	1	0	0	0	0
Zonitidae						
Zonitoides sp.	0	0	0	0	1	1
Bivalvia						
Sphaeriidae						
Sphaerium corneum (L.)	0	0	1	1	1	0
Pisidium casertanum (Poli)	0	0	1	1	1	1
Pisidium personatum Malm	1	0	0	1	0	1
Pisidium milium Held	0	1	0	1	0	1
Pisidium subtruncatum Malm	0	1	1	1	1	1
Pisidium hibernicum Westerlund	0	0	0	0	0	1
Pisidium nitidum Jenyns	0	0	1	0	0	1
Pisidium sp.	0	0	0	1	0	1
Oligochaeta						
Naididae						
Amphichaeta leydigi Tauber	0	0	0	0	1	0
Chaetogaster diaphanus (Gruithuisen)	1	1	1	1	0	0
Nais alpina Sperber	0	0	0	0	0	1
Nais barbata Muller	0	0	1	1	0	0
Nais bretscheri Michaelsen	0	0	1	1	0	0
Nais communis Piguet	0	1	1	0	0	1
Nais elinguis Muller	1	1	1	1	1	1
Nais pardalis Piguet	0	0	0	0	0	1
Ophidonais serpentina (Muller)	0	0	1	1	0	0
Pristina aequiseta Bourne	0	0	0	0	1	0
Pristina idrensis Sperber	0	0	0	0	0	1
Slavina appendiculata (dUdekem)	0	0	0	0	1	0
Stylaria lacustris (L.)	0	1	1	1	0	1
Tubificidae						
Aulodrilus pluriseta (Piguet)	1	0	0	0	1	1
Limnodrilus claparedeianus Ratzel	0	0	0	0	1	0
Limnodrilus hoffmeisteri Claparede	1	1	1	1	1	1
Limnodrilus udekemianus Claparede	0	0	0	1	0	0
Psammoryctides barbatus (Grube)	0	0	1	1	0	0
Rhyacodrilus coccineus (Vejdovsky)	1	1	1	1	1	1
Tubifex tubifex (Muller)	1	0	0	0	0	0
Tubifex/Potamothrix	0	0	0	0	1	0
Enchytraeidae						
Enchytraeidae indet.	0	1	0	0	0	0
Lumbriculidae						
Lumbriculus variegatus (Muller)	0	1	1	1	1	1
Stylodrilus heringianus Claparede	1	1	1	1	1	1
Stylodrilus lemani	1	1	1	1	0	1
Lumbricidae						
Lumbricidae indet.	1	1	1	1	1	1
Hirudinea	0	0	0	0	0	0
Piscicolidae						
Piscicola geometra (L.)	0	0	0	0	1	0
Glossiphoniidae						
Glossiphonia complanata (L.)	1	1	1	1	1	1
Helobdella stagnalis (L.)	1	0	1	0	0	1
Erpobdellidae						
Dina lineata (Muller)	1	1	0	0	0	0
Erpobdella octoculata (L.)	1	1	1	1	1	1
Trocheta subviridis Dutrochet	1	0	1	0	0	0
Arachnida						
Hydracarina	0	1	1	1	1	1
Malocostraca						
Asellidae						
Asellus aquaticus (L.)	0	0	0	1	1	1
Asellus meridianus Racovitza	1	1	1	0	0	0
Gammaridae						
Crangonyx pseudogracilis Bousfield	0	0	0	0	1	1
Gammarus pulex (L.)	1	1	1	1	1	1
Ephemeroptera						
Baetidae						
Baetis niger (L.)	0	0	0	0	0	1
Baetis rhodani (Pictet)	1	1	1	1	1	1
Baetis vernus Curtis	0	1	1	1	0	1
Centroptilum luteolum (Muller)	0	0	1	1	0	1
Centroptilum pennulatum Eaton	0	0	0	0	0	1
Leptophlebiidae						
Paraleptophlebia cincta (Retzius)	0	0	0	0	0	1
Ephemerellidae						
Ephemerella ignita (Poda)	0	1	0	1	0	1
Ephemeridae						
Ephemera danica Muller	0	0	1	0	0	0
Plectoptera						
Nemouridae						
Nemoura avicularis Morton	0	0	0	0	1	0
Nemurella picteti Klapalek	0	0	0	0	1	0
Leuctridae						
Leuctra fusca (L.)	0	0	0	0	1	1
Leuctra geniculata (Stephens)	0	0	0	0	1	1
Odonata						
Cordulegasteridae						
Cordulegaster boltonii (Donovan)	0	0	0	0	1	0
Hemiptera						
Veliidae						
Velia caprai Tamanini	0	0	1	0	0	0
Aphelocheiridae						
Aphelocheirus aestivalis (Fabricius)	0	0	0	0	0	1
Corixidae						
Sigara dorsalis (Leach)	0	0	0	0	1	0
Sigara venusta (Douglas & Scott)	0	1	0	0	1	0
Coleoptera						
Haliplidae						
Brychius elevatus (Panzer)	0	0	0	0	0	1
Haliplus sp.	0	0	1	1	1	1
Dytiscidae						
Agabus didymus (Olivier)	0	0	1	0	0	0
Agabus sp.	0	1	1	0	0	1
Hydroporus sp.	0	0	1	0	0	1
Ilybius sp.	0	0	0	0	0	1
Platambus maculatus (L.)	0	0	0	0	0	1
Potamonectes depressus (Fabricius)	0	0	1	1	1	1
Stictotarsus duodecimpustulatus (Fabricius)	0	0	0	1	1	1
Gyrinidae						
Orectochilus villosus (Muller)	0	0	0	0	0	1
Hydrophilidae (incl. Hydraenidae)						
Helophorus brevipalpis Bedel	0	1	0	0	0	0
Helophorus grandis Illiger	0	1	0	0	0	0
Helophorus sp.	0	0	0	0	0	1
Hydrophilidae indet.	0	0	0	0	1	0
Elminthidae						
Elmis aenea (Muller)	1	1	1	1	1	1
Limnius volckmari (Panzer)	0	1	0	0	0	1
Oulimnius sp.	0	0	0	1	1	1
Oulimnius tuberculatus (Muller)	0	0	0	0	0	1
Helodidae						
Elodes sp.	1	1	0	0	0	0
Megaloptera						
Sialidae						
Sialis lutaria (L.)	0	0	0	1	0	0
Trichoptera						
Rhyacophilidae						
Rhyacophila sp.	0	0	0	0	1	0
Rhyacophila dorsalis (Curtis)	0	0	0	0	0	1
Polycentropodidae						
Plectrocnemia conspersa (Curtis)	1	0	0	0	1	0
Polycentropus flavomaculatus (Pictet)	0	0	0	0	1	0
Psychomyiidae						
Tinodes waeneri (L.)	0	0	1	1	0	1
Hydropsychidae						
Hydropsyche angustipennis (Curtis)	0	0	0	1	1	1
Hydropsyche pellucidula (Curtis)	0	0	0	0	1	1
Hydroptilidae						
Hydroptila sp.	1	0	0	0	0	1
Ithytrichia sp.	0	0	0	0	0	1
Oxyethira sp.	0	1	0	0	0	1

	1	2	3	4	5	6
Limnephilidae						
Anabolia nervosa (Curtis)	0	0	0	0	1	0
Halesus sp.	0	1	0	0	0	1
Limnephilus lunatus group	1	0	1	1	0	0
Micropterna sequax McLachlan	1	0	1	1	0	0
Micropterna sp.	0	0	1	0	0	0
Potamophylax cingulatus (Stephens)	0	1	0	0	0	0
Potamophylax sp.	0	1	1	0	0	0
Beraeidae						
Beraeodes minutus (L.)	0	0	0	1	1	0
Leptoceridae						
Athripsodes cinereus (Curtis)	0	0	0	0	0	1
Athripsodes albifrons (L.)	0	0	0	0	0	1
Mystacides azurea (L.)	0	0	1	1	0	0
Goeridae						
Goera pilosa (Fabricius)	0	0	0	1	0	1
Sericostomatidae						
Sericostoma personatum (Spence)	0	0	0	0	1	1
Diptera						
Tipulidae						
Dicranota sp.	0	1	1	1	1	1
Limnophila (*Eloeophila*) sp.	0	1	0	0	1	0
Pilaria (*Pilaria*) sp.	0	1	1	0	0	1
Tipula maxima Poda	0	0	1	0	0	0
Tipula montium group	1	1	1	0	0	1
Tipula sp.	0	0	0	0	1	0
Psychodidae						
Pericoma blandula Eaton	0	0	1	0	0	0
Pericoma fallax Eaton	0	0	1	1	1	1
Pericoma trivialis group	1	0	1	1	0	1
Peripsychoda fusca (Macquart)	1	0	0	0	0	0
Ptychopteridae						
Ptychoptera sp.	1	0	0	1	0	0
Dixidae						
Dixa nebulosa Meigen	0	0	1	0	0	0
Ceratopogonidae						
Bezzia sp.	1	1	1	1	1	1
Chironomidae						
Tanypodinae						
Apsectrotanypus trifascipennis (Zetterstedt)	0	0	0	0	1	0
Macropelopia sp.	1	1	1	1	1	1
Procladius sp.	1	0	1	0	0	0
Tanypodinae indet.	0	0	0	1	0	0
Thienemannimyia group	1	0	1	1	1	1
Zavrelimyia hirtimana (Kieffer)	0	0	0	0	0	1
Zavrelimyia sp.	0	0	0	0	1	0
Diamesinae						
Diamesa sp.	0	1	0	0	0	0
Potthastia gaedii group	0	0	0	0	0	1
Orthocladiinae						
Brillia modesta (Meigen)	1	1	1	1	1	1
Cricotopus bicinctus group	0	0	0	0	1	0
Cricotopus group	1	1	1	1	1	1
Cricotopus trifascia Edwards	0	1	0	0	0	0
Eukiefferiella claripennis (Lundbeck)	0	1	0	0	1	1
Eukiefferiella gracei (Edwards)	0	1	0	0	0	1
Eukiefferiella ilkleyensis (Edwards)	0	0	0	0	0	1
Eukiefferiella minor (Edwards)	0	1	0	0	1	0
Metriocnemus sp.	0	1	0	0	0	1
Orthocladius sp.	0	1	0	0	0	1
Paratrissocladius excerptus (Walker)	0	0	0	0	1	0
Rheocricotopus sp.	1	1	1	1	0	0
Thienemanniella sp.	0	0	1	0	0	1
Tvetenia calvescens (Edwards)	0	0	1	0	0	0
Tvetenia discoloripes/veralli	1	0	0	0	1	0
Tvetenia verrali (Edwards)	1	0	0	0	1	0
Prodiamesinae						
Prodiamesa olivacea (Meigen)	1	1	1	1	1	1
Chironomini						
Chironomus sp.	0	0	0	1	0	0
Dicrotendipes sp.	0	0	1	0	0	0
Paracladopelma sp.	0	0	0	0	1	0
Polypedilum sp.	0	0	0	1	1	0
Stictochironomus sp.	0	0	0	0	1	0
Tanytarsini						
Cladotanytarsus sp.	0	0	0	0	1	0
Micropsectra/Tanytarsus group	1	0	0	0	0	0
Micropsectra sp.	1	1	1	1	1	1
Rheotanytarsus sp.	1	0	1	0	0	0
Tanytarsus sp.	0	1	1	1	1	1
Simuliidae						
Simulium (*Eusimulium*) sp.	0	1	1	0	0	1
Simulium (*Nevermannia*) sp.	1	1	0	0	0	0
Simulium (*Simulium*) sp.	0	1	1	0	1	1
Empididae						
Clinocera sp.	1	1	1	1	0	1
Chelifera sp.	0	0	1	0	0	0
Hemerodromia sp.	0	1	0	0	0	1
Wiedemannia sp.	0	1	0	0	0	1
Empididae Indet.	0	1	0	1	1	1
Dolichopodidae						

This large data base provides a method of setting a standard against which to assess the fauna of new sites and also places the site in a national context. The technique has been adopted by the National Rivers Authority in their surveys of river quality. The output from the program includes predictions of numbers of taxa, BMWP biotic score and Average Score Per Taxon (Armitage *et al.* 1983). Predicted target values for BMWP score, number of scoring taxa and ASPT were obtained for each site based on data from the three seasons. These results are compared with observed values based on combined seasons data to give an observed /predicted index (Fig.3).

The banding system developed by Wright. (1993) in conjunction with biologists in the water industry was applied to the results. Four biological classes A,B,C,D are recognized where A is indicative of a high quality site. Class values for all three faunal parameters are considered in the assignment of a final classification for the site. In the Win the top three sites all fall into Biological Class B and the bottom three sites belong to Class A. There is no banding system developed for species indices but it is clear from the figure that values of indices for observed/predicted number of species are greater than 0.75 at all but site 1. This suggests a Band A grading for sites 2-6 and a B grade for site 1.

The results of these analyses indicate that there is some environmental stress at the first three sites but this is not apparent at sites 4-6. Stresses on the system include high phosphorous loading at the top site, wide fluctuations in discharge with winter flooding and very low flows in summer, and a relatively mobile substratum. These factors combine to reduce the diversity of fauna in the upper reaches.

CONCLUSIONS

Despite the relatively intense agricultural activity in the catchment which includes application of fertilizers, land-drainage leading to increased input of sediment and direct drainage from cow-sheds into the stream during wet weather the water course is not as stressed as might be expected. Phosphate levels decrease downstream due to dilution effects and/or to the presence of iron oxides which strip phosphate from the water column (Sharpley,1993). The main inputs occur during high flows and are quickly flushed through the system. A point made obvious by observations in the village of Winfrith where domestic drainage was seen to enter the stream in wet weather and further downstream at Blacknoll Lane where raw sewage entered the flooded stream at peak flows. These impacts do not appear to have significantly reduced the quality of the stream in its lower reaches. The most vulnerable areas are those at the top of the system which would be particularly sensitive to increased nutrient loadings and reduced flows. The Win has been subject to flow regulation in the past and there are remnants of small sluice gates along its length. Now it is basically unmanaged and flow controls are culverts and bridges. The almost 'natural' discharge regime is a contributory factor in the maintenance of the quality of the stream as it permits high winter flows which flush the system of pollutants and accumulated sediment.

ACKNOWLEDGEMENTS

We are most grateful to our colleagues Sue Smith (chemical analyses), Ian Farr (hydrological information), Jon Bass (Sphaeriidae identifications) and Alan House and Niall Grieve (general discussion) for their help and encouragement. Dr. Graham Bird, National Rivers

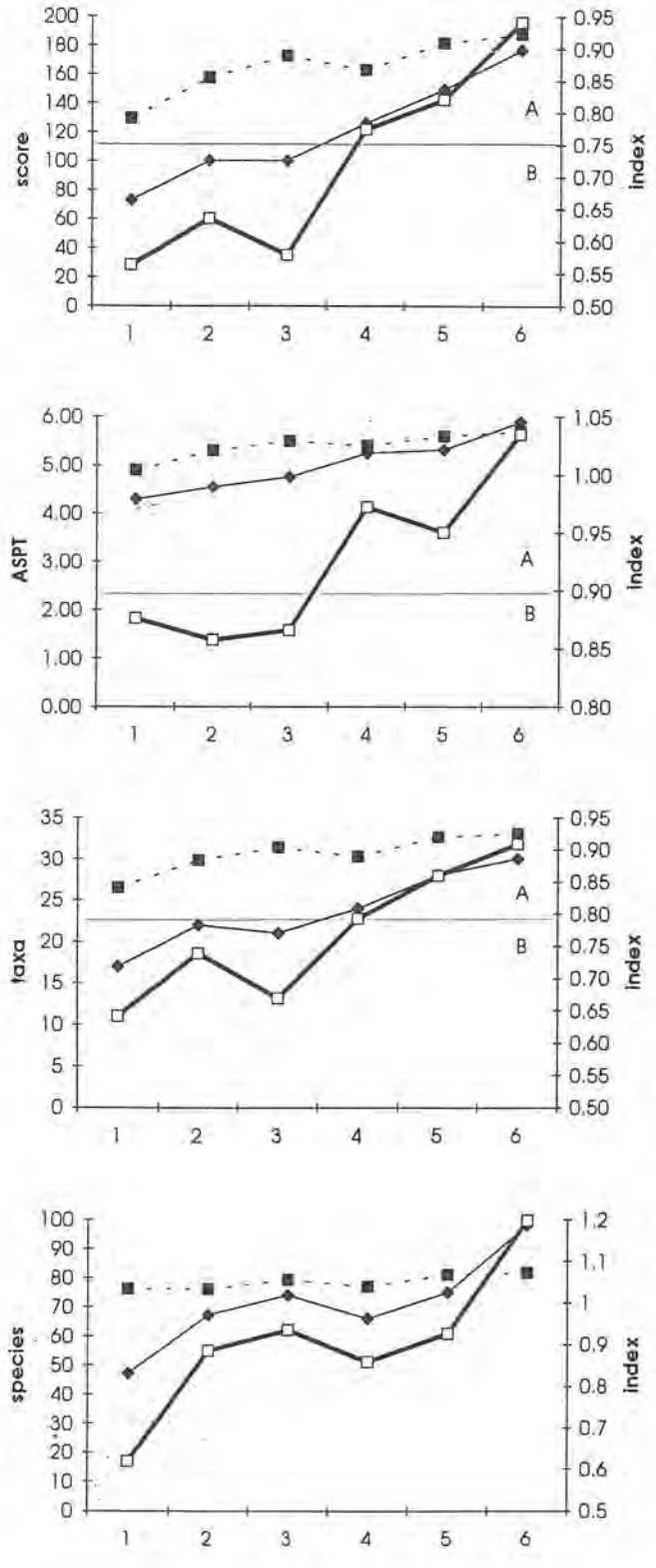


Figure 3 Indices of faunal quality (open squares) in the Win based on comparisons between observed (closed diamonds) and predicted (closed squares) values of the faunal parameters BMWP score, ASPT (average score per taxon, number of scoring taxa and number of species. For score, ASPT and taxa the location of the division between the NRA bands A and B is indicated.

Table 3 The distribution of species/taxa per major groups and total number of taxa per group at the six sites on the River Win.

GROUP\SITE	1	2	3	4	5	6	TOTAL
TRICLADIDA	2	2	0	3	1	2	3
NEMATOMORPHA	0	0	1	0	0	1	1
GASTROPODA	2	4	4	3	3	3	8
BIVALVIA	1	2	4	6	3	7	8
OLIGOCHAETA	9	11	14	14	12	13	26
HIRUDINEA	5	3	4	2	3	3	6
HYDRACARINA	0	1	1	1	1	1	1
MALACOSTRACA	2	2	2	2	3	3	4
EPHEMEROPTERA	1	3	4	4	1	7	8
PLECOPTERA	0	0	0	0	4	2	4
ODONATA	0	0	0	0	1	0	1
HEMIPTERA	0	1	1	0	2	1	4
COLEOPTERA	2	6	6	5	6	14	19
MEGALOPTERA	0	0	0	1	0	0	1
TRICHOPTERA	4	4	6	7	8	12	23
TIPULIDAE	1	4	4	1	3	3	6
CHIRONOMIDAE	12	14	13	11	19	15	36
SIMULIIDAE	1	3	2	0	1	2	3
OTHER DIPTERA	5	7	8	6	4	9	16
	47	67	74	66	75	98	178

Authority (Northumbria and Yorkshire Region) kindly confirmed the identity of the oligochaete *Amphichaeta leydigi*. This study was part funded by the Natural Environment Research Council.

REFERENCES

Armitage, P.D. & Petts, G.E., 1992, 'Biotic score and prediction to assess the effects of water abstractions on river macroinvertebrates for conservation purposes', *Aquatic Conservation: Marine and Freshwater Ecosystems*, 2, 1-17.

Armitage, P.D., Moss, D., Wright, J.F. and Furse, M.T., 1983, 'The performance of a new biological water quality score system based on macroinvertebrates over a wide range of unpolluted running-water sites', *Water Research*, **17**, 333-347.

Brinkhurst, R.O. and Jamieson B.G.M., 1971, *The aquatic Oligochaeta of the World*, Oliver and Boyd, Edinburgh. pp 860.

Butcher, R.W., Longwell, J. and Pentelow, F.T.K., 1937, 'Survey of the River Tees, III -The non-tidal reaches -chemical and biological'. *Tech. Pap. Wat. Pollut. Res. Lond.* 6, xiii+pp189

Cekanovskaya, O.V., 1962, 'The aquatic Oligochaeta of the U.S.S.R.' *Opred. Faune. S.S.S.R.* 78, 1.

Furse, M.T., Fernandes, J.N., Wright, J.F. and Armitage, P.D., 1990, 'The use of aquatic macro-invertebrate assemblages for assessment of the environmental quality of rivers.' In: *Water Quality, Assessment and Management.* Proceedings of an International Seminar, Lisbon, 17-19 May 1989, UNESCO. 171-181.

Hellawell J.M., 1977, 'Biological surveillance and water quality monitoring.' In: *Biological Monitoring of Inland Fisheries.* Alabaster, J.S. (Ed.), 69-88. London.

Hellenthal, A.,1982, 'Using aquatic insects for the evaluation of freshwater communities.' In: *Acquisition and Utilization of Aquatic Habitat Inventory Information.* Armantrout, N.B. (Ed.), 347-354. Proceedings of a symposium, October 28-30, 1981, Portland, Oregon. Hagen Publishing Co., Billings, Montana.

National Rivers Authority, 1992, 'The influence of agriculture on the quality of natural waters in England and Wales', *Water Quality Series*, No. 6, pp157.

Sharpley, A.N., 1993, 'An innovative approach to estimate bioavailable phosphorous in agricultural runoff using iron oxide impregnated paper', *J. Env. Qual.* 22 597-601.

Wright, J.F., Furse, M.T. and Armitage, P.D., 1993, 'RIVPACS - a technique for evaluating the biological quality of rivers in the U.K.', *European Water Pollution Control*, **3**, 15-25.

The Status of the Rook in Dorset: 1994

STEPHEN N.HALES, DEREK HALLETT AND JEREMY D.POWNE

"A census of Dorset rookeries and winter rook roosts would be of interest." (Blathwayt 1945)

Rationale

1. We wished to test the methods needed for a county wide survey of a breeding bird species when carried out by a very small number of observers. The Rook *Corvus frugilegus* was an obvious choice since it is a highly visible species.
2. We have noticed an apparent increase in the Rook population in parts of the county. We wished to know its cause.
3. We wondered what effect persecution has on the population and also if there is any effect caused by cross Channel migration.
4. The Rook has been surveyed before and comparative data exist.

Earlier Studies

Bond (1941) stated 'Rooks have doubled or trebled their numbers'.

Sage and Venin (1978) compared national Rook censuses undertaken in 1944-46 and in 1975. They showed that the national population increased up to the 1950s or even the early 1960s but declined seriously after that. In Dorset (using the pre-1974 boundaries) there were 771 rookeries with 17,940 nests giving means of 23.3 nests per rookery and 7.1 nests per km2.

There is a curious anomaly in the literature over this survey. The Dorset Bird Report quoted 732 rookeries with 16,427 nests. Who was right? Prendergast and Boys (1983) have used the latter figures.

Across the whole of England the 1975 study showed 20,931 rookeries containing 511,223 nests giving means of 24.4 nests per rookery and 3.9 nests per km2.

A further Dorset survey, albeit with reduced coverage 65,000 acres took place in 1976 organised by Dr R Stanford. This reported 581 rookeries with 15,403 nests and that loss of Elm trees had not had any marked effect. (Dorset Bird Report).

Sage and Whittington (1985) commenting on the 1980 national sample survey reported that in the 100 km Square SY, most of which lies within Dorset, the number of Rook nests increased between 1975 and 1980 by 41% and the number of rookeries increased by 22%.

Methodology

Throughout the spring and late autumn of 1992 and 1993, the sites of as many rookeries as possible were located and

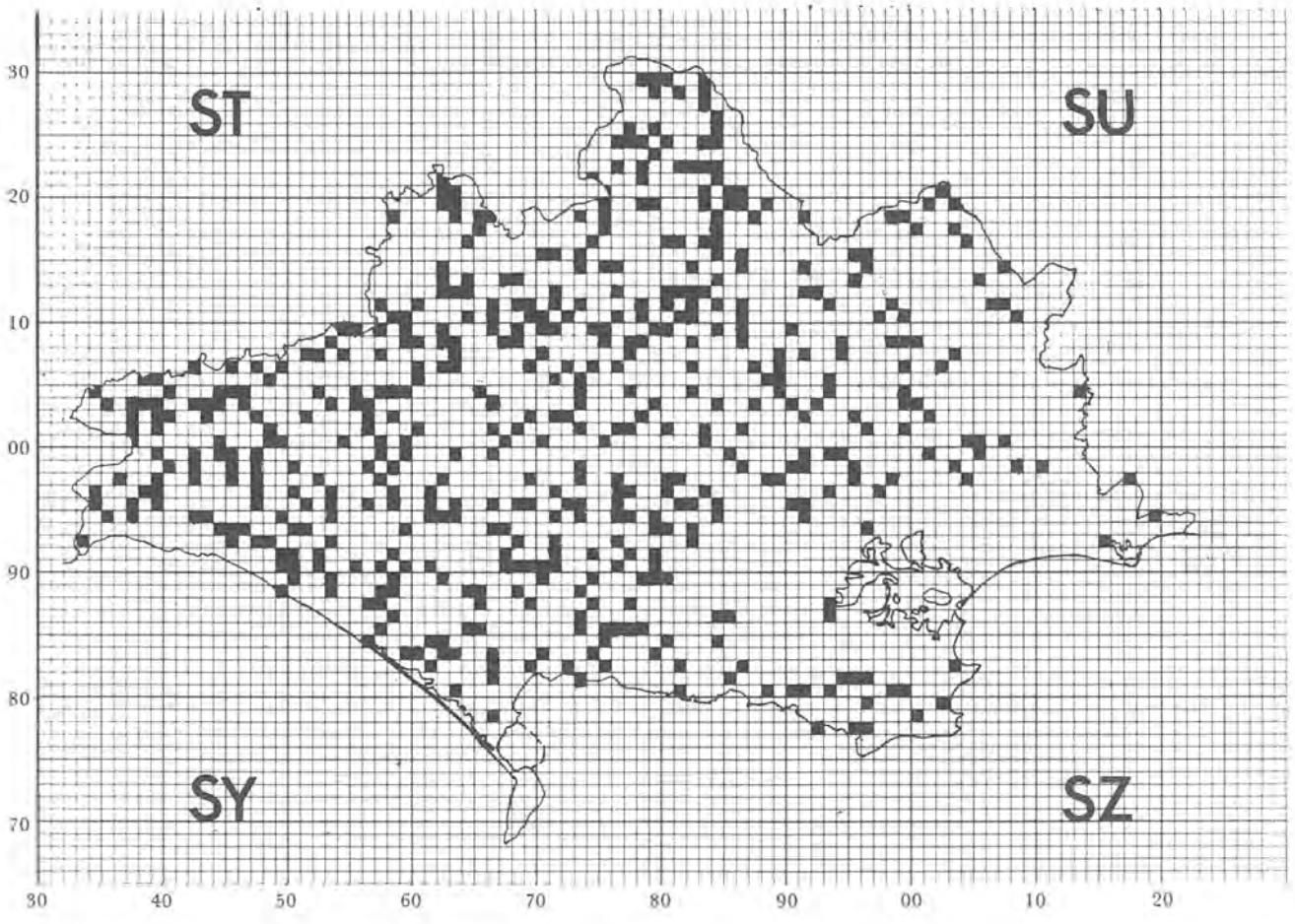


Figure 1 Distribution of rookeries: 1km squares containing rookeries have been blacked.

Grid	Nests	Location
ST30		
390032	10	Causeway Farm
390034	19	Causeway Lane
376006	45	Gashay Farm
373031	10	Greenhill
375038	7	Gribb
392015	53	Halscombe Bridge
358030	2	Hewood
396053	21	Higher Bere Chapel
373019	31	Home Farm
394017	26	Racedown Farm
374023	6	Sadbarrow
383037	26	Synderford
388057	150	West Woods
343042	22	Westford Farm
ST40		
480014	49	Beaminster group
432039	17	Blagdon Farm
457068	6	Bluntsmoor Farm
445001	45	Brimley House
435028	5	Broadwindsor
457063	20	Chapel Court Farm
488053	83	Chedington
445033	4	Colcombe
499065	2	Crook Hill
422031	25	Drimpton
408049	30	Greenham House
472029	65	Hewstock Farm
444033	4	Higher Park Farm
469032	64	Horn Hill group
451069	7	Knowle Hill
406026	15	Lowdown Farm
499007	17	Marsh Farm
455049	1	Mosterton School
463043	11	North Dibberford Farm
486005	42	Parnham group
445047	2	Potwell Farm
428060	98	Seaborough
472062	28	Symes Hill
460039	8	West Dibberford Farm
452042	15	Whetley
492064	15	Winyards Gap group
ST50		
548077	4	Adams Green
543095	14	Barretts House Farm
550039	17	Benville Bridge
534037	40	Benville Farm group
525041	48	Catsley Farm
595005	44	Chalmington
589023	58	Chantmarle
566034	55	Coombe Copse
560017	10	Dukes Plantation
577045	14	Evershot
584046	4	Evershot Plantation
536084	27	Halstock Church
597088	4	Hamlet
519025	20	Hill Barn
570090	96	Holt Mill
591043	34	Holywell group
540002	49	Hooke
594097	15	Horse Hill Farm
558047	6	Horsey Farm
522079	15	Leigh Farm
577079	37	Melbury Osmond
558095	2	Ponderosa Farm
568021	4	Rampisham
561023	19	Rampisham
599049	2	Tunnel
515077	13	Winford Farm
575009	130	Wraxall group
ST51		
586185	32	Church Farm, Trent
570119	16	Clifton Wood
570110	8	Elsford Bridge
599102	51	Mill Farm
589102	29	Yetminster group
ST60		
698027	54	Alton Pancras group
605084	11	Back Lane
629096	25	Bailey Ridge group
668095	9	Berkeleys Plantation
634068	59	Bides Gorse
604067	47	Bubb Down Withy Bed
689089	26	Button Coppice, Newlands Lane
632077	4	Castle Plantation
664012	35	Cerne Abbas
600084	11	Chubbs Farm
621065	6	Crockers Knap, Load Lane
655049	24	Dogbury Gate
696069	170	Duntish Cross & Castle Hill
685096	4	Gog and Magog
684090	17	Hampers Farm
681011	29	Higher Southcombe Farm
631086	23	Higher Totnell Farm
604053	44	Higher Woolcombe Farm
666038	10	Honeypit Plantation
623085	3	Leigh
672087	12	Loaders Lane
606017	34	Long Ash Lane
662032	34	Minterne Parva
674008	62	Piddle Wood
ST61		
625146	50	Almhouse Wood
632192	38	Ambrose Hill
650176	2	Blackmarsh Farm
627192	24	Bowden Hill
688114	26	Buckshaw House
639184	19	Castle Hill Lane
681135	8	Caundle Marsh
662182	10	Crackmore Wood
697111	50	Crouch Lane, Holwell
636193	32	Higher Clatcombe Farm
663115	9	Hunters Bridge
643131	18	Leweston Lodge
633128	23	Lillington Copse
623133	31	Lillington Hill
642123	29	Little Burton
676138	14	Marsh Court
665102	46	Model Dairy group
642161	7	New Road
657186	53	Oborne
688110	11	Rans Farm
649168	17	Sherborne Castle
648107	23	Six Acre Coppice
699103	5	The Hazels
609114	57	Tibbles Copse
627123	54	Weavers Dairy
693106	7	Westrow Farm
ST62		
632205	75	Holway
623208	58	Sandford Orcas
620219	26	Weathergrove Farm
ST70		
794095	48	Belchalwell group
716059	5	Brockhampton Green Farm
757003	92	Cheselbourne
795037	84	Delcombe Farm group
726029	48	Folly
712090	50	Furze Hill
704095	3	Hartmoor Farm
748060	82	Hatherly Farm group
766015	36	Henning Hill
781029	33	Hilton
774088	102	Kitford Copse
782084	15	Leigh Cross
730043	2	Little Monkwood Hill Farm
775077	26	Long Wood
732014	148	Lyscomb Farm
757083	6	Manor Farm
734054	5	Mappowder Sewerage Treatment Works
770049	55	Moots Copse
774018	26	Newton Farm
715022	80	Plush
750084	11	Rectory, Hazelbury Bryan
704002	229	Redlands Coppice group
726068	84	Short Wood
731032	3	Sheeplands Copse
777074	63	Skinners Farm, Woolland
753093	8	Stockfield Farm
763065	44	Stoke Wake
744094	20	The Causeway
702077	66	Towns End Farm
ST71		
786194	59	Ashley Farm
795198	41	Ashley Plantation
702154	77	Bilcombe Copse
712113	5	Bulhams Plantation
760200	40	Cale Bridge
749168	6	Common Plantation
733153	40	Cooks Lane Wood
702106	7	Dolivers Farm, Holwell
768109	85	Fifehead Neville
785104	34	Garlands Lane
753195	9	Gibbs Marsh Trading Estate
756170	27	Grove Farm
760145	32	Higher Farm
724104	49	King Stag Grove
788115	23	Knackers Hole
758142	21	Mullins Farm
722109	6	New Gorse
730186	17	Newholme Farm
716155	7	Newlands Farm
763142	52	Oaklea Farm
769149	30	Pleak House
750188	81	Priors Farm
763121	6	Puxey Coppice
738113	32	Rooksmoor Copse
734180	41	Stalbridge
799195	34	Todber
733145	89	Warr Bridge
713122	11	Woodbridge
ST72		
747214	26	Bow Bridge
781248	12	Bugley Bridge
783216	13	Fifehead Magdalen
792238	24	Folly Farm
761249	9	Hardings Farm
772259	30	Langham Farm group
793288	29	Milton-on-Stour group
771249	57	Sandley Stud
766221	2	Shaftesbury Road
798293	3	Slodbrook Lane
794258	26	Thorngrove
784220	13	Townsend Farm
786298	17	Waterloo Mill
ST80		
883059	53	Blandford Bridge
895064	7	Blandford By-pass
872065	53	Bryanston group
863017	18	Charisworth
895040	69	Charlton-on-the-Hill
864086	48	Durweston Bridge
848096	68	Enford Farm
872064	53	Forum View
823064	6	Hedge End
899059	4	Langton Long

Grid	Nests	Location
899079	54	Letton House
805013	19	Little Hewish Farm
895046	28	Littleton group
890053	16	Lower Blandford St Mary
862094	18	Manor Farm
803016	19	Milton Abbas
806009	107	Milton Mill Clump
874033	70	Thorncombe South Belt
820078	155	Turnworth group
837014	52	Whatcombe Park group
821042	39	Winterbourne Houghton
840030	63	Winterbourne Monkton
836003	46	Winterbourne Whitchurch group
ST81		
804126	31	Angiers Farm
838190	32	Black Ven Common
862108	60	Bournes Barn
858193	19	Buddens Farm
870186	49	Compton Abbas group
861197	11	Corn Hills Farm
865153	46	East Park group
838125	74	Fernhayes Copse
827147	69	Fontmell Parva
830160	56	Hay Bridge
864140	27	Iwerne Minster
820109	15	Langston Farm
827124	19	Little Lynch
812162	107	Manor Farm group
844189	31	Middle House Farm
886199	85	Melbury Abbas
808167	27	Northwood Coppice
802111	26	Okeford Fitzpaine
843117	43	Park Coppice
849151	43	Pegg Lane group
845167	28	Penhill Copse
841171	12	Pennyclose
825111	65	Shillingstone
842138	10	Shroton Brake
849168	28	Spring Copse
861112	27	Steepleton House
813127	42	Tan-Hill Copse
816107	10	Works
ST82		
815284	12	Bowridge Hill Farm
838220	8	Blymfield Farm
843222	36	Cherry Orchard Farm group
845250	52	Church Farm
868203	50	Cornhill Cottage
825200	75	Doncliffe Hill Farm
844267	6	East Coppleridge Farm
832297	32	Forest Farm
833208	44	Froghole Farm
842227	9	Grants Farm
847210	40	Guys Marsh
814220	26	Hawkers Farm
804245	63	Hunger Hill
837275	26	Larkinglass Farm
834285	42	Lawn Bridge
842213	44	Little London Farm
854200	50	Redhills Farm
804300	12	Rope Farm
802292	9	Spickets Bridge group
842256	32	The Plantation
830248	35	Waterloo Farm
842242	23	White House Farm
ST90		
958029	75	Badbury Rings
913076	17	Blandford Camp group
905034	8	Charlton Barrow
993012	65	Chilbridge group
937047	71	Crane Hill Plantation
989082	26	Falconers Cottage
997033	40	High Hall Copse
997043	30	Hinton Dairy
964018	77	Locust Clump
943073	37	Luton Farm
997088	18	Moor Farm
999068	45	New Town Mills
906094	29	Pimperne group
915022	149	Spetisbury group
920034	9	Tarrant Crawford Abbey
930044	113	Tarrant Keynston
945088	71	Tarrant Monkton group
939059	93	Tarrant Rushton
ST91		
912185	87	Ashmore
986183	31	Barbers Copse
952133	146	Chettle
913142	35	Earls Hill
929129	101	Eastbury House
958151	68	Farnham
999109	25	Gussage All Saints
970108	52	Higher Farm group
978103	46	Lower Farm
984119	58	Manor Farm
962154	12	Minchington Farm
966146	109	Stickleys Barn
937110	55	Tarrant Hinton group
920124	23	The Park
998185	7	Upwood
911127	68	Westbury Farm
SU00		
008082	50	Didlington
014021	58	Furze Hill
036078	19	Haythorn
059006	9	Hilltop Garage, Uddens
029069	34	Horton Hollow
005038	17	Standridge
048006	27	Staplehill Farm
076003	2	Tesco, Ferndown
SU01		
077144	12	Biddlesgate Farm
032199	27	Bokerley Junction
054133	11	Cranborne Church
048164	96	Crockerton Wood
063114	20	Edmonsham group
035178	8	Pentridge
080106	7	Pinnocks Moor
003175	24	Sixpenny Handley group
070111	4	Smallbridge Farm
015195	45	West Woodyates Manor
SU02		
023203	39	Cobley group
SU10		
138044	26	Ashley
SY39		
399999	55	Bettiscombe Church
349959	7	Bowshot Farm
394966	12	Cards Mill Farm
370945	50	Catherston Manor
358940	49	Charmouth
397958	43	Church Coppice
365974	61	Higher Coombe
343963	33	Higher Wyld Farm
331923	10	Lyme Regis
396973	9	Scaddens Corner
347962	30	Stubbs Farm
372957	45	Wootton Fitzpaine
397955	29	Whitchurch Canonicorum
359941	61	Wood Farm Caravan Park
SY48		
498889	97	Graston group
SY49		
439948	66	Axen Brow
493910	3	Bennetts Hill Farm
476962	27	Binghams Farm
425947	9	Brighthay Farm
491900	32	Burton Bradstock group
451936	5	Crepe Farm
469934	3	Conygar
402987	13	Cowdea Farm
424979	17	Fooks Covert
456985	21	Furleigh Farm
473991	34	Hatchlands
480924	130	Hyde, Walditch
453977	55	Kingsland group
491943	57	Loders Church
426985	10	Lower Monkwood Farm
445992	21	North Bowood
422944	21	North End Farm
474928	24	Oxbridge group
427976	17	Paddock Cross
427980	13	Paddocks Farm
498917	27	Shipton Gorge
472984	11	Slape Manor
444934	20	Sloes Hill
447992	12	Strode Manor
452986	45	Strode Manor Farm
426994	13	Venn Farm
455924	27	Vearse Farm
457931	7	West Mead
477974	21	Woodcombe Farm
473954	15	Wooth Manor
SY58		
562848	92	Abbotsbury Gardens
575874	44	Abbotsbury Hill
563875	25	Ashley
507899	77	Bredy Farm group
571858	56	Ferny Hole Plantation
537985	15	Golly Knap
585890	19	Little Bredy
588889	189	Little Bredy group
562885	10	Long Coppice
599834	33	New Barn
584896	49	Pitcombe
535886	195	Puncknowle group
579879	52	Tennants Hill
581865	34	White Hill
SY59		
530927	29	Askerswell Manor
525903	31	Berwick Copse
588968	165	Blanchards Plantation
504906	101	Cathole Copse
593993	59	Cattistock Lodge
534946	25	Chaffins Coppice
528910	59	Chilcombe
588988	94	Chilfrome
597932	97	Compton Valence group
583965	51	Fore Hill Plantation
533956	35	Kings Farm
536957	22	Kings Farm
582913	52	Kingston Russell
570906	38	Langbride House
553908	135	Litton Cheney group
500980	20	Loscombe
503985	45	Loscombe Farm
536991	71	Lower Kingcombe
521916	19	Lower Sturthill Farm
572991	54	Luxmore Hill Plantation
505915	5	Lynch Farm
562986	21	Manor Farm
517953	12	Mapperton Gate

Grid	Nests	Location
513951	17	Mapperton Manor
517932	2	Matravers
521974	15	Poorton Hill Farm
584954	75	Round Hill Plantation
568952	6	Shatcombe Farm
577973	19	Toller Fratrum
506937	30	Uploders
508937	29	Upton Manor
592905	137	West Hill Farm
502962	32	West Milton
582960	4	Wynford Eagle
531968	19	Wytherston
SY67		
664782	31	Lanehouse
SY68		
656878	72	Ashton Cottage
668838	142	Broadwey group
695870	33	Came Farm
697828	49	Chalbury Lodge
639807	69	Chickerell
635802	3	Fleet
633806	25	Fleet Wood
640859	47	Friar Waddon Farm
688881	76	Herringston group
634832	7	Hyde Coppice
615825	149	Langton Herring group
650888	41	Manor House, Martinstown
646889	28	Martinstown Church
662827	189	Nottington group
603836	101	Portesham group
666815	74	Radipole Manor
611843	109	Rodden group
6284	142	Shilvinghampton group
631831	45	Tatton House
659853	197	Upwey group
624839	123	Waddon group
629898	66	Winterborne Steepleton group
654887	20	Wylye Croft Farm, Martinstown
SY69		
681928	74	Charminster group
676931	8	Council Depot
639954	42	Grimstone Down
632940	66	Hampton Plantation
671940	30	Haydon Clump
698973	42	Heave Coppice
680950	74	Herrison Hospital group
615946	145	Lanchards Coppice
628944	43	Littlewood Dairy
611904	101	Lodge Gates (Nine Stones)
664997	32	Lower Barton Farm group
669931	21	Lower Wrackleford
611964	131	Malkhams Plantation
612957	67	Notton
673906	58	Poundbury Farm
635950	150	Railway Tunnel
625978	138	Southfield Hill
694904	24	South Walks, Dorchester
630994	143	Sydling/Court House group
688907	50	The Grove, Dorchester
669934	26	The Rookery
663958	85	Warcombe Farm
675917	18	Whitfield Farm
618905	27	Winterborne Abbas group
698952	112	Wolfeton Clump
665932	33	Wrackleford
SY78		
730864	54	Broadmayne House group
709891	56	Came Home Farm
790832	95	East Chaldon Church
782854	47	Galton
776852	5	Galton Farm
743893	72	Knighton Heath
731884	56	Lewell Lodge
742872	138	Littlemayne Farm
775877	113	Moigne Combe
796893	13	Moreton
781892	25	Moreton Station
726829	124	Osmington group
736819	87	Osmington Mills
769851	79	Owermoigne Church
752821	65	Ringstead Dairy
707838	28	Sutton Poyntz
703832	61	Sutton Poyntz Rectory
740898	91	Tenantrees/Lewell
744835	85	Upton group
750854	42	Warmwell Cross
739859	52	Warmwell Wood
758848	10	Watercombe Farm
765852	92	West Barn, Owermoigne
SY79		
770943	74	Athelhampton House
761952	16	Bardolf Manor
767961	41	Basan Hill
713918	71	Birkin House
745914	21	Boswells Plantation
778915	19	Clyffe
776968	40	Crawthorne Farm
767966	44	Dewlish Park
737981	125	Doles Hill Plantation
718929	122	Higher Kingston Farm group
725955	10	Higher Waterston
792900	53	Hurst Farm
710963	156	Little Puddle Bottom
718964	80	Little Puddle Farm
719909	19	Lower Bockhampton
732947	46	Manor Farm, Lower Waterston
723959	21	Muston Farm
760943	94	Puddletown group
719949	18	Ridge Farm
766974	62	Shailes Farm group
791939	18	Southover House
733970	37	The Plantation
768923	27	Tincleton
796947	30	Tolpuddle
703901	3	Trumpet Major Public House
799911	104	Waddock Cross group
735953	28	Waterston Manor
719947	13	Waterston Ridge
760970	81	Warren Plantation
767908	25	White Mead
762907	27	Woodsford
SY88		
853868	59	Bindon Abbey
861826	11	Cemetery
843844	72	Coombe Keynes group
851819	9	Lulworth Castle
812828	28	Marley Wood
806893	5	Moreton
810808	61	Newlands Warren
888805	31	Tyneham Lane
805844	125	Winfrith Fields Farm
843869	5	Wool
SY89		
869981	3	Abbots Cross Farm
804936	31	Affpuddle Church
880976	82	Anderson Manor
815954	40	Ashley Barn Farm
847952	4	Barrow Hill
848945	29	Bere Regis
807977	133	Bladen Dairy
899973	5	Botany Inn
829928	10	Brock Hill
814973	6	Foxpound
835962	30	Millum Head
855994	72	Nutley Clump
825950	54	Roger Hill Farm
824934	5	Throop
829936	45	Turners Puddle
807963	70	Weatherby Castle
882974	191	Winterborne Tomson group
SY97		
962796	27	Kingston Barn
962777	53	Renscombe Farm
924788	53	Smedmore group
952779	33	West Hill Wood
SY98		
912809	36	Blackmanston Farm
949814	47	Bucknowle House
933876	25	Curlews
953816	35	Glebe House
987804	98	Harmans Cross
904806	11	Lutton group
998800	24	New Buildings
938807	26	Puddle Mill Farm
931863	78	Ridge
966814	31	Towns End
SY99		
969934	9	A35 Upton
912987	22	Almer Church
914945	18	Brooks Farm
918991	67	Charborough Park
951973	70	Combe Almer
984974	40	Corfe Mullen
950980	32	Henbury Park
937961	33	Lychett Matravers Church
965933	24	Lychett Minster group
904987	26	Mapperton
918953	22	Mill Farm
916955	4	Morden Church
939998	60	Newton Peveril
975962	20	Stony Down Plantation
947999	12	Sturminster Marshall
901957	58	West Morden
SZ07		
004787	184	Leeson House
025798	27	Swanage group
SZ08		
035825	18	Studland
SZ09		
032987	35	Canford Park
056996	43	Little Moors Farm
041975	31	Moortown Farm
085980	6	Parley Cross
011998	40	Wimborne
SZ19		
174977	24	Barretts Copse
194943	25	Highcliffe
104981	26	Hurn
156928	43	Sopers Lane

recorded. In the spring, this was fairly easy as not only were the nests highly visible in most cases but also the Rooks were usually feeding in flocks not far away. Thus, if a flock was found but the rookery was not immediately apparent a search had to be made until it was found.

The roads travelled were highlighted on OS 1:50000 maps to enable coverage in full to be monitored. 1:25000 maps were used to determine the 6 figure National Grid Reference and place names; red dots were placed on these maps when a rookery was found. Thus it was easy to check that no large areas of ground were overlooked and a picture of the density of rookeries quickly began to emerge. Some large roadless areas were surveyed by walking public footpaths. We believe that we achieved a very high degree of coverage, doubtless a few small rookeries in remote or urban areas were overlooked.

Several people helped considerably with the location of the rookeries, mainly by writing to draw our attention to those of which they knew. In 1994, with the assistance of two helpers counting around the Wimborne and Stoke Abbott areas, we counted all nests found during the previous two seasons. Several new rookeries were found but a few no longer existed.

The spring of 1994 was unusually stormy and the British Trust for Ornithology (BTO) received reports of nests and contents blasted from trees.(Glue,1994). On 1st April, when counting commenced, there was a 'severe gale which destroyed many nests.

The difficulty of counting Rook nests accurately is well known (e.g. Sage & Vernon 1978). Counting was of apparently occupied nests, practicality did not permit a more accurate assessment and it seems this is the basis upon which former counts have been made. It was best, but not always possible, to count rookeries from at least two different angles. It is surprising how hidden some nests can be even with apparently good visibility. It was noticed that if a rookery, which had been counted early in the season was recounted at leaf emergence, a higher figure would be obtained. This confirms the view of Reynolds (1981) who, in commenting on the 1980 BTO rookery survey, stated that some of the increases may have been influenced by timing. Rookeries counted more than once showed considerable increases in numbers with date. In that instance, a later emergence of leaves following a cold winter may have been a factor.

SPECIES	PERCENTAGE OF ROOKERIES IN WHICH USED	NUMBER OF ROOKERIES IN WHICH USED
Oak	40.68	240
Beech	35.59	210
Ash	24.57	145
Scots Pine	21.02	124
Horse Chestnut	7.20	43
Willow sp	2.71	16
Alder	2.37	14
Holm Oak	2.37	14
Larch	2.37	14
Fir sp	1.69	10
Yew	1.52	9
Lime sp	1.18	7
Poplar sp	1.02	6
Sycamore	1.02	6
Cedar sp	0.67	4
Birch sp	0.51	3
Holly	0.34	2
Elm sp	0.17	1
London Plane	0.17	1
PLUS: Electricity pylon	0.34	2

Table 2: Tree species and artefacts utilised

Results

Table 1 gives a National Grid Reference for each rookery. Rookeries have been grouped by Grid Square in alphabetical order. It should be noted that where several rookeries occur in the same distinct local area, we have amalgamated counts to save space. The NGR normally applies to the central rookery of any one group.

Tree Use

Reynolds (1981) stated that 'Rooks appeared to use whatever was available.' We would agree with the rider that unquantified observations lead us to believe that much more use is being made of coniferous species than formerly. Table 2 demonstrates the tree species used in Dorset

ALTITUDE in METRES asl	Number
0-10	2
10-20	18
20-30	19
30-40	26
40-50	32
50-60	68
60-70	63
70-80	75
80-90	51
90-100	44
100-110	53
110-120	26
120-130	34
130-140	18
140-150	16
150-160	19
170-180	11
180-190	5
190-200	3
200-210	2
210-220	1
220-230	3

Table 3: Number of Rookeries at given altitudes above sea level (asl)

Table 3 demonstrates Rook's preference for relatively sheltered positions below the highest ridges. In many areas of Dorset rookeries are found in the narrow linear woodlands which follow rivers through valley bottoms. Much of the county's high ground lacks tree cover and undoubtedly this is another factor. The county's highest rookery is on the Old Sherborne Road, at 225 m asl.

Table 4 below shows that Rook occurs most commonly in Dorset in Squares SY and ST. These squares contain the bulk of the chalk uplands with the associated agriculture that favours Rook populations.

	Area in Dorset (sq km)	Nests	Rookeries/ Rookery groups	Average	Nesting pairs per sq km
ST	1,097	11,073	302	36.66	10.09
SY	1,121	12,785	255	50.14	11.40
SU	213	535	20	26.75	2.51
SZ	217	502	12	41.83	2.31

Table 4: Nest per 100 Km Square & pairs per Sq Km

Rook Movement and its Effect on the Breeding Population

Rook is a widespread breeding bird in Normandy (Collette, 1992) and it seems reasonable to suppose some small interchange between the populations occurs but we have no evidence to suggest that any such interchange could affect rookery survey comparisons.

Examination of the Dorset Bird Reports from 1934 onwards and the Portland Bird Observatory Reports from 1977 onwards shows no convincing evidence of regular movement across the English Channel. What little visible movement there is is sporadic and is mainly recorded in the spring involving very small numbers of birds in both directions but principally north (high numbers 52 in 1979, 35 in 1980, 31 in 1982, 17 in 1983 with 21 south in 1977 being the only southbound figure of consequence noted (PBO Reports). Similar small movements are noted at Durlston CP (Dorset Bird Reports). So the picture is, we suggest, one of small groups of birds acting independently of the large flocks to move as they please. Or is it partially to do with juvenile dispersal?.

Thus it seems that there may be a small interchange between the British and French populations but no regular migration. There is no evidence from ringing data to support any theories appertaining to these small movements.

However, it can be said that probably a very few Rooks reach Dorset annually from France each spring but it is not known whether they remain in Dorset, nor is it known whether they are returning migrants or French birds re-locating.

The Dorset Bird Report for 1958 notes: ca 280 on 14 Nov seen off sea at Studland "dropping down on to trees and bushes on gaining land". We must speculate, in the absence of further information, whether these arrived from the south or whether it was a coastal movement which had gone wrong owing to adverse weather conditions. As there are no Dorset records extant revealing migration in high numbers, the latter seems a reasonable supposition.

Coombs (1976) commented on the great heights at which Rooks sometimes fly, stating that from the ground they could be sometimes out of sight Cramp *et al* (1994) state that Rook migration is by day. However we have found nothing in the literature to prove that movement does not take place at night. It seems not unreasonable to suggest that this may happen.

We have no information to suggest that Reid (1993) was wrong in asserting that British Rooks are mainly sedentary, certainly in Dorset. Witherby *et al* FF(1940) mention great numbers arriving on the east coast from northern central Europe and Scandanavia in autumn but it seems these influxes do not reach Dorset. Brenchley (1986) mentions an influx of Continental Rooks and states that Rooks from Germany and the Netherlands have occurred in Britain. Jeanes and Snook (1975) published a map showing the area of foreign ringed Rooks recovered in Britain. None had reached Dorset, recoveries being confined to the eastern and south eastern parts of England and across the Midlands to the Severn.

DISCUSSION

Fewer sounds herald the promise of longer and sunnier days better than the cawing emanating from a busy rookery in late winter. Throughout spring and summer the Rook symbolises the vitality of the agricultural scene, for the bird is an integral part of that landscape. (Reid 1993).

Rook is a common breeding bird throughout Dorset. Some of the rookeries are probably at least several hundred years old and there is scope for historical research. Many woods and lanes are called "Rookery...." this does not mean necessarily that there is one present now.

Table 5 below shows a direct comparison between our figures and earlier surveys.

10 km square	1975 count	1980 count	% Change (to nearest 10%)	1994 count	% Change from 1980
ST 61	670	802	+ 20	663	- 17
ST 80	(316)	1098	+250	1065	- 3
SU 01	709	654	- 10	254	- 61
SY 39	235	525	+120	494	- 6
SY 68	1256	1158	- 10	1807	+ 56
SY 89	818	1395	+ 70	810	- 42
SY 97	81	236	+130	166	- 30
SZ 09	467	430	- 10	155	- 64

Table 5: Survey Comparisons.

For comment on the 1975 and 1980 surveys, see Reynolds (1980).

Although we felt obliged to make the above comparisons, we feel that as a true reflection of the Rook population over the whole county, it is of little value as clearly Rook is doing very much better in some areas than others. It is unfortunate that these earlier surveys did not include five squares where Rook is currently in high numbers, e.g. ST 70 (1474 nests), ST 71 (961), ST 80 (1065), ST90 (923), and SY 59 (1625). We suggest that surveys done on a random sample square basis may provide a totally misleading impression and the methodology behind such surveys is brought into question.

Coetzee (1990) resurveyed SY 68 and found 1784 nests, our 1994 survey found 1807, an increase of 1.3%.

The southernmost rookery at Portland is now, apparently, deserted.

The likelihood of immigration from the Continent affecting the breeding population seems extremely low.

These figures show that Rook is commonest in the areas where the ratio of arable cropping to grassland provides the optimum feeding conditions. Recent years have seen a huge rise in the number of outdoor piggeries, mainly on the chalk uplands. Rooks utilise these as additional food sources, feeding, presumably, on invertebrates and wasted pig food. The large rookery at Piddletrenthide, for instance, has increased from 139 nests in 1988 to 229 in 1994, an increase of 65%.

There are some areas of the county where Rook is uncommon or absent. In some cases this is apparently a reflection of estate owners' attitude to the species but in others it is simply unsuitable habitat, e.g. heathland, coniferous forestry, urbanisation. The decline in some areas may be associated with agricultural change but the reasons are not totally clear.

Marchant *et al*, (1990) stated that the serious decline in the national Rook population which occurred from the 1950s to the early 1970s had now halted and that partial recovery was occurring in some regions.. In Dorset, the situation now is that Rook is certainly increasing in those areas of optimum habitat but declining in others.

SUMMARY

Rooks were found breeding in 511 x 1 kilometre squares.

Rookeries were situated at heights varying from 10m asl to 230 m asl. A variety of tree species was used (19), the commonest being Oak. Often more than one species was used within any one rookery.

24,895 nests were found in 589 rookeries and rookery groups varying in size from 1 to 276 nests (mean 82). Allowing a pair per nest plus an additional 15% for non-breeders (Dunnet, Fordham & Patterson, 1969) this gives a possible population at the start of the breeding season of 57,259 Rooks. If each of these nests produced an average of 2 fledged young, it would mean that the population of Rooks at the end of May 1994 was close to 107,049. However Cramp and Simmons (1994) state that in southern Britain an average of 2 fledged young per nest is likely in a bad breeding season and that in a good year the figure can be up to 3.7 (disregarding nests which have failed completely). As our nest figures probably represent considerable undercounts, we suggest that the estimate of 107,000 represents a minimum figure at the end of the nesting season and the true figure may well have been nearer 131,950.

Our figures show that Rook is increasing considerably over the whole county but this increase is confined to 10 km squares of optimum habitat. Elsewhere a decrease was noted. The county wide increase between 1975 and 1994 may be in the order of 39% but true comparisons between our survey and those of 1975 and 1980 is difficult given that ours was whole county whilst the BTO ones were sample surveys.

Reasons for the increase include the correct ratio of tillage to grassland for the species to achieve maximum density in some parts of the county (Brenchley 1986), a series of mild winters, the advent of large outdoor piggeries and a decrease in persecution.

Acknowledgements

We are grateful to all the numerous people who gave us considerable help and encouragement in various ways especially with the location of rookeries in the early stages,, among them are Maj Gen H.M.G. Bond, E. Bowman, J. Boys, R. Brunt, A. Bunting, C. Carless, M. Courage, A J. Deane (Milton Abbey School), B.Edwards, A. Haydon, P.A..Morrison, C. Race, N. Rosser, M. P Shepherd, A. Spencer, M. Spencer, B. Watts, R.A. Walls. We especially thank Alison Bunting for nest counting in the Wimborne area and remember with gratitude the late Jeremy Hywell-Davies who counted many rookeries in the Beaminster area.

Dr. S.Carter (BTO), C.F.B.Coombs (ADAS) and.Dr. C.J. Feare (MAFF) made valuable comments in the initial stages and provided help with our literature search, the search also being helped by Philip Jackson, librarian at BTO. M. Harold (DWT), R. Peart (BTO RR), M.Shepherd (DBC) and R. Surry (DERC) kindly publicised the survey in their newsletters.

We thank Dr Nigel Webb for his helpful comments on the first draft.

REFERENCES

Blathwayt, The Rev. F.L. 1945: 'A Revised List of The Birds of Dorset' *Dorset Proceedings* Vol 67 p 97.

Bond, W.R.G. 1941 'Changes in the Bird Population of South-East Dorset' *Dorset Proceedings* Vol 63 pp 92-104.

Brenchley, A. 1986 'Rook' *The Atlas of Wintering Birds in Britain & Ireland*, ed. P.Lack, Poyser pp 370-371.

Brenchley, A.(1986) 'The use of birds as indicators of change in agriculture', *J. Zool. Lond.* 210, 261-78.

Coetzee, E.F.C. 1990 'Rookery Study', *Dorset Proceedings* 122 pp 160-161.

Collette, Jean 1991, 'Corbeau Freux Corvus frugiilegus', *Atlas des oiseaux nicheurs de Normandie et des iles Anglo-Normandes*, Groupe Ornithologique Normand Universite, Caen (in French).

Coombs, F. 1978 .*The Crows, A Study of the Corvids of Europe*, Batsford.

Cramp, S and Perrins, (C M (eds) 1994 *The Birds of the Western Paleartic* Vol. VIII pp 151-171, Oxford University Press.

Dorset Bird Club: annual reports

Dunnet, G.M., Fordham, R.A., & Patterson, I.J,1969 'Ecological Studies of The Rook Corvus frugilegus L. in North-East Scotland: Proportion and Distribution of Young in the Population' *J.Appl.Ecol* 6, December 1969 pp 459-473.

Glue, D. 1994 'Rooks rocked as Tawny Owls sit tight...' *BTO News* No. 193 pp 8-9.

Jeanes, M J.F. & Snook R. 1975 'The Rook in Suffolk' *Suffolk Ornithologists Group.*

Marchant, J.H., Hudson, R. Carter, S.P., & Whittington P, 1990 *Population Trends in British Breeding Birds*, B.T.O. pp 212-213.

Portland Bird Observatory: annual reports.

Prendergast, Col. E.D.V & BOYS, J.V. 1983 *The Birds of Dorset.* p 231.

Reid, J.B. 1993 'Rook' *The New Atlas of Breeding Birds in Britain & Ireland 1988-1991* ed. D.W.Gibbons, J.B.Reid & R.A.Chapman, Poyser pp 392-393.

Reynolds, C. 1981, 'The B.T.O. Rookery Survey 1980' *Dorset Bird Report* 1980 p 59.

Sage, B.L. & Vernon, J.D.R 1978 'The National Survey of Rookeries' *Bird Study* Vol 25, No 2 pp 64-86.

Sage, B & Whittington, P.A. 1985 'The 1980 sample survey of rookeries' *Bird Study* Vol.32, Part 2 pp 77- 81.

Witherby H.F., Jourdain, F.C.R., Ticehurst, N.F, and Tucker, B.W. 1940 *The Handbook of British Birds* pp 17-22 H F & G Witherby.

Dorset Archaeology in 1994

The contributions for 1994 are arranged by project type in the following order: assessments and evaluations (including fieldwalking), aerial photographic surveys, excavations (interim notes) and watching briefs. Within those headings, the notes are organised by location, in alphabetical order.
The majority of the fieldwork, notably that relating to the planning process, has been undertaken at the instigation of the Archaeological Office of the Dorset County Council and the Local Planning Authorities. The collaborative role of the County Council in these projects is acknowledged by all contributors.
These notes and reports have been compiled by Melanie Gauden.

ASSESSMENTS AND EVALUATIONS

EVALUATION OF LAND AT WHITES COTTAGE, BLOXWORTH

The investigation of land at Whites Cottage, Bloxworth (SY 881 947), during December 1994, comprised the excavation of two trial pits totalling 3 m². Modern disturbance was present in both trenches, lying immediately above the natural subsoil. The site is likely to have been extensively terraced or levelled, perhaps during the construction of the existing building, and the potential for the survival of significant archaeological deposits is considered to be very low.

Julian Cotton
AC *archaeology*

4 FROME VIEW, BRADFORD PEVERELL

The evaluation of land for an extension at the rear of 4 Frome View, Bradford Peverell, was carried out during April 1994. The existing topsoil was removed by mechanical excavator and the chalk bedrock cleaned and inspected. No archaeological features or finds were present.

Peter W. Cox
AC *archaeology*

MANOR HOUSE, BRADFORD PEVERELL

An archaeological evaluation was carried out on the site of a proposed residential development at the Manor House, Bradford Peverell (SY 65809 2195), during October 1994. Four trenches and two trial pits were mechanically excavated, revealing several features and structural remains, most of which could be dated to the post-medieval period.

Jacqueline Dodd and Peter W. Cox
AC *archaeology*

CANFORD SCHOOL, CANFORD MAGNA

An archaeological evaluation was carried out on the site of a proposed new building at Canford School (SZ 035 987) in September 1994. The investigation comprised a 2% evaluation using a mechanical excavator. The exposed topsoil and subsoil deposits contained no displaced artefacts and no features of archaeological origin were present.

Peter W. Cox
AC *archaeology*

KNIGHTON FARM, CANFORD MAGNA

A small pit and ill-defined linear feature were identified during the course of an evaluation at Knighton Farm, Canford Magna (SZ 05209750). The site lies at the base of a gentle north-east facing slope, overlooking the valley of the River Stour at approximately 20 m O.D. The local area is of considerable archaeological interest. Previous work has identified extensive exploitation of the gravels, particularly during the Neolithic and Bronze Age periods.

The pit and linear feature were identified in the subsoil and a few sherds of pottery were associated with them. However, the features cannot be dated securely and overall only allow a general date range to be assigned — earlier prehistoric to Roman. The possibility of further isolated features existing within the proposed development area cannot be discounted. The depth of overburden on the site, however, means that subsoil features, such as those identified by the evaluation will not generally be disturbed by the proposed development.

Phil Harding
Wessex Archaeology

KNOWLTON CIRCLES, PALAEO-ENVIRONMENTAL ASSESSMENT

A series of 47 land snail samples was taken from the excavations at Knowlton Circles (Knc94a) and four bulk samples were processed and assessed. Three soil micromorphology and pollen monolith tins were also taken.

The assessment shows that land snails are very well preserved, with the exception of the primary henge ditch deposits which were not excavated and could not be sampled. It is possible, nevertheless, to obtain a detailed and fairly complete environmental and land use history of the monument. The only poor snail samples were from the weakly calcareous buried old ground surface.

This incomplete sequence from the henge ditch revealed changes in the mollusc assemblages, even within the upper primary fills which are pertinent to the immediate post-construction use and environment. This palaeo-environmental sequence, defined by the mollusc assessment, is a major sequence, and may be one of the finest Late Neolithic stratified palaeo-molluscan sequences in southern Britain. It spans the Late Neolithic (at least) to the present day and may potentially make a significant contribution not only to our understanding of the land-use at Knowlton Circles, but also of the southern chalkland landscape.

Unfortunately, the four bulk samples produced very few charred plant remains. Three samples for pollen/soil micromorphology have potential to provide further, detailed and corroborative evidence. The nature of the former pre-monument soil can be determined and changes in the soils and soil potential indicated as a result of human activity. Similarly, the potential for defining the pre-monument vegetation history (buried old ground surface) and the nature of the proposed abandonment phase, clearance and re-use of the monument can be established (pollen).

Michael. J. Allen
Wessex Archaeology

ORCHARD COTTAGES, STEEPLE

A field evaluation by means of machine-excavated trenches was carried out on the site of the proposed extension to Povington Pit around Orchard Cottages, Steeple (SY 8940 8285) during August 1994. Brick wall footings and other subsoil features were identified in the vicinity of the cottages, with associated pottery of 18th to 19th century date. This material accords with the known date of construction of the cottages, between 1765 and 1805. No earlier archaeological deposits or finds were recovered in the evaluation trenches.

John Valentin
AC *archaeology*

STOUR PROVOST

An archaeological evaluation was carried out during April 1994 to assess the archaeological implications of a proposed development to create two new lakes on land centred on ST 7925 2047. No archaeological artefacts or deposits of archaeological origin were present.

Peter W. Cox
AC *archaeology*

WAREHAM, BONNETT'S LANE

The site at Bonnett's Lane, Wareham (SY 9245 8751) lies within the defences of the historic town of Wareham and the remains of Iron Age, Roman, Saxon, and medieval periods have been identified in the

area. The evaluation revealed evidence for medieval (12th–14th century) features and deposits adjacent to the Howard's Lane frontage in the south of the proposed development area. The recorded archaeological features included post-holes, pits, a wall foundation, and ditches. Pottery of 12th to early 14th century date was recovered and environmental sampling demonstrated that the medieval deposits contain well-preserved charred plant remains. In addition, a medieval soil layer was recorded in the north of the site, and all these medieval deposits were sealed below up to 1.4 m of dark soil containing material of late medieval and post-medieval date.

Andrew Crockett
Wessex Archaeology

CHRISTMAS CLOSE, WAREHAM

The archaeological assessment in advance of the proposed redevelopment of Christmas Close, Wareham (SY 9180 8750) was carried out in July 1994. Six mechanically-excavated trial pits were dug revealing no archaeological features or deposits of medieval or earlier date. A single prehistoric flint flake was recovered from trial pit 4.

Peter W. Cox
AC *archaeology*

LULWORTH CAMP, WEST LULWORTH

The archaeological evaluation of the site of the new training building at Lulworth Camp, West Lulworth (SY 8365 8115) was carried out during February 1994. The investigations comprised the re-excavation and recording of two recently dug geotechnical trial holes in an area adjacent to the recorded location of the former medieval settlement which included St. Andrew's Church and manor house. Both trial pits revealed evidence for substantial earthmoving on the site. Trial Pit 1 indicated that some truncation of the former land surface had taken place; Trial Pit 2 showed there to have been substantial infilling above a buried soil horizon. Fragments of worked flint flakes, as well as post-medieval finds were recovered from this buried land surface. Neither pit revealed evidence for structural remains.

Peter. W. Cox
AC *archaeology*

C13 IMPROVEMENT AND MELBURY ABBAS BYPASS SCHEME

The evaluation of land affected by the proposed C13 Improvement and Melbury Abbas Bypass was carried out in two phases during 1994. The phase 1 survey work comprised geophysical survey on eight of the known sites affected by, or adjacent to, the scheme, surface artefact collection and the hand-excavation of 1 m² trial pits. This was followed during phase 2 by further geophysical survey and machine-excavated trenches in areas identified as being of potential. A total of 14 potential new sites have been identified, all of probable prehistoric date. A more detailed report will be submitted for publication in due course.

John Valentin
AC *archaeology*

TWO PROPOSED SPOIL DEPOSIT AREAS AT BLANDFORD CAMP, TARRANT MONKTON

The archaeological investigation of two areas of proposed landfill at Blandford Camp was carried out during November 1994 (centred around ST9280 0785 and ST 9175 0875), by means of fieldwalking and trial trench excavation. Low levels of surface artefacts were recovered in Area A and subsequent trench excavation revealed no evidence for subsoil deposits of archaeological interest, although thin deposits of hillwash were noted. Traces of ploughed-out 'Celtic field' lynchets in the area do not survive well as earthworks and there are no corresponding subsoil features. In Area B, a similar sequence of hillwash deposits was noted, but cannot be accurately dated. A small mound within the area was examined and cannot be shown to be of any antiquity.

Peter W. Cox
AC *archaeology*

BETWEEN WEST STREET AND KING STREET, WIMBORNE

An archaeological evaluation of a proposed development site on land between West Street and King Street, Wimborne (SZ 0075 9997) was carried out in November 1994. Approximately 2% of the site was investigated by the excavation and recording of three evaluation trenches: two towards the West Street frontage and one in an area of apparent terracing on the King Street frontage. Evidence for post-medieval disturbance was widespread in both areas, including deep excavations (possibly from quarrying) behind West Street. A single feature containing medieval pottery was identified behind the King Street frontage.

Peter Cox
AC *archaeology*

97 WYKE ROAD, WEYMOUTH

An archaeological evaluation of a building plot at 'The Spinney', 97 Wyke Road, was carried out during March 1994 in advance of proposed development of the land. The work comprised the excavation of three 1 m² trial pits. All trial pits contained small quantities of modern ceramic building material and ashes and one also contained a single worked flint flake. No archaeological deposits were present.

Peter W. Cox
AC *archaeology*

ABBOTTS WOOTTON, WHITCHURCH CANONICORUM

An archaeological evaluation was carried out on the site of a proposed agricultural building, centred on SY 379 964, at Abbotts Wootton Farm, Whitchurch Canonicorum, in October 1994. The evaluation comprised the excavation and recording of three trenches using a mechanical excavator. The exposed topsoil and subsoil deposits contained small quantities of medieval pottery. Three small subsoil features, considered to be pits, contained small quantities of medieval pottery and animal bone. The pottery is considered to date from the period 12–14th century.

Julian Cotton and Peter W. Cox
AC *archaeology*

QUARLESTON FARM, WINTERBOURNE STICKLAND

At Quarleston Farm, Winterbourne Stickland (ST 835039), two evaluation trenches were excavated by machine on the site of proposed buildings. Evidence of activity of (probable) later prehistoric date in the form of cremated human bone in a small pit, and of the medieval, post-medieval and modern periods was found. The archaeological features include ditches, walls, wall trenches, and small pits or post-holes. Finds include 44 sherds of medieval pottery (probably 11th–12th century), building material (medieval to modern), and animal bone, as well as the cremated remains of one adult human.

The cremated bone was recovered from a single context which was not completely excavated, precluding any comment on the relevance of the quantity of bone which represented parts of an adult individual.

Andrew Crockett
Wessex Archaeology

OTHER OBSERVATIONS

Observation at the following sites had negative results:

(i) Chalbury Camp and Strip Lynchets (Scheduled Monument Dorset M89) — construction of a barn for Sutton Farm at N.G.R SY 6941 8424, within the system of strip lynchets, Scheduled Monument Consent had been granted on condition that archaeological observation and recording by the D.C.C. Archaeology Service took place during groundwork.

(ii) Abbey Farmhouse, Witchampton (ST 9889 0632) — farmhouse extension, new stables and regrading of land in historic core of village.

(iii) Gaythorn, Blagdon Road, Winterborne St. Martin (SY 6224 8805) — house extension near scheduled barrow Dorset M237d.

(iv) Land adjacent to Myrtle Cottage, Litton Cheney (SY 5537 9055) — new house and garage in historic core of village.

Steve Wallis
Dorset County Council Archaeology Service

Other evaluations and assessments

Evaluations and desk-based assessments with no archaeological results were carried out by Wessex Archaeology at Poole, Hamworthy Terminal, and Dorchester, Bridport Road (SY 670905).

Melanie Gauden
Wessex Archaeology

ARCHAEOLOGICAL SITES IDENTIFIED FROM AERIAL PHOTOGRAPHS

The following sites have been added to the Dorset Sites and Monuments Record from aerial photographs taken by Francesca Radcliffe (photographer) and Giles Romanes (pilot). The sites have been entered into the county Sites and Monuments Record (SMR).

Abbotsbury
Earthworks of a cluster of small enclosures at Elworth, centred on SY 5937 8489. The enclosures, which are squareish and approximately 30 m across, appear to be overlain by medieval cultivation remains and have been provisionally identified as an area of prehistoric settlement.
AP: FR 56/29 taken 19 January 1991 SMR: Abbotsbury (64) or 1001064.

Cultivation remains centred on SY 595 848.
AP: FR 56/29 taken 19 January 1991 SMR: Abbotsbury (65) or 1001065.

An extensive area of lynchets, particularly well-preserved as earthworks around SY 621 843
AP:FR57/27 taken 19 January 1991 SMR: Abbotsbury (66) or 1001066.

Affpuddle
A roughly circular soil-mark, approximately 100 m in diameter at SY 8140 9365, has very tentatively been identified as an enclosure, perhaps a relatively modern tree enclosure. The feature can be seen, apparently overlain by watermeadows, in a ploughed field.
AP:FR 30/29 taken 24 February 1990 SMR: Affpuddle (79) or 6001079

Anderson
Soil-marks around SY 8795 9985 show a cluster of indistinct features, apparently a group of overlapping enclosures. The enclosures are all approximately 30 m by 70 m, some are roughly rectangular, others more irregular.
AP:FR 45/14 taken 14 October 1990 SMR: Anderson (13) or 2001013.

Bradford Peverell
Chalk mound of apparent barrow visible at SY 6518 9169.
AP:FR29/1 taken 24 April 1990 SMR: Bradford Peverell (46) or 1014046.

Bradpole
Lynchets around SY 483 939.
AP:FR 54/27 taken 13 January 1991 SMR: Bradpole (12) or 1015012.

Burleston
Soil-mark of ring-ditch at SY 7789 9642
AP:FR 47/20 taken 23 November 1990 SMR: Burleston (12) or 1020012.

Burton Bradstock
Earthworks of possible medieval or post-medieval settlement remains around SY 507 892
AP:FR 50/10 taken 14 December 1990 SMR: Burton Bradstock (47) or 1022047.

Crop-mark of circular enclosure approximately 200 m in diameter on Green Hill at SY 5117 8865.
AP:FR 32/3 taken 8 June 1990 SMR: Burton Bradstock (50) or 1022050

Charminster
Soil-mark of square enclosure at SY 6828 9612. The enclosure is approximately 100 m across, and lies within an extensive prehistoric field system. It is interesting to note thst this feature appears to have been respected when later field boundaries were laid out.
AP:FR 42/10 taken 28 September 1990 SMR: Charminster (65) or 1028065.

Chideock
Lynchets on the slopes of Quarry Hill around SY 436 930.
AP:FR 51/21 taken 15 December 1990 SMR: Chaideock (31) or 1034031.

Kingston Russell
Lynchets around SY 579 884.
AP:FR 54/10 taken 12 January 1991 SMR: Kingston Russell (27) or 1058027.

Litton Cheney
Earthworks of a square enclosure, with slightly rounded corners, and approximately 15 m across at SY 5338 9090.
AP:FR 54/6 taken 12 January 1991 SMR: Litton Cheney (40) or 1064040.

Loders
Parallel linear earthworks, apparently lynchets around SY 5040 9233.
AP:FR 50/16 taken 15 December 1990 SMR: Loders (43) or 1065043

Long Bredy
Lynchets around SY 513 905.
AP:FR 31/27 taken 18 May 1990 SMR: Long Bredy (48) or 10666048

Melbury Bubb
Earthworks of an enclosure, perhaps a tree-ring, approximately 30 m in diameter at ST 5940 0485.
AP:FR 56/14 taken 19 January 1991 SMR: Melbury Bubb (15) or 1072015.

Portesham
Lynchets around SY 628 856.
AP:FR 56/32 taken 19 January 1991 SMR: Portesham (94) or 1090094.

Puddletown
Soil-marks of a square enclosure, approximately 100 m across, straddling the parish boundary with Dewlish. SY74759805
AP:FR 42/25 taken 7 October 1990 SMR: Puddletown (82) or 1094082

Stinsford
Crop-mark of ring-ditch at SY 7111 9204.
AP:FR 35/23-24 taken 16 July 1990 SMR: Stinsford (46) or 1105046

Stoke Abbott
Lynchets, faintly discernable as earthworks over a wide area, but particularly well-preserved in the fields around SY 440 998.
AP:FR 53/31-32 taken 12 January 1991 SMR: Stoke Abbott (21) or 1107 021.

Sydling St. Nicholas
A square soil-mark approximately 50 m across at SY 6405 9875 within a celtic field group appears to be an enclosure, though it may prove to be simply the result of differential preservation of lynchets. This feature is very close to the Romano-British settlement on Shearplace Hill, and may be associated with it.
AP:FR 43/19 taken 7 October 1990 SMR: Sydling St. Nicholas (60) or 1111060.

Tarrant Rushton
An apparently circular soil-mark at ST 9333 0348 on a rather oblique photograph has been provisionally identified as a ring-ditch.
AP:FR 45/3 taken 14 October 1990 SMR: Tarrant Rushton (23) or 2063023.

Whitchurch Canonicorum
An earthwork mound at SY 3723 9779 on the eastern slope of Coney's Castle. The mound, which is approximately 30 m by 3 m, runs down the slope and appears to have a slight external ditch.
AP:FR 51/10 taken 15 December 1990 SMR: W. Canonicorum (31) or 1127031.

Winterborne Came
Soil-marks of ring-ditches at SY 6937 8792, SY 6980 8765, SY 6979 8759 and SY 6979 8756.
AP:FR 77/12 taken 8 November1991 SMR: Winterborne Came (66),

(67), (68), and (69) or 1128066, 1128067, 1128068, and 1128069.

The chalky mound of a probable barrow at SY 7017 8704.
AP:FR 77/16 taken 8 November 1991 SMR: Winterborne Came (70) or 1128070.

Soil-marks of a large ring-ditch at least 40 m in diameter with a small central mound, perhaps the remains of a disc barrow, at SY 6973 8686.
AP:FR 78/7 taken 8 November 1991 SMR: Winterborne Came (71) or 1128071

Soil-mark of a chalk mound with ditch at SY 6977 8694.
AP:FR 78/7 taken 8 November 1991 SMR: Winterborne Came (72) or 1128072.

Soil-mark of ring-ditch at SY 7016 8706.
AP:FR 78/8 taken 8 November 1991 SMR: Winterborne Came (73) or 1128073

Soil-marks of a ring-ditch at SY 6956 8751.
AP:FR 78/10 taken 8 November 1991 SMR: Winterborne Came (74) or 1128074

Winterborne St. Martin
Chalky mound in field boundary at SY 6649 8920.
AP:FR 58/6 taken 16 February 1991 SMR: Winterborne St. Martin (181) or 1131181

Winterborne Zelston
Earthworks of medieval or post-medieval settlement remains centered on SY 898 974.
AP:FR 28/8 and 9 taken 25 April 1990 SMR: Winterborne Zelston (12) or 2073012

Winterbourne Abbas
Soil-marks of lynchets around SY 619 913.
AP:FR 59/20 taken 17 March 1990 SMR: Winterborne Abbas (80) or 1132080

Very slight soil-mark of circular feature interpreted as a ring-ditch at SY 6014 8998.
AP:FR 59/20 taken 17 March 1991 SMR: Winterbourne Abbas (83) or 1132083

Winterbourne Steepleton
Lynchets at SY 6275 8965.
AP:FR 80/6 taken 15 November 1991 SMR: W. Steepleton (85) or 1133085.

Claire Pinder
Francesca Radcliffe
Giles Romanes

EXCAVATIONS

EXCAVATIONS AT CORFE CASTLE 1994

In April 1994, the topsoil covering the rubble blocking the east side of the Inner Ward gateway was removed. This revealed the broken west wall of the Keep as it had fractured and fallen during the demolition of 1646.

The position and size of the blocks needed to be determined to enable a proposal to be put forward regarding the reopening of the Inner Ward gateway. At present all visitors enter the Inner Ward of the castle by climbing over the ruined curtain wall. Structural engineers report that it is possible to lift a block of the Keep wall in one piece and move it 5m to the north using a gantry system. This will enable the Inner Ward to be entered at the correct point and allow a better understanding of the way the castle functioned.

Consolidation work has taken place on the collapsed section of wall on the west side of the Outer Bailey immediately south of the second tower Stones which have become loosened by weathering and vegetational growth have been lifted and rebedded and the whole length of wall has been repointed. The cleaning work revealed the jambs of the postern gate here.

In November, the outer bridge was excavated to the 1640s level. This was in preparation for the resurfacing of the bridge with a pitched limestone path and will complete the path begun in 1987 in the West Bailey.

The excavation revealed a series of trackway levels. Two surfaces of tarmac covered six levels of gravel separated by layers of dark loam. The early seventeenth level had been cut through by traffic using the bridge in the 1640-1660 period. The third bridge arch of the four, south of the Outer Gatehouse, had become exposed at this time and wheel ruts had been worn 0.1m deep into it. Subsequently this worn central 2m section of the bridge had been built up to the same level of the unworn edges using limestone chippings containing tobacco pipe bowls and pottery of late 17th-century date.

The 1646 parliamentarian sappers' trenches were revealed in plan. They had been excavated to undermine the drum towers of the Outer Gatehouse. On the east side the sapper trench had destroyed the junction of the 16th-century bridge arch with the 13th-century gatehouse apron. On the west side, the sapper trench had been dug further north and part of the bridge/apron junction survived as a straight joint overlain by the Civil War period trackway.

Much of the bridge parapet had been either robbed away in the post-demolition period or rebedded during the 1960s as part of the Ministry of Works consolidation. Sections of parapet 0.4m wide survived in the central section of the bridge. Below this was an 0.6m wide parapert footing buried by early 17th-century stone chippings mixed with clay and mortar.

The excavations were carried out with the help of local archaeologists and National Trust volunteers, supervised by Nancy Grace and with grant aid from English Heritage.

David Thackray & Martin Papworth
The National Trust

FIELDWORK AND EXCAVATION ON THE DORCHESTER ROMAN AQUEDUCT, SUMMER 1994

Study of the Dorchester Roman Aqueduct continued in 1994. There were two excavation sites, one at Penn Wood behind Quatre Bras (SY645933), and the other below New Barn at Bradford Peverell (SY660924).

The Source

The aim of the work at Penn Wood was to test the hypothesis proposed in 1993 that the aqueduct had its source in a small quarry (SY64729333) in the eastern end of the wood (Putnam 1993). Within the first few days of the excavation, it became clear that the hypothesis was untenable. A section cut across the front of the quarry showed the channel passing by and carrying on towards the west.

This section uncovered part of the floor of the quarry, showing the chalk here to be composed of large blocks suitable for building, and it now seems that this was the quarry's purpose. Chalk from here was probably used in some of the older farm buildings in and near Bradford Peverell which have walls of chalk.

It also became clear that the ditch and hedge bank which run along the north edge of the wood, and which have long been taken to be traces of the aqueduct, are of comparatively recent origin and do not mark its line. The aqueduct was already deeply buried by hill wash when the ditch and hedge bank were constructed.

The aqueduct channel was then traced by means of sections dug progressively further to the west (Fig. 1). It was a situation of considerable interest as the work approached the point on the RCHM line where the aqueduct was found to be absent in the excavation of 1992 (Putnam 1992).

This failure to find the channel under the edge of the wood was explained when the course of the aqueduct was found to swing north into the field just before it reached the 1992 excavation site.

In defence of previous errors at this point, by both the present excavator and by RCHM (RCHM 1970, 585), it should be pointed out that there is considerable difficulty in predicting the line of the aqueduct without excavation or geophysical survey, the latter being impossible in the wooded areas. In some places, the 1.5 m channel is ploughed nearly away, while in others (as at the edge of Penn Wood)

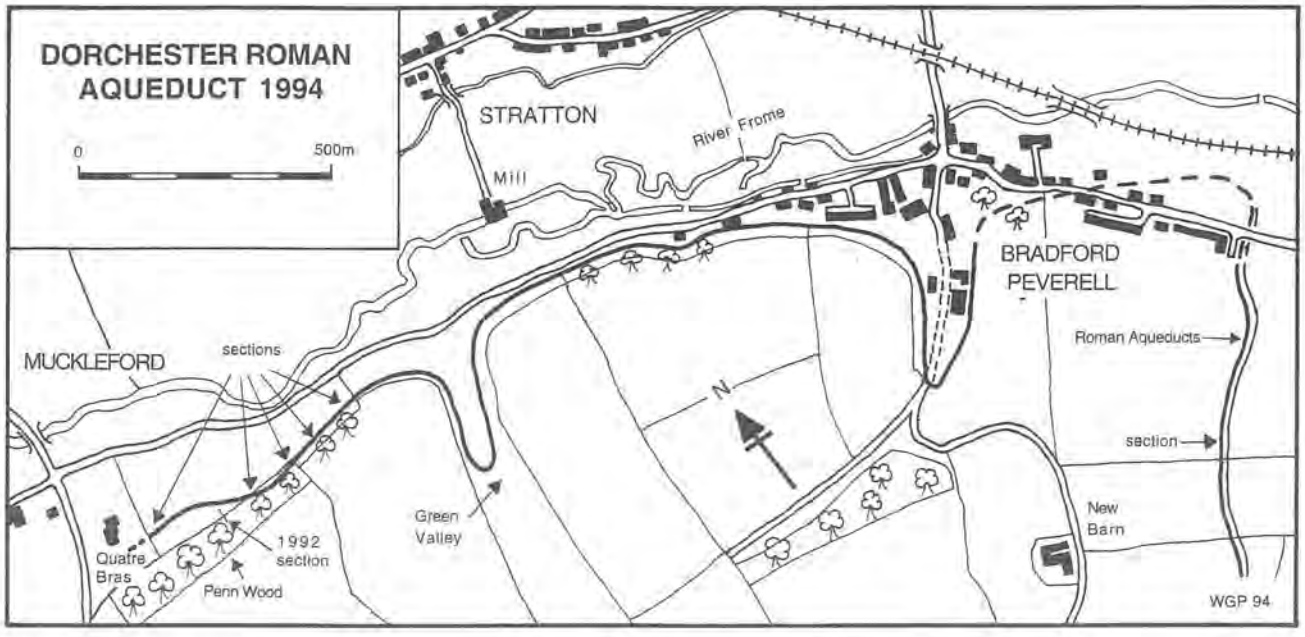


Figure 1 Dorchester Roman Aqueduct 1994.

it is deeply buried in hill wash. As a result of these variations, the apparent line taken from modern contours may vary by as much as 20 m or more from the actual course of the aqueduct.

A final section dug at the Quatre Bras boundary (SY 64319334) in August when the wheat crop was removed, showed the aqueduct some 25 m north of the edge of the wood, continuing into the grounds of Quatre Bras. It is perhaps only coincidence that at this point its line takes it straight towards the 19th century pump house of Quatre Bras.

Work will continue on this question in 1995, with a complete rethink of the ultimate destination, now that it has been shown that the aqueduct does not necessarily run on the supposed line, and that its manner of construction may not always be the large channel previously assumed (see below).

The construction of the aqueduct

Below New Barn, the opportunity was taken to section the aqueduct in an area where John Boyden's aerial photograph of 1976 shows there to be two channels, a larger upper one and smaller lower one. Here substantial progress was made, leading to the first workable theory about the constructional details, including, for the first time, a possible explanation of the enormous size of the channel, which has so puzzled previous and present researchers.

Figure 2 shows the possible stages of the aqueduct's development as found here.

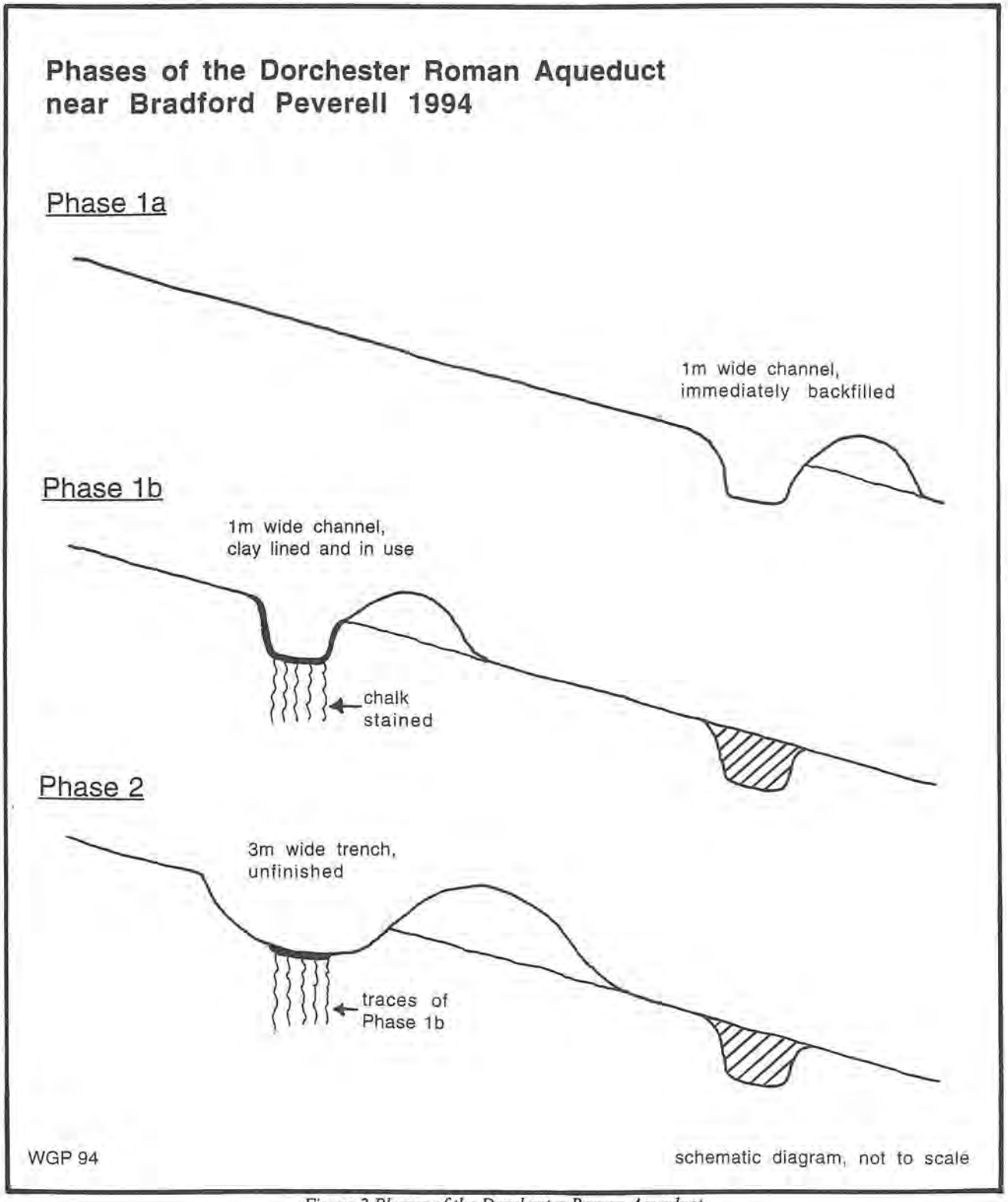


Figure 2 Phases of the Dorchester Roman Aqueduct

Phase 1a

Although it cannot yet be proved conclusively, it seems likely that the smaller lower channel was the first constructed. Its dimensions were 1 m wide at its base and at least 0.5 m deep. It was not lined, and before it could be used, it was filled in with the chalk and turf that came out of it. This happened before any silt was deposited in its bottom, perhaps within a few days. This channel does not occur in Green Valley or below Penn Wood. It appears to be a mistake, possibly because of an error in gradient. In future research, it will be necessary to search for it closer to Dorchester and establish the gradient.

The importance of this discovery is that it appears to show the dimensions of the channel as originally designed, very much smaller than the large trench visible today.

Phase 1b

It is now suggested that another channel of similar dimensions was then built on a higher contour and to a steeper gradient, lined with clay, and put into use. This channel cannot be seen today, because the large trench (phase 2) has dug it almost entirely away.

The existence of this working channel is implied by the fact that in one of this year's and in one of last year's section, the very bottom of phase 1b survived, just three or four centimetres of the clay lining, one metre wide. Elsewhere, although the suggested phase 1b channel had been entirely dug away, the stain caused by leakage of water through the clay lining survived in the chalk below. This staining is 1 m wide, corresponding to the width of the vanished channel, and is present in almost every section that has been cut through the large channel since 1902.

Phase 2

After a period of use which cannot be defined, a large construction trench measuring 3 m across by 1.5 m deep, was dug along the line of the aqueduct, removing virtually all of the phase 1b channel, apart from the stain and occasionally the very bottom of its clay lining. This wide trench is one that is visible today in the undamaged parts of the aqueduct, for example at Poundbury and in Fordington Bottom.

It seems likely that this is in fact not a completed aqueduct, but rather a construction trench in which a new aqueduct was to be built. For reasons which can only be guessed at, the work was never finished.

It is unclear at present what was intended. There was room in the trench to build a wooden or stone aqueduct, or to lay earthenware pipes. These would have been covered as the construction trench was filled in again. However, none of the sections which have been dug this century suggest that such a construction was actually started, and the plan may merely have been for the larger channel to be lined with clay as an open waterway again. Even if this was the intention, the aqueduct was still unfinished, as nowhere has an undoubted lining been found. The Upper Chalk in which the aqueduct is cut is porous, and it would be essential to have a lining of some kind. Without it, little if any water would have reached Dorchester.

This hypothesis would explain almost all the observations which have been made of the aqueduct over the years.

An attempt will be made to prove it in 1995. In Fordington Bottom (SY 66929108) it appears, from surface indications, that the digging of the large trench stopped short of the loop at the southern end of the valley, leaving a short stretch of phase 1b channel undisturbed. If this proves to be the case, then the history of the Dorchester Aqueduct may become a little clearer.

The University is grateful to the landowners who kindly gave permission for excavation and survey on their land, particularly Mr and Mrs Tutte at Lower Skippet, and Mr R. Eversden at Home Farm, Bradford Peverell. Acknowledgement is also made to the Department of National Heritage, who allowed excavation on the scheduled parts of the aqueduct in Penn Wood.

Putnam, W.G., 1992, 'Fieldwork and excavation on the Dorchester Roman Aqueduct, summer 1992', *Dorset Proceedings* 114, 239–240

Putnam, W.G., 1993, 'Fieldwork and excavation on the Dorchester Roman Aqueduct, summer 1993, *Dorset Proceedings* 115, 152–153.

RCHM 1970, *Historical Monuments in the County of Dorset II, part 3.*

W.G. Putnam
Bournemouth University

KIMMERIDGE WELLSITE ACCESS ROAD

The investigation of the archaeological potential of a new access road to the BP wellsite at Kimmeridge (SY 906 792) was carried out initially in the form of a geophysical survey, in April 1994. This revealed the presence of several features, including ditches and spreads of magnetically-enhanced material which were consistent with the known industrial character of the site. The greatest concentration of features lay in the extreme south-east area of the field.

The second Stage of assessment involved the hand-excavation of six 1 m² trial pits; three of which were located on specific magnetic anomalies and three which acted as controls. Confirmation of archaeological features was restricted to the south-east zone of the site. This area was subsequently excavated between June and August 1994 and prior to development.

The earliest finds from the site, in the form of pottery fragments, animal bone, hand-worked shale fragments, and bone and flint tools, came from a series of pits and ditches cut into the underlying clay. These features may represent boundary ditches and storage pits and date from the Early Iron Age.

The later phase of this site, the Late Iron Age and Roman period, is represented by a road surface made of compacted stone running diagonally across the trench, away from the present cliff top. This road originally had ditches alongside, which were later filled with soil and rubble to form a low wall. The wall was clearly in use in the 1st century AD. Artefacts present in this phase of the site include over 500 fragments of lathe-turned shale waste, pottery, and flint lathe tools. The orientation of the road, south-westwards towards the west side of Kimmeridge Bay indicates a probable route between this and other contemporaneous industrial sites in the area.

Jacqueline Dodd
AC *archaeology*

WHITE MILL, SHAPWICK

During February 1994 began on White Mill, Shapwick (ST958006), with the intention of opening the site to the public in May 1995. An archaeological brief was included in the building specification for work in the house, mill building and surrounding area.

In the house flagstone floors were lifted and the ground level lowered by approximately 0.2m. The flags were bedded on sand containing 19th century glass and pottery. This was on top of redeposited chalk. In the kitchen, the redeposited chalk contained an area of packed flint nodules: this cobbled surface could be a remnant of an earlier outside yard relating to the main house. In the dining room the deposits below the sand were a series of packed chalk surfaces. In front of the fireplace and running out towards the mill race and a blocked door was a brick surface or pathway set into the redeposited chalk. Under the present brick wall was an earlier heathstone and flint wall, wider on the inside of the room with a knapped flint interior face, and outer face of heathstone. As well as lowering the ground level in the dining room a drainage trench and foundation trench for a partition wall was excavated to a depth of 0.3 to 0.4m. Under the stairs in the pipe trench and along the line of the foundation trench was a limestone and heathstone wall that seemed to form a corner of a building. The small area that could be seen in the narrow pipe trench that that would have been in the building contained a layer of very black silty soil with charcoal, shell, and 16th century pottery.

In the mill building, the flagstone floor of the southwest cog-pit room was recorded and lifted. The layer under the flagstones contained 19th and early 20th century finds and consisted of packed chalk with brick building rubble. The floor was lifted in order to excavate underpinning trenches to stabilise the south west gable end of the mill. Thirteen 1m by 1.2m holes were excavated to depths ranging from 2m to 3.5m deep in order to find bedrock. Only the top 0.4m to 0.5m of the holes contained occupation evidence, the majority of the holes contained redeposited chalk. Below the chalk was dark grey clay, of variable thickness, containing preserved leaves, twigs and tree branches. Some of this material showed signs of being cut, possibly the remains of wattleing or fascines for stabilising the ground.

In two of the trenches oak posts were found driven into the chalk. There were seven in total, in a straight line and spaced at 0.3m intervals. They survived very well in the wet conditions and when removed all the tool marks and cuts could be seen. A sample of one of the posts was radio-carbon dated 1304AD to 1494AD. The posts were taken to the York Archaeological Trust conservation department along with the section of mill wheel found in the south-west wheel pit in 1993. Apart from the organic remains there were few finds from the

underpinning trenches. One important piece of dating evidence was recovered from the trench that had three posts in it: a pinched base of a jug found just above the bedrock and near one of the posts.

Work was carried out by the National Trust, with many thanks to Martin Gillard, Kirsty Taylor and Tim Phillimore, all volunteers, and especially the contractors Box & Sons.

Nancy Grace
The National Trust

HERON GROVE, STURMINSTER MARSHALL — AREA C

The second stage of excavation is continuing at Heron Grove, Sturminster Marshall, around SY 960 975. Excavations during 1993 revealed the presence of two circular post-built structures dating to the Early Iron Age (Valentin 1994). Excavation during the autumn and winter of 1994–95 have shown the continuation of this settlement immediately to the south and south-west, with the presence of six further Early Iron Age circular structures and associated features, including hearths. Significant quantities of Early Iron Age pottery have been recovered, including furrowed bowls and a single example of an unusual vessel, probably hematite coated, along with two crucible fragments, whetstones, quernstones and clay loomweight fragments.

Later activity on the site is represented by a Middle Iron Age large rectangular enclosure, which of part overlies the southern extent of the Early Iron Age settlement. This enclosure covers an area of approximately 50 x 50 m and encloses circular buildings and other structures of similar date. The enclosure ditch is up to 4 m wide and around 1.5 m deep.

The current excavations have also provided evidence for earlier prehistoric activity on the site, in the form of Neolithic pits containing pottery and worked flint, and Bronze Age features, including probable cremation pits. A detailed report for publication will be prepared during 1995.

Valentin, J., 1994, 'An Early Iron Age hilltop settlement at Heron Grove, Sturminster Marshall, Dorset: first excavation report', *Proc. Dorset Natur. Hist. Archaeol. Soc.* Vol. 115, 63–70.

John Valentin
AC *archaeology*

HIGH STREET, TOLLER PORCORUM

For five weeks in June and July 1994, the Department of Conservation Sciences, Bournemouth University continued their programme of research into the development of the village of Toller Porcorum, West Dorset, by undertaking the excavation of an area of earthworks in a field known as Stream Field (SY 56049775) to the south-east of the High Street. The earthworks consist of at least two raised platforms fully within the field, a third platform partially beneath the modern houses to the south, and a deep hollow that lies parallel to the High Street dividing the field into two parts. On the eastern side of the hollow are at least two small terraces. The platforms are situated between the hollow and the High Street (Fig. 3)

In 1993, the author carried out an evaluation of the suspected archaeological remains in Stream Field (Edwards, 1994). The three test pits excavated revealed possible remains of a post-medieval building on platform A and pits and a gully containing 12th to 13th century pottery on platform B. The third test pit, located on what appeared to be a platform that extended into Stream Field from beneath the hedgerow and housing estate to the south, uncovered building debris but no evidence for a structure in situ. It is presumed that if there are the remains of a building on this platform, they lie beneath the modern houses.

Stream Field, currently under pasture, is recorded as an orchard on the Tithe Apportionment map of 1844 (DCRO T/TPO), the earliest map available for the village. Its use as an orchard continued at least until 1902 as it is shown as such on the 1:2,500 Second Series Ordnance Survey map. One lone apple tree still stands as testament to the earlier use of the field.

Three main areas were opened in this seasons excavation with the aims of examining the two main platforms within the field and a possible hollow-way across the site.

Trench I

Trench 1 investigated platform A upon which the possible remains of a post-medieval building had been identified in 1993. The stone footings of parts of the east and south walls of a building were revealed and sections of the west wall were seen in extensions to the main area. There was no evidence for a wall at the north end of the structure but a post pad was positioned at this end in the centre of the building. The walls had been extensively robbed, leaving only short stretches of a single course of stonework which was mainly flint rubble but hamstone, limestone, and chalk were also used, especially as roughly squared facing stones which were seen in the east and south walls in particular. On the eastern side of the building was a stone surface, the full extent of which was not ascertained, which sealed pottery of late 17th/early 18th century date and was in turn sealed by a soil layer which contained early 18th century pottery in quantities that would suggest that the area had been used for dumping rubbish. There was no evidence for a hearth or chimney within the building which appears to have been for agricultural use.

After the abandonment of the building, a large pit was dug within it which was back-filled with material which contained few finds. The reason for the excavation of the pit is unknown. Finally, the area over the pit, the fill of which may have settled leaving a slight hollow, was used as a rubbish dump in the 19th and early 20th century.

Trench II

The 1993 evaluation excavation had discovered three pits and a small gully at the extreme west end of platform B but there appeared to be no evidence for a structure. The fact that the platform lay alongside the hollow rather than the High Street had raised the question whether there had been a shift in the settlement in this part of the village from an earlier road in the hollow to the High Street. The location of a building on the eastern end of the platform, alongside the hollow would have helped to confirm this theory. Trench II was positioned along the length of the platform from the test pit of the previous season to the eastern end. Only two features were encountered, both at the west end of the platform. A small gully, 0.20 m wide and 0.14 m deep, similar dimensions to the gully excavated in 1993, and a small pit were excavated but yielded only a few sherds of medieval course and sandy wares. The most striking feature of the platform was the depth of soil above the natural which increased from 0.5 m at the west end of the platform to 1 m at the east end. This proved that the platform had been constructed by the dumping of soil rather than the areas to the side being cut back leaving the platform higher than the surrounding land. Two soil layers were encountered, the lowest being a silty clay which contained few finds and may have originated from the stream in the hollow. The majority of the soil was an homogenous sandy silt loam within which there was no evidence for different episodes of dumping. It is not possible to suggest from where the soil used to build up the platform came from. Pottery recovered from the platform consisted almost solely of 12th/13th century coarse wares and 13th/14th century glazed wares. Most of the pottery was unabraded and many of the sherds were quite large. The possibility that the pottery was imported to the site with the soil used to construct the platform cannot be ruled out, particularly, as at present, there is no evidence for medieval occupation on the site. However, it seems unlikely that the soil would have been transported a great distance with or without the pottery and so it is highly probable that there is a medieval occupation site nearby. From the type and quantity of pottery recovered from the platform and by the fact that the pits excavated in 1993, sealed by the soil used to construct the platform, contained 12th century pottery, it is most likely that the platform was constructed during the 13th or 14th century. Of particular interest among the assemblage of medieval pottery from the site were some sherds of Netherton ware from Hampshire which date to the 13th century.

Trench III

Trench III was positioned so as to provide a section across the hollow and the small terrace on its eastern side to confirm the presence or otherwise of a hollow-way. No evidence of a trackway was encountered and the small terrace was shown to be the remains of a bank and a ditch of post-medieval date. On the western side of the hollow were two ditches which pre-dated the construction of platform B. Also encountered were two chalk drains and a modern plastic drain pipe. The field to the south of Stream Field remains quite wet with a high coverage of reeds of Juncus spp. and gives us an idea of the conditions that farmers over the centuries have been trying to improve, seemingly with little success. The hollow appears to have been the course of a stream which is now mainly channelled through drains.

To answer some specific questions raised by the excavation of the main areas and also by a magnetic susceptibility survey, further small test pits were excavated.

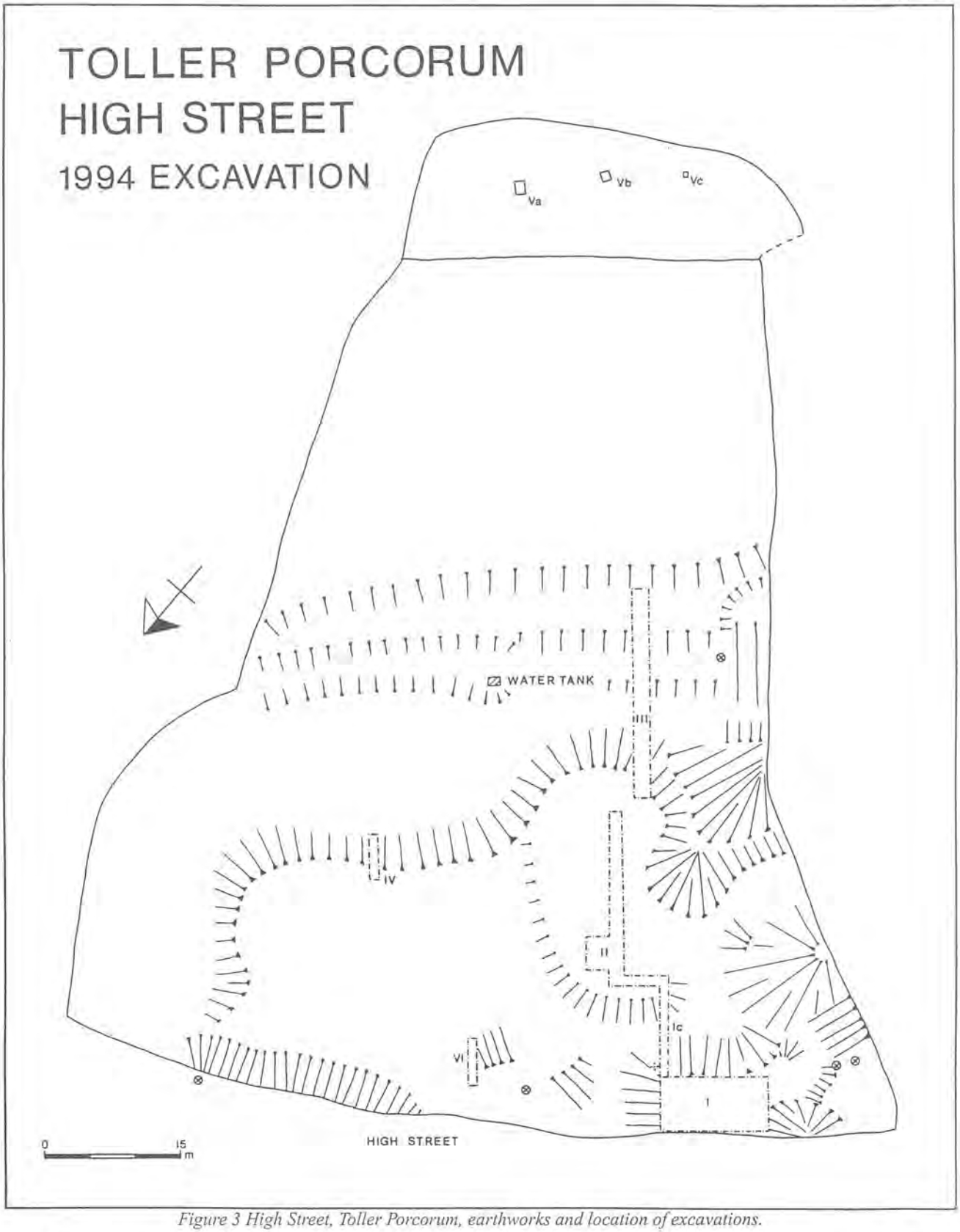


Figure 3 High Street, Toller Porcorum, earthworks and location of excavations.

Trench IV

As Trench II had shown that platform B had been built out towards the stream, it was decided to investigate the small scarp slope from the fairly level ground alongside the High Street down to the level bottom of the hollow. Trench IV showed a similar soil build up to that encountered in Trench II with over 1 m of soil overlying the natural.

Trench V

Trench V actually consisted of three small test pits, Va, b, and c, located in a small paddock at the east end of Stream Field. These test pits were excavated because the magnetic susceptibility survey of the field had produced unexpectedly high readings in this area. Excavation of the test pits revealed a layer below topsoil which contained a quantity of unburnt coal and coke with small amounts of post-medieval pottery. There is no historical evidence for there being a house in this area and, in fact, the paddock was actually part of Stream Field at the time of the Tithe survey in 1844.

Trench VI

Trench VI was situated on the area of level ground alongside the

High Street to ascertain if the non-existence of earthworks in that part of the field actually represented an absence of archaeology. No evidence for a structure was found in the trench but two ditches were uncovered from which some small abraded sherds of late medieval sandy wares were recovered. The average depth of the topsoil in this trench was 0.40 m which contrasts to the 1 m+ of topsoil present in Trench II, and highlights the fact that the natural slope down towards the hollow has been modified to create a large level area above the wet stream valley.

Platform B can be regarded as part of this raising of the ground surface, presumably to provide drier land, but the fact that platform B was built both higher and extends further to the east into the stream valley may indicate that it had a different or separate function to the rest of the field in general, possibly horticulture.

B. Edwards and T. Sutherland
Bournemouth University

Edwards, R.J., 1994, *Toller Porcorum, High Street* Bournemouth (Bournemouth University)

HOWARD'S LANE, WAREHAM

An archaeological excavation was undertaken at Howard's Lane, Wareham (SY 9245 8751) following the results of an evaluation carried out by Wessex Archaeology in May 1994, which established that buried archaeological remains of medieval date were present on the Howard's Lane frontage. During September 1994, the excavation of the site took place covering an area of 0.17 ha and comprising the eastern half of land fronting Carrion Lane to the north, Moreton's Lane to the east, Howard's Lane to the south, and Bonnet's Lane to the west.

The site lies within the historic town of Wareham. Significant archaeological remains of the Iron Age, Roman, Saxon, and medieval periods have been recorded within the town and sherds of pottery dating from the 13th century have been found at the corner of Moreton's Lane and Carrion Lane.

The excavation has revealed a coherent group of undisturbed features of late 12th–early 14th century date. The identification of a post-built structure(s) with an associated boundary and rubbish pits provides useful and important information on the nature and extent of the domestic occupation of medieval Wareham at a time when the town was considered to have been of some importance.

The charred plant remains from the excavations are of particular interest in view of the limited evidence for plant remains from medieval domestic contexts in Wareham. The rubbish pits have the potential to aid in the interpretation of the agricultural economy and practices of the site in terms of crops grown, harvest times and processing details. Comparison with remains from other features may enable the identification of activities within the site not represented by deposits in the pits.

The excavation also provides important negative evidence for the development of the pre-medieval settlement. A church and associated settlement probably existed at Wareham from the 7th century, before becoming a Saxon burh and, subsequently, a town of sufficient importance to have two moneyers in the 10th century and three churches by 1086. Of particular interest at the Bonnet's Lane excavation, is that the medieval features appear to extend under and pre-date Howard's Lane. This provides some archaeological evidence for the date and development of part of Wareham's street plan, which, aside from the main streets, probably grew piece-meal.

Phil Harding
Wessex Archaeology

WARMWELL QUARRY, WEST KNIGHTON

Excavations in June 1994 at Warmwell Quarry (SY 472888) by Birmingham University Field Archaeology Unit, preceeded by a geophysical survey, marked the final phase in a four year programme of evaluation, monitoring and excavation on behalf of CAMAS plc (formerly ECC Quarries Ltd.). Despite the recovery of waste flint and artifact concentrations, as well as occasional truncated features, during previous evaluation and site monitoring operations the importance of this site was not recognised until 1993. Discoveries made during monitoring of topsoil recovery then, led to salvage excavations and the the evidence for a Middle Bronze Age settlement, funerary pyres and cremation burials(*Dorset Proceedings* 115, 158). This prompted a geophysical survey of the remaining quarry concession (Bradford 1994) and further excavations to follow the topsoil strip which preceeded extraction (Ellis 1994).

Despite some truncation through previous agriculture and the topsoiling process, three groups of features were recognised: hearths and occupation deposits, boundary ditches, and sinkholes. The first comprised several areas of *in situ* burnt clay and gravel associated with charcoal/ash spreads. and one area with a working hollow, beam slot and possible post holes to the west. Occupation deposits including Bronze Age pottery, daub and flint were associated with these features, but no coherent structural plans were apparent. Three shallow linear boundary ditches, including two at a right angle, suggested the partial definition of at least three former enclosures. Occasional worked flints and Bronze Age pottery sherds were recovered from their fills. Three large infilled circular depressions to the east were partly excavated by a combination of hand and machine excavation. Their character and fill profiles identified them as natural sinkholes; gravel having subsided into solution cavities within the underlying chalk, 12-15m below the present surface. Deposits of charcoal and some flint, including working debitage, from their upper fills suggest that these sinkholes were open hollows during the Bronze Age occupation of the site.

These results, combined with information from previous work, notably in 1993, indicate settlement and exploitation on this part of Dorset heathlands in the Middle Bronze Age. It is possible to suggest three zones or phases of activity here; funerary, domestic and agricultural, all of which may well overlap within a relatively short timescale. In 1993 a cremation, funerary pottery, worked flint, and pyre sites or hearths indicated the remains of a Middle Bronze Age cemetery in this locality. Some of this data could equally belong in a domestic context, and it was evident from the remains recorded in 1994, that such contexts were also present. An additional element was the evidence for field layouts to the south, some of which may have overlapped with settlement areas. Pre-existing sinkholes or dolines within these fields could have been utilised as sheltered working areas or used at times for watering livestock.

The importance of these discoveries lies not only in the juxtaposition of funerary, domestic and agricultural remains of this period, but in their location. The occurrence of such a range of evidence from a single site on the Tertiary heathlands of Dorset is so far unique. Not only will it be comparable with the much more extensive contemporary evidence for settlement and use of the adjoining chalk downs (Woodward, 1991) but here, surely is detailed evidence of the relationship between these environments in the second millenium BC, and ther processes by which the heaths and their soils were created. Such concerns, it is hoped, will be addressed by the subsequent analysis and reporting of Warmwell in a future volume of these *Proceedings*.

We are grateful for liaison and support throughout this project from Laurence Keen (Dorset County Council), Ian Lanyon, Senior Estates Surveyor, John Gabriel and John Kemp, Warmwell Quarry Managers (ECC Quarries Ltd./CAMAS plc). Excavations in 1994 were directed by Peter Ellis supported by a team from the University of Birmingham.

Geophysical Surveys of Bradford 1994 *Report on Geophysical Survey Warmwell Quarry, Dorset* Report no. 94/56.

Ellis, P. 1994 *Warmwell Quarry, West Knighton, Dorset. archaeological survey and excavation* 1994 BUFAU Report no. 328

Woodward, P. 1991 *The South Dorset Ridgeway, Survey and Excavations 1977-84* D.N.H.A.S. Monograph 8

Peter Leach BUFAU

WEST STAFFORD, WEST STAFFORD BOREHOLE

Excavations in advance of the construction of a drilling site took place on gently sloping ground close to the base of the south side of the South Winterborne valley (SY 719891). The site lies in sight of the prehistoric complex of Mount Pleasant, on the chalk ridge on the north side of the Winterborne valley, and in close proximity to Bronze and Iron Age sites on the ridge and in the dry valley to the south. The development of the prehistoric landscape around the eastern side of Dorchester has become increasingly well defined in the last decade but much of the work has been confined to the chalk ridges, and the prehistoric use or occupation of the potentially complementary areas of the valley bottom is less clear.

The removal of layers of hillwash, which covered the archaeological features, revealed an earlier topography and a number of episodes of activity in the prehistoric period. The earliest of these was situated on a low mound of periglacial gravel at the base of the valley and comprised three pits datable to the Early Neolithic. A

cluster of smaller pits along the edge of the gravel represented activity in the Late Neolithic or Early Bronze Age period, perhaps contemporary with the land divisions represented by a number of field ditches and a possible droveway aligned north-west to south-east.

A ring-ditch, probably marking the site of a barrow or other funerary monument, lay within one of these fields. Many of these features appear to have been extensively eroded. A later period of activity dates to the Late Iron Age or early Romano-British period and consisted of three trenches which may indicate processes connected with iron smelting on the site. A number of pits and the ditches of an enclosure in the north-west part of the site may be contemporary with this period of activity. All the features were sealed beneath colluvial deposits of the 1st millennium A.D.

The excavations revealed significant evidence of activity, perhaps related to settlement, close to the base of the valley in the Early Neolithic period. The Bronze Age sees the laying out of fields and trackways, perhaps in a more open environment, and these are elements of a wider landscape. The droveway suggests a crossing point of the river valley, indicating a link with contemporaneous activity to the east of Dorchester, and the evidence from the excavations must be considered against the background of the more extensively known Bronze Age landscape to the west.

Of some importance is the evidence for the latest phase of activity, Late Iron Age or Romano-British, particularly if analysis of the metalworking residues indicates the iron smelting was taking place on the site. Presumably, a source of iron stone was being exploited and, though the activity may be shortlived, it is significant in being previously unknown in the area. Whether the enclosure in the north-west part of the site is evidence of a settlement is unclear but again, the evidence for the use of the area in the Iron Age must be considered in the light of other sites in the vicinity. The Late Iron Age cemetery and probable settlement at Whitcombe is no more than 1 km to the south-west.

Alan Graham
Wessex Archaeology

WATCHING BRIEFS

CORNER PLOT, BRADFORD PEVERELL

A watching brief was carried out in August during the topsoil strip of Corner Plot, Bradford Peverall (SY 658 930). This revealed a small quantity of worked flint of prehistoric date but no associated prehistoric features.

Julian Cotton
AC *archaeology*

FORMER CORNICK'S JAM FACTORY SITE, BRIDPORT

This site lies on the conjectural line of the north side of the medieval town ditch. Despite advice from the County Archaeological Officer that an archaeological assessment/evaluation of the site should be carried out before determination, consent for the redevelopment of this site was granted without an archaeological condition. Since the agent was concerned about the potential effects of a ditch on foundation design, the author was able to visit the site during the excavation of trial trenches in November 1994.

One trial pit was near the east end of the access road through the site (SY 4698 9295). This was thought likely to be on the line of the ditch (Penn 1980, 24). However, the section showed recent levelling and topsoil containing 19th century pottery overlying natural subsoil.

A second trial pit at SY 4692 9295 cut through a feature that was at least 1.5 m wide (north-south) and about 0.6 m deep. A sherd of medieval (probably 13th century) pottery was the only dating evidence. This feature may be the town ditch, slightly further south than postulated, although such a ditch would be expected to be rather deeper.

Penn, K.J., 1980, *Historic Towns in Dorset*, D.N.H.A.S., Monograph Series no. 1

Steve Wallis
Dorset County Council Archaeology Service

52 WEST STREET, CORFE CASTLE

Observations of the footing trenches for an extension to the existing building at 52, West Street, Corfe Castle in July 1994 resulted in the recovery of a small quantity of late medieval to early post-medieval pottery but no associated features. Rubble, possibly resulting from a previous (recent) building, was also noted.

Tanya Cottrell
AC *archaeology*

CORFE MULLEN LINK MAIN, STAGE I

A watching brief was carried out during the excavation of a water link main at Corfe Mullen (SY 994 976) in November 1994. A ditch running parallel to, but not necessarily associated with, the Roman road was recorded. No artefacts were present in the exposure.

Julian Cotton
AC *archaeology*

CORFE MULLEN LINK MAIN, STAGE II

Further observations of the excavation of the water link main, through a scheduled portion of the Roman road (County Monument no. 650), in Corfe Mullen showed that the road appeared to have been completely quarried away at this point. No other archaeological features or finds were recorded.

Andrew Weale
AC *archaeology*

ICEN WAY, DORCHESTER

An archaeological watching brief was carried out between January and March 1994 at Icen Way, Dorchester (SY 699 713) to observe site levelling and groundworks for a new housing development on the former site of Heathcote House. Monitoring revealed a post-medieval well and a complex of ditches and features which contained no datable artefacts but which maybe prehistoric in date.

Tanya Cottrell
AC *archaeology*

MARKS AND SPENCER'S, SOUTH STREET, DORCHESTER

The find of a pit during renovation at this store in June 1994 was reported by Mr S. Maclean, a Building Control Surveyor at West Dorset District Council. The feature had been found during the excavation of a hole for the addition of a pier within the building (SY 6923 9057). It was about 1 m deep, with a dark loamy fill containing frequent flint nodules and other relatively large stones. Several fragments of animal bone had been recovered during the excavation. No dating evidence was found.

Steve Wallis
Dorset County Council Archaeology Service

THIRTY-NINE, PROSPECT ROAD, DORCHESTER

The foundation trench for a rear extension (SY 6843 9075) was inspected in September 1994. One feature was of note. It ran parallel with the back of the house, about 4 m away and partly within the north-west end of the trench. It was at least 1.9 m deep, and was filled by a greyish silty soil. No dating evidence was recovered.

Steve Wallis
Dorset County Council Archaeology Service

DORSET ARCHAEOLOGY

A number of fieldwork records were made by the Assistant Curator, Dorset County Museum, with members of the DNH&AS, David Ashford, Peter Williams, Reg Smith and Teresa Hall

Dorchester, Greenings Court, SY 6944590828. (DCM Entry 1840).

During the underpinning of existing house walls at No 2 Greenings Court and the subsequent lowering of the floor level an opus signinum floor and some occupation material of the fourth century

AD was recorded at a depth of c. 1 m below ground level. No associated walls were found. The site is on the north-eastern edge of the Roman town and just north of excavations undertaken in 1970 (Green, 1970).

Dorchester, Dorset County Museum, centred on SY 6922390791. (DCM Entry 1840).
Building works behind the Dorset County Museum to construct an external fire-escape to Colliton Street required the cutting of two metre-square footings. These were cut by machine with some hand excavation and section recording. That closest to to the Museum cut through a metre of deposits to bedrock chalk. Three metres to the north the other was cut to a depth of 0.5m below the present ground level. In both the line of the 19th-century sewer cut away earlier levels. In the northern trench post-medieval construction levels were otherwise recorded above earlier pits of which the upper levels, infilled with black urban soils, containing medieval pottery , were excavated. In the trench closest to the Museum the post-medieval construction levels cut to a narrow band of Roman occupation at a depth of 0.6 m below present ground level, below which the red-brown clays of the 'pre-urban' soils were sectioned.

Dorchester, Bridport road, between SY 6875590628 and SY 6884290650 (DCM Entry 1867).
A small excavation was undertaken and observations made along a British Telecom cable trench along the south side of the Bridport Road, which is on the Roman approach road alignment to the west of the Roman town (RCHM 1970, Approach Road 3, and opp 584).

A 2 x 1 m hand-cut trench was excavated for the new telephone junction box, at SY 6875590528, in front of No 24 Bridport Terrace. Inhumations were recorded in the 1880s in building the houses (RCHM 1970, 583, Entry 224f). In this trench an old 'turf' line was recorded at a depth of 0.4 m with chalk below at 0.6 m below ground level. The 'turf' was cut away to the south and east. The infill to the cut contained a fragment of late 18th/early 19th century Creamware. All was sealed by a general soil deposit containing slate, tile and a halfpenny of William and Mary. The area flanking the Roman approach road would have been the subject of much disturbance by tree stands of the Avenue, now felled.

Further along the cable trench between Albert and Cornwall Road very deep, more than 2 m, black soils were recorded. Oyster shells and a fragment of BB1 flanged bowl were recovered. These soils may perhaps be the infilling of the Roman defensive ditches to the town. However, these deep soils were recorded as far as Cornwall Road, which is beyond the known alignment of the outer edge of the ditches and extremely close to the suggested Roman approach road. (RCHM 1970, opp 585).

Dorchester, Great Western Road, SY 68999028. (DCM Entry 1896).
Outside the south-west corner of the Roman town on the site of the former Great Western Hotel a number of ditches were recorded. These confirmed parts of the section recorded in 1896 (RCHM 1970, 548, opp 584 and Entry 174d) but the infill soils were clayey silts and not black soils as previously recorded. No Roman material was seen on the site and although the ditches had been terraced and the ground levels lowered the implication is that in this part of the circuit the ditches may have been filled at an early date since there was an absence of Roman and later material. The sections recorded confirmed that the outer of the ditches turned north-west towards the Borough Gardens before reaching Cornwall Road.

Portesham, No 13 Front Street, SY 60308592. (DCM Entry 1917).
During the lowering of garden levels the disarticulated human remains of at least two adults in two separate areas, were recorded below *c.* 1 m of black garden soils and above a soil terrrace *c.* 0.5 m deep. No grave cuts were recorded and the garden soils contained post-medieval pottery. One group of leg bones were aligned east-west and found close to a length of dressed chalk with a shallow 'U' channel along its length, and laid on the lower soil terrace. This may be earlier than the present stone-built house, 18th/19th century.

Iwerne Minster, Number One Churchill, SY 86801446. (DCM Entry 1824).
Human remanins were discovered in the digging of an ornamental fish pond to the south of the bungalow and *c.* 100 m to the south-west of St Mary's Church tower. The fish pond was cut to a depth of one metre over an area of some two square metres. At a depth of 0.3 m below the present garden level a cutting into a friable broken chalk or Coombe rock was recorded. This cutting was infilled with chalky clay silts and its northern edge ran approximately east-west. This contained the disarticulated remains of at least three adults. These occurred in three groups with the long bones laid along the cutting.

Post medieval pottery and glass were recorded above the cutting and a single iron-nail from the infill. No medieval pottery was recovered from the site which was at a level of several metres above the present road level of Churchill.

Green, P., 'Greening's Court, High East Street' in R A H Farrar (ed.), Archaeological Notes and News *PDNHAS* 92, 137.
RCHM, 1970 Royal Commission on Historical Monuments, *Inventory of the Historical Monuments in the County of Dorset, Volume II South-East.*

Peter J. Woodward
Dorset County Museum

PORTMAN HOUSE, DURWESTON

Observations of a topsoil strip for a new access road to Portman Lodge (ST 8605 0860) during April 1994, revealed the top level of a flint bank or causeway and the remains of a mortared wall, neither of which contained any datable artefactual evidence, but which are considered likely to be medieval or post-medieval in date.

Andrew Weale
AC *archaeology*

BRACKENDENE, EAST STOKE

Observations during the excavation of footings for a new garage at Brackendene, East Stoke (ST 871 861) during September 1994, recorded a ditch which contained 16th–17th century pottery.

Peter W. Cox
AC *archaeology*

CHURCH CLOSE, FONTMELL MAGNA

The site is in the historic core of the village, just north of the parish church (ST 8649 1708). Observation took place in September 1994 during groundworks for the building of a pair of semi-detached cottages. The site had a moderately steep north facing slope, which had been levelled for the development. The sections of foundation trenches showed 0.15 m of topsoil overlying a layer of medium greyish brown silty loam, which was at least 1.6 m deep. Patches of lighter brown silty loam (?redeposited natural) and of burnt clay were noted within the layer. The layer is interpreted as hillwash. Two sherds of pottery (coarseware of *c.* 13th century date — identified by L. Keen) recovered from it indicate that at least part of the layer accumulated in the later Middle Ages.

Steve Wallis
Dorset County Council Archaeology Service

FURTHER MONITORING OF A37 ROAD IMPROVEMENTS, NEAR THE CLAY PIGEON CAFE, FROME ST. QUINTIN

A watching brief was carried out during the improvements to the A37, near the Clay Pigeon cafe (SY 608 028) during February and April 1994. Monitoring of the topsoil stripping revealed no archaeological features or finds.

Jacqueline Dodd
AC *archaeology*

HAMBLEDON HILL

As part of work to ensure archaeologically sensitive areas on the hill near the hillfort could be used for pasture instead of arable farming, a water supply to the hilltop was necessary. Mr P. Gosling of English Heritage arranged for the pipe-laying to be carried out under archaeological supervision. The pipe was laid on a single day in August 1994, and the archaeological work was carried out by the author.

The pipe ran uphill from ST 8471 1168 to ST 8495 1176. Two undated archaeological features were recorded, both close to ST 8485 1170. One was a ditch, possibly associated with the other Neolithic enclosure (Dorset Sites and Monuments Record — Iwerne County no. 19), the other a post-hole or small pit.

Steve Wallis
Dorset County Council Archaeology Service

HUMAN REMAINS FROM MANOR FARM COTTAGES, LITTON CHENEY

In June 1994, human skeletal remains were discovered during building work to the rear of Manor Farm Cottages, Litton Cheney (SY 5530 9074). The landowner, Mr R. Cuzens, contacted the Dorset County Council Archaeology Service, and a site visit was made. The remains were not seen *in situ*, but they had been retained for examination on site and it was also possible to examine the find spot which had been partly destroyed by trenching. The examined bones represented the upper parts of an adult skeleton which had been deposited in a crouched position in a small pit. The robustness of the skull in particular suggested that the individual may have been male. No dating evidence was recovered, and the pit appeared to have been truncated by landscaping, the area having been gardens for many years before development. It is tempting to link this find with a Romano-British rubbish pit found in 1965 during the construction of a reservoir and located a little way to the east (Bailey 1966 and 1982 p. 46). The remains were reburied on site.

Baily, C.J., 1966, 'A Romano-British rubbish pit at Litton Cheney', *Proceedings of the Dorset Nat. Hist. and Archaeol. Soc.*, 87 (1965), 91–92

Bailey, C.J., 1982, *The Bride Valley.*

Claire Pinder
Steve Wallis

BARTON HILL, SHAFTESBURY

Observations during the groundworks for a new building development at Barton Hill, Shaftesbury (ST 865 231) during June 1994, recorded the presence of ten medieval rubbish pits.

Julian Cotton
AC *archaeology*

CHURCH LANE, SUTTON WALDRON

A watching brief was carried out in November 1994, during the excavation of the footings trenches for the two new buildings on land off Church Lane, Sutton Waldron (ST 8650 1575). No archaeological deposits or finds were present.

Andrew Weale
AC *archaeology*

SCRATCHY BOTTOM, WEST LULWORTH

Scheduled Monument Consent for the excavation of two trenches for the laying of drains with this scheduled 'Celtic' field system (S.A.M. Dorset M762 — Dorset Sites and Monuments Record — West Lulworth no. 62) was granted on condition that archaeological observation and recording was carried out by the D.C.C. Archaeology Service. One trench, at about SY 800810, cut through two undated features, one probably a ditch, the other a chalk quarry. The second trench, running between *c.* SY 8036 8087 and *c.* SY 8050 8092 cut through a thin topsoil overlying a deep layer of hillwash.

Steve Wallis
Dorset County Council Archaeology Service

BEARWOOD PRIMARY SCHOOL, WHEELER'S LANE, POOLE

A watching brief was required during topsoil stripping to prepare a playing field at Bearwood Primary School, Wheeler's Lane, Poole (SZ 0455 9675).

A pattern of linear features was noted and interpreted as part of a field system previously recorded at the site. The system had already been dated to the Late Iron Age and early Romano-British period on the basis of a field system known immediately to the west at White's Pit. The discovery of Late Bronze Age finds in the current work suggests that these field systems may not all be contemporary.

The poor conditions for detection and investigation of potential features hindered the interpretation of the observations. The alignment and spacing of the linear features matched those observed during an evaluation in 1992 and a watching-brief in 1993. This pattern also accords with the linear features encountered at White's Pit to the west (D.R. Watkins *pers. comm.*). The features recorded during the watching brief may also represent field boundaries; some of which may also have been droveways for livestock.

The ditches identified during the watching brief are likely to be part of the same system as that previously recorded at the School. No firm dating evidence was recovered in that work, only a single unstratified Late Iron Age sherd was found. In view of the Iron Age /Romano-British date ascribed to the field system in White's Pit, the ditches at Bearwood School were tentatively suggested to be of that date. However, the pottery from ditch 103 in the current work suggests that a Late Bronze Age date is possible and that what was originally thought to be a single field system may be parts of an archaeological palimpsest. Three Early Bronze Age barbed and tanged flint arrowheads were recovered as residual finds in later contexts during the excavations at White's Pit (D.R. Watkins *pers. comm.*).

It may be suggested, with reasonable confidence, that the linear features encountered during all phases of investigation in the area of the primary school represent a single system. However, the date of that system is uncertain and it is not clear whether it is a continuation of the one recorded in White's Pit.

A.P. Fitzpatrick
Wessex Archaeology

22 FRONT STREET, PORTESHAM

Observations of footing trenches for a new housing development at 22 Front Street, Portesham, during February 1994 revealed no archaeological features or finds.

Jacqueline Dodd
Ac *archaeology*

RINGSTEAD FARM, RINGSTEAD

Archaeological monitoring of an excavation for a new silo at Ringstead Farm (SY 746 822) in April 1994 revealed deep deposits of hillwash. No archaeological features were noted, while only a few fragments of worked flint and a single piece of prehistoric pottery were recovered from within the hillwash sequence.

Jacqueline Dodd
AC *archaeology*

MAGNETOMETRY SURVEY, SHAPWICK ROMANO-BRITISH SETTLEMENT

Remains of Romano-British buildings were identified at Shapwick in 1990 (Papworth 1990, 117). Recent work has concentrated on determining the extent of the site.

In 1993 and 1994 the National Trust commissioned Geophysical Surveys of Bradford to carry out a magnetometry survey on areas of the site north of Shapwick village. In all 6.5 hectares of the site have been surveyed.

In 1993, two hectares were examined on the south-east side of the Shapwick road. The survey revealed a dense concentration of features along the line of the Dorchester Roman road. The features are concentrated on either side of the road. Many features also lie on the alignment of the road itself and must date to a period before or after the road was in use.

The three ditches of the rectangular enclosure, which is believed to be a Roman fort, clearly ignore the road alignment. The survey shows the entrance through the enclosure ditches at its south-west corner. The greatest concentration of features is at the north-east end of the fort. This concentration appears to be contained by a curving ditch-like feature which also ignores the road alignment. This may be evidence of pre-Roman activity on the site.

In 1994, a further 4.5 hectares was surveyed on the north-west side of the Shapwick road. The plot shows the alignment of secondary roads and a series of contiguous enclosures defined by ditches containing numerous pit-like features and larger anomalies thought to be the floors of buildings. Further east, linear areas without features define other rectangular concentrations of magnetic anomalies. These blank areas may represent the positions of tracks between properties. The plot appears at first to show at least five property divisions on each side of a road which leads towards the south-west entrance of the triple ditched enclosure (fort).

Four ring ditches shown on the plot may be the sites of Bronze Age round barrows.

When the geophysical results are plotted with features shown on aerial photographs, the site appears to represent a settlement covering approximately 25 hectares. Furtther occupation evidence probably lies beneath modern Shapwick. Shapwick High Street follows the alignment of the Dorchester Roman road south-west to within 100m of the north bank of the River Stour.

Martin Papworth
The National Trust

Papworth, M., 1990, 'Romano-British building remains at Shapwick' *Dorset Proceedings*, Vol 112, p. 117.

Papworth, M., 1991, 'Excavation of Romano-British Building Remains at Shapwick', *Dorset Proceedings*, Vol 113, p.172.

STRATTON HOUSING DEVELOPMENT

A watching brief took place during the excavation of foundation trenches for a new housing development in Stratton (SY 653 937), during October and November 1994. A ditch and pit containing medieval pottery were recorded. Pottery fragments of a post-medieval date were also noted. Phase II of the project is due to continue in 1995.

John Valentin
AC *archaeology*

BLANDFORD CAMP, TARRANT LAUNCESTON

Archaeological monitoring was carried out in November 1994 at Blandford Camp, Tarrant Launceston during the initial clearance for the construction of two new structures, at ST 9150 0874 and ST 9245 0915. No archaeological features or artefacts were recovered from ST 9150 0874. A series of modern subsoil features were noted at ST 9245 0915, but no deposits of archaeological interest were present. Two fragments of pottery were recovered from the topsoil at the latter site, both are of Romano-British date.

Peter W. Cox
AC *archaeology*

EAST WALLS, WAREHAM

A watching brief was carried out in November 1994 at East Walls, Wareham (SY 92658765) during water main laying. The monitoring of the trench revealed the humic fill of the Walls ditch, the upper level of which had been disturbed in modern times. The yellow sand and gravel rampart was overlain by a thin layer of dark soil. This is consistent with findings at West Walls where the rampart was constructed from material thrown up from an external ditch (RCHM 1972).

Underneath the rampart on the base of the pipe trench was a dark amorphous spread approximately one metre in extent within which were numerous fragments of burnt flint and charcoal. Five very small abraded sherds of Iron Age pottery were retrieved.

R.C.H.M. 1972 *Dorset Vol II, South East Part 2.*

Lilian Ladle
28 Worgret Road
Wareham
Dorset BH20 4PN

WIMBORNE MODEL TOWN II

A watching brief was carried out in October 1994 during the excavation of foundation trenches for a housing development at the former model town site, Wimborne (SZ 008 999). The site was evaluated in 1991, when medieval and post-medieval features were identified (Cox 1992). A number of linear features were recorded during the watching brief, probably former property boundaries. These contained predominantly post-medieval artefacts. No features or deposits of medieval date were identified.

Cox P.W., 1992, 'Excavations at the former site of the Wimborne Model Town, 1991', *Proc. Dorset Natur. Hist. Archaeol. Soc.* 114, 145–150.

Dave Hambleton
AC *archaeology*

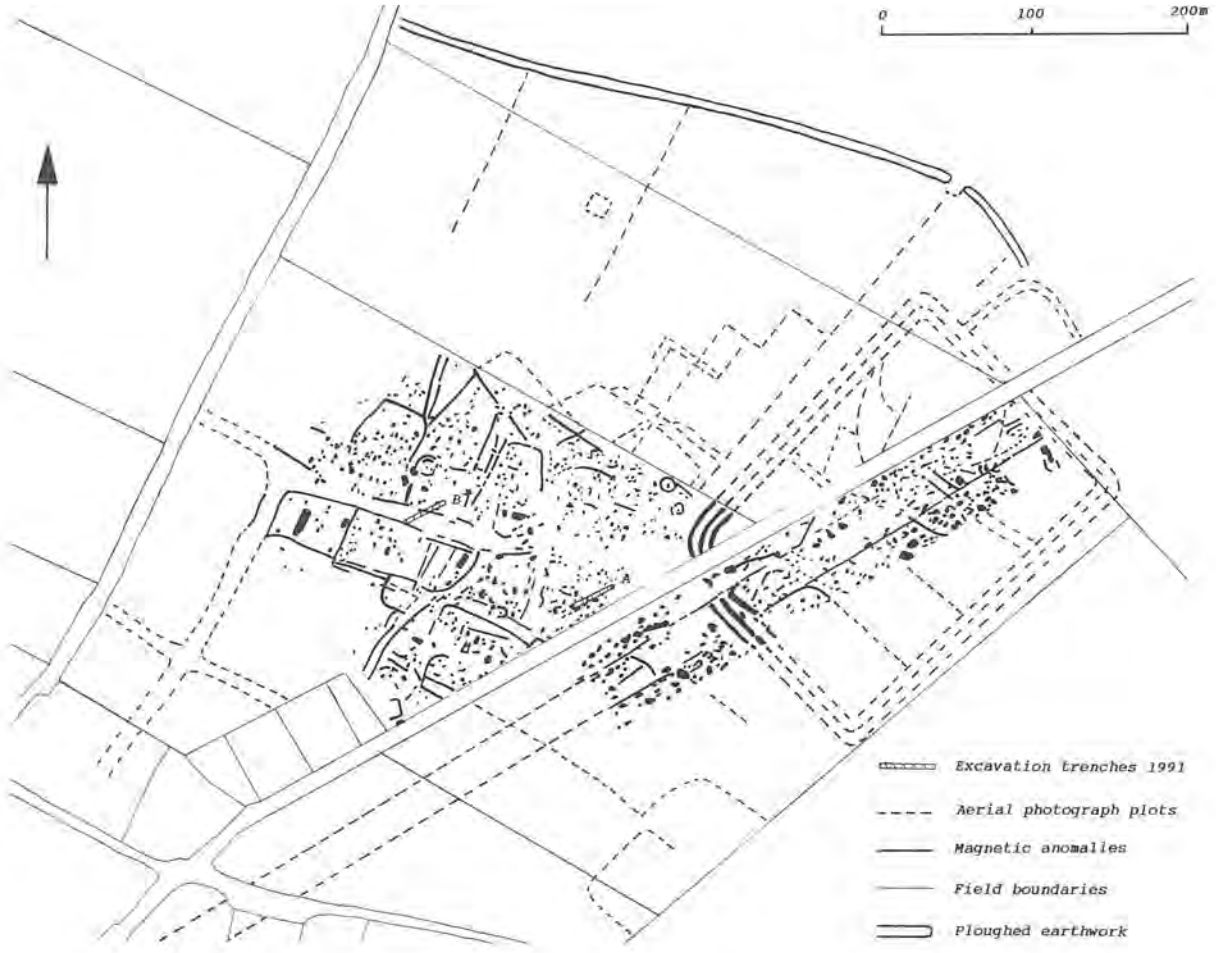


Figure 4 Shapwick Roman Settlement, plot of magnetometry survey (Geophysical Surveys of Bradford) and features shown on aerial photographs (ST9402/2-6)

Shorter Contributions

AMENITY LAKE AT WEST STOUR

Following the construction and subsequent collapse of the banks of this lake (ST 770226) during 199293 (Ross 1992a), there has only been limited opportunity to examine the site for unstratified prehistoric flint material, associated with the Mesolithic site previously described, which lies to the north-west and south-west (Ross 1987).

However, in 1994 some reconstruction of the lake was undertaken by creating a wide platform on the steep upper bank to restrict soil movement, and grass-seeding of all the banks. In doing this, the lake was reduced to a rough wedge-shape, approximately 55 m long and 25 m at its widest, with the previous Oxford Clay lining mostly covered by a pale brown clay, probably from the Hazelbury Bryan formation above. Water was approximately 1 m deep at the southern end, becoming gradually more shallow to the north but covering only half the total width (December 1994). There was little water flowing in and no tufa was observed, which had been a feature of the original site in 1987.

Flint material collected which includes that already detailed (Ross 1992a, 2489), is as follows:

WS 92 (6) 1 Mesolithic blade; 1 crested blade; 1 core rejuvenation flake, 12 flakes; 26 chips with microblade fragments.

WS 93 (6) 1 convex scraper; 1 thumb-nail scraper; 2 trimmed flakes; 1 trimmed chip; 14 flakes; 36 chips with 7 bladelet fragments.

WS 94 (6) 1 knife; 8 flakes; 10 chips.

WS 94 (6a) 1 utilised flake; 1 chip; 1 bladelet fragment.

WS 9294 Calcined flint 2 pot-boilers; 13 fragments.

It was originally thought that the steep slope of the Corallian escarpment had been cultivated as lynchets, but Dr. Bristow of the British Geological Survey suggested that this appearance was due to the belt of landslip extending along the scarp (pers comm). However, seven sherds of abraded medieval pottery were collected which might indicate some agricultural use.

Pottery, typical of that found at Kington Magna (Ross 1985 and 1992b) is as follows:

WS 934 (6) 2 sherds fairly frequent, irregular, sub-rounded quartz grains with occasional flint; buff colour or paler with grey core. 1 sherd with red slip and trace green glaze. 1 rim; 1 base; 1 sherd, finer, hard, well-fired, quartzitic fabric, brown, grey core.

Archive All artefacts marked WS (6) will be stored in the Dorset County Museum.

Merry. S. Ross

Ross, M.S., 1985, 'Kington Magna: a parish survey', *Dorset Proceedings*, Vol. 107, 23-46.

Ross, M.S., 1987, 'Kington Magna and Surrounding Areas: A Fieldwalking Survey of the Prehistory (1979-1987)', *Dorset Proceedings*, Vol. 114, 91-103.

Ross, M.S., 1992a, 'Amenity Lake at West Stour', *Dorset Proceedings*, Vol. 114, 248-9.

Ross, M.S., 1992b, 'Medieval Settlement at Kington Magna, Dorset', *Dorset Proceedings*, Vol. 114, 261-3.

LATE BRONZE AGE 'RING-MONEY' FROM TARRANT RUSHTON, DORSET

This penannular but not quite circular object has, from corrosion deposits just visible, a round, solid copper core which is covered with beaten gold foil overlapping each flat end with three small tongues. The thickness of the foil is not shown by X-ray photography. The maximum overall dimensions are 16 mm by 17 mm and the ring is 6 mm in diameter. Only scientific analysis could demonstrate the quality of the gold.

Penannular rings of this kind are conventionally called 'ring-money' and at least 151 are known to exist in the British Isles (J.J. Taylor, *Bronze Age Goldwork of the British Isles*, Cambridge University Press 1980, 64). They are well known with cores of copper, tin or lead and ten from Covesea, Morayshire, with foil over bronze or copper cores are good parallels (ibid., 65, 923 (Mr-10), 189 and Pl. 33 e-i). This is a very interesting piece for Dorset, where no similar items exist.

The find spot is far away from any known archaeological site. It may be a casual loss or may reflect the presence of a ploughed-out barrow. Further archaeological field-work might establish if the latter is the case.

Laurence Keen
Dorset County Council Archaeology Service

THE 'FRAMPTON VILLA', MAIDEN NEWTON : A NOTE ON THE MONUMENT AND ITS CONTEXT.

The famous series of pavements discovered in Nunnery Meadow and published by Samuel Lysons in 1813 have received considerable reappraisal of their iconography (Barrett 1977, Stupperich 1980, 298, Henig 1984). This note is to outline some features of the structure and its setting, these observations resulting from visits to the site in the early 1980's.

The mosaic site earthworks presently visible northwest of Frampton and just within the parish of Maiden Newton lie on the flood plain of the Frome, surrounded by the slighter banks and ditches of the watermeadows (Farrar 1956). Farrar remarked that such a location was unusual but this may need modification in the light of recent unpublished discoveries of what appear to be villas at Grimston in the Sydling valley and at Minchington and elsewhere in the Gussage valley.

The visible hump (centred at SY 61599531) undoubtedly represents the structure recorded by Lysons, albeit the perhaps denuded remains of a once larger structure. Observation of ditch cleaning operations in 1980 revealed a thin spread of mortar and building debris in the side of the ditch bounding the field, 20m south west of the earthwork (SY 61569529). To the south, a layer of chalk rubble had been exposed in this ditch, continuing for perhaps 30 m towards the south corner of the field (centred at SY 61599524). Both these deposits lay in the upper 0.5m of the section, sealed by the turf and humus of the meadow. Further traces of rubble were noted along the south-eastern boundary of the field, 40m south east of the southern end of the earthwork, the hedge here marking approximately the line of the parish boundary (centred at SY 61629525).

Further afield, a fragment of flue tile was found beneath 0.2m of topsoil in an exposure on the north-west bank of the Frome at SY 61769534, but this appeared to be an isolated find from observation of the scarp which extends from the point where the parish boundary meets the river south east to Hyde Farm.

Other features of the site should also be remarked. Firstly,

a brief examination of the line of the parish boundary revealed some further features on its general alignment. As already noted the field boundary south east of the villa marks the approximate line of the parish boundary but where it meets the copse of trees 50m east of the eastern end of the villa earthwork the boundary diverts to the east to follow the southern margin of the wood before turning north to follow a side stream of the Frome for a short distance and then resuming the north- eastern alignment towards the main river channel. Within the woodland a slight bank approximately 5m wide was observed for 20m, this earthwork lying on the north-east south-west alignment maintained elsewhere along the boundary (SY 61659530 - 61669531). North east of the side stream, extending as far as another side stream running along the south side of the main river channel, a further small copse lay astride the boundary. Here the latter's line coincided with a similar slight bank which, on the side closest to the river, could, with difficulty, be seen in section to be largely composed of gravel.

On the opposite bank of the river the ground rises from the Frome flood plain towards the A356 Frampton-Maiden Newton road, 270m distant. The parish boundary continues to the north east, marked here by a prominent hedged bank flanked by a hollow way 5m wide on the south east side.

At the one point where the material of the bank was exposed it could be seen to again consist of gravel (SY 61789550). Other traces of slight earthworks, perhaps earlier field boundaries, adjoin the hedge on either side, while nearer the road the surface of the field on the south east was disrupted by signs of quarrying.

Whether this monument represents any more than a physical marker of post-Roman date created on the parish boundary cannot be decided from this cursory examination but it should be noted that the parish boundary continues in a north-easterly direction to terminate at the Dorchester-Ilchester Roman road near Hyde Crook (SY 62559640). The possibility should be entertained that at least this section of boundary as far as the Frome valley follows a pre-existing road leading to the villa, the low gravel bank representing remains of the metalled surface. On topographical grounds, however, a route leading down the Frome valley towards Dorchester and converging on the main road at Grimston would seem more likely.

Secondly, a feature on the flood-plain of the Frome south-west of the mosaic earthwork should be remarked. An irregular rectangular field here adjoins the earthwork field, separating it from the valley side rising on the south west. Throop Dairy House adjoins this field at its north west end, the parish boundary follows the irregular south-eastern end. This field has no sign of regular canalisation for water meadows but a shallow circular hollow does exist at its south-eastern end (SY 61569523) leading into a narrow, shallow gully heading south out of the field. Here the latter links with the existing stream. When noted in the spring of 1980 this feature was filled with lusher grass and, in the hollow, water could be seen to be bubbling from the ground, as if this was the site of a spring.

Although the water-table may have altered since the Roman period the existence of a water source is of some significance for the mosaic structure some 70m to its north-east. It should also be noted that the traces of building debris noted above south-west of the main earthwork lie on the margin of this field, only 50m to the north of this spot. The building material suggests, at the very least, debris spread from the main structure and, possibly, indicate the position of other buildings in its vicinity.

Whether the Nunnery meadow building represents a normal villa, functioning as the centre of an agricultural estate, and served by other structures in its vicinity, or is a temple, as first proposed by Lysons, depends on establishing the true extent of the structure and whether, for instance, others were levelled in the course of laying out the meadows. Certain past finds raise tantalising questions about the main building; Baddeley's report of a column fragment 2ft 6ins in diameter need not derive from some substantial columnated building but be a section of a single column, for instance, a Jupiter

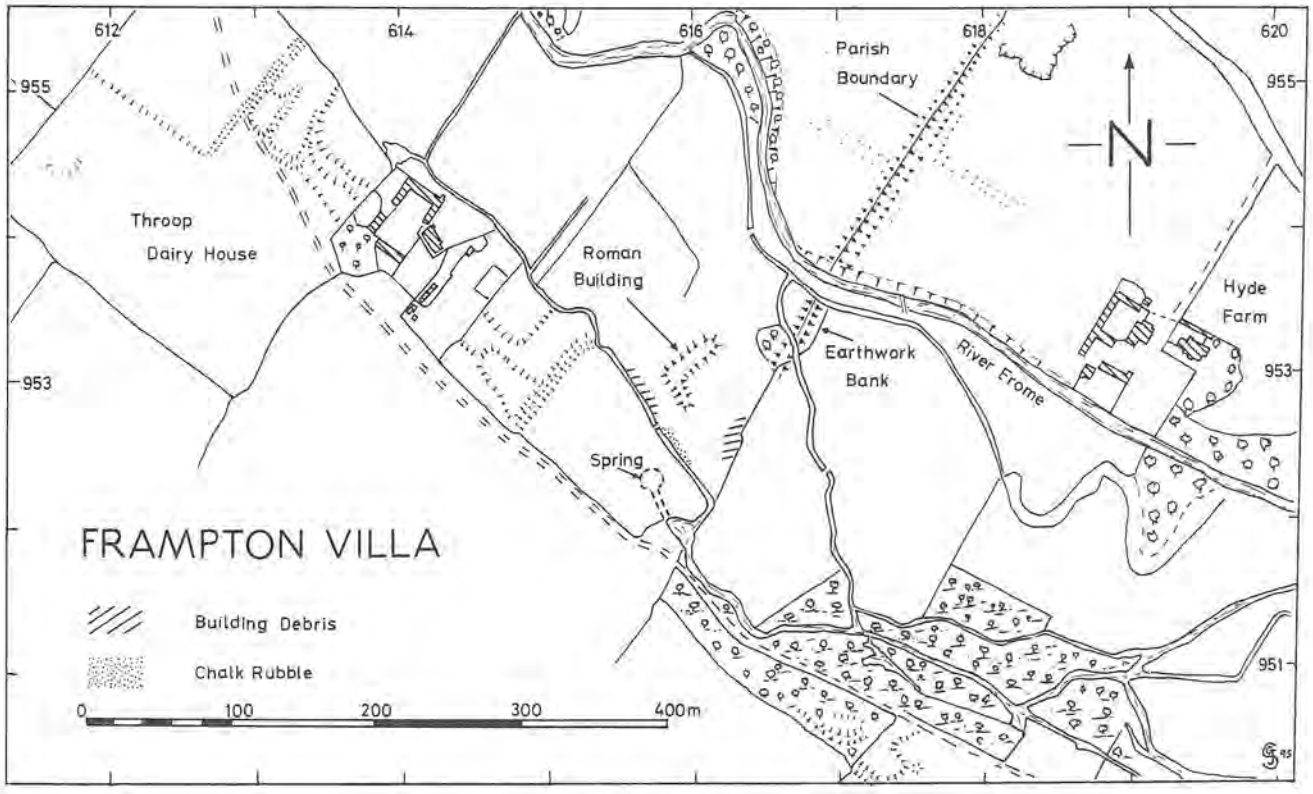


Figure 1. The Frampton villa.

column (Farrar 1956, 83). If the existence of such an object could be confirmed it would raise again the issue of a religious function for the building, a proposal revived most recently by Henig (1984, 146). Jupiter, however, played only a small part in the scheme of floor decoration. The possible water source could also be relevant, although a small spring might have served merely domestic needs.

A spring here, set on the western side of the Frome valley, also has a bearing on the issue of Dorchester's water supply, the subject of recent fieldwork and discussion (Putnam 1992 and 1993). Although the upper source of the aqueduct is uncertain and the physical remains of the channel have proved elusive in recent survey beyond Muckleford, work at Poundbury nearer the delivery point has suggested that the channel went through at least three phases of construction from the first century and held water, from whatever source, as late as the fourth century (Green 1987, 49-51). The major potential water sources exist beyond Muckleford and this Frampton spring would lie at approximately 84m OD, on the right level to have fed the confirmed channel nearer Dorchester, if falling at a gentle gradient. As already noted, before joining an existing stream, the visible hollow led into what appeared to be a silted channel heading down the valley. The earthworks of the presumed deserted medieval village at Southover, downstream from this site, and the landscaping of the site of the Benedictine priory in Frampton Court are likely to have erased any surface trace of a Roman channel in the two kilometres to the southeast. Furthermore, the provision of a water supply to the priory could also have entailed major alterations to the gradient of any pre-existing channel that was then re-used; this could account for the reverse gradient noted in the Metlands Wood channel (Putnam 1992, 239). The lack of success, however, in identifying any trace of a channel in the Muckleford area to the south-east does militate against a source - or sources - in the Compton Valence and Frampton region, unless recent land use of the southern chalk scarp along the Frome valley has been so drastic as to have erased the channel at the points recently tested.

The above is intended simply to draw attention to some features of the Frampton site's topography not previously remarked. The conjunction of an exceptional Roman building with a possible access road and a spring site, perhaps serving as a source for an aqueduct, would form a complex deserving detailed survey to understand its internal layout and to set it in the context of its contemporary landscape and the later medieval land use. Its setting adjacent to the earthworks of a deserted medieval village pose questions as to the origins of the latter.

Christopher Sparey-Green

Barrett, A.A., 1977, 'A Virgilian scene from the Frampton Roman Villa', *Antiq. J.* LVII, 312-4.

Farrar, R.A.H.,1956, 'Archaeological Fieldwork in Dorset in 1956; The Frampton Villa, Maiden Newton SY 616953', *Procs Dorset Natur Hist Archaeol Soc* 78, 81-3.

Green, C.J.S., 1987, *Excavations at Poundbury, Volume I: The Settlements*, Dorset Natur Hist Archaeol Soc monograph 7.

Henig, M., 1984, 'James Engleheart's drawing of a mosaic at Frampton, 1794, *Procs Dorset Natur Hist Archaeol Soc* 106, 143-6.

Lysons, S, 1813, *Reliquiae Britannico-Romanae*, I, 3.

Putnam, W.G., 1992, 'Fieldwork and excavation on the Dorchester Roman Aqueduct, Summer 1992', *Procs Dorset Natur Hist Archaeol Soc* 114, 239-40.

Putnam, W.G., 1993, 'Fieldwork and excavation on the Dorchester Roman Aqueduct, Summer 1993', *Procs Dorset Natur Hist Archaeol Soc* 115, 152-53.

RCHM, 1970, *Historical monuments in the County of Dorset II, part 3*.

Stupperich, R, 1980, 'Reconsideration of some Fourth Century British Mosaics', *Britannia* 11, 289-301.

A ROMAN MEDICAL INSTRUMENT FROM DORCHESTER

In 1850, a bronze instrument was displayed at a meeting of the Archaeological Institute in London by the Rev. C.W. Bingham. The object was described as a '...pair of forceps...recently dug up in excavating for the foundation of a house at Dorchester, not far from what is usually considered to be its Roman wall' (proceedings of meeting, April 5th, 1850. *Archaeol. Journ.* 7, 172189 and 185). The association of personal and place name allows us to identify this gentleman as the Rev. Charles Bingham and the place as Dorchester, Dorset, since the Rev. Bingham was, with William Barnes, the first joint secretary of the Dorset County Museum and closely involved in its foundation in 1845.

From the accompanying illustration and description, the object can be identified as a pair of uvula clamps or staphylagra, the first such specialised medical instrument to have been recovered from the town. The object does not seem to have entered the collections of the Dorset County Museum and is not, for instance, mentioned by Moule in his description of finds from Dorchester (Moule 1906, 7188). Moule does describe 'aurist's' instruments including 'Br 185', described as 'like a gouge 1 in across but with blunt, notched edge producing a curved, serrated impression' but this does not accord well with the present implement.

The find spot is unspecific and could imply anywhere on the defensive circuit known in the mid 19th century, from Colliton Park on the north-west, to the West or South Walks or even Salisbury Fields on the east. In the period immediately before the first notice of this object, however, very little construction work had taken place immediately outside the line of the wall and the only houses set close to the rear of the defences would be those in the northern part of West Walks. This area is also close to the surviving section of stone wall and so would accord with the description as 'not far from what is usually considered [the] Roman wall'. Although sets of medical instruments have occurred as gravegoods or hoards (Kunzl, 1983) such a context here seems inlikely in view of the probable findspot and the lack of other implements; the implement is best seen as a casual loss in antiquity within the urban settlement.

The object is described as about nine inches long (220 mm) and of well-painted bronze. The drawing published in 1850 shows the double handles were plain, save for delicate baluster mouldings at their terminals. The hollowed jaws of the clamps, with their fine inter-locking teeth extending round two sides of each rather square valve, are illustrated in a detail drawing. The main drawing omitted details of the scissor-like hinge and distorts the angle of the forcep valves to the plane of the hinge, so the opportunity is taken to publish here a reconstruction drawing, based in part on other examples (Sorel 1984, pl. 17s; Jackson, 1988, pl. 32).

Such implements occur but rarely in Britain and are not well represented in Kunzl's survey, those from Paris being the only close parallels, at least from a funerary context (Kunzl 1983, 75, fig. 50, 15 and 16). The Paris find was of two very similar pairs of forceps, but with more elaborate mouldings on the handles, forming part of a set of medical instruments from a grave of the late 3rd century (Sorel 1984, pl. 17s, 228, pl. 133c). The scissor-action forceps of this type should be distinguished from the coudee type as recently discovered at Littleborough on Trent (Jackson and Leahy 1990). As Jackson outlines, such implements had a dual usage, both for throat operations, the removal of inflamed uvula, and for the strangulation and crushing of haemorrhoids (Jackson 1988, 1245).

The identification of such an object in Dorchester casts a little more light on the level of medical care available and is an interesting reflection of the very different evidence from Poundbury for the presence of competent trained doctors in

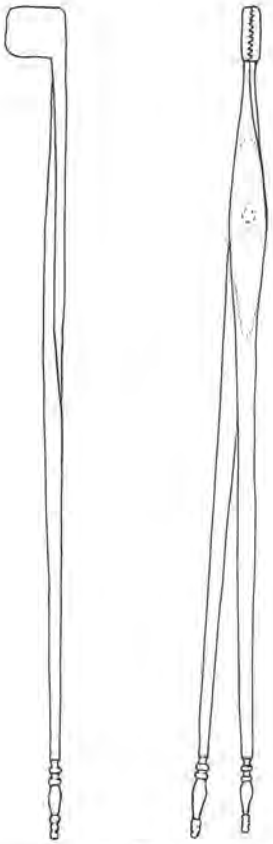


Figure 2. The Roman medical instrument from Dorchester at ½ life size.

the Roman town (Farwell and Molleson 1993, 142-206; Molleson and Cox 1988).

Christopher Sparey-Green

Farwell, D.E. and Molleson, T.I., 1993, *Excavations at Poundbury 196680, Volume II: The Cemeteries*, Dorset Natur. Hist. and Archaeol. Soc., Monograph 11.

Jackson, R. and Leahy, K., 1990, 'A Roman surgical forceps from near Littleborough and a note on the type', *Britannia* 21, 271-4.

Jackson, J., 1988, *Doctors and Diseases in the Roman Empire.*

Kunzl, E., 1983, 'Medizinische Instrumente aus Sepulkralfunden der Römischen Kaiserzeit', *Bonner Jahrbucher* 182 (1982), 1-131.

Molleson, T.I. and Cox, M., 1988, 'A neonate with cut bones from Poundbury Camp', *Bull. Soc. Roy. Belge. Anthrop. Prehist.* 99, 53-59.

Moule, H.J., 1906, *Dorchester Antiquities*, Dorchester

Sorel, P., 1984, 'Une trousee de médecin du IIIe siècle trouvée à Paris' in *Lutece, Paris de Caésar à Clovis,* Paris, 212, pl. 17; 22632, pl. 133A-D.

THE IMPACT OF THE REFORMATION IN DORCHESTER

A traveller passing through Dorchester during the early sixteenth century could hardly have failed to notice the dominant position of the Church in the town. He would have been impressed by the three fine parish churches along the main thoroughfare, by the large and ancient church of Fordington with its dominating tower, as well as by the church of the Franciscan friary on the banks of the Frome and by the hospital or almshouse of St John the Baptist in Glyde Path. The architecture and furnishings of the churches bore witness to the wealth and to the piety of the townspeople. Less obvious was the fact that as well as the numerous houses, shops and inns belonging to the churches and whose rents supported the towns religious establishments, there was a good deal of other Church property in Dorchester, including houses belonging to the abbots of Abbotsbury, Cerne, Milton, Christchurch and Bindon, to the hospital or Commandery of the Knights of St John of Jerusalem of Friar Mayne and to the parish churches at Warmwell and Netherbury.[1]

The population for whose spiritual needs these various churches catered was small by modern standards, in spite of the fact that Dorchester was the county town, with the Assizes and county gaol, and that its weekly markets and annual fairs were vital to the economic life of the surrounding area. Sources such as the Lay Subsidy Roll of 1524-25 and the Muster Rolls of 1539-42, suggest that there were about 1,200 people in Dorchester and a further 800 in Fordington. Considerable amounts of open land remained within the medieval boundaries of Dorchester, and John Speeds beautifully-drawn map of 1610-11 shows large areas of garden and pasture in the town.[2] None of the few surviving documentary sources suggest that the Church was at all unpopular in Dorchester during the early decades of the sixteenth century, or that there was any support for the anti-clerical views or reforming opinions which were to be found in some other parts of the country. Bequests continued to be made to the churches and the Franciscan friars continued to be held in high esteem. The friary had been founded in the thirteenth century, and the irregular group of buildings including the friary church occupied the low-lying land along the banks of the Frome on the north side of the town.[3]

Unlike many English friaries on the eve of the Reformation, the Dorchester friars were not in financial difficulties. The management and rents of the almshouse of St John the Baptist in Glyde Path had been entrusted to the friars by Richard III in 1483, and they also possessed several tenements in Dorchester. In 1485 the wealthy landowner, Sir John Byconil, whose estates included lands in various parts of Somerset as well as in Dorset, granted to the friars his mills on the Frome downstream from the friary in return for their prayers. Sir John, who lived at South Perrott, had been sheriff for Dorset and Somerset in 1472 and had also represented both counties in Parliament. His bequest to the friars of Dorchester in 1485 stipulated that he was to be prayed for daily by the friars on account of the first erecting of the mills upon our water, the chief founder of this place, and also that part of his endowment should be used towards bringing boys into the order, and their education in good manners and learning In 1500 Sir Johns widow, Elizabeth, made a further bequest to the Dorchester friars.[4] Likewise in 1510 John Coker of Dorchester gave a barn and garden to the friars for the enlargement of the area south of their cemetery.[5] In making their wills, the townsfolk of Dorchester continued until the Dissolution to leave small sums to the friars in return for their prayers, and even William Middleton, who was abbot of Milton Abbas for 43 years from 1482 to 1525, and who was responsible for so much fine building work at the abbey, left an annual grant of alms to the Franciscan friars of Dorchester.[6]

The parish churches had been expensively enlarged and beautified during the fifteenth and sixteenth centuries, St Georges church at Fordington and St Peters in Dorchester both had fine new towers, and all the churches were

1. J. Hutchins, *History of Dorset,* 3rd. Edition, 1861-70. II, 334-40; *Valor Ecclesiasticus,* Record Commission, 1810-34, I, 251; C.H. Mayo, *The Municipal Records of the Borough of Dorchester,* 1908, xxx-lxvii; Dorset Record Office, PE/NBY/Ch 10, 12, 14.
2. P.N. Dawe, ed., Dorset Lay Subsidy Rolls, *Somerset & Dorset Notes & Queries,* xxvii, 1961, 92-3, 108-110; T.L. Stoate, *Dorset Tudor Muster Rolls 1539, 1542, 1569,* (Almondsbury) 1978, 73-4.
3. *Victoria County History: Dorset,* II, 1908, 93-4; J. Hutchins, *op.cit.,* 365.
4. *V.C.H. Dorset,* II, 101-2; *Somerset Archaeological and Natural History Society Proceedings,* XXXIX, 1893, 34-42; XL, 1894, 209-26.
5. J. Hutchins, *op.cit.,* 365-6.
6. *Valor Ecclesiasticus,* I, 251; C.H. Mayo, *op.cit.,* 551, 579, 591.

beautifully furnished and decorated. The chantries, guilds and fraternities which were associated with each church played a crucial part in the social and charitable life of Dorchester and Fordington, as well as contributing lavishly to the splendour of the churches and the opulence of their furnishings. At Holy Trinity there were two fraternities as well as a chantry foundation which had been liberally endowed with lands and properties by the Seward family in 1401. Its possessions included a house for the chantry priest and a hostelry known as the New Inn.[7] All Saints church had a fraternity dedicated to Corpus Christi, while at St Peters there were fraternities of the Holy Cross, Corpus Christi and the Blessed Virgin Mary, the latter being especially wealthy having its own chapel within the church and possessing twenty-two houses and other property in Dorchester.[8] The fact that people continued to remember the churches and fraternities in their wills and by gifts is evidence of their hold on popular feeling and role in the religious life of the town. For example, in 1528 when Edith Hakeney, widow of Richard Hakeney of Dorchester, sold two burgage tenements on the corner of Durnlane in the parish of All Saints to William Wade of Dorchester, saddler, she specified that in addition to the price paid by William Wade he should also

> yearly for ever more after the decease of the said Edith ... hold and maintain an obit (i.e. anniversary mass) in the parish church of All Hallowen of Dorchester aforesaid, especially to pray for the soules of the said Richard and Edith, and for the souls of William Stoyth and Julyana, father and mother of the said Edith ....[9]

Similarly, Margaret Auden, widow, who died in 1539 left 3s 4d per annum for twenty years to the churchwardens of All Saints church so that anniversary masses should be celebrated for her soul with appropriate offerings and tolling of bells as is accustomed to be done for the dead.[10] Clearly, for Edith Hakeney and Margaret Auden, in common with many others in Dorchester, the parish church was central to their religious life and masses for the repose of their souls were worth a great deal to them.

Earlier evidence for the splendour of the furnishings and possessions of Fordington church is provided by an inventory of church goods made at the time of visitation by John Chandler, Dean of Salisbury, in 1406. At that time St George's church, Fordington, possessed an impressive collection of missals, hymn books, prayer books and books of chants for use in processions; it also had three silver chalices, together with silver patens, pyxes, crosses and numerous altar frontals and vestments for the priests, including a set of vestments given by John Wakeryng, priest, whose chasuble is crimson powdered with white birds and also a red silk cushion, a lantern, a handbell, 2 red carpets to lay before the Altar at festivals, and numerous other articles. This visitation was conducted long before the Reformation, and many changes for which there is no surviving evidence may have occurred during the intervening decades, but there is no reason to doubt that at Fordington, as in most other parish churches, the number and value of the treasures multiplied rather than diminished during the fifteenth century. Likewise all the surviving evidence suggests that in the decades before the Reformation the parish churches of Dorchester were equally well supplied with similar possessions, in addition to lights, images, stained glass, paintings and carved woodwork.[11]

The break with Rome in 1534, the dissolution of the monasteries and the suppression of the friary in Dorchester, the introduction of English services and the confiscation by the Crown of the property of the chantries and the valuables from the parish churches, seem to have been accepted in Dorchester without protest.

Only in the suppression of the Franciscan friary in 1538 do we get any indication of the attitude of the townspeople. During its final years the friary comprised a Warden, Dr William German or Jerman, and six friars. The task of persuading all the westcountry friaries to make a voluntary surrender of their houses to the Crown was entrusted to Richard Ingworth, who had himself been a Dominican friar and was later appointed Bishop of Dover. During the summer and autumn of 1538 Ingworth visited all the west-country friaries and one by one succeeded in obtaining their surrenders. Many houses were extremely poor and in debt, so that many of the friars were the more ready to accept the dissolution. At Dorchester, however, Ingworth encountered considerable resistance and difficulty. The friars of Dorchester evidently remained popular with the townspeople, and their possession of tenements and a mill meant that they were not in debt. Ingworth arrived in Dorchester at the end of September 1538 and wrote to Thomas Cromwell to report that In Dorchester ther is a doctor that hath been warden many yeares and is in high fayour with many men. So that I have had much business to come to the knowledge of the trewthe of the state of that house....[12]

This unsolicited testimonial to Dr William German is a remarkable tribute, coming as it does from a hostile source. Ingworth went on to report on the possessions of the friary including the mill which he valued at £10 per annum. In spite of their reluctance to give up their house and their way of life, the Dorchester friars finally succumbed to the pressure and surrendered their friary to the Crown on 30 September 1538.[13] The names of the friars who signed the surrender with one assent and consent and without any manner of coarcyon were Dr William German, Edmund Dorcet, Thomas Clas, John Tregynzyon, John Clement, John Laurens, Stephen Popynjay and Thomas Wyre.[14]

The Franciscan friars were dedicated to a life of poverty and of service to the poor, so that their possessions were few. The inventory of their goods compiled shortly after the surrender of their friary lists All the stuffe of the grey freers of Dorchester. The church was well decorated with a carved reredos after the old fashion for the high altar, an organ, three large alabaster images, a tabernacle with the image of St Francis, vestments, bells in the tower, various books and choir stalls with much carved timber work. Some small statues were reported as already stolen. The spire of the church and part of the cloisters were covered with lead. The numerous vestments included several of silk, satin and damask, finely embroidered with silk. The domestic buildings consisted of a hall, the frater or dining room with five old tables, a buttery, brewhouse and brewing equipment, and the kitchen with pots, pans, platters, pottingers and saucers. There were also chambers, although the furnishings were very sparse and hardly seem sufficient for the needs of six or seven friars. They included a feather bed, blankets and sheets, two old carpets, three chairs and other items. The royal commissioner seized for the Crown 126½ ounces of silver plate from the friary church, and sold off the furniture to pay his own charges and the wages of the servants who were discharged. Unlike the monks and nuns, the friars received no pensions from the Crown and so it is not possible to follow their subsequent careers, although the warden, William German, briefly became vicar of Holy Trinity.[15]

7. *Dorset Natural History & Archaeological Society Proceedings*, XXVII, 1966, 216-7; Dorset Record Office D60/T103; C.H. Mayo, *op.cit.*, 586-7.
8. D.R.O. B2/29/16; B2/29/9; Public Record Office, E117/11/18.
9. D.R.O. D60/T55.
10. C.H. Mayo, *op.cit.*, 322.
11. T.C.B. Timmins, ed., The Register of John Chandler, Dean of Salisbury 1404-17, *Wiltshire Record Society*, XXXIX, 1983, 131.
12. P.R.O. SP1/137 f60
13. P.R.O. E36/115 f159; *Letters & Papers Henry VIII*, XIII(ii), 474, 482. For an account of the surrender of all the westcountry friaries see J.H. Bettey, *Suppression of the Monasteries in the West Country*, 1989, 79-81.
14. P.R.O. E36/115 f 159.
15. P.R.O. E36/115 f 43; G.B. Squibb, Dorset Incumbents 15421731, *Dorset Natural History & Archaeological Society Proceedings*, 71, 1950, 127.

The friary church on the bank of the Frome was demolished and the lead from the roof was taken by the Crown. The friary buildings were granted to Sir Edward Peckham, cofferer to the Kings household. He later sold the premises to Thomas Wriothesley, Earl of Southampton, from whom it passed into the hands of Robert Samways of Toller Fratrum, whose heiress married Sir Francis Ashley, Recorder of Dorchester in the early seventeenth century, who made his home in the former friary buildings.[16]

No doubt in an effort to win an influential friend, the last warden, Dr William German, had let the mills on the Frome to Lord Stourton whose family were later to be prominent Catholic recusants in Dorset, and whose son, Arthur, was to be an important figure at court during Queen Marys reign. Lord Stourton had been granted the mills on very generous terms, for they were said to be worth £10 per annum, but were let to him for a yearly rent of no more than £4. In spite of Lord Stourtons protests and visit to London to offer to purchase the mills, his lease was disallowed, and the mills, like the rest of the friary property went to Sir Edward Peckham.[17]

We have no indication of what the people of Dorchester thought of the suppression of their friary and the confiscation of all its property by the Crown. We can only assume that in this, as with the other religious changes of the period, they obeyed each successive order of the government with stolid compliance but without enthusiasm. In 1542 the ecclesiastical administration of the whole of Dorset was altered when the county was transferred from the diocese of Salisbury to the newly-created diocese of Bristol. The Bristol diocese was one of six new bishoprics founded by Henry VIII in 1541-2; it consisted of the city and county of Bristol together with the county of Dorset. This oddly-constituted diocese was poorly endowed, and few bishops stayed for very long, seldom visiting the Dorset part of their diocese. Moreover, some forty parishes in the county, including Fordington, remained as peculiars which were administered by the Dean of Salisbury or one of the prebends of Salisbury cathedral. This confused situation meant that as late as 1577 two deputy lieutenants of Dorset, Sir John Horsey of Clifton Maybank and George Trenchard of Wolfeton justified to the Privy Council their difficulty in obtaining information about Catholic recusants on the grounds that it was uncertain in whose diocese the shire was. The absence of close episcopal control was to have important consequences for the religious life of Dorchester during the early seventeenth century.[18]

The suppression of the Dorchester friary in 1538 was followed nine years later, in the first year of Edward VI, by the suppression of all chantries and religious fraternities, the abandonment of belief in the doctrine of purgatory having destroyed much of the purpose of such institutions. Thus all the property of Sewards chantry in Holy Trinity church with an annual income of £6 15s 2d, the property of the Fraternity of Our Lady in St Peters church worth £9 3s 0d annually, all passed to the Crown.[19] A few months later many of these properties were purchased from the Crown by the Corporation of Dorchester. Since this was a period of inflation, and the value of land and property was rising rapidly, this was an astute purchase by the burgesses of Dorchester, especially since the price of £149 11s 8d which they paid seems remarkably low for the extensive property they acquired including the New Inn, twenty-two houses, three gardens and other premises in Dorchester. No records survive to reveal how the decision to make this far-sighted investment was arrived at, how the money was raised or how the purchase was arranged by the Corporation.[20]

According to rentals printed in Hutchins *History of Dorset*, the source of which is unknown, there were more than 120 tenements in Dorchester belonging to various churches and religious houses, and the effect on the town of all this property passing to the Crown and then coming on the market must have been profound, but little evidence survives.

The chantry priests house which had belonged to the Seward chantry and which was known as the mansion of the Chanter, was purchased from the Crown by Sir Thomas Trenchard of Wolfeton.[21] The whole of the income from the Hospital of St John was granted by the Crown to the last warden, Edward Wheldon, to enable him to pursue his studies at the University of Oxford. The hospital building was demolished and the site acquired by the Churchill family, who built a mansion there.[22]

For the parishioners, the most obvious signs of change and the deepest impact of the Reformation occurred during the reign of Edward VI (1547-53) with the introduction of services in English, the destruction of images, screens, wall-paintings and stained glass in the churches, and the confiscation by the Crown of plate and other valuable possessions from each church, leaving only the bare minimum required for the conduct of the services. The effect which these confiscations had on the parish churches of Dorchester is well documented. The church of Holy Trinity possessed several sets of embroidered vestments, banners and decorated streamers for use in processions, cloths, curtains, hangings for the altars, crosses, candlesticks, cruets, five bells, a silver chalice and other rich furnishings. All were taken by the royal commissioners in 1552, leaving only a chalice, cope, surplice and altar cloth. At All Saints the long list of church goods included a chalice, cross, censer, candlesticks, three bells and a remarkable collection of vestments of silk and velvet. The royal commissioners took everything except for a chalice, cope, surplice and altar cloth. Similar confiscations were carried out on the rich possessions of St Peters and St Georges, Fordington.[23]

One Dorchester resident who appears to have profited from the religious upheavals of the period was John Stratford, a goldsmith. It is interesting that a town the size of Dorchester could support a goldsmith, but John Stratford evidently had a prosperous business. He was a capital burgess and served as bailiff in 1535 and again in 1549, his name occurs frequently in the town records, and he was active in buying property in various parts of the town. One source of his wealth may have been the amount of former church plate and other valuables which came on to the market, both legally and illegally, during the period. An illustration of this comes from the case of Anthony Rogers, a member of the wealthy Rogers family of Bryanston. In 1540 Rogers was arrested and lodged in Dorchester goal. It was alleged that with various associates he had taken advantage of the religious changes of the time and had broken into numerous parish churches around Blandford Forum, stealing a quantity of chalices, patens, paxes and other plate, some of which had been sold to John Stratford in Dorchester, who can hardly have been unaware of its provenance.[24]

The religious changes had come gradually, and a generation had elapsed between the declaration of royal supremacy over the Church in 1534 and the Church

16. *L. & P. Henry VIII*, XIII(ii), 474, 489; *V.C.H. Dorset*, II, 1908, 94-5; J.H. Bettey, ed., The Casebook of Sir Francis Ashley *Dorset Record Society*, 7, 1981, ii-iii; *Calendar of Patent Rolls, Edward VI*, I, 199.

17. *L. & P. Henry VIII*, XV, 1032; P.R.O. SP1/137 f 60; *V.C.H. Dorset*, II, 1908, 94-5; J. Hutchins, *op.cit.*, 365-6.

18. P.R.O. SP12/117/21.

19. P.R.O. E117/11/18; D.R.O. D60/T103; E.A. Fry, Dorset Chantries, *Dorset Natural History & Archaeological Society Proceedings*, XXVII, 1906, 216-7.

20. C.H. Mayo, *op.cit.*, 589-93; *Cal. of Pat. Rolls, Edward VI*, 309-10.

21. D.R.O. D60/T103, f 16.

22. D.R.O. Photocopy 212/1-2; *L. & P. Henry VIII*, XV, 1027(ii); Browne Willis, *History of the Mitred Abbies*, 1718, II, 72; *Cal. of Pat. Rolls, Edward VI*, II, 253-4. Details of the apparently high-handed manner in which the wealthy draper, John Churchill acquired the property and evicted the tenant emerge from a complaint to the Court of Requests in 1550, P.R.O. REQ2/15/64.

23. J.E. Nightingale, *The Church Plate of the County of Dorset*, Salisbury, 1889, 156-7; W. Miles Barnes, Church Goods, Dorset 1552, *Dorset Natural History & Archaeological Society Proceedings*, XXV, 1904, 196-274.

24. *L & P Henry VIII*, XV, 95, 22 January 1540; C.H. Mayo, *op. cit.*, 449-50, 492, 587.

Settlement of Queen Elizabeth in 1559. Within that generation the residents of Dorchester had seen the disappearance of the Latin Mass, the introduction of the Bible and services in English, the abandonment of belief in Purgatory, the suppression of the friars, chantries, guilds and the hospital, the stripping of valuables, and the brief restoration of Catholicism under Queen Mary. All the changes were apparently accepted without any outward show of protest, and by 1559 the scene was set for the growth of Puritanism which was to be such a feature of the religious life of Dorchester by the early seventeenth century.

J.H. Bettey

EGGLISHAM - A LOST DORCHESTER PLACE NAME.

Mills (1977, 368) discusses the field name *Eglysham*, recorded from 1335 and no longer used, but applying to a meadow on the Frome: the name probably means water-meadow of a man called Ecgel or water-meadows near to or belonging to a church. Using the 1607 and 1615 descriptions of the bounds of Fordington he places it between Great Bridge (i.e. the first bridge on the Charminster road over the river Frome) and Glydepath. This defines one side of the field (the north wall of Dorchester), and a recently transcribed document supplies two more.

The indenture of 1662 refers to a certain meadow called Egglisham lying near Dorchester ... a certain River ran between the lands of the said Lord Holles parcel of his said Manor and Farm of Froome Whitfield on the north side and the said meadow called Egglisham on the south side to the said Mills of the said Lord Holles [defined earlier as certain mills in or near Dorchester called the Fryery Mills] towards the east which said Meadow called Egglisham lying very low and watry the said Robert or Benjamin Coker of their ancestors (for the draining and improving thereof) had by the permission of the said Lord Holles or his predecessors ... cut down and continued a Hole or Trench through the Bank of the said River there upon the east side (being parcel of Lord Holles Farm of Frome Whitfield next the lane there being the soil and way of the said Lord Holles between Dorchester and Froome aforesaid). And in the said hole or Trench filled for a Water Course as aforesaid a Wooden Trunk or Shute (in the said river) which came from the said Meadow called Egglisham through the River into the said Lord Holles Bank on the east side next the Highway for Passage of the Water out of Egglisham aforesaid through the said Bank into the aforesaid Highway there leading from Froome unto Dorchester aforesaid to the impairing of the said Bank and Way. (D.R.O. DI/9590).

Lord Holles charged the Cokers 10/- rent a year for the land the Trunk, Shute or Water Course took up.

The description of the position of the meadow is shown graphically on figure 00, and is clearly the whole of the area now known as Northernhay, bounded by the river on the north and east, the road to Charminster on the west and the north wall of Dorchester on the south.

The meadow and a copse called Eglesham in Frome was registered in the Dorchester Domesday in 1399 (Mayo 1908, 135) along with a messuage and 18 acres of arable in Frome Whytfield called Richardes-place. The small surviving part of a manuscript map of *c.* 1650 of Dorchester shows the meadow cut into two north-south, the eastern part labelled Master parking Meade the west Master Whit.... Only a slip of land running from Great Mohuns bridge round the western edge of the field is called Aglishamb (DRO D124). The indenture of 1662 quoted shows that the name was then applied to the whole field.

By the time of 1780 map of Frome Whitfield (DRO D460/1 the field is called Pitt Meadow, the name it still has at the 1840 tithe map (DRO Dorchester HT Pitt's Close). By the late 19th century it has become Northernhay.

The 1929 Ordnance Survey 1: 2500 map still shows a drain running eastwards across this field, disappearing under the arm of the river and reappearing on the far side to run straight northwards to the other river. The field called

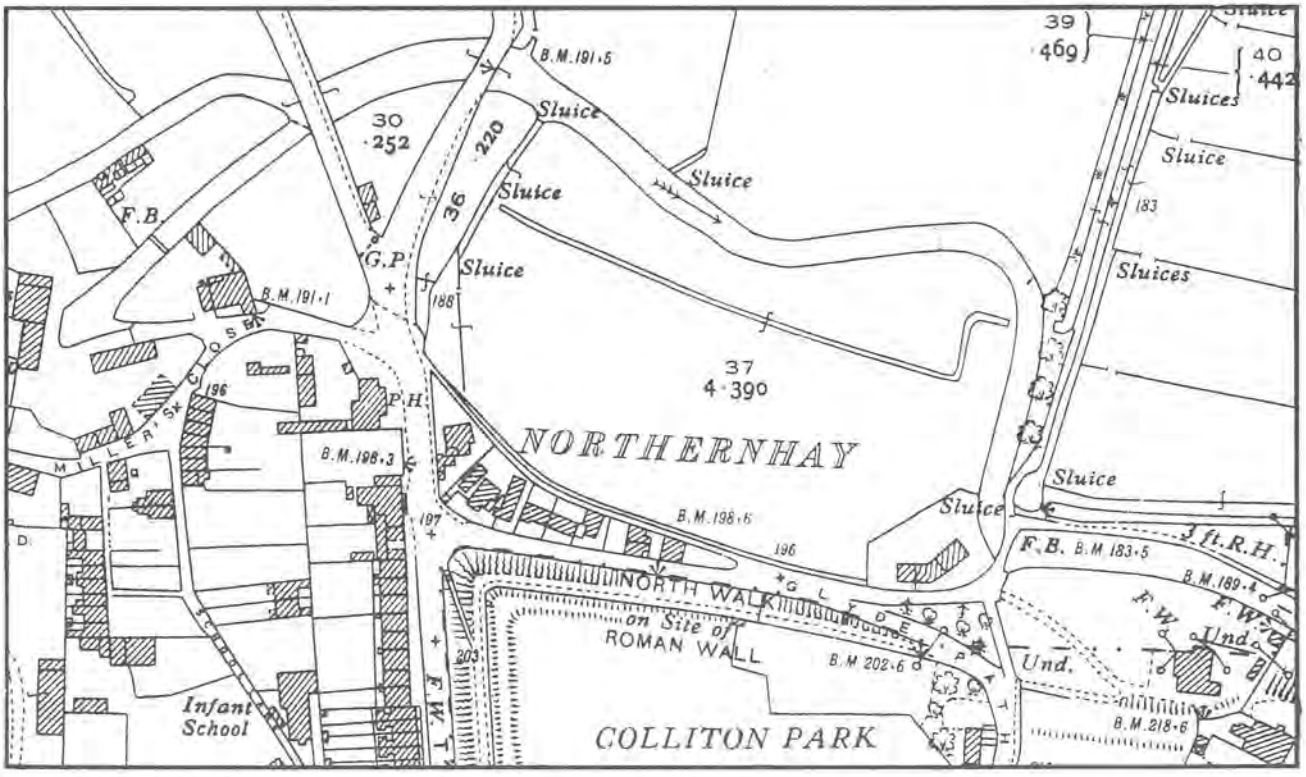


Figure 3 Northernhay from Ordnance Survey 1:2500, 1929. The drain east-west across the field and under the river, just as described in 1662.

Egglisham was so low and watry that its drain had to pass through the river, and continued to do so into this century. Presumably the meadow was marshy before it was drained, and this would make it an unlikely site for a church. Possibly the land belonged to the church, and thus the name.

Part of the document (an indenture dated 1602) also describes the farm and manor as Froome alias Froome Whitfield alias Cranchen Froome, which suggests that by the 17th century Frome Cranchen was merely an alternative name for Froome Whitfield (DI/9590)

Jo Draper

Mayo, C.H. 1908 *The Municipal Records of the Borough of Dorchester*
Mills, A.D., 1977 *The Place-Names of Dorset* - part 1.

TWO APPARENTLY UNRECORDED MILLS AT STOCKWOOD, DORSET

An indenture of 1600 refers to 'All that powder myll mesuage and mesuages landes tenementes meadowes pastures and hereditaments called and known by the name of South Parke or Upper Stockwood And also all those two mylles and the dwelling house... All which premisses are situate lying and beinge within the parish of Stockwood aforesaid and late parcell of the Mannor of Stockwood'.[1] Thus there was a total of three mills within the parish in 1600.

Dewar's 1959 survey of Dorset mills[2] lists only one watermill for Stockwood parish, which is marked as 'Stockwood Mill (Corn) on the OS map[3] (see Fig. 1) and as plot 44 comprising 'House, mill, outhouse, garden, orchard, plot and pond...3 acres 2 roods' on the 1839/40 tithe map and apportionment.[4]

There is no local tradition of any other mills, and early mentions are only of a single mill. These are from a 1273 *Inquisitio post mortem* of George de Cantilupo of Stoke St. Edwold (=Stockwood) and Batcombe, which relates that 'Walter le Noble holds 1 messuage and 8 acres of land and a water mill at the will of the lord and he renders yearly 13/4d',[5] and from a Stockwood manor survey of 1444 in which 'Thomas atte Mille holds at the will of the lord a water mill with appurtenances containing 7 acres for the rent of 16s'.[6] However, in a Stockwood manor court roll of 1500, two mills are mentioned - a water mill and a fulling mill.[7] Presumably, the former was grinding corn. Although one of these may be on or near the site of the mill of the previous paragraph, the sources do not give sufficient information to locate either.

Recent field work including aerial photography showed a channel running north from a point near the ford where the road to Chetnole crosses the Stockwood stream.[8] The channel at first lies between the stream and the track to Bragg's Farm in OS65, then crosses the track and continues as a ditch along the west side of the hedge between OS65 and 64 and between OS65 and 54.[9] It terminates at the west corner of an outbuilding of Bragg's Farm at a height of about 3m above the stream, and is about 300m long (see Fig. 1). It is almost certainly the remains of a mill leat.

Bragg's Farmhouse has an original 16th century ceiling,[10] and from examination is unlikely ever to have been a mill structure. Assuming the leat of the last paragraph led to one of the mills of 1600, this was not it. However, a possible site exists immediately north east of the existing farmhouse where the stream appears to have diverted to form a right-angled bend, perhaps aligned to receive the mill wheel outflow. No above-ground building traces remain, but buried rubble has been encountered.[11]

Stockwood parish continues on the left bank for about 2km downstream of Bragg's Farm but is unlikely ever to have contained a mill. The gradient eases, and there are the remains of several stonework sluices, some marked on the OS map, and extensive field irrigation systems, mainly on right bank in Chetnole parish.[12] Owners of these water meadows objected in 1854 to a Private Bill proposing (among other things) the abstraction of water from a spring near the head of this stream to supply Yeovil town, 10km away to the north in south Somerset.[13] None of the field channels appear to have been mill leats, there are no mill pond remains, and other watercourses within the parish are very small.

The only remaining potential site for the third mill - the powder mill - would seem to be that part of the stream above the intake to Stockwood Mill[14] (see Fig. 1), only about ½ km long but with a steep fall compensating for the diminution of flow. The lowest, northern, part of this stretch is taken up by St. Edwold's church and churchyard and by Stockwood Farm. Information about gunpowder mills is lacking but such a dangerous feature would probably not have been erected close to a church or inhabited building. There are no apparent mill or leat remains here.

The indenture of 1600 (first paragraph above) places the powder mill[15] at 'South Parke' or 'Upper Stockwood', both of which names are appropriate for this area around the remaining length of stream, which rises at springs in the wooded combe in the highest part of the parish at its southern extremity. The wood here takes its name from the parish, and in 1230, William de Cantilupo was granted licence by the king to enclose his wood of 'Stocwode' and make a park of it, the king providing the first deer - 2 fallow bucks and 10 does -to stock it from his nearby forest of Blackmore.[16] By 1444, a manor court roll refers to 'le Suthpark' of 20 acres,[17] which may roughly correspond to the present wood called

1. Dorset Record Office (DRO) D1/KS7. I am indebted to the editors for the suggestion that the mention of 'those two mylles' in this extract may imply two water wheels together at the one mill site under one roof, as occasionally occurs. However, to be worthwhile and viable, these would probably need to able to work together, the total flow being split between the two wheels, requiring a relatively large water flow and/or considerable storage. Although this must remain a possibility, it is here considered unlikely in view of the position near the head of a small stream, and the discussion is on the basis of three separate sites.
2. Dewar, H.S.L., 1961. 'The windmills, watermills and horse-mills of Dorset'. *Dorset Proceedings*, **82**:124. 'The mill building is probably early 19th century in stone and slate. Both machinery and wheel have been removed'.
3. OS XXI.7. OS map references thus are to 1/2500 sheets Dorset XXI.3(1903) and XXI.7(1902).
4. Stockwood Tithe Map, 1839, and Apportionment, 1840 (DRO/T/SKW). Stockwood Mill is at NGR ST591074.
5. *Inquisitiones post mortem* for Dorset, No. 214, George de Cantilupo. *Somerset and Dorset Notes and Queries (1911)*, **XII**: 141-3.
6. DRO/D/WLC/M167.
7. DRO/D/WLC/M171. Stockwood seems a remote site for a fulling mill.
8. NGR ST592075.
9. OS XXI.7.
10. *Royal Commission on Historical Monuments: Dorset (1952)*, **1**:224.
11. pers. comm. C J Bowden. NGR ST593077. The parish boundary follows the sharp bend (see Fig. 1), rather than what appears on the ground to be the natural course. This may suggest a diversion, and site, of some antiquity -perhaps the earliest mill site?
12. The first sluice, some 200m downstream of Bragg's Farm, is in the field called 'Chetnole Mead' (No. 50) on the Stockwood tithe map and 'Flood Hatch Mead' on a 1962 typescript *Schedule of field names* in the Dorset County Museum, probably extracted by C D Drew but with no source given. The sluice is in a position to irrigate the adjoining field in Chetnole called 'West Water Mead' (No. 14) on the Chetnole Tithe Map and Apportionment of 1840 and 1841 (DRO/T/CHN).
13. *Books of Evidence (Private Bills), House of Commons, 1854*, **Vol. 26, group 5** (House of Lords Record Office). Powers to abstract from this spring, close to Stockwood Farm, were obtained under the Yeovil Corporation Act of 1898 (A J Price, 1923, 'Yeovil Waterworks', *Trans. Inst. Water Engineers*, **28**:71-96). The subsequent diminution in base-flow of the stream by about 0.2 million gallons per day must have significantly hindered mill operations at times. The owners of Stockwood mill and of mills at Yetminster also objected in 1854 to the proposal.
14. NGR ST590070.
15. The Stockwood gunpowder mill is probably concerned in the reference to a 'gunpowder maker' from Stockwood which appears in state papers for 1635 quoted by J P Ferris (1964, 'The saltpetreman in Dorset, 1635', *Dorset Proceedings*, **85**:159).
16. Cal. Close Rolls, Henry III, vol. 1(1227-1231):296 and 443.
17. DRO/D/WLC/M167; i.e., 'Southpark', as distinct from the 'North Park' of 140 acres of the same court roll which no doubt relates to the deer park discussed and mapped by J D Wilson and L M Cantor in the northern part of the parish (1967, 'The medieval deer-parks of Dorset',*Dorset Proceedings*, **88**:181-3).

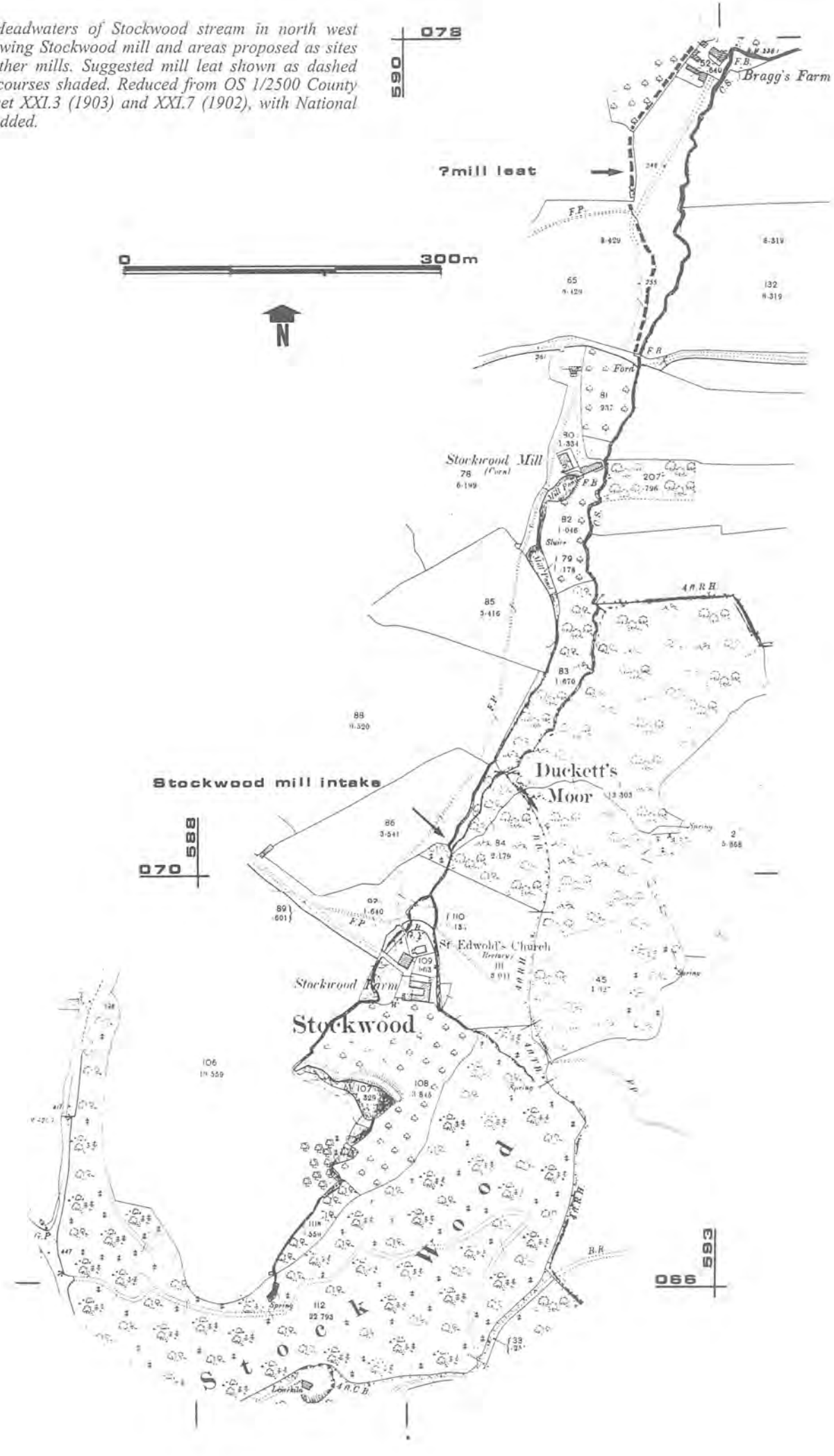


Figure 1 Headwaters of Stockwood stream in north west Dorset, showing Stockwood mill and areas proposed as sites for two further mills. Suggested mill leat shown as dashed line. Watercourses shaded. Reduced from OS 1/2500 County sheets Dorset XXI.3 (1903) and XXI.7 (1902), with National Grid lines added.

'Stockwood' of just under 23 acres,[18] but no trace of a deer park bank has yet been found there. The 'Park' field name persists locally for the field southwest of Stockwood Farm, known prosaically on the tithe map as 'Eight Acres'.[19]

About 100m upstream of Stockwood Farm is a large earth dam retaining a pond of ample size to serve a mill; above that is a series of small ponds which may have acted as silt traps or been merely decorative features. The large pond may be that shown in the same position on the 1840 tithe map and on an estate map of 1803.[20] There is no trace of a leat from the pond. However, in view of the steepness of the ground, a mill could have been sited very close to the pond, but there are no remains of such a structure, nor of the necessary access road. The whereabouts of the gunpowder mill is still unknown.

Thus, of the three mills recorded in Stockwood in 1600, one is presumably represented by the present Stockwood mill of the OS map, a second was almost certainly very close to Bragg's Farmhouse, while the gunpowder mill was somewhere unknown at the southern end of the parish, probably upstream of Stockwood Farm. If, as is implied, there were indeed three mills working in 1600, so close together and on such a relatively small watercourse, their operation would require close cooperation, and probably led to frequent disputes. The simultaneous presence of three mills here in Stockwood appears to be a relatively short term response to particular circumstances which are only partly understood.

Acknowledgments
I am grateful to Mr C J Bowden of Bragg's Farmhouse and Mr G J House of Stockwood (now 'Church') Farm for their interest, information and access, to Dr Paul Seaward for abstracting the Parliamentary reference and Dr Bob Machin who drew the IPM to my notice, and to Katherine Barker for valuable help in discussion and in the field.

Dennis R Seaward

18. OS XXI.7.
19. pers. comm. G J House.
20. DRO/T/SKW. Plan of Stockwood Farm etc., 1803 (DRO/D/FSI 55-56).

QUAKERS IN RYME INTRINSECA

A Mansel-Pleydell Prize Essay

Quakers

In the sixteen-forties religious tolerance allowed the emergence of radical religious movements wherein the lower orders of society could assemble to discuss whatever they liked with no control from above. A wave of individualism spread throughout the land characterised by congregations admitting a considerable latitude of belief among their numbers, yet showing a common rejection of an organised church and the sacramental functions of the ministry. It was thus that the Quakers emerged from the ferment of the time as an enthusiastic movement which in due course was to arouse considerable opposition amongst conservatives who saw the movement as a challenge to the political and social ranking on which the ordering of society was based. Documentary accounts often referred to believers as the Children of Light and Friends of the Truth, the latter being abbreviated to Friends a title which is widely used throughout the Society as a mode of address. They were labelled Quakers by a Derby magistrate in the late 1650s when George Fox, founder of the movement, being arraigned before the court, bade the whole bench tremble at the name of the Lord.

Quakers at Ryme Intrinseca

The earliest recorded presence of a Quaker in the village is to be found in the *Calendar of State Papers* 1656 wherein is listed the names of four Quakers in Dorset capable of Justice Places, one of whom was Nathaniel Harris of Ryme. The Harris family were actively involved in the movement particularly Nathaniels brother George who was responsible for establishing the Ryme Meeting and for hosting the first County Meeting. There is an interesting letter in the *State Papers* 1663 (Vol. 74) written to the local magistrate on behalf of the vicar, John Elford who felt for his life on account of some two hundred persons being gathered at the house of George Harris ...they being sectaries that meet to perpertrate acts of Treason. Elford was obviously a conservative cleric who feared a Quaker presence in the Parish, especially that of Harris who the previous year had served a term in prison at the suit of the Vicar for refusing to pay Tithes.

In 1668 the Inaugural Dorset Quarterly Meeting was held in Ryme when forty-nine Friends representing Meetings from all parts of the County assembled to meet with George Fox. Writing in his journal, Fox records that having visited most of the meetings in Somersetshire we passed into Dorsetshire to one Harris his house where we had a large meeting and where all the mens meetings were settled inn the glorious order of the Gospel.... The collection raised the sum of £3. 0. 2d.

The Quakers of the 1650s were not the passive movement they were to become, and in the early years of their existence their ideas and activities often provoked a violent response. John Fitzjames of Leweston sitting as a magistrate in Sherborne on one occasion incited the townsfolk to break up a Friends meeting which they did by stoning those who were present (*Calendar of State Papers Domestic* Vol 10, Oct 2nd 1656, p.123 fol.46). Harris and his companion Peter Maber were both treated in a similar fashion as they were leaving a meeting in Sherborne. When called before the magistrate to discuss the incident they were both sent to prison for not removing their hats in court (Joseph Barnes *A Collection of the Sufferings of the People called Quakers* (1753) from Dorset extracts DCM). In 1661 Harris was forcibly removed form his house by soldiers and taken to Dorchester where he was again imprisoned for refusing to remove his hat before the Justices. Although small in number the Ryme friends did not escape persecution and several families in the village had their goods seized by the Constables for the non-payment of tithes (DRO NQI/V15). Officers were particularly ruthless in exercising Court orders, as failure on their part to obtain a satisfactory result meant that they in turn would be fined.

There is no indication that the Ryme Meeting was use for any purpose other than worship. Harris remained active up to the time of his death in 1687, and was widely respected as a man who practised his beliefs and who suffered much as a consequence. In his will he bequeathed the sum of ten shillings to the poor of the Parish, and forty shillings unto poor Friends called Quakers of the County of Dorset (PRO,PROB 11/390). His successor in the Ryme Meeting was Job Hill, a much younger man but nonetheless sincere.

The Declaration of Indulgence of 1672 and the Toleration Act meant that Meetings could henceforth take up a royal license to gather openly for the purpose of worship. In compliance with the law, a certificate ws presented to the Quarter Sessions in Sherborne on 14th April 1702 (DRO NQI/A20/8), declaring that the house of Job Hill in Ryme Intrinseca was intended to be used for the worship of God by Dissenting Protestants called Quakers.

With the passage of time, interest in the village began to wane and the Meeting was officially discontinued following the death of Job Hill in 1733. There is however one tangible piece of Quaker history that renains to this day, which is not only a reminder of Rymes importance to Friends in the neighbouring villages, but which also helps to identify the Meeting House. In the orchard to the rear of Manor Farm House, there stands a solitary headstone marking the last resting place of Lydia the wife of Samuel Strode, bnoth members of the Ryme Meeting (Plate 1). The interment details are to be found in the Friends Burial Register (DRO NQI/V17) which also contains the names of thirty other

persons buried in Ryme. Because of their beliefs Friends did not qualify for a christian burial and were forced by the state to seek isolated areas. This could be anywhere of their choosing as the ground was never consecrated. Early Quaker practice was to inter in unmarked graves to avoid desecration. Reference to the register indicates that the ground at Ryme served the need of Quaker families in Leigh, Batcombe, Hillfield, and Evershot. The first recorded interment is that of George Harris brother-in-law William Partridge who died in 1659. There seems little doubt that the burial ground was part of the Manor Farm holdings thus leading to the conclusion that the Ryme Meeting was held in the original West wing of the house as it now stands.

At the Sherborne Meeting on 18th Feb. 1739, an enquiry was made as to what title the Friends had to the burial ground (DRO NQI/F1 1728-38). Any title that might have been was terminated with the death of Hill, but whilst the new owner was not a member of the Society he was nevertheless sympathetic to their needs and was willing to grant them the privilege to bury there as before. This option was taken up on one occasion only when Mary, Jobs wife was buried in 1744, effectively bringing to an end almost one hundred years of Quaker activity in the village. Gravestone at Ryme Intrinseca. Inscription:

Here lyeth Lydia
wife of S[amuel] Strode
who died eight and twenty
day of April buried the
second of May following
1717
-

Lydia was George Harris' daughter. The hole invites conjecture as to whether it was formed as an act of deliberate desecration.

N.G. Wilkins

Plate 1 Lydia Strode's gravestone at Ryme Intrinseca.

The editor and printer regret that Plate 1 in 'Witchampton: Village Origins', *Dorset Proceedings* vol 115 (1993) p. 121 was printed in reverse. It is reprinted here correctly. Aerial photograph of Witchampton showing Bushy Park. Field after ploughing in 1968. North to right.

GEOLOGY

DIGS - DORSETS IMPORTANT GEOLOGICAL/ GEOMORPHOLOGICAL SITES

M.E. Cosgrove (Chairman, DIGS group)

Dorset's RIGS (Regionally Important Geological/Geomorphological Sites) group, or DIGS as we now call it, was set up in 1993 as part of a national network of largely county-based schemes to encourage geological conservation. The initiative for the establishment of RIGS groups came from English Nature and The Wildlife Trusts, and many such bodies now exist.

DIGS group is made up of interested members from the Dorset Geologists' Association with representatives from the Dorset Environmental Records Centre (DERC), Dorset Natural History and Archaeological Society, Dorset Wildlife Trust and English Nature. The chairman is Dr Mike Cosgrove with Mrs Jo Thomas as Secretary and Mr Richard Surry as Treasurer. There are probably about 20 active members.

The group aims to identify, designate and conserve important geological or geomorphological sites in Dorset that are not already covered by statutory protection (SSSI or Heritage Coast). Sites are visited for assessment with the following criteria in mind - suitability of access, educational value (rock types, structures, fossils) and historical significance. Ownership is determined and then, only with the owner's permission, the site can be formally designated. The formal procedure involves recording the sites location (National Grid Reference), name, site description, owner, brief geology, access and parking details. It is marked precisely on a 1:10000 plan and this with the written details are sent to the appropriate District Council for formal recognition as a RIGS.

Currently the group has designated 18 sites (12 in West Dorset, 3 in Purbeck and 3 in North Dorset). An additional 54 sites are under consideration, so much work needs to be done.

The group was fortunate in being able to use DERC records of Dorset geology built up during the Manpower Services Commission survey scheme in the 1980s. Most of the Jurassic geology was covered by this survey, but Cretaceous and Tertiary areas were barely touched. This pattern of past work partly reflects the current distribution of designated sites.

Getting the DIGS group under way was a major problem through lack of funds. However the group can now gratefully acknowledge grants awarded by West Dorset District Council (£500), North Dorset District Council (£400) and English Nature (£450) towards its expenses during the 1994/96 period. We await response from other district councils after providing them with extra details of our work after our initial appeals letter.

We remain actively engaged on site identification and designation, but we have also started the third stage of our work. We have cleared and excavated part of Evershot Pit to uncover excellent exposures of the Upper Greensand - Chalk junction. This work was greatly assisted by a grant from English Nature's site clearance fund for a JCB. We have also cleared lower rock faces at Portesham quarry to expose a 3 to 4 metres section across the Portland - Purbeck boundary.

Now that we have funds available, our work should continue with extra pace throughout 1995. We also plan to submit a full detailed list of DIGS for publication in the Proceedings for 1996. We hope that this might be available as a reprint for wide distribution.

CHECKLIST OF TERTIARY INSECTS FROM DORSET

E.A. Jarzembowski

ABSTRACT

A compact but diverse Tertiary entomofauna is found in Dorset with 9 orders and 39 species.

Tertiary insects have been known from Dorset for as long as the more famous Purbeck entomofauna (Westwood, 1854), but occur only sporadically amidst the abundant plant remains. However, during a recent survey by the author, the county emerged as the principal source of UK Middle Eocene insects (from the Wareham sub-basin and Poole-Bournemouth coastline). The fauna is interesting because it comprises both trace and body fossils, but no new finds have been collected for many years, and fresh fieldwork is needed (Jarzembowski, 1991). There is no recent account of the insects so I have provided the checklist below: a more detailed discussion will be found in Jarzembowski (in press) as part of a collection of papers to be published by the Tertiary Research Group, in honour of the late Mr R. Fowler, a prominent collector of Tertiary fossils in the Hampshire Basin. The species are in two groups:

A, late Lower Eocene/early Middle Eocene of Creech, Corfe and Studland.

B, early Middle Eocene of Bournemouth.

The type of work is indicated in taxa based on trace fossils; the rest are body fossils.

Order Blattodea (cockroaches)

Family Blattidae

Pycnoscelus? gardneri Cockerell, 1920. B.

Order Coleoptera (beetles)

Family Buprestidae? (jewel beetles?)

Buprestites purbecensis Cockerell, 1920. A.

Family Carabidae (ground beetles)

Carabites cuneatus Cockerell, 1920. B.

C. gardneri Cockerell, 1920. B.

C. parallelus Cockerell, 1920. B.

C. peracutus Cockerell, 1920. B.

Family Cerambycidae (longhorn beetles)

Leptura? bartoniana Cockerell, 1920. A.

Family Chrysomelidae? (leaf beetles?)

Chrysomelites allochlamys Cockerell, 1920. B.

C. bartonicus Cockerell, 1920. B.

C. quadrilineatus Cockerell, 1920. B.

Family Curculionidae (weevils)

Baris? palaeophilus Cockerell, 1920. B.

Ophryastites gardneri Cockerell, 1920. B.

cf. *Rhynchaenus* sp. B. Leaf mine.

Family Curculionidae? (weevils?)

Curculionites brenthiformis Cockerell, 1920. B.

C. marginatus Giebel, 1856. A.

C. optimus Cockerell, 1920. B.

Family Scarabaeidae (chafers)

Pelidnotites atavus Cockerell, 1920. B.

cf. Family Tenebrionidae (cf. darkling beetles)

Tenebrionites anglicus Cockerell, 1920. B.

Family ?

Elaterites laconoides Cockerell, 1920. B.

E. murchisoni (Giebel, 1856). A.

E. perditulus Cockerell, 1920. A.

E. sculptilis Cockerell, 1920. A.

Erotylites wallacei Cockerell, 1920. A.

Order ? (leaf chew marks)

Phagophytichnus circumsecans Straus, 1977. B.

P. marginisfolii Straus, 1977. B.

Order Diptera

Family Agromyzidae (leaf-miner-flies)

Phytomyzites? sp. B. Leaf mine.

Order Hemiptera (true bugs)
Family Ricaniidae
Hammapteryx anglica Cockerell, 1920. B.

Order Hymenoptera
Family Cynipidae (gall wasps)
cf. *Neuroterus* sp. B. Gall.
Family Formicidae (ants)
Formica heteroptera Cockerell, 1920. B.
Formicium brodiei Westwood, 1854. [A].
F. mirabile (Cockerell, 1920). B.
Oecophylla bartoniana Cockerell, 1920. B.

Order Isoptera (termites)
Family Mastotermitidae
Mastotermes bournemouthensis von Rosen, 1913. B.

Order Lepidoptera
Family Gracillariidae (midget moths)
cf. *Phyllocnistis* sp. B. Leaf mine.
cf. Family Nepticulidae (pigmy moths)
Stigmellites spp. B. Leaf mines.

Order Odonata
Family Aeshnidae (hawker dragonflies)
Triaeschna gossi Campion, 1916. B.

Order Orthoptera
Family Gryllidae (crickets)
Allopterites multilineatus Cockerell, 1920. B.

REFERENCES

Jarzembowski, E.A., 1991, The fossil dragonflies. In Prendergast, E.D.V., *The dragonflies of Dorset*, 59-62, 70-71. Dorset Natural History and Archaeological Society, Dorchester.

Jarzembowski, E.A., In press. Fossil insects from the Bracklesham Group (late Lower Eocene-early Middle Eocene) of southern England. *Tertiary Research*.

Westwood, J.O., 1854, Contributions to fossil entomology. *Quarterly Journal of the Geological Society of London*, **10**: 378-396, pls 14-18.

NEW RECORDS OF PURBECK FOSSIL INSECTS

R. Coram, E.A. Jarzembowski* & A.J. Ross

*Contact address: Maidstone Museum & Art Gallery, St Faiths St, Maidstone, Kent ME14 1LH

ABSTRACT

Ten families of fossil insects in six orders are newly recognised and discussed from the Purbeck Group; in addition the Order Dermaptera (earwigs) is reported for the first time.

Since the publication of the Checklist (Jarzembowski, 1993) and Supplement (Clifford, Coram, Jarzembowski & Ross, 1994), new material has been discovered, mainly by Mr R. Coram (Swanage), but also by Mr A. Mitchell (Gillingham, Kent). In addition, some comments on the insect fauna have been received from the international scientific community. In this article, we amplify the Checklist with newly recorded taxa and better preserved material. The registered specimens are from the Coram collection deposited in the Booth Museum of Natural History with the exception of two (text-figures 11, 15) which are in the Natural History Museum.

Order Psocoptera (barklice)
Occasional, isolated wings as in text-figure 1 add the extinct family Archipsyllidae Handlirsh to the entomofauna, although the genera are still to be determined.

Order Hemiptera (true bugs)

Suborder Homoptera (Jumping plant lice, aphids (= plant lice))
Mesopsyllidium Bekker-Migdisova ms name should be deleted from the Checklist as it is a synonym of *Aphidulum* Handlirsch. The latter genus was placed in family uncertain in the Supplement following Carpenter (1992). However, new material plus additional taxa (text-figures 2-4) establish the extinct family Protopsyllidiidae Carpenter as present.

Aphids recorded in the Supplement are confirmed here (text-figure 5). They are uncommon, but several forewings are considered to belong to *Penaphis* Lin (Callaphididae?). This form genus is otherwise known from the Weald Clay of the Weald and early Cretaceous of China (Jarzembowski, 1989; Lin, 1994). Lin's *Penaphis* fauna may thus be extended to define the Neocomian (Berriasian-Valanginian-Hauterivian).

Suborder Heteroptera (true bugs s.s.)
The extinct family Archegocimicidae Handlirsch is added to the fauna (text-figure 6) and the common backswimmer *Nepidium* Westwood is illustrated with appendages for the first time (text-figure 7).

Order Coleoptera (beetles)
These insects are abundant in the Dorset Purbecks. However, they are commonly disarticulated and all described taxa were considered family uncertain by Carpenter (1992; see Supplement). We have therefore concentrated on more determinate, intact material to improve the systematics of Purbeck beetles. Several important families have been recognised recently. These include Carabidae Latreille (ground beetles) and Eobelidae Arnoldi (extinct weevils) (text-figures 8, 10). The former are carnivorous and the most diverse family in the coleopteran suborder Adephaga, whereas weevils are phytophagous and comprise the largest family group (Curculionoidea) in the suborder Polyphaga (and indeed, the animal kingdom). Rhynchophora, the alternative name for Curculionoidea, refers to the characteristic rostrum which may be used to bore holes into plants, e.g. leaves and seeds (when eggs may be laid adjacent to the larval food). Staphylinidae (rove beetles) are a diverse family with characteristic short elytra exposing the abdomen (text-figure 9). Staphs inhabit a range of habitats and are mainly predacious.

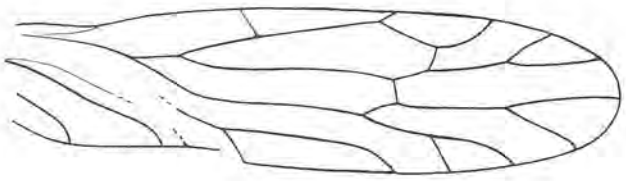


Figure 1. Venation diagram of archipsyllid wing, O19600/-1, Clements' Bed 175, Durlston Bay. Scale line 1 mm.

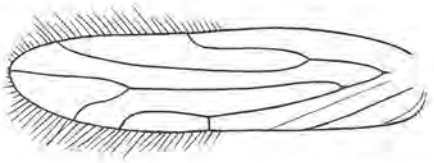


Figure 2. Venation diagram of **Aphidulum** *sp., O19602, Clements' Bed 175, Durlston Bay. Length 1.8 mm.*

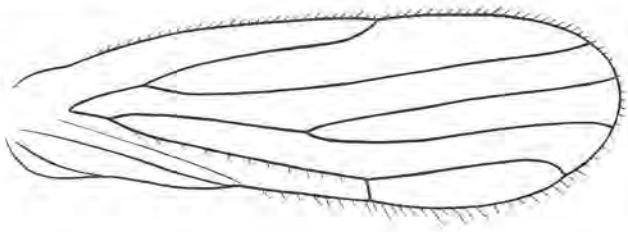


Figure 3. Venation diagram of aff. **Sinopsocidium** *sp., O19604/-5, Clements' Bed 175, Durlston Bay. Length 2.8 mm.*

Figure 4. Possible protopsyllidiid body, O19606/-7, Clements' Bed 175, Durlston Bay. Length 2 mm excluding antennae.

Order Diptera (true flies)
This order appears to have been under-recorded in the past, and three additional families are reported here. Text-figure 11 is considered to belong to the Pleciomimidae, an extinct family of fungus gnats because:
1, vein R is short (less than three-quarters of the wing length; in this case two-thirds of wing length);
2, vein Rs is simple with a well-defined base;
3, there is no crossvein between veins M3 and CuA;
4, the wing is comparatively wide with a rounded apex (Jarzembowski, 1987).

Text-figures 12, 13 are the first records of the dipteran suborder Brachycera (division Orthorrapha) from the Dorset Purbecks. Text-figure 12 shows the basic venation of the extant family Tabanidae (horse-flies) including closure of the anal cell, and the third and fourth branches of the radial sector diverging and enclosing the wing tip. However, Rs3 is more sinuous, resembling Pelecorhynchidae and even some Therevidae. Text-figure 13 is considered to be the wing of an empidid (dance fly) with vein CuA showing a diagnostic distal fork like an inverted T. The venation generally resembles that of Wealden Empidinae (Jarzembowski, 1987). Recent Empididae are carnivorous, especially on Diptera!

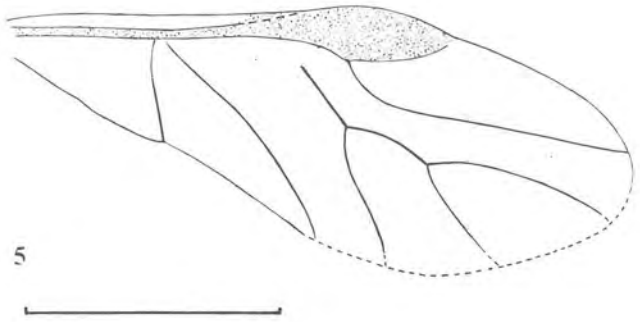


Figure 5. Venation diagram of **Penaphis** *sp., O19608, Clements' Bed 175, Durlston Bay. Length 2.6 mm.*

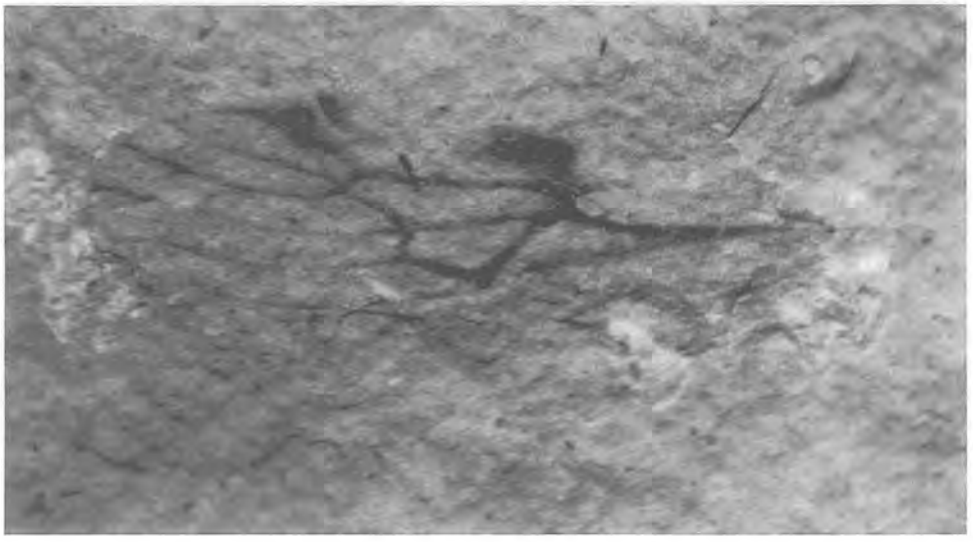
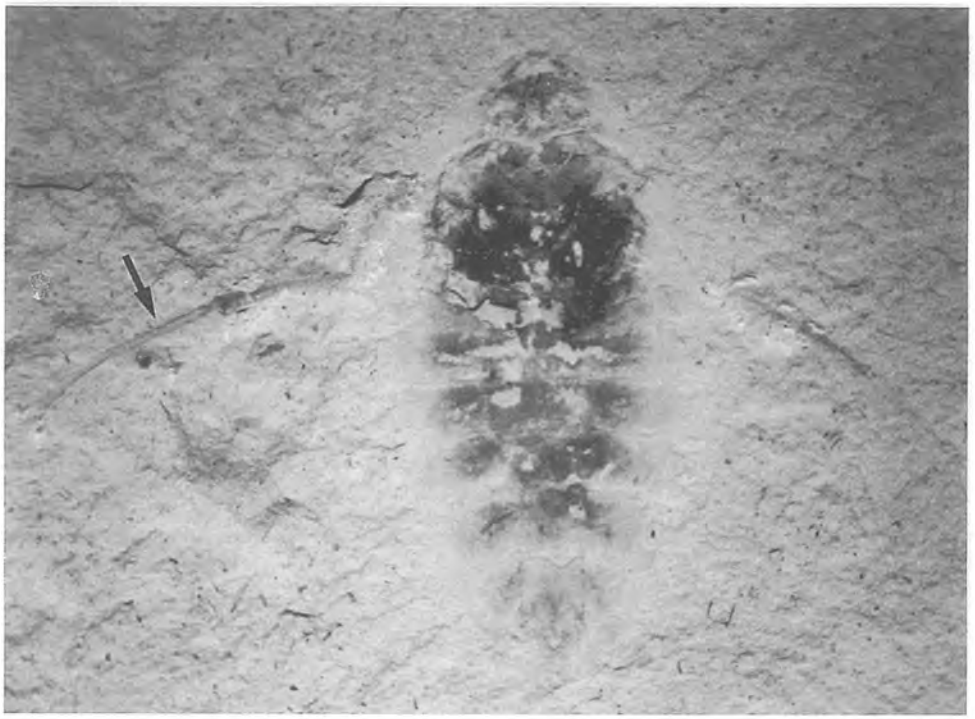
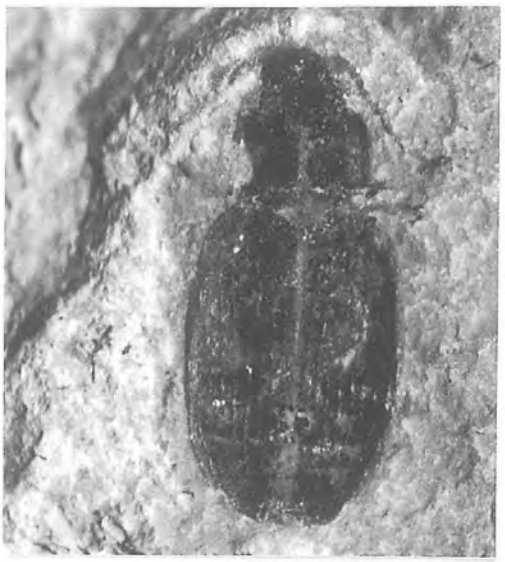


Figure 6. Archegocimicid forewing, O19609, Lower Purbeck, Suckthumb Quarry, Isle of Portland. Length 4.6 mm.

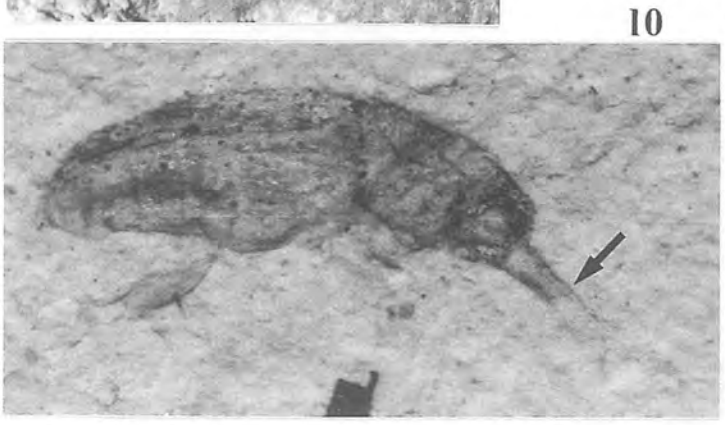


7

Figure 7. **Nepidium** *showing legs (arrow), O19610/-1, Cypris Freestones. Lower Purbeck, Durlston Bay. Body Length 10 mm.*



8



10

9

Figure 8. Carabid beetle, O19612, Lower Purbeck, Durlston Bay. Length 3.8 mm.

Figure 9. Staphylinid beetle, O19613/-4, Clements' Bed 175, Durlston Bay. Length 4.0 mm.

Figure 10. Eobelid beetle, O19615/-6, Lower Purbeck, Suckthumb Quarry, Isle of Portland. Length 2.7 mm including rostrum. Arrow indicates rostrum.

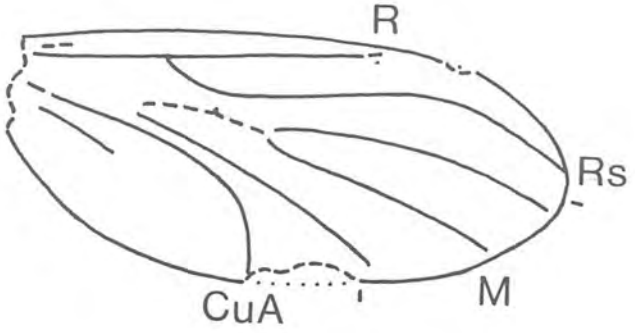


Figure 11. Pleciomimid fly, I. 15009, upper Middle Purbeck, [Durlston Bay], Mrs Burnett collection. Length 2.9 mm. From Jarzembowski (1987).

Order Trichoptera (caddisflies)
These insects have provided evidence of palaeoenvironmental disaster during deposition of Clement's Bed 175. Occasional specimens in both the Coram and Mitchell collections as in text-figure 14 resemble newly-hatched adults which failed to emerge into the air from their aquatic larval habitat. This could be due to proliferation of algae (by analogy with some Tertiary occurrences) as algal mats have been described from this horizon by Andrews (1986). [E.A.J. & R.C.]

Order Dermaptera (earwigs)
This order is added to the entomofauna, although the exact affinities of the forewing in text-figure 15 remain to be determined. [A.J.R.]

ACKNOWLEDGEMENTS
We are indebted for helpful suggestions to: Dr D. Shcherbakov (Paleontological Institute, Moscow) on Archipsyllidae, Protopsyllidiidae and Dermaptera; Dr Yu. Popov (*loc. cit.*) on Archegocimicidae; Dr R. Crowson (Glasgow University) on Coleoptera; and Dr A. Nel (National Museum of Natural History, Paris) on Trichoptera. Illustrations are by R.C. except text-figures 11 and 15 by E.A.J. and Mr P. Crabb (N.H.M.) respectively.
This is P.R.I.S. contribution no. 391 for E.A.J.

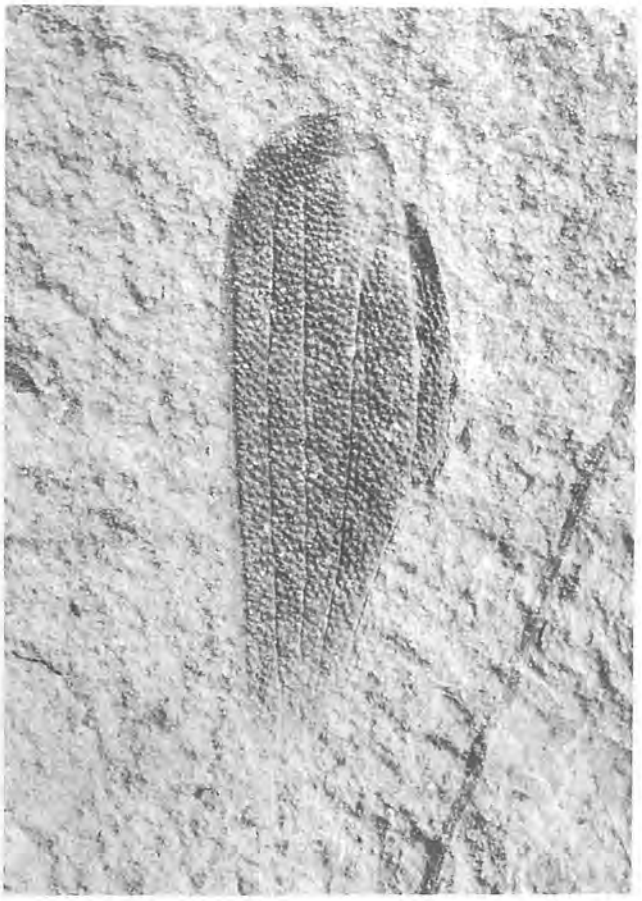
12

Figure 12. aff. tabanid forewing, O19617/-8, Clements' Bed 175, Durlston Bay. Length 8.8 mm. Immersed in isopropanol.

13

Figure 13. Empidid forewing, O19619/-20, Clements' Bed 175, Durlston Bay. Length 3.1 mm. Arrow indicates distal fork of vein CuA. Immersed in isopropanol.

14



15

Figure 14. Newly-emerged adult trichopteran, O19621, Clements' Bed 175, Durlston Bay. Length 6.2 mm.

Figure 15. Dermapteran forewing, In. 59187, [upper Middle Purbeck, Durlston Bay], Mrs Burnett collection. Length 8.3 mm.

REFERENCES

Andrews, J.E., 1986, Algal laminae with calcite pseudomorphs after gypsum from the Middle Purbeck of Durlston Bay, Dorset. *Proceedings of the Dorset Natural History and Archaeological Society*, **107**: 187-189.

Carpenter, F.M., 1992, Superclass Hexapoda. *Treatise on Invertebrate Paleontology*, R Arthropoda 4, **3** & **4**: xxiii+655pp.

Clifford, E., Coram, R., Jarzembowski, E.A. and Ross, A.J., 1994, A supplement to the insect fauna from the Purbeck Group of Dorset. *Proceedings of the Dorset Natural History and Archaeological Society*, **115**: 143-146.

Jarzembowski, E.A., 1987, Early Cretaceous insects from southern England. Unpublished PhD thesis, University of Reading.

Jarzembowski, E.A., 1989, A fossil aphid (Insecta: Hemiptera) from the early Cretaceous of southern England. *Cretaceous Research*, **10**: 239-248.

Jarzembowski, E.A., 1993, A provisional checklist of fossil insects from the Purbeck Beds of Dorset. *Proceedings of the Dorset Natural History and Archaeological Society*, **114**: 175-179.

Lin, Q-b., 1994, Cretaceous insects of China. *Cretaceous Research*, **15**: 305-316.

DINOSAUR FOOTPRINT RECORDS FOR THE PURBECK LIMESTONE GROUP, DORSET, SINCE 1981

P.C. Ensom, The Yorkshire Museum, Museum Gardens, York, YO1 2DR.

Lithostratigraphic terms given in this paper are those of the authors/sources where the occurrences were described. Where two beds are given footprints are preserved as casts, ususally when clay or shale is overlain by limestone. One bed signifies a primary mould on the surface of the bed, normally a limestone overlain by shale or clay.

Key: * Prints are considered to have been made at a slightly higher level and are replicated on several bedding planes (i.e. transmitted); + Possible footprint; **BSLM** Broken Shell Limestone Member; **CFM** Cherty Freshwater Member; **ChBM** Chief Beef Member; **CB** Corbula Beds; **IM** Intermarine Member; **MP** Middle Purbeck; **UP** Upper Purbeck; **MS** MS source. Catalogue numbers (see appendix in Ensom this volume) are given in parentheses after the references.

DURLSTON BAY, SWANAGE, DORSET, NGR SZ 0360 7725 - 0405 7865

Below is a list of the beds where footprints have been observed. Beds are given in descending order using the notation of Clements (1993). All the records listed from 1983 to date are of tridactyl footprints and previous finds are understood to have been of tridactyl footprints as well.

BED No.	MEMBER		REFERENCE
DB220/220	BSLM.	UP.	Ensom 1983. (62a, b, c)
DB216*	ChBM.	MP.	Ensom 1983. (61b and 61c)
DB132/133+	IM.	MP.	Ensom 1987a. (126)
DB120/121	IM.	MP.	Ensom 1985a. (122)
DB117/118	IM.	MP.	Ensom 1985a, Nunn 1990. (121, 121a and 128)
DB116b	IM.	MP.	Ensom 1985a. (120)
DB116a+	IM.	MP.	Ensom 1985a. (123)
DB102/103	CFM.	MP.	Ensom 1984, Nunn 1990. (102, 129)
DB93/94	CFM.	MP.	Ensom 1984. (100, 101)

DINOSAUR FOOTPRINTS AT WORBARROW TOUT, ISLE OF PURBECK, DORSET, NGR SY 869 796

Below is a list of the beds where footprints have been observed. Beds are given in descending order using the notation of Ensom (1985). All records are of tridactyl footprints except WB165/166 and WB113/114 which have yielded putative sauropod tracks.

BED No.	MEMBER		REFERENCE
WB196+	BSLM	UP.	Ensom 1985a. (119)
WB177/178+	CBM	MP.	Ensom 1985a. (118)
WB165/166	CM	MP.	Ensom 1982a, 1985a & 1987a. (59, 127)
WB145	IM	MP.	Ensom 1985a. (117)
WB145	IM	MP.	Ensom 1985a. (115, 116)
WB125+	IM	MP.	(pers obs.)
WB124/125	IM	MP.	Ensom 1985a. (114)
WB121	IM	MP.	Delair 1982, Ensom 1982a & 1983a, West and El Shahat 1985. (51)
WB116/117	CFM	MP.	Ensom 1984. (98, 99)
WB113/114	CFM	MP.	Ensom 1985a & 1987a. (112, 113, 113a)

DINOSAUR FOOTPRINTS AT INLAND SITES (not specified here)

For inland sites, the equivalent Beds in Durlston Bay are suggested and given in descending order using the notation of Clements (1993). Though the majority of records predate 1980 their correlation with the Durlston Bay section was only published in 1983 by El Shahat and West who based their distribution on the paper by Delair and Lander (1973).

BED No.	MEMBER		REFERENCE
Not known	UCC&S	UP.	Ensom 1986. (124)
(DB220)	BSLM	UP.	Delair and Lander 1973. (?53)
(DB183)	CM	MP.	Delair and Lander 1973. (see 1, 2, 3)
(DB144)	IM	MP.	Delair and Lander 1973. (85)
(DB143 and/ or 144)	IM	MP.	Ensom, 1982. (50)
(DB133)	IM	MP.	Ensom, 1987a. (138)
(DB128)	IM	MP.	Delair and Lander 1973. (87, 88)
(DB127)	IM	MP.	Delair and Lander 1973. (86)
(DB125)	IM	MP.	Delair and Lander 1973. (11, 12, 13, 19, 20, 22, 32, 33, 35, 36, 38, 46, 89, 91, 92)
(DB123)	IM	MP.	Delair and Lander 1973. (20)
(*c.*DB113)	IM	MP.	Ensom 1994. (Vertebrate - ?dinosaur). (131, 132)
(DB114)	IM	MP.	Delair and Lander 1973. (93)
(DB102/3)	CFM	MP.	Ensom 1987, 1987b, 1988 & Ensom *et al* 1994. (125, 146)
(DB101)	CFM	MP.	Delair and Lander 1973. (90, 94)

REFERENCES

Clements, R.G., 1993, Type section of the Purbeck Limestone Group, Durlston Bay, Swanage, Dorset, *Proceedings*, Volume 114, pp.181-206.

Delair, J.B., 1982, Multiple dinosaur trackways from the Isle of Purbeck, *Dorset Proceedings*, Volume 102, pp.65-67.

Delair, J.B., and Lander, A.B., 1973, A short history of the discovery of reptilian footprints in the Purbeck Beds of Dorset, with notes on their stratigraphical distribution, *Dorset Proceedings*, Volume 94, pp.17-20.

El Shahat, A., and West, I.M., 1983, Early and late lithification of aragonitic bivalve beds in the Purbeck Formation, (Upper Jurassic - Lower Cretaceous) of Southern England, *Sedimentary Geology*, Volume 35, pp.15-41.

Ensom, P.C., 1982, Dinosaur footprints at 19 Townsend Road, Swanage, *Dorset Proceedings*, Volume 103, p.141.

Ensom, P.C., 1982a, *Ichnites* sp. from Worbarrow Tout, near West Lulworth, *Dorset Proceedings*, Volume 103, p.141.

Ensom, P.C., 1983, *Ichnites* spp. from the Chief Beef Beds and Broken Shell Limestone, Durlston Beds, Purbeck Limestone Formation, Durlston Bay, Swanage, *Dorset Proceedings*, Volume 104, p.201.

Ensom, P.C., 1983a, Correction to Multiple trackways from the Isle of Purbeck, J.B. Delair, *Dorset Proceedings*, Volume 102, 1982, *Dorset Proceedings*, Volume 104, pp.201-202.

Ensom, P.C., 1984, *Ichnites* spp. in Durlston Bay and on Worbarrow Tout, *Dorset Proceedings*, Volume 105, pp.166-7.

Ensom, P.C., 1985, An annotated section of the Purbeck Limestone Formation at Worbarrow Tout, Dorset, *Dorset Proceedings*, Volume 106, pp.87-91.

Ensom, P.C., 1985a, A correction and additions to the distribution of *Ichnites* spp. in the Purbeck Limestone Formation of Worbarrow Tout and Durlston Bay, Dorset, *Dorset Proceedings*, Volume 106, pp.166-167.

Ensom, P.C., 1986, *Ichnites* sp. from the Upper Cypris Clays and Shales Member (Purbeck Limestone Formation), near Harmans Cross, Dorset, *Dorset Proceedings*, Volume 107, p.183.

Ensom, P.C., 1987, A remarkable new vertebrate site in the Purbeck Limestone Formation on the Isle of Purbeck, *Dorset Proceedings*, Volume 108, pp.205-206.

Ensom, P.C., 1987a, Notes on *Ichnites* spp. in the Purbeck Limestone Formation, Dorset, *Dorset Proceedings*, Volume 108, p.206.

Ensom, P.C., 1987b, Dinosaur tracks in Dorset, *Geology Today*, Volume 3, pp.182-183.

Ensom, P.C., 1988, Excavations at Sunnydown Farm, Langton Matravers, Dorset: amphibians discovered in the Purbeck Limestone Formation, *Dorset Proceedings*, Volume 109, pp.148-150.

Ensom, P.C., 1994, A new vertebrate trackway from the Intermarine Member Purbeck Limestone Formation, Dorset, *Dorset Proceedings*, Volume 115, pp.183-4.

Ensom, P.C., Evans, S.E., Francis, J.E., Kielan-Jaworowska, Z. and Milner, A.R., 1994, The fauna and flora of the Sunnydown Farm

footprint site and associated sites: Purbeck Limestone Formation, Dorset, *Dorset Proceedings*, Volume 115, pp.181-182.
Nunn, J.F., 1990, A new tridactyl footprint impression in Durlston Bay, Swanage, *Dorset Proceedings*, Volume 111, pp.133-134.
West, I.M., and El Shahat, A., 1985, Dinosaur footprints and early cementation in Purbeck bivalve beds, *Dorset Proceedings*, Volume 106, pp.169-170.

A37 HOLYWELL ROAD IMPROVEMENT TEMPORARY EXPOSURES WEST DORSET

H.C. Prudden
2 Yeovil Road, Montacute, Somerset TA15 6XG

Roadworks in 1993 produced temporary exposures in the downfaulted block of Cretaceous formations which lies to the east of Evershot, and also in the adjacent clay vale. B.M.Cox of the British Geological Survey (BGS) kindly identified the Jurassic material.

Holywell cutting (ST 5930 0476 to 5930 0480)
The cutting showed gritty off-white chalk with irregular 80 mm diameter, cylindrical, black, branching flints with hollow interiors, and small 5 mm diameter cylindrical burrows. There was a varying density of joints producing a blocky effect; some joint surfaces showed sub-horizontal striations and harded chalk. The presence of nearby N-S faults and the display of N-S/NNW-SSE strike-slip faulting on the newly revised BGS *Shaftesbuy Sheet* suggests that there may be a component of strike-slip movement at Holywell.

Large pipes filled with typical Clay-with-flints penetrated the Chalk on the hilltop; orange-brown sandy clay with angular and highly weathered flints were separated from the Chalk by a lining of stiff black clay. One pipe was 7m deep amd 12m long and appeared to have a N-S linear shape. Weathering may have been influenced by N-S weaknesses in the Chalk.

Cutting opposite layby west of Bubb Down Hill (ST 5930 0476 to 5930 0480)
The cutting showed 1 m of soil and small shattered flints overlying 1.4 m of chalky rubble containing black, unwearthered cylindrical flints. The Chalk below appeared to be brecciated and had weak jointing with a strike of 20° N. At first sight, the features were taken to be Head and the effects of weathering. However it is possible that the brecciation is further evidence for tectonic activity.

Stock Wood cutting (ST 5880 0640 to 5870 to 0658)
Foxmould of the Upper Greensand Formation was faulted against the Peterborough Member (formerly Lower Oxford Clay) of the Oxford Clay Formation. The latter, composed of brown and brownish-grey (weathered), fissile, shelly mudstone contained bivalves including *Meleagrinella braamburiensis* (Phillips) (abundant) and nuculaceans (including *Dicroloma* and *Procerithium damonis* (Lycett), and poorly preserved fragments of the ammonite *Kosmoceras* showing looped-ribbing. In addition, there were flattened doughnut-shaped septarian nodules (0.17m x 0.60m). These features indicate Upper Callovian, Athleta Zone, Phaeinum Subzone. It is possible that the nodules represent the Comptoni Bed/Acutistriatum Band. BGS registered specimen nos. Zu4650-5642.

The cutting confirmed the location of the fault as shown on BGS Sheet 312 (ST 5877 0649). The clays showed a dip of 15° to 335° N (NNW) and a number of joints striking 30°N roughly parallel with the fault. At the southern end of the cutting 0-1 m of bright orange, very flinty Head lay on 2m (seen) of weathered, mottled orange/brown clay becoming a stiff dark blue-grey clay with selenite chrystals.

Road junction to Chetnole (ST 5840 0690)
Very flinty Head was rucked into fine-sandy clay.

Cutting west of Stockwood (ST 5842 0685)
Cemented siltstone/sandstones contained *Gryphaea (Bilobissa) dilobotes* Duff, small cerithiid gastropods, serpulid, and bivalves *Corbulomima* and *Myophorella*. These represented the Kellaways formation, ?Kellaways Sand Member, Lower Callovia., ?Calloviense Zone. BGS registered specimen no. Zu5643.

Note: BGS Sheeet 312 Yeovil shows Lower Chalk adjacent to Upper Chalk on the line of the A37 west of Bubb Down Hill which is clearly in error. BGS suggest that the Lower Chalk should presumably be shown as Middle Chalk.

DINOSAUR VERTEBRA FROM WATTON CLIFF

H.C. Prudden
2 Yeovil Road, Montacute, Somerset TA15 6XG

A vertebra was found in the 1970s on the seaward side of the top of Watton Cliff at the level of the oyster lumachelle within the Forest Marble Formation. It was presented to The Natural History Museum in 1993.

It has been identified by Dr Angela Milner as the first sacral vertebra of a theropod dinosaur. Bearing in mind its age, it is probably Megalosaurus or something similar. Natural History Museum specimen registration no BMNH R12458

DORSET RAINFALL 1994

D. J. Paxman

The general rainfall over Dorset in 1994 was 1064 millimetres, 16 per cent above the 1951-1980 average of 915 millimetres. This was the fourth successive increase in annual rainfall, making 1994 the wettest year since 1974.

MONTHLY SUMMARY

	Rainfall (mm)	Average 1951-80	% of average	Number of days with thunder
January	129	97	133	6
February	118	73	162	0
March	80	70	114	1
April	58	50	116	4
May	94	62	152	6
June	22	55	40	5
July	30	56	54	5
August	64	73	88	5
September	95	85	112	10
October	126	87	145	2
November	119	103	116	1
December	126	102	124	2

Netherhay, near Broadwindsor, was the wettest station (1348 millimetres), and Gillingham the driest (762 millimetres).

GENERAL REPORT

The first five months of the year and the last four months were all wetter than average. Between these two groups of wet months came three successive months with less than average rainfall. June was the driest month of the year, with only 10 mm of rain at Yetminster. Thundery activity again increased. 1993 was notable in having 42 days when thunder was heard in Dorset. In 1994 the number of days rose to 47. The average number of such days (1982-91) is 22.

It is now exactly a century since our records include a tally of rain days, defined as days with at least 0.2 mm of rain. The 1994 total was 187. This has been exceeded on nine occasions during the hundred years. The highest was 206 rain-days in 1960, which was the wettest year in Dorset in records going back to 1856. The general rainfall of that year was 1312 mm, which is 248 mm more than the 1994 total.

Many of our stations had between 1 and 6 cm of snow on February 14th, and a further fall on 15th gave a cover of up to 8 cm. All the snow went by 17th. The 8 cm cover at Dorchester was the deepest there since the winter of 1982. Further falls produced a similar cover from 20th to 22nd February. Again the snow soon thawed or was washed away.

The year's average rainfall over those parts of Dorset lying within the various river basins was as follows:-

Axe 1237 mm
Frome 1150 mm
Parrett 1068 mm
Stour 1019 mm
Coastal 994 mm.

RAINFALL IN DORSET 1994

STATION	OBSERVER OR AUTHORITY	GREATEST FALL IN 24 HOURS		DAYS WITH 0.2 MM OR MORE	DAYS WITH 25 MM OR MORE	DEPTH OF RAINFALL IN MILLIMETRES												TOTAL FOR YEAR
		Depth	Date			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
STOUR BASIN																		
Ashmore *	Major PF Stoop	-	-	-	-	124.0	69.6	58.9	82.8	85.9	22.6	19.1	72.1	90.7	120.4	120.4	126.2	992.6
Belchalwell Street *	DR Prestwich	39.7	9/11	198	7	132.7	130.7	91.9	57.0	85.8	18.4	20.3	41.6	117.8	130.0	147.6	126.2	1100.0
Blandford	Captain IGH Garnett	-	-	-	-	111.4	116.6	79.9	49.5	58.8	13.5	38.8	37.3	97.0	115.4	86.7	125.9	930.8
Blandford St Mary	A Fleet	32.6	30/10	203	6	130.1	110.2	86.7	58.6	60.6	20.9	51.8	45.4	115.6	135.0	120.1	133.7	1068.7
Bournemouth (Hurn Airport) *	Met. Office	40.7	30/10	185	2	130.2	112.6	65.8	54.3	81.7	19.2	22.6	41.6	84.3	133.9	99.1	109.0	954.3
Child Okeford	IR Moore	35.0	8/11	198	7	128.2	113.0	96.2	68.5	92.5	26.2	34.0	65.6	106.8	133.3	132.3	149.0	1145.6
Compton Abbas (Apple Lynchet)	HJ Stirling	30.0	30/10	208	2	113.0	85.3	79.0	55.6	91.2	21.3	38.1	55.9	93.5	132.8	103.4	132.3	1001.4
Compton Abbas (Old Barn Cottage)	P Butler	-	-	-	-	109.0	104.0	78.0	48.0	94.5	22.0	38.5	54.0	93.0	133.0	118.0	126.5	1018.5
Corfe Mullen (Central Avenue) *	AH Dunn	41.9	30/10	205	3	137.4	114.6	70.9	63.2	85.6	20.6	55.6	49.0	90.4	127.5	105.9	127.8	1048.5
Cranborne (Pound Farm) *	DN Cradock	29.0	30/10	166	4	139.5	116.0	88.0	67.0	96.0	24.0	25.0	65.5	102.0	132.0	104.0	132.0	1091.0
East Orchard (Kumbi Lodge)	RI Jesse	31.0	8/11	174	3	113.0	98.0	78.0	56.0	81.5	20.0	40.0	50.0	71.0	124.0	118.0	126.5	976.0
East Stour	R Brown	27.5	30/10	174	1	110.0	77.7	74.5	52.8	77.4	19.9	36.2	50.0	67.6	108.2	87.7	110.1	872.1
Fontmell Magna	Mrs J Westgate	31.5	8/11	200	2	103.5	98.3	76.3	56.0	89.9	18.3	31.7	50.1	82.8	122.2	109.6	114.5	953.2
Gillingham (Claremont Avenue)	R Logan	-	-	149	0	95.0	74.7	73.7	46.0	73.0	26.5	27.0	47.1	52.5	60.0	64.5	122.0	762.0
Hazelbury Bryan	B Russell-Attwood	36.0	9/11	184	4	120.0	108.5	86.5	58.0	103.5	20.0	10.5	55.5	134.5	134.5	131.5	144.0	1107.0
Holwell (Vale View Farm) *	P Henshaw	25.0	9/11	181	2	81.5	85.0	63.0	45.5	77.7	14.5	15.2	47.5	117.0	94.0	91.2	100.0	832.1
Iwerne Minster	R Benfield	30.0	8/11	181	3	107.5	105.7	76.7	50.7	81.5	19.0	34.5	45.5	77.0	116.5	109.4	118.8	942.8
Kingston (Five Elms)	Miss EA Bell	36.2	13/9	207	4	128.5	116.0	83.5	54.9	90.2	13.1	16.7	49.9	119.0	126.2	122.6	129.4	1050.0
Kington Magna	D Byrne	27.2	30/10	201	1	107.6	77.5	68.9	51.5	79.9	24.2	27.0	59.0	78.6	112.6	92.6	110.4	889.8
Long Burton *	AE Whittaker	65.2	13/9	166	7	111.7	97.7	79.6	47.7	86.4	13.3	22.2	75.8	152.0	95.7	104.0	110.8	996.9
Marnhull (Church Farm)	DJ Hole	26.0	30/10	171	1	113.5	86.3	82.2	57.7	75.0	16.0	29.0	47.8	85.5	106.5	95.0	114.0	908.5
Marnhull (Hains Lane) *	A Bradbury	28.2	30/10	214	1	117.6	100.6	82.0	57.4	83.6	21.8	34.3	51.8	82.6	111.3	94.2	109.5	946.7
Motcombe (The Chase)	ME Rawlins	37.0	30/10	135	1	125.0	91.0	87.0	58.0	85.0	30.0	36.0	51.0	62.0	140.0	91.0	133.0	989.0
Shaftesbury (Higher Blandford Road)	P Dewe	25.0	30/10	170	1	135.0	104.0	87.0	73.0	104.0	29.0	34.0	39.0	75.0	126.0	107.0	101.0	1014.0
Shaftesbury (Hilltop) *	MGF Yorke	30.3	30/10	205	2	147.1	105.8	94.6	64.4	109.1	32.1	42.6	56.6	85.2	139.1	111.1	98.7	1086.4
Stourton Caundle	RL Baillie	26.9	9/11	194	3	94.9	90.1	75.3	45.8	81.3	19.3	22.7	57.1	85.2	100.2	88.9	96.8	857.6
Sturminster Newton	HL Dawes	29.9	8/11	186	3	116.9	97.9	90.4	49.5	73.5	15.9	25.3	45.9	74.0	109.1	109.6	130.4	938.4
Tarrant Monkton (Monksmead) *	BG Hart	40.8	30/10	202	3	119.9	102.9	80.5	58.4	81.1	15.6	42.4	36.7	91.4	133.5	102.4	124.1	988.9
Turnworth House	A Yetman	37.5	8/11	170	6	146.5	142.0	109.5	59.0	98.0	25.0	27.5	47.0	136.0	142.0	149.5	161.0	1243.0
West Bourton *	D Westmacott	43.9	14/9	180	3	95.0	79.8	79.2	46.5	96.8	31.0	48.5	64.0	109.2	117.6	76.2	128.8	972.6
Winterborne Stickland *	Mrs TM Simpson	52.1	30/10	208	8	151.0	144.7	104.8	66.7	85.2	23.4	29.8	48.8	137.4	150.9	159.4	190.2	1292.2
Winterborne Zelston *	BE Hooper	35.0	30/10	157	5	116.0	116.0	66.0	48.0	87.0	15.0	27.0	42.0	77.0	129.0	123.0	103.0	949.0
Witchampton	A Mitchell	-	-	-	-	127.8	116.0	76.1	59.0	94.0	15.4	38.1	45.5	89.0	-	81.0	108.5	-
FROME BASIN																		
Ansty (Ivy Cottage) *	Mrs A Stevens	49.1	13/9	215	4	129.5	129.8	81.9	58.6	95.2	18.9	25.2	53.1	137.0	133.5	152.9	134.2	1149.8
Bradford Peverell *	D Oliver	51.4	30/10	211	6	152.5	149.4	105.2	71.7	100.2	27.6	21.2	58.1	89.6	158.9	148.3	149.5	1232.2
Cerne Abbas (Abbots Walk) *	Mrs M Boxwell	34.8	30/10	217	6	150.5	146.4	98.4	71.5	90.1	26.5	29.3	60.9	106.1	136.5	121.6	137.9	1175.7
Charminster (Hill View)	Mrs Eveleigh	45.6	30/10	-	5	145.6	147.6	93.3	65.9	96.9	26.6	21.3	51.8	84.0	152.0	149.7	144.8	1179.5

STATION	OBSERVER OR AUTHORITY	GREATEST FALL IN 24 HOURS		DAYS WITH 0.2 MM OR MORE	DAYS WITH 25 MM OR MORE	DEPTH OF RAINFALL IN MILLIMETRES												TOTAL FOR YEAR
		Depth	Date			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
FROME BASIN (contd.)																		
Dewlish (Parsonage Farm)	Mrs Britton	50.0	30/10	174	6	143.0	126.0	91.0	75.0	100.0	16.0	25.0	71.0	117.0	124.0	144.0	139.0	1171.0
Dorchester (Weatherbury Way) *	JR Oliver	57.1	30/10	203	4	151.2	142.3	94.7	66.9	110.5	28.8	24.9	56.4	91.5	155.1	144.2	140.7	1207.2
East Stoke (River Lab.)	J Morgan	72.0	30/10	199	3	147.2	125.7	76.3	61.1	105.5	24.7	37.7	54.1	81.3	148.5	123.9	130.1	1116.1
Frome St Quintin *	D Pearman	40.1	8/11	209	8	140.7	146.6	106.7	79.5	110.2	24.4	20.3	111.3	93.0	164.1	158.2	152.7	1307.6
Higher Wraxall (Manor farm)	Mrs JF Wilson	42.1	8/11	164	6	128.7	146.5	110.1	64.0	94.7	24.6	20.3	96.4	100.2	151.1	148.7	142.5	1227.8
Milborne St Andrew (Coles Farm) *	AS Maitland	49.0	30/10	207	7	142.1	132.4	95.7	73.4	101.2	22.8	29.1	96.7	113.3	159.1	167.8	170.9	1304.5
Milborne St Andrew (Wetherby Close)	RE Baylis	40.0	30/10	188	4	121.4	123.7	72.7	60.0	87.8	16.3	27.8	60.6	94.1	125.1	120.7	124.4	1034.6
Milton Abbas	K Battrick	54.0	29/12	176	-	138.0	142.5	93.5	66.5	97.0	20.0	30.5	68.5	99.5	150.0	153.5	152.5	1212.0
Parkstone (Lilliput) *	RJO Crew	-	-	153	2	135.9	73.9	55.6	27.9	48.0	21.6	45.2	41.1	69.3	114.8	98.3	97.5	829.3
Puddletown (Bardolf Manor) *	Mrs HG Wood-Homer	49.5	30/10	200	4	146.0	151.1	75.2	62.9	101.6	19.9	22.5	67.1	82.7	150.5	149.0	143.3	1171.8
Wareham (Trigon) *	GP Sturdy	46.0	8/11	172	3	126.4	110.8	63.7	47.3	98.4	15.7	33.3	43.3	73.4	128.2	107.5	124.8	972.8
PARRETT BASIN																		
Chetnole Farm *	P Horsey	50.0	8/12	137	10	121.9	122.0	100.5	59.0	88.5	36.0	16.5	108.6	74.0	154.0	130.0	148.0	1159.0
Chetnole (Charing Cross Farm)	J Woodford	-	-	-	-	137.0	135.0	98.0	66.0	88.0	16.0	21.0	93.0	92.0	155.0	132.0	153.0	1186.0
Halstock (Meadow View) *	Cdr. JR Young	37.0	30/10	179	6	120.7	122.0	85.3	58.2	92.1	15.3	47.0	95.3	90.1	131.0	128.0	145.3	1130.3
Leigh (Denbury House)	Lt-Col Barlow-Poole	-	-	-	-	119.4	111.8	75.4	46.2	75.7	-	-	-	-	-	-	-	-
Milborne Port, Som	EB Evans	48.8	14/9	216	4	115.8	107.2	91.2	56.9	85.9	24.4	29.5	92.2	107.7	100.6	100.8	100.6	1012.7
Purse Caundle (Frith Farm) *	K Dunn	-	-	-	-	138.1	108.0	71.9	76.8	85.4	30.0	26.5	67.6	94.0	108.3	101.0	101.0	1008.6
Thornford *	DH Paul	38.0	25/9	164	9	99.5	94.2	78.6	45.1	69.8	11.8	26.4	86.4	144.1	86.0	107.1	125.0	974.0
Yetminster (Church Street)	JM Bosworth	-	-	-	-	109.5	105.2	82.2	52.7	74.8	10.4	23.5	82.9	80.1	95.7	106.3	121.9	945.2
AXE BASIN																		
Broadwindsor (Netherhay) *	JA Barnard	71.0	14/9	210	8	147.6	143.2	92.5	72.2	127.4	28.0	42.0	98.8	154.3	120.2	160.8	161.3	1348.3
Forde Abbey *	M Roper	59.4	8/11	186	6	129.7	139.0	74.0	61.1	102.6	25.0	28.6	64.3	99.4	105.4	164.4	132.1	1125.6
COASTAL STREAMS																		
Abbotsbury (East Farm) *	DJ Wood	36.3	30/10	175	3	117.1	123.7	75.7	46.2	105.4	18.3	23.9	53.1	74.4	113.3	110.7	112.0	973.8
Bradpole *	GR Smith	50.2	10/8	153	6	127.6	130.1	83.0	60.6	117.2	24.3	33.4	149.5	102.9	130.6	125.6	118.0	1202.8
Durlston Country Park	M Turnbull	41.3	30/10	197	5	163.4	121.7	79.2	57.6	124.0	27.9	38.1	49.0	85.1	132.4	117.1	133.5	1129.0
Langton Matravers (Leeson House) *	D Kemp	42.8	30/10	188	3	152.9	114.9	75.9	55.4	110.9	28.6	41.9	52.7	80.2	130.5	101.6	132.1	1077.6
Lyme Regis (Pinhay, Devon) *	Mrs KD Allhusen	32.3	7/11	188	2	119.8	152.5	90.9	60.0	106.0	23.9	33.0	98.4	115.9	113.3	121.2	112.2	1147.1
Osmington Mills *	J Hadwin	37.0	30/10	164	2	125.5	122.0	71.0	49.5	97.5	21.5	20.5	37.5	33.5	118.5	106.5	109.0	912.5
Portland Bill *	Mrs FE Lockyer	28.1	30/10	191	1	112.2	119.9	63.8	36.8	90.7	15.5	16.8	39.0	66.9	78.7	57.0	91.1	788.4
Swanage *	K Moore	40.5	30/10	188	4	141.8	99.1	65.1	52.9	105.5	24.5	35.3	39.8	67.0	126.0	98.8	126.2	982.0
Weymouth (Cranford Avenue) *	HF Middleton	38.4	30/10	180	3	116.7	114.3	65.2	42.8	83.7	19.5	21.7	42.5	47.8	115.4	98.5	100.6	868.7
Wyke Regis	G Barnes	33.1	30/10	172	2	112.5	124.6	61.6	40.0	87.1	18.9	17.2	42.3	48.3	112.7	93.1	97.1	855.4
AVERAGE FOR THE COUNTY				187	5	129.2	118.4	80.4	58.2	93.9	22.2	29.7	64.3	95.5	126.3	119.4	126.4	1063.9

Stations marked * were used in calculating Basin and County averages.

Heavy Falls of Rain

February 2nd

At midday a rapidly deepening depression was approaching the British Isles from the SW. The associated fronts crossed southern England during the night of 2nd/3rd, giving more than 25 mm of rain to Weymouth, Dorchester and the central Dorset hills (30 mm at Cerne Abbas and at Bardolf Manor, Puddletown).

February 22nd

From February 12th a blocking anticyclone over Scandinavia brought very cold air from central Europe to southern Britain. On 13th the temperature at Abbotsbury remained at -5C all day. Eventually the anticyclone transferred slowly eastwards, allowing frontal systems from the Atlantic to cross the south-west on 22nd. Precipitation, much of it initially as snow, exceeded 25 mm over most of the western hills (30 mm at Frome St Quintin, 29 mm at Bradford Peverell). Snow depths were typically 2 to 5 cm, but the snow was soon washed away by rain in the warmer air behind the fronts.

March 31st

Westerly weather predominated throughout March. On 31st a very deep depression (952 millibars) was centred between Scotland and Iceland, and a vigorous secondary moved rapidly NE across Ireland and southern Scotland, giving heavy rain during the night of 31st/1st. The fall exceeded 25 mm along the North Dorset heights (33 mm at Netherhay, 31 mm at Higher Wraxall).

May 24th

During the second half of May pressure gradients were often slack over much of the North Atlantic. Unusually pressure was higher over Iceland than over mainland Europe. By 24th a shallow depression which had originated over Spain had moved to northern France. From Forde Abbey to Weymouth rainfall exceeded 25 mm (33 mm at Netherhay, 28 mm at Bradpole). Further inland and in east Dorset there were falls of 10 mm or less.

July 31st

In the last days of Britain's hottest July since 1983, with pressure low over Spain and France, the atmosphere became increasingly unstable over southern counties. Dorset had thunderstorms on 27th, 28th, 30th and 31st. Although thunder was heard throughout the county on 31st, heavy rain was confined to a narrow band of country extending inland from Canford Cliffs and Branksome to Blandford (33 m at Blandford St Mary, 30 mm at Corfe Mullen). The western half of Dorset had falls of less than 10 mm.

August 3rd

Similar conditions obtained during the first three days of August, with widespread thunderstorms on 2nd and 3rd. On the latter day the heaviest rain was again over a narrow band of country, this time from Maiden Newton north to Sherborne (33 mm at Thornford, 32 mm at Frome St Quintin).

August 10th

Following several days of fine and dry weather, thunderstorms occurred again on both 9th and 10th. On 10th 50 mm of rain fell in a localized storm at Bradpole, near Bridport, and 43 mm in another storm at Milborne St Andrew. At Milton Abbas there was a fall of 29 mm, of which 25 mm fell in a single hour between 1630 and 1730 GMT. Although thunder was heard over most of Dorset, well over half of our stations reported less than 10 mm of rain.

September 13th & 14th

At noon on 13th a shallow but deepening depression of 1000 millibars was approaching slowly from the SW. The air mass then over southern counties was already unstable, giving thunderstorms in Dorset on 12th. Heavy instability rain and further thunderstorms reached Dorset late on 13th. By midday on 14th the depression centre (now 995 millibars) lay between the coasts of Devon and Brittany. During the next twelve hours it crossed Dorset on its way to East Anglia and the North Sea. There were thunderstorms in rear of the centre as there had been ahead of it.

On 13th the heaviest fall in Dorset was 65 mm a few miles south of Sherborne at Long Burton. On 14th this was exceeded by a fall of 71 mm at Netherhay. However, since the rainfall of these two days was the product of a single weather event it is sensible to consider the rainfall of the whole period of 48 hours. The greatest falls were along Dorset's borders with Devon and Somerset (98 mm at Netherhay, 73 mm at Long Burton, 65 mm at Thornford, 60 mm at West Bourton). In central Dorset 57 mm fell at Ansty and 46 mm at Winterborne Stickland. South and east of these areas, away from the main concentrations of thunderstorm cells, the falls were relatively light: 20 mm along the borders with Wiltshire and Hampshire, and 10 to 15 mm along the coast from Portland to Swanage and Poole.

October 30th

During the first half of October weather was anticyclonic, dry and sunny. This gave way on 19th to a more familiar westerly regime. At 1200 GMT on 30th a large, slow-moving and mature depression dominated the eastern North Atlantic. The associated frontal troughs lay east-west across southern England, almost parallel with the isobars and quasi-stationary. The frontal rain was intensified by small wave disturbances. On this occasion almost the whole of Dorset had over 25 mm of rain. The heaviest falls were 72 mm at East Stoke and 57 mm at Dorchester.

November 8th & 9th

This was another occasion when a single weather event produced heavy rainfall which was spread over two rain-days. The heaviest single-day fall was 59 mm at Forde Abbey on 8th. All further totals mentioned in the following notes refer to the full 48 hours.

The fronts of an Atlantic depression became slow-moving as they crossed southern England. A wave on the trailing cold front intensified the rain and also delayed the clearance of the cloud and rain. As on September 13th and 14th the largest falls were in west Dorset (87 mm at Forde Abbey and 83 mm at Netherhay). Although these fall short of the 98 mm at Netherhay on September 13th and 14th, a much greater weight of rainwater fell on Dorset in the two November days than in the two in September. In November the heavy falls were much less localized. Falls of almost 80 mm were recorded at several stations in the hills of central Dorset. Four fifths of the county had more than 50 mm, and only one solitary station (Gillingham) claimed to have had less than 25 mm in the 48 hours. Without any doubt this was Dorset's biggest wetting of the year.

Rainfall Stations

New stations:-

	NGR	Height ASL
Chetnole (Charing Cross Farm)	ST 606077	80 m
Compton Abbas (Old Barn Cottage)	ST 870183	120 m
Kingston (Five Elms)	ST 754100	104 m

The station at Abbotsbury (East Farm), temporarily closed, reopened in 1993. It is at SY 579853 and is 48 m ASL. The position of the station at Portland Bill is SY 677692 and it is 54 m ASL.

Two stations have closed:-
Leigh (Denbury House) at the end of May, and Parkstone (Lilliput) at the end of the year.

The name of RJO Crew has appeared in our Table of Rainfall for 46 years. From 1949 to 1972 he was responsible for the gauges at both Bourne Valley Gasworks at Branksome and Pitwine's Gasworks at Poole. Following his retirement he opened a station at his home at Lilliput. For us it was a usefully sited gauge which represented one of the driest corners of Dorset. Our Society is most grateful to Mr Crew for his long and meticulous service.

Correction

Volume 115 page 187 : The 1982-1992 Marnhull reports were from the station at Hains Lane, not Church Farm.

DORSET BOTANY IN 1994

David Pearman

For many of the years since 1974 these notes have covered the political county of Dorset, which includes, more or less, the original V.C.9 and the part of Hampshire V.C.11 occupied by Bournemouth and Christchurch. The political future of greater Dorset is still unknown but for the time being Dorset *sensu latu* will be covered!

A great impetus to knowledge in that part of the county ex V.C.11 has been the publication of the *Flora of Christchurch*, by Felicity Woodhead. Nothing significant had been published here since the last version of Lintons *Flora of Bournemouth* in 1919. Although the records are on a 1km square basis with relatively few sites, the area is thoroughly covered and given the imminence of the long awaited *Flora of Hampshire* will not now be recorded again for the new *Flora of Dorset*.

Further coverage of one particular group of plants, the Cyperaceae, was given in this author's *Sedges and their allies in Dorset*, which covered their history and distribution in the county, with much detail given on locations for the rarer species.

There were many good records of flowering plants in the year including another site for *Lithospermum arvense*, an inland record for *Scandens pecten-veneris* and a second record, albeit of a single plant, for *Illecebrum verticillatum*. The Beaminster record for *Dipsacus pilosus* was re-found and a new site for the intriguingly uncertain native *Gaudinia fragilis* was located in the far north of the county. Three more very small sites of the rapidly declining heathland violet, *Viola lactea*, were discovered.

There were successful meetings of the BSBI in West Dorset and the Wiltshire Flora Group in the Gillingham area.

On the lower plant front the highlight was the discovery of the lichen *Physcia tribacioides* in the Bride Valley. This is a Red Data Book species restricted to the west of Britain. A week-long meeting of the British Bryological Society (BBS) produced many new records.

Abbreviations

HJMB	H.J.M. Bowen	LJM	L.J. Margetts
BE	B.Edwards	DP	D. Pearman
DG	D. Green	RS	R. Surry
GF	G. Field	RMW	R.M. Walls

Aconitum nappellus Monkshood

Nr. Puncknowle DP; RS Mangerton RS, Melbury Osmond DP and downstream J.Gibson. This species is probably native in NW Dorset although the Melbury records might be suspect. It has long been recorded downstream of here, to Yeovil Junction (which has mysteriously been transferred to Somerset this year!) but occurs in vast abundance in Melbury Park and just outside.

Alopecurus bulbosus Bulbous Foxtail

Lytchett Bay DP & DG. This is a new site and it is growing here with the hybrid *Alopecurus x plettkei*.

Anthemis arvensis Corn Chamomile

Near Langton Herring HMJB. This rare cornfield flower is almost never recorded nowadays.

Carex curta White Sedge

South of Tricketts Cross, upstream and across the river from St Leonards colonies. RMW.

Carex dioica Dioecious Sedge

Hartland, West Bog, S.Chapman.

Carex lasiocarpa Slender Sedge

Keysworth BE. This colony is much larger than originally thought and wholly under the line of the proposed by-pass.

Carex limosa Bog Sedge

Hartland, Middle Fen DP. The only colonies previously known were in the West Bog.

Centaurium tenuiflorum Slender Centaury

East of Seatown, a substantial colony T & V Marshall; M.Galliott. There are now five known sites for this RDB plant which is confined in Britain to the coast from Golden Cap to Eype.

Cerastium pumilum Dwarf Mouse-ear

Durlston Country Park DP & A.J.Byfield.

Crassula tillaea Mossy Stonecrop

Barnsfield Heath BE.

Dactylorhiza traunsteineri Narrow-leaved Marsh-orchid

Hinton St Mary M.Jenkinson.

Dipsacus pilosus Small Teasel

Parnham LJM. This is a mile or so south of Beaminster, where it was known until the mid 1970s.

Epilobium lanceolatum Spear-leaved Willowherb

Bredy Farm HMJB.

Erodium moschatum Musk Storksbill

Ferrybridge D.Leadbetter. This is the only V.C.9 record in the 20 years.

Eriophorum latifolium Broad-leaved Cottongrass

Not found in any of the sites near Slepe. DP + S.Chapman. This means the only record since 1976 is a single plant at St Marys Bottom, near Rampisham.

Euphorbia platyphyllos Broad-leaved Spurge

Edmondsham GF.

Euphrasia pseudokerneri

Rawlsbury Gap HJMB.

Gagea lutea Yellow star-of-Bethlehem

Ibberton BE & DP. The older records are confusing; some saying Hilton, others Ansty. As far as I know it is recorded from a wood at Stoke Wake and this hedgerow site.

Gaudinia fragilis French Oat

W of Gillingham DG + DP. This is a third (second extant) county record. It was growing here in a steep unimproved part of a largely improved pasture.

Hypericum montanum Pale St Johns Wort

Whiteway Hill BE, Povington Hill BE. The only other recent records are from around Corfe Castle.

Illecebrum verticillatum Coral Necklace

Barnsfield Heath BE. One plant in ground used by the M.O.D. It could have come from West Moors where it is frequent in parts of the M.O.D. base.

Juncus compressus Round-Fruited Rush

Winkton Common J.Rowe. This is, of course, in V.C.11. There have been no reliable records in V.C.9 for 20 years.

Juncus foliosus Leafy Toad Rush

Hooke Park LJM.

Legousia hybrida Venus's Looking-glass

Chettle HMJB, Badbury D.Godfrey.

Limonium dodartiforme Rock Sea-lavender

Arish Mell BE. A large colony forming the easternmost site for this critical species.

Lithospermum arvense Field Gromwell

Bowldish Pond GF. The only other recent record is from St Aldhelm's Head.

Lotus subbiflorus Hairy Birdsfoot Trefoil

Studland HJMB, Barnsfield Heath BE, Hurn Airport J.Crewe.

Lycopodiella inundata Marsh Clubmoss

Turnerspuddle RMW, Holt Heath (possibly a new site) J.Crewe.

Oenanthe fluviatilis River Water-dropwort

In many places down the R. Frome RMW+ DP. There was no sign of *O. aquatica*, and in fact there are few recent records at all for that species.

Papaver argemone Prickly Poppy

Studland HJMB.

Persicaria laxiflora Tasteless Water-pepper

Nr. Keynston Mill HJMB.

Poa bulbosa Bulbous Meadow-grass

South Haven HJMB + R.S.R.Fitter. This has appeared along with *Vicia lathyroides*, where the new scalpings have been removed.

Polygonium rurivagum Cornfield Knotgrass

Blandford St Mary HJMB

Polypodium cambricum Southern Polypody

Below Grove Portland in great quantity HJMB, Abbotsbury Church HJMB.

Potamogeton nodosus Loddon Pondweed

R. Stour, below Child Okeford C.D.Preston & DP. A new site. The whole river from N. of Blandford to above Marnhull has now been covered and the limits of this species, and its hybrid, reported last year, are much better understood.

Potamogeton trichoides Hairlike Pondweed

Buddens Farm RMW.

Pulmonaria longifolia Narrow-leaved Lungwort

South of Lytchett Matravers HJMB. A new site, in a hedge bank.

Ranunculus baudotii Brackish Water-crowfoot

Lodmoor DP. Quite frequent on the east side, near the areas containing *Alopecurus bulbosus*.

Ranunculus lingua Greater Spearwort

Spetisbury, possibly native HJMB. This is only included because there are sites thought to be native downstream.

Saxifraga granulata Meadow Saxifrage
Harley Down GF. A new site for this species which seems to be known from less than 6 sites.
Scandix pecten-veneris Shepherd's Needle
Travellers Rest A.Hosford. There are no other recent inland records for this fast declining arable weed.
Silene gallica Small-Flowered Catchfly
Clift, Kingcombe S.Eden. Dorset seems to have more recent records than any other county. This arable weed is almost extinct elsewhere in Britain.
Teesdalia nudicaulis Shepherd's Cress
Ebblake V.Scott.
Trifolium glomeratum Clustered Clover
Yeovil Junction M.Galliot, Bindon Abbey RMW, Poole Law Courts BE.
Trifolium suffocatum Suffocated Clover
Turbary Common RMW.
Typha angustifolia Lesser Reedmace
North east of Stalbridge J.Ounsted.
Valerianella dentata Narrow-fruited Cornsalad
Badbury Rings D.Godfrey. This species now seems very rare indeed, and the only recent records are from here, from Church Ope Cove, where it flowers with, and just after *V. eriocarpum*, and from a cornfield at Studland. The collar on the seed is very distinctive.
Viola lactea Pale Dog-violet
Cranborne Common V.Scott, Sandford BE, Arne Road (1 plant) D.Leadbetter.
Viola tricolor Wild Pansy
Milton-on-Stour HJMB.

Aliens and Adventives

Amni majus
8424 Motcombe, in a garden HJMB
Anisantha diandra
1091 E. of Bournemouth Pier HJMB
Anisantha rigida
1091 E. of Bournemouth Pier HJMB
Arum italicum
9386 Ridge J Bowcott
Centaurea ragusina
Weymouth Station HJMB
Ceratochloa carinata
8595, 9502, 9004 - increasing HJMB
Crepis tectorum
Wyke Regis HJMB
Cyperus eragrostis
0191 Sterte RMW
Fraxinus ornus
9188 Northport, roadside hedge HJMB
Galega officinalis
5188 Othona, in quantity BE and DP
Nymphoides peltata
4894 Loders LJM and J Gibson
7622 Kington Magna J Ownsted
0692 Bournemouth HJMB
Orthocarpus pusillus
0693 Talbot Heath F Woodhead, HJMB
Persicaria wallichii
3800 Birdsmoorgate J E Hawksford and G M Kay
Phalaris aquatica
6181 Langton Herring, arable relic HJMB
Phalaris peruviania
8887 Binnegar Tip HJMB
Quercus frainetto
5604 Melbury Park, large trees HJMB
Sedum hybridum
5192 Askerswell HJMB
Setaria glauca
7389 West of Lewell Mill DP and RMW
Setaria verticillata var. *ambigua*
7890 Hurst Farm, Moreton M Chandler
Symphytum tuberosum
4194 North Chideock M Galliott
Xanthium strumarium
9078 Kimmeridge Beach HJMB
First record since 1799

Hybrids

Elytrigia x *obtusiuscula*
5086 Cogden LJM
x *Festulolium loliaceum*
8492 Culeaze A Horsfall
5709 N of Melbury Osmond I Green
Festuca gigantea x *rubra*
5188 Cogden Farm HJMB
(conf C A Stace)(New to UK)
Juncus effusus x *inflexus*
7628 Silton HJMB and R Veall
Salix x *reichardtii*
4800 Nr Beaminster LJM
Quercus petraea x *robur*
9787 Arne HJMB
9692 Lytchett Bay DG
Polystichum aculeatum x *setiferum*
0002 Honeybrook Copse BE
Potentilla x *suberecta*
9591 Holton Lea DG

LOWER PLANTS

B. Edwards

1994 saw a burst of recording, largely thanks to a visit in March by the British Bryological Society. Several new species to the county were found during their week-long visit. Also, Tom Chester from the British Lichen Society surveyed several church yards, and again made several new county records. The records below are a combination of rare and notable species.

Abbreviations used are:

BBS	British Bryological Society
HJMB	H J M Bowen
TC	T Chester
BE	B Edwards

Lichens

Cladonia caepitica	Holton Heath	BE.
A very local species of old woodlands and peaty banks		
Cladonia foliacea	Bindon Hill and Holcombe Vale	B.E.
In small quantity in short chalk turf		
Cladonia furcata ssp *subraniformis*	Bindon Hill and Portland	V. Viagorini
Local in short calcareous grassland		
Collema furfuraceum	Little Bredy	B.E.
On a eutrophic Ash. Nationally a local western species		
Lecanactis subabietina	8 new records	B.E.
A previously overlooked species of very old Oak trees, mostly in dry recesses of rough bark		
Lecania rabenhorstii	Poxwell Church	T.C & H.J.M.B.
New V.C.9 record		
Lecanora conferta	Almer Church	T.C & H.J.M.B.
New V.C.9 record		
Lecanora soralifera	East Dorset	V. Giavirini
New V.C.9 record. A northern species of acid rocks		
Lepraria lesdanii	Milton Abbey	T.C. & H.J.M.B.
New V.C.9 record		
Leptogium plicatile	Abbotsbury Church	T.C. & H.J.M.B.
Leptogium teretiusculum	Bloxworth	B.E.
On Oak. A local species of old trees		
Lobaria pulmonaria	Glanvilles Wootton	J. White
On old Oak with *Dimerella lutea*. Good record of a declining species		
Parmelia acetabulum	Sturminster Newton	B.E.
On eutrophic Field Maple. 4th record of this eastern species		
Parmelia delisei	Melbury Park	H.J.M.B.
On slate roof		
Parmelia loxodes	Melbury Park	H.J.M.B.
On slate roof. 2nd county record		
Parmelia reddenda	Chetterwood	O. Gilbert
	Hyde Wood	B.E. conf H.J.M.B.
A local species of old woodlands		
Parmeliopsis aneurites	Decoy Heath, Brownsea Island Stoney Down	B.E.
All three records on Pine bark. Nationally a northern species		
Peltigera rufescens	Townsend Quarries, Swanage	B.E.
In short limestone turf		
Physcia clementei	Almer and Little Bredy	B.E.
On eutrophic Ash and Sycamore. A rare southern species confined to areas of clean air		
Physcia semipinnata	Portland	B.E.
On Sycamore		
Physcia tribacioides	Little Bredy	B.E. conf P.W. James
On eutrophic Ash with *P. clementei*. First record this century. A very rare and protected species of south west Britain		
Stenocybe pullatula	Morden	B.E.
3rd county record. Restricted to Alder twigs in ancient woodland sites		
Zamenhofia coralloidea	Nr Lytchett Matravers	B.E. det H.J.M.B.
On old Ash with *Lobaria pulmonaria*. 4th county record		

Mosses

Brachythecium mildeanum	Stokeford Heath & Lower Kingcombe	BBS
An overlooked species of grassland		
Bryum bornholmense	Tadnoll	BBS
A local species of acid soil	Warmwell Heath	H.J.M.B.

Mosses (contd.)

Bryum canariense	Stonehill Down	BBS
A scarce species of open calcareous turf		
Bryum pallescens	Bryants Puddle Heath	BBS
New V.C.9 record. On soil contminated by Zinc at the base of an electric pylon		
Calliergon stramineum	Bryants Puddle Heath & Lower Kingcombe	BBS
A local species of acid bogs		
Drepanoclados revolvens	Studland	B.E.
In a base-rich flush. Uncommon in southern Britain		
Hyrgohypnum luridum	Bracketts Coppice	BBS
On rocks in stream		
Hylocomnium brevirostre	Bracketts Coppice	BBS
A local species of basic soils in woodlands		
Leptodon smithii	Many records	BBS, B.E.
A scarce species of southern Britain. Found on parkland and wayside trees with clean air		
Leptodontium gemmescens	Bockhampton and Briantspuddle	BBS
New V.C.9 records. Found on decaying thatch. rare throughout its range		
Orthotrichum pulchellum	Tadnoll & Lower Kingcombe	BBS
A local species on the branches of trees and shrubs, especially Elder		
Pterigonium gracile	Melbury Park	H.J.M.B.
	Valley of the Stones	BBS
On bark and limestone in Melbury, confirming an earlier record by F. Rose. A new record from the sarsens near Little Bredy		
Scorpidium scorpioides	Winfrith Heath	B.E.
In base-rich area with *Drepanoclados revolvens*. Uncommon in southern England		
Sphagnum magellanicum	Bryants Puddle Heath & Luscombe Valley	B.E.
Uncommon in southern England in valley bogs		
Sphagnum recurvum var *tenue*	Red Holm Coppice, Kingcombe	BBS
New V.C.9 record for this form of *S. recurvum*, probably overlooked		
Weissia tortilis	Stonehill Down	BBS
An RDB species, found on the same site 30 yrs ago by F. Rose		
Zygodon baumgartneri	Bere Heath	B.E.
On old Oak. A local ancient woodland species confined to old trees, especially Oak		

Liverworts

Blasia pusilla	Clouds Hill	B.E.
Uncommon on acid substrates		
Cololejeunea rossettiana	Melbury Park	B.E.
On limestone rocks. 2nd county record		
Cryptothallus mirabilis	nr Oakers Wood	BBS
	Stoney Down	B.E.
Under sphagnum in wet Birch woodland. Two new sites for this scarce species		
Diplophyllum obtusifolium	Stokeford Heath & Clouds Hill	BBS
New V.C.9 records		
Fossombronia incurva	Clouds Hill	BBS
New V.C.9 record		
Lophozia ventricosa var *ventricosa*	Furzebrook	BBS
New V.C.9 record		
Plagiochila porelloides	Melbury Park	BBS
Much more uncommon in the county than the similar *P. asplenoides*		
Ptilidium pulcherrimum	Arne	J. White
On willow. 3rd county record		
Riccardia incurvata	Clouds Hill	BBS
New V.C.9 record		
Scapania compacta	Creech Heath	BBS
On ball clay spoil with *Racomitrium languinosum*. Both are mostly northern plants		

MARINE INVERTEBRATES

John Hawthorne

Honodonta lineata

Before the severe winter of 1963, this large topshell was represented to the east of Portland by small numbers of individuals at most suitable locations as far east as Chapmans Pool. All appeared to be of similar age and they appeared to be the result of an exceptional settlement to the east of the normal breeding range of the species.

After the severe winter, a relatively small population at Clay Ope, West Portland, were the only survivors in Dorset. See Hawthorne, J.B., 1985. The eastern limit of distribution of *Honodonta lineata* (da Costa) in the English Channel. *J. Conch.* 25: 348-352

H. lineata recovered well at Lyme Regis after a few years and there is a thriving population there now. The Clay Ope population, after declining to about 11 old specimens in July 1967 has shown low recruitment, but on 6th September 1994, 165 specimens were found with an age range of from less than one year to ten or eleven years old.

Of particular interest is the return of small numbers to the east of Portland. Any record of this species would be most welcome. It is hoped that a short report will be published on the 1995 distribution in Dorset.

I am most grateful to Mr Dennis Seaward for the following note:

MARINE MOLLUSCS: PORTLAND HARBOUR

D.W. Seaward

In response to a proposal for farming oysters on the sandflat in Portland Harbour just north of the mouth of the Fleet at Ferrybridge, English Nature Dorset Team organised a group of specialists to survey this site of known high marine biological importance on 7th October 1994. Sixteen stations were sampled along a transect parallel to the line of the old torpedo jetty.

Data for some groups has yet to be written up, but those for the marine molluscs confirm that several rare or local species are present (e.g. *Rissoa lilacina, Epitonium clathrus, Angulus squalida* - here at its eastern limit in the Channel, *Morella donacina*), and that there is a high diversity of bivalves burrowing in the sand. Fourteen species have been recorded, of which eleven were found in the English Nature survey. The sand flat to the south of Smallmouth nearby also is home to a large number of bivalve species, though with some interesting differences. Few soft sediment shores can show the same variety.

One particular bivalve, *Loripes lucinalis*, is unusually numerous and ubiquitous here in Portland Harbour, occurring in most shore sand samples, and is of special interest. Workers at the Marine Biological Association laboratory at Plymouth have included this population in their study of chemo-autotrophic symbiotic bacteria in bivalves and '...core sampling showed a high density of the bivalve *Loripes lucinalis*, which averaged 233 per square metre. Comparison with the rest of the infauna, mostly polychaete worms, showed that the bivalve could constitute as much as 43% of the biomass, and the work has '...confirmed the hypothesis that particulate iron sulphide in the sediment is the source of the energy used by the bacterial symbionts in this type of habitat. In both 1989 and 1990 the bivalves were more numerous in patches of sand where there black accumulations of iron sulphide.

The ecological importance of this species and another bivalve also present here, *Lucinoma borealis*, is indicated by further experiments showing that 'The activity of the symbiosis oxidises the sulphide in the sediment, which turns from black through grey and then becomes yellow as the iron in it becomes fully oxidised'. (*J Mar Biol Ass UK*, 1991, *71*:957-8, & 1992, *72*:960)

LAND ARTHROPODS

N. R. Webb

As in former years, I have compiled this report mainly from records sent to the Dorset Environmental Records Centre. Some records have been sent directly to me while others have been obtained by abstracting the entomological journals. This report include records from D. Allen, I. Cross, J.R. Cox, B. Edwards, O. Hooker, C. Hosie, D. Leadbetter, J. Lowe, M.H.Lock, A. Mahon, D. & A. Pearman, J.D. Powne, A.E. Rose, E.S. Rose, R.J. Surry, W.G. & J.F. Teagle and N.R. Webb.

Orthoptera

There continues to be a steady flow of records for this order. The identification of the various species is relatively straightforward and there are several good texts available.

Oak Bush-cricket (*Meconema thalassinum*). Sandford.

Great Green Bush-cricket (*Tettigonia viridissima*). Hod Hill, Alderney (Poole), Wareham Common, Morden Bog and Sandford.

Wart Biter (*Decticus verrucivorus*). Reported from its traditional site during the year.

Dark Bush-cricket (*Pholidoptera griseoaptera*). Bushy, Wytch Heath, Tyneham, Wareham Common, Sandford and Stoborough.

Bog Bush-cricket (*Metrioptera brachyptera*). Sandford

Short-winged Conehead (*Conocephalus dorsalis*). Wytch Moor, Wareham Meadows, Sandford and Morden Bog.

Long-winged Conehead (*Conocephalus discolor*). Corfe Castle, Wytch Heath, Rempstone, Milldown, Sandown, Wareham Common and Morden Bog.

Speckled Bush-cricket (*Leptophyes punctatissima*). Crossways and West Stafford.

Strip-winged Grasshopper (*Stenobothrus lineatus*). Sandford.

Common Green Grasshopper (*Omocestus viridulus*). Higher Woolcombe.

Woodland Grasshopper (*Omocestus rufipes*). Sandford.

Common Field Grasshopper (*Chorthippus brunneus*). Rempstone, Wareham Common, Sandford Lane, Morden Bog and Sandford.

Meadow Grasshopper (*Chorthippus parallelus*). Poundbury, Wareham Common, Sandford Lane, Morden Bog and Sandford.

Lesser Marsh Grasshopper (*Chorthippus albomarginatus*). Sandford and Wareham Common.

Mottled Grasshopper (*Myrmeleotettix maculatus*). Sandford.

Common Ground Hopper (*Tetrix undulata*). Sandford.

Tawney Cockroach (*Ectobius pallidus*). Sandford.

Odonata

The transect recording at Studland Heath National Nature Reserve by J. R. Cox, which began 17 years ago, continued during 1994. As in 1993, eighteen species were recorded on the transects.

Small Red Damselfly (*Ceriagrion tenellum*). Numbers were very slightly increased and therefore above the average for the period 1987-93. First seen 11 June; last seen 13 August.

Azure Damselfly (*Coenagrion puella*). Numbers dropped to about 25% of last years figure, but remain above the average. First seen 1 May; last seen 11 July.

Common Blue Damselfly (*Enallagma cyathigerum*). A slight drop for the fourth season running to slightly below the average. First seen 13 May; last seen 9 October.

Large Red Damselfly (*Pyrrhosoma nymphula*). An increase of about 30% on the number seen last year bringing the index above the average for 1978-93. First seen 17 April; last seen 11 July.

Common Blue Damselfly (*Ischnura elegans*). No change from last year. First seen 10 May; last seen 2 September.

Emerald Damselfly (*Lestes sponsa*). A very slight decrease for the fourth season in a row. Numbers seem to have been low for the last seven years, but the number seen is always small. First seen 3 July; last seen 2 September.

Hairy Dragonfly (*Brachytron pratense*). A 20% drop on last years count bringing the index to about average. This species is still the most numerous hawker on the reserve. First seen 29 April; last seen 23 June.

Southern Hawker (*Aeschna cyanea*). A fall of 50% from last years numbers brought it to one of the lowest counts recorded. First seen 30 June; last seen 13 August.

Common Hawker (*Aeschna juncea*). Continues to be the least common hawker at Little Sea with only three records (7 July, 29 July and 2 September).

Migrant Hawker (*Aeschna mixta*). A drop of 50% in numbers brought it to below average figures, but it is still the most common hawker after the Hairy Dragonfly. First seen 28 August; last seen 22 September.

Brown Hawker (*Aeschna grandis*). Not recorded during 1994.

Emperor Dragonfly (*Anax imperator*). Casual sightings 11 June one male; 10 July one male; 12 July 5 males and 2 females egg-laying and 24 July one male.

Downy Emerald Dragonfly (*Cordulia aenea*). An increase of about 50% on last years count brought this species back to average numbers. First seen 8 May; last seen 23 June.

Black-lined Skimmer (*Orthetrum cancellatum*). An increase of about 50% on last year bring numbers close to the average for 1978-93. First seen 8 June; last seen 18 August.

Keeled Skimmer (*Orthetrum coerulescens*). No change in numbers from the last two years, but the numbers seen were small. First seen 19 June; last seen 29 July.

Four-spotted Chaser (*Libellula quadrimaculata*). A decrease of about 25% in numbers from last year. Counts remain well below the average for 1978-90. First seen 2 May; last seen 12 July.

Broad-bodied Chaser (*Libellula depressa*). Sighted on four occasions between 15 May and 7 July.

Black Darter (*Sympetrum danae*). Not recorded on either the count transects or on the reserve generally during the year.

Ruddy Darter (*Sympetrum sanguineum*). Numbers nearly twice those recorded last year and counts are now above the average. First seen 23 June; last seen 5 September.

Common Darter (*Sympetrum striolatum*). A slight drop from last year which made 1994 the lowest count since recording began in 1978. First seen 7 July; last seen 9 October.

Coleoptera

Coccinellidae (Ladybirds)
For the second year running, the number of records for this easily identified family of beetles has declined markedly.

2-spot Ladybird (*Adalia 2-punctata*). Matchams, Wareham, West Mills and West Stafford.

10-spot Ladybird (*Adalia 10-punctata*). Stokeford Heath and Motcombe.

7-spot Ladybird (*Coccinella 7-punctata*). Poundbury, Long Bridge, Horton Heath, Stokeford Heath, Wytch Heath and West Stafford.

11-spot Ladybird (*Coccinella 11-punctata*). West Stafford.

Pine Ladybird (*Exochromus quadripustulatus*). Wareham.

Orange Ladybird (*Halyzia 16-guttata*). Fontmell Down.

22-spot Ladybird (*Psyllobora 22-punctata*). Wareham.

Cream-spot Ladybird. (*Calvia 14-guttata*).

14-spot Ladybird (*Propylea 14-punctata*). Wareham, West Mills and West Stafford.

Kidney-spot Ladybird (*Chilocorus renipustulatus*). Wareham.

Heather Ladybird (*Chilocorus 2-pustulatus*). Wareham.

Other beetles
Heather beetle (*Lochmaea saturalis*). Large numbers reported during the spring on the Purbeck heaths although the outbreak was not as large as that in 1979/80 which resulted in the defoliation and death of heather (*Calluna vulgaris*) plants at a number of localities on the Dorset heaths.

Glow Worm (*Lampyris noctiluca*). Studland and Hartland Moor.

Green Mint Beetle (*Chrysolina menthrasti*). Piddles Wood, Townhill, Hodders Farm, Forde Abbey and Stoborough.

Bloody-nosed Beetle (*Timarcha tenebricosa*). Langton Matravers.

Lesser Stag Beetle (*Dorcus parallelipipedus*). West Stafford and Maiden Newton.

Hymenoptera
Hornet (*Vespula crabro*). Sighted at Moors Valley Golf Club, Stoborough and Furzebrook. All records for this species are welcome especially in the light of the presence of *Dolichovespula media* in the county.

Diptera
E T and D A Levy have, as usual, provided their own report on Dorset Hoverflies (see below).

Rhamphomyia physoprocta (Empididae). Swarms of this species of fly were recorded in June 1993 from the Sherford Valley just above Sherford Bridge, Morden Bog and Arne by A.R. Plant. Previously, this species, which is Red Data Book Category 1 (Endangered) has been recorded only from localities in the New Forest, Norfolk and Yorkshire. See Plant, A.R. *Rhamphymia physoprocta* Frey (Dipt., Empididae) in Dorset. *Entomologists Monthly Magazine*, 130, 248.

Spiders Araneae
Argiope brunnichi. Reported from Sandford.

Dolomedes fimbriatus (Raft Spider). Hartland Moor and Morden Bog.

DORSET HOVERFLY REPORT 1994

E.T. & D.A. Levy

112 species were recorded in this county this year and good progress was made with up-dating the Dorset maps. No new species were added to the county list, but a number of scarce and rare hoverflies were found.

Once again we thank Mick Parker for his comprehensive list of records and also Andrew Wass, Adrian Plant and Evelyn Prendergast for their contributions.

Pachysphyria ambiguus	Deadmoor Common	01.05.1994
Dasysyrphus lunulatus	Oakers Wood	15.05.1994
Sphaerophoria fatarum	Lower Kingcombe NR	17.08.1994
Sphaerophoria taeniata	Morden Bog	28.08.1994
	West Moors	11.09.1994
Xanthogramma festiva	Cerne Abbas	29.05.1994
Cheilosa cynocephala	East Burton	27.06.1994
	West Compton	01.09.1994
Cheilosia soror	West Compton	11.08.1994
	Powerstock Common	17.08.1994
Brachyopa pilosa	Oakers Wood	15.05.1994
	(2nd county record)	
Heringi heringia	Oakers Wood	15.05.1994
Pipiza bimaculata	Oakers Wood	15.05.1994
	(3rd county record)	
Chrysogaster macquarti	Keysworth Farm, Wareham	23.07.1994
Anasymia transfuga	Wareham Marshes	24.07.1994
	(2nd Dorset record)	
Eoseristalis abusivus	Wareham Marshes	24.07.1994
Brachypalpus laphriformis	Oakers Wood	15.05.1994
	(3rd Dorset record)	
Criorhina asilica	Oakers Wood	15.05.1994
Criorhina ranunculi	Tadnoll roadside	18.04.1994
Other Diptera		
Toxyneura muliebris	Broadstone	06.08.1994
Bombylius discolor	Lodmoor	17.04.1994

PASSOELCUS EREMITA KOHL. A SPHECID WASP NEW TO DORSET

S.P.M. Roberts

While investigating the be and acuelate assemblage on the Gore/Morden Heath complex on the 10th July 1994, a small black species of solitary wasp, *Passaloecus eremita*, was recorded as new to Dorset. This insect was first recognised as British from a specimen found at Crowborough, East Sussex on 6 August 1979 by G.H.L Dicker, who keyed the specimen out using Lomholdt's key to the Fennoscandian and Danish sphecid fauna (Lomholdt, 1975). This discovery prompted M. Edwards to re-examine a *Passaloecus* he captured near Midhurst, West Sussex on 19 August 1978, and this proved to be a female of the same species (Dicker, 1982). Subsequent handbooks (Richards, 1980; and Corbet & Yeo, 1983) dealing with the identification of British fauna do include the species. Richards states that the species is widespread in Europe, although it is usually rare.

Then first Dorset records were of a female and about thirty sealed nests which were constructed in beetle emergency holes in the bark of a mature Scots Pine (*Pinus sylvestris*) and in a nearby gate post in the Gore Heath car park (SY 921909), and were discovered by M. Edwards, A. Davidson, G.R. Else and the author. The nests are distinctive in that each completed nest is sealed with a resin plug and surrounded by a characteristic annulus of small resin droplets. The female was caught while sitting on a gate post in the vicinity of the

nests. The female provisions its nest cells with aphids (Dicker, 1982; Else, *in press*).

A further site for the species was discovered some 2km south east of Gore Heath at Sandford (SY 931890) on 3 August 1994 when six sealed nests were found, all constructed in a decorticated Pine trunk.

Passaloecus eremita is listed in the *Insect Red Data Book* and is accorded RDB3 (rare) status (Else and Spooner *in* Shirt, 1987), but Falk has questioned this in his subsequent review (Falk, 1991), and proposed the removal of the species altogether from the Red Data Book. Falk's reason for downgrading its status is that he is not satisfied that the species is "native", and it is present in Britain merely as result of an accidental introduction (although there seems to be no evidence for this). Whatever its true status, *Passaloecus eremita* is certainly increasing its range, and will probably be found to occur in other places in Dorset which support mature Pine. It is interesting to note that the species was recoded as new to Wiltshire in 1994 from a small plantation on the southern end of Salisbury Plain (pers. obs.).

Acknowledgments:
I am grateful to G.R. Else (Natural History Museum, London) and M. Edwards for discussions on the biology and distribution of *Passaloecus eremita*, and to G.R. Else for allowing me access to his paper, currently in press.

References:

Dicker, G.H.L. 1982. 'Observations on *Passaloecus eremita* Kohl (Hym., Sphecidae) recently recorded from Britain'. *Entomologist's Monthly Magazine* **118**: 117-119.

Else, G.R. *in press*. 'A review of the British distribution of *Passaloecus eremita* Kohl (Hym., Sphecidae) with observations on its nesting habits'. *Entomologist's Monthly Magazine*.

Else, G.R. & Spooner, G.M. *in* Shirt, D.B. 1987. *British Red Data Books: 2 Insects*. N.C.C.

Falk, S. 1991. 'A review of the scarce and threatened bees, wasps and ants of Great Britain. *Research and Survey in Nature Conservation*; No. 35. N.C.C.

Lomholdt, O. 1975-76. 'The Sphecidae (Hymenoptera) of Fennoscandia and Denmark. Parts I & II.' *Fauna Entomologica Scandinavica*. **4**: 1-452.

Richards, O.W. 1980. *Handbooks for the Identification of British Insects; Vol VI, Part 3(b), Scolioidea, Vespoidea and Specoidea, Hymenoptera, Aculeata*. RESL.

Yeo, P.F. & Corbet, S.A. 1983. 'Solitary Wasps'. *Naturalists' Handbooks No. 3* CUP (now Richmond Publishing).

PHILANTHUS TRIANGULUM (FABRICIUS) (HYMENOPTERA; SPHECIDAE). THE FIRST DORSET RECORDS SINCE 1829.

S.P.M. Roberts

The 'Bee-Wolf', *Philanthus triangulum*, is one of the largest and most distinctive species of sphecid wasp known in Britain, and despite being widely distributed in continental Europe and North Africa (HOMBOLDT, 1975-76), it has long been regarded as a rarity in this country. It is listed as RDB2 (vulnerable) in the *Insect Red Data Book* (Else and Spooner *in* Shirt, 1987), and in Falk's subsequent review (Dalk, 1991). *Philanthus triangulum* is one the most intensively studied of all sphecid wasps because of its habit of provisioning the brood cells with paralysed Honey Bees (*Apis melifera*).

The earliest 'Dorset' records are of females caught by J. Curtis at Heron's Court (= Hurn Court), Ramsdown, near Christchurch, W. Hants, in 1829. An entry in J.C. Dale's catalogue which lists 'Ramsdown, Hants, 1 sp. taken by Mr. Curtis' (the date, 1829, was added after this entry by C.W. Dale), presumably refers to these captures. It is not certain whether either of the two female specimens (without data) in the Dale collectionis from Curtis's original captures. Curtis added the species to the British list on the strength of these specimens, and these remained, until 1994, the most westerly records from anywhere in Great Britain (Spooner, 1943). Ramsdown was transferred from Hampshire to Dorset in the local government reorganisation of the 1970's.

The species has long been known from the Isle of Wight, where it continues to be found as a permanent resident in at least two coastal sites, and has been recorded from several others. Until recently, the few mainland records were made in the nineteenth century, from scattered localities in southern England, and were usually singletons or small numbers of specimens. Since 1976, the species has appeared in Suffolk (in several localities) and north Essex, Norfolk, Cambridgeshire, Kampshire, Oxfordshire and Surrey (Else, 1993, p 163). The rapid spreaad of the species has been remarkable, and its reappearance in Dorset had been anticipated. 1994 saw the first records of the species from Dorset in modern times, when it was found in no less than five sites. These are listed as follows:

Holton Heath NNR, several females at a nesting aggregation of perhaps 100 nests in a sandy bank and an adjacent low. sandy cliff, 29.vii.1994; **Holton Heath NNR**, both sexes, at the same site, including females with prey, on 6.viii.1994 by G.R. Else and the author; **Sandford**, 2 males at the flowers of *Cirsium arvense* and a female at the flowers of *Senecio jacobaea* 3.viii.1994;**Uddens**, two females and several nests on a sparsely vegetated firebreak, 15.viii.1994; **Arne**, 1 specimen, at a sandy bank near RSPB car park, 25.viii.1994 (H. Inns); **Morden Heath**, an extended nesting aggregation of perhaps 5,000 nests constructed in a sandy, sparsely vegetated track and on a nearby low sandy cliff, both sexes were abundant, and nest density reached about 60 nests per square metre in some places. 25.viii.1994 (H. Inns). This latter site was visited by G.R. Else (The Natural History Museum, London), on 4.ix.1994, and by the author on 5.ix.1994. On both these latter occasions were observed carrying prey, and there were many dead female specimens of *Philanthus*, and dead Honey Bees around the nesting area.

The reason for the spread of the species in Britain in recent years is a matter of conjecture, although continental workers (e.g. Braestrup & Nielsen, 1941; Leclerq, 1944) have demonstrated that its dramatic fluctuations in distribution on the European mainland are in response to climatic change.

Acknowedgments:
Thanks are due to G.R. Else (Natural History Museum, London) for discussions on the biology and distribution (both British and European) of *Philanthus triangulum*, and to H. Inns (British Herpetological Society) for communicating the whereabouts of the Morden Heath nesting aggregation to G.R. Else.

References:

Braestrup, F.W., & Nielsen, E.T. 1941. '*Philanthus triangulum* F. i Danmark.' *Videnskabelige Meddelelser fra Danske naturhistorisk Forening in Kobenhavn*, **104**: 353-365.

Else, G.R. G.R. 1993. *Recent records of Philanthus triangulum (F.)(Hym., Sphecidae) from southern England.*

Else, G.R. & Spooner, G.M. *in* Shirt, D.B. 1987. *British Red Data Book: 2 Insects*. N.C.C.

Falk, S. 1991. 'A review of the scarce and threatened bees, wasps and ants of Great Britain'. *Research and Survey in Nature Conservation*; No. 35. N.C.C.

Leclerq, J. 1944. 'Fluctuations du degré d'abondance recemment observées chez certain Hymenoptères Aculeates.' *Bulletin de la Société Royale des Sciences de Liège*, **7**: 262-267.

Lomholdt, O. 1975-76. 'The Sphecidae (Hymenoptera) of Fennoscandia and Denmark. Parts I and II.' *Fauna Entomologica Scandinavica*. **4**: 1-452.

Richards, O.W. 1980. *Handbooks for the Identification of British Insects; Vol VI, Part 3(b), Scolioidea, Vespoidea and Specoidea, Hymenoptera, Aculeata*. RESL.

Spooner, G.M. 1943. 'The Hymenoptera Aculeata in the Dale Collection. II. Notes on the Bethylidae, Chrysididae, Vespidae and Sphecidae (part).' *Entomologists' Monthly Magazine* **79**: 64-77.

Yeo, P.F. & Corbet, S.A. 1983. 'Solitary Wasps'. *Naturalists' Handbooks No. 3* CUP (now Richmond Publishing).

AMPHIBIANS

Robert V. Skinner

The amphibian reports received by the Dorset Environmental Records Centre during 1994 are included in tabular form at the end of this section.

Smooth Newt *Triturus vulgaris* L.
One seen near a garden pond in Corfe Mullen on 18 March (A.H. Dunn)

Palmate Newt *Triturus helveticus* Razoumowski
No records for this species from Studland Heath NNR (J.R. Cox)

Crested Newt *Triturus cristatus* Laurenti
See DERC report at the end of this section

Common Frog *Rana tempororia* L.
Adults heard calling in a Corfe Mullen garden on 27 January. Spawn first seen on 19 February and more on 23 and 24 February. Many tadpoles observed on 2 April and 21 May. An adult frog still seen in a garden pond on 1 June and one other heard calling from a nearby garden on 23 October. (A.H. Dunn)

About 30 adults seen in a Parkstone garden pond on 25 January, together with four spawn clumps. The next day there were eight clumps of spawn. By the 6 February there were in excess of 200 frogs in the pond and many clumps of spawn. (V. Skinner)

One half-grown individual seen at Studland Heath NNR on 30 May and a smaller one on the same day. A young specimen was also seen in the centre of Godlingston Heath, which was an unusual site for this species. Last record for Studland Heath NNR was on 30 September. Locations covered included SZ 0182, 0283, 0284 and 0383.(J.R. Cox)

Heard callng from a Swanage garden pond on 2 January and three batches of spawn seen in this pond on 6 January. There were about 250 individuals in the same pond by the end of January, SZ 022786. A large pregnant female was present on 10 December. (J.R. Cox)

Common Toad *Bufo bufo* L.
One large specimen seen in a Corfe Mullen garden on 17 June where the species is usually scarce. (A.H. Dunn)

Species	Site	Grid Ref	Recorder	Date
Smooth Newt	Bagber	ST 7615	E.D.V. Prendergast	15 May
	Bousley Pond	ST 824092	E.D.V. Prendergast	2 April
	Horton Heath	SU 054066	W.G. Teagle	22 April
	Oakdale	SZ 024924	Unknown	21 Nov
	Melbury Park	ST 5604	R. Squires	-
	Higher Woolcombe	SY 550960	A. Mahon	31 Oct
	Ryewater Nursery	ST 664110	A.M. Abbott	28 Jul
	Ryewayer Nursery	ST 664109	A.M. Abbott	29 Jul
Palmate Newt	Rixon	ST 791145	Unknown	April
	Povington Heath	SY 879823	E.D.V. Prendergast	30 May
	Povington Heath	SY 880819	E.D.V. Prendergast	23 Mar
	Orchard Cottages	SY 892832	E.D.V. Prendergast	30 May
Crested Newt	Bagber	ST 7615	E.D.V. Prendergast	15 May
	Oakdale	ST 024924	Unknown	21 Nov
	Ryewater Nursery	ST 664119	A.M. Abbott	28 Jul
(larva)	Ryewater Nursery	ST 666109	A.M. Abbott	29 Jul
(larva)	Ryewater Nursery	ST 665105	A.M. Abbott	29 Jul
	-	SY 8497	H. Bowen	-
	Melbury Park	ST 5604	R. Squires	-
Common Frog	Frome St. Quinton	ST 595025	D. Pearman	21 Jan
	Warry's Plantation	ST 630097	E.D.V. Prendergast	18 Jul
	Stock Park	ST 725131	E.D.V. Prendergast	29 May
	Dorchester	SY 6989	E.M. Keats	22 Jan
	Dorchester	SY689982	N. Matthews	1 Oct
		SY 8497	H. Bowen	6 Mar
		SY 8497	H. Bowen	14 Nov
		SZ 0693	H. Bowen	22 Jan
		ST 8424	H. Bowen	10 Jul
(tadpoles)		SZ 1690	H. Bowen	19 Mar
		ST 5604	H. Bowen	24 Mar
		ST 8015	H. Bowen	4 Jan
	Dorchester	SY 688905	D.C. Newbury	21 Feb
		SY 880819	E.D.V. Prendergast	4 Feb
Common Toad	Frome St. Quintin	ST 598025	D. Pearman	21 Jan
	Brockhampton	ST 712056	J. Lowe	19 Oct
	Dorchester	SY 688905	C. Chaplin	3 Mar
	Dorchester	SY 688905	D.C. Newbury	21 Feb
	Toller Porcorum	SY 550960	A. Mahon	9 Jul
	Northport Drive	SY 925887	A.M. Abbott	24 May
	Northport Drive	SY 925887	A.M.Abbott	6 Sep
	-	SY 8497	H. Bowen	10 Aug
Natterjack Toad (reported but unlikely!)	Melbury Park	ST 5604	R. Squires	

On 6 February some adults were seen in a Parkstone garden pond but many more on the grass area round the pond. Two pairs were in amplexus some distance from the water. It was a warm damp night, air temperature 8 deg C. (R.V. Skinner)

The only record for this species from Studland Heath NNR was one large female on 7 March, SZ 02383.(J.R. Cox)

REPTILES

R.V. Skinner

The reptile reports received by the Dorset Environmental Records Centre during 1994 are included in tabular form at the end of this section.

Slow worm *Anguis fragilis* L.
Several present in a garden at Winterbourne Stickland on 12 June. A juvenile seen in a garden at Corfe Mullen on 6 October. (A.H. Dunn)

The earliest date for Studland Heath NNR was for an adult on 27 February, reported by J.R. Cox and Miss C.E. Ollivant.

The last date was for an adult and two juveniles on 11 September, reported by J.R. Cox and D. Wright.

Throughout the year about ten adults and five juveniles were recorded on the Reserve, including one large male with several blue scales on 27 April. Grid references were SZ 0284, 0285 and 0385. One immature specimen was found in a Swanage garden on 30 November and again on 1 December. (J.R. Cox)

Viviparous or Common Lizard *Lacerta vivipara* Jacguin
The first record for Studland Heath NNR was for three adults on 7 February. (S.M. Guy)

The last date was in September for one adult. A total of some 19 adults and 7 juveniles were recorded during the year. The area included SZ 0284 and 0384. (J.R. Cox)

Sand Lizard *Lacerta agilis* L.
The earliest date for Studland Heath NNR was for one adult seen on 13 March. (S.M. Guy)

The last date was for one juvenile on 23 October. The species was very under-recorded during the year and only 13 individuals were seen. Area covered was SZ 0283, 0284 and 0384. (J.R. Cox)

Grass Snake *Natrix natrix helvetica* Lacep!!de
The first date for Studland Heath NNR was 2 February (unusually early!) and was recorded by a work party clearing pine trees.

The last record for the Reserve was on 7 October. Although 16 individuals were counted, which was better than the previous season, the species was still under recorded. One very small juvenile was found on the tide line of Studland beach, in front of the National Trust Centre, on 23 September. The area covered in the above report was 1 Km squares, grid references SZ 0284, 0285, 0383, 0384 and 0385.

A report was also received of about 20 eggs in a compost heap on Knitson Farm, near Swanage on 28 JUly by Mark Helfer, grid reference SZ 0080. (J.R. Cox)

Adder *Vipera berus* L.
An adder's sloughed skin was found at Martin Down on 1 July. (A.H. Dunn)

The first date for Studland Heath NNR ws for three individuals on 27 February (J.R. Cox and P.G. Hawkins) and the last record was for one adult on 28 August. (J. Horsey)

In all, 27 individuals were noted, but the Reserve was not well surveyed. The 1 Km squares covered were SZ 0183, 0283, 0284,

Species	Site	Grid Ref	Recorder	Date
Slow worm	(carried off by Little Owl)	SY 6768	H. Bowen	1 Jun
		SY 7878	H.Bowen	16 Jul
		SU 0010	H. Bowen	3 Oct
	Frome St. Quinton	ST 598025	D. Pearman	-
	Higher Hyde Heath	SY 853901	W.G. Teagle	19 May
	Talbot Heath	SZ 068929	E.D.V. Prendergast	23 May
	Northport Drive	SY 925887	A.M. Abbott	11 Mar
	Northport Drive	SY 925887	A.M. Abbott	30 Apr
	Northport Drive	SY 925887	A.M. Abbott	4 Sep
	Northport Drive	SY 925887	A.M. Abbott	26 Mar
	Higher Hyde NNR	SY 852906	A.M. Abbott	10 Apr
	Northport Drive	SY 925887	A.M. Abbott	20 Jul
	Morden Heath	SY 908921	A.M. Abbott	28 Aug
Common Lizard	-	ST 9612	H. Bowen	22 May
	-	SY 6971	H. Bowen	1 Jun
	-	SY 7171	H. Bowen	1 Jun
	-	SZ 0282	H. Bowen	1 Jul
	East Hill (Corfe)			
	Challow	SY 968828	W.G. Teagle	6 Aug
	Wytch Heath	SY 973842	W.G. Teagle	6 Aug
	Herston	SZ 015786	W.G. Teagle	27 Sep
	Talbot Heath	SZ 068929	E.D.V. Prendergast	23 May
Sand Lizard	Povington Heath	SY 885836	E.D.V. Prendergast	14 Aug
Grass Snake	Toller Porcorum	SY 550960	A. Mahon	9 Jul
	Ryewater Nursery	ST 665106	A.M. Abbott	29 Jul
	Mappowder	ST 735062	Unknown	29 Apr
	Bagber	ST 7615	E.D.V. Prendergast	12 may
	Frome St. Quinton	SY 598025	D. Pearman	30 May
	Povington Heath	SY 879823	E.D.V. Prendergast	30 May
	Claypit, Povington	SY 892828	E.D.V. Prendergast	30 May
	Mare Pond	SY 899835	E.D.V. Prendergast	2 Jul
Adder	Frome St. Quinton	ST 598025	D. Pearman	-
	Bovington	SY 8389	E.D.V. Prendergast	25 Jul
Smooth Snake	Higher Hyde Heath	SY 8590	W.G. Teagle	19 May

0285, 0383, 0384 and 0385. An adult female was recorded from Hartland Moor NNR on 7 July, grid reference SY 9485. (J.R. Cox)

Smooth Snake *Coronella austriaca* Laurenti
The first record for Studland Heath NNR was from 24 April (S. Guy) and the last date was 28 August. (J.R. Cox and N. Bates)

This species was extremely under-recorded, but eight individuals were seen. The 1 Km squares covered were SZ 0182, 0283 and 0385. A small juvenile was also seen on Holton Heath NNR on 27 July - SY 9590. (J.R. Cox)

MAMMALS

E.M. Keats

Mammal records sent in are very useful and all are filed at the Dorset Environmental Records Centre. These records help to improve the distribution picture of mammals in Dorset. If a rare species is reported please include details of identification and grid references for sites of all records where possible.

Observations on mammal behaviour are welcomed and although only a small number of records are published here all observers are encouraged to continue to send in their reports. Mr R. Surry, Keeper of Records at DERC has prepared the maps with records submitted up until the end of 1994. If observers have records from earlier years which fill blank squares on the map please let me have them.

In 1980 DERC published a series of maps based on 1 Km squares giving the known records for each species at that time. Many records have been submitted since but some of our most common mammals are still not reported in a number of the 1 Km squares. Records can be sent to DERC, Colliton House Annexe, Glyde Path Road, Dorchester, Dorset, DT1 1XJ or to the Dorset County Museum, High West Street, Dorchester, DT! 1XA.

The scientific names are as listed in *Finding and Identifying Mammals in Britain* 2nd. edition 1989 by G.B. Corbet, British Museum (Natural History).

In addition to species mentioned elsewhere in the report the following species were reported in 1994: Mole *Talpa europea*, Rabbit *Oryctolagus cuniculus*, Grey Squirrel *Sciurus carolinensis*, Common (Brown) Rat *Ratus norvegicus*, Wood Mouse *Apodemus sylvaticus*, Weasel *Mustela nivalis*, Sika Deer *Cervus nippon*, Fallow Deer *Cervus dama*.

Hedgehog *Erinaceus europaeus* On the 10th February a Hedgehog was eating a large worm on a lawn in Dorchester, a Blackbird was very agitated nearby, had the Hedgehog taken the worm which had previously been pulled up by the Blackbird or was the Blackbird hoping to take the worm from the Hedgehog?

Common Shrew *Sorex araneus* One was found dead at Evershot, one at Canford Heath and one moving vegetation at Radipole Lake. H.J.M. Bowen's cats caught 33 at Winterborne Kingston, August, September and October being the only months when no common shrews were caught.

Pygmy Shrew *Sorex minutus* The previously mentioned cats caught 34 Pygmy Shrews, slightly up on 1993, this suggests that in spite of the toll taken by the cats there is a good population of this species in the Winterborne Kingston area.

Bats. General enquiries about Bats have continued to come to members of the Dorset Bat Group. In the very mild winter 94/95 the following species have been found in a number of winter hibernation roosts: Greater Horseshoe Bat *Rhinolophus ferrumequinum* in Central Dorset and Purbeck, Lesser Horseshoe Bat *Rhinolophus hipposideros* 15 in a cellar in West Dorset, Whiskered/Brandt's Bat *Myotis mystacinus/brandtii*, Natterer's Bat *Myotis nattereri*, Daubenton's Bat *Myotis daubentonii* in caves and the Barbastelle *Barbastella barbastellus* two were recorded on two occasions. Serotine *Eptesicus serotinus* and Pipistrelle *Pipistrellus pipistrellus* are fairly widely recorded in the county and Noctule *Nyctalus noctula* recorded in flight. Brown long-eared Bat *Plecotus auritus* has been recorded and a breeding roost of up to 12 Grey Long-eared Bats *Plecotus austriacus* was found in West Dorset. A summer breeding roost of the Whiskered Bat with 43 bats present was found in North Dorset. In the central Dorset breeding roost of Pipistrelles the bats had moved to a different building and numbers were slightly down, on 29.5.94 311

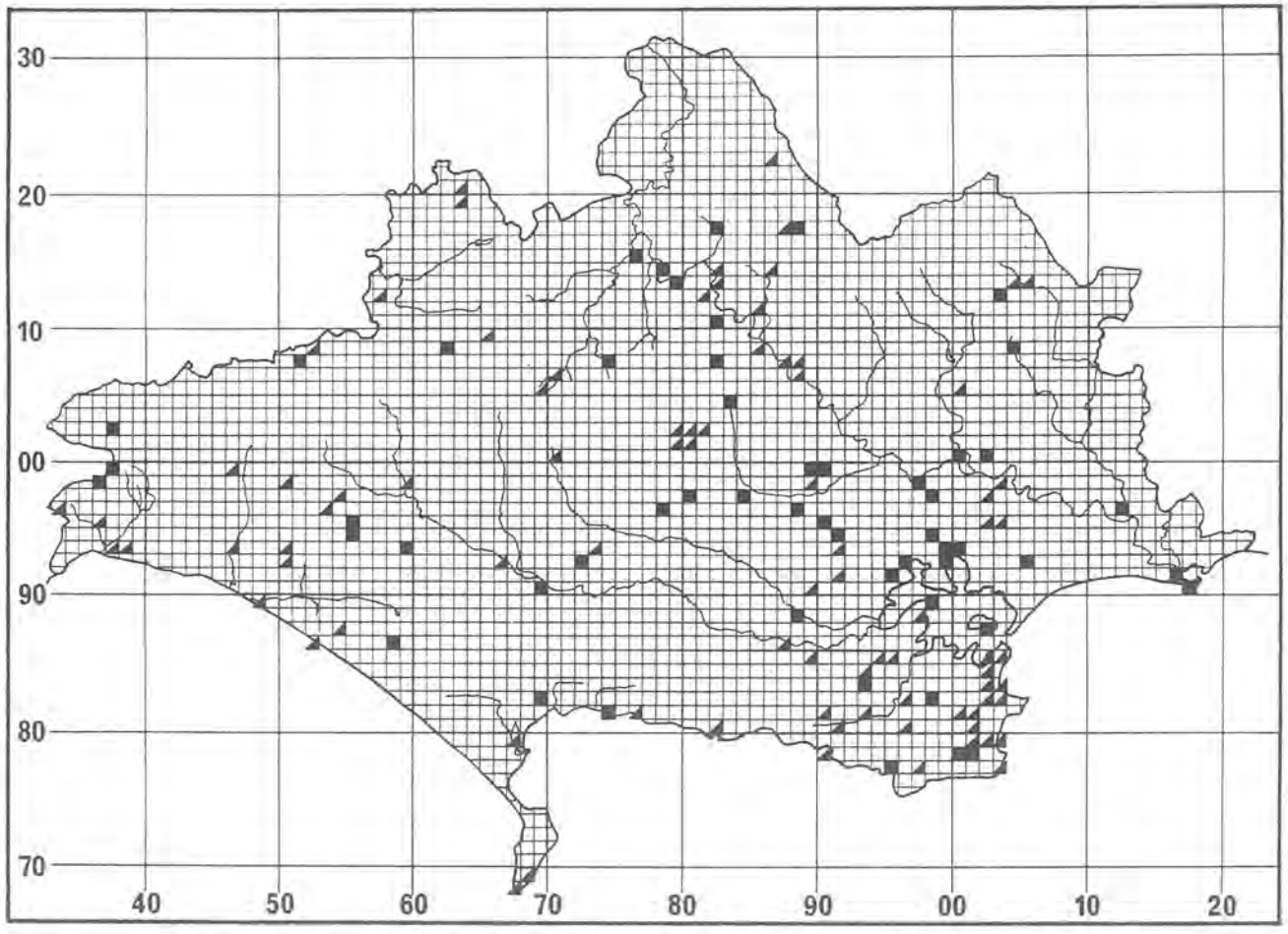


Figure 1 Bank Vole Clethrionomys glareolus. Half-filled squares pre 1980 records. Filled squares post 1980 records.

bats left the roost between 9.15 p.m. and 9.50 p.m. and on two further dates in June the counts were 390 and 451. Colin Morris is continuing his work on Greater and Lesser Horseshoe roosts in the south west of England for the Vincent Wildlife Trust.

Hare *Lepus europaeus* A number of records of this species have been submitted and this is encouraging. A hare was seen dead by the road near Winterborne Monkton, live hares were reported from v Moors Valley Country Park, Frome St. Quinton, Eggardon, Ridge, Ferrybridge, Knitson Farm Purbeck, Ballard Down, Winterborne Kingston, south of Okeford Fitzpaine, Winterborne Whitechurch, near Tarrant Crawford, near Charlton Marshall, west of Lytchett Minster and south of Dorchester. S. Harris of Bristol University is carrying out a study on hares, reported in the Mammal Society list of projects for 1995.

Red Squirrel *Sciurus vulgaris* Mrs B. Parkyn has had to give up the Red Squirrel reporting on Brownsea Island for health reasons and I wish to thank her for the meticulous recording over many years and wish her a good recovery. The 1994 records which Mrs Parkyn had collected from the National Trust volunteer wardens have been collated by Mrs M. Taylor and it is good that the task can continue. 642 squirrels were reported by the wardens with 159 of the sightings in the Rose Cottage area, 2 inside the cottage, 3 were seen wearing collars and the squirrels are regularly seen raiding litter bins and scattering the rubbish. 77 groups of 2, 21 groups of 3, 12 groups of 4 and 4 groups of 5 were reported.

Bank Vole *Clethrionomys glareolus* The Winterborne Kingston cats caught 95 bank voles, catching them in every month of the year. Only 54 post 1980 1Km squares have records for this species against 84 squares pre 1980. If there is one record in a square there are probably a great many more present and they are most likely to be present in many squares where they have not been reported. Please try and submit records.

Water Vole *Arvicola terrestris* There is concern about the lack of sightings of this species, are they scarcer than they used to be? In 1994 2 were caught by cats at Winterborne Kingston, 1 was seen in a pond at Abbotsbury and they were also seen at West Bexington.

Harvest Mouse *Micromys minutus* 35 squares have the presence of this species recorded since 1980 whereas they were recorded in 57 squares pre 1980 and there are more records in the south east of the county, mainly on heathland. However occasional records have come from most parts of the county and as the cats at Winterborne Kingston caught 26 last year there must be many more about than the records show. This is a very small and secretive species but perhaps more may be observed and reported in the future.

Dormouse *Muscardinus avellanarius 3* were seen on Green Hill Down reserve where boxes have been put up for them and 1 on Powerstock Common Reserve.

Fox *Vulpes vulpes* Large numbers become road casualties, smaller numbers are seen alive. Work is being done on the effectiveness of fox removal in controlling predation by foxes on small game species and its impact on fox population at local and regional levels by J. Reynolds of The Game Conservancy, Fordingbridge.

Stoat *Mustela erminea* A stoat has been seen at Corfe Castle jumping and rolling about on a lawn, 1 seen west of the Country Park at Durlston, 1 on the top of the cliff in pouring rain at Hounstout, 1 on a lawn at Osmington Mills, a dead one near West Orchard and 1 west of Winterborne Kingston.

Badger *Meles meles* Large numbers were reported dead on the roads yet in some areas there are many and they are very active. In Winterborne Houghton hedgehogs are very scarce and the occasional skin is found turned inside out, badgers are frequently about. An adult with 3 juveniles were recorded in a garden at Broadstone and badgers were seen digging several times in a garden at Corfe Mullen.

Otter *Lutra lutra* Unfortunately 2 dog otters were killed on roads, one in the north Winterborne Valley and one in West Dorset. Evidence of otters was recorded along the River Stour. J.L.R. Williams of West Buckland, Wellington, Somerset is recording the distribution of otters in East Devon, Somerset and West Dorset.

Roe Deer *Capreolus capreolus* This species seems to be widely distributed and in Broadstone it regularly raids a garden undeterred by house building in the adjacent fields and a public footpath through nearby woods.

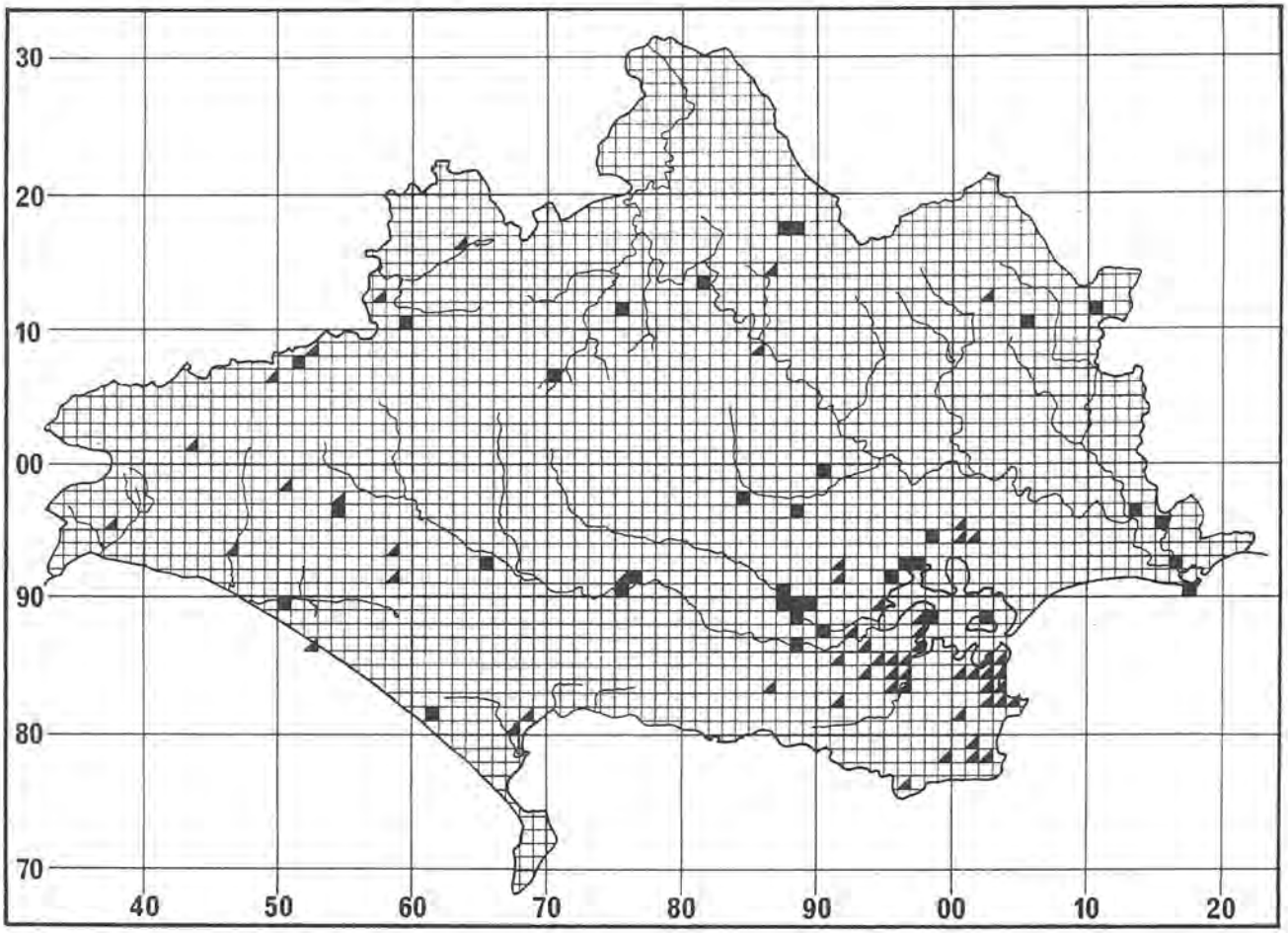


Figure 2 Harvest Mouse Micromys minutus. Half-filled squares pre 1980 records. Filled squares post 1980 records.

Obituaries

RAYMOND ANTHONY HOLT FARRAR MA FSA
1917-1993

Ray Farrar joined the Society in 1946 when he was teaching history, between 1946 and 1948, at what was then Dorchester Grammar School. His first links with Dorset, however, date to before the 1939-45 war when, as Excavation Secretary of the Oxford University Archaeological Society, he dug at Maiden Castle with Mortimer Wheeler.

Ray was born in London, the second son of Harry Farrar MC MA LLB, barrister-at-law at Lincoln's Inn, and Florence Elizabeth (née Holt), both of Yorkshire extraction. In 1928 he went from a local prep school to the City of London School where he played rugger with sufficient distinction to become vice-captain of the 1st XV in 1936, the year in which he went up to Wadham College, Oxford, (his father's college) to read history, the subject in which he graduated with a second in 1939.

In November of that year he enlisted in the East Surrey's and, after an OCTU course at Colchester in July 1940, was commissioned into the Duke of Wellington's (West Riding) Regiment in which his father had served in the 1914-1918 war. From September 1944 he saw active service in Belgium and Holland with the 7th battalion, and was demobbed in 1946. In December 1941 he had married Sheila Stewart (née Robertson) who had read Chemistry at the University of Edinburgh, and in 1946 they moved to Broadwey when Ray began to work in Dorchester. They had two daughters and, ultimately, four grand-children.

In 1948 Ray was appointed Archaeological Investigator on the Staff of the Royal Commission on Historical Monuments (England), for which significant body he worked until official retirement in 1982, continuing in a consultative capacity until 1986. He had had an over-riding interest in ancient history since the age of 8, and it was logical that, on going up to Oxford, he should join the University Archaeological Society, that breeding ground of distinguished archaeologists and others. Until the outbreak of war he was involved in excavations with the University Society at Frilford as well as with Wheeler at Maiden Castle, Verulamium and in Brittany in 1938. He undertook the publication of the Roman pottery at the Frilford site, which led to a life-long interest in that subject.

In 1949 Mr RLH Bunting retired from the honorary editorship of the Society's *Proceedings* and Ray was appointed in his place. Working from London he produced the next six volumes, 71-76. Externally these volumes are immediately distinguishable from those that came before, and after, by their buff paper covers. In his first volume (vol. 71 for 1949) he introduced a new section to the journal, consisting of interim reports on excavations and short notes. This section provided space for much which would not have been published before, and provided details of work in progress. Ray edited the whole *Proceedings* for six volumes (71-76) and continued to edit 'Archaeological Notes and News' until 1975, looking after the publication of Dorset's archaeology for more than twenty-five years. Everyone working in Dorset archaeology has benefitted from this new part of the journal. Ray's archaeological contributions to the *Proceedings* are published in most volumes until 1983. His editorship, like his writings, was renowned for the care with which he checked every statement, his meticulous work on the index of each volume, and the kindly and patient help he gave to contributors, however inexperienced, saving many from shaming howlers. His standards of archaeological publication were, consciously or unconsciously, of great significance in the work of the

Society over almost 50 years, and his influence on the Society's policies was greater than he realised. Certainly his active interest and concern for the Society continued until his death, even though he and Sheila never lived in Dorset after 1950. It was fitting that he should have been appointed a vice-president in 1963. He had been elected FSA in 1954.

When Ray joined the Royal Commission on Historical Monuments (England) it was engaged on the magisterial Dorset Inventory. The substantial Roman section of Vol II, part 3 (1970), which laid the foundations of all subsequent work in the area, was undertaken by him. His painstaking original research, which underlay the published text of the Dorset volumes, was often detailed in the Society's *Proceedings*.

In the 1950s and 1960s Ray spent many weeks each year quartered in the Reading Room, working through unpublished and rare published items in the Society's library, and an equal amount of time in the archaeological reserve collections, either in the dusty boiler-basement, or in the unheated, and now-demolished , store room at the end of the long passage leading to the back of the reconstruction of Hardy's study, and which had once been one-third of the Dorchester School of Art. This was in the days when, in the winters, the sofa by the intermittently blazing coal-fire in the Reading Room was the warmest spot in the whole building. In the winter of 1962-3, despite energetic stoking by the Assistant Curator and the Curator, the temperature in the public galleries did not rise above 38°F for nearly three months.

Wherever he was working a packet of ten cigarettes was laid symmetrically in front of him, and a pencil stub was used for note-taking on any available writing surface. Without Ray's painstaking work, often profiting from earlier work by Colonel Drew, the Roman volume of the Commission's Survey would not be the reliable and detailed source of information it is.

Ray was also responsible for the Roman section of the Commission's Cambridge City volume (1959). In 1965, when the RCHM(E) took the decision to establish the National Archaeological

R A H Farrar centre. His original caption: 'Monday 5 Sept. 1949. Wollaston House, Dorchester, Dorset. Trench A6 view approx. N. Higgs is holding shovel at edge of metalling, White doing same with trowel at near edge.'

Record, as an adjunct to the existing National Buildings Record, Ray became its first head, and many of the policies and activities now central to its role were initiated by him. In 1971 he was appointed to undertake the field work for the analytical survey of the earthworks of Roman military sites in the north of England, and many of his surveys form part of the RCHME volume of Roman temporary camps in England now in the press. These surveys he carried out largely on his own, and he recorded the techniques of single-handed fieldwork in a CBA Handbook (*Survey by Prismatic Compass*, 1980).

It was, however, in the course of his work in Dorset that he discovered and, through David Peacock's petrological analysis of his samples, was able to demonstrate, jointly, the Durotrigian origin of black-burnished ware (BB1). His paper discussing this and allied material was read at that landmark in pottery studies, the Council for British Archaeology's conference at Oxford in 1972, *Current Research in Romano-British Coarse Pottery*, published as CBA Research Report X (1973). At the same time Ray laid the foundations for the subsequent study of black-burnished ware.

Ray's legacy as a communicator also deserves to be remembered. For many years he taught evening classes for adults at the London Institute of Archaeology, including a 20-lecture series on the pottery of Roman Britain, for which he assembled an invaluable teaching collection; he also assisted John Alexander in extra-mural training excavations at Cambridge. A number of prominent Romanists, both amateur and professional, including several pottery researchers, were former students of his, and owe much to his early stimulus and continuing encouragement. He was among the first of his generation to emphasise the relevance of ethnography in the study of Roman ceramic technology, and frequently took his classes to visit traditional potteries still at work.

Because of his strong Dorset interests he was closely involved with the Council for British Archaeology's Group XII (Wessex) as secretary from 1962 and President from 1965. He established then a pattern of business and open meetings which has continued to the present day.

Ray had many interests and pursued them all with great enthusiasm acquiring a considerable knowledge in subjects as diverse as opera, painting, particularly of the Victorian period, and antiques, especially glass. On holiday in Scotland he enjoyed sea-fishing around Skye, and salmon and trout-fishing in the river Avon at Tomintoul.

Although his Commission work in Dorset had ceased in the mid-1960s Ray never severed his close links with the county and, besides publishing papers on black-burnished ware and the archaeology of the area, he was excavating on the Roman pottery site at Redcliff, near Wareham, until 1983.

SSF, VGS, RNRP.

JUDY MORRIS Bsc BA 1938-1994

Talking about Judy to a multitude of people there have been recurrent observations common to each, whether it be from those who worked with her on what, at the time, was called the World Wildlife Fund, or with the Ramblers, the Blue Badge guides, supply teaching, or the DNHAS - everyone speaks now of how Judy was fun to work with, skilled as an organiser, unobtrusive, exact in detail, determined, enthusiastic, and oh so persevering.

It must have been Judy's training as biologist and teacher which combined with her natural character to provide the foundation for her singular personal attributes. To these were added a close-knit family and happy home life which helped towards her success in such a variety of fields. She was, indeed, an all-rounder: a science degree at London University in 1959, and then in 1985, in quite another direction, an arts degree from the Open University.

In Huntingdonshire, where she started married life with Mike, she wrote and published *Country Walks in Huntingdonshire* in the early 1970s. In fact she so enjoyed her time in East Anglia that she was almost resentful at being uprooted and transplanted to Dorset when Mike came to Furzebrook. How lucky we were in Dorset where, characteristically, she at once got down to learning about the new terrain.

Judy became involved with Ramblers Association in Dorset. A distinguished Rambler friend, who worked closely with her, has said how she "formed an enormous respect for Judy, and for her courage; how she really just would not acknowledge the threatening nature of the illness that struck her - brushed it aside and soldiered on".

Before the illness struck there had been much achievement. She and Mike and the three boys had joined the DNHAS in 1976, and it was not long before she had volunteered to help in a number of ways in the County Museum - with field meetings, at the reception desk welcoming visitors when the caretakers were on holiday, and most especially, in the photographic collection. This latter probably sparked her work on the development of Victorian Dorchester and the spread of its terraced housing - and also the enormous amount she did, to the great benefit of many, on transcribing the Fordington Tithe maps of 1840 and 1877 in the County Record Office.

Her detailed index of the more than hundreds of Dorchester photographs dating from the 1850s to the present day in the County Museum, and her sorting and indexing of a huge negative collection there, is masterly. As Kathleen Deacon, her co-conspirator in the County Society's photographic collection, has said "Judy tackled matters which no one had the courage to face before! Undaunted by over-crowding and lack of space she constantly, and with great zest and energy made a most valuable contribution to the growth and arrangement of this enormously important County archive, and helped researchers and visitors cheerfully and expertly."

I well remember how, after Judy and Val Dicker had gone to a course on the identification and care of photographic collections, Judy took me on one side, and very clearly, kindly, and firmly explained that we were not doing something correctly, how important it was that we should, and how it was not difficult to do so.

To the benefit of a lot of us her walking experience came to a wonderful flowering with her inspired leadership of a series of walks, started way back in 1978 by Dee Lang, sparked off by one at Lyme undercliff led by John Fowles. Judy took over from the ninth stage, from Moonfleet, in 1982. She took us right along the Dorset coast eastward as far as Sandbanks. The coast walk completed she then led

Judy Morris

the Society along the Wessex ridgeway from Ashmore, up on Cranborne Chase, right down to Lyme Regis. These walks she planned and reconnoitred meticulously, pulling in the footpath expert, the botanist, the geologist, a quarryman, the relevant local historian, or the specialist needed to bring out the significance of that particular episode. Inspired by the Dorset coast, Judy then walked the whole of the South-West Coast Path, in stages, from Lyme Regis to Minehead, between 1987 and 1990.

The two great Dorset walks were finished, with a last stage of four miles down to Lyme Regis, in May 1994, and Judy, despite the physical effects of her illness, was determined to finish the course. And she did.

RNRP

George Drewry Squibb, Norfolk Herald Extraordinary. Photograph by Hay Wrightson.

GEORGE DREWRY SQUIBB LVO QC FSA 1906-1994

'Norfolk Herald Extraordinary since 1958, George Squibb was born on 1 December 1906 and died on 3 January 1994, having enjoyed a diverse, full and interesting life. Among important ceremonial occasions in which he took part during this time were the funeral of Sir Winston Churchill and the investiture of the Prince of Wales.

Squibb was the only child of Reginald Augustus Hodder and Elizabeth (née Drewry) Squibb. He was educated at the King's School, Chester and the Queen's College, Oxford, where he also took the post-graduate degree of BCL. When accepted at his college he had proposed reading Mathematics but, just before he went up, while on holiday in Weymouth, by chance he went into W H Smith's and bought a book about law. He was so fascinated by it that when he arrived at Oxford a few weeks later he announced that he wished to drop Mathematics and read Law. History does not relate the title of the book that so influenced him.

Called to the Bar at the Inner Temple in 1930, he entered the Chambers of R M Montgomery, KC, Recorder of Chester, as the pupil of A M Tristram Eve later the first Lord Silsoe, and stayed there as Tristram Eve's 'devil'. When Tristram Eve took silk in 1936, Squibb inherited much of his practice as a junior, and ultimately became head of the chambers.

In 1951, while still a junior, he was elected a Bencher of the Inner Temple, and was later Master of the Library and finally Treasurer in 1976.

In 1954 he was appointed Junior Counsel to the Crown in Peerage and Baronetcy cases, but only held this appointment briefly (and brieflessly), since he was appointed Queen's Counsel in 1956, a year in which only twelve such appointments were made. After practising at the Parliamentary Bar, and in cases mainly concerned with local government, he was appointed President of the Transport Tribunal in 1962, and when the work of that Tribunal was much reduced by statute, he was in 1971 appointed to be the first Chief Commons Commissioner, the work of which was admirably suited to his antiquarian tastes.

Having been interested in heraldry and genealogy since he was a school-boy, Squibb had the good fortune to be briefed for the Manchester Corporation in the first case in the Court of Chivalry for over two centuries. This was followed in 1958 by his appointment as Norfolk Herald Extraordinary. In 1982 the Queen signified her appreciation of his work in this capacity by appointing him an MVO 4th class, now known as LVO.

Squibb had for many years a house in his ancestral county of Dorset, and was Chairman of Quarter Sessions for that county from 1952 until that Court was replaced by the Circuit Court in 1971.

He was a member of the Scriveners Company of London, served his term as Master, and was a freeman of the City. He was also deputy-chairman of the Harleian Society. Possibly what he would like to be remembered for among his achievements were his books *The High Court of Chivalry* (1959), *Founders' Kin* (1972), *Doctors' Commons* (1977), and *Precedence in England and Wales* (1981), all published by the Clarendon Press.

The latter part of his life was much restricted by the failure of his legs, which ultimately confined him to a wheelchair. But his intellect and fighting spirit remained undimmed. Even after his disablement he continued to work as a herald and genealogist, editing for the Harleian Society seventeenth century heralds' visitations of Dorset, Hampshire, London, Oxfordshire, Somerset and Wiltshire.

He married in 1936, Bessie, daughter of George Whittaker of Harrogate, who died in 1954, and in 1955 Evelyn May, daughter of Frederick Richard Higgins of Overleigh Manor, Chester, who died in 1992. His daughter, Elizabeth, by his first wife survives him.'

The above obituary was written by Mr Squibb himself. At the time of his death the Duke of Norfolk wrote: 'he was a most excellent man, erudite, enthusiastic, full of jokes and utterly sensible. He helped me so often with advice on heraldic matters'; and the Commons Commissioners: 'he not only set up and organised the Commissioners, but over the years determined literally thousands of cases. The nation owes him a great debt for the work he performed throughout the countryside.'

Obituaries were published in *The Times* (6 January 1994), *The Independent* (12 January 1994) and *The Daily Telegraph* (15 January 1994).

The following tribute by Miss Margaret Holmes, the first County Archivist for Dorset, most admirably sets Mr Squibb in his Dorset context:

As George Squibb's career in the great world has been well

recorded, it seems fitting to say more about his Dorset life. Though born in Chester he came of a family which had flourished in Dorset since the C17. His article on a kinsman, Arthur Squibb, Clarenceux King of Arms, can be found in the *Proceedings*, vol 68. Mr Squibb lived during the law terms in Paper Buildings in the Inner Temple, but his retreat was his ancestral county. In 1940 he installed his wife Bessie and his daughter Elizabeth in the Pitchmarket in Cerne Abbas, and in 1945 bought Belfield, a Palladian villa in Wyke Regis which, in its early days, was honoured by visits from George III and his family. Those interested should read his "Belfield and the Buxtons", privately printed by Longman's Dorchester. Mr Squibb and his second wife Evelyn moved in 1955 to the Old House in Cerne Abbas, the house which he had always wanted.

George Squibb had already played a considerable part in the life of Dorset. He had been a J.P. since 1943, Deputy Chairman to the Quarter Sessions, 1950-3, and Chairman from 1953 to 1971, when the Court ceased to exist. At its last sitting, Mr Squibb ceremoniously extinguished a candle in a silver candlestick to mark the final moment of its long and honourable life. A friend and colleague remembers that he occasionally exhibited in court the dry wit which his friends enjoyed so much in private life, describing it as "a lovely old-fashioned legalistic type of humour". He also remembers that Mr Squibb enjoyed the antiquarian flavour of some of the civil business of the Court, which included receiving the accounts of Lyme Regis Cobb and setting the corn rents for Bradford Peverel. The disputes on rights of way, hotly contested with many references to the evidence of old maps, inclosure awards and the like were meat and drink to him, and must have done much to prepare him for his later work as Chief Commons Commissioner, when the alleged existence or non-existence of commons raised similar passions and the need for the interpretation of old records.

The Chairman of Dorset Quarter Sessions uniquely wore a top hat in court. It is sad that the staff of the County Record Office never actually saw this. Often during a recess the Chairman would slip downstairs to visit the Office, where, after a friendly word, he would apply himself to some piece of genealogy. By then, unfortunately, he had removed his headgear.

Mr Squibb was intimately associated with the Dorset Natural History and Archaeological Society and the Dorset County Museum for many years. He was a member of the Council from 1939 to 1957, Vice-President from 1958 and a Trustee from 1970-1993. His clear thinking and legal mind were much appreciated. Perhaps his greatest service, however, was to the large accumulation of archives which had been placed in its care. For many years before the creation of the County Record Office (in 1955) he had worked on a catalogue, greatly helped by his old friend Miss M.B. Weinstock. Their method was unorthodox by today's standards, but practical. Bundles of documents would be taken home and each item described in detail on a card. The result was a card index mainly by parishes which is still much used in the Record Office, where the documents have long been kept. Mr Squibb, who was on the committee which appointed the first County Archivist, served from 1955 to 1973 as a co-opted member of the County Council Records Sub-Committee, which was called to meet once a year at a time when he could be free to attend it. His views were naturally received with great respect. In 1975 he was to become the first President of the Somerset and Dorset Family History Society, then in 1987 its Patron. He was also a Governor of Clayesmore School.

Dorset local historians bless him particularly for *The Visitation of Dorset, 1677* and his *Dorset Incumbents, 1542-1731* published in the *Proceedings*, vols 70-75. His typescript *Elizabeth Ham in the West Country* the diary which he had edited and annotated is filed in the Society's library.

George Squibb was a man of great industry which did not diminish even when ill-health cut down his mobility. As the *Independent* describes 'he produced one Harleian Society volume for each of the three years before he died, and had mapped out projects to keep him fully occupied well into his tenth decade'. He was writing letters and making notes for a Visitation of Cheshire up to the time of his death. He was a faithful churchman and a regular reader of the lesson at the parish church opposite his home, an exercise which, rather endearingly, he confessed to finding slightly nerve-racking. He was as a friend has said, 'a great Dorset man', an epitaph which he himself would have appreciated.

Margaret Holmes

INDEX