

CHARLTON MARSHALL

From a water colour painting c. 1800 by Thomas Rackett.

The original drawing is in the Shipp collection volume 5 in the Dorset County Museum. Rackett was taught to draw by Paul Sandby.

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Contents

(Illustrations in italics)

Charlton Marshall . . . . . *Frontispiece*
GEOLOGY OF COOMBE VALLEY by W. G. TOWNSON . 7–8
Fig. 1. Geological map of area 7
THE CHARMOUTH FISH AND THE PARISH LANTERN by J. B. LANG 8
IDEAS ON THE ORIGIN AND DEVELOPMENT OF CHESIL BEACH, DORSET by A. P. CARR and M. W. L. BLACKLEY 9–17
Plate I. Chesil Beach looking northwest . . 9
Plate II. Chesil Beach from Abbotsbury Hill . 10
Fig. 1. Chesil Beach: site map 11
Plate III. West end Portland Raised Beach . . 12
Plate IV. Reed marsh west end of Fleet . . 13
Plate V. Chesil Beach looking southeast . . 14
Plate VI. Borehole rig 14
Plate VII. Peat slabs near Abbotsbury . . . 15
Plate VIII. Shingle spreads 15
Plate IX. Seepage hollows, Chesil Beach . . 16
THE BINDON LANDSLIP OF 1839 by JOHN PITTS . . 18–29
Fig. 1. Section after Arber 18
Fig. 2. Section after Jukes-Brown 18
Plate 1. Ground plan and sections of landslip . . 19
Plate 2. Geological sectton of landslip . . . 19
Plate 3. Landslip from Great Bindon, looking west 20
Plate 4. View of chasm looking east 20
Fig. 3. Plan of landslip 21
Plate 5. View of chasm looking west . . . 22
Plate 6. View of chasm looking east . . . 23
Plate 7. Front cover of landslip quadrille . . 23
Plate 8. Front of landslip and reef . . . 24
Plate 9. Reef and lagoon at Culverhole Point looking east 24
Plate 10. Reef and lagoon at Culverhole Point looking west 25
Plate 11. Reef and lagoon at Culverhole Point looking west 25
Fig. 4. Sections 26
Fig. 5. Transect line across Goat Island . . 26
Plate 12. Chasm of landslip looking east . . 26
Fig. 6. Geological section 26
Plate 13. Chasm of landslip c. 1907 . . . 26
Plate 14. Chasm of landslip 1905 27
Plate 15. Chasm of landslip c. 1928 . . . 27
Plate 16. Chasm of landslip c. 1932 . . . 27
Plate 17. Chasm of landslip 1936 27
Plate 18. Chasm of landslip 1948 27
Plate 19. West end of chasm 1948 . . . 28
Plate 20. Chasm of landslip 1948 28
Plate 21. Chasm of landslip 1949 28
NOTES ON THE GALL ANDRICUS QUERCUSCALISIS by J. B. LANG 29–30
Fig. 1. A gall cut open 29
Fig. 2. A gall cut open to show grub . . . 29
Fig. 3a. A clump of galls 29
Fig. 3b. A gall end on 29
Fig. 4. A gall cut open to show pupate stage . . 29
A TRIAL EXCAVATION ON THE BRADFORD BARROW, PAMPHILL, DORSET, 1969 by D. A. WHITE . . 30–33
Plate 1. General view of trench 30
Fig. 1. Site plan of trenches 31
Fig. 2. Section of barrow 31
Fig. 3. Sections 32
Plate 2. Mound Stratification 33
THE EXCAVATION OF THREE ROUND BARROWS ON CHALDON DOWN, DORSET, 1969 by D. A. WHITE 34–43
Fig. 1. Plan of site 34
Fig. 2. Plan of barrow A 34
Plate 1. Box section of urn in barrow A . . 35
Fig. 3. Section of barrow A looking west . . 36
Fig. 4. Plan of barrow B 36
Plate 2. Section of stakehole 37
Fig. 5. Section of Barrow B looking east . . 37
Plate 3. South-west quadrant of barrow B . . 38
Fig. 6. Sections of ring ditch, barrow C . . 38
Fig. 7. Flint artifacts 40
Fig. 8. Flint artifacts and pottery 42
AN IRON AGE AND ROMANO-BRITISH SETTLEMENT AT BROADMAYNE by DONALD YOUNG . . . 44–49
Fig. Location of site 44
Fig. 2. Plan of excavations 44
Fig. 3. Durotrigian burial 44
Fig. 4. Pottery from Durotrigian burial . . 45
Fig. 5. Pottery from Durotrigian burial . . 45
Fig. 6. Pottery from storage pit and oven . . 46
Fig. 7. Bronze rosette brooch 47
Fig. 8. The oven 47
Fig. 9. Pottery from trenches A, B and C . . 48
Fig. 10. Pottery from unstratified sources . . 49
VESPASIAN AND THE SOUTH-WEST by KEITH BRANIGAN 50–57
Fig. 1. Native and Roman sites 51
ROMAN DORSET by JOHN BUGLER and GREGORY DREW 57–70
Fig. 1. Hod Hill, aerial view 66
Fig. 2. Map of Dorset showing Roman sites . . 67
Fig. 3. Chi-Rho symbol on mosaic pavement . . 68
Fig. 4. Roman dagger scabbard 68
Fig. 5. Roman rider relief 68
Fig. 6. Sea centaur 69
Fig. 7. Roman pottery 69
Fig. 8. Roman objects 70
THE TRADE FORTUNES OF POOLE, WEYMOUTH AND LYME REGIS, 1600-1640 by DR. W. B. STEPHENS . . 71–73
BISHOP SECKER'S DIOCESAN SURVEY by J. H. BETTEY . 74–75
THE MEDIAEVAL DEER-PARKS OF DORSET XIII by J. D. WILSON 76–80
Fig. 1. Marshwood Vale 77
Fig. 2. Map of Marshwood and Crekelade Parks . 78
KING'S STAG AND CAESAR'S DEER by MICHAEL BATH . 80–83
ARCHAEOLOGICAL NOTES AND NEWS FOR 1973 edited by R. A. H. FARRAR 83–102
Fig. 1. Upper Palaeolithic implement . . . 83
Fig. 2. Conical sandstone object 84
Fig. 3. Re-used saddle quern 85
Fig. 4. Late Bronze Age urn 86
Fig. 5. Ancient causeway at Lazerton Farm . . 87
Fig. 6. Decorated shale disc 88
Fig. 7. Robbed hypocaust, Dewlish Roman villa . 89
Fig. 8. Dewlish Roman villa 90
Fig. 9. Tarrant Hinton 92
Fig. 10. Stone modelling tools and bone handle . 94
Fig. 11. Flask in black-burnished ware . . 94
Fig. 12. Shale roof-tile 96
Fig. 13. Poundbury Camp 98
Fig. 14. Poundbury Camp 99
OBITUARY — JOSEPH ADDISON 103
DORSET RAINFALL, 1973 by D. J. PAXMAN . . . 103–105
GEOLOGY by JOHN C. W. COPE 105–106
BOTANY by R. D'O. GOOD 106
MARINE INVERTEBRATES by J. B. HAWTHORNE . . 107
LAND ARTHROPODS OTHER THAN LEPIDOPTERA by A. J. BROWN 107
LEPIDOPTERA by ALAN T. BROMBY 108–111
VERTEBRATES 111–113
Fish by M. LADLE 111
Amphibians by ROBERT V. SKINNER . . . 111
Reptiles by ROBERT V. SKINNER 111–112
Mammals by E. M. KEATS 112–113
DORSET BIRD REPORT — 1973 by F. R. CLAFTON . . 114–134

Geology of Coombe Valley

Remapped after investigation of a gas-main trench dug in October 1969

By W. G. Townson

INTRODUCTION

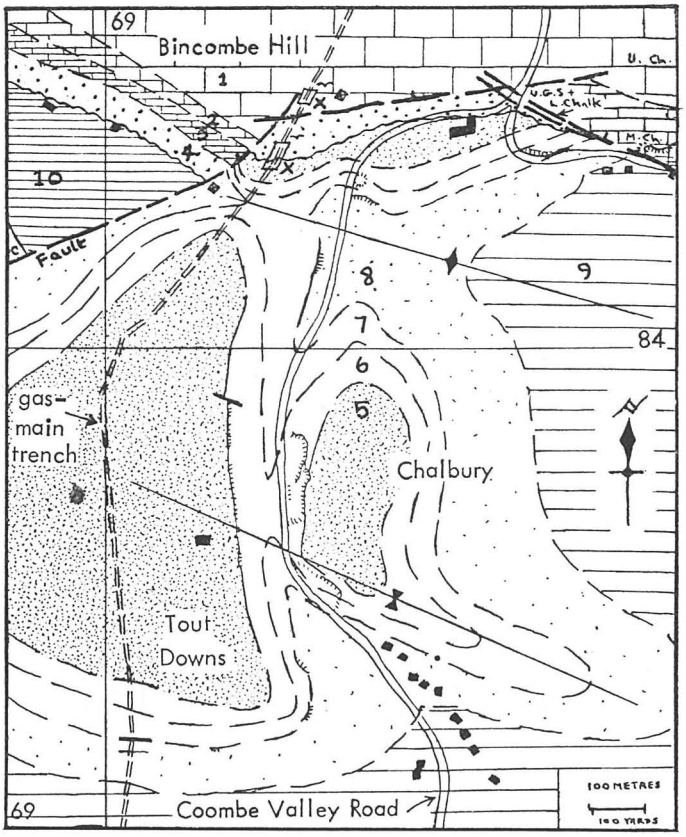
The Jurassic and Lower Cretaceous rocks in Dorset were laid down conformably but were folded and faulted before further deposition during the Upper Cretaceous period. In the Tertiary the strata were folded and faulted again and some of the pre-Albian high-angle faults were re-oriented to have the appearance of being thrusts. Detailed information of this is given by Arkell (1947) together with an admirable map which illustrates these features on a scale of three inches to one mile (Arkell, 1947. Pl. XIX).

The geology of the area around Bincombe, Greenhill Barton and Coombe Valley is thought to differ from that depicted by Arkell. This is emphasised by Professor House (1969) in a note in these *Proceedings*, and implied by Miss Samuel (1969) in an article on the formations exposed in a trench across the area. During a study of the Portland Beds in Dorset I have examined all the outcrops and as many exposures as are available in the area shown on Arkell's map.

THE GAS-MAIN TRENCH

The trench (see map) described by Miss Samuel was also investigated and our observations approximately agree. However, a little more may be added about the exposure from the Upper Chalk southwards to the junction of the Purbeck and Portland Beds, as shown in her fig. 1. Between these points the trench revealed two narrow buried valleys filled with brown clay, chalk rubble and flints. These "drift" deposits are thicker than the depth of the trench, which was approximately six feet. The exposure to the north of these was of soft, white Upper Chalk with grey flint horizons dipping at 45 degrees northwards, and becoming very jointed southwards towards the first of the two drift-filled dry valleys. The Upper Chalk reappeared on the south side of this dry valley. A few yards further southwards there was visible, in the sides of the trench, a northwards-dipping seam of fragmented chalk and broken flints with a clay matrix; shattered chalk and flints were exposed in the trench floor. This is probably a fault (see map) since on the south side of this disturbed zone the exposed rock was grey and marly, and passed rapidly into very glauconitic sand (where the pylon cables crossed the trench) and then into stiff grey sandy clay. Probably all this is Upper Greensand which ties in with the outcrop mentioned by Professor House and shown on Miss Samuel's map. The sandy clay was seen to give way southwards to a harder sand with fragments of a large *Exogyra* (*E. conica ?*), and then to a white glauconitic sand before being covered by the drift of the second dry-valley.

On the south side of this valley, slabs of basal Purbeck ostracodal and algal limestone were exposed, underlain by the normal sequence of Portland Beds down to the Exogyra Beds which were exposed in the core of a small anticline. The trench passed over the hill and descended to Littlemoor Road exposing the complete succession from basal Purbeck Beds down to Kimmeridge Clay. The thin-bedded Purbeck strata were seen to undulate with the topography, and are cambered down the south slope. The Portland Beds, which consist of coherent strata separated by clays, have also slipped and are cambered on the steep slope facing Weymouth. The Exogyra Beds are gulled and displaced in a way which more than doubles the width of the outcrop.



1 = Upper Chalk
2 = Middle Chalk
3 = Lower Chalk
4 = Upper Greensand (and Gault?)
5 = Lower Purbeck Beds
6 = Portland Stone
7 = Portland Clay / dolomite / Cast Beds — Portland Sand
8 = Exogyra Beds / "passage beds" — Kimmeridge Clay
9 = clays and shales — Kimmeridge Clay
10 = Oxford Clay
c = Cornbrash
X = Drift-filled dry valley

GEOLOGICAL MAP OF THE AREA BETWEEN BINCOMBE HILL AND COOMBE VALLEY

FIG. 1

THE MAP

This short article is a by-product of a study of the Portland Beds of England and northern France, with especial emphasis on Dorset. Results of this study will be published later but it is necessary to mention a few points to explain the map. Traditionally, the Portland Beds are divided into the Portland Stone

and Portland Sand. In Dorset the pure clays and shales of the Kimmeridge Clay pass up into silts and sands, the upper beds of which are included in the Portland Sand. These "passage" sediments are approximately 100 feet thick at Coombe Valley. They are overlain by 6 feet of Exogyra Beds and 8 feet of Cast Beds. Above this is 20-25 feet of dolomite which has previously been described as sandstone (equivalent to the Black "Sandstones", Parallel Bands and West Weare "Sands" of the Isles of Purbeck and Portland — all in fact dolomite). The overlying Portland Clay is about 15 feet thick.

In the area between Poxwell and Portesham (excluding Ringstead Bay) the Portland Stone cannot be divided into Freestone and Cherty Series. The lowest stratum is known as the Basal Shell Bed. These limestones reach a total thickness of about 50 feet at Coombe Valley.

For the purpose of mapping, four distinct lithological junctions were used:—

1. Between the basal Purbeck algal limestones and the shelly, chert-rich, chalky limestones of the Portland Stone.
2. Between the Basal Shell Bed and Portland Clay.
3. Between the Cast Beds and Exogyra Beds.
4. Between the sandy, silty "passage" beds and the more pure clays of the Kimmeridge Clay.

The map is basically that of Arkell (1947) but modified in the light of my own mapping, my examination of the trench, Miss Samuel's description and Professor House's note. The final result is my own responsibility.

REFERENCES

Arkell, W. J. 1935. The Portland Beds of the Dorset Mainland. *Proc. Geol. Assoc.* **46,** 301-347.

Arkell, W. J. 1947. The Geology of the Country around Weymouth, Swanage, Corfe and Lulworth. *Mem. Geol. Surv. U.K. London.*

House, M. R. 1969. Geology. Tectonics between Bincombe and Green Hill. *Proc. Dorset Nat. Hist. Arch. Soc.* **91,** 38-39.

Samuel, E. M. 1969. Formations exposed in the trench for the natural gas main in the area south-east of Bincombe. *Proc. Dorset Nat. Hist. Arch. Soc.* **91,** 39-41.

Townson, W. G. 1971. Facies Analysis of the Portland Beds. *Unpublished D. Phil. Thesis, Univ. of Oxford.* 284pp.

The Charmouth Fish and The Parish Lantern

By J. B. Lang

THE DORSET NATURAL HISTORY & ARCHAEOLOGICAL SOCIETY has always been interested in folklore and anxious to record instances which have come to light over the years, especially those instances which belong to Dorset. In Vol. 34 of our *Proceedings* there is an excellent paper by J. S. Udal on Dorset weather lore, which makes very interesting reading.

Charmouth possesses an unique example of weather lore which, however, is by no manner of means old as folklore goes. It seems worth preserving as I find the oldest inhabitants at the present time have already forgotten it.

The present church at Charmouth was built in 1836. The previous one which was pulled down, being deemed unsafe, was dedicated to St. Matthew. The new church was rededicated to St. Andrew. The reason for this is unknown; but it seemed suitable as the village is situated by the sea and even after the first world war there were still many who made their living as fishermen. The present church has a handsome fish weather-vane. I venture to add that I think this must be a unique form of weather-vane, for I at least, have never met one elsewhere. "This wooden fish is 40 inches long and has teeth and fins of metal. It represents no species as yet known to science, but, whenever the starlings have done jostling for perching-room on its back it most efficiently proclaims the wind's direction".* It is painted gold.

When my mother lived in Charmouth, about 1900, the fishermen and villagers would say, that when an east wind blows in spring "the fish has gone to Morcombe", (Morcombelake, a hamlet which lies to the east of Charmouth), and that it would take a south-west gale to blow it back again. This is a very true piece of weather lore, and "the fish" in the colloquial talk of the village was well understood to mean the church's weather-vane.

"The Parish Lantern" is not, I believe, restricted to the county of Dorset, but occurs in Devon and probably belongs to the West Country in general.

I first came across it soon after the second world war, when Charmouth's Auxiliary Fire Service were having weekly exercises in telephone and wireless communications. We went out into the country in the late evenings. On one occasion being with the "base" field telephone receiving unit, whilst another detachment were a mile or so away, perhaps dealing with an imaginary fire — telephone messages were passed at intervals, and once I sent a message to say it was very dark; the reply I received was that they at the other end had just had the parish lantern lit and so were alright. I was puzzled and had to enquire what the parish lantern exactly was and was duly enlightened when the moon came up over the hill, flooding the fields with light.

Since then I have often referred to the moon as the parish lantern to various people and they have never heard of this expression for the moon. It would be interesting to know if any of our members are familiar with this charming, homely, country name for the moon.

"The fish has gone to Morcombe" and "The Parish Lantern's lit" make one realise how precious are the few country village folk who are left and are still living in our urbanised village of Charmouth.

*"St. Andrew's Church" A Short History. (Selected and compiled by W. D. Lang, F.R.S.)

Ideas on the Origin and Development of Chesil Beach, Dorset

By A. P. Carr and M. W. L. Blackley

(Natural Environment Research Council)*

Introduction

Chesil Beach, and the associated areas of the Fleet and the Portland Raised Beach, have probably had more written about them than any other coastal features in the British Isles. There have been a number of reviews of the literature but a great deal has transpired since the earlier ones (e.g. Coode, 1853; Strahan, 1898) and not a little since the last comprehensive assessment a quarter of a century ago (Arkell, 1947). Many other writers, such as Bond (1951), have undertaken a partial summary in order to set the scene for their own ideas. It seems timely to attempt a comprehensive examination of the various papers which have been published. In so doing light is also shed on the development of various concepts concerning coastal processes. Some repetition, particularly in respect of papers by Carr (1969), Carr and Gleason (1972), and Carr and Blackley (1973), is unfortunately inevitable if any pretension of completeness is to be achieved.

Acknowledgments

The authors are very grateful for the help they have had from numerous individuals and organisations both governmental and private. Such assistance has been acknowledged in the various papers on specific aspects of the beach and is not repeated again here as it would appear little more than a list of names and this it certainly should not be. The authors would also like to take this opportunity to express their gratitude for the foundations built over the centuries by earlier topographers, field scientists and engineers.

Miss C. A. Buckley's work is summarised in an unpublished report to the Nature Conservancy (1958). The radiocarbon determinations quoted were by Teledyne Isotopes under their reference numbers I-3429; I-3431 and I-5670, and Scottish Research Reactor Centre SRR-24 and SRR-25. The Portland wind data is based on information provided by the Meteorological Office.

Chesil Beach is one of the three major shingle structures on the coast of Great Britain and the only one without a cuspate form of development. The beach extends at least 18 km. from Chesilton in the east, where it terminates against the cliffs of the so-called Isle of Portland, to an essentially arbitrary limit in the west. (For location of most places referred to in the text, see Figure 1). At both ends the shingle structure is joined to the mainland but over the remaining 13 km. it is backed by the shallow, tidal, Fleet. The latter varies in width from under 100 m. to some 900 m., and in depth from less than −0·3 m to nearly −3·0 m. O.D. (Ordnance Datum, Newlyn, which is approximately mean sea level at this site). The physiography of the Fleet has been described in some detail by Bird (1972).

Opposite the Fleet, Chesil Beach is between 150 and 200 m. wide, but it is narrower both adjacent to the cliffs in the west and at the extreme eastern end. The crest is intermittent at the western end but extends continuously from just east of Section 12 in Figure 1, to Chesilton. While minor irregularities of the order of 0·5 m., and occasionally more, occur throughout this distance, the broad picture is of a progressively increasing ridge height from west to east, the maximum of 14·7 m. O.D. being found near Chesilton. Pebble size above low water mark also increases in the same direction.



PLATE I. Chesil Beach looking northwest from Portland Memorial. Note the relationship of West Bay (part of Lyme Bay), the Beach, the Fleet and Portland Harbour. The wrack line from a previous storm can be seen near the beach crest

Offshore, the beach drops at a broadly similar gradient to that of the seaward face above low water mark for a horizontal distance of approximately 70 m. (Neate, 1967). Thereafter, it shelves gently to about −18 m. O.D., some 270 m. offshore from Wyke Regis, and to −11 m. O.D. at a comparable distance near West Bexington.

Chesil is one of the most exposed sites along the English Channel coast so that wind and wave data are particularly important. An unpublished analysis of meteorological data for Portland showed that the prevailing onshore wind direction for strengths above 17 knots (8·1 ms.$^{-1}$), was between 230°—250°. This is true of most months during the period from 1965 to 1969 inclusive which were evaluated. Since much of the wave action is the result of swell, wind direction is not entirely relevant. However, it does give some indication of direction of wave approach. Maximum fetch from the Atlantic can affect Chesilton (east end) at directions between 220° 00′ and 240° 30′; Abbotsbury between 218° 30′ and 232° 00′ and Bridport (west end) between 215° 30′ and 224° 00′. Thus not only is the range of angles within which maximum fetch is possible greater at Chesilton but there is also the closest coincidence between maximum fetch and prevailing wind direction there.

Wave height and tide height, and wave period have been recorded on two pressure-type instruments installed offshore of West Bexington and Wyke Regis (Fig. 1), over a two-year period. The results are described in greater detail elsewhere (Hardcastle and King, 1972). They show that:

(i) for both sites the most frequent wave period (T_z) is between 10·0 and 10·5 seconds;

(ii) 50 per cent of the significant waves (H_s) (Tucker, 1963) exceed 0·26 m. at Wyke and 0·23 m. at West Bexington.

The tidal data confirm the Admiralty figure for Bridport (Fig. 1) of a 1·3 m. range at neaps but suggest that the value of 3·5 m. on springs may sometimes be exceeded.

Many of the features and dimensions referred to above will be discussed in greater detail.

*Formerly with the Nature Conservancy and now at the Institute of Oceanographic Sciences, Taunton.

Chesil Beach

Early references to the beach are found in the description of Leland's travels during the years 1535-43 A.D. (publ. 1710-12), and in the works of Camden (1586), and Hutchins (1774), but the first detailed descriptions of the beach are those of Smeaton (1803) and de Luc (1811). Because of the frequent papers and extensive discussion relating to Chesil Beach and the surrounding area, the present-day beach will be considered separately from the Fleet and the Raised Beach, and will itself fall under three headings. These are, the description of Chesil Beach; the type of material of which it is composed and the source thereof; and a review of data concerning the grading of the beach and its causes.

(a) *Description of the Beach*

de Luc (1811) wrote of 'this prodigious accumulation of gravel'. He thought that Chesil had been formed on a bar and that no change of sea level had occurred during its existence. Airy (1853) believed this bar was responsible for the orientation of Chesil Beach. Taylor, in a comment given on his map of 1765, states that below the pebbles there is a firm black clay, intermittently exposed. Smeaton (1803) expressed surprise on being told that 'four, five or six feet beneath the surface of the pebbles, there is everywhere a strong mound of blue clay, having the same general shape as the beach'. Coode (1853) observed that



PLATE II. Chesil Beach and the Isle of Portland from Abbotsbury Hill. This view shows the western end of the Fleet and the degraded former coastline behind it

there was no clay exposed on the seaward side but silty clay, which he regarded as Kimmeridge Clay, was present along the eastern end of the Fleet at about 1 m. below low water mark. Damon (1860) again stated that the beach was formed on Kimmeridge Clay, which inhibited recession. Strahan (1898), while accepting that the beach is formed on clay, explicitly states that it is not Kimmeridge Clay. Arkell (1947) believed that while Chesil Beach had originally been formed on a bank, recession, coupled with submergence, had left no trace of it. Chesil was a bay-bar pushed almost onto its hinterland. Bond (1951) believed that Chesil was now 'a typical storm beach'. Carr and Blackley (1973) have shown, in the light of recent borehole data, that only in the eastern area near Section 3a is there clay bedrock anywhere near low water mark. Material — thought to be Oxford Clay — occurred at −4·6 m. O.D.

Harrison (1848) considered that the height of Chesil was greater than Dungeness because of a greater tidal range and because of the 'groyne effect' of the Isle of Portland. This concept of the groyne was later adopted by Fitzroy (1853), Bristow and Whitaker (1869), Greenwood (1874a, b, 1875) and Prior (1919) and denied by Coode (1853) and Groves (1875).

Two of the questions discussed most frequently have been whether the beach crest was lower in earlier centuries, thus rendering breaching and over-topping more likely, and the reality, and extent of, landward recession. Redman (1852), Codrington (1870), and Groves (1875) all believed that the beach was higher when they wrote than at earlier times as Lilly's data (Lilly, 1715) suggested. Atkinson (1927) doubted this and thought that seepage through the beach was more important than over-topping. Arkell (1956) referred to the lack of eye-witness accounts of breaching. Like Smeaton (1803), he thought that while seas may sometimes wash over the beach crest and localised seepage takes place, resulting in hollows or 'cans', earlier accounts of breaching (e.g. by Leland, Camden and Hutchins) were false or at best unproven. Coode (1853) shared this view, at least in respect of the first half of the 19th century. Only the crest was destroyed in the storm of 1824 and it soon recovered thereafter (Groves, 1875).

A comparison by Carr and Gleason (1972) of Coode's original survey data (1846-53) and longitudinal and cross-sections made in 1967-69 suggests that at the western end of the Fleet Chesil Beach has increased in height by an average of about 2·0 m. during the intervening period. Over the central area from Langton Herring to Wyke Regis the build-up has been of the order of 1·5 m., while an actual fall of up to 2·5 m. or so is recorded at Chesilton. The latter could be partly the effect of a sea wall constructed between 1961 and 1964, but the reasons for alterations elsewhere are not clear. They may reflect delayed response to changes in sea level; increased storminess; variation in direction of fetch; the effects of beach recession, or shortage of certain grades of material through attrition.

A similar controversy to that of beach height affected the concept of recession of the beach. Smeaton (1803) was puzzled as to why, if large quantities of material were thrown landward during storms, recession was not obvious. Prestwich (1875a), Harrison (1875), Strahan (1898) and Lewis (1931, 1938), all accepted 'in-rolling'. Redman (1875) and Airy (1875) disagreed; the former thought thickening was the process. Lewis believed that recession was an attempt by the unsupported part of the beach to align itself to the dominant and prevalent waves (which are here coincident in direction). He considered the process extremely slow. Comparison of Coode's plans and sections, the Admiralty Chart of 1855, and present-day profiles (Carr and Gleason, 1972) confirm this view and suggest that only opposite Portland Harbour is the amount of change over the period greater than the plottable error for the appropriate scale of the survey (Winterbotham, 1926). Short-term variability is frequently greater than the long-term trend as data for 1965-66 indicate.

Other evidence which may demonstrate recession includes that of Strahan (1898), Baden-Powell (1930a) and Davies (1935). Strahan argued that lack of vegetation on the backslope at the Portland end indicated greater rapidity of retreat there but larger mean pebble size and hence greater porosity could have the same effect. Both Baden-Powell and Davies noted that sand occurred below Chesil Beach at its southeast end. They thought this was the remains of earlier sand dunes. If so, it would demonstrate both recession and a relatively rising sea level. The presence of peat slabs cast up on the exposed part of the beach near Abbotsbury (Section 10 in Fig. 1) in November, 1970 is also relevant in this context and implies some long-term recession of the beach there although the beach crest remained unaffected in that instance.

Various limits as to the western extent of the beach have been suggested. For example, Coode (1853) thought it ended opposite Abbotsbury; Taylor (1765), Hutchins (1774) and Damon (1860) considered it terminated at Burton Cliff and several authors have suggested Bridport Harbour as being the limit. Prior (1919) regarded the western boundary as having changed with time. As Arkell (1947) stated, any limit is essentially arbitrary and depends, in part, upon the criteria used to define it (e.g. continuity of the beach crest or consistency of longshore pebble grading).

(b) *Sources of material*

de Luc (1811), and later Russell (1865), thought that Chesil Beach was composed of siliceous material similar to that on the nearby hills. It was not chalk flints. Both Rennie (1853), and Fitzroy (1853) also believed in a local source of material but Rennie suggested that the beach was in part composed of flints derived from the chalk cliffs of Lyme Bay. de la Beche (1830)

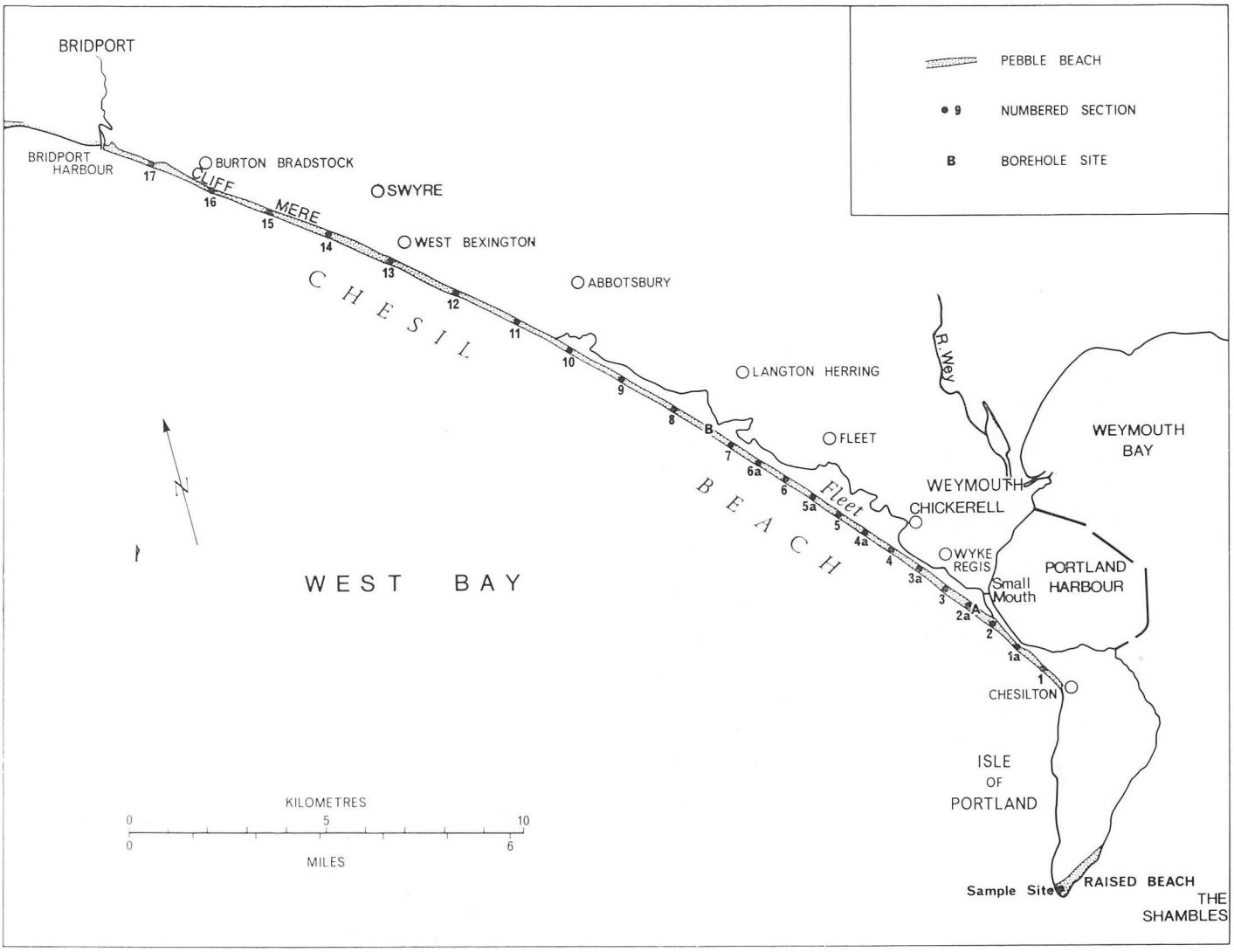


FIG. 1. Chesil Beach: Site map

considered that the pebbles comprising the beach had travelled alongshore from the west and that only finer material was present offshore. Coode (1853) shared this opinion although he noted coarse shingle immediately below low water mark. Murray (1853) thought that the source must be sought over an area extending as far as Land's End in the west, and the coast of France to the south. Airy (1865), although agreeing that material was derived from the west, did not accept longshore drift since, he argued, if this were the case, the Fleet should have been filled up first. Pengelly (1870) stated that the presence of Triassic quartzites from the Budleigh Salterton, Devon, pebble beds also suggested movement from the west.

In 1853 Murray invoked local movement of smaller material from the east end and this view was formalised by Prestwich (1875a) who claimed that material at Chesil had moved predominantly from the southeast, being principally derived from the precursor of the Portland Raised Beach (traces of which still remain), and from offshore. While Prestwich conceived some movement from the west in the past he believed that, at the time when he wrote, no material travelled further east than Burton Bradstock. In the discussion which followed his paper various contradictory views were expressed. Harrison accepted a source in Lyme Bay; Douglas believed that the beach was composed of re-distributed material already within the system.

In the same year, Greenwood (1875) suggested that the source of beach material could be found in eroding cliffs and transport by rivers. He decried the Raised Beach as a source saying that this material would have been worn down long since and been replaced by 'newcomers'. The idea of river transport of material had been previously suggested by Buckland, (cited in Damon, 1860). Strahan (1898) said that quartzites were found in the plateau gravels of the district so that there was no need to find a recent source; they had probably been derived from Lyme Bay in earlier times. Cornish (1898c) considered that an original source was not relevant to the processes then occurring. He (Cornish, 1898a) believed that while shingle could travel across the floor of Lyme Bay it happens to be absent. (Recent low frequency echo sounder survey records suggest relatively little unconsolidated sediment is present above bedrock over much of West Bay).

Prior (1919) suggested several sources were likely; a precursor of Chesil Beach running from Start Point, Devon to Portland, recession of the cliffed coastline to the west, and an extension of the headwaters of a former Fleet river running from the same direction. The latter cause was again voiced by Bond (1951).

Baden-Powell (1930a) considered the mixture of chert; flint; porphyries derived from the Dawlish breccia; and the Budleigh Salterton quartzites. He thought the assemblage must be post-Tertiary but pre-Raised Beach since the Raised Beach is, in fact, the first feature to have all these geological types contained within it.

Arkell (1947) noted that it had been suggested that certain granite and porphyry pebbles of a northern origin had been identified in the area. These might have been brought by ice, or possibly through ballast, as Harrison (1848) had thought. Arkell believed that the percentage of quartzites in the present beach at Chesilton was greater than in the Raised Beach. He said that this suggested either replenishment or, like Reid (1898) less susceptibility to abrasion. However, Sames (1966) has suggested that quartzites are generally less, rather than more, resistant than chert.

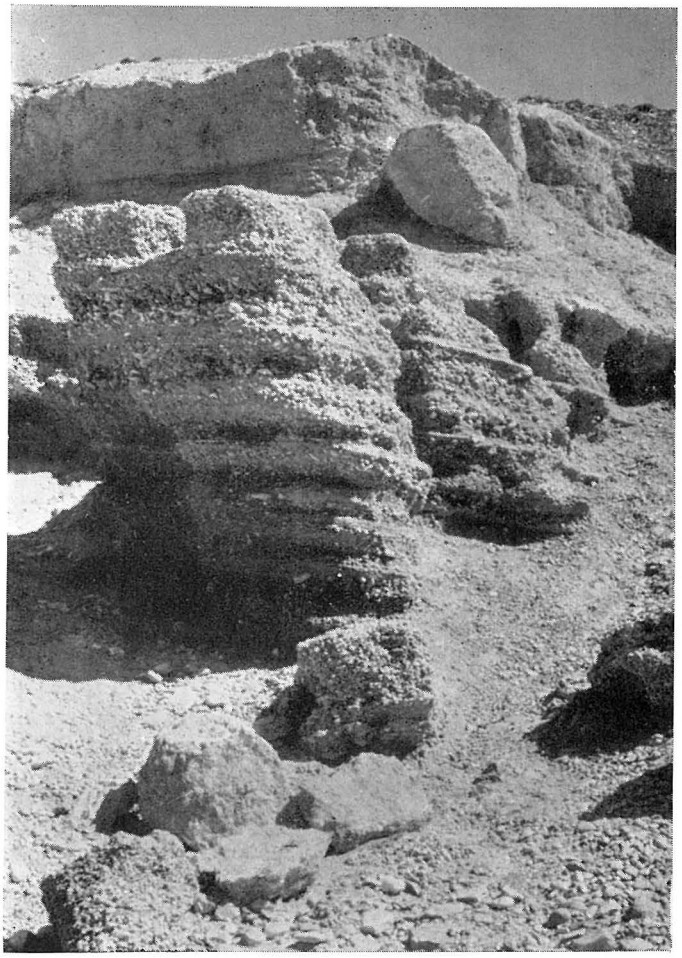


PLATE III. Part of the western end of Portland Raised Beach. The vertical variation in pebble size is clearly shown as is the non-marine sediment above. The composition of this end of the Raised Beach is similar to the present-day Chesil Beach

Carr and Blackley (1969) have shown that flint and chert pebbles make up approximately 98·5 per cent of the present beach above low water mark. The remainder are largely Budleigh Salterton quartzites, quartz pebbles, and limestones of various types. Occasional porphyries, granites, metamorphosed rocks, and other types occur. Highest values for pebbles other than chert and flint occur at both ends of the beach. Such pebbles, especially limestone, also increase markedly with depth. In the sampling between 1965 and 1968 all pebbles could be related to either local sources or to sites in the South West of England, but this does not preclude similar types from elsewhere (Murray, 1853; Hardy, 1964).

(c) *Grading of material and its cause*

The way in which the mean size of the pebbles forming Chesil Beach broadly increases towards the eastern, Chesilton, end has attracted considerable attention, but only Black (1879), Cornish (1898a), Buckley (unpublished), Corbyn (1967), Neate (1967) and Carr (1969), have given any precise quantitative data. Of these Black appears to have measured six pebbles; Cornish weighed an unspecified number from several sites not easily identifiable, Buckley's work is unpublished, Corbyn's geological terminology poses problems, and Neate was mainly concerned with the size of material below low water mark.

Both Taylor (1765) and Hutchins (1774) commented on the variation throughout the length of the beach. de Luc (1811) described the range in size from that of a 'hen's egg' at Chesilton through 'horse beans' near Abbotsbury, to coarse sand at 'Burton Clift'. He thought that big waves took large pebbles towards the east while smaller waves and tidal currents transported finer material in the opposite direction. In a paper not specifically related to Chesil, Palmer (1834) ascribed the sorting of beach material to wave action. He believed that the coarsest fraction was found at the top of the beach and that this fraction travelled farthest. These views were later accepted by Redman (1852) and Damon (1860). In another general paper Harrison (1848), described experiments to show that the form of a beach was related to the type of waves; he referred to refraction; noted that material could move alongshore in both directions; and, because of the greater duration of sea level at high and low water, considered that these times during each tide affected the beach profile to the greatest extent.

Coode (1853) stated that the pebbles were most regular in size on the beach crest. He thought that at Chesil the *smallest* material was on the beach crest whatever the case in Kent and elsewhere (Gibbs, 1853; Bidder, 1853). Coode ascribed the sorting mechanism and beach profile to waves rather than winds (Redman, 1852) or tidal currents (Gibbs, 1853). Russell (1852) had considered that the pebble size on the beach crest reflected previous conditions and might therefore be either larger or smaller than elsewhere along the beach face. Codrington (1870), also believed in the grading of the Chesil Beach material by waves, but Wilson (1870) preferred tidal currents. He suggested that the sorting was achieved when currents ran in the opposite direction to those now prevailing. Reade (1873) believed sorting was the effect of tides and winds modified by the form of the coastline but three years later (Reade, 1876) he had reversed his view in favour of wave intensity. Prestwich's (1875a) controversial paper had suggested that transport of material from east to west along the east end of Chesil Beach was accompanied by both sorting and abrasion. Prestwich considered wind, tidal flow and 'storms' as causes. Kinahan (1877) thought 'flood tides' were important as were 'excessive' winds. Thereafter Black (1879) supported the wave hypothesis and Damon (1884) believed grading was the effect of 'wind-waves'. Cornish (1898a,b,c) considered that most of the factors previously suggested were relevant. He thought both waves and tides were significant; that material moved in either direction depending on size and type, but disagreed that largest pebbles travel farthest. Cornish considered that grading was determined by distance from source, which was manifest in attrition and winnowing, although the effect was complicated by the coarsest material being associated with the largest waves — in this case found at the Portland end of the Beach. Cornish (1898a) gave a table of weights which he suggested meant that the grading as far west as Bridport varied inversely as the distance from Chesilton.

Richardson (1902) described an experiment with brickbats. This showed that transport was related to waves and that where large material was able to move, it did, in fact, move faster than smaller. He also observed that near low water mark the fraction forming the beach could be finer than higher up the beach face, while particularly coarse material was evident on the back slope immediately behind the beach crest. Richardson thought this was thrown over during gales.

Baden-Powell (1930a) suggested that of the main constituents of the beach only the grading of limestone was likely to be affected by attrition. He noted that the size of material fell again at the extreme eastern end of the Beach (as had Groves (1875) and Damon (1884) previously). (Evidence for this has now been complicated because of coast defence works at the site but small embayments to the southeast again include finer material).

Davies (1935) agreed with Richardson's views on longshore movement. Biggest pebbles moved fastest with large waves. Small waves only affected small material. He thought that there was a general movement towards the east but Lewis (1938) shared the view of Rennie (1853) that there was no permanent drift.

Steers (1946) considered that the mechanism for grading had not been satisfactorily explained.

Buckley (unpublished) believed that the steepest beach gradient was associated with the biggest pebbles but that at any particular point along the beach mean pebble size was smaller as waves became bigger (i.e. the beach crest should have the smallest material). (This is what one would get with waves from the prevailing direction transporting smaller pebbles from the west — see below).

Jolliffe (1964) described experiments which showed differential movement of varying sizes of material along the Sussex and Kent coast. He refers to similar conclusions reached by Kidson and

Carr (1961) at Bridgwater Bay, Somerset. Jolliffe believed that this form of selection, which he thought was associated with breaking wave height, could account for the grading at Chesil.

Moss (1962, 1963) suggested that vertical selection was through swash/backwash movement. Kemp (1960) introduced an alternative concept, that of *phase-difference*, which is the ratio of the time of uprush of a wave (t) to the wave period (T). Neither are directly dependant on breaking wave height.

Corbyn (1967) varied his pebble sampling size from '10s' at the east end of the Beach where size range is greatest to 1,000 at Bridport (where it is most uniform). He thought that mean mass decreased monotonically. According to Corbyn less spherical pebbles were heavier and he attempted to define pebble shape. He showed, but did not recognize, sorting on a pebble's short diameter (see below).

A recent paper (Carr, 1969) describes the pebble size grading from Chesilton to near Bridport Harbour. Samples were taken from the surface along 23 lines of Section extending over a distance of 26 km. (Fig. 1); on the same Section lines at high and low water mark once a month at spring tides from July, 1965 to July, 1966; from a number of boreholes through the beach ridge or the backslope; and from the Raised Beach at Portland. Generally 500 pebbles were analysed. The initial sample was measured for long diameter, short diameter and weight and thereafter for long diameter alone. The data was computed for mean, standard deviation and standard error. The results indicate that in a unimodal distribution, the relationship between long diameter, short diameter and weight are broadly constant along the beach. Thus a pebble maintains its proportions irrespective of size and angularity. Reade (1875) observed that flat pebbles do not become rounded with time. Both Coode (1853) and Prestwich had believed that the smaller pebbles towards the west were more spherical than those near Portland and, using the same reasoning as Reade, said that this meant they had been subject to beach processes for a shorter period. Such evidence as there is suggests that the most spherical *quartzites* are found in the central part of the beach (e.g. Section 7 in Fig. 1).

The surface sampling along the lines of Section shows:

(i) unimodal distributions except at low water mark where bimodal patterns may occur. This indicates that the cause of grading is limited to the beach above.

(ii) certain Sections (1a to 3a) where the landward sites are composed of smaller material. The different populations suggest that this part of the beach is not related to the present-day Chesil Beach grading. It is probably too consistent to be the effect of breaching when the beach crest was lower and may be part of an older shoreline feature which Leland described (Black, 1879).

(iii) coarse material on, or immediately behind, the beach crest. These are most likely to be pebbles which have become stranded in the process of being re-distributed under storm conditions as Richardson (1902) thought.

Along the beach data show:

(i) there is a notable inflexion in mean pebble size for both beach crest and high water mark samples near, and to the west of, Wyke Regis (Section 4). This may be related to re-alignment of the beach, or be the effect of wave refraction as a result of rock outcrops offshore. There also appears to be a relationship between these factors and minor variations in beach orientation.

(ii) from Section 3 to Section 13 beach crest height and mean pebble size are closely associated. If, as Kemp (1963) suggested, beach crest height and maximum breaking wave height are related, there must also be a relation between pebble size and breaking wave height along *this* part of the beach.

(iii) variations in mean values of long diameter at the west end of the beach (and even greater differences would have been found if an intermediate position had been analysed between Section 16 and 17) suggest that the grading is less well-defined there. This could reflect minor variations in beach orientation, commercial exploitation of beach material, and local sources of supply.

Monthly variations of samples at high and low water mark are a reflection of the beach processes in the intervening period. Figures for high water mark may give some indication of the rate of longshore transport while the grading and characteristics of low water samples are a response to the beach profile and wave conditions at the time.

The analysis of borehole samples shows:

(i) fine material at, or about, the level of low water mark. This could correspond to a similar intermittently exposed feature on the seaward face. It would then provide evidence for the long-term recession of the beach, having its analogue in the Fleet.

(ii) there is evidence of grading of pebbles below the existing beach although the data from one borehole (A in Fig. 1) suggest that the pebbles may be slightly more angular.

(iii) geological composition varies with pebble size and depth. This is similar to certain landward surface samples having a smaller mean long diameter for their particular Section, and to some extent the areas overlap. In part, these differences of composition may result from varying rates of attrition. For example, limestones occur most frequently in samples with smaller mean values for pebble size.

Samples chosen from the west end of the Raised Beach show means and standard deviations for long diameter within those of the present-day Chesil Beach.

Further studies (Carr, Gleason and King, 1970; Carr, 1971) have added information on significant linear parameters, particle rejection, differential movement and net travel of pebbles on Chesil Beach. It has been shown that generally thickness appears to be the most significant dimension affecting pebble transport. The data from introduced tracer pebbles (Carr, 1971) confirm within limits the more rapid travel of larger material and give a maximum recorded net movement of approximately 2·4 km. over four months in spite of rates of over 340 m. in 24 hours. These figures reflect the proportion of time during which a pebble is out of circulation either through burial or being above or below the zone of longshore transport by waves.

The information provides good correlations between pebble size and movement along the beach. In the short-term such relationships appear linear but over longer periods, as markers become spread over a greater distance, they may be exponential in form as is the grading of the actual indigenous material. While movement seems predominantly to the east so that, with time, mean pebble size should become smaller, negative correlations have been recorded.

Easterly travel is also reduced by the more random nature of longshore movement near Portland, compared with sites further west where waves usually approach the shoreline more obliquely. Burial times are also different between the two areas. These factors probably account for the lack of any permanent drift and thus for the absence of vast quantities of pebbles being deposited at the eastern end. Rejection phenomena of an atypically-sized fraction (Moss, 1962, 1963) are most marked under conditions of long-period swell. Thus pebbles or cobbles inappropriate for a particular part of the beach would be given more opportunity

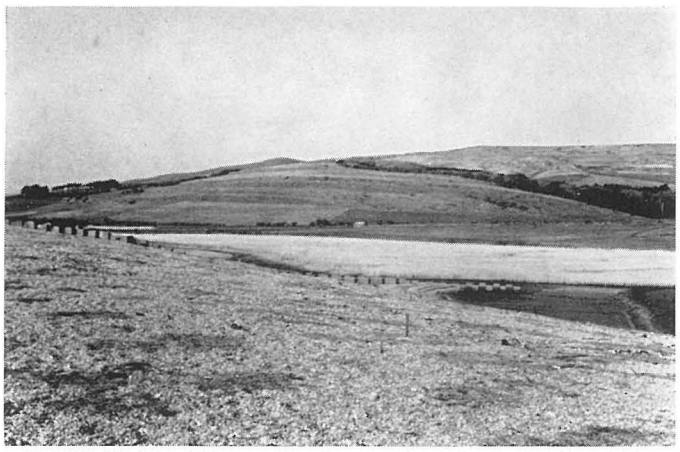


PLATE IV. Present-day reed marsh (*Phragmites*) growing at the western end of the Fleet at approximately zero O.D. Note the greater vegetation cover at this end of the Beach compared with the Portland end (Plate I)

for lateral transport than the remainder. The experimental data also suggests that, *taking the beach as a whole*, grading alongshore is unlikely to have a direct relationship with breaking wave height.

Gleason and Hardcastle (1973) have undertaken further experiments on Chesil Beach using the indigenous material. They found that vertical sorting was dependent on the wave frequency (T_z) and the square root of the significant wave height ($H_s^{\frac{1}{2}}$) while longshore sorting was dependant on the angle of swell approach (ø); the sine of twice the angle of swell approach relative to a line at right angles to the beach (sin 2ø), and the square root of the significant wave height ($H_s^{\frac{1}{2}}$).

In 1898 Strahan stated that the grading of pebbles below low water mark was in the reverse direction. He attributed this view to Coode (1853). In fact Coode merely observed that at Abbotsbury coarser material could be found below low water mark than that which occurred in a comparable situation at the Portland end. Arkell (1947) tried to account for the alleged reversal of grading by tidal currents. More recently Neate (1967) has discussed this problem. He showed that the range of material present below low water mark is wider than on the exposed part of the beach but in no sense is there a reversed longshore grading. The existence of a proportion of coarser material immediately offshore was accounted for by one or more of three possible alternatives. These are, attrition of the upper part of the beach since the pebbles were deposited; the selective sorting of material (e.g. Miller, 1958); or the subsequent in-filling of the unsupported part of Chesil Beach in front of the Fleet by finer material in order to maintain a foreshore at right angles to the direction of wave approach (Lewis, 1931, 1938). Carr's work (Carr, 1971) suggests the second possibility as most likely.

The Fleet

As early as 1830 de la Beche expressed the view that the cliffs on the landward side of the Fleet had not been affected by waves from the Atlantic, at least since sea level reached its present height. This view has been shared by most writers (e.g. Damon (1860); Strahan (1898); Baden-Powell (1930a); Steers (1946); and Arkell (1947) although Hawkshaw (1853) and Prestwich (1875a) expressed the opposite opinion. However, the mode of origin of the Fleet has been widely disputed, as Bird (1972) has noted. Bristow and Whitaker (1869) believed that Chesil Beach was initially built against cliffs which continued as far east as Chickerell and that subsequently the ground behind the beach was eroded away by streams to form the Fleet. This opinion was later shared by Mansel-Pleydell (1873) and Damon (1884). Codrington (1870) disagreed. He thought that streams and tidal scour were inadequate and pointed out that the characteristic of the Fleet is accretion, not erosion. Fisher (1873) believed that the Fleet was initially a river valley running parallel to the coast and



PLATE V. Chesil Beach from near Langton Herring looking southeast towards Portland. Note the gentle, degraded, coastline on the landward side of the Fleet, the shallow Fleet lagoon with salt marsh vegetation along the edge of the beach, and evidence of wave action at the beach crest and further down the seaward face

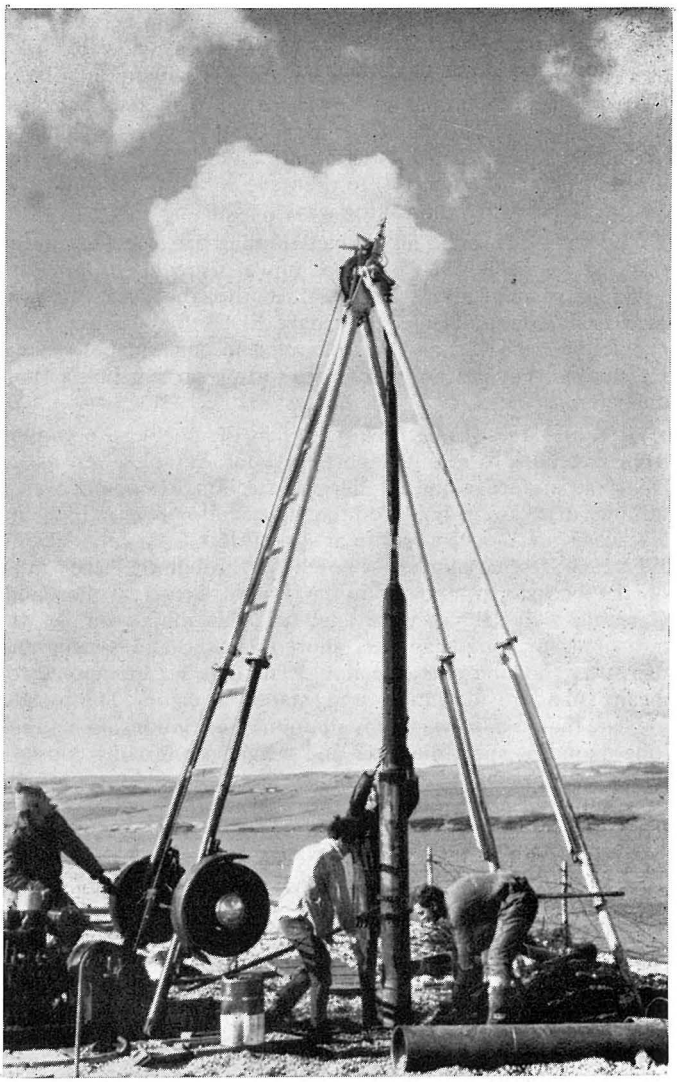


PLATE VI. Percussion borehole rig being used for research into the size of material below the beach crest and into the origin of the beach. Langton Herring; March 1966

that its seaward limb was eventually eroded away. This view is somewhat similar to that of Bristow and Whitaker, but requires less erosion since Fisher accounted, in part, for the present form by subsidence (or, in effect, by a relatively *rising* sea level). It also implies the event was earlier in time since Chesil had not then been formed. Reade (1873) stated that the Fleet was the natural consequence of a barrier built on low land. Greenwood (1874b) thought that the Fleet was created not by subsidence but by a relatively *falling* sea level so that shallows were formed.

Strahan (1898), like Fisher, believed that a former Fleet river flowed into Weymouth Bay. Baden-Powell (1930a) considered that three gravel terraces occurred on the landward side of the Fleet. According to him, these features, composed largely of local pebbles, were also indicative of Fisher's Fleet river concept. He thought that the Fleet river was captured by the sea after the formation of 'head' deposits which reach down to present day sea level. Sparks (1952) believed the gravels had been soliflucted over pre-existing Plio-Pleistocene marine flats, and were not fluvial in origin. However, Doornkamp (1964) regarded the flats on the landward side of the Fleet as mainly sub-aerial (fluvial). Doornkamp makes no suggestion of any river parallel to the coast; only one at right angles to it.

Arkell (1947) believed that the origin of the Fleet and Chesil must be sought together. He regarded the Fleet as the last relic of an area, formerly opening into West Bay, which was drowned during the Neolithic submergence. Strahan (1898) had noted that there were analogous features at Burton Mere and Swyre. Cartographic evidence suggests that the latter may have been larger at an earlier period. Reduction in size appears to still be continuing.

New data (Carr and Blackley, 1973), including the results from some 70 boreholes carried out for the Central Electricity Generating Board, provide information on the form of the bedrock underlying Chesil Beach and the Fleet, and the material of which the Fleet is infilled. They help to clarify some of the earlier ideas about its origin. The slope of the former sea bed, largely planed-off bedrock, continues underneath the Chesil shingle barrier to meet the hills inland. The break of slope, where the two join, and an associated ancient storm beach, are found at a depth of about −15 m. O.D. opposite East Fleet, and at comparable depths elsewhere, as far west as Abbotsbury.

The Fleet is infilled with silt, sand, pebbles and peat. Details vary widely from borehole to borehole. There is evidence near Langton Herring (borehole B in Fig. 1) to suggest that all of this material dates from early in Pollen Zone VI, some 7,000 years ago. While the peat underlying Chesil Beach is often at comparable heights to that in the Fleet (i.e. between −2 and −5 m. O.D.) it tends to have a much higher pine (*Pinus*) pollen content. Radiocarbon dates range from between 4980 ± 120 and 5410 ± 115 B.P. for the shallow Fleet peat beds. There is a date of 6100 ± 120 B.P. for *Phragmites* peat (with pine pollen) underlying the beach opposite Section 3a. The sample from this peat bed was taken at −5·3 m. O.D. The peat slabs at Abbotsbury, to which reference has already been made, appear to be somewhat younger in age than the other Fleet peat deposits. Up to 89 per cent of the tree pollen was alder (*Alnus*).

These new data, taken together, help to confirm the view of de la Beche (1830) that the hills to the landward of the Fleet cannot have been affected by wave action during the Flandrian (post-glacial) transgression. The hills and degraded cliff line must have been shaped before or during one or more of the earlier inter-glacial periods. Similarly, the rapid infilling of the Fleet supports the views of Codrington (1870) who emphasised the accretional nature of the area. The information, and that of Sparks (1952) and Doornkamp (1964), make Fisher's (Fisher, 1873) Fleet river concept unlikely in its entirety. However, planation of the sea bed must have destroyed earlier landforms in West Bay, perhaps including the 'seaward limb' of any minor drainage system which existed at the time.

Borehole evidence also shows a deep channel, exceeding 26 m. below O.D., between the Isle of Portland and Small Mouth. Although peat is recorded in the log of a borehole located in this channel there are reservations as to its significance. If it can be correlated with samples from similar depths in south-east Devon (Clarke, 1970) a date of about 8800 B.P. would be likely. The channel itself could, of course, be older.



PLATE VII. Examples of peat slabs thrown up onto the beach near Abbotsbury after long-period swell. Note the large piece of tree trunk (*Alnus glutinosa*). November, 1970

Portland Raised Beach

Weston (1852) first wrote of the Raised Beach at the southern end of the Isle of Portland (Fig. 1). It had been mapped by Bristow in the geological survey of 1850 (Macfadyen, 1970). Godwin-Austen (1857), writing of its geological composition, said that most of the material was local. Both Weston and he agreed that there were only 'a few flints'. (This would be true of the east end of the Raised Beach but certainly not of the west). Pengelly (1870) believed that the characteristic quartzites, derived from the Budleigh Salterton pebble bed, occurred in similar proportions to the present day Chesil Beach.

Prestwich (1875b), reviewed the literature to that date and described the height and extent of the beach in detail. He noted that the beach was overlain by 'head' but, because he thought that this was the effect of water action, did not realise it implied at least one cold period thereafter as Godwin-Austen (1857) had deduced. However, unlike Godwin-Austen, Prestwich recognised that the Raised Beach was built from west to east. Prestwich also noted the successive layers of coarse and fine pebbles. In 1898 Strahan again reviewed the literature. He considered the greatest thickness was 3·7 m. and that both the position of the Beach and its composition differed from the present-day Chesil Beach. Baden-Powell (1930a,b), like Prestwich, believed that the slope of the Beach was, in fact, similar to that at present. So, too, was the composition of the shingle, 99 per cent of the pebbles being flints or limestone, but the proportions of one to the other varied markedly from west to east. Baden-Powell described the Raised Beach platform as 6·1 to 16·8 m. above existing high water mark (about 7·6 to 18·3 m. O.D.) with most of the shells (mainly present at the eastern end) near what would have been low water mark at the time it was formed. (The beach crest at Chesil is up to 13·2 m. above high water mark at the present day). The fauna was related to colder conditions than now. Baden-Powell also noted sand and a non-marine fauna between the Raised Beach and the 'head' above. He considered the beach as not earlier than Main Monasterian in age and Carreck (1960) assigned the 'head' to the Late Pleistocene. These relationships could agree quite well with those made for other parts of the English Channel by



PLATE VIII. Particularly under storm conditions seepage occurs through the beach. Much of this is localised and results in 'cans' or, as here, small shingle spreads. Near Section 11. February, 1972

West and Sparks (1960), the Ipswichian (=Eemian) and Last Glaciation respectively. Macfadyen (1970) described the material between Raised Beach and 'head' as stratified loam. He observed its ecologically mixed shell assemblage and thought that the deposits had been laid down in a mere after a slight fall in the height of sea level to 12 m. above O.D. Arkell (1947) considered that the material forming the Raised Beach was similar to Chesil but that the trend was at right angles. He correlated the structure with the middle terraces of the River Wey and believed that the Beach's continuation was to be found in Hope's Nose, Torquay.

Prior (1919) explained the Raised Beach, not by changes in relative sea level, but by an estuarial effect, such as that of the Bristol Channel and the Bay of Fundy, at a time when the Straits of Dover had not been formed. He thought its western end might have been near Start Point, Devon.

Conclusions

It is useful to see how some of the ideas raised in earlier papers have been confirmed or disproved, and the extent to which problems have been solved, by more recent data. At the same time such an assessment sheds light on where further research is necessary in the future to attempt to resolve the difficulties which still remain.

Carr and Blackley (1973) have recently suggested a possible sequence for the evolution of the Chesil area based largely on existing information. This would involve:

(i) the marine trimming of the hills to landward of the Fleet which Sparks (1952) thought was Plio-Pleistocene in age. The break of slope and associated storm beach at about −15 m. O.D. may be related to part of this period.

(ii) the deposition of fluvial river gravels (Baden-Powell, 1930a) or, more probably, soliflucted material (Sparks, 1952) in the same area on several separate occasions. Some of these occasions may be after the formation of the Raised Beach;

(iii) the development of Portland Raised Beach. Baden-Powell (1930b) dated this as Main Monasterian or later;

(iv) the deposition of 'head' both in the Fleet and Portland Raised Beach areas (Baden-Powell, 1930a,b; Bird, 1972). Carreck (1960) assigned the 'head' to the Late Pleistocene;

(v) a series of features during the post-glacial period. These might include the deep channel between the Isle of Portland and the mainland but this could well have been cut during an earlier inter-glacial or inter-stadial period and infilled thereafter. The infilling of the Fleet by silt, sand, pebbles and peat was clearly very rapid, apparently beginning early in pollen zone VI and being virtually complete by 5,000 years BP. Some form of shelter must have existed for this accretion to take place so it is reasonable to assume that a barrier had formed further seawards by this time. However, the element of pebble-grading below, and landwards of, part of the present-day Chesil Beach implies at least intermittent wave action both before and afterwards. This could be the effect of breaching and over-topping as relative sea level rose. It is interesting to note the association of more angular, local, material with these features and with the relics of the beach facing Portland Harbour.

Not all the recent information is chronological, however, and the following points are also based on the evidence obtained:

(i) It is very unlikely that any sizeable part of Chesil Beach was formed on a 'bar', whether of Kimmeridge Clay, or otherwise. The planation surface underlying the Fleet would have already destroyed such a feature during earlier geological history.

(ii) Recession of the beach is now very slow and local. It was probably greater, at one time, particularly during the post-glacial rise in sea level.

(iii) Sources of material for the beach have been mainly indirect although local deposits appear to have been more important during the past. The present beach is a fossil structure with negligible new material being added to it.

(iv) The Fleet is an accretional feature. Most of its sedimentation took place over a very brief geological timespan.

(v) There is evidence for the beach crest having been lower in past centuries.

(vi) The grading of the shingle beach above low water mark is probably due to a combination of factors. These include the absence of new pebbles coming into the system and the progressively increasing wave energy from west to east along most of the beach. The most likely process is by *phase-difference*, coupled with rejection of atypically-sized material. Very coarse pebbles, cobbles and boulders are combed down below low water mark and give rise to the ill-sorted material recorded there. Shingle less discordant in size with the background is 'rejected' onto the surface of the beach under certain types of wave conditions. As such it then has a greater chance to move to an appropriate position alongshore when waves approach obliquely thereafter.

(vii) Experimental data support the view that, firstly and within limits, larger pebbles travel faster than small ones and, secondly, that coarse material behind the beach crest has been thrown over during storms.

Apart from the desirability of further experimental studies into pebble movement, two major and many minor problems in Chesil's evolution require to be solved. Why is there no trace of any feature analogous to the Portland Raised Beach on the hills landward of the Fleet? If this is because an earlier barrier extended from Portland to Torquay or Start Point where is the rest of the material of which this vast structure was composed? There is still scope for further research.

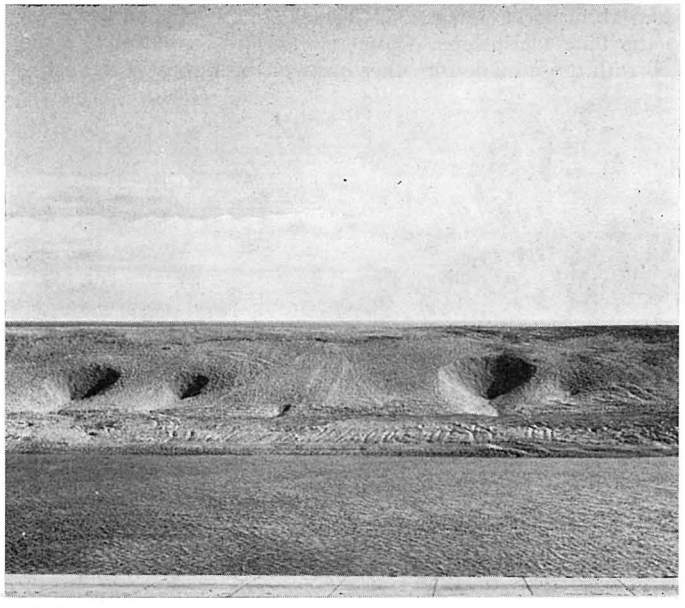


PLATE IX. Well developed seepage hollows, or 'Cans' on the rear face of Chesil Beach, south of Chickerell, near section 4.

REFERENCES

Airy, G. (1853). In discussion, Coode.
Airy, G. (1865). In discussion, Redman.
Airy, G. (1875). In discussion, Prestwich (1875a).
Arkell, W. J. (1947). 'The geology of the country around Weymouth, Swanage, Corfe and Lulworth'. *Mem. Geol. Surv. Gt. Br.*
Arkell, W. J. (1956). 'The effects of storms on Chesil Beach'. *Proc. Dorset Nat. Hist. Archaeol. Soc.*, 76, 141-145. (Volume for 1954).
Atkinson, E. H. T. (1927). 'Some Abbotsbury records'. *Proc. Dorset Nat. Hist. Antiq. Fld. Club.* 48, 70-85.
Baden-Powell, D. F. W. (1930a). 'On the geological evolution of Chesil Bank'. *Geol. Mag.*, 67, 499-513.
Baden-Powell, D. F. W. (1930b). 'Notes on the Raised Beach mollusca from the Isle of Portland'. *Proc. Malacological Soc.*, 19, 67-76.
Beche, H. T. de la (1830). 'Notes on the formation of extensive conglomerate and gravel deposits'. *Phil. Mag.*, Series 2; 7, 161-171.
Bidder, G. P. (1853). In discussion, Coode.
Bird, E. F. C. (1972). 'The Physiography of the Fleet'. *Proc. Dorset Nat. Hist. Arch. Soc.* 93, 119-124. (Volume for 1971).
Black, W. J. (1879). 'Remarks on the Chessil Bank'. *Trans. Manchester Geol. Soc.*, 15, 43-50.
Bond, W. R. G. (1951). 'Theories as to the origin of the Chesil Beach'. *Proc. Dorset Nat. Hist. Archaeol. Soc.*, 73, 163-170.
Bristow, H. W., and W. Whitaker (1869). 'On the formation of the Chesil Bank, Dorset'. *Geol. Mag.*, 6, 433-440.
Buckland, W. (1860). Cited in Damon.
Camden, W. (1586). *Britannia.* 1st English ed. 1610 (originally in Latin).

Carr, A. P. (1969). 'Size grading along a pebble beach: Chesil Beach, England'. *J. Sedim. Petrol.*, 39, 297-311.
Carr, A. P. (1971). 'Experiments on longshore transport and sorting of pebbles: Chesil Beach, England'. *J. Sedim. Petrol.*, 41, 1084-1104.
Carr, A. P. and M. W. L. Blackley (1969). 'Geological composition of the pebbles of Chesil Beach, Dorset'. *Proc. Dorset Nat. Hist. Archaeol. Soc.*, 90, 133-140. (Volume for 1968).
Carr, A. P. and M. W. L. Blackley (1973). 'Investigations bearing on the age and development of Chesil Beach, Dorset and the associated area'. *Trans. Inst. Br. Geogr.*, 58, 99-111.
Carr, A. P. and R. Gleason. (1972). 'Chesil Beach, Dorset and the cartographic evidence of Sir John Coode'. *Proc. Dorset Nat. Hist. Archaeol. Soc.*, 93, 125-131. (Volume for 1971).
Carr, A. P., Gleason, R., and A. C. King. (1970). 'Significance of pebble size and shape in sorting by waves'. *Sediment. Geol.*, 4, 89-101.
Carreck, J. N. (1960). 'Whitsun field meeting to Weymouth, Abbotsbury and Dorchester, Dorset'. *Proc. Geol. Ass.*, 71, 341-347.
Clarke, R. H. (1970). 'Quaternary sediments off south-east Devon' *Q. Jl. Geol. Soc. Lond.*, 125, 277-318.
Codrington, T. (1870). 'Some remarks on the formation of Chesil Bank'. *Geol. Mag.*, 7, 23-25.
Coode, J. (1853). 'Description of the Chesil Bank, with remarks upon its origin, the causes which have contributed to its formation and upon the movement of shingle generally'. *Minut. Proc. Instn. Civ. Engrs.*, 12, 520-546.
Corbyn, P. R. (1967). 'The size and shape of pebbles on Chesil Beach'. *Geogr. J.*, 135, 54-5.
Cornish, V. (1898a). 'On sea beaches and sandbanks'. *Geogr. J.*, 11, 528-543.
Cornish, V. (1898b). 'On sea beaches and sandbanks'. *Geogr. J.*, 11, 628-651.
Cornish, V. (1898c). 'On the grading of the Chesil Beach shingle'. *Proc. Dorset Nat. Hist. Antiq. Fld. Club*, 19, 113-121.
Damon, R. (1860). *The geology of Weymouth and the Isle of Portland.* London. (Some copies dated 1864; 2nd ed. 1884).
Davies, G. M. (1935). *The Dorset Coast.* London. (2nd ed. 1956).
Donovan, D. T. and A. H. Stride. (1961). 'An acoustic survey of the sea floor south of Dorset and its geological interpretation'. *Phil. Trans. R. Soc. B.*, 244, 299-330.
Doornkamp, J. C. (1964). 'Subaerial landform development in relation to past sea levels in a part of South Dorset'. *Proc. Dorset Nat. Hist. Archaeol. Soc.*, 85, 71-77. (Volume for 1963).
Fisher, O. (1873). 'On the origin of the estuary of the Fleet in Dorsetshire'. *Geol. Mag.*, 10, 481-482.
Fitzroy, R. (1853). In discussion, Coode.
Gibbs, J. (1853). In discussion, Coode.
Gleason, R. and P. J. Hardcastle. (1973). 'The significance of wave parameters in the sorting of beach pebbles', *Estuarine and Coastal Science*, 1, 11-18.
Godwin-Austen, R. (1857). 'On the newer Tertiary deposits of the Sussex coast'. *Q. Jl. Geol. Soc. Lond.*, 13, 40-72.
Greenwood, G. (1874a). 'Why are the largest stones found at the east end of the Chesil Bank?' *Geol. Mag.*, dec. II, 1, 576.
Greenwood, G. (1874b). 'Origin of the Fleet'. *Geol. Mag.*, dec. II, 1, 143.
Greenwood, G. (1875). 'Origin of the Chesil Bank'. *Nature*, 11, 386.
Groves, T. B. (1875). 'The Chesil Bank'. *Nature*, 11, 506-7.
Hardcastle, P. J. and A. C. King. (1972). 'Sea wave records from Chesil Beach, Dorset'. *Civil Engineering*, 67, 299-300.
Hardy, J. R. (1964). 'Sources of some beach shingles in England'. 20th Inter. Geogr. Congress, London. (Duplic. mss.).
Harrison, J. R. (1848). 'Observation on the causes that are in constant operation to alter the outline of the English coast, to affect the entrances of the rivers and harbours, and to form shoals and deeps in the bed of the sea'. *Minut. Proc. Instn. Civ. Engrs.*, 7, 327-365.
Harrison, J. T. (1875). In discussion, Prestwich (1875a).
Hawkshaw, J. C. (1853). In discussion, Coode.
Hutchins, J. (1774). *History and antiquities of the County of Dorset.* 2 vols. 1st ed.
Hutchins, J. (1803). *History and antiquities of the County of Dorset.* 4 vols. 2nd ed. Revised by R. Gough and J. B. Nichols. Vol. 3 (1803) refers to Chesil and quotes Smeaton.
Jolliffe, I. P. (1964). 'An experiment designed to compare the relative rates of movement of different sizes of beach pebbles'. *Proc. Geol. Ass.*, 75, 67-86.
Kemp, P. H. (1960). 'The relation between wave action and beach profile characteristics'. 7th Conference in Coastal Engineering, Hague. *Proceedings*, 1, 262-277.
Kemp, P. H. (1963). 'A field study of wave action on natural beaches'. *Inter. Assoc. of Hydraulic Research.* London. 1, 131-138.
Kidson, C., and A. P. Carr. (1961). 'Beach drift experiments at Bridgwater Bay, Somerset'. *Proc. Bristol Nat. Soc.*, 30, 163-180.
Kinahan, G. H. (1877). 'On the Chesil Beach, Dorsetshire and Cahore shingle beach, County Wexford'. *Q. Jl. Geol. Soc. Lond.*, 33, 29-41.
Leland, J. (1710-12). *The Itinerary of John Leland the Antiquary published from the original mss. by T. Hearne.* Oxford. 9 vols.
Lewis, W. V. (1931). 'The effect of wave incidence on the configuration of a shingle beach'. *Geogr. J.*, 78, 129-148.
Lewis, W. V. (1938). 'The evolution of shoreline curves'. *Proc. Geol. Ass.*, 49, 107-127.
Lilly, C. (1715). 'A report of the fortifications and artillery at Portland'. [B. M. Kings Geo. III Mss. 45 f 57].
Luc, J. A. de (1811). *Geological travels.* London. Vol. II deals with Chesil. de Luc's tour dates from 1804.
MacFadyen, W. A. (1970). *Geological highlights of the West Country.* London.
Mansell-Pleydell, J. C. (1873). *A brief memoir of the geology of Dorset.* Blandford.
Miller, R. L. (1958). 'A study of the relation between dynamics and sediment pattern in the zone of shoaling wave, breaker and foreshore'. *Eclogae Geol. Helv.*, 51, 542-551.
Moss, A. J. (1962). 'The physical nature of common sandy and pebbly deposits', 1. *Am. J. Sci.*, 260, 337-373.
Moss, A. J. (1963). 'The physical nature of common sandy and pebbly deposits', 2. *Am. J. Sci.*, 261, 297-343.
Murray, J. (1853). In discussion, Coode.
Neate, D. J. M. (1967). 'Underwater pebble grading of Chesil Bank'. *Proc. Geol. Ass.*, 78, 419-426.
Palmer, H. R. (1834). 'Observations on the motions of shingle beaches'. *Phil. Trans. R. Soc.*, 124, 567-576.
Pengelly, W. (1870). 'Modern and ancient beaches of Portland'. *Rep. Trans. Devon Ass. Advmt. Sci.*, 4, 195-205.
Prestwich, J. (1875a). 'On the origin of Chesil Bank, and on the relation of the existing beaches to past geological changes independent of the present coast action'. *Minut. Proc. Instn. Civ. Engrs.*, 40, 61-114.
Prestwich, J. (1875b). 'Notes on the phenomena of the Quaternary period in the Isle of Portland and around Weymouth'. *Q. Jl. Geol. Soc. Lond.*, 31, 29-54.
Prior, E. S. (1919). 'The Bridport shingle. A discussion of pebbles'. *Proc. Dorset Nat. Hist. Antiq. Fld. Club*, 40, 52-65.
Reade, T. M. (1873). 'The Chesil Bank'. *Geol. Mag.*, 10, 573-574.
Reade, T. M. (1875). In discussion, Prestwich (1875a).
Reade, T. M. (1876). 'Pebble ridges'. *Geol. Mag.*, dec II, 3, 360.
Redman, J. B. (1852). 'On the alluvial formations, and the local changes, of the south coast of England'. *Minut. Proc. Instn. Civ. Engrs.*, 11, 162-223.
Redman, J. B. (1865). 'The East Coast between the Thames and the Wash estuaries'. *Minut. Proc. Instn. Civ. Engrs.*, 23, 186-256. (Volume for 1863-64).
Redman, J. B. (1875). In discussion, Prestwich (1875a).
Reid, C. (1898). In discussion, Cornish (1898b).
Rennie, J. (1853). In discussion, Coode.
Richardson, N. M. (1902). 'An experiment on the movements of a load of brickbats deposited on the Chesil Beach'. *Proc. Dorset Nat. Hist. Antiq. Fld. Club*, 23, 123-133.
Russell, J. S. (1852). In discussion, Redman.
Russell, J. S. (1865). In discussion, Redman.
Sames, C. (1966). 'Morphometric data of some recent pebble associations and their application to ancient deposits'. *J. Sedim. Petrol.*, 36, 126-142.
Smeaton, J. (1803). Cited in Hutchins.
Sparks, B. W. (1952). 'Stages in the physical evolution of the Weymouth lowland'. *Trans. Inst. Br. Geogr.* 19, 17-29.
Steers, J. A. (1946). *The coastline of England and Wales.* 1st ed.
Strahan, A. (1898). 'The geology of the Isle of Purbeck and Weymouth'. *Mem. Geol. Surv. Gt. Br.*
Taylor, I. (1765). *Dorsetshire.* Surveyed and engraved by Isaac Taylor. [B.M.: 2153(3)].
Tucker, M. J. (1963). 'Analysis of records of sea waves'. *Minut. Proc. Instn. Civ. Engrs.*, 26, 305-316.
West, R. G. and B. W. Sparks. (1960). 'Coastal interglacial deposits of the English Channel'. *Phil. Trans. R. Soc. B.*, 243, 95-133.
Weston, C. H. (1852). 'On the sub-escarpments of the Ridgway Range and their contemporaneous deposits in the Isle of Portland', *Q. Jl. Geol. Soc. Lond.*, 8, 110-120.
Wilson, E. (1870). 'Notes on the Fleet and Chesil Bank'. *Geol. Mag.* 7, 140-141.
Winterbotham, H. S. L. (1926). Editor. *Survey Computations to be used in conjunction with the Text Book of Topographical and Geographical Surveying*, 3rd ed. London.

The Bindon Landslip of 1839

A Survey of Historical Documents describing this Event, its Causes and Mechanism

By John Pitts, B.Sc., Dip. Eng., F.G.S.

Introduction

The landslip at Bindon is situated in the Axmouth-Lyme Regis Undercliffs National Nature Reserve, some 3½ miles west of Lyme Regis and 1½ miles east of Axmouth. With the Folkestone Warren landslip, it is probably the most widely documented event of this kind in the British Isles. The aim of this paper is to consider the work carried out on the Bindon landslip since 1839, and briefly to show its place in the context of a broader research programme being carried out on the mass movement features of the Reserve.

Description of the Event

The eye-witness accounts of the Bindon landslip and its progress during the later stages of failure have been well described by Conybeare *et al* (1840), Buckland (1840) and Roberts (1840). In particular, the first-mentioned of these accounts has been widely used by other writers both at the time and at intervals since then; (e.g. Anon. 1840 (a), Woodward and Ussher 1911, Arber 1939, 1940). The account of Conybeare *et al* was based on verbal communication with local inhabitants, especially the coastguards and occupiers of the cottages, newspaper accounts (e.g. Anon. 1840 (b), and Anon. 1840 (c)), and on his own observations and those of another notable geologist, Dean Buckland.

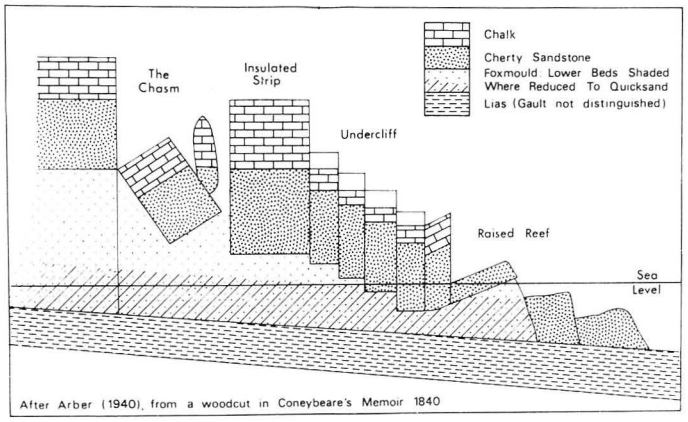


FIG. 1 Section

Conybeare *et al* (1840), open their account by saying: "The following memoir has been undertaken in order to lay before the reader a distinct account of the most remarkable example ever recorded to have occurred within this island, of that class of disturbances affecting the configuration of portions of the earth's surface which results from the undermining agency of water".

Fissures were observed to be opening in the cliff-top "a week or two before Christmas . . . and on the 23rd of December, one of the cottages in the undercliff below . . . began to show signs of subsidence, though not sufficient to create alarm". (Anon. 1840 (a)).

At about 4.00 a.m. on Christmas morning, there came what was described as a "wonderful crack". This seems to have heralded the commencement of large-scale movement. Another statement (Arber 1940), however, records that, "the movements of the ground took place, however, in absolute silence and without vibration".

The occupier of one of the cottages on hearing the initial noise tried to leave his house. He was, though, able to open the door only with considerable difficulty because of the distortion of the

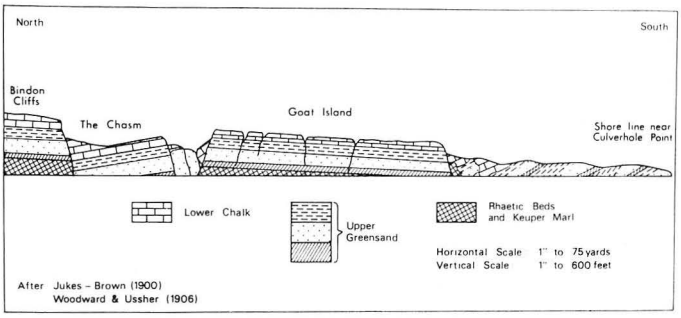


FIG. 2 Section

frame by subsidence. Wagons were brought to move out the furniture and belongings of the occupants of the cottages. However, the path along which the wagons came, slipped away during the time in which they were being loaded. The return journey is described as being "perilous".

"This episode proved to be the forerunner of the great landslip which occurred on Christmas night". (Arber 1940). The slip was in fact observed by two coastguards who saw the land cracking and heard a sound like "the rending of cloth" (Conybeare *et al* 1840). There was also, "heaving and disturbance of the beach, the sea being violently agitated while a dark ridge rose in the water". (Conybeare *et al* 1840). This was accompanied by a "deafening crashing of falling rocks" and "flashes of fire and a strong smell of sulphur" (Conybeare *et al* 1840).

The accounts of what the coastguards noticed, collected by Conybeare, continue by saying: "One of these parties observed about midnight the very commencement of the fissures which in their subsequent progress led to the formation of the great chasm more than 300 feet broad, and 150 feet deep and three quarters of a mile long, ranging as a chord across the curve of the upper headland".

The reports of the coastguards in Roberts (1840) are the only statements discovered by the author, which give an explicit order to the landslip. Roberts (1840) from these accounts records that: "A little after midnight, three hours after the land began to subside to form the chasm, these men were alarmed by the upheaving of the submarine beach, and . . . the alteration of the shore, protrusion of the cliffs, etc".

Much alarm was generated by these reports and by exaggerated newspaper accounts, to the extent that many people were discouraged by their friends from visiting the slip. The sight of the slip seems to have been most awe-inspiring to the many visitors, judging by the report that, "many are breathless and bewildered at the sight". (Anon 1840 (a)). One person on visiting the site, was led back to a sick bed at Honiton, "from which he was with difficulty recovered".

The farms of Bindon and Dowlands suffered losses of land and crops from the slip and from trampling by visitors. As a result, each levied a charge of sixpence to pass through their lands to visit the slip, and the revenue from this more than compensated them for their losses.

Theories Regarding the Landslip

For over a century the hypothesis formulated by Conybeare (1840) and Buckland (1840) was essentially accepted and only details questioned. Since the work of Ward (1945), ideas on the mechanism of the landslip have changed, and the ideas of Ward have been supported in the original or in modified form by

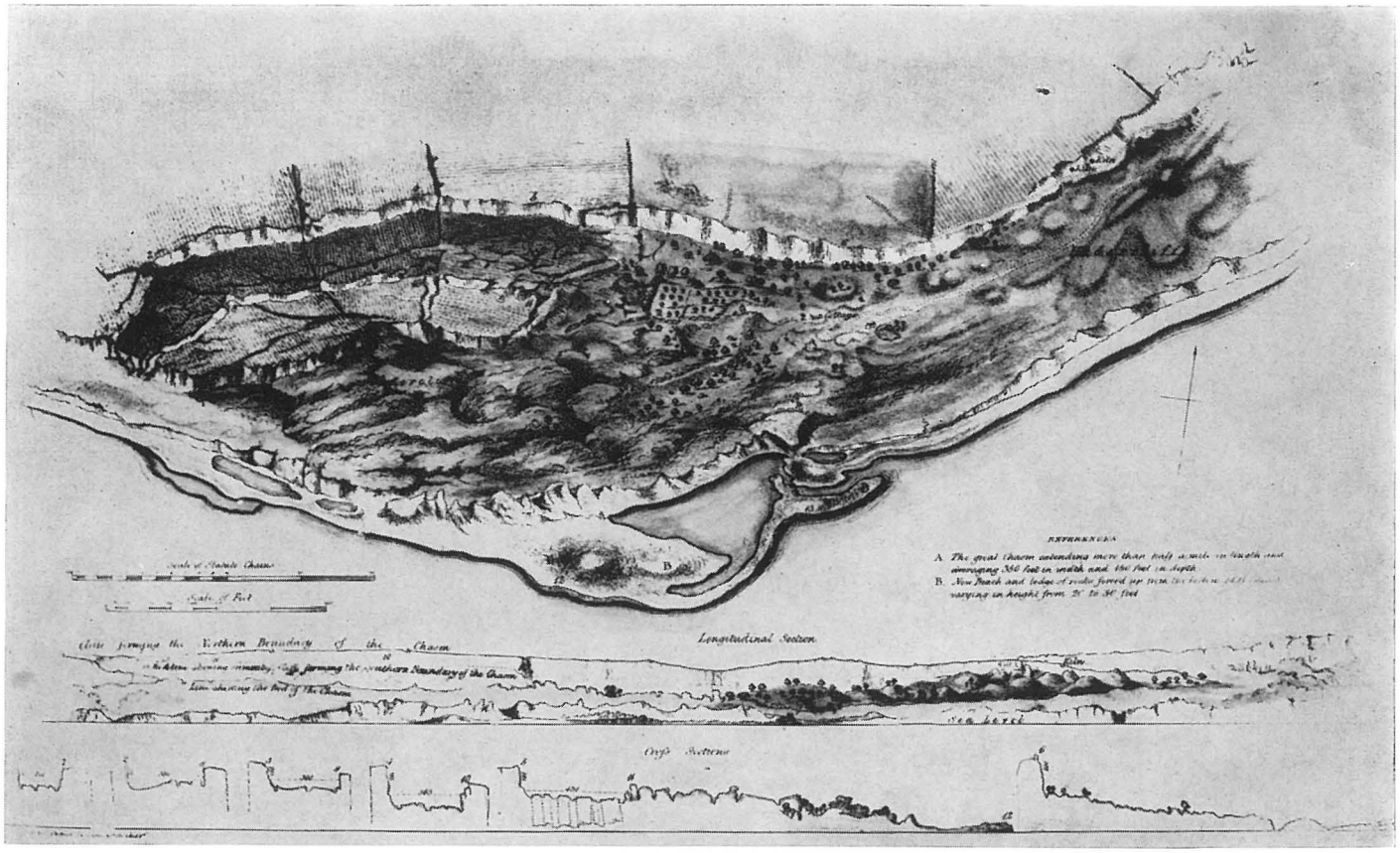


PLATE 1. Ground plan and sections of the landslip. From Conybeare *et al* (1840)

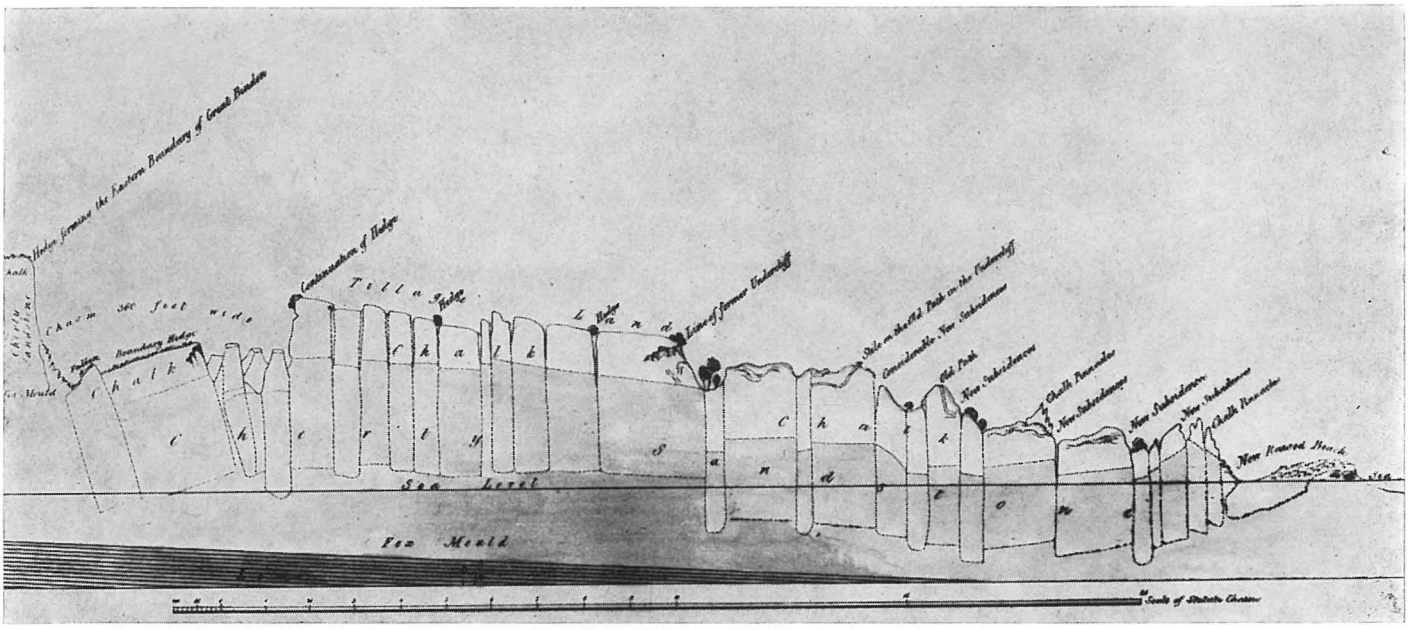


PLATE 2. Geological section of the landslip. From Conybeare *et al* (1840)

Arber (1971), McFadyen (1970) and U.C.L. (1966). The main argument is whether the Bindon landslip is essntially rotational or translational.

Conybeare *et al* (1840) introduces the account of the mechanism of slipping operative at Bindon, by saying: "Disturbances of the surface arising from the agency of water percolating through the strata, and causing dislocation and motion among them, may be produced either by its directly undermining agency, or by moistening the soft interstrata and thus causing them to slide one over the other when previously loosened and rifted" (Fig. 1).

Another writer (Anon. 1840 (a)) says that: "Water, acting on the soil of the district, predisposed from its nature to be so acted upon, has been the main cause".

Roberts (1840) also comments upon the role of water by saying: "Near the shore, the remarkable dryness of the upper cliffs, considering the wetness of the season, could not fail to be contrasted with the cracks full of water or overflowing, the green sand saturated and everything resembling a wet sponge".

Peter (1840) says, with respect to the causes of the landslip that: "it was at first supposed 'to have been caused by' an earthquake . . . that is, a dislocation of the earth by subterranean fire".

However, he refutes this theory and maintains that: "it is most probable that water, and not fire, has been the cause".

Woodward and Ussher (1911), point out that the nature of the geology is one of chalk, calcareous sandstones, cherty sandstones and sands, overlying Gault, Lias clays and Rhaetic calcilutites

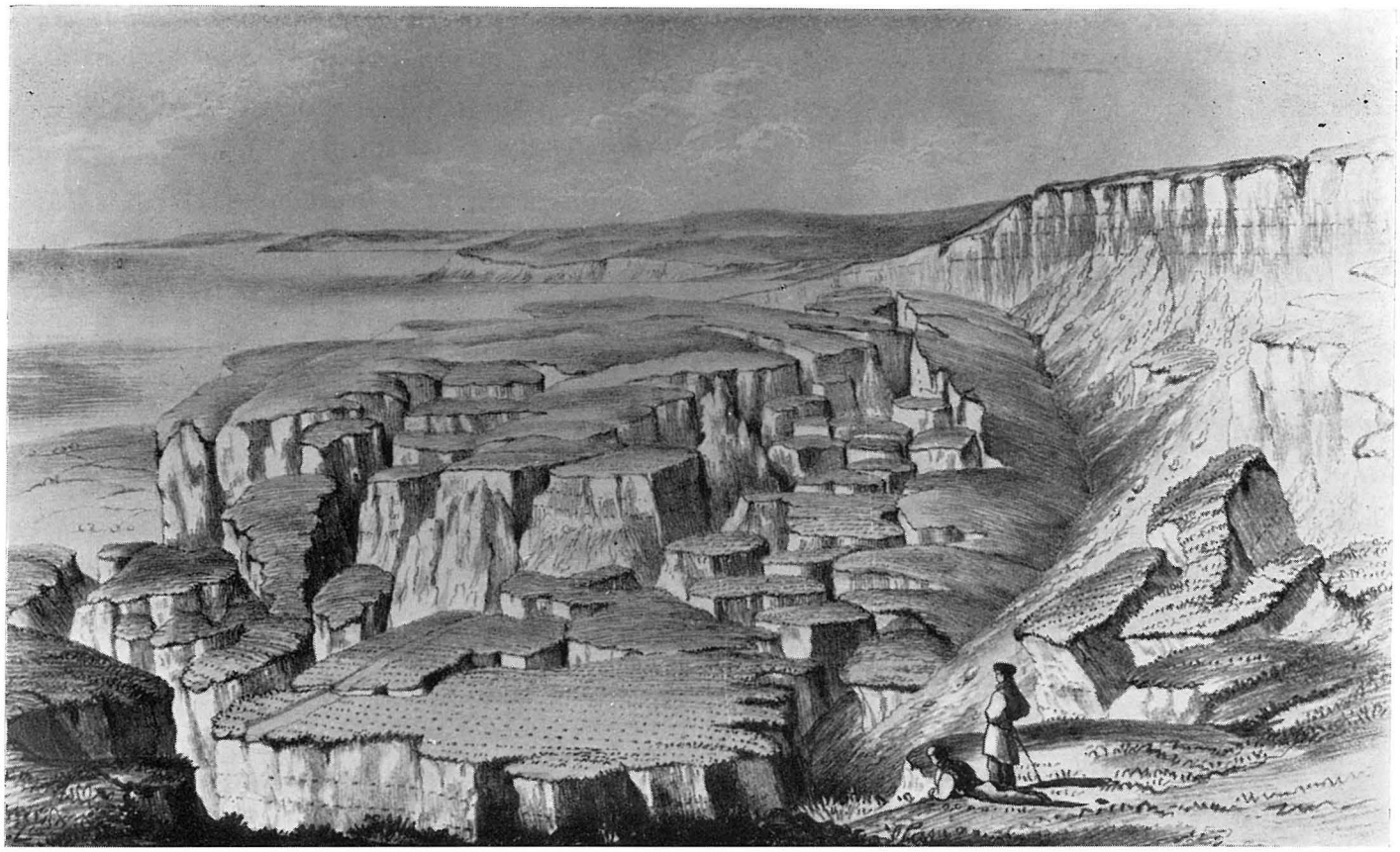


PLATE 3. A view of the landslip from Great Bindon looking west. From Conybeare *et al* (1840)

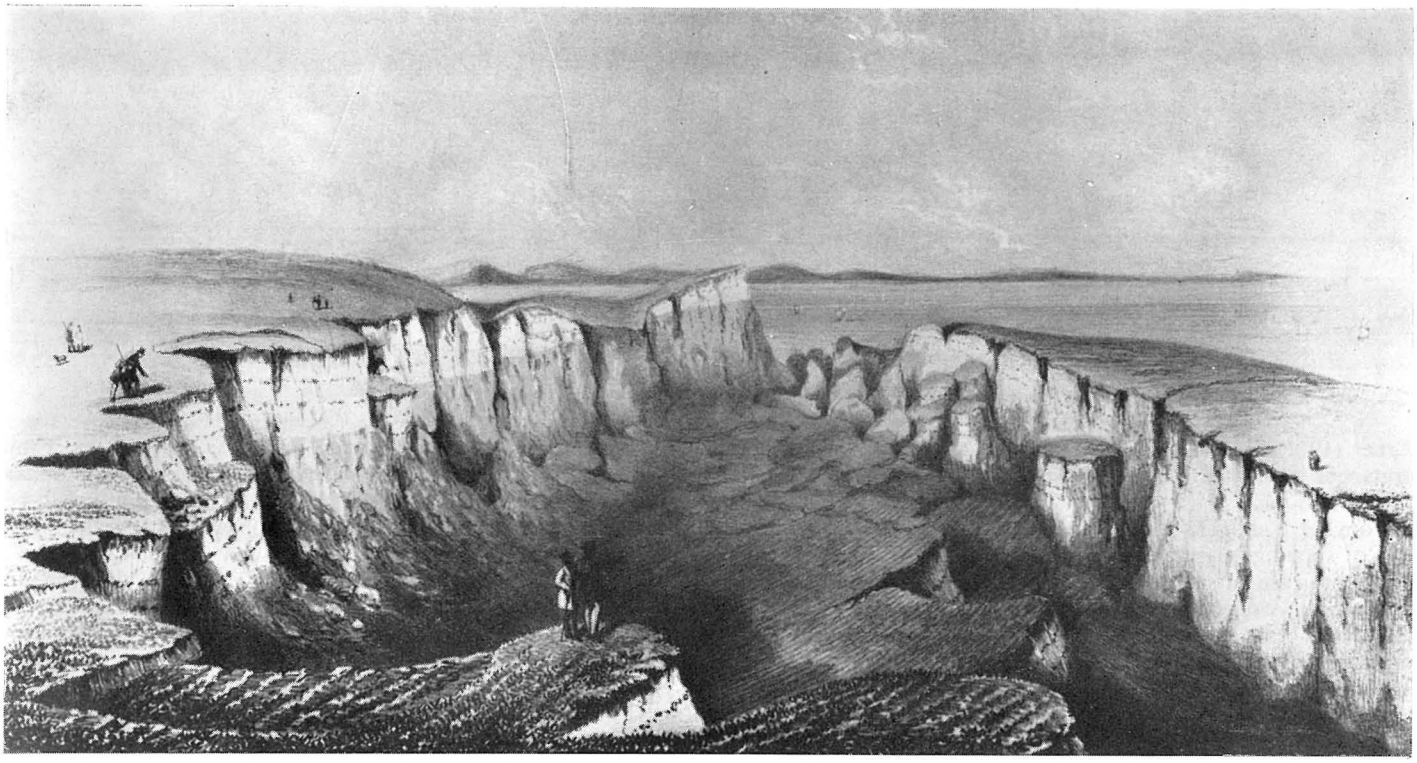


PLATE 4. A view of the chasm looking east. From Conybeare *et al* (1840)

and shales, and Keuper Marls, "which taken together form a generally impervious and slippery foundation". They note a seaward dip of 5° in the Cretaceous strata at Bindon, and suggest that this seaward inclination "has been accentuated in places by the undermining action of springs in carrying away the loose sands at the base of the Greensand".

"Hence we have the most favourable conditions for the production of landslides" (Fig. 2).

Arber (1940) suggests more specifically, that the slip is associated with the Cretaceous overstep of Chalk, Upper Greensand and Gault formations on an eroded surface of Triassic, Rhaetic and Liassic pelites. The sub-Cretaceous plane of denudation which truncates in turn the Keuper Marls, Rhaetic and Blue Lias, dips at about 5° SE or seawards, and the Cretaceous beds above have a similar inclination. U.C.L. (1966) propose a fault line along the northern cliff of the chasm. Evidence for this is provided by a dry valley which appears to follow a fault line from the eastern end of the chasm to Allhallows. The chalk horizon is also slightly higher in the topmost beds of Goat Island than in the top of the backing cliff. It is possible that this fault permitted a washing out of the Foxmould immediately beneath to a greater extent than to the south of the fault.

Conybeare *et al* (1840) suggests that the hydrological conditions pertaining to such a succession would; saturate the Foxmould, reduce it to a quicksand state, wash out this sand at spring points, and in general undermine the superincumbent strata.

"Under these circumstances, let us examine what must be the necessary condition of this bed of loose sand or fox mould; the water percolating through its upper portion would find vent wherever the surface of the ground occupied by it favoured by its configuration the emission of land springs".

"The range of cliffs called the upper cliff or top land of . . . Bindon, is composed of chalk or greensand, so porous that to obtain water is a very laborious matter. Wells have been dug to a depth of between two and three hundred feet before any water could be procured" (Roberts 1840). This would put the phreatic surface within the Foxmould or Gault.

Conybeare maintains that movements of spring water would be checked in the undercliffs where subsided masses of rock abut against the Foxmould, so that water would be locally impounded above the Lower Lias, "thus reducing the lower region of the aranaceous mass into the state of quicksand", this lower division exhibiting a near semi-fluid state.

He describes the main spring line before failure occurred as being roughly at the extremities of the chasm, and that during their flow, their constant action on the Foxmould must have taken parts of this stratum away with them. This resulted in the undermining of the superincumbent strata, "vaults" occurring, particularly at, e.g. fault lines, where the course of the springs was determined. As a result of the undermining, and the overloading due to saturation in the very wet season of that year, the chalk and Greensand masses would have become fissured and that subsidence into the semi-fluid Foxmould below would have occurred.

This hypothesis was broadly accepted, as exemplified by the accounts of e.g. Peter (1840), who said after a discussion of the geological setting, in which he paid particular attention to the Foxmould: "When a season occurs more wet than ordinary . . . the catastrophe is hastened on with a sudden crash".

Or Lyell (1847): "In 1839, an excessively wet season had saturated all the rocks with moisture, so as to increase the weight of the incumbent mass, from which the support had already been withdrawn by the action of springs. Thus, the superstrata were precipitated into hollows prepared for them, and the adjacent masses of partially undermined rock, to which the movement was communicated, were made to slide down on a slippery basis of watery sand towards the sea".

Or Anon (1840 (a)) (Fig. 3): "The foxmould is confidently supposed to be the formation in which the great disturbing causes have arisen; for it is of a loose, spongy nature and imbibes all the moisture which falls on the surface in the form of rain or which filters through the upper strata from distant springs".

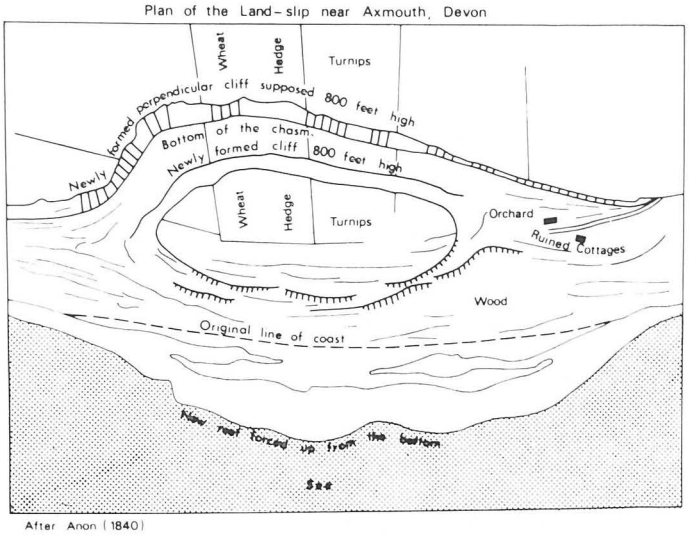


Fig. 3

It is pointed out (Anon 1840 (a)) that the underlying strata is Lias, "in which there occurs a great quantity of tough and impervious clay", and that the water rests upon this, "as on the bed of a well-puddled canal". The undermining by the washing out of the Foxmould prepares the succession for subsidence in an extraordinarily wet season, as in the latter half of 1839, and that this will, "both hurry away more of the remaining support from beneath, and saturate with a greater weight of moisture the several soils above".

Arber (1940) also supported the idea of accummulation of water in the Foxmould and a "washing away" of that stratum from the base of the Upper Greensand division, "so that the chert beds and calcereous sandstones may then founder and slide down towards the sea, carrying the chalk with them". Arber (1939) also points out that from June, 1839 onwards the weather was of "unprecedented severity" with 50% more rainfall than normal.

Roberts (1840) records that the engineer of the Southampton Railway in his report said, "so large a quantity of rain has not fallen within the memory of any living person. The rain which fell from September (1839) to January (1840) was 15·590 inches, making an excess of 50%".

Arber (1940) goes on to say that, "during December 26th, the land that had been cut off by the fissures on the cliff-top gradually subsided seawards, and by the evening had reached a position of equilibrium in the undercliff".

As a result of these undermining agencies, "the earth sank, some portions slowly, and others with precipitancy and ruin" (Anon. 1840 (a)).

Jukes-Brown (1900) assumes a forward sliding of the detached field (Goat Island) and the subsidence of a large mass into the chasm created. He maintains that the Keuper Marl may not have been involved in this movement, "the chalk and Selbornian together moving over the Rhaetic Beds" (Fig. 2).

The theory of Solly (1905) follows, in general, that of earlier writers, particular emphasis being placed on the particularly heavy rainfall recorded at the time, and its effect on the Foxmould. However, the widely-held view on the mechanism of the landslip, according to Solly, "does not adequately account for all the facts". He maintains that the scale section of Jukes-Brown refutes the theory that the main zone of sliding took place on top of the beds of clay, as if this were the case, the chasm would not be as deep as it is. "His diagram, therefore, indicates that these beds of clay partook in the general disturbance. The cliff must have parted from top to bottom nearly down to sea level, and what is termed the 'launchway' must have been prepared not only in the sand, but also in the underlying clay". The pressures exerted from the superincumbent mass, are said to be the cause.

The first gross disagreement concerning the hypothesis of Conybeare *et al* (1840) came from Ward (1945) who said: "The movement of the famous Axmouth landslip is rotational and is

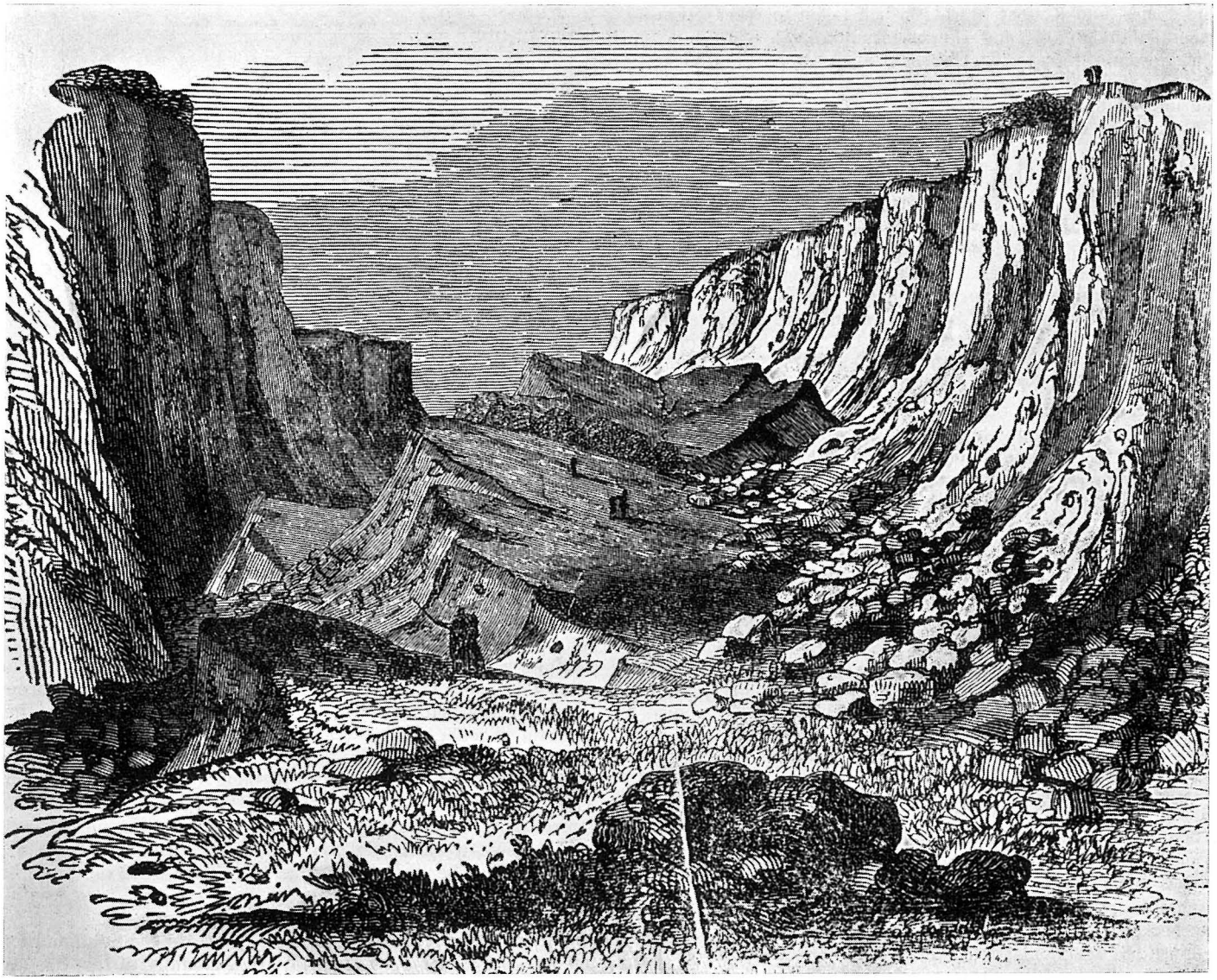


PLATE 5. A view of the chasm looking west. From Roberts (1840).

generally similar to that at Folkestone. The stratigraphy is practically the same in both cases, but at Axmouth the underlying clay is Lias".

Arber (1962) questioned Ward's hypothesis, on the grounds that, "if it were (rotational), the top of the isolated mass, should be tilted so as to slope towards the inland cliff, but in fact, the top of the isolated mass is fairly level and indeed has a slight seaward slope, its continuity with the inland cliff-top being directly observable in the lines of old hedges which were once continuous, and are now cleft by the chasm".

The calcarenite bands in the Lias beneath the Chalk and Greensand, would, "presumably crack and break rather than give way in curved shear slip".

After her long-standing belief in the interpretation offered by Conybeare *et al* (1840) Arber (1971) changed her opinion of the mechanism of slippage at Bindon to one of rotational failure as suggested by Ward (1945). Arber maintains that such a mechanism "would account for the series of ridges running parallel to the inland cliffs from which they could have slid in the distant past". However, it is pointed out (Arber, 1971) that the present-day surface of Goat Island slopes slightly seawards, "so that this mass was not apparently involved in any rotational movements". In fact, at present, Arber (1973) has suggested that Goat Island did not move at all.

Although Conybeare's original hypothesis suggested the plane of slippage to be at the junction of the Foxmould and the Lias, a rotational failure would require this plane to be at a somewhat deeper level, in the Lias, or even the Rhaetic (Arber 1971).

The Conservation Department of University College, London (1966) suggest that the Bindon slip is fault initiated. They suggest that instead of the whole block to the south of the slip plane rotating *en masse*, a series of secondary slip planes is envisaged, appearing in the block. Rotation of the block immediately in front of the major slip plane was resisted by the Goat Island block. This resistance probably produced a curvature in the block leading to vertical tension cracks which resulted in at least three secondary slip planes. These produced rotational shears of a few degrees less in each block seawards. Thus, Goat Island, which showed maximum resistance to the major rotation, rotated north only 4°, compared with 10°, 14° and 24° in the blocks to its north. The lessening in the angle of rotation is reflected in the vertical throw of each block. "This is, therefore, a complex rotational slip" (U.C.L. 1966) (Figs. 4a and b and Fig. 5).

McFadyen (1970) also points out that the chasm is mainly floored by chalk which, "significantly" dips fairly strongly landwards (Fig. 6).

Perhaps the portion of the Bindon landslip generating most discussion has been the upraised reef at the toe of the slip. This, unfortunately, lasted for only a short time after the event, and was soon destroyed by wave action. However, this is perhaps one of the key features in interpreting the failure.

Conybeare *et al* (1840) in describing the subsidence of the superincumbent mass into the chasm, wrote: "We may form some idea of the immense lateral pressure that resulted from such a cause, and to this lateral pressure we may with the most probability refer the elevation of the submarine beach".

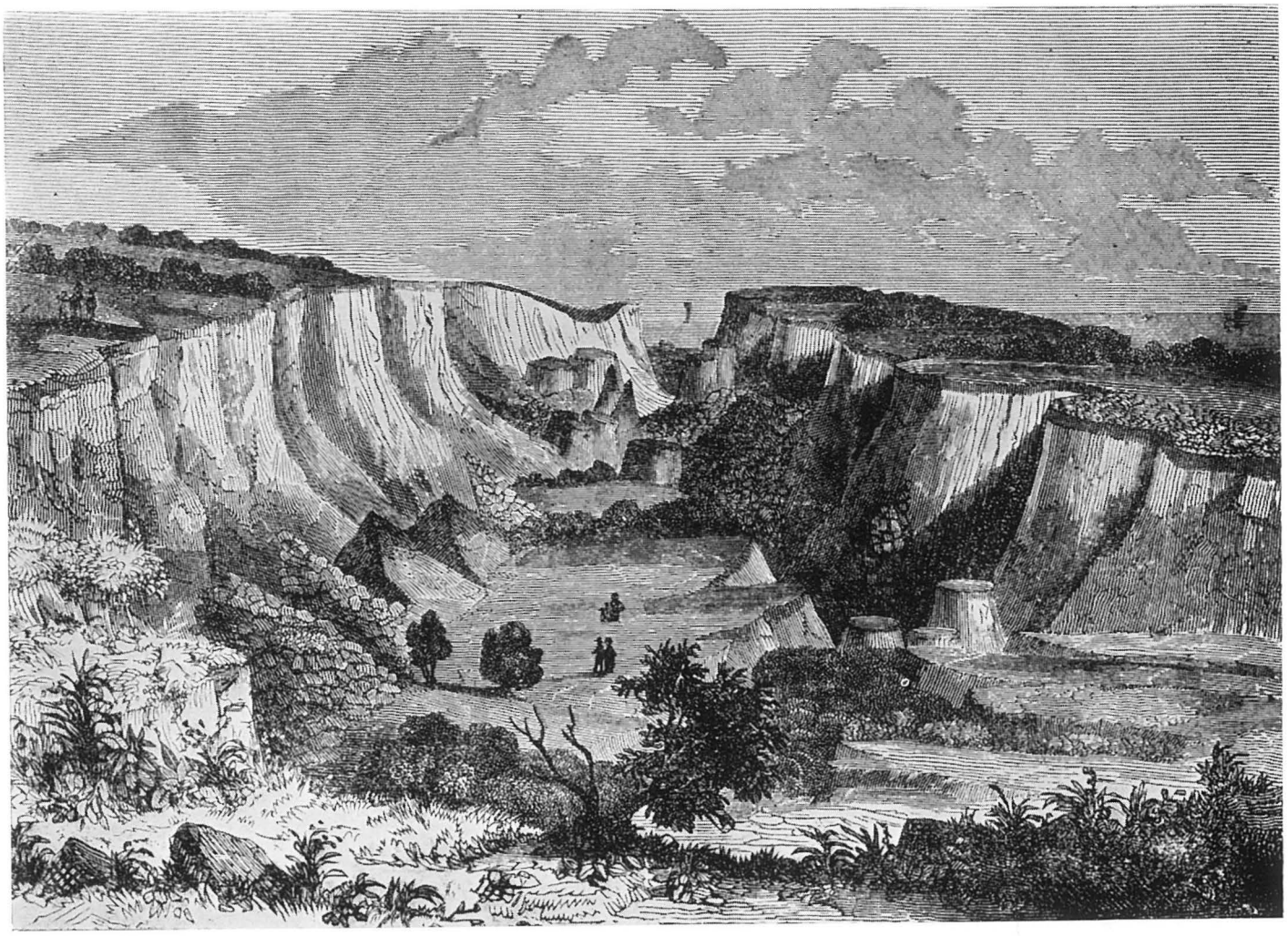


PLATE 6. A view of the chasm looking east. From Roberts (1840)

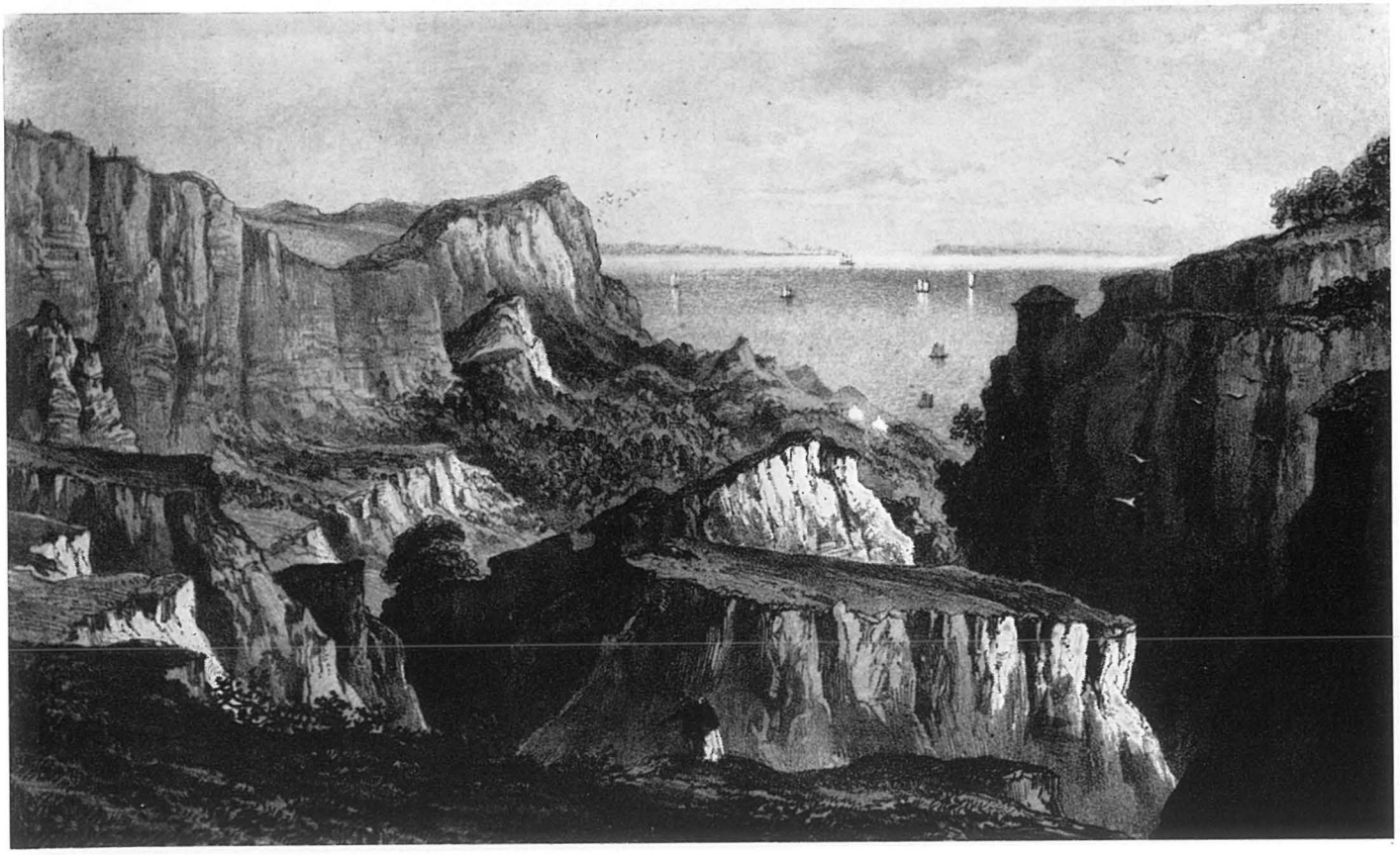


PLATE 7. The front cover of the landslip quadrille

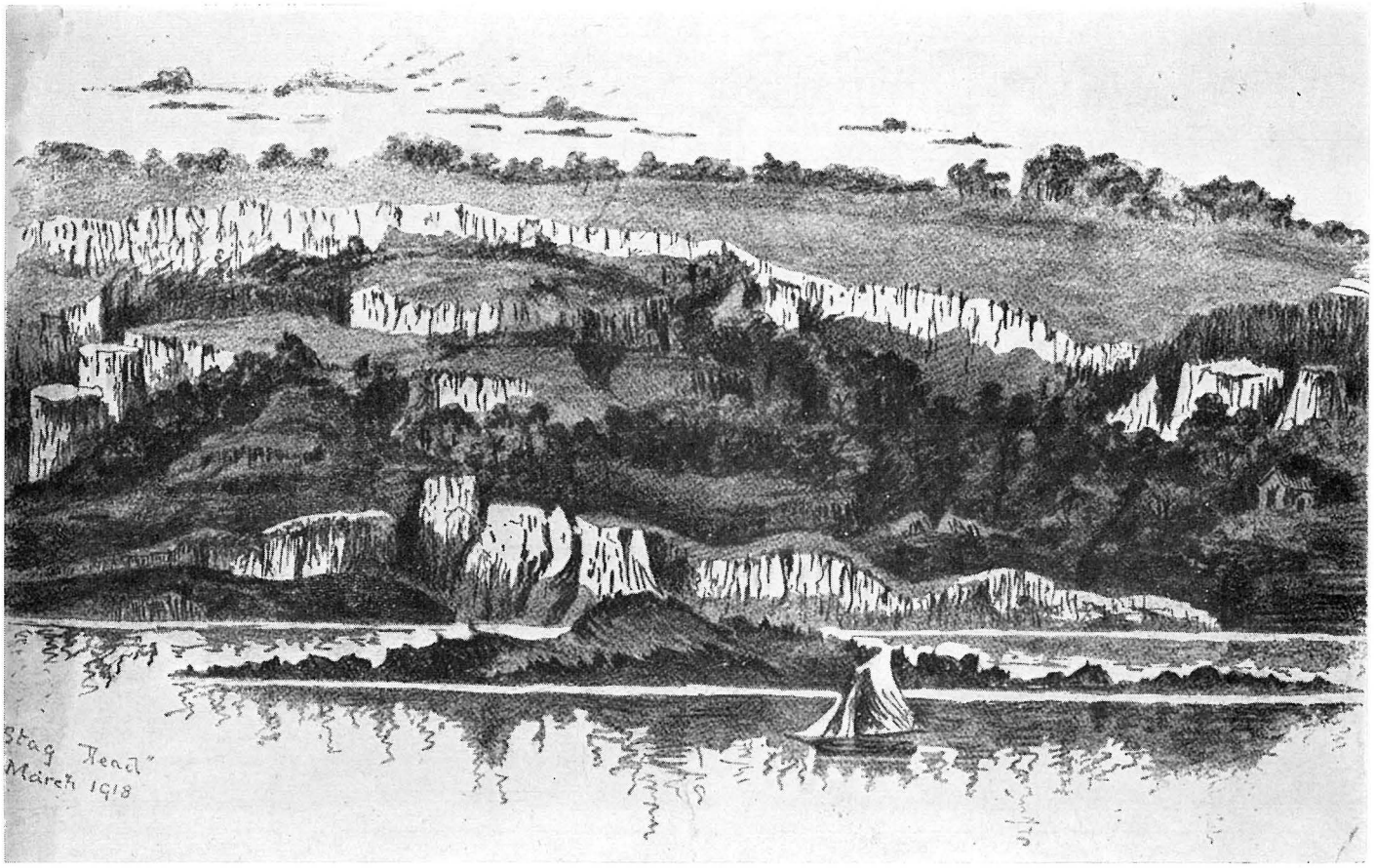


PLATE 8. The front of the landslip and the reef

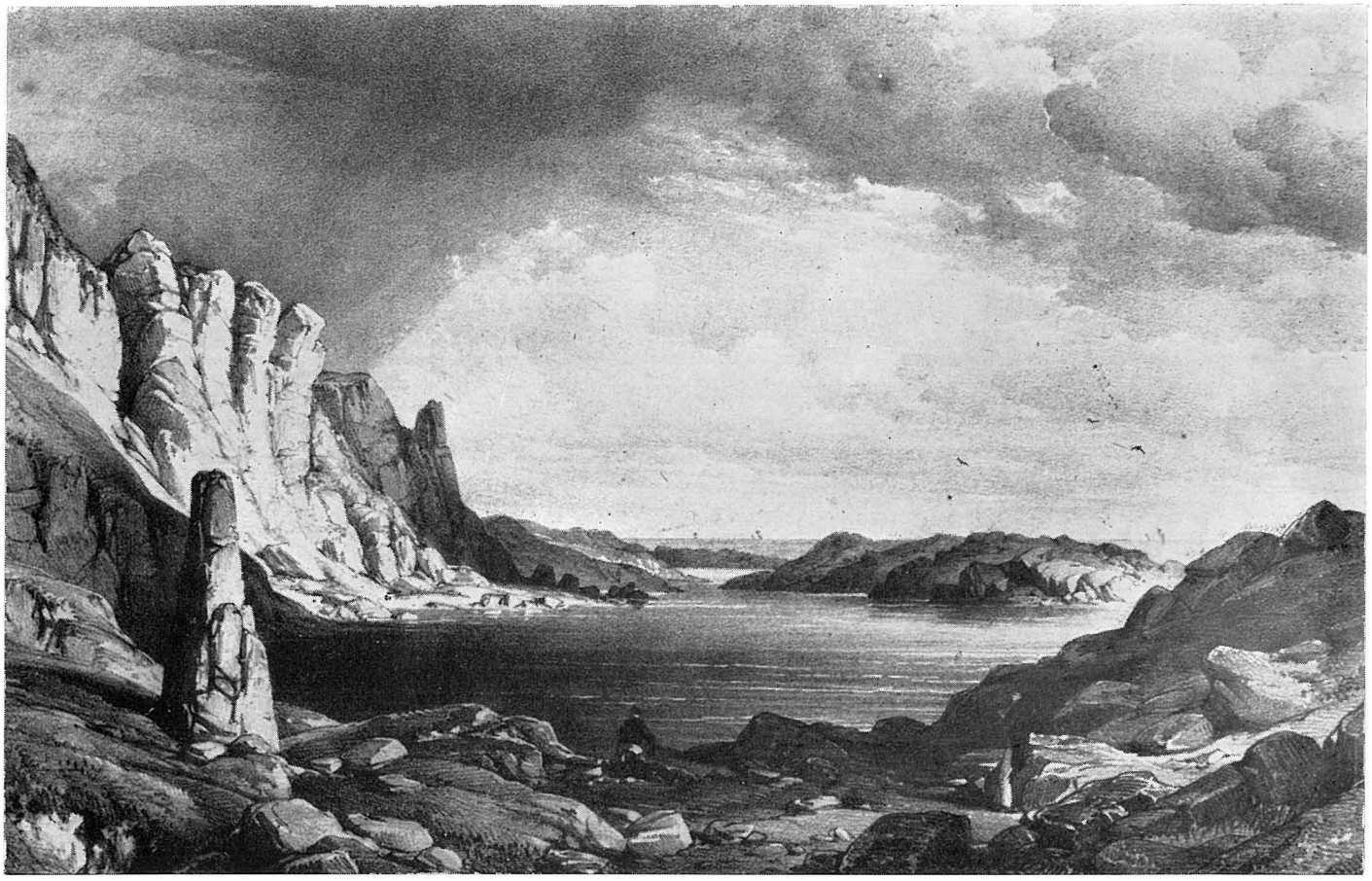


PLATE 9. The reef and lagoon at Culverhole Point looking east. An engraving on stone by G. Hawkins Jnr.

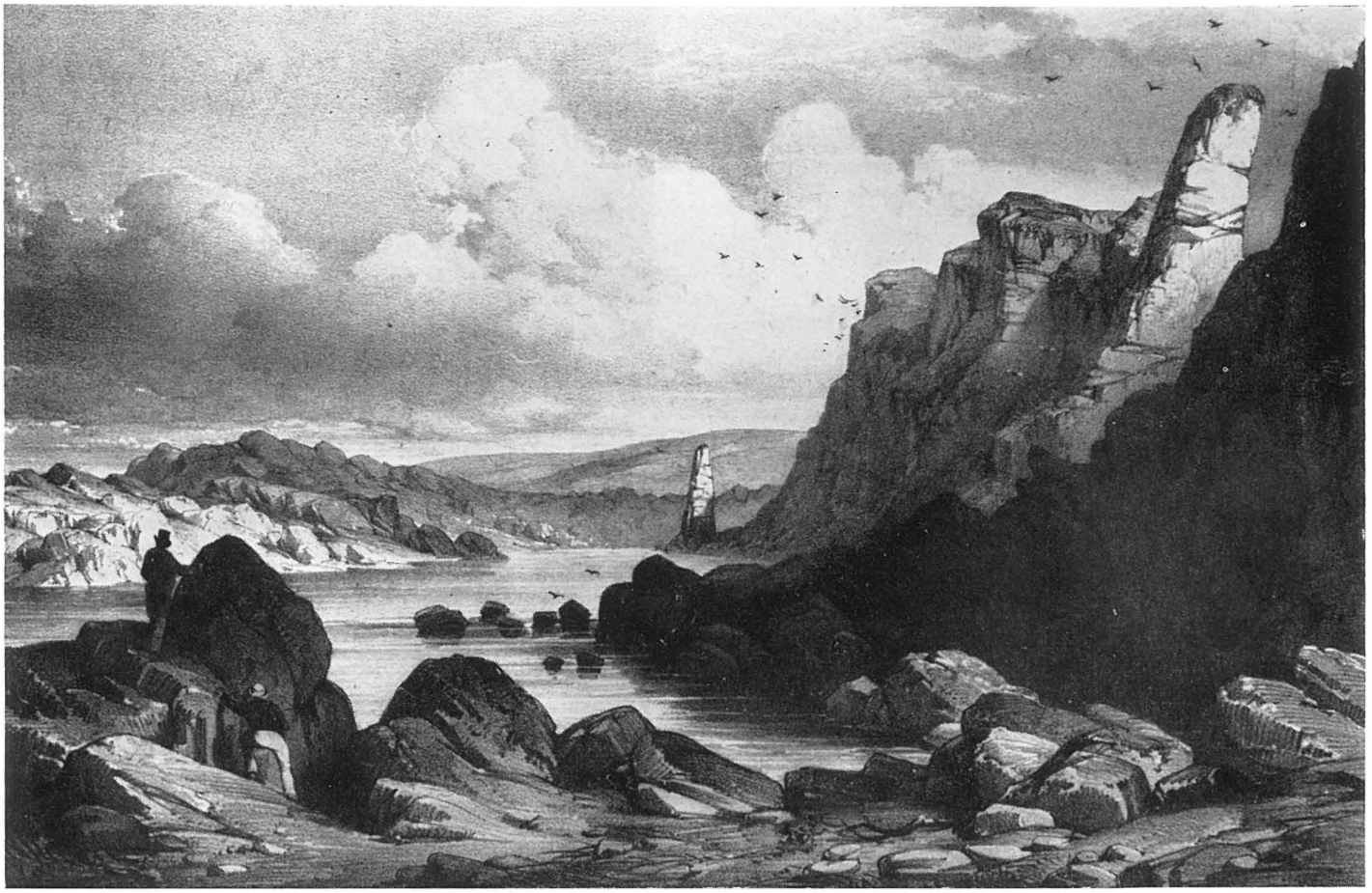


PLATE 10. The reef and lagoon at Culverhole Point looking west

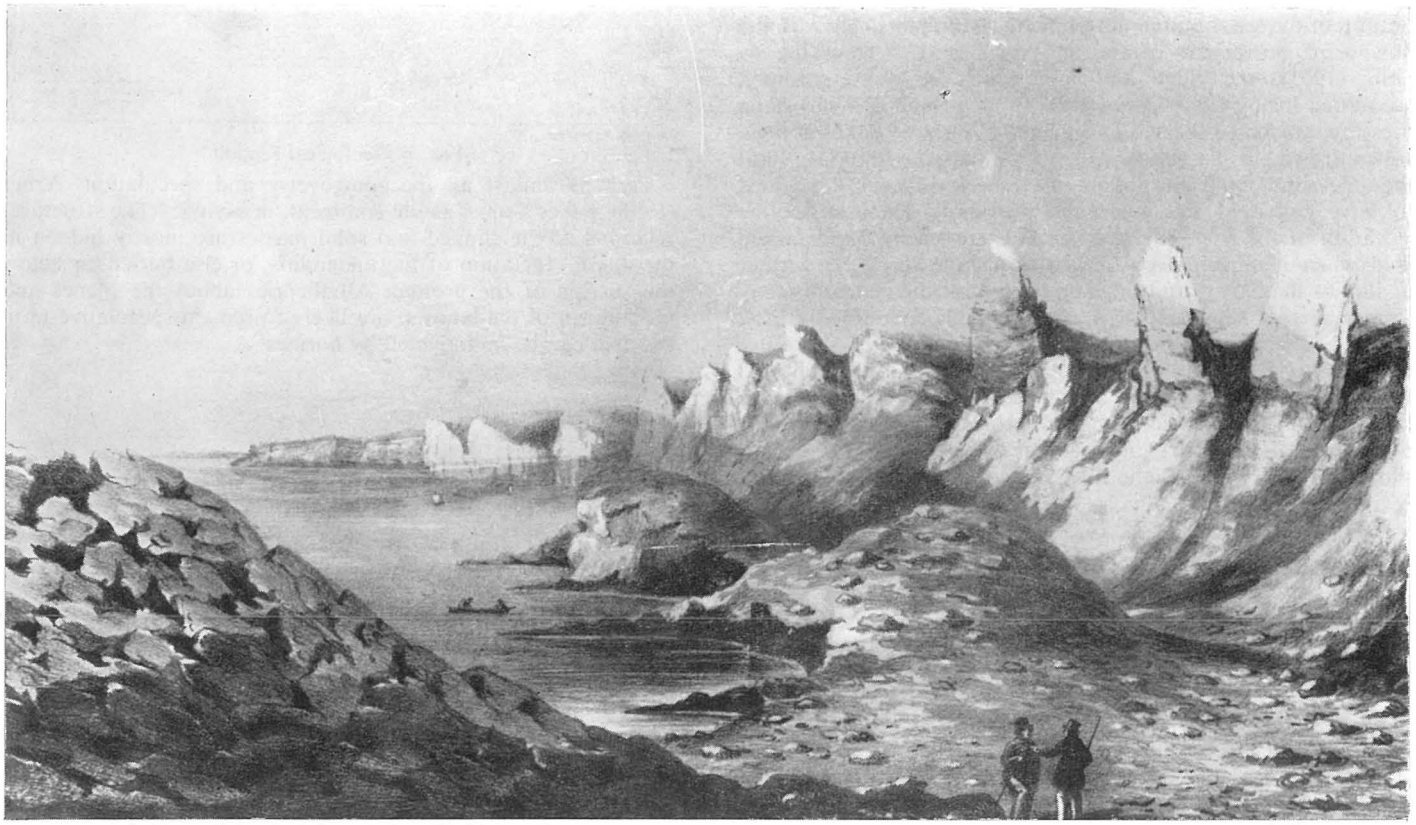


PLATE 11. The reef and lagoon at Culverhole Point looking west. From Conybeare *et al* (1840)

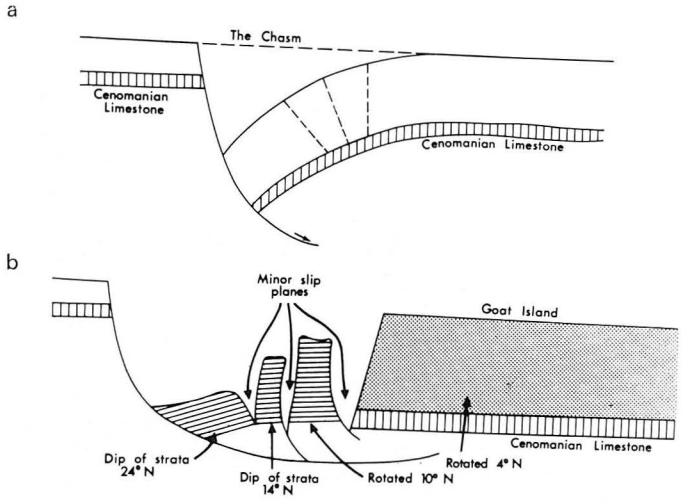


FIG. 4 Sections

The reef was composed of Greensand and Foxmould, displaying landward dips of 30°-45°, and a very fractured nature. It is estimated that the rocks comprising this reef underwent a change in height of up to 50 feet, starting ten feet below the sea, and ending up 40 feet above it. This is attributed by Conybeare *et al* (1840) to the lateral and upward pressure, "propagated from the weight of the subsiding masses, under hydrostatic laws through the beds of loose sand reduced to the state of quicksand: where the point of least resistance was found, this force would necessarily produce a burst upwards". This locality is adjudged to be the point of least resistance, "because the stratum of cherty greenstone incumbent on the Foxmould, is here not above 30 feet". It has occurred as a vertical rather than a horizontal outburst, as beyond the reef, the cherty sandstone lies directly on the Lias, no Foxmould being present, the Foxmould in its quicksand form, upheaving the reef from behind, rather than in this forward zone of rocks, "interlocked upon the rugged surface of waterworn Lias pavement" (Conybeare *et al* 1840).

Buckland (1840), on the question of the reef, points out particularly, that "the upward movement of the reef from the bottom of the sea, began and terminated simultaneously with the downward movement of the subsiding land". According to Solly (1905), the ridge and reef which appeared offshore, accounted for by Conybeare (1840 (a)) as a result of hydrostatic pressure, are also discussed in the light of work by Jukes-Brown. Jukes-Brown, in his revision of Solly's paper, maintains, "that the quicksand could not possibly have been sufficiently confined to have conveyed this hydraulic pressure". He ascribes the elevation of the ridge to, "the thrust exercised by the detached field when it slipped forwards, towards the sea". He further maintains that, "it would ridge up in front of the debris of many former smaller slips; and this action, which undoubtedly took place . . . " accounts, "for all that occurred along the shore".

Ward (1945) writes: "The backward filling and the upheaval in the form of a reef more than a mile in length and rising more than 40 feet, is recorded, but it is incorrectly inferred that the movement of the overlying chalk and Greensand was one of sliding on the surface of the Lias".

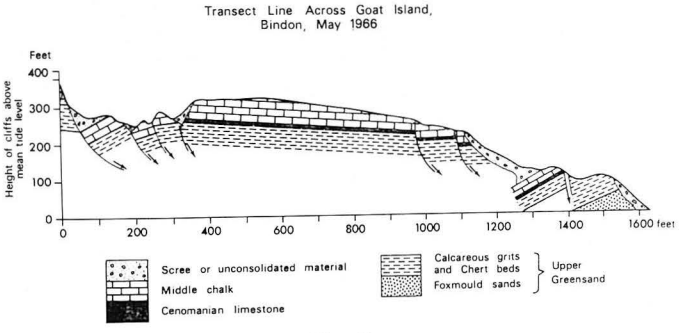


Fig. 5



PLATE 12. The chasm of the landslip looking east, *c.* 1900.
From Jukes-Brown (1900)

McFadyen (1970) in his description of the landslipping of the Reserve, pays particular attention to the formation of reefs offshore. He goes on to say: "This striking feature of uprising, on a very considerable scale of offshore reefs or beaches at the same time of the downslipping of the cliffs immediately behind them, with other features, suggests that rotational shear slippage plays a controlling part in the mechanism of these movements, the reefs, etc. forming the uprising toe of the shear. But it is impossible to ignore the substance of the old explanation, which for a century has been generally accepted as satisfactory. Provisionally, it is here suggested that the strata of the 1839 slip which disappeared underground to form the chasm, took part in a great rotational shear slip, whose toe was seen in the offshore raised reef; but that 'Goat Island' suffered a simple vertical displacement without appreciable slipping. Thus elements of both explanations were involved" (Fig. 6).

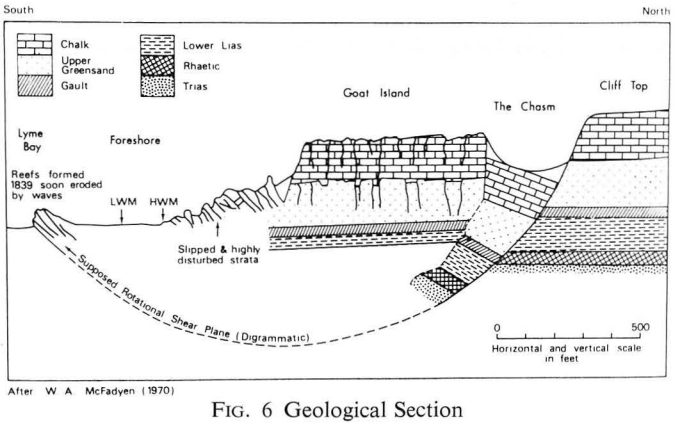


FIG. 6 Geological Section

Perhaps amidst all the controversy and speculation, Arber (1971) makes a most astute comment, in saying: "The structural relations of the slipped and solid masses are mostly hidden in the dense vegetation of the undercliffs, or else buried far below the surface of the ground. All theories about the planes and mechanism of the landslip are likely to remain speculative until the area can be investigated by borings".



PLATE 13. The chasm of the landslip *c.* 1907.
From a colour postcard

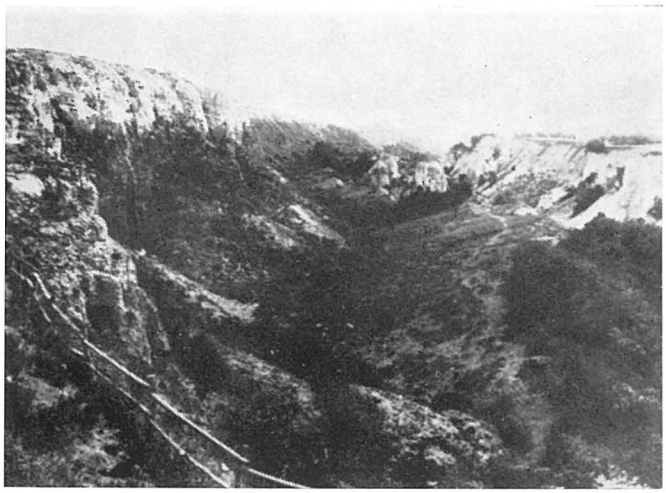


PLATE 14. The chasm of the landslip in 1905.
From Wallace (1966)

Very often, the general public tended to regard this, "most xtraordinary and terrific explosion of nature" (Anon 1840a), s the result of more than the rational views of the geologists oncerned. Although the movement was very localised, and any ibratory movements lacking, popular opinion, often precipitated y the clergy, related the landslip to earthquake or volcanic nitiation. An earthquake is said to have occurred in Lyme Regis n 1639, but in this case, there is a complete lack of corroborating vidence to support the view of earthquake triggering of the Bindon slip. This area is in general viewed as being very aseismo-ogical (Browning, 1973), and therefore any reference to earth-quake initiation, will be disregarded.

The popular idea of volcanic activity being involved was robably because of the well-known spontaneous combustion of yrites in the Lias, and the claims of the coastguards that they ad seen flashing lights, and, "smelt a sulphurous smell". It is ow recognised though, that disturbance on the ground may ead an observer to "see stars" (Arber 1940).

A preacher denounced as infidels all those who regarded the andslip as a result of what he described as "secondary causes". He regarded an earthquake as a direct manifestation of the Almighty; and in a pamphlet published in London by a mil-enarian (Anon 1840d), it was recognised as the fulfilment of a rophecy in the Book of Revelations, xi, 13, which says: "And he same hour was there a great earthquake, and the tenth part f the city fell, and in the earthquake were slain of men seven housand".

The statements in this pamphlet were condemned by a church orrespondent later in 1840 (Anon 1840e).

Discussion

There are obviously many comments which could be made bout the past records concerning the Bindon landslip. However, ather than systematically comment on each paper, it is deemed

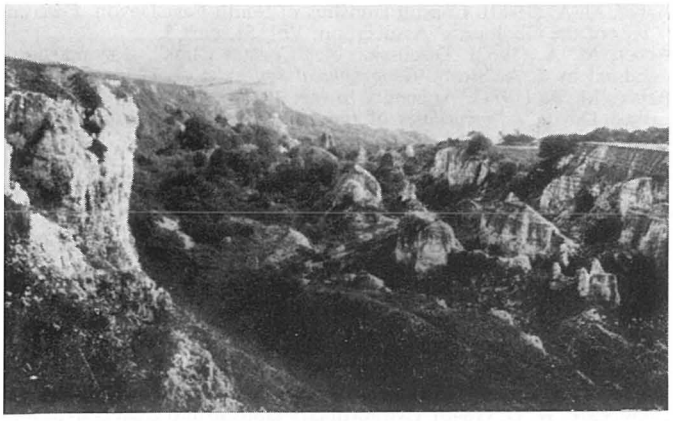


PLATE 15. The chasm of the landslip in *c.* 1928.
From Ward Lock (1928)

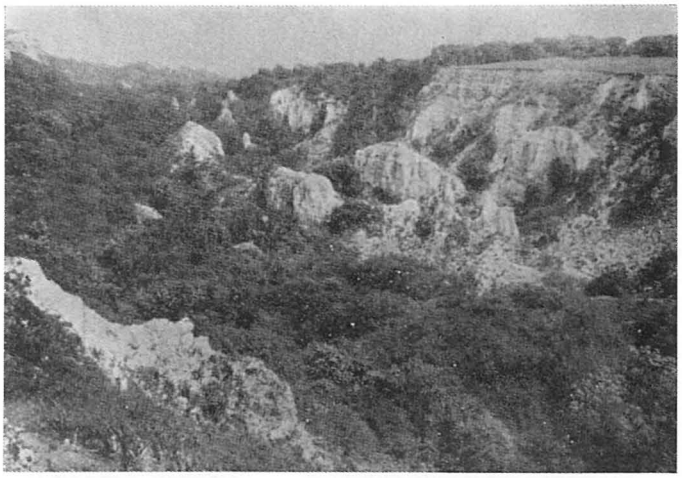


PLATE 16. The chasm of the landslip in *c.* 1932.
From Reynolds (1932)



PLATE 17. The chasm of the landslip in 1936.
From Lang and Dighton Thomas (1936)

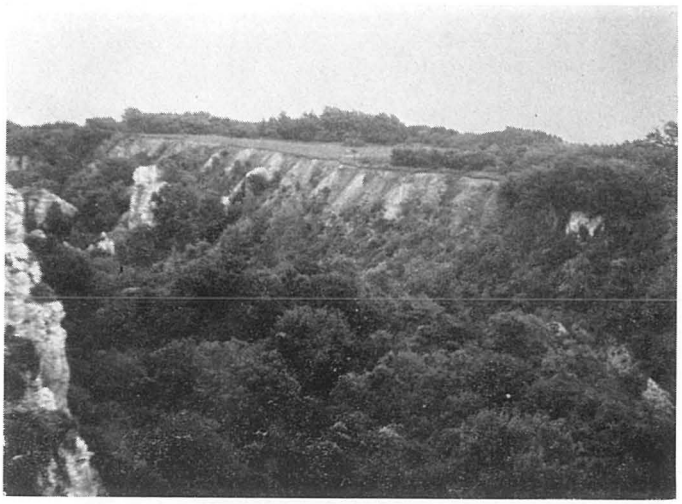


PLATE 18. The chasm of the landslip in August, 1948

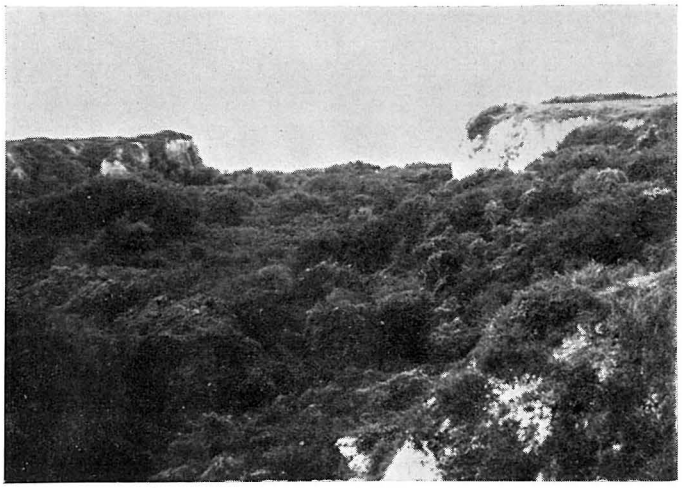


PLATE 19. The western end of the chasm in August, 1948

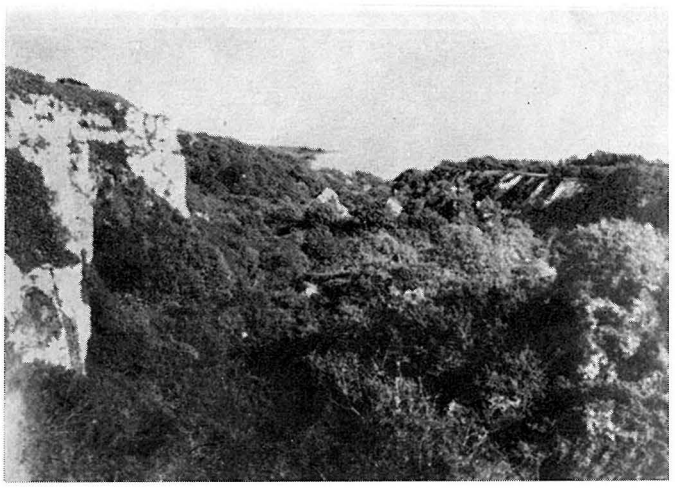


PLATE 21. The chasm of the landslip in 1949

preferable to pose the outstanding question arising from these papers, regarding unsolved aspects of the landslip.

1. What was the exact mechanism? How many failure units are represented at Bindon?

2. What was the initial ground profile? Can the view of the pre-failure situation at Bindon, illustrated in Conybeare *et al* (1840), be regarded as accurate, or just an attempt at a reconstruction after the event?

3. What were the erosion conditions at the toe? Frequent storms were recorded during the latter half of 1839, with considerable potential for wave erosion being implicit in such reports.

4. What is the exact relevance of the reef to the whole problem? Was this the rotated mass of an earlier slip eroded by marine action?

5. What is the exact geological succession at Bindon? There is no overall agreement between writers on the stratigraphy, with some writers, e.g. Arber (1971) suggesting that the Lias may in fact not be present. The geological section and profile is revealing many problems associated with this question, and particularly ones concerning the sub-Cretaceous plane of unconformity and the anomalous geology of the reef.

6. What were the groundwater conditions?

7. What is the most likely location of the failure planes?

8. What were the rates of movement?

9. Is the landslip still moving? There appear to be anomalies over this, as the area in front of Goat Island seems active, suggested by various pieces of evidence, whilst there appears to be no evidence of instability in the chasm.

10. What was the role of faulting in the area?

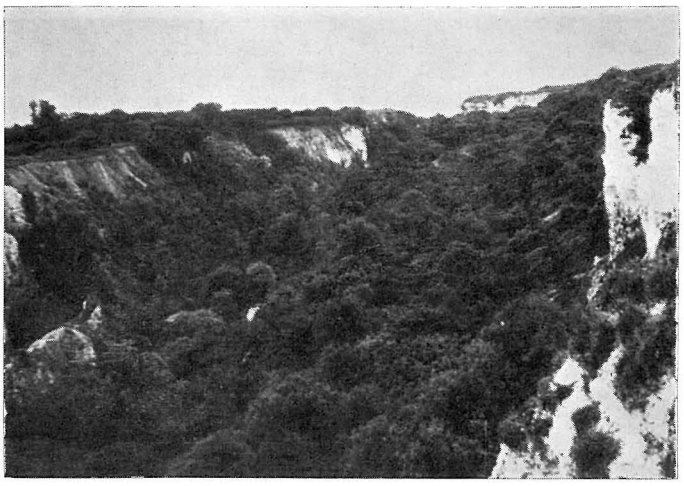


PLATE 20. The chasm of the landslip in August, 1948

Acknowledgements

This paper is part of a programme of research being carried out on the landsliding processes operative in the Axmouth-Lyme Regis Undercliffs National Nature Reserve. This is towards fulfilment of the requirements for the degree of Doctor of Philosophy of the University of London. The work is being conducted from King's College, London, under the supervision of Dr. D. Brunsden, to whom I express my thanks for guidance and stimulating discussion.

I am indebted also to Dr. R. J. Chandler of Imperial College, London, for making available his copy of Roberts (1840) for consultation.

I would also like to thank those people who were good enough to send material relevant to this paper, in answer to the letter published in *Pulman's Weekly News;* the editor of that newspaper for publishing the letter; and those people who have responded to private requests for material. Thanks go to Mrs. F. M. Board of Higher Axmouth, Devon, for plate 8; Mrs. E. M. Critchard of Axminster, Devon, for plates 7, 9, 10 and 13; Mr. R. Harewood of Epsom, Surrey, for plate 11; Dr. W. H. Ward of the Building Research Establishment, Garston, for plates 18, 19 and 20; The Nature Conservancy for plate 21 and also for permission to carry out work in this area.

I would finally like to thank my wife for typing the manuscript.

REFERENCES

Anon (1840a). The extraordinary landslip near Axmouth, Devon. The Penny Magazine of the Society for the Diffusion of Useful Knowledge, No. 505, 15th February, 1840.

Anon (1840b). *Taunton Courier*. 13th January, 1840.

Anon (1840c). Woolmer's *Exeter Gazette*. 14th March, 1840.

Anon (1840d). A brief account of the earthquake, the solemn event which occurred near Axmouth. London, 1840.

Anon (1840e). *Christian Observer*. July, 1840.

Arber, M. A. (1939). The Great Landslip of 1839. *Country Life*. 23rd December, 1939, pp.658-9.

Arber, M. A. (1940). Coastal landslips of South-East Devon. *Proceedings* of the Geologists' Association, Vol. 51, part 3.

Arber, M. A. (1962). Discussion of, "Coastal Cliffs", a symposium. Edited by J. A. Steers. *Geographical Journal* Vol. 124, pp.303-320.

Arber, M. A. (1971). Appendix to the, "Coastal Landslips of South-East Devon". *Proceedings* of the Geologists' Association Vol. 51, part 3, 1940. In: "Applied Coastal Geomorphology". Edited by J. A. Steers. Papermac.

Arber, M. A. (1973). Landslides of the Dorset and Devon Coasts. *Proceedings* of the Geologists' Association. In press.

Browning, D. (1973). Personal communication.

Buckland, W. (1840). On the landslipping near Axmouth. *Proceedings* of Ashmolean Society, Vol. 1, 1832-42.

Conybeare, W. D. *et al* (1840). Ten plates comprising a plan, sections and views representing the changes produced on the coast of east Devon between Axmouth and Lyme Regis by the subsidence of the land and the elevation of the bottom of the sea, on 26th December, 1839 and 3rd February, 1840. John Murray, Albermarle Street, London.

Conybeare, W. D. (1840). Extraordinary landslip and great convulsions of the coast of Culverhole Point, near Axmouth. *Edinburgh New Philosophical Journal*, Vol. 29.

ukes-Brown, A. J. (1900). Gault and Upper Greensand (Selbornian) in South Dorset and Devon. Chapter 8 in *The Cretaceous Rocks of Great Britain*, Vol. 1, pp.182-194.
.ang, W. D. and Dighton-Thomas, H. (1936). Whitsun Field Meeting, 1936. The Lyme Regis District. *Proceedings* of the Geologists' Association, Vol. 47, pp.301-315.
.yell, C. (1843). *Principles of Geology*, 7th Edition, pp.307-308.
VlcFadyen, W. A. (1970). *Geological Highlights of the West Country*, pp.41-47. Butterworths.
Perkins, J. W. (1971). *Geology Explained in South and East Devon.* Chapter 2, Beer to Lyme Regis, pp.132-158. David and Charles, Newton Abbot.
Peter (1840). Extraordinary Convulsion and landslip near Axmouth, Devon. *The Saturday Magazine*, Vol. XVI No. 488, 8th February, 1840.
Reynolds, S. H. (1932). Landslips. *Proceedings* of the Bristol Naturalists' Society 4S Vol. 7 Part 5.
Roberts, G. (1840). An account of the mighty landslip of Dowlands and Bindon, near Lyme Regis, 25th December, 1839. 5th Edition. Daniel Dunster, Lyme Regis.
Solly, H. S. (1905). The Landslip, Lyme Regis. *Proceedings* of the Dorset Natural History Club, Vol. 26, pp.182-186.
University College, London, Department of Conservation. (1966). Unpublished Field Book on the Biology of the Bindon Landslip.
Wallace, T. (1966). The Axmouth-Lyme Regis undercliffs National Nature Reserve. Lyme Regis Printing Co. Ltd.
Ward, W. H. (1945). The Stability of Natural Slopes. *Geographical Journal*, Vol. 105, Part 2, pp.170-197.
Ward, Lock & Co. Ltd. (1928). A pictorial and descriptive guide to Seaton and the Devon and Dorset Borderland. 7th Edition.
Woodward, H. B. and Ussher, W. A. E. (1911). The Geology of the Country near Sidmouth and Lyme Regis. Explanation of Sheets 326 and 340. *Memoir of the Geological Survey of England and Wales.* 2nd Edition.

Notes on
The Gall Andricus Quercuscalisis

By J. B. Lang

Andricus quercuscalisis is a gall found on the acorn of the ommon oak *Quercus robur*.

The marble gall on the common oak will be familiar to most of us; but until the autumn of 1970 I had never seen this particular gall, *Andricus quercuscalisis*, and even then I did not know it was a gall I had found, as it was on the ground (on my lawn) unattached to an acorn. I thought it was an unusual seed-case. I cut it in half with difficulty (because it was so hard) with the help of the bread knife. Inside was a neat cavity (Fig. 1), lying in which was what looked like a hard red seed, very small, which I planted in a pot and kept damp for months and nothing came up! As nobody I asked seemed to know what it was, I sent the case to the British Museum (Nat. Hist.) Botany Department. They could not identify it. It was not until the autumn of 1971 that I again found the specimen on my lawn, and looking up to where my oak tree overhangs the lawn I saw many of these galls attached to the acorns (Fig. 3a). I opened one from off the tree and found in the cavity a soft, white larva (Fig. 2), which was alive, instead of the hard reddish seed of my first specimen which must have been dead.

I wrote again to the Botany Department of the British Museum and asked them if they would pass on my specimen to the Entomological Department for identification, which they obligingly did. At once they knew what this gall was. So far it is rare in England, and mine was the first recorded specimen for Dorset.

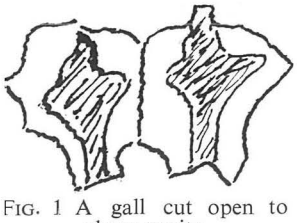


FIG. 1 A gall cut open to show cavity

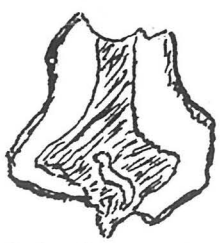


FIG 2. A gall cut open to show white larval grub.

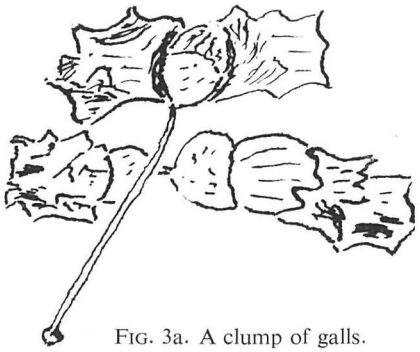


FIG. 3a. A clump of galls.



FIG. 3b. A gall end on showing hole on top.

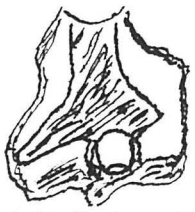


FIG. 4. A gall cut open to show pupate stage.

It is produced by a certain kind of solitary wasp, which lays its egg at the base of an oak acorn and round this grows the gall. Most of the gall tissue is perched on the top of the acorn (Fig. 3a), occasionally two or more galls are on one acorn. There is a hole at the apex of the gall, which is not used by the adult wasp when emerging (Fig. 3b). Inside the very base of the gall is the larval cell (a neat cavity) (Fig. 1). After a time the larva pupates (Fig. 4) and finally reaches the adult stage when the wasp chews a hole (already made thin by the larva) in the base of the gall in early or mid March.

This particular wasp has a unisexual generation and also a bisexual generation.

The *bisexual* generation has not yet been recorded in this country. It occurs as a gall on the catkins of Turkey oak *Quercus cerris* in late spring or early summer. It is not uncommon on the Continent.

The *unisexual* generation occurs as a gall on the common oak *Quercus robur* in the autumn. The life-cycle of this wasp has not yet been fully investigated, but it is apparent that it is not necessary for bisexual generation to take place for this wasp to establish itself in a locality; as unisexual generation takes place and apparently the wasp increases in a locality where there is no Turkey oak present.

Records of the presence of this gall *Andricus quercuscalisis* from localities especially between Devon and East Anglia would be very welcome to those researching into the spread of this gall.

Records from Devon amount to eight, and except for seven in and around Charmouth in Dorset, which I have recorded, there is a complete gap between us and East Anglia. Mr. Leutscher, president of the British Naturalists' Association, records the gall as being quite common on the common oak near hi home on the southern edge of Epping Forest, in Essex; and als that there are a number of Turkey oaks in that area. It has bee recorded in Cromer (Norfolk) in the 1920s and at Northampto in 1961. I have discovered a record for Dorset that it was foun on *Quercus ilex* in 1935 at Charmouth, Dorset.

It is worth looking out for galls on acorns in the autumn, an for possible galls on the catkins of Turkey oak in late spring c early summer, if you are interested.

Most of this information is from the investigations bein carried out by Mr. P. R. Cobb in Norfolk. Any records foun should be sent to: P. R. Cobb, Esq., 10 Broadway, Heachan King's Lynn, Norfolk. He would be most grateful for these t further his investigations regarding the spread of this gall. H will send anyone who wishes a questionnaire regarding *Localit* (Grid Ref.), *Type of soil*, *Habitat*, *Ground vegetation*, *Size c oaks*, etc.

A Trial Excavation on the Bradford Barrow, Pamphill, Dorset, 1969

By D. A. White

THE Bradford Barrow is a well-known and conspicuous monument in East Dorset and its low conical profile[1] suggests that it is a Roman barrow. To the north-east of the barrow there is a chalk quarry which has been worked sporadically for many years. As a result of this working the quarry face had gradually crumbled away and about two years ago it breached the ditch surrounding the barrow.

Because of this possible threat to the monument the Inspectorate of Ancient Monuments of the Ministry of Public Building and Works authorised the writer to carry out a small trial excavation and survey of the barrow. The main aim of this work was to evaluate the extent to which the erosion of the quarry would ultimately damage the barrow. Accordingly, two small trial trenches were dug across the mound and a portion of the ditch exposed in the quarry face was cleared. It was found that, providing no further chalk is dug in the quarry, about fifty feet of the barrow ditch will be destroyed, but the mound will escape erosion.

The Excavations

A plan of the site is given in Fig. 1, a general section of the mound and quarry in Fig. 2 and detailed section of the trial trenches in Fig. 3. The mound is about eighteen feet in height and has a low conical profile with a slope of 25° to the horizontal. In shape it is similar to the conical mounds of the barrows by the Roman Road at Badbury Rings.[2] The lower part of the mound was made by sculpting the bedrock into the required shape and piling the spoil on the upper part of the mound. Consequently only the upper twelve feet of the mound is artificial.

The barrow ring ditch was about six feet wide, four and a half feet deep and was flat bottomed. The outside edge of the ditch was almost vertical, but the inner slope was less severe and sloping, possibly to facilitate removal of spoil on to the top of the mound. The ditch was filled with the usual primary rubble (Fig. 3, layer 4) and above with a hard cemented series of chalky wash levels (Fig. 3, layers 2 and 3) which were almost as



PLATE 1. General view of Trench A (scale divisions in feet)

hard as the natural bedrock and made it difficult to find th ditch sides.

The upper levels must have been formed by materials washe off the mound soon after the barrow was built. The ditch i about one hundred feet in diameter and about thirty feet of had been breached by the quarry in 1969 (Fig. 1, X to Y).

1. Pamphill No. 5. Grinsell, L. V., *Dorset Barrows*, p.122.
2. P. J. Fowler, *Antiq. Journ.* XLV, 1965.

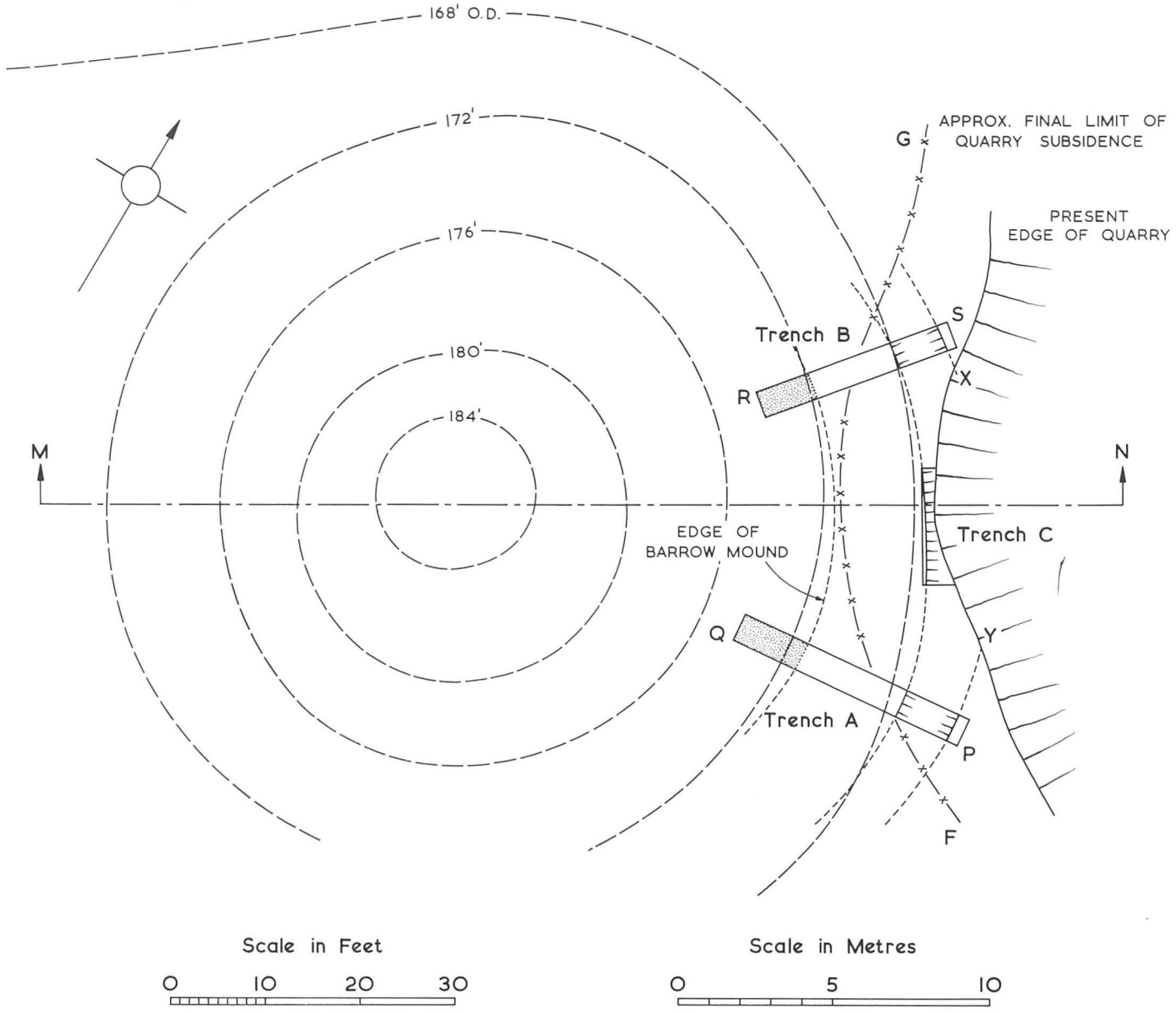


Fig. 1 Site Plan of Trenches

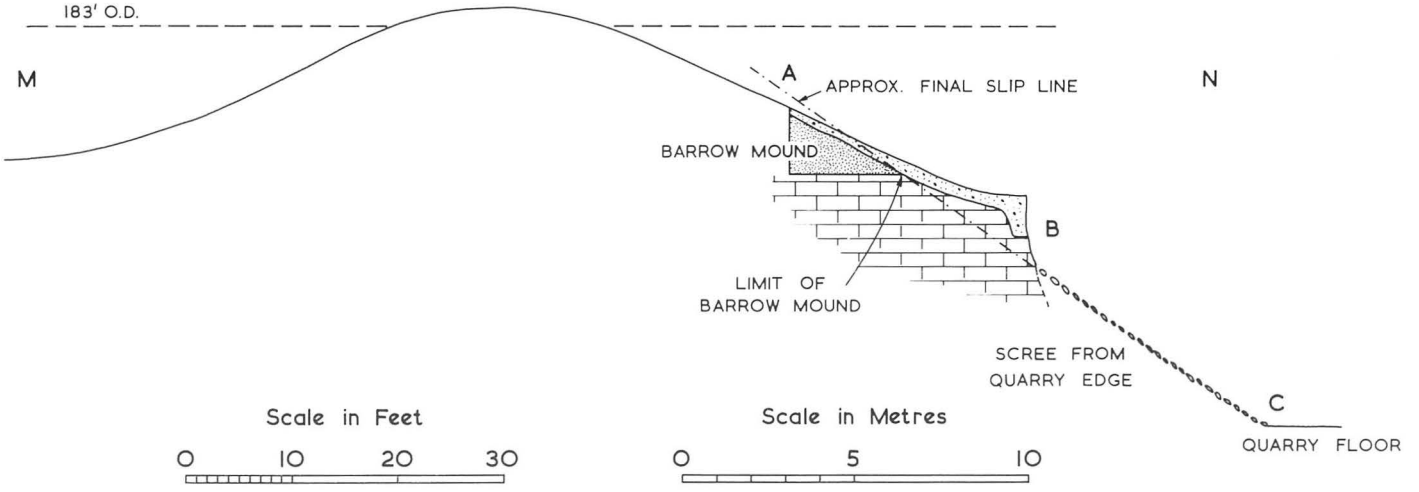


Fig. 2 Section of Barrow

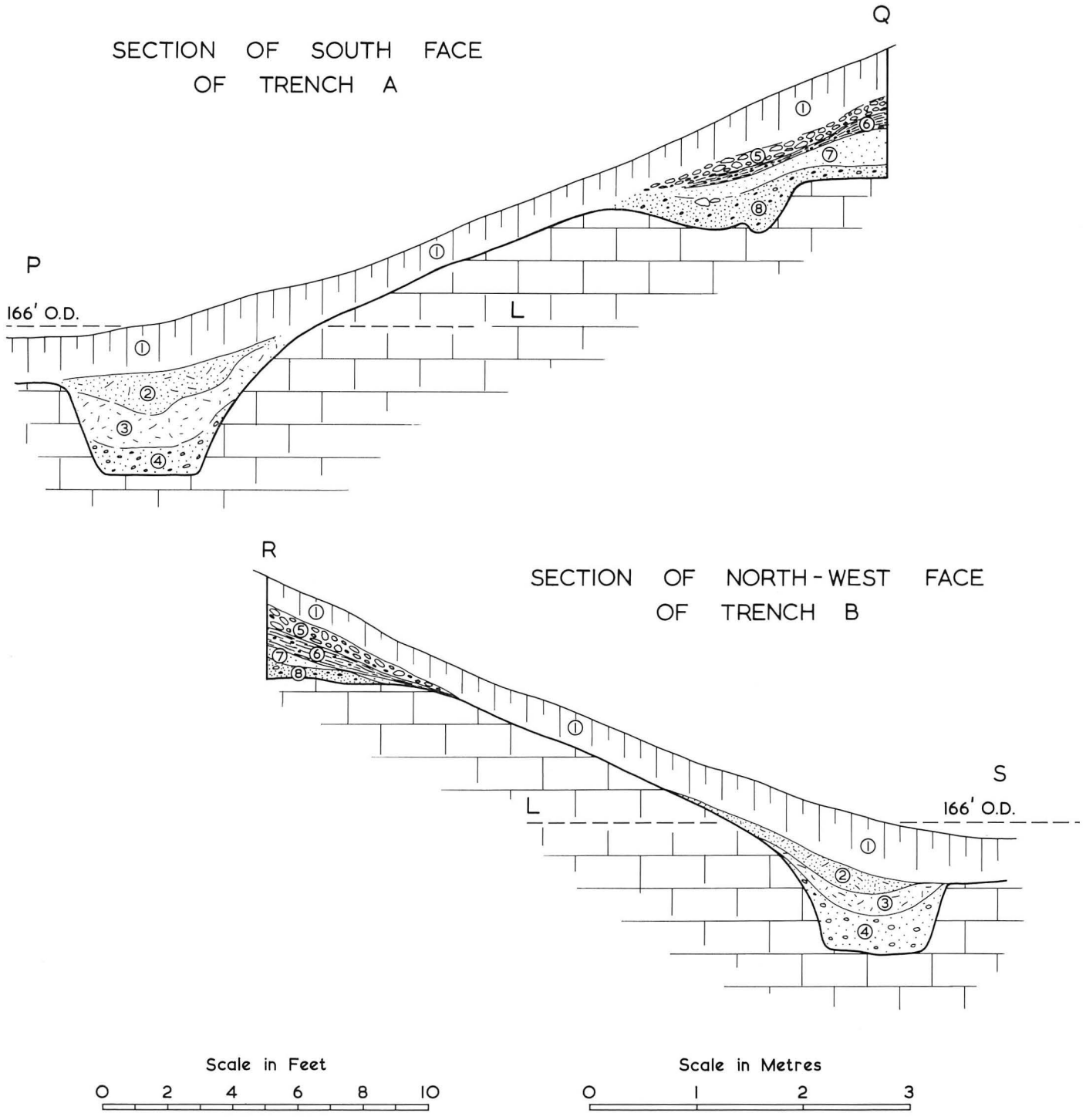


Fig. 3 Sections

Above the ditch a sculptured sloping berm of bedrock (Fig. 2, L) rose up to the artificial position of the mound. This had a composite structure consisting of four distinct levels. From top to bottom these are:

(i) A layer of hard rammed chalk 6 in.-12 in. thick (Fig. 3, layer 5).
(ii) A 6 in. layer of hard chalky clay (Fig. 3, layer 6).
(iii) A variable layer of loamy material (Fig. 3, layer 7).
(iv) Immediately on top of the chalk bedrock, there was a layer of sandy clay and pebbles six inches thick (Fig. 3, layer 8).

There were very few finds from the excavations none of which is worthy of illustration. The most significant was a piece of corroded iron work from the undisturbed clay fill of the artificial mound in trench B (Fig. 2, No. 6). This proves that the mound



PLATE 2. Details of mound stratification (scale divisions 2 inches)

is not Bronze Age in date. An oyster shell and a small body sherd of a Romano-British type ware were found low down in the topsoil of Trench A and another sherd of uncertain date and ware occurred in the loam (Fig. 3, layer 7) of the same trench. Consequently a Romano-British date for the mound is strongly inferred rather than actually proved by the excavation. Although about sixteen feet of the barrow ditch was cleared out, (Fig. 1, Trench C) the feature was totally devoid of any finds.

Conclusions

The lowest level in the barrow mound (Fig. 3, level 8) would appear to be the only undisturbed soil in the artificial mound. The clear-cut line between it and the level above (Fig. 3, level 7) would appear to confirm this. It is a sandy loose deposit quite light in colour but the high concentration of phosphate seems to indicate that it is a buried soil (see the Appendix). Under Bronze Age barrows on chalk subsoils the buried surface is usually much darker than this[3] (more like the colour of the layer above level 7). The mound was completed by piling disturbed topsoil into the centre, and providing a watertight compact capping of clay and finally hard rammed chalk (Fig. 3, layers 6 and 5 respectively). A similar stratification is shown in the Knob's Crook Barrow at Woodlands.[4]

It is felt that the threat to the monument is not too serious, providing that no more chalk digging takes place. This is shown in detail in Figure 2. At Fig. 2B there is an eight-foot drop onto the scree from the quarry edge which slopes down to the floor of the quarry with an angle of repose of 35°. Projecting the line of the scree back up to A in Fig. 2 it can be seen that a further sixteen feet of the quarry face is likely to erode away, taking away a good fifty feet of the barrow ditch, but not breaching the artificial barrow mound; which would be a serious threat to the monument. The barrow has been saved by having a sloping berm of natural bedrock. The final limit of subsidence is shown in Fig. 1 (line F to G).

Acknowledgement

Mr. Hayter of Bradford Farm kindly gave his consent to these excavations being carried out on his farm. The finds from the site have been deposited at the Priests House Museum, Wimborne.

APPENDIX
SOIL ANALYSES OF THE BARROW MOUND

By M. A. COLLINS

The organic content, phosphate figures and acid insoluble residue are all higher in level 8 than in the overlying layers. This does suggest that level 8 is a buried soil. On the other hand the iron concentration is much higher, whereas a buried soil would be more leached and less rich in iron than the overlying barrow material.

The figures for the upper layers 6 and 7 suggest a source for the barrow build-up material from the zone of chalk rubble or rotted chalk that is usually found between natural chalk rock and topsoil.

Details of the analyses are given below:

Level	Mansell Colour Wet	pH	Humus Alkali-soluble	Fe_2O_3	P_2O_5	Acid-insoluble ignited
6	7·5 yr. 5/4	7·8	0·130	0·680	0·136	12·00
7	10 yr. 5/3	7·8	0·300	0·380	0·124	5·23
8	5 yr. 3/4	7·9	0·340	1·776	0·425	42·35

3. P. Ashbee, *The Bronze Age Barrow in Britain*, 1960, p.58.
4. P. J. Fowler, *Op. at.* p.26.

The Excavation of Three Round Barrows on Chaldon Down, Dorset 1969

By D. A. White

(with appendices by Mrs. S. Palmer, Mrs. M. White and Miss M. Collins)

THESE excavations took place during the three-week period in September, 1969 and were generously financed by a grant from the Inspectorate of Ancient Monuments of the Ministry of Public Building and Works. The barrows excavated were on arable land and their mounds had been seriously reduced by ploughing to such an extent that further ploughing was likely to disturb the burials, if they were still intact, and destroy the old land surface under the barrows.

The site is situated south of Chaldon Down buildings on the top of a hill (altitude 580 ft. above sea level) overlooking the Dorset coast. The subsoil on this hill top consists of an isolated capping of clay with flints[1] which is about ten feet thick and

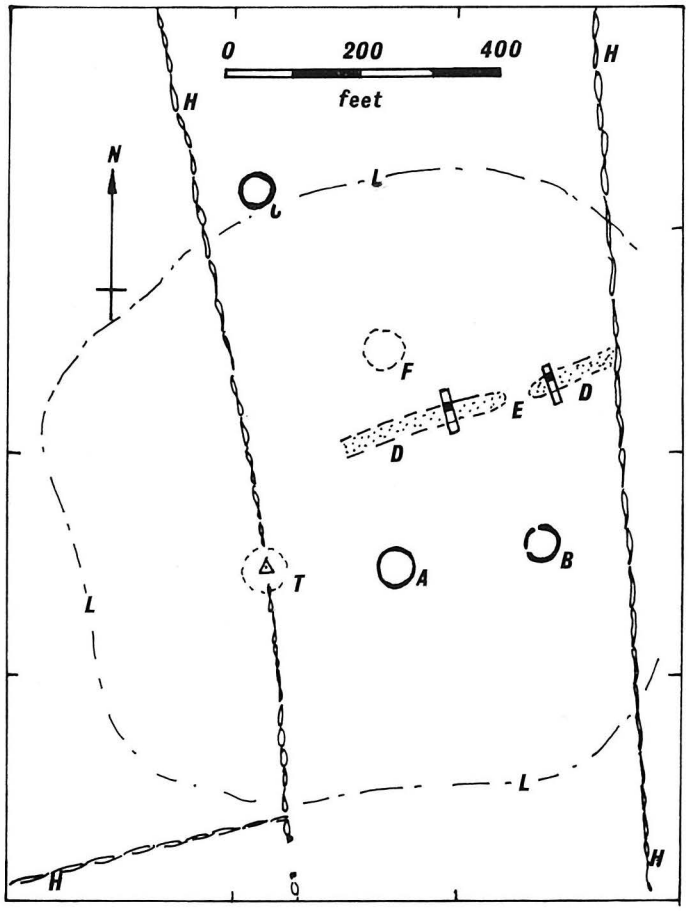


FIG. 1. General plan of the site (the grid reference of the southwest corner is SY 782811 and the plan covers an area 300 x 400 metres). H represents the line of hedgerows.

lies directly on top of the chalk. All the areas investigated in this excavation lie within the limits of the clay with flints area; the subsoil has a relatively low pH of 4·2 and is mildly acidic.

The sites excavated are shown on Fig. 1 and are:

1. Barrow A (Fig. 1 : A) Grid Reference SY 78388124 Grinsell[2] Chaldon Herring No. 15.
2. Barrow B (Fig. 1 : B) Grid Reference SY 78448126 Grinsell[2] Chaldon Herring No. 16.
3. Barrow C (Fig. 1 : C) Grid Reference SY 78318142 Grinsell[2] Chaldon Herring No. 18.
4. Enclosure and Entrance (Fig. 1 : D and E).

Two other barrows are situated in the same area. These are Grinsells[2] Chaldon Herring No. 17 (Fig. 1: F) and Chaldon Herring No. 14 (Fig. 1 : T) which is surmounted by an Ordnance survey triangulation point.

BARROW A (Plan Fig. 2 : Section Fig. 3)

The Ring Ditch

A nine-foot width of the ditch was cleared out in the northern and western sectors of the ring ditch and the whole of the south-eastern quadrant was excavated. The upper levels of the fill were cleared and with the backacter bucket of a JCB mechanical excavator. The ring ditch was of very impressive proportions showing a depth of four to five feet and a width of ten to twelve feet. The inner edge was very nearly circular and the diameter variations were forty-eight to fifty-two feet.

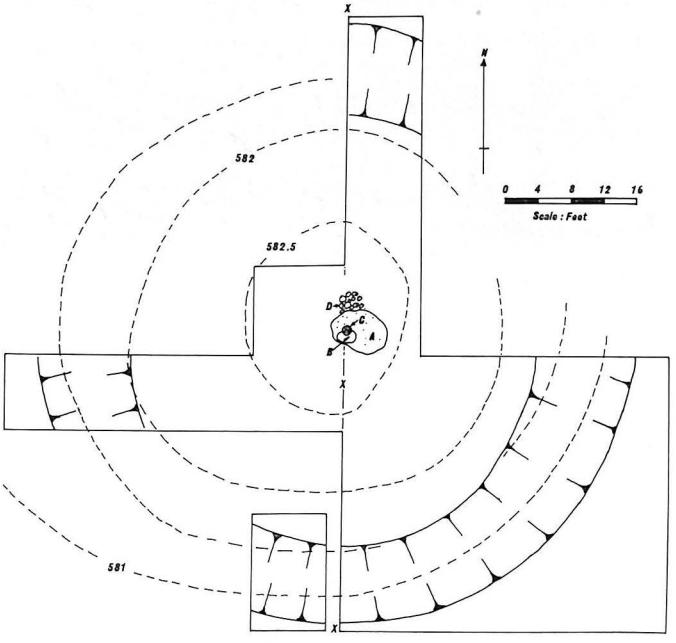


FIG. 2. Plan of Barrow A.

The construction of the ditch was very unusual and displayed the considerable technical expertise of the builders. The ditch was lined with a layer of close-packed flints (Fig. 3, level 5). The layer was so uniform and thin, that it suggested a layer deliberately spread over the sides of the ditch and, perhaps, over the sides of the barrow mound (Fig. 3, level 7). Many of the stones in this layer were fractured forming coarse flakes with low, badly defined bulbs. These do not look like the waste from tool production and may be the results of ramming and consolidating the flint lining. Other finds were quite plentiful in this layer; these included small waste flakes, sherds of very crushed pottery

1. 1 in. Geol. map.
2. L. V. Grinsell. Dorset Barrows, p.98, D.N.H.A.S., 1959.



PLATE 1. Box section of the urn in Barrow A with the robber pit above. (Scale divisions two inches).

of typical Bronze Age ware and a comparatively large number of flint cores. In fact, most of the good cores found in the barrow A were found in the stones of this layer.

The packing lay directly on top of white-speckled, red clay which formed the subsoil in most places. The natural sides of the ditch were exposed right down to the bottom, when it was clear that the level of packed stones went down surprisingly deep and very steeply to form an almost square-sided trench at the bottom of the ditch, about ten inches deep and ten inches wide (Fig. 3, level 6 and 12). This gulley was present in all excavated areas of the ring ditch and may possibly have been a circular stone-filled drainage ditch, which would be very necessary in the clayey subsoil. It may also have been a trench for setting a post circle in the ditch, but this is felt unlikely as no post holes could be located within the packing.

The primary filling of the ditch consisted of a fine, stone-free level of dark brown soil (Fig. 3, level 4). It did not contain any fine light leached clayey silt at the bottom which indicated that any surplus rainwater, in fact, did drain through the rectangular stone-packed gulley in the bottom of the ditch (Fig. 3, level 6). The primary fill contained a few flakes, scrapers and small sherds of coarse gritted pot.

Above this level there occurred a band of scattered burnt chalk fragments showing as a thin irregular line in the section (Fig. 3, level 3). This probably represents comparatively modern agricultural spreading of chalk over the field to "sweeten" the soil. The farmer says that this method was widely used in the nineteenth century. The rest of the ditch was filled with a layer of flint and brown earth (Fig. 3, level 2) which must represent material dragged by the plough to fill up the remainder of the barrow ring ditch. This upper level was almost identical in texture to the topsoil (Fig. 3, level 1) except that it did not contain rotting plant matter buried by recent ploughing.

The Barrow Mound

The barrow mound was a composite structure consisting of a turf core (Fig. 3, level 9) and an earthen envelope (Fig. 3, level 8). The turf core (Fig. 3, level 9) was multicoloured in sections with light grey clay alternating with brown layers and lenses. The whole level contained a great deal of purple-black staining, probably due to manganese deposition and also considerable red iron staining. The darker lenses were separated by a width of about six inches of light grey clay, probably indicating that the original turves which made up the core of the mound were at least six inches thick.

The periphery of the mound did not contain any staining but was made up of a fine, light grey clay which was virtually stone-free (Fig. 3, level 8). This level must have derived from spoil from digging of the barrow ditch, but in contrast to the red clayey natural, this deposit contained no stones. When the ring ditch was being dug the stones were put into a separate pile for the ditch lining (Fig. 3, level 5) and the stone-free soil was then heaped on top of the mound to form an earthen envelope (Fig. 3, level 8). An envelope made of this material is not very stable and rapid erosion would have occurred if it had not been covered with turf or stone. Ploughing had removed any traces of a capping for the mound, so this point could not be verified.

In the northern quadrant a darker level, similar in consistency to Fig. 3, level 8, occurred just inside the barrow ring ditch. (Fig. 3, level 11). The relationship of this level to the rest of the barrow is, however, unclear and it may represent positions of a partial berm or pause in the barrow construction and thus link up on the other side of the mound with level 7. This is uncertain and there is no case for calling barrow A a Bell Barrow.

All the various levels of the barrow mound being stone-free and soft encouraged the growth of grass and weeds giving a well-defined circular crop mark, which enabled the extremities of the barrow mound to be ascertained with a great deal of certainty. The usual type of circular crop mark over the ring ditch, which is diagnostic of round barrows, was absent in all the barrows on this area of clay with flints.

The Buried Surface (Fig. 3, level 10, chemical analyses of the soil, profile app. D).

It was fairly difficult to determine the actual nature and position of the buried surface on the periphery of the barrow mound, although in the centre of the mound, traces of the buried surface were quite spectacular. This consisted of a complex layer of redeposited minerals, first a thin layer of red-brown ferric staining and below this a slightly thicker layer containing a dark purple, manganese deposit. The level spread out over the rest of the barrow mound, but was apparently absent in the northern area. Below the staining a grey clayey level with stones similar to Level 8 went down about eight inches and merged with the red clay natural subsoil. A few tools and cores were found in this level.

Features in the centre of the barrow

These features consisted of a unique set of modern pits (Fig. 2 : A and B) which lay above the truncated remains of a bucket urn. The most recent pit B (Fig. 2 : B; Fig. 3 : 13) was about three feet in diameter and eighteen inches deep. It had a medium grey fill and showed up clearly in the turf stack of the barrow. A slab of concrete was placed in the bottom of the pit with a level upper face on which was enscribed an equilateral triangle with sides three inches in length and a dot in the middle. It looked like the centre mark for some temporary theodolite station. Whatever its original function, it was an unusual object to find in a Bronze Age barrow and its discovery occasioned some initial excitement.

Pit B was cut into Pit A and was later and smaller than Pit A. Pit A was oval in plan with dimensions of five and a half by four feet. It (Fig. 2 : A ; Fig. 3 :14) cut two feet into the barrow mound. Its fill was similar to that of Pit B, possibly slightly lighter in colour, but contained an admixture of fine specks of charcoal (as distinct from manganese staining) and minute pieces of

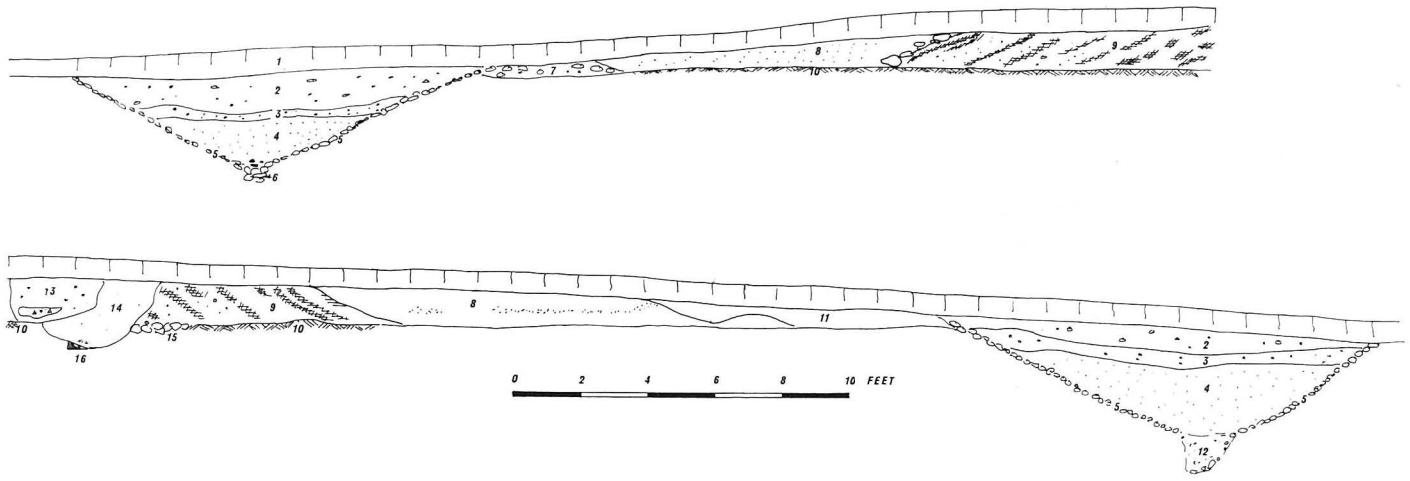


Fig. 3. General Section of Barrow A looking west.

cremated bone. The charcoal and bone was especially thick on the sides and on the bottom of the pit with large bone fragments occurring just above the remains of the urn. Pit A would, therefore, appear to be a robber trench.

The only primary features left in the centre of the barrow mound were fragments of the primary urn (Fig. 2 : C; Fig. 3 : 16) and a scatter of flint packing (Fig. 2 : D; Fig. 3 : 15) which lay on the same level as the pre-barrow surface. The pottery fragments consisted of part of a rim of an inverted bucket urn which was broken off when the rest of the pot was removed by the robbers. Inside this urn fragment, was a concentration of cremated bone and charcoal. The pit associated with the interment of the primary burial was indistinct, mainly due, no doubt, to the disturbance caused by the robber pit.

The flint packing (Fig. 2 : D) had also been disturbed by the robber pit. The packing was at least three feet by two feet in area and about three inches thick. Its purpose is not clear, but it would appear to be connected in some way with the burial ritual.

Barrow B (Plan Fig. 4, Section Fig. 5)

The Ring Ditch

The fill of the ring ditch was completely cleared away with the exception of the north-eastern quadrant. The upper levels were dug out by the mechanical excavator. The ditch had a width of between ten and seven and a half feet, was three feet six inches deep and had a U-shaped profile. Two gaps or causeways were found in the ditch (Fig. 4 : A and B). These were in the north-western and south-western quadrants, the minimum distances between the butt ends of the ditch segments were about two feet. The diameter of the inner edge of the ring ditch was about forty-two feet.

The construction of the ditch was similar to that of barrow A and there was a layer of flint packing (Fig. 5, No. 7) laid on the bottom and on the inner side of the ditch. The flints had clearly been packed into the sides of the ditch in a thin layer about two inches thick and consequently a large number of the flints had been fractured and gave the appearance of being coarse stuck flakes. There was a certain amount of loamy soil mixed in with the packing and small pot sherds and finer flint flakes were found in between the coarser flints of the ditch lining. The lower fill in the ditch was very brown and loamy (Fig. 5, Nos. 3 and 6). This fill was generally stone-free with the exception of a small portion of the southern section of the ring ditch in which there was a large tip line of small stones and flint (Fig. 5, level 5).

As it was so localised it may be part of a deliberate back filling of the ditch. It sealed quite an amount of struck flint and dateable pottery including fragments of a globular urn (Fig. 8, No. 6). The upper levels of the ditch followed the pattern of barrow A. There were traces of chalk dressing (Fig. 5, level 4) at the top of the loamy fill followed by stony and clayey fills that were dragged over the ditch by ploughing (Fig. 5, levels 2, 18 and 19).

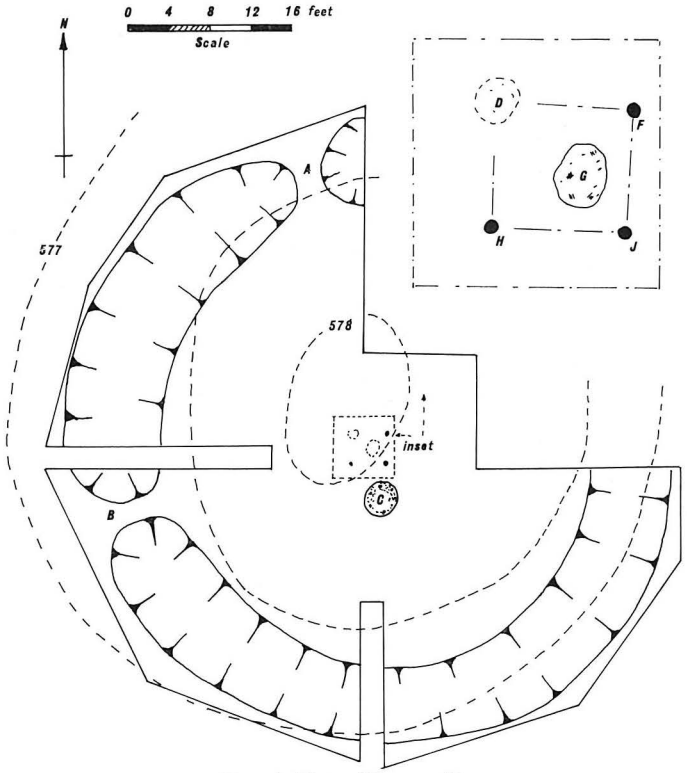


Fig. 4. Plan of Barrow B.

The Barrow Mound and Pre-Barrow Surface

This had been almost obliterated by ploughing which had eroded the barrow to a mere twelve inches above the surrounding parts of the field. The structure of the original mound can only be guessed at, there was no evidence of a turf stack and only fragmentary evidence of the buried surface remained, consisting of two lenses of light staining and specks of manganese (Fig. 5, levels 11 and 17). The undisturbed levels above these lenses a clayey patch (Fig. 5, level 16) in the northern sector of the barrow and in the southern sector two light brown stone-free levels (Fig. 5, levels 8 and 10). In between these there was a stony level of upcast from the ring ditch (Fig. 5, level 9).

The shape of the remaining fragments of the buried surface (Fig. 5, levels 11 and 17) suggest that the barrow was built on a small natural hillock and that the plough had clearly removed all traces of the centre of the mound and may have truncated the features that were found in the middle of the barrow.

Features in the centre of the barrow

There was no clearly defined burial pit in the centre of the barrow. The central pit (Fig. 4 : G; Fig. 5, No. 14) was a shallow very indistinct feature eight inches deep and one foot six inches

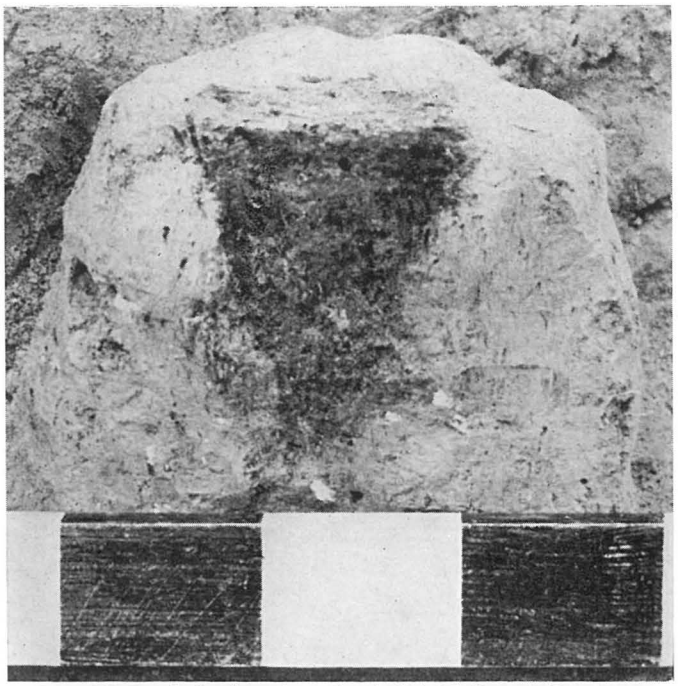


PLATE 2. Section view of stakehole F, Barrow B.
(Scale divisions two inches).

in diameter. Its fill contained cremated human bone fragments, some charcoal and a few small potsherds of Bronze Age type ware including some simple rim sherds. The finds in the pit are so fragmentary that the deposit does not really warrant the title of a cremation burial.

Round the central pit appeared the remains of three stake holes from a square "mortuary" house centred on the pit. The stake holes (Fig. 4 : F and H) had fire-hardened points. F (Fig. 5 No. 15) was six inches in diameter and ten inches deep, J (Fig. 5, No. 13) was eight inches in diameter and fourteen inches deep; whereas H was only five inches in diameter and survived to a depth of only six inches. The fourth possible stakehole of the structure had been destroyed by a pit or disturbance (Fig. 4 : D), a shallow feature which contained some charcoal. The stakeholes F, J and H and the Pit D form a square whose sides are three feet in length. Just to the south of the pit and stakehole complex there was a large modern pit (Fig. 5, No. 12; Fig. 4 : C) three feet in diameter and two feet deep. It was filled with coke and flint clinker. The farmer suggested that the pit may have been part of the foundations of G.P.O. telecommunication aerials that were built on Chaldon Down during or before the war.

BARROW C (Ditch Section Fig. 6, No. 1)

When surveyed by Grinsell this monument was the largest and most conspicuous of the group on Chaldon Down. By 1969, however, it had been completely flattened and all that remained was a circular patch of clay about thirty-eight feet in diameter. The plough soil was stripped off the centre of the barrow and two sections were cut across the ring ditch. The whole of the barrow mound and buried soil had disappeared leaving only the truncated base of a central pit about eighteen inches in diameter and five inches deep, placed with its centre three feet south of the geometrical centre of the barrow ring ditch. The pit contained quite a large quantity of broken and weathered potsherds (most of which had been disturbed by ploughing) and some charcoal. No cremated bone fragments occurred with the pottery.

The ring ditch (Fig. 6, No. 1) was nine feet wide, three and a half feet deep and the inner edge was an almost exact circle with a diameter of thirty-eight feet. The soil layers in the ditch were similar to those found in Barrow A and B. There was a layer of flint on the bottom, above which there occurred a primary loamy fill on top of which there was a lens of burnt chalk. A stony plough soil formed the upper level of the ditch.

THE ENCLOSURE DITCH (Fig. 6, No. 2)

The presence of this ditch was suspected from the traces of a crop mark of green grass and weeds (Fig. 1 : D) that stretched in a line roughly east to west across the centre of the site. A break in the crop mark (Fig. 1 : E) suggested the presence of an entrance about thirty feet wide.

Two trial trenches shown on Fig. 1 were cut across the crop mark. The western one was cut through the topsoil low enough to pick out the ditch, but not completely cleared down to natural. The eastern one was excavated down to the clay with flints and its section is given (Fig. 6, No. 2). The bank lay south of the ditch and proved to have a composite structure. An earthen core (Fig. 6, No. 2, layer 7) derived from humus from the area over the ditch had first been piled on the surface, surmounted by stony spoil from the ditch of which only a small truncated portion remained (Fig. 6, No. 2, layer 6). The round-bottomed enclosure ditch about ten feet wide and four feet deep was filled with an almost uniform slightly stony brown fill (Fig. 6, No. 2, layer 9). There was no burnt chalk in its fill probably indicating that the ditch had been completely filled in by medieval times. There was a very striking tipline in the fill of the ditch (Fig. 6, No. 2, layer 8) caused by partial collapse of the bank.

The western trial trench also indicated a bank about nine feet wide and a ditch ten feet across. However, the crop mark of the enclosure became indistinct at the edges of the field and could not be traced in the neighbouring plots of arable land. No dating evidence was recovered from the trial trenches, but the ditch is possibly connected with the well-known Celtic field system to the east of the site.[3] Despite its quite substantial proportions, it is felt that the ditch was not part of a defensive system, but rather an enclosure large enough to keep cattle from straying out southwards on to the cliffs. The sides of the ditch were not

3. P. J. Fowler, "*Wessex*" *Regional Archaeology*. Heinemann, 1967, p.75.

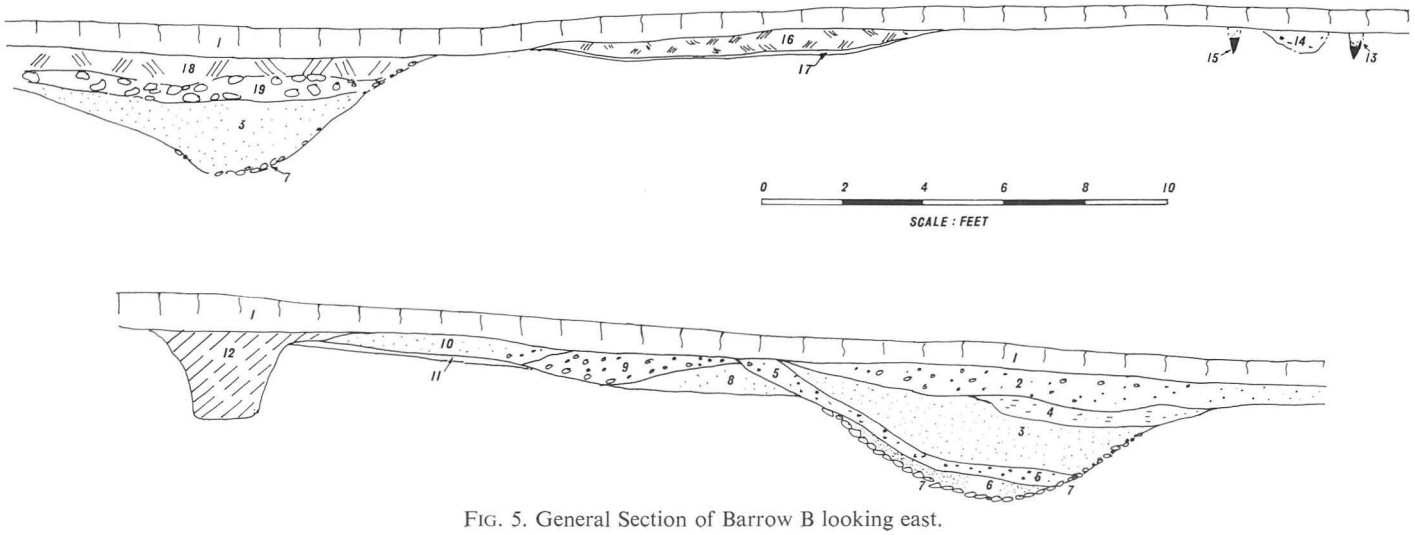


FIG. 5. General Section of Barrow B looking east.



PLATE 3. View of south-west quadrant of Barrow B showing the causeway (Fig. 4, B). (Scale division one foot).

very steep and animals could easily have climbed out of the ditch to the north; the bank and ditch would also have afforded quite good protection against off-shore winds.

Conclusions

Much of the interest in the discoveries from this site are due to its situation on a clay with flints subsoil. It is unusual, but by no means unknown, for barrows to be built on these clayey periglacial deposits on the tops of the downs. In Bronze Age times the clay with flint deposits are generally believed to have been covered by woodland,[4] but this may not have been true for clay-with-flint areas on very exposed positions such as the barrows on Chaldon Down or on the Dorset Ridgeway.

There are generally two aspects of a round barrow excavation. The first is the examination of the Bronze Age burials and associated ritual; the second is the study of the prebarrow soil protected by the barrow mound for thousands of years. In the present excavation the discovery of a fairly large flint and chert industry in the prebarrow soils of Barrow A and B is of interest in giving a sealed pre-Middle Bronze Age deposit of stone artefacts. This discovery is paralleled from other sites in southern England. For instance Bishops Waltham[5] where an industry including a number of scrapers was found and at Arreton Down in the Isle of Wight[6] a late Neolithic assembledge was discovered in the prebarrow soil.

The industry from Chaldon Down is largely Mesolithic and includes typical tools made from both Portland Chert and Flint. A few of the stone tools are typical of the Beaker culture and include pelit tranchet derivative arrowheads, in flint and chert, and scrapers with inverse retouch in a white patinated flint.

4. L. V. Grinsell, "Dorset Barrows", Dorset N.H. and A.S. 1959. End map 4.
5. P. Ashbee, *Proc. Preh. Soc.* XXIII, 154.
6. J. Alexander, *Proc. Prehistoric Soc.* **26,** 263 (1960).

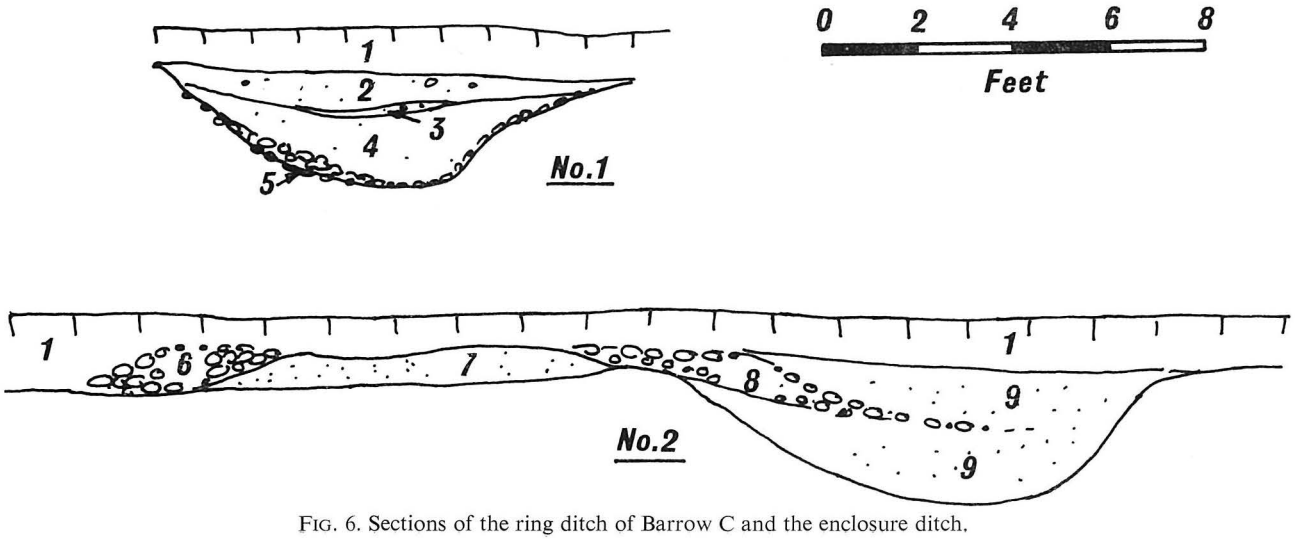


FIG. 6. Sections of the ring ditch of Barrow C and the enclosure ditch.

Beaker period activity on the site is further substantiated by finding beaker potsherds in Barrow A. Further details about the Chaldon Down Industry are given in Appendix B.

The surface occurrance of flint tools and waste flakes was localised in the area of the barrows and was restricted to the clay with flints capping, which outcropped in a localised area whose approximate limits are shown in Fig. 1 by the dotted line L. The flinty clayey soil extended about as far north as Barrow C and in a limited area in the adjoining fields. Extensive searching in neighbouring fields in the area failed to locate any other significant finds of waste flakes, clearly establishing the limited occurrence of the flint industry in the Chaldon Down area. It would be difficult to imagine the bleak area of the present site to have been a desirable habitation site for primitive man, but he was presumably drawn here by the relative abundance of large modules of grey flint in the clay patch, which could be exploited with a small amount of digging in the subsoil. In this regard the clay with flints patch on Chaldon Down is closely paralleled by recent discoveries in Cranborne Chase.[7]

A clay-with-flint deposit produced a heavy flinty soil of the sort normally shunned by Middle Bronze Age barrow builders as it contrasts with the lighter chalky soils they seem to favour for their funerary monuments. However, it is clear that they possessed the expertise to construct barrows on heavy soils and appreciated the difficulties involved in digging ditches in clay.

Lining the sides of the ring ditches with a flint packing and providing soak-away drainage would have greatly facilitated the progress of building the barrow. This feature of the Chaldon Down Barrows appears to be unique; although it is of interest to note that a platform of packed flints has recently been found in a Deverell-Rimbery urnfield near Andover[8] also built on a periglacial soil. The status of a similar discovery in Sussex is less certain,[9] but in any case it would be incorrect to interpret the flint packing lining the ditches of the Chaldon Down barrows as a ritual feature.

Though the finds in the centre of the barrows are somewhat sparse they should not be passed over without some comment. The deposit in Barrow C is off centre so may not have been the primary burial, which could easily have been bulldozed away with the rest of the mound. Despite the badly crushed condition of the pottery; the absence of even the smallest scrap of cremated bone strongly argues that the deposit had a ritual function rather than being a burial. Charcoal adhering to the outside of the sherds and the oxidised nature of some of the fabric of the pot suggests that the pot was burned in a fire *in situ*. Barrow B had a small central four-post structure and the shape is of the state setting similar to cremation pyres found elsewhere in Wessex.[10] It is unfortunate that the plough had already cut into the prebarrow soil at this central point, thus removing many of the traces of the ritual connected with the central area of the barrow. The small central pit contained an admixture of pot, charcoal and bones and does not represent a burial. Tentatively it is suggested that this pit is the remains of a scoop dug into a smouldering pyre for the purpose of removing the cremated bones for burial elsewhere. The evidence is only circumstantial, and the existence of a central pyre in Barrow B would be further substantiated had scraps of cremated bones remained in the "ghost" holes of the stakes, as has been observed in a recent excavation at Winterborne Kingston, Dorset.[11] The construction of a barrow over a pyre has been reported on several occasions before[12] so the present suggested conclusion is in no way unusual.

Barrow A is the only one of the three that has yielded definite traces of a burial, apparently a traditional cremation interment in an inverted bucket urn. Judging from the main section the urn was placed in a shallow pit and the base probably protruded above the level of the prebarrow soil. However, it is clear that the pot from Barrow A was not that removed by Cunnington.[13] A bucket urn $10\frac{1}{2}$ ins. high and $7\frac{3}{8}$ ins. in diameter with four bosses was discovered by him on Chaldon Down. The pot is now in the County Museum at Dorchester and the fragments from Barrow A do not match up with this urn.

The area around the barrow cemetery on Chaldon Down has not to date yielded any evidence of Wessex Early Bronze Age burials. A recent distribution map published by Calkin[14] shows this very clearly. It is therefore not surprising that the barrows excavated on Chaldon Down date from the Deverell-Rimbury Phase of the Middle Bronze Age, although it is clear that there was also spasmodic stone and Early Bronze Age activity in the area.

APPENDIX A
CREMATED HUMAN REMAINS
By Marion White

BARROW A

The deposits were collected up and together weighed about 900 grms. Most bones of the skeleton were represented. The bones were greyish/white and calcined, cancellous bone was often yellowish while a few fragments of long bone had blueish medullas. The fragments were distorted, fissured and appeared to have been deliberately broken. On the whole the pieces were small with a maximum size of 6·5 cm.

To assess the age at death and possible sex the bones were examined and identifiable fragments were compared with similar fragments from cremations of known ages. The stage of development of the roots of the teeth, and the general appearance and the size of the long and facial bones was taken into particular consideration.

From this examination it appeared that the cremated remains probably represented one young adult male.

The identifiable bones from which this conclusion was deduced were the following:

(a) Eight teeth including one upper molar and three incisors, all had fully developed roots.
(b) Fragments of both supraorbital ridges, these were massive with fused sutures and suggested a male.
(c) Fragments of the parietal bone (3 mm. thick) with open sutures.
(d) Pieces of the occipital bone (4 mm. at thickest part), the inner table of the suture line had fused.
(e) Frontal process of malar bone.
(f) Margin or orbit of maxilla.
(g) Alveoli of both mandible and maxilla.
(h) Part of left condyle of mandible.
(i) Fragments of all the long bones including styloid process of an ulna, the head of a radius and the articular surface of a tibia.
(j) Two metatarsals, the shaft of one measured 3·7 cm.
(k) A number of phalange pieces particularly a distal phalanx of the great toe.
(l) Cancellous bone of the iliac crest of the ilium. Fragments of vertebrae and rib.

Weight of Fragments

Skull	54 grms.
Long bones	322 ,,
Other identifiable	58 ,,
Rest	476 ,,
Total	910 grms.

BARROW B

The deposit appeared to have been buried with sherds of pottery and not placed in an urn. It had not been disturbed. The entire skeleton was not represented in a deposit weighing

7. D. A. White, "Early Man in Cranborne Chase", *Proc. D.N.H.A.S.* 1970.
8. Information kindly supplied by Mr. Max Dacre of the Andover Archaeological Society.
9. G. P. Burstow, *Proc. Preh. Soc.* XXIV, 158.
10. L. V. Grinsell, *Proc. Preh. Soc.* VII, 92.
11. D. A. White, *Proc. D.N.H.A.S. 94* (1973), 37-43
12. L. V. Grinsell, *op. cit.*
13. *Proc. Dorset N.H.A.S.* XXIX, 140, No. 97. Information from Mr. R. Peers.
14. J. B. Calkin, *P.D.N.H.A.S.* **90,** 207 (1968).

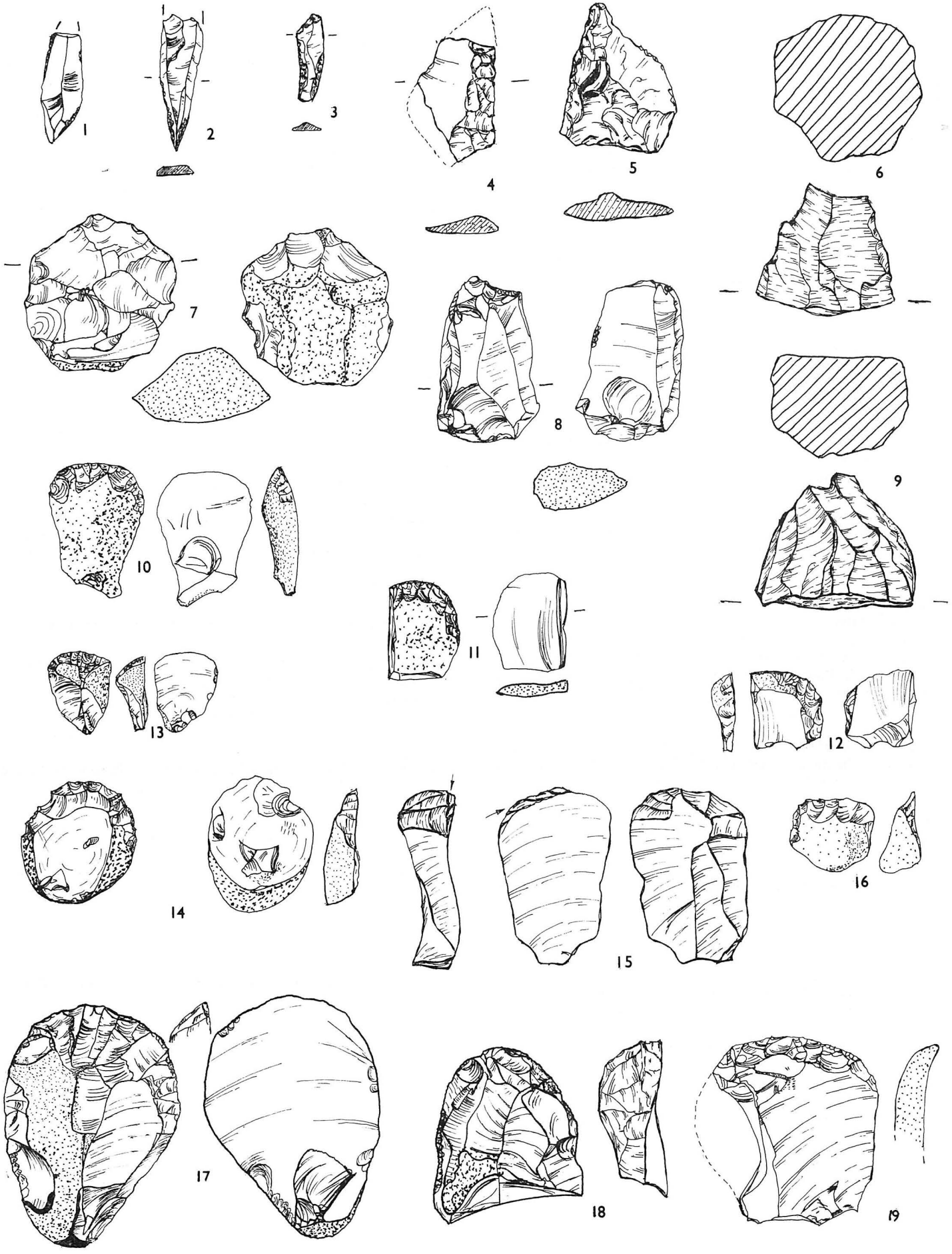


FIG. 7. Flint Artifacts from the site (x $\frac{3}{4}$).

240 grms. The bones were whiteish, hard and not too brittle. There were no minute fragments, as is usually found, so it seems likely that this was merely a deposit from a funeral pyre. The maximum size was 6 cm.

After careful examination it was thought that the bones belonged to a woman of between 40-50 years.

The bones which led to this conclusion were:

(a) root of a fully developed incisor;
(b) fragments of unfused mastoid suture (7·5 mm. thick);
(c) a piece of partially fused orbital suture (both sides of line present);
(d) fragments of completely fused vault suture;
(g) fragment of femur bearing roughened linea aspera;
(f) fragments of long bone showing signs of age in rough areas for muscle attachment.

Weight of Bones Present

Skull	23 grms.
Long bones	145 ,,
Rest	72 ,,
Total	240 grms.

APPENDIX B
FLINT AND CHERT ARTEFACTS FROM THE BARROWS

(Tools identified by Mrs. Susann Palmer)

Artefacts, flakes and cores were found throughout the barrows; *in situ* in the prebarrow soils and in disturbed contents in the barrow mound and ditches. With few exceptions the finished artefacts are of mesolithic types and the majority of the tools from Barrow A are fresh and unweathered. Many from the area of Barrow B are worn, patinated and rolled as if they had been possibly moved from a working area and weathered in the open.

The buried soil of Barrow A contained a concentration of waste flint and chert flakes; this and the fresh condition of many of the artefacts from this site suggested that the barrow had been constructed over an ancient mesolithic working floor.

Two hundred waste flakes were recovered from the soil covered by Barrow A, about sixty of these were flakes of Portland Chert, which was brought up to the site probably from the Chesil Beach west of Portland. It is clear that the mesolithic artisans worked both the local flint and the imported chert on this site.

The waste flakes were analysed using a statistical scheme proposed by Smith[15] and the results are set out in the tables below.

(A) Dimensions of Flakes

	Length		*Breadth*	
0—10 mm.	0	(0)	1	(12)
10—20 mm.	2	(11)	64	(22)
20—30 mm.	42	(22)	32	(16)
30—40 mm.	45	(21)	15	(6)
40—50 mm.	18	(5)	3	(2)
50—60 mm.	6	(1)	2	
over 60 mm.	6		1	

(The totals for chert flakes are given in brackets).

(B) Breadth to Length Ratios

	Flint	*Chert*
0 : 5	2%	4%
1 : 5	10%	12%
2 : 5	36%	30%
3 : 5	35%	20%
4 : 5	8%	15%
5 : 5	4%	9%
5 : 5	5%	10%

Finished tools and cores from various levels in the excavations are illustrated in Figs. 7 and 8. In the lists that follow, the small find number is given in brackets. (For instance (B71) would be small find number 71 from Barrow B.) The level of each find is also given and the artefacts are made of flint unless otherwise stated.

FIG. 7

No. 1 (B5) Small broken microlith probably form C1. Prebarrow soil, Barrow B.
No. 2 (A40) Small broken microlith probably form C1. Prebarrow soil, Barrow A.
No. 3 (A77) Sub-triangular microlith form D3 made of Portland Chert. Prebarrow soil, Barrow A.
No. 4 (B27) Broken fragment of petit-tranchet derivative arrowhead. Mound of Barrow B.
No. 5 (B6) Petit tranchet derivative arrowhead, made of Portland Chert. Topsoil of Barrow B.
No. 6 (A50) Four-platform core of Portland Chert. Prebarrow soil, Barrow A.
No. 7 (A37) Discordal flint core from buried soil below Barrow A.
No. 8 (A43) Thick flake from micro core, made from Portland Chert. Mound of Barrow A.
No. 9 (A66) Three-platform core of grey flint from buried soil below Barrow A.
No. 10 (A67) Mesolithic type convex scraper on a primary flake from mound of Barrow A.
No. 11 (A23) Bronze Age type scraper with incursive retouch on a primary flake from the mound of Barrow A.
No. 12 (A35) Microscraper with steep retouch from mound of Barrow A.
No. 13 (A45) Microscraper with steep retouch from topsoil near Barrow A.
No. 14 (A33) Convex scraper made on a slice from a piece of tabular flint. Prebarrow soil below Barrow A.
No. 15 (B25) Convex scraper with steep retouch from lower ditch fill of Barrow B.
No. 16 (B72) Flint microscraper on a primary pebble with incursive retouch, from mound of Barrow A.
No. 17 (B22) Convex scraper with incursive retouch from topsoil near Barrow B from some "sickle gloss" on the upper face of the flake illustrated as a thick black line. A Bronze Age type.
No. 18 (B10) Convex scraper with steep retouch from the mound of Barrow B.
No. 19 (A75) Convex scraper with incursive retouch (a Bronze Age type). From the drainage gulley in the bottom of the ring ditch of Barrow A.

FIG. 8

No. 1 (A38) Non-tranchet axe of mesolithic type from the buried soil of Barrow A.
No. 2 (A74) Retouch core trimming flake made from Portland Chert from the buried soil below Barrow A.
No. 3 (A24) Boring tool from the mound of Barrow A.
No. 4 (B4) Portland Chert Knife with inverse retouch on the blade. From the upper ditch fill of Barrow B.
No. 5 (A49) End scraper made of Portland Chert from the mound of Barrow A.

The finds from the buried soil below Barrow A (Fig. 7, Nos. 2, 3, 6, 7 and 9 and Fig. 8, Nos. 1 and 2) are all of typical mesolithic types. The deposit would appear to be mesolithic in date and this view is strengthened by the fact that the only finds of later artefacts and of beaker pottery come from the topsoil or the barrow mound. The discovery of a crude pick (Fig. 8, No. 1) and of flakes buried quite deeply in the buried soil suggest that shallow digging was carried out to extract the flint nodules buried in the clay-with-flint subsoil. The buried soil was stony through-

15. I. S. Smith, "Windmill Hill Excavations of A. Keiller", O.U.P. 1965. p.85.

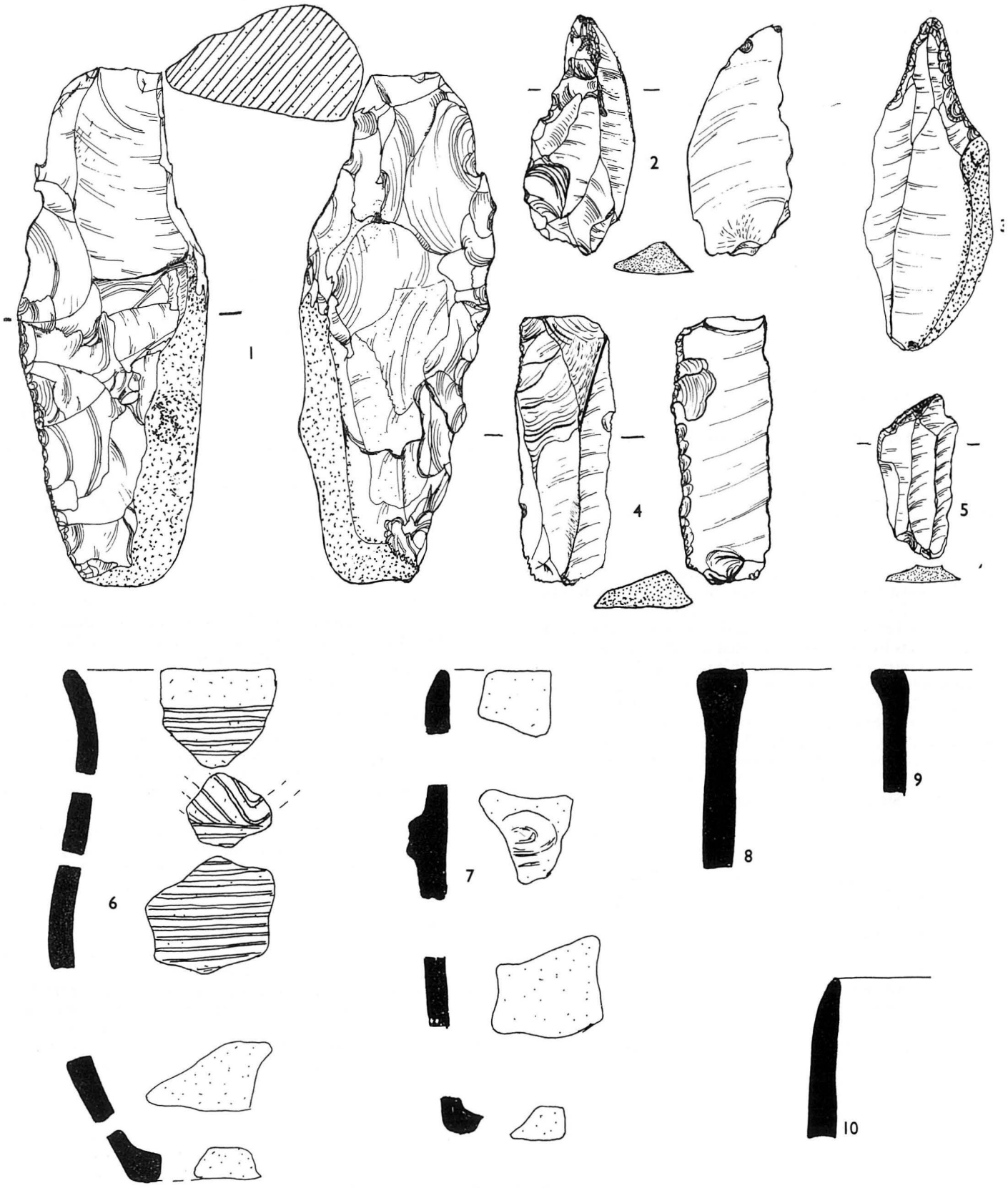


FIG. 8. Flint Artifacts and pottery from the site. (Nos. 1-5 x $\frac{3}{4}$; Nos. 6-10 x $\frac{3}{8}$).

out and its low pH would seem to indicate that worms would be absent from the soil, thus being unable to contribute to burying the artefacts.

Mrs. Palmer writes that the subtriangular point (Fig. 7, No. 3) is known at the Culver Well site at Portland Bill[16] which has been dated by C14 to 5200 ± 135 B.C. (BM — 473). A date of about 5000 B.C. can also be suggested for the Chaldon Down Mesolithic Industry. Artefacts of Late Neolithic and Bronze Age date include (Fig. 7, Nos. 4, 5, 11, 17 and 19).

APPENDIX C

POTTERY FROM THE SITE

On the whole the pottery from the three barrows was a singularly disappointing and uninformative assembledge. The exceptions were sherds from two small vessels from the ring ditch of Barrow B which were clearly manufactured by 'Deverell-Rimbury' elements and are Middle Bronze Age in date (*c.* 1200 B.C.). The rest of the Bronze Age pottery found on the site would appear to consist of bucket urn fragments and a Middle Bronze Age date seems most probable.

BARROW A

Fig. 8, *No.* 8. Rim of a bucket urn about 9 inches in diameter from the primary burial of Barrow A. The rim is flattened and the fabric is dark in colour with dark grog and flint filler.

Other pottery finds from the site included three small brick-red sherds of beaker pottery from the turf stack of the barrow mound and a fragment of Romano-British Terra Sigillata from the upper levels of the barrow ring ditch.

BARROW B

Fig. 8, *No.* 9. Small bucket urn rim sherd fragment from the central pit of Barrow B. The sherd is light reddish in colour, and the fabric has light flint grit and is slightly vesicular.

Fig. 8, *No.* 7. Fragments of a small 'Deverell-Rimbury' miniature vessel with simple rim and a lug (or lugs) on the shoulder. The reconstruction is very tentative. The fabric is black with black grit and there is a thin oxidised layer on the outside and inside of the pot.

Fig. 8, *No.* 6. 'Deverell-Rimbury' globular urn with slightly flaring rim; the ware is dark brown in colour with black grog and light grit filler. Decoration on the pot was executed in incised horizontal lines and swags. The lines were about two millimetres wide and one millimetre deep. The vessel is an example of a globular urn of Calkin's Class IIb,[17] the ware is usual for this part of Dorset. The pot is, however, a small example of its class. Its discovery gives an undisputed Middle Bronze Age date to Barrow B. Both this pot and the preceding one were found in the primary fills at the bottom of the southern sector of the ring ditch of Barrow B.

BARROW C

The pottery from the central pit had been crushed into almost unrecognisable fragments, but would appear to belong to a single vessel with crushed flint filler. The fragments of flint in the ware included lumps as large as 5 x 5 x 7 mm. and the colour of the pottery varied from dark grey to brick red. A rimsherd was found (Fig. 8, No. 10) and was brick-red in colour whereas the more obviously basal fragments were not so severely oxidised. Charcoal fragments were found adhering to the outside of the pottery which suggested that the pot had been burned in a fire and judging from the state of oxidisation of the rim fragments, the pot was probably upright when burnt.

APPENDIX D

CHEMICAL AND PHYSICAL ANALYSIS OF BURIED SOIL BELOW BARROW A

By Margeret A. Collins

Five samples were submitted, A to E. A was from the barrow mound (Fig. 3, level 9); B was the buried soil (Fig. 3, level 10); C was 15 cms. below B; D 25 cms. below B; and E 35 cms. below B.

Layers A to D were light brown soil containing small amounts of broken flint and fine charcoal. Layer E was red-brown clay.

The chemical analyses of the soils are given in the table below.

The figures neither substantiate nor disprove that B is on the old soil surface. The iron curve is the only one that looks at all like the profile of a buried soil. The disappointing figures can partly be explained by the fact that the buried soil is only two feet below the present soil level. Oxidation and micro-organisms could have completely altered the chemical make-up of the subsoil.

The fact that layers A to D contain charcoal is consistent with the hypothesis that the buried soil had been dug over to extract large flint nodules in the subsoil.

Acknowledgements

Col. J. Weld, the landowner and Mr. J. Cobb, the tenant, kindly gave permission to dig and the Wimborne Historical Society helped with the administration of the grant. Mr. P. Jenkins and Mrs. M. White assisted me in the supervision of the excavation. I am very grateful for the help given by Mrs. Susann Palmer, Mrs. Marion White, Miss Margaret Collins and Mrs. Gillian Watling for work in connection with specialised parts of the report.

The finds have been deposited in the County Museum at Dorchester.

16. Palmer, S., *Proc. Dorset Nat. Hist. and Arch. Soc.* **90,** 183-206 (1969).
17. J. B. Calkin, *Arch. J.* Vol. CXIX (1964) p.26.

Sample	*Munsell Colour Wet*	*pH*	*Humus Alkaline Soluble* %	*Humus by Ignition* %	Fe_2O_3 %	P_2O_5 %	*Acid Insoluble Ignited* %
A	10 YR 6/6	4·3	0·163	3·93	1·32	0·027	88·4
B	10 YR 5/6	4·3	0·140	3·71	1·19	0·023	89·1
C	7·5 YR 4/4	4·4	0·087	3·15	1·18	0·031	89·5
D	10 YR 5/6	4·3	0·087	3·17	1·30	0·033	88·9
E	7·5 YR 4/7	4·1	0·107	6·90	2·97	0·077	79·3

An Iron Age and Romano-British Settlement at Broadmayne

by Donald Young

Introduction

Recent building operations in Broadmayne have brought to light further traces of ancient occupation. In 1965 a Beaker burial of the Early Bronze Age and scattered remains and rubbish pits of the Roman period were found and reported in *Proc.* Vol. 88 (1966) pp.103-5.

Since then a Durotrigian burial, a grain storage pit and an oven have been excavated, and other areas and features explored (Figs. 1 and 2). Although no buildings have been located, the site appears to be a small native domestic settlement of the Roman period with Iron Age origins. A small concentration of Iron Age 'A' type pottery was discovered at Y in Fig. 1, and further sherds came from a number of small pits revealed by builder's trenches along the south-west perimeter road. There was not, however, a general distribution of pre-Roman Iron Age pottery over the site.

The 1966 report gave the location of the Beaker burial as the garden of No. 22 Conway Drive. The properties were subsequently renumbered and No. 22 is now No. 15 as shown on Fig. 2. Sherds of a second Beaker were found by workmen in 1968, apparently unassociated with human remains, at a point 60 ft. S.S.E. of the 1966 beaker (Fig. 2).

All the investigations reported here were carried out by kind permission of the builder, Mr. Blackwell of Weymouth, whilst site clearance and building operations were in progress. Some of the excavation was undertaken by members of staff, pupils and parents of Broadmayne County Primary School (head teacher, Mr. M. P. N. Wake), led by the deputy head, Mr. D. L. Downton who published his own report on the educational aspects of the dig in *The Times Educational Supplement* (1.12.1967). Mr. C. J. S. Green has kindly passed the substantial results of independent investigations on the site for inclusion here. The writer also acknowledges help and advice from Mr. R. N. R. Peers, Mr. H. S. L. Dewar and Mrs. E. M. Keats in the field, and from Mr. R. A. H. Farrar in the preparation of this report.

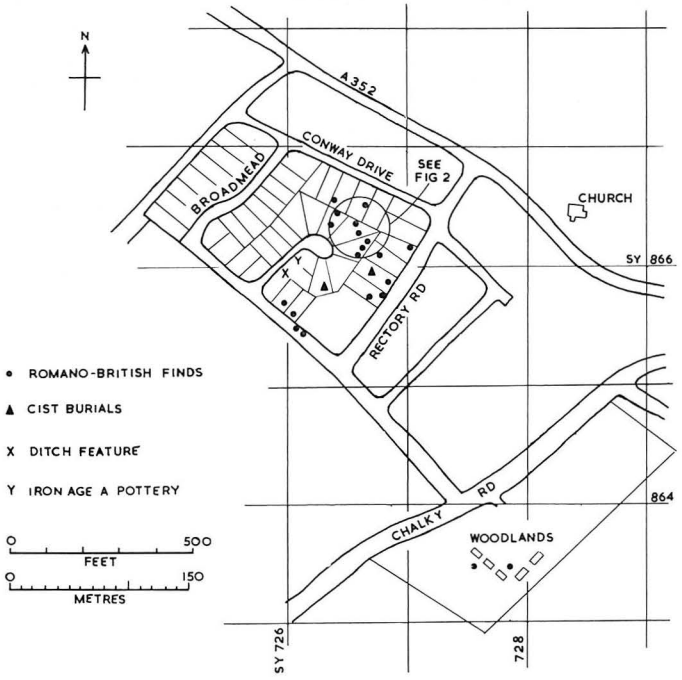


FIG. 1. Location of Iron Age and Romano-British site at Broadmayne

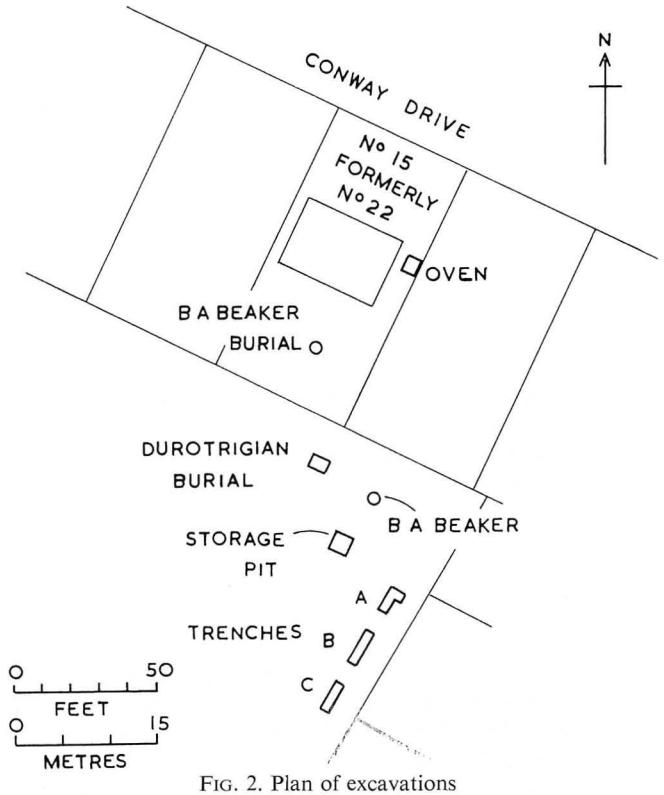


FIG. 2. Plan of excavations

The Site

The area concerned lies principally to the north-west of Rectory Road (Fig. 1). A junction between clay of the Reading Beds and the Chalk runs across the site a few yards south-east of, and parallel with, the road marked "Broadmead". The settlement remains were all found on the chalk, nothing was seen or reported from the clay area.

In view of the Beaker burial and the former presence on the site of several large boulders, a careful watch was kept for signs of a "henge" monument, particularly over the area cleared down to the chalk during the construction of new roads. Only four



FIG. 3. Durotrigian burial

flakes of worked flint were found by the writer, but Mr. C. J. S. Green reported the outer edge of a curved feature, possibly a ditch (located at "X" on Fig. 1), filled with soil rather blacker than usual for the site. This feature was revealed by a drainage trench along the south-east side of the road, but it was not possible to reach any conclusions on the meagre evidence available.

On the south-east side of Chalky Road, at "Woodlands", the foundation and drainage trenches dug for new council houses in 1966-7 produced a few sherds of Romano-British coarse pottery, and one portion of a flanged clay roof tile, but no sign of structures.

The Durotrigian Burial

This grave was found in June, 1967 as a result of mechanical digging which displaced the lower limbs and slightly damaged the skull. Excavation was then carried out by the school team. The skeleton lay on its back in an oval scoop in the Chalk, orientated east-west with the head to the east, turned to face south. The right arm lay parallel with the body, the left arm was flexed across it with the hand resting on the pelvis (Fig. 3). The bones appeared to be those of a mature adult.



(*Photo by* R. A. H. Farrar)

FIG. 4. Pottery from Durotrigian burial

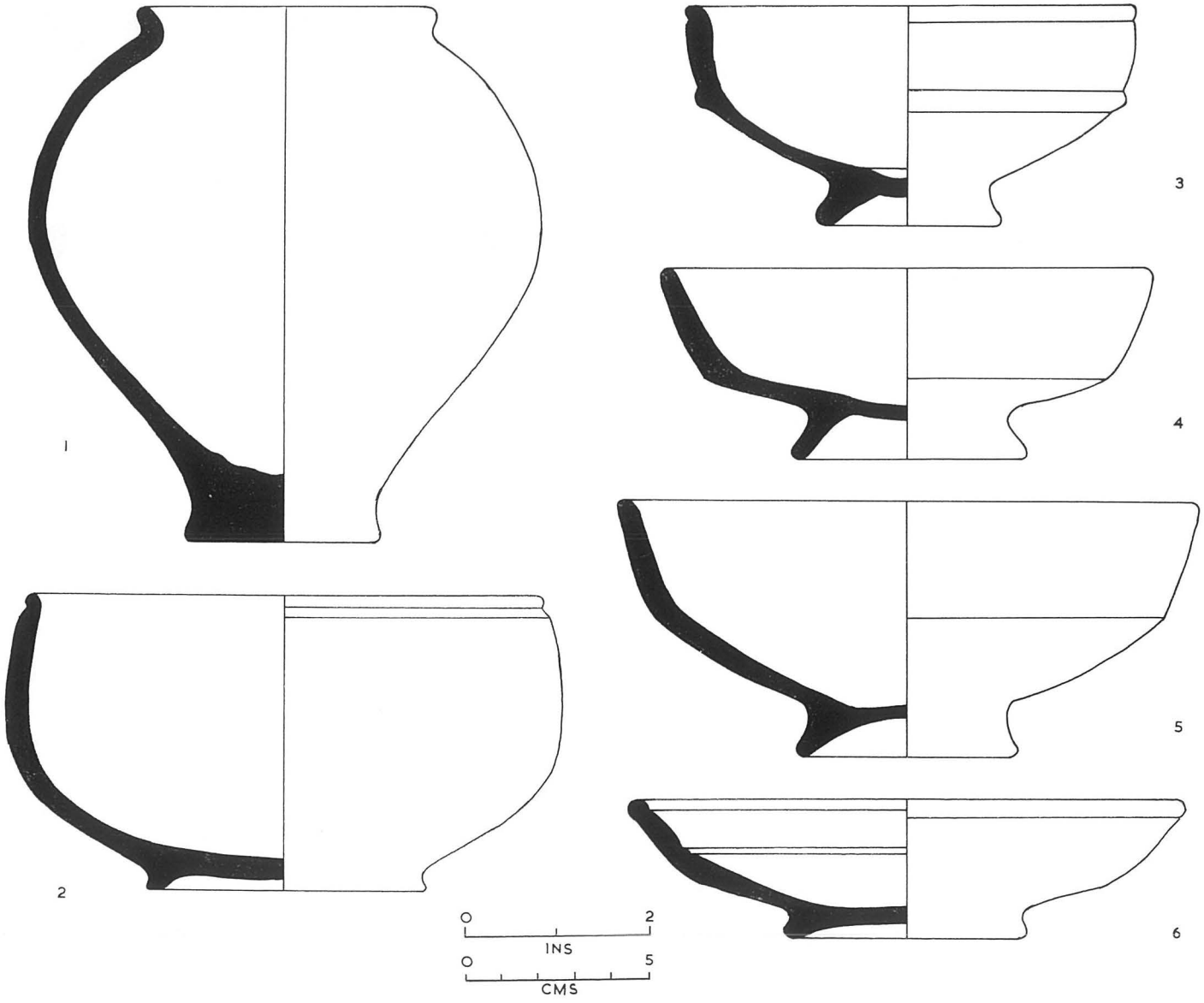


FIG. 5. Pottery from Durotrigian burial. All six pots correspond to Brailsford's description (*Proc. Prehistoric Soc.* 1958) regarding body texture and surface finish. Nos. 1, 4, 5 were recovered intact. No. 2 Maiden Castle War Cemetery type, broken by mechanical excavation, partly recovered from spoil. No. 3 copy of Samian ware Dragondorf Form 24. Intact. No. 6 broken in antiquity and again by mechanical excavation

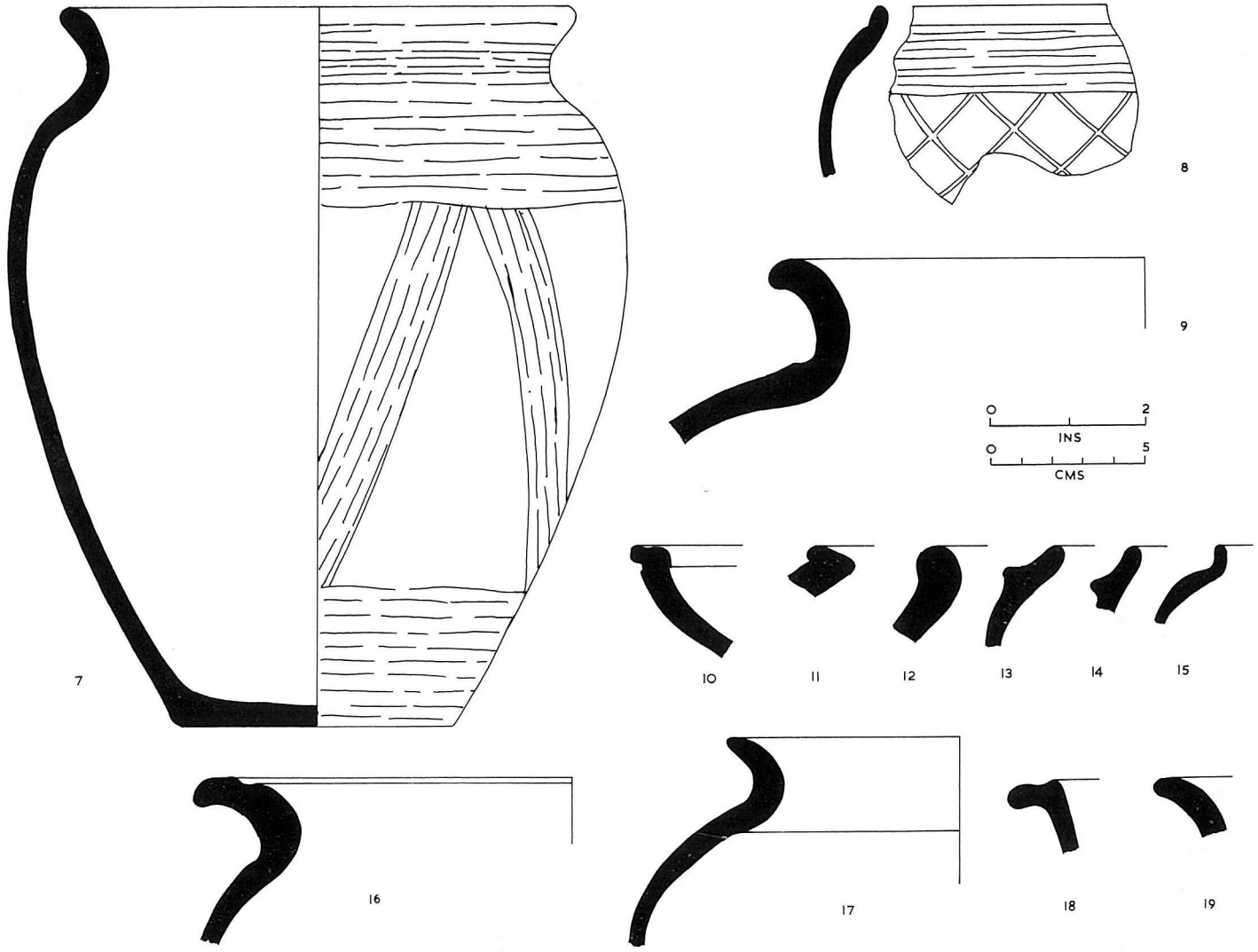


FIG. 6. Pottery from storage pit and oven. No. 7 handmade cooking pot from bottom of storage pit. 70% of sherds recovered. Thick internal carbonised deposit in one side only where pot had laid on its side. No. 8 from bottom of pit. Also similar sherds from upper filling and from trenches A and B. Nos. 9-15 from pit filling. Sherds similar to Nos. 11 and 15, also from Trench A. Nos. 16-19 from oven filling.

In the grave were six pots (Figs. 4 and 5), five of which were arranged in a row along the south side of the scoop, the sixth (No. 2 in Fig. 5) was located in the region of the legs and was recovered from the spoil. Fig 3 shows five pots carefully replaced in position after excavation. Beneath the skull were two ribs of lamb.

The Storage Pit

A beehive-shaped pit was partially exposed, again by mechanical digging, about ten yards south of the Durotrigian burial (Fig. 2). It was then excavated by the writer and shown to have a maximum diameter at the bottom of 6 ft. 6 ins., and a minimum diameter at the mouth of 3 ft. 3 ins., and a depth of 5 ft. 3 ins. The fill was an homogenous, loosely-packed mixture of chalk and soil containing a small quantity of pottery and bone fragments. The bottom was very slightly concave with a small radius in the base angle. The lowest three inches of the fill contained lumps of clay covering about 25% of the floor area, together with several large pieces of limestone. There was also the greater part of a pot in fragments (Fig. 6, No. 7), a quantity of mouse bones, a fragment of unworked shale, a fragment of corroded bronze ($\frac{3}{4}$ in. x $\frac{1}{2}$ in. x $\frac{1}{16}$ in. thick) with five holes punched through it and a broken bronze brooch (Fig. 7) of which Mr. M. R. Hull, F.S.A. has kindly reported as follows: "the brooch is of my Rosette C type. The keyhole-shaped plate had a cylindrical head enclosing the spring. There was a fretted and embossed circular ornament rivetted to the round part of the plate. The date is Claudius-Nero" (i.e. AD 41-68). All the above items rested on a thin layer of soil over the chalk bottom.

The pit showed no signs of weathering, no traces of lining or of any features for fixing a lining in position. A few grains of carbonised wheat, too decayed to be retrieved were noted in the bottom, their presence, together with the mouse bones seems to indicate that the pit was used for grain storage. Careful measurements at 12 in. intervals of depth showed that the pit was circular to within one inch, except for local deviations of up to three inches where the chalk had fallen away.

The Oven

An investigation by the writer during June, 1966 in the garden of No. 15 Conway Drive (Fig. 2) disclosed a spread of stone and flint at approximately two feet below the natural modern ground level and ten inches below the revised level resulting from building operations. The extent of the spread was small and well-defined, and when removed revealed the outline of a "keyhole"-type oven (Fig. 8). The spread was probably debris from the anciently demolished upper courses of the oven structure. The parallel portion of the keyhole was cut off by a later rubbish pit, the extent of which could not be determined, being beyond the area available for excavation.

The bulk of the fill inside the oven was chalky soil with a continuous layer of ash approximately two inches deep over the bottom surface. Distributed in the chalky fill were a few sherds of coarse pottery (Fig. 6, Nos. 16 to 19), and amphora, including a portion of an amphora handle, one fragment of undecorated Samian Ware, an iron cleat, several nails, an oyster shell, beach pebbles and a small quantity of crushed animal bone possibly a small pelvis. Scattered in the stone spread above the oven structure were further sherds of coarse ware and one fragment of New Forest metallic lustred ware.

The stone from which the oven was built consisted mainly of limestone from the Portland and Purbeck Beds, and a pink chert possibly from the Upper Greensand, all obtainable within a mile or two of the site. The oven is substantially similar in size, design and construction to those on the new library site at Colliton Park, Dorchester, excavated by Mr. and Mrs. Aitken in 1961-3. On completion of the investigation, it was left intact and the site refilled.

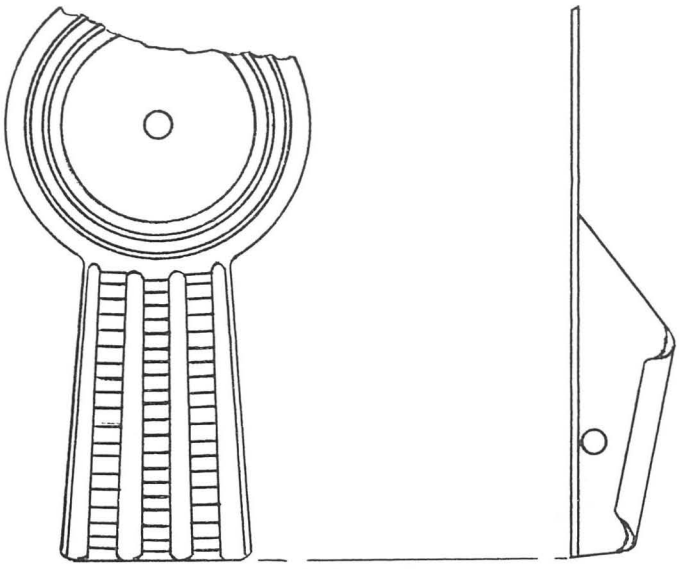


FIG. 7. Bronze rosette brooch from bottom of storage pit. Twice full size

Miscellaneous Investigations

Several small excavations were carried out by the school group during June and July, 1967 (Fig. 2, trenches A, B and C). In trench A a mass of unburnt clay lumps and some pot sherds were located at a depth of 20 ins. to 24 ins., extending over an area of approximately 4 sq. ft. Many of the clay lumps bore finger marks. The typically Durotrigian pottery is illustrated in Fig. 9, Nos. 20 to 23, 26, 28, 29 and an example comparable with No. 31).

In trench B a number of limestone slabs forming part of a circular unmortared structure, probably an oven, were located at depths of 16 ins. to 24 ins. Inside the circle, in the soil filling three bronze coins were found, one of Gallienus (253-68 AD) and one of either Victorinus (265-67 AD) or Tetricus (267-73 AD), and one badly corroded radiate minim of the 3rd century. Beneath the soil filling was a deposit of ash. The pottery from this trench is illustrated in Fig. 9, (Nos. 25, 30, 31 and sherds comparable with Fig. 9, Nos. 28 and Fig. 6, No. 8).

The remaining trench (Fig. 2, trench C) yielded only a few sherds of pottery, the significant pieces being illustrated by Fig. 9, Nos. 24 and 27 and a sherd comparable with No. 28.

Inspection of builders' trenches disclosed further additional features, mainly pits. Most of these contained black soil but not pottery or bones, they are therefore not described in this report and are not marked on Figs. 1 and 2. Two cists lined with limestone slabs were seen, again in builders' trenches (Fig. 1), one by the writer in 1965 and noted in the interim report in *Proc.* Vol. 88 (1966), the other by Mr. Green in 1968. Both were extensively damaged by mechanical excavation, and no trace of the contents of either were found.

From other builders' trenches the following items were found: a fragment of a stone mortar with a tooled outer surface from near the oven, a chalk spindle whorl from near the Durotrigian burial, and a pair of iron staples from the region of trench C. Part of a corroded iron object (now at the school) was at first thought to be a spearhead but is probably a portion of the spring catches of a barrel-type padlock. The location of this find was not recorded.



FIG. 8. The oven

Dating of Romano-British Settlement

The excavated pottery is predominantly Durotrigian, i.e. it consists of native black ware of Iron Age "C" type which could date from appreciably before to after the Roman conquest in 43 AD. The burial and the grain storage pit, however, are almost certainly post-conquest, and may be as late as the end of the

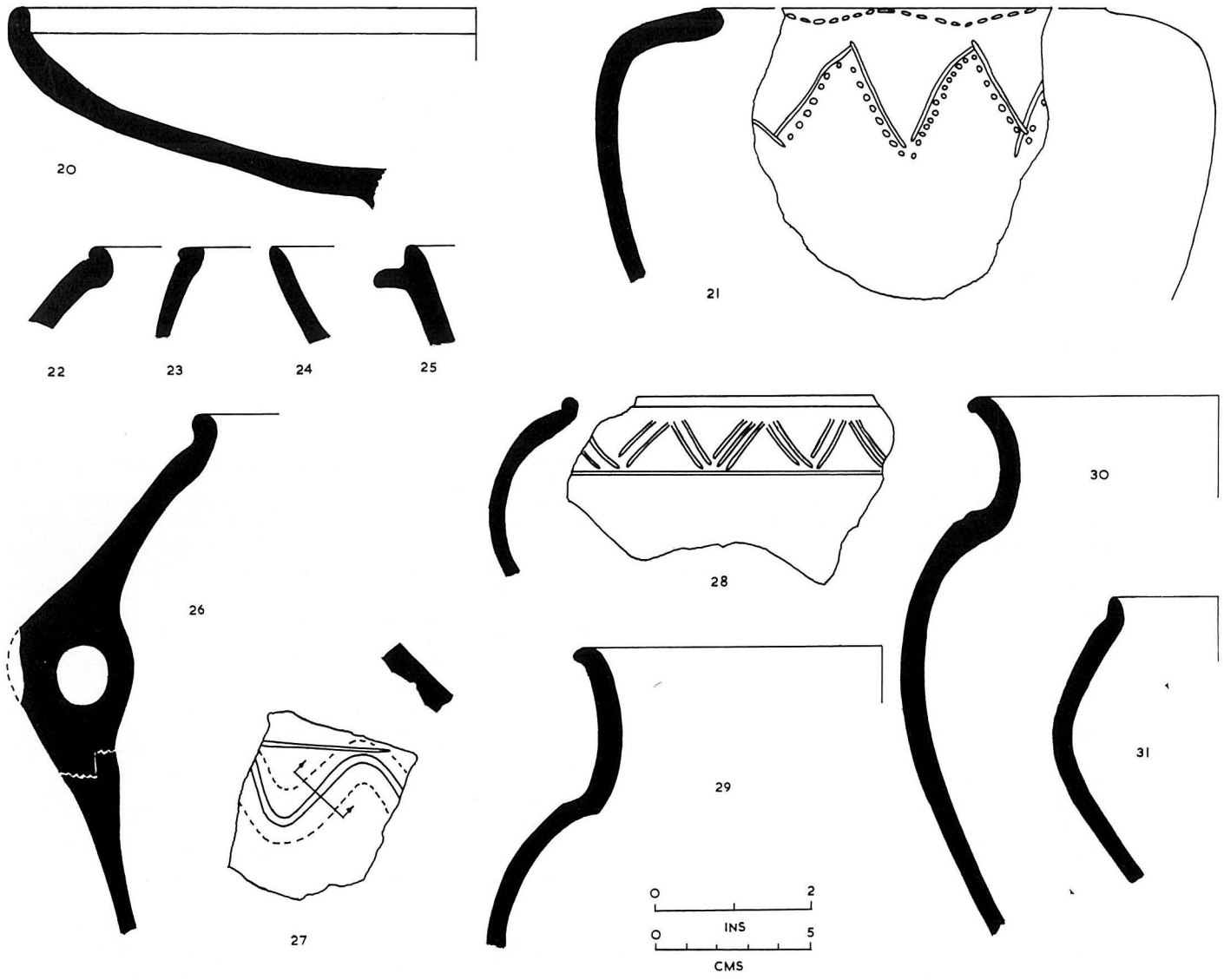


FIG. 9. Pottery from trenches A, B and C. Nos. 20-23, 26, 29 all from trench A. Nos. 25 and 30 from trench B. Nos. 24 and 27 from trench C. No. 28 came from trench A but similar sherds found in trenches B and C. No. 31 came from trench B but similar sherds found in trench A and from storage pit filling

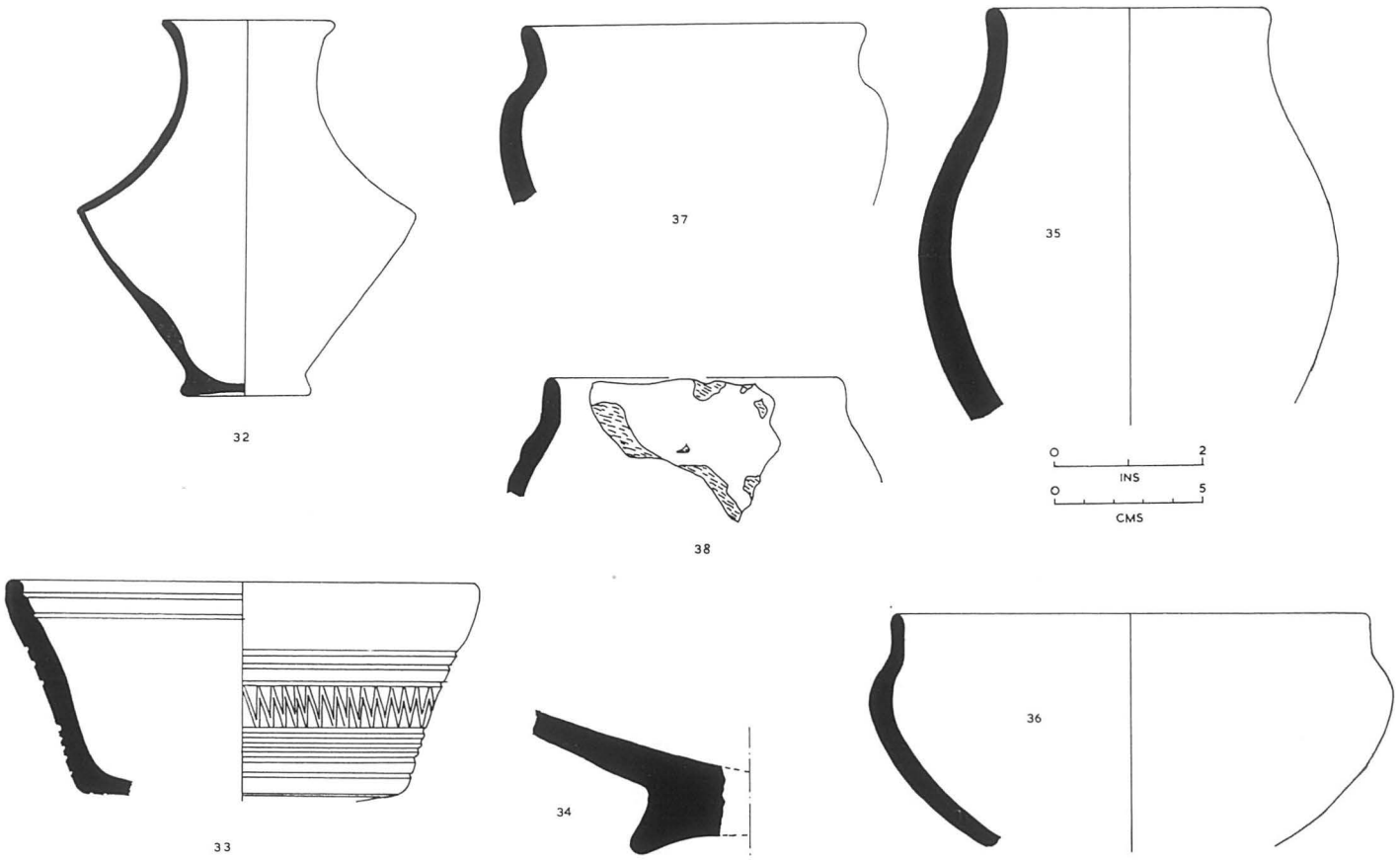


FIG. 10. Pottery from unstratified sources. No. 32 Biconical vessel of Belgic origin. Fine hard black paste. Wheelmade. Exterior surfaces show traces of a burnished finish. 50% of fabric recovered, all breaks were fresh. Found in builder's trench near the western cist burial by Mr. Green. No. 33 Soft grey paste, black glossy finish inside and out. Durotrigian copy of a Belgic type. From builder's trench, location not recorded. Found by Mr. Green. No. 34 Black body with tooled exterior finish. Find spot unknown. Nos. 35-37 Iron Age 'A' types, soft gritty brown and black pastes. Found at Y on Fig 1. No. 38, pink paste, very roughly formed as though made by a completely inexperienced person. Found at Y on Fig. 1

1st century A.D. They are dated, respectively, by the bowl, Fig. 5, No. 3 which may be a copy of Samian form Dr. 24 and the brooch, Fig. 7.

The oven contained no pottery in its primary filling and cannot therefore be closely dated. The pottery in the general filling included the distinctively late type of "pie dish" with grooved rim (Fig. 6, No. 18) which is not yet reliably attested before *c.* 210 A.D., so a late 2nd century or 3rd century use of the oven seems probable.

The pottery from trenches A and B suggests the activities revealed there were approximately contemporary with the burial and the grain pit. The Durotrigian sherds from trench B, however, may be rubbish survivals since the coins and the flanged bowl or dish rim (Fig. 9, No. 25) suggest a later 3rd or 4th century date for the disuse of the supposed oven there. The proportion of late pottery in the plough soil and shallower footings of the building site was high, and on this count alone occupation into the 4th century seems likely.

Vespasian and the South-West

By Keith Branigan

AMONGST the writings of Tacitus which have been lost to us are those vital chapters in *The Annals* which undoubtedly included a descrpition of the Claudian invasion. Bearing in mind Tacitus' admiration of Vespasian it is likely that *The Annals* gave details of the part played by Vespasian and the II Augusta in the conquest of southern Britain. This invaluable source being denied us, however, we are thrown back on two sentences in Suetonius' life of Vespasian.

> "Claudio principe Narcissi gratia legatus legionis in Germaniam missus est; inde in Britanniam translatus tricies cum hoste conflixit. duas validissimas gentes superque viginti oppida et insulam Vectem Britanniae proximam in dicionem redegit partim Auli Plauti legati consularis partim Claudii ipsius ductu" (Suetonius, *Div. Vespas.* 4)

This particular passage has the ring of authenticity about it and a preciseness which suggests that the information may have been taken straight from the Imperial archives (to which Suetonius, as chief secretary to Hadrian, had easy access) or perhaps from the now lost books of Tacitus' *Annals*. Furthermore, insofar as we are able to compare the archaeological and historical record, the information conveyed in this passage appears to be correct. As Suetonius tells us, Vespasian came to Britain from a legionary command in Germany (II Augusta were at Strasbourg) and he and his legion undertook a campaign along the south coast of Britain (the archaeological evidence vouches for the campaign, and suggests that legions IX, XIV and XX were employed elsewhere). Thirdly, the evidence for the Roman attacks on hill-forts is found in the territory of two tribes in the south-west, as Suetonius implies. It seems we may accept this passage in Suetonius as historically accurate and use it as the basis of any discussion of the south-western campaign of Vespasian and II Augusta in A.D. 43.

Suetonius' passage adds four pieces of information to the knowledge of the invasion we can glean from other written and archaeological sources.

(1) Vespasian fought thirty battles, not all necessarily in the south-west.
(2) He captured more than twenty "oppida", which the geographical context suggests, and the archaeological evidence confirms, were hill-forts. These were, by implication, in the south-west, and it may be significant that the number of forts captured and battles fought do not coincide.
(3) The capture of the Isle of Wight implies the use of the navy.
(4) Vespasian acted under the direction of both Claudius and Aulus Plautius.

Vespasian's part in the early weeks of the invasion can be quickly sketched. With his legion he had probably landed, like the rest of the invasion force, at Richborough and had certainly taken part in the attack across the Medway. Already he may have had the chance to interrogate British tribesmen from the west country, for prior to the battle at the Medway, Plautius had received the surrender of the tribe whom Dio Cassius calls "the Bodunni". We must either admit our ignorance of this tribe, or accept that Dio has confused the issue by mistakenly writing Bodunni for Dobunni, a mistake all the more likely since the king of the Dobunni was himself called Boduocus.[1] This seems the more likely explanation, but one which we can neither confirm nor disprove.[2] There is no reason to suppose that Vespasian and II Augusta did not advance with the rest of the army to the Thames, and subsequently, under Claudius' personal command, to Camulodunum. It may be that this short period of activity, between the attack over the Thames and the capture of Camulodunum, is that to which Suetonius refers when he mentions that Vespasian acted under Claudius' command. There is, too, the possibility that Vespasian took part in a naval expedition to the far north of the island,[3] but the evidence for this is ambiguous and unsatisfactory. A third possibility remains, however, and that is that Claudius accompanied Vespasian on the first part of his march to the south-west. Dio Cassius tells us that following the capture of Camulodunum, Claudius received the submission of other tribes, with some of which he reached a negotiated settlement.[4] The remainder were subjugated by force. Since Claudius' expedition to Britain was successfully concluded in little more than a fortnight, his sphere of operations following the capture of Camulodunum must have been severely limited and the region where advance could most speedily be guaranteed was south and west of the Thames in Sussex and Hampshire. This was the territory from which Verica had fled to Claudius, seeking assistance against the Catuvellaunian invasion of his kingdom. As the pretext for the invasion, the restoration of Verica was one matter which Claudius may well have felt inclined to oversee himself. Furthermore, the defeat and submission of the Catuvellauni ensured that Roman progress in this direction would be unopposed. Claudius' departure for Gaul may even have been made from Chichester harbour, for it is difficult to see how Claudius could have undertaken any campaign at all other than that against Camulodunum in the short time at his disposal, unless one supposes that Richborough was by-passed either on landing or on embarkation, or both.

The Preparations for the Campaign

Whatever the truth of Claudius' activities, however, it is clear that by the time he left Britain, Verica's kingdom had been restored as a client-kingdom of the Romans and that Vespasian's legion was stationed within it, preparing for the campaign to the south-west. The situation in the south-west at this point may be summarised as follows.

To his rear Vespasian had the defeated tribes of Kent and the broken power of the Catuvellauni, whilst to the north and north-west was the territory of the Atrebates, formerly allies of Rome but overrun by the Catuvellauni under Cunobellinus and his brother, and the territory of the Dobunni. By A.D. 43 the kingdom of the Dobunni seems to have been divided between two monarchs, the southern half of the kingdom being controlled by Corio, and the northern by Boduocus. If, as we believe, the Catuvellauni had already begun to overrun this northern kingdom,[5] then the early submission of Boduocus to Plautius' forces becomes readily comprehensible. There remained in the south-west three tribal kingdoms whose attitude to the invasion had yet to be tested. These were the Durotriges (Wilts, Dorset, southern Somerset), the Dumnonii (Devon, Cornwall and west Somerset), and the southern Dobunnic kingdom of Corio (north Somerset, south Gloucestershire). The final, and all-important, piece in this jig-saw was the kingdom of Verica, originally the surviving remnant of the Atrebatic kingdom but restored by the Romans, it seems, as a new kingdom distinct from the *civitas* of the Atrebates centred on Silchester.

This kingdom was to be the springboard for the campaign to the south-west, and at Fishbourne on Chichester harbour Vespasian erected a supply base to which and from which the fleet could carry supplies for his force. The excavations on the site have revealed, beneath the later palace of Cogidubnus, the traces of huge timber granaries of typical military type, and from the bed of the harbour has been dredged a legionary helmet of first century type.[6] Whether or not the base at Fishbourne would have been supplied direct from Gaul is uncertain, but by

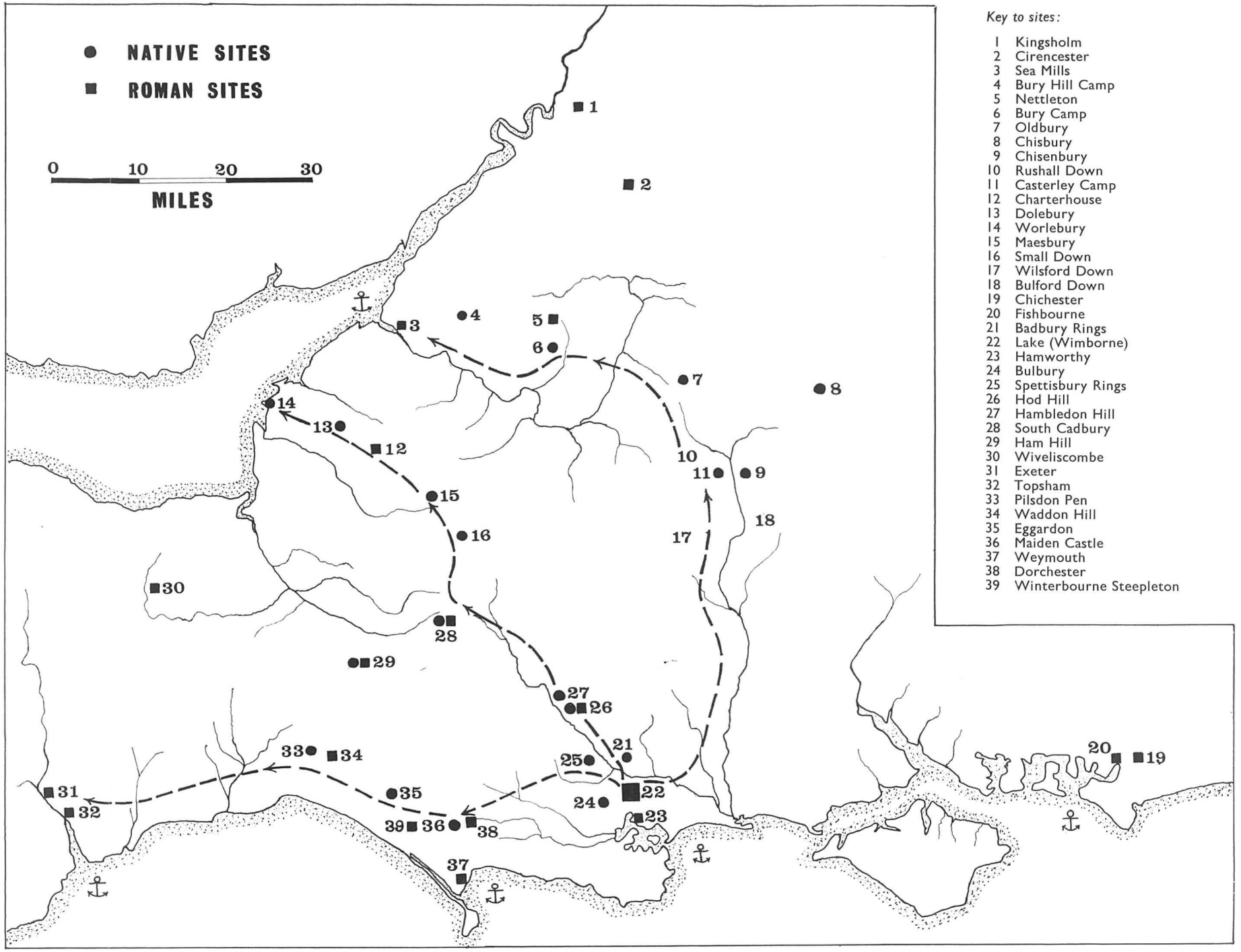


Fig. 1. Native and Roman Sites.

the time of its erection the major supply depot at Richborough was probably under construction and could have been used as the sole port of entrance for all military supplies coming to Britain.[7] On the other hand, Richborough would no doubt have had its hands full supplying the remaining three legions and the auxiliary units accompanying them and it may have been considered convenient to supply Vespasian's force directly through Chichester. It is unlikely that the depot at Richborough could have been completed by the time that Vespasian was ready to begin his offensive and this, too, would presumably favour a direct supply link between Chichester harbour and the Gallic ports.

It was presumably in the vicinity of the base at Fishbourne that Vespasian mustered his forces, and an early ditch of possibly military character recently found beneath the later Roman cemetery at Chichester[8] may perhaps be recognised as traces of this phase of the operation. There is no other period during the Claudian invasion when a fort at Chichester would have been required. The composition, and indeed the size, of Vespasian's force is unknown. There is no reason to suppose that the II Augusta was not present in its entirety, and indeed the legionary garrisons attested in some of the forts established by Vespasian certainly suggest that if the army in the field was kept up to requisite strength then the whole legion must have been involved in the campaign. The strength and identity of the auxiliary detachments used in the campaign is a matter for conjecture, however. We know that rather more than half an *ala* were stationed in the fort at Hod Hill, and one might suggest that these could be identified with either the Ala Indiana or the Ala Thracum, both of which were stationed in the west country, at Cirencester, within twenty years of the invasion.[9] The Cohors VI Thracum, stationed at Kingsholm (Gloucester) almost certainly before A.D. 49, can more confidently be identified as one of the units in Vespasian's force and so too can the ala of Vettones.[10] But there must have been several others, for bronzes of auxiliary type have been found in the forts or suspected forts at Sea Mills, Ham Hill and Waddon Hill, and it is unlikely that the garrisons of the forts (or suspected forts) at sites such as Wiveliscombe, Dorchester and Lake would have been entirely of legionaries.[11] On the basis of the known and suspected forts, their acreage, and the military relics they have yielded, one might make an estimate (and it can be no more) that Vespasian would have had at his disposal about equal numbers of Legionary and auxiliary troops. That is to say, the Legio II Augusta may have been accompanied by eight or ten auxiliary cohorts or alae. Apart from the evidence from Hod Hill, it is very likely that these cohorts would have included either part-mounted or cavalry units, since such forces would be particularly useful in the sort of territory where operations were to take place. We must remember that apart from information derived from Gallic traders, both Verica and Boduocus would have been able to provide Vespasian with accurate accounts of the geography of the south-west and in particular would have been able to place the situation of the major hill-forts, the easiest river crossings, the best harbours and the safest lines of penetration. Vespasian's campaign in the south-west was thus probably well-prepared in advance and well-provided for when it was begun, and this probably accounts for the remarkable speed with which it was brought to a successful conclusion.

The Course of the Campaign

At what stage of the campaign the Isle of Wight was taken we do not know, neither have we any evidence from the island for the activities of Vespasian's troops. Strategically it would seem wise to seize the island before venturing into Durotrigian territory, and its early capture would also ensure the security of supplies coming into the supply depot at Fishbourne, but we have no reason to suppose that the Isle of Wight was posing anything greater than a theoretical threat to Vespasian's base. Nevertheless, the capture of the island at the outset of the campaign seems the logical course of events.

The campaign through Dorset, Wilts and Somerset is best traced by identifying as many as possible of the more than twenty hill-forts which Vespasian captured. It must be recognised from the outset that there is no reason to think that all of the forts must have been reduced by attack, and if only for this reason we cannot hope to identify all, or even most, of the forts involved. We may, however, be able to suggest some of the forts which may have fallen without a violent struggle, after we have investigated the forts where some sort of evidence exists for reduction by force.

(1) *Near Badbury Rings.* A complex of earthworks of uncertain type and purpose, but including an Iron Age B rampart and ditch. The ditch was enlarged and deepened shortly before the Roman invasion. Under the rainwash at the rear of the bank was found a ballista bolt.[12]

(2) *Spettisbury Rings.* Univallate fort, partially destroyed at north-west corner in 1857 during the construction of the Central Dorset railway. From these operations were recovered between eighty and ninety skeletons which had been hastily buried in a "pit" of such dimensions as to suggest it was in fact the ditch of the fort. At least two skeletons showed signs of violent death. Subsequently about forty more skeletons were discovered nearby, but the precise location of this discovery is uncertain. From the "pit" came also four spearheads closely paralleled amongst those from Hod Hill, eight fragments of scabbard binding and one fragment of the binding from a legionary shield.[13]

(3) *Maiden Castle.* The discoveries at this multivallate fort are well-known but it is worth repeating here the sequence of events which Wheeler was able to trace. The defenders were apparently prepared for the attack, hoards of slingstones being found placed in readiness in and around the eastern gateway. A barrage of ballista bolts was fired over and around the eastern entrance and the east gateway attacked and captured, possibly under cover of the firing of a group of huts just beyond the gates. A massacre of at least some of the defenders followed and is represented by the thirty-eight skeletons of men, and women. Of the twenty-three adult men found, at least fifteen were aged between 20-35, and probably as many as 18-20. The defences of the fort were demolished to the extent that the east gateway (at least) was pulled down and the timber revetment of the main rampart was partially removed.[14]

(4) *Pilsdon Pen.* Multivallate fort with an unfinished entrance. From the interior the heads of two ballista bolts have been recovered.[15]

(5) *Hod Hill.* Multivallate fort with some unfinished outer earthworks. More than a dozen ballista bolts were found in excavation (in addition to examples previously ploughed up), but they were heavily concentrated around hut 37, thought to be the chieftain's hut. No evidence was found for either a forced entrance through the gates or for destruction by fire. The timber huts were, however, demolished and the defences slighted.[16]

(6) *Worlebury.* Multivallate fort overlooking the Bristol Channel. Destruction by fire is demonstrated by the carbonised remains of wattle huts, stonework heavily discoloured by fire, and the traces of burnt wooden lids or covers in storage pits. From these pits came the remains of at least eighteen skeletons which had been tipped in shortly after the fires had destroyed the covers. Half of the skeletons bore signs of a violent death, including both sword cuts and penetration of the skull by a pointed instrument of roughly square section (a ballista bolt?).[17] The dead included both adults and children. Excavations just west of the main gate revealed evidence that the defences had been slighted by the destruction of the stone breastwork of the rampart, which had been thrown into the ditch. Amongst the material found in the excavations were a ballista bolt and a spearhead paralleled amongst the Roman remains from Hod Hill.[18]

(7) *Casterley Camp.* A univallate fort or enclosure. Traces of destruction by fire were found in three storage pits, one of which contained the skeletons of three adults and a child, none of which seemed to have received a careful burial. Apart from several interesting but fragmentary bronzes, two spearheads of types found at Hod Hill were discovered in the enclosure.[19]

(8) *Oldbury Hill.* A multivallate fort about which little is known. At least three storage pits with extensive wood ash deposits in them were found, and in one of them there were also two spearheads of iron.[20]

(9) *Bury Wood Camp.* A multivallate camp with clear evidence for destruction of the gateway by fire. In the gateway was found a large quantity of charcoal, resulting from the burning down of the gates. Examination of the charcoal samples revealed that an unusually large quantity of brushwood had been in the vicinity of the gate at the time of destruction. Inside the fort at least two storage pits had been destroyed by fire, but no certain evidence as to the identity of the attackers has yet been found.[21]

The evidence from some of these sites is clearly open to several interpretations, although the evidence from Spettisbury Rings, Maiden Castle, Hod Hill, and the fort at Worlebury is, I think, in each case sufficiently clear and abundant to allow of little or no doubt that these are forts attacked and captured by the Roman army in the early years of the invasion. The hill-forts listed above can be divided into three groups which I suggest may represent the lines of penetration used by the forces under Vespasian's command.

Forts 1-4 are situated on or near the Roman road from Badbury Rings to Dorchester and thence to Exeter, which in part follows a pre-Roman trackway. The, as yet scant, evidence from Pilsdon Pen may perhaps be supplemented by the observation that the close proximity of the Roman fort at Waddon Hill must almost certainly carry the implication that the hill-fort had been reduced, whether by force or otherwise. There is, too, sufficient Claudian material from Weymouth, Topsham and Exeter[22] to suggest that the Roman advance was pushed along the south coast and was supplied by the navy, putting into the harbours which were close enough to the existing pre-Roman trackway to be of value. The small fortlet at Winterbourne Steepleton points to the same conclusion. These considerations strengthen the admittedly tentative case which can be made out on the basis of the finds at Spettisbury, Maiden Castle and Pilsdon Pen, for an advance by Vespasian's troops along the south coast. Whether or not such an advance would have resulted in the capture of other forts close to the prehistoric trackway, like Eggardon Hill — a large, multivallate fort between Maiden Castle and Pilsdon Pen, we can only speculate, but it is at least a distinct possibility.

Forts 5-6 appear to represent a second line of penetration which branched off from the first at Spettisbury Rings. The valley of the Stour provided a natural means of penetration through towards the Bristol Channel, which if followed through would lead past first Hod Hill, where the evidence of the Roman attack has been so clearly exposed and assessed by the late Sir Ian Richmond, and then past South Cadbury to Mendip. From here the approach to the Bristol Channel could most easily and safely be made by following the Mendips which would eventually lead to the fort at Worlebury, perched above the Channel. If, as Richmond supposes,[23] the latest defences of Hod Hill are contemporary with those at the nearby fort on Hambledon Hill, then both the capture of Hod and its subsequent occupation by a Roman fort and garrison, must surely imply that Hambledon, too, was taken by the forces who invested Hod Hill. In view of the evidence for a quick capitulation at Hod Hill, it is likely that Hambledon Hill, too, will reveal little or no evidence for its capture by the Romans. Ten miles to the south-west of South Cadbury, the fort at Ham Hill must surely have been reduced in A.D. 43 to judge by the large quantity of early military equipment which has been found there, implying a Claudian fort here in a similar sort of situation to the one at Hod Hill.[24] Whether or not the advance along the southern edge of the Mendips would have found occupants in the small multivallate forts at Small Down Camp and Maesbury Castle is uncertain, but the larger camp at Dolebury could hardly have been ignored if it were still occupied in A.D. 43[25]

Forts 7-9 may represent a third line of penetration following the valley of the Wiltshire Avon and thence crossing into the upper reaches of the Bristol Avon. None of the three forts listed above have produced conclusive evidence that Vespasian's troops passed their way, but some further indication that the valley of the Wiltshire Avon was used as a line of advance is perhaps given by stray finds of Roman military weapons from Wilsford, Bulford and Rushall Down. Two spearheads from Wilsford Down[26] and a third from Bulford Down[27] all find close parallels amongst the equipment from Hod Hill, and particularly significant is a three-edged arrow found on Rushall Down.[28] This is an unusual type but is again paralleled amongst the finds from the fort on Hod Hill. The appearance of similar, even identical, weapons at Hod Hill does not, of course, prove that these stray finds belong to the invasion period, but apart from a small quantity of Claudian material at Casterley Camp,[29] other samian and coarse pottery of the period A.D. 40-60 has been recovered from Chisbury,[30] north-west of the Wiltshire Avon, and Bury Hill Camp[31] north of the Bristol Avon, and probably indicates an early military presence in the valleys of the two Avons. Certainly there is little room to doubt that the numerous Claudian coins and sherds of samian discovered at Sea Mills are testimony to the early establishment of a naval base at the mouth of the Avon.[32] Nevertheless, neither this nor the Claudian material from Chisbury and Bury Hill need be immediately relevant to Vespasian's campaign, and this third line of penetration must remain a largely hypothetical one at present.

The Military Organisation of the Campaign

Apart from being able to recognise two, and possibly three, lines of penetration which may have been used by Vespasian's forces we are also able to understand something of the military organisation of the campaign. The supply depot at Fishbourne, and possibly a fort at Chichester, situated in the territory of Rome's most reliable British ally, must have formed the spring-board from which the attack on Durotrigian territory was launched, but the rapid progress of the campaign must soon have necessitated the construction of further supply depots and base forts in Durotrigian territory itself. The safest and most efficient means of supplying the force was clearly by sea, and the siting of the major supply base on Chichester harbour and the capture of the Isle of Wight clearly imply both that the participation of the fleet had been planned in advance and that it was present in support of Vespasian's troops from the start of the campaign. It is therefore inherently probable that the early Claudian material from Poole Harbour (Hamworthy), Weymouth and Topsham signifies the presence of small supply bases established to supply Vespasian's force as it moved westwards. Architectural evidence for these bases is still lacking but a brief consideration of the stray finds from these sites reveals their potential interest. Apart from the difficulties of divorcing Claudian material and traces of a military ditch (and possibly buildings) at Exeter, from a supply base at Topsham, it is surely significant that amongst the small amount of pre-Flavian pottery from Topsham itself are fragments of mortaria produced by G. Atisius Gratus, whose products have also been found at Novaesium. It was from Novaesium that legio XX were sent to Britain in A.D. 43, and there is nothing improbable in the suggestion that Gratus may have followed his customers to Britain.[33] The small quantity of Claudian material from Weymouth[34] is made interesting by the solitary appearance of a legionary belt-plate of the type found at other early Claudian forts in the south-west. As for Hamworthy, the testimony of the handful of Claudian coins and Tiberio-Claudian samian[35] is now superfluous in view of the recent discovery of the large fort less than five miles north of Hamworthy at Lake. There can surely be no doubt that this fort was supplied via a base on Poole harbour, and the Hamworthy material serves not only to pinpoint the situation of the base but also to illustrate how little material may actually survive from what must have been an important depot.

If the present estimates of the size of the fort at Lake are correct, and it was about forty-two acres in extent,[36] then it could clearly have held the whole of Legio II Augusta. It is unlikely, however, that it ever held this number of troops, for not only were considerable numbers required for garrisoning the other forts being built in the south-west, but Lake itself was probably serving another purpose. The situation of Lake was

ideal for it to act as the new base camp from which the advances along the south coast (past forts 1-5) and through the valley of the Stour (past forts 6 and 7) could be both mounted and supplied. Additionally, of course, it could have served a similar purpose for the suggested third line of advance up the valley of the Avon. Whilst the coastal advance could be supplied by the navy through Weymouth, Topsham and possibly Seaton,[37] the advance up the valley of the Stour (and that up the Avon if it took place) could only be supplied by land. Thus, we might expect that the barrack blocks which seem to have been identified at Lake[38] may finally prove to have been accompanied by granaries and storehouses with a capacity considerably in excess of that required for the fort's garrison.

The Nature of the Campaign

There is, however, no reason to doubt that Lake was garrisoned by part of Legio II Augusta, and that it probably served as Vespasian's advance headquarters for the campaign. The nature of this campaign can now be established from the evidence provided by the excavations at Maiden Castle and elsewhere. The advance along the coast was generally met with hostility and force by the Durotriges if we are to judge from Maiden Castle and Spettisbury rings where the evidence for a massacre of at least some of the defenders is unequivocal. It is a pity we do not know more about the skeletal remains from Spettisbury Rings, for it would be interesting to see if their age and sex were similar to those from Maiden Castle. At Maiden Castle there is a very notable preponderance of young men (aged 20-35), so much so that it seems it must be explained by other than natural factors.[39] It is possible that the attackers singled out the young warriors to slaughter as a deliberate policy, but this contradicts the evidence provided by the wounds themselves,[40] and is also in contrast to the situation at Worlebury and Casterley Camp where children were amongst the victims.[41] The alternative explanation — that children and old men and women had already left the fort before the attack — therefore seems the more likely to be true. Whether or not such an arrangement was the result of negotiations with the Roman commander or whether it resulted from the depressing news about events at Spettisbury Rings we cannot say. The fall of Maiden Castle, accomplished with consummate ease, must have shattered the morale of the defenders of the hill-forts further west, and this may indeed explain the paucity of evidence for the conquest of these forts, since they may well have fallen in a similar way to Hod Hill, where the evidence for an assault is extremely localised.

The assault on Spettisbury, and the massacre of its inhabitants, must have preceded the attacks on both Hod Hill and Maiden Castle, but whereas at Maiden Castle its only effect may have been to initiate the evacuation of the non-combatants, its effect on the defenders of Hod may have been more profound. A single *balista* firing at the Chieftain's hut, albeit with the accuracy we expect of the professional Roman soldier, was, it seems, sufficient to secure the capitulation of the garrison. There was no massacre and no assault on the gates. Further north, the events at Spettisbury seem to have had less effect. At Cadbury the Romans were again obliged to attack one of the gateways to gain entrance, and the defenders (or some of them) seem to have defended it to the last. At Worlebury a similar story could probably be told if excavations had been extensive enough in the appropriate situations. Certainly the fort was assaulted and many of its defenders slaughtered.

If a Roman force moved northwards up the valley of the Avon, then the campaign it fought here may have seen some differences to that fought by the other Roman columns. Here too there may have been resistance to the Roman advance, such as is suggested by the discoveries at Casterley Camp and Bury Wood Camp — where the Romans may have had to burn their way in through the main gateway. But if there was an attack on Casterley Camp it may have been the aftermath of an open battle fought to the south of Casterley on Wilsford or Bulford Down. It is strange that no one has previously commented on the disparity between the number of battles which Vespasian's forces are said to have fought and the number of *oppida* which they are reported to have captured. If, as I have suggested, Suetonius' brief description of the campaign is based on accurate information, then the disparity must surely carry significance. It is hardly credible that Vespasian's troops made any unsuccessful assaults on forts in the south-west, and the disparity is therefore more likely to reflect a campaign in which at least a few skirmishes were fought in the open. If one subscribes to this theory, then one is faced with the problem of attempting to identify the situations of these battles. The Downs above the valley of the Avon may plausibly be suggested as a likely situation for operations of this kind, since almost all of the forts along the Avon were univallate forts like Spettisbury and their occupants must have realised that any attempt to defend the forts would result in further massacres like that at Spettisbury itself. In desperation they may have decided to resort to open warfare where, if defeated, there was at least the chance to make good their escape. Whether or not we might tentatively recognise the stray weapons from Wilsford, Bulford and Rushall Down as surviving traces of skirmishes in this area is clearly a controversial issue. All we can say in favour of the hypothesis is that these weapons all find close parallels amongst the Roman weapons from Hod Hill, and stray finds of other military equipment of more certain first century date are known from elsewhere in the west country.

Whatever may have happened in the valley of the Avon, it is clear that elsewhere resistance to the Roman forces varied from one fort to the next, and that there was no concerted or unified attempt to meet and defeat Vespasian's army. The early massacres at Spettisbury Rings and Maiden Castle may well have made the remainder of the campaign considerably easier, in that the hill-forts subsequently capitulated with little or no attempt to resist the invader. It is significant, however, that all three forts excavated in the territory of the Dobunni and providing evidence for the invasion, produce evidence to suggest that they had to be assaulted and sacked. The fate of the Durotriges seems to have had little immediate effect on Corio . . . 's attitude to the invasion.

Consolidation

The material obtained from the forts on Hod Hill, Waddon Hill and Ham Hill is strongly suggestive of a planned and immediate occupation of the newly conquered area by Vespasian's troops. This is surely confirmed by the complete absence of marching camps in the south-west, some of which might have been expected to survive. It looks as if Vespasian's strategy was to consolidate his gains as he moved forward by the immediate erection of garrison forts. Several of these are now known.

(a) Lake, Wimborne. A 42-acre fort with elaborate defences on the excavated (west) side and traces of timber buildings (with verandahs, ? barracks) within. Finds include buckles, strap ends, cuirass hooks, and scales of *lorica segmentata*, 17 Claudian and two Augustan coins.[42]

(b) Winterbourne Steepleton. A fortlet of only ½ acre, the rampart of which sealed pottery comparable to that from the War Cemetery at Maiden Castle.[43]

(c) Waddon Hill. Size uncertain. Waddon is a remarkably narrow fort (250 ft. at centre) and is clearly unusual in several respects, making an estimate of its original size difficult. If, however, the *principia* and *praetorium* stood approximately at the centre of the fort, as we might expect, then Waddon would have been of about 5 acres extent originally. The interior was filled with wooden buildings including barrack blocks and the two buildings mentioned previously. Finds include military weapons, a legionary scabbard, an auxiliary belt plate, and other fragmentary military bronzes. Of more than fifty coins discovered, none are post-Claudian.[44]

(d) Exeter. Size uncertain, possibly *c.* 8 acres. Traces of the ditch have been found and the early date of occupation is indicated both by early Claudian samian and a notable quantity of Claudian coinage.[45] Ptolemy's placing of Legio II Augusta at Exeter, though recognised as a mistake, has nevertheless led to the suggestion that part of the legion was stationed at Exeter before it moved to Gloucester (*c.* A.D. 70).

(e) Hod Hill. Nine acres in size. The garrison at Hod has been established by Richmond's excavations as a diminished legionary cohort and 7 *turmae* of cavalry. Finds include weapons and bronzes of the types relevant to the garrison. Occupation of the fort begins in A.D. 43 and ends before A.D. 51.[46]

(f) Ham Hill. Unknown size. If the Romans occupied the end of the northern promontory, the most easily fortified and defended area on the hill-top, then the fort would have been perhaps *c.* 10 acres in size. A rich collection of finds from the site include legionary belt-plates, a legionary scabbard, and three penannular rings of a type normally worn by auxiliaries. Of thirty-six coins from the site, two-thirds are Claudian and another nine are pre-Claudian. Seaby has suggested, however, that the high percentage of copies amongst the Claudian coins is abnormally high for coinage from a fort.[48]

(g) Wiveliscombe. A 3½-acre fort of unknown date. Most authorities regard it as Claudian,[49] and certainly it fits well into the early system of forts in the south-west. It could, however, belong to the same period as the fort at Nanstallon.[50]

(h) Charterhouse. A small unexcavated rectangular enclosure, probably a fortlet. This may have been built with the military occupation of the lead mines, not later than A.D. 49, although it would also fit into the frontier system established in the south-west from A.D. 43. A mid-first century occupation for the fort is suggested by two sherds of Claudian/Neronian samian recovered from its interior in 1967.[51]

(i) Nettleton. A newly-discovered fort of uncertain size, lying alongside the Fosse Way. From its ditch, and elsewhere on the site, came several Claudian coins.[52]

(j) Cirencester. The date and extent of the earliest fort has still to be established, but there can be little doubt that the earliest fort was built as part of the early frontier system. As the first of three superimposed forts, the last of which was probably built *c.* A.D. 60 and had been demolished by *c.* A.D. 70, the earliest fort can hardly have been built after the governorship of Platius.[53] Its first garrison was perhaps the Ala Thracum, attested to by an early tombstone.[54] There are several early military bronzes from the site.

(k) Kingsholm. The size of the fort at Kingsholm is unknown, although the area in which early Roman material has been found is extensive and was previously used by Green as evidence for the existence of a legionary fort here. It is now certain that when Legio XX moved west from Colchester in A.D. 49, it did not move to Gloucester. There can be no doubt that with a legionary fortress established at Gloucester the fort at Kingsholm would have been dismantled and abandoned. Its period of occupation is therefore thought to be *c.* A.D. 43-66, and the tombstone of a trooper of the Cohors VI Thracum, found at Wotton, is thought to establish the identity of its garrison.[55]

In addition to these forts and fortlets, we may safely assume that military garrisons protected the supply bases along the south coast. The base at Fishbourne remained in use for a decade, and as long as Lake, Hod Hill, Waddon Hill,[56] and Exeter remained as military forts then the bases at Hamworthy, Weymouth and Topsham were probably maintained as the easiest means of supplying them. On the Bristol Channel, the forts along the line of the Fosse Way were supplied, we think, through a base at Sea Mills. A few military bronzes and a great number of Claudian coins point to this conclusion.

We cannot demonstrate that all of these forts and fortlets were established in A.D. 43-44 during Vespasian's campaign, and indeed some were almost certainly established a little later. But there can be little doubt that the southern end of the new frontier was secured by forts during the campaign, as the evidence from Hod Hill and Waddon Hill, and the absence of temporary camps indicate. It may well be that further excavations in the hill forts of Dorset, Wilts and southern Somerset may yet reveal further evidence for this practice. Even if we ignore this possibility, however, it is evident that as the campaign progressed, Vespasian's forces must have increasingly diminished in numbers as more and more troops were called upon to take on garrison duties. We cannot estimate the garrisons required by most forts, since both the nature of the garrison and the extent of the fort is uncertain, but there are one or two pointers to the sort of garrisons we might expect. Excavation has demonstrated that at Hod Hill there was a mixed garrison of legionaries and auxiliaries, in this instance part of an *ala* of cavalry. The material recovered from Ham Hill and Waddon Hill suggests that there too, legionaries and auxiliaries were jointly garrisoning the forts. In each case the presence of some mounted auxiliaries is suggested by a few horse-pieces or associated items. There is, therefore, the possibility that Ham and Waddon were garrisoned in a similar way to Hod, though in each case on a different scale. The value of a part-mounted garrison in these early forts, erected it seems in advance of the road system and at a time when hostile bands must still have been able to move freely in the surrounding countryside, must have been obvious to Vespasian. The disposition of these three forts is such that mounted patrols based on them must have been able to control much of Dorset and Wilts. Both the unusual size (3½ acres) and the situation of the fort at Wiveliscombe are suggestive of a similar sort of garrison there, and this might perhaps favour an early Claudian date for this otherwise undated fort. At the other end of the south-western region, the tombstones from Cirencester and Kingsholm demonstrate that here too it was thought necessary to use mounted patrols. The area in between was no less difficult to control and we may conjecture therefore that the garrisons of Vespasian's forts were characteristically comprised of both infantry and cavalry. There is perhaps some reason to think that on the other hand, the naval bases were garrisoned by small detachments of legionaries. At Weymouth we have a legionary belt plate, from Chichester harbour the legionary helmet, from Topsham evidence for a mortarium manufacturer of known legionary connections, and from Sea Mills a small nielloed bronze of legionary type. The finds from Sea Mills and Topsham are particularly interesting, as the Sea Mills pendant finds its closest parallel at Novaesium, the legionary fort from which the Legio XX were dispatched to Britain in A.D. 43, and where the mortaria of G. Atisius Gratus found a ready market amongst the troops. It is worth recalling that the tombstone of Sita from Kingsholm was accompanied by a second tombstone of a legionary of Legio XX. This has usually been ascribed to the period following the erection of the legionary fortress at Gloucester and the demolition of Kingsholm, but its close proximity to Sita's tombstone is more easily explained if the tombs were more or less contemporary. The evidence from Hod, Ham and Waddon points to the common practice of establishing joint garrisons of legionaries and auxiliaries (if not mounted auxiliaries), so that a joint garrison at Kingsholm would come as no surprise. In terms of orthodox opinion, however, it would be surprising if the legionary detachment came from Legio XX rather than Legio II. Two considerations, however, apart from the little archaeological evidence mentioned above, suggest that the presence of a detachment of Legio XX in Vespasian's force and subsequently in the early garrisons in the south-west may be considered as a real possibility. Firstly, if, as the evidence tends to suggest, most of the early garrisons included legionary detachments, then the number of legionaries required in the south-west would be greater than the presence of Legio II alone could account for, particularly if a sizeable detachment were expected to garrison Lake. Secondly, the garrison at Colchester between A.D. 43-49 included the Ala I Thracum and in view of this it seems unlikely that the whole of Legio XX were stationed there during this period.[57] The only possible evidence we have for their presence elsewhere at this time is that mentioned above from the south-west.

Summary

The campaign to the south-west in A.D. 43 was mounted from Chichester initially but soon based on, and controlled from, a large fort established at Lake. From here at least two, and possibly three, lines of penetration were followed, one along the existing trackway close to the coast, another up the valley of the Stour, and perhaps a third up the valley of the Avon. Whilst all three columns would initially have passed through and conquered Durotrigian territory, the second and third may perhaps be seen as the two arms of a pincer movement designed to encircle the southern Dobunnic kingdom of Corio. . . . .

Worlebury, Bury Wood Camp, and perhaps Oldbury were within Dobunnic territory, and their reduction by the Romans suggests that the second hostile tribe to which Suetonius alludes was neither the Dumnonii nor the Atrebates[58] but the southern Dobunni. The opposition to the Roman forces was at first determined, but the effect (perhaps intended) of two massacres at Spettisbury Rings and Maiden Castle seems to have reduced subsequent opposition from the Durotriges to little more than a gesture. Where defences were considered too weak to offer any hope of successful resistance, open skirmishes may have resulted. As the troops moved further west they were supplied by the fleet, where possible, putting into the natural harbours along the south coast which were soon occupied by small bases and depots. These served not only to supply the troops on the march but also the forts which were being established as the columns moved forward. In view of the speed of the forward movement, and the nature of the campaign, which was to reduce the major defended settlements,[59] consolidation of the conquest was left to the garrisons of these forts, which were probably specially constituted of infantry and auxiliary cavalry specifically for this task. By A.D. 44 the southern end of the frontier was probably already secured by forts at Exeter, Nettleton and Cirencester, actually on the line of the Fosse, and by others in advance of it at Wiveliscombe, Ham Hill and Kingsholm, in addition to a further naval base at Sea Mills and possibly a fortlet already established on Mendip. It is to the excavation of these forts, and that of the hill-forts around them, that we must look for further light on a brilliant military campaign about which written history has so little to tell us.

REFERENCES

1. Dio records (lx, 20) that the Bodunni were tributaries of the Catuvellauni, but this was probably true of both the Kentish tribes and the northern Dobunnic kingdom. Some would identify the Bodunni as one of the Kentish tribes mentioned by Caesar (*De Bello Gallico* v, 22) but a good case can be made for identifying them with the kingdom of Boduocus.
2. See S. S. Frere *Britannia* (1967) 63, C. F. C. Hawkes and E. M. Clifford *Bagendon a Belgic Oppidum* (1961).
3. Frere *op. cit.* (supra n.2) 66.
4. Cassius Dio lx, 21.
5. As tributaries of the Catuvellauni, the presence of the Dobunni in Kent in A.D. 43 is explicable, since they would probably have had to supply levies to the army of Caratacus and Togodumnus.
6. B. W. Cunliffe *Antiquity* xxxix (1965) 177f; G. Webster *Archaeol. Journal* cxv (1958) 73, pl. XIa.
7. B. W. Cunliffe (ed) *Richborough V* (1968), 233-4.
8. *Current Archaeology* 6 (1968) 146.
9. The *Ala Thracum* is perhaps the more likely to have been stationed at Cirencester before the Boudiccan revolt. The abandonment of the fort at Cirencester *c.* A.D. 70 coincides with the withdrawal of the *Ala Indiana* from Britain in A.D. 69 and there may be a connection between the two events. In this case, the *Ala Indiana* might be identified as one of the units transferred to Britain in A.D. 61 in the aftermath of the Boudiccan revolt, although they could have been here earlier and stationed elsewhere between A.D. 43-60.
10. See RIB 159.
11. Lake, with an area of 42 acres, seems ideal for a legionary fortress, but in view of the known legionary garrison at Hod Hill, and the evidence suggesting that legionary garrisons may also have been stationed at Ham Hill, Topsham/Exeter, Kingsholm, Weymouth, Sea Mills and Waddon Hill, it seems unlikely that Lake would ever have held a full legionary garrison. Furthermore by A.D. 49 (and possibly earlier) we have some of Legio II stationed on Mendip, controlling the lead workings.
12. F. de M. and H. L. Vatcher *Proc. Dorset Natur. Hist. Archaeol. Soc.* 87 (1965) 101-2.
13. C. A. Gresham *Archaeol. J.* xcvi (1939) 114f.
14. R. E. M. Wheeler *Maiden Castle, Dorset* (1943) 61-8, 116-20, 351-6.
15. P. S. Gelling *Proc. Dorset Natur. Hist. Archaeol. Soc.* 86 (1964) 102, 89 (1967) 123f, 92 (1970) 127.
16. J. W. Brailsford *Hod Hill I* (1962), I. A. Richmond *et al Hod Hill II* (1968).
17. *cf.* the very similar evidence from Maiden Castle, *supra.*
18. F. Warre *Proc. Somersetshire Archaeol. Natur. Hist. Soc.* ii (1851) 64, iv (1853) 124, C. Dymond and H. Tomkins *Worlebury* (1866), *VCH Somerset I* (1906) 370.
19. B. H. Cunnington *Wiltshire Archaeol. Natur. Hist. Mag.* xxxviii (1914) 70-79.
20. H. Cunnington *Wiltshire Archaeol. Natur. Hist. Mag.* xxiii (1887) 216-18.
21. D. Grant-King *Wiltshire Archaeol. Natur. Hist. Mag.* lviii (1962) 185f; *Archaeol. Review* i, 12-13.
22. V. L. Oliver *Proc. Dorset Natur. Hist. Archaeol. Soc.* 44 (1923) 31f; G. Webster *op. cit.* (supra n.6) 95, No. 233, 56, n.8. (See also *Devon Exploration Soc. Proc.* ii (1935) 200, iii (1938) 67, iv (1949) 20; A. Fox *Roman Exeter* (1952), *J. Roman Stud* lv (1965) 217; A. Fox in *Exeter and its Region* (1969) 145.
23. I. A. Richmond *et al op. cit.* (supra n.16), 1.
24. G. Webster *op. cit.* (supra n.6), 80-3.
25. A. H. Allcroft *Earthworks of England* (1908) 683-97; D. P. Dobson *Archaeology of Somerset* (1931) 196-7; J. Campbell, D. Elkington, P. Fowler and L. Grinsell *The Mendip Hills in Prehistoric and Roman Times* (1970), 20.
26. E. H. Goddard *Wiltshire Archaeol. Natur. Hist. Mag.* xxxvi (1910) pl. IV, 1, 3, *cf.* J. W. Brailsford *op. cit.* (supra n.16) pl. V, B9, pl. VI, B27 respectively.
27. E. H. Goddard *op. cit.* (supra n.26) pl.IV, 2, *cf.* J. W. Brailsford *op. cit.* (supra n.16) pl.VI, B69.
28. E. H. Goddard *op. cit.* (supra n.26) pl.III, 7, *cf.* J. W. Brailsford *op. cit.* (supra n.16) pl.VI, B107.
29. B. H. Cunnington *op. cit.* (supra n.19) 71.
30. M. Cunnington *Wiltshire Archaeol. Natur. Hist. Mag.* xlvi (1934) 4-6.
31. J. A. Davies and C. W. Phillips *Proc. Univ. Bristol Spelaeol. Soc.* 3, i, 8f.
32. G. Boon *Trans. Bristol Gloucestershire Archaeol. Soc.* lxvi (1945) 258f, R. Reece *Trans. Bristol Gloucestershire Archaeol. Soc.* lxxxv (1966).
33. There is the interesting possibility that part of Legio XX took part in the early advance to the west. The appearance of both Legio XX and Ala I Thracum at Colchester before A.D. 49 is thought to indicate that not all of Legio XX were based at Colchester between A.D. 43-49. A possible clue to the whereabouts of some of the legionaries from Legio XX in this period is provided by the tombstone from Wotton (*RIB* 122) found alongside the tombstone of Sita (*RIB* 121). It may be that the fort at Kingsholm was garrisoned by Cohors VI Thracum and a vexillation of Legio XX. This would fit the pattern suggested by the evidence from Hod Hill, Waddon Hill, Ham Hill, and Colchester of mixed auxiliary and legionary garrisons in the early Claudian forts, particularly in the west country.
34. Supra n.22.
35. H. P. Smith *Proc. Dorset Natur. Hist. Archaeol. Soc.* 52 (1930) 96f.
36. N. H. Field *Proc. Dorset Natur. Hist. Archaeol. Soc.* 89 (1967) 143.
37. R. E. M. Wheeler *op. cit.* (supra n.14) 61.
38. N. H. Field *op. cit.* (supra n.36) 143, *Proc. Dorset Natur. Hist. Archaeol. Soc.* 90 (1968) 171. The stoney platforms 10 ft. wide mentioned in the second of these reports seem too narrow for barrack blocks and may perhaps represent store buildings or even stables (see Richmond *et. al. op. cit.*, supra n.16, 82-3).
39. R. E. M. Wheeler *op. cit.* (supra n.14) 351-6. Of 28 skeletons whose approximate age at death could be established, 23 were between 20-35 and another three were aged 30-40. Of the 31 skeletons sexed, 22 were adult males and the remainder adult females. The preponderance of adult males and the absence of children may be compared with the skeletal material of immediately pre-conquest date from the same site. Of 18 skeletons, eight were adult males, seven adult females, and three were children.
40. R. E. M. Wheeler *op. cit.* (supra n.14) 351. The excessive damage to the skulls suggests a fierce struggle rather than the disciplined execution of a deliberate policy. There is similar evidence from Worlebury, C. Dymond and H. Tomkins *op. cit.* (supra n.18) 80.
41. C. Dymond and H. Tomkins *op. cit.* (supra n.18) 77, pit. 9; B. H. Cunnington *op. cit.* (supra n.19) 77, pit 2.
42. N. H. Field and R. M. Butler *Proc. Dorset Natur. Hist. Archaeol. Soc.* 87 (1965) 99-101, N. H. Field and R. J. Briggs *Proc. Dorset Natur. Hist. Archaeol. Soc.* 88 (1966) 115, N. H. Field *op. cit.* (supra n.36), *op. cit.* (supra n.38).
43. W. G. Putnam. *Proc. Dorset Natur. Hist. Soc.* 92 (1970) 140-41.
44. G. Webster *op. cit.* (supra n.6) 91-4, *Proc. Dorset Natur. Hist. Soc.* 82 (1960) 88-108, *Proc. Dorset Natur. Hist. Soc.* 86 (1964) 135-49.
45. A. Fox *op. cit.* (supra n.22, 1969) 145. The estimate of an 8-acre fort is based on the area enclosed in the suggested outline of the fort, given on fig. 25.
46. J. W. Brailsford *op. cit.* (supra n.16), I. A. Richmond *et. al. op. cit.* (supra n.16).
47. L. Alcock *op. cit.* (supra n.17).
48. G. Webster *op. cit.* (supra n.6) 80-3; Seaby *Proc. Somersetshire Archaeol. Natur. Hist. Soc.* xcv (1950), but *cf.* Sutherland *Numisatic Notes and Monographs*, 65 (1935).
49. Frere *op. cit.* (supra n.2) 74, A. Fox *op. cit.* (supra n.22), 1969) 147, G. Webster *Proc. Somersetshire Archaeol. Natur. Hist. Soc.* ciii (1959) 81f.

50. G. Webster *op. cit.* (supra n.49).
51. *Archaeol. Review* 2 (1967) 16.
52. *Archaeol. Review* 3 (1968) 22.
53. J. Wacher *Antiq. J.* xlii (1962) 3ff, xlix (1964) 15ff; G. Webster *op. cit.* (supra n.6).
54. Supra n.9.
55. C. Green *J. Roman Stud* xxxii (1942) 39ff; I. A. Richmond and H. E. O'Neil *Trans Bristol Gloucestershire Archaeol. Soc.* lxxxi (1962) 14ff, lxxxiv (1965) 15ff. See also n.57.
56. *Supra* fn's 44, 46.
57. This view is seemingly shared by Frere, *op. cit.* (supra n.2) 71. The mixed garrison at Colchester is another example of this early Claudian practice. The presence of part or all of Legio XX at Kingsholm after A.D. 49 remains a possibility, however, in view of the latest dating obtained for the fort at Gloucester. This suggests the fort was not erected there until *c.* A.D. 66.
58. For the Dumnonii see Frere *op. cit.* (supra n.2) 74. Richmond, *Roman Britain* (1955) 25 regards the Dumnonii and Dobunni as allies of the Romans, and believes the Belgae were the second hostile tribe.[23]
59. There is evidence for the slighting of defences at Hod Hill, Maiden Castle and Worlebury.

Roman Dorset

By John Bugler and Gregory Drew

Introductory note

The geographical area covered by this study is the County of Dorset within the official boundaries existing at the time of writing, i.e. 1972.

We should like to express our appreciation of the help given in the preparation of this work by R. A. H. Farrar and N. H. Field, who kindly read earlier drafts and made numerous invaluable suggestions for its improvement.

Foreword
By R. A. H. Farrar

The authors rightly claim that there is no book in existence that deals with Roman Dorset as a whole, and considering that the county has always been thought particularly rich in antiquities, and that its County Hall contains within its grounds the only completely exposed plan of a Romano-British *town house* that can yet be seen anywhere in Britain, it is obvious that, for this reason alone, this part of the series *Dorset through the Ages* is going to serve a need.

Anyone who is in the least familiar with the pace of archaeological discovery will expect that a book published today, however modest in scope, will have new finds to report that were not dreamed of ten or twenty years ago, and of these the most remarkable have been the remains of the villa found at Hinton St. Mary in 1963, with its fourth-century Christian mosaic bearing what is almost certainly the earliest known representation of the Saviour yet known in this country—and this on a site where ancient occupation was wholly unsuspected and, by one of the ironies of history, on land once belonging to the foremost archaeologist of his own and perhaps of any other day, the late General Pitt-Rivers.

Another, by coincidence, has been the discovery, in the first large-scale scientific excavation of this kind in Dorset, of a great Christian cemetery at Poundbury, Thomas Hardy's Pummery, on the western outskirts of Dorchester, where, in contrast with the pagan cemeteries, every burial, almost without exception, is aligned east to west with feet to the east, and where the practice of burying some of the bodies in liquid gypsum implies a link not only with late Roman York but also with early Christian cemeteries in North Africa—nothing else, surely, exemplifiying so much the vast unity of the Roman Empire and the rapidity of the spread of Christianity under its aegis.

It is significant that these discoveries should throw light on finds made as long ago as 1794 at Frampton near Maiden Newton, and only imperfectly understood since then, and on the liturgical hoard of silverware in the County Museum found with coins of Honorius, the last emperor to rule Britain in the late fourth and early fifth century, at Somerleigh Court in Dorchester, and significant, too, that they should point to the existence of a Durnovarian firm of mosaicists in whose repertory Christian motifs played a considerable part. For archaeological activities are not to be thought of as the interesting but occasionally disruptive pursuit of slightly odd enthusiasts intent upon adding yet another pot or coin to the shelves of museums already sufficiently bristling with curios, nor yet as a means of encouraging more foreign visitors and their spending to boost the national economy, or of providing more sights to enrich the lives of an increasingly leisured population. It is history that is being recovered, history that Samuel Johnson only two hundred years ago thought was irretrievably lost, just as surely as if we were to uncover in Egypt or Jordan a cache of the lost books of Tacitus.

It is true that this is not often political history, at least in this part of the Roman province, which, perhaps fortunately for itself, was passed by, after the first dramatic years of conquest recorded by Tacitus, Suetonius and Dio, by those national crises of which we have elsewhere an inkling both in the archaeological and in the sparse literary records, nor does it often give us the names, nor even the thoughts, of those Roman Britons, like Carinus and his family of whom our authors write, who were undoubtedly the ancestors of some of us living in Dorset today. But we should not in the present age have to apologize for the fact that it is the economic and social history of our region, almost none of which could have been written down fifty years ago, within the present lifetime of many of us who will read these pages.

What the future holds in store, to be gathered and put to use by those who will write another such study as this one, fifty years hence, we can hardly guess. But if the lesson behind our authors' work comes home to as wide a public as I believe it will, and not least to those who have it in their power to provide the education and the money and the facilities, under planning, to make the most of the opportunities for discovery that lie around us daily in town and countryside, we shall not only know much more of Roman Dorset, and of the life and condition of these ancestors of ours, but we may also learn something at last of those mysterious years that followed the end of Roman rule, in which the freemen and the bondsmen of Dorset's own Vortigerns and Arthurs continued to till the fields and pay their

taxes, as their fathers had done under Roman rule, for a further two centuries and more, until the final delayed coming of the West Saxons to mix and intermarry with them after the battle of Penn.

I. The Conquest

It was probably in A.D.43 that the Romans invaded the area now known as Dorset, as one of the earliest stages in the Emperor Claudius' campaign to conquer Britain and incorporate it in the Empire. The legions had rapidly defeated the forces which opposed them in Kent, and after a successful advance north of the Thames to Camulodunum (Colchester), several hitherto unconquered tribes began to submit voluntarily. Among the earliest chieftains to come to terms with the Romans was Cogidumnus, ruler of the Sussex area, whose allegiance helped to secure the rear for Vespasian, commander of the Second Legion Augusta, and later to be Emperor, as he now advanced against the south-west.

Vespasian's force would have consisted of about five thousand heavy infantry, with auxiliary light infantry and cavalry. Details of his campaign are scanty, but it seems that he moved westward by land and sea, and his biographer Suetonius mentions that he reduced the Isle of Wight (Vectis) to unconditional surrender, and was subsequently opposed by two very strong tribes, who were almost certainly the Belgae of Wiltshire and the Durotriges of Dorset, west Hampshire and south Somerset. These peoples had constructed a number of strong-points or refuges for temporary or permanent occupation, known today as hill-forts, which served for defence in inter-tribal warfare, and were now to present redoubtable obstacles to Vespasian. In the course of his campaign against the two tribes he had to storm more than twenty such strong-points, and the excavations at Hod Hill, Spetisbury Rings, and above all Maiden Castle, show that they were not taken without the most savage fighting.

As Vespasian had to rely on sea transport for his supplies, it is likely that he entered the territory of the Durotriges from the south-east, establishing a port at Hamworthy on Poole Harbour. From here he probably advanced up the Stour valley, and set up a base at Lake, near Wimborne, where a large Roman military site has recently been discovered. One of the native fortifications which he had to reduce as he pressed forward up the river would have been Spetisbury Rings, where eighty or ninety skeletons have been excavated, some showing signs of battle, together with fragments of a bronze scabbard and part of a shield. Some six miles upstream from Spetisbury, the massive double ramparts of the native Hod Hill fort commanded the gap between the chalk uplands of the Dorset Downs and Cranborne Chase. Undeterred by the strength of the defences and the steep slopes, the Romans would have advanced against the gates in their usual manner under the cover of the *testudo*, or roof of shields, and smashed them in with a battering ram, while their siege artillery (*ballistae*, or catapults) bombarded the defenders. A number of *ballista* bolts have been found concentrated around one of the larger huts inside, which may have been that of the local chieftain and the focal point of the attack, or the scene of a last stand after the Romans had broken in.

Vespasian now moved across into the Frome valley, crossed the river approximately where Dorchester stands today, and prepared to attack the Durotriges' most elaborately defended fortress, Maiden Castle. One of the strongest and most complex fortifications that Britain had yet seen, it was roughly oval in shape, enclosing an area of 47 acres, with huge earthen ramparts four deep in places, each fronted by an immense ditch; the steep slope of the inner rampart from ditch bottom to bank crest was some fifty feet in vertical height. The present-day visitor can well imagine the difficulties faced by an attacking force, particularly at the western end, where the main entrance was through a double hornwork of overlapping ramparts which would enable the defenders to station slingers on top to assail the attackers with missiles from both sides as they fought their way in against the defending swordsmen. At the time of the Roman attack, the inner rampart was crowned with a stockade and revetted with stone and timber, while the entrances were blocked with heavy gates and flanked by towers. Inside were not only the chiefs' bodyguards but a permanent civilian population trained to arms, swelled no doubt by refugees from the surrounding countryside.

Fortifications of this kind were highly effective against other Britons, but proved inadequate to withstand the skill and discipline of the Roman troops. The fortress was evidently taken by a rapid and concentrated assault, as there are no signs of any entrenchments for a long siege. The main attack was probably delivered at the eastern end, where the defences were slightly less formidable than at the western. Skeletons of defenders now to be seen in the Dorset County Museum show the deadly effect of the legionaries' swords; one skull has a hole made by a throwing-spear, and in one spinal column is wedged a *ballista* bolt. Some newly-built huts in the innermost bay of the eastern entrance, just outside the actual gates, were burnt down during the battle, and some of the defenders were buried in hastily-dug graves among their ashes.

After the fall of the hill-forts, serious resistance was at an end. The defences were dismantled to prevent their being used again. The treatment of the inhabitants seems to have varied. In the case of Hod Hill, they were ejected, but a civilian population went on living in Maiden Castle for a quarter of a century.

So began in Dorset the Roman rule that was to last for the next three and a half centuries. After the initial battles, there is no record of any serious disturbances in the territory of the Durotriges such as occurred in other parts of the country, and Roman 'pacification' seems to have been thorough and effective.

II. From Military to Civilian Rule

The first generation of Roman rule in Britain was largely taken up with the subjugation of the still uncooperative tribes of the north and west. Dorset appears to have been left with a number of garrisons in newly constructed forts or camps to keep the peace for about twenty years until a new generation of Durotriges had grown up who could be granted self-government within the framework of the Roman province.

Two fairly small Roman forts have been identified in Dorset: at Hod Hill, near Blandford, and Waddon Hill, near Beaminster. At Hod Hill, a ten-acre fort was built into the north-western corner of the captured British hill-fort, using the original native ramparts on two of the four sides. This is unique in Britain, and was doubtless the reason why the native inhabitants were turned out. As usual in a Roman fort or camp, it was nearly rectangular in shape, but had gates only in the east and south sides, those built by the Roman engineers, apart from a small water-gate cut in the north-west corner. The main streets formed a T-shape: a *via principalis* running north and south through the centre, and a *via praetoria* from the centre to the east gate. The Roman defences consisted of a turf and chalk rampart, which would have been topped with a wooden palisade, with three ditches in front. The main gates were timber framed; the south gate with a single tower above it, and the east with two flanking towers; and adjoining each was a platform for a *ballista*. The only approach up the steep slopes on the north and west sides was a causeway of earth and beaten chalk crossing the original British defences to the water-gate. Inside, the buildings were timber framed with wattle-and-daub filling, and comprised a headquarters building, houses for cavalry and infantry commanders, barracks, stables, a kit store, a granary, latrines, a hospital, and various sheds. Water tanks were cut into the chalk and were lined with clay and boards; the water had to be brought up from the river below, doubtless a weary chore for the troops, as there is no spring on the hill. The garrison was a relatively large one of about 480 legionaries and a somewhat smaller force of cavalrymen.

Hod Hill was abandoned by about A.D.51, following a fire which destroyed three buildings. By this time the situation in the area must have been sufficiently stable for reconstruction of these and continued occupation of the fort to be deemed unnecessary. Waddon Hill was probably abandoned about ten years later, demolition here being carried out carefully and the site being left in a tidy condition. A full assessment of the plan

of this fort must await the final report on the excavations there, but it is evident that the eastern side, where the approach is fairly easy, was more heavily fortified than the other three, which were built above steep slopes.

What appears to have been a small fort or signal station was discovered in 1970 on Black Down, Winterborne Steepleton. It has been suggested that further investigation may bring to light a complex Roman signalling system in Dorset, as Black Down is within sight of Lewesdon Hill above the Waddon Hill fort, and Abbotsbury Castle, where the remains have been found of a suspected Roman signal tower. If this should be the case, it would support the supposition that Dorset was policed from a number of small forts close enough for mutual aid when necessary.

However, the whole question of the pattern of Roman military rule in the area has been complicated by the discovery in the last few years of an astonishingly large camp or depot at Lake, near Wimborne. Indications are that this covered an area of about 40 acres, of which at the time of writing only a small section, principally in the south-west corner, has been excavated. The original defences seem to have comprised a single ditch and bank, and an aqueduct and causeway entered the site from the south. At this stage it may have been a large temporary camp, perhaps Vespasian's base of operations in his campaign against the Durotriges and possibly against other tribes in the south-west too. Later two more ditches, a second bank and an inner turf and soil rampart were added; it may now have been a semi-permanent base or fortress. At some time after A.D.54, all these defences at the south-west corner were razed, the ditches being filled by the levelling of the banks and rampart, but a smaller fort seems to have been constructed within the former site.

Eventually the time came for a civil administration to take over. In Britain as a whole, the Romans generally allowed individual tribes to retain their identity and unity, using them as cantonal divisions for local government. There is some evidence to suggest, however, that the Durotriges were split into two sections, the northern with its capital at Ilchester (Lindinae) in Somerset, and the southern centred on Dorchester (Durnovaria). This may have been done for geographical reasons, since the two areas were separated by the Blackmore forest; or perhaps, if it happened soon after the invasion, as a precaution against the possibility of a unified revolt by the tribe which had offered such fierce resistance.

Within the framework of a Roman province, local government devolved upon the towns, which fell into three categories. The *colonia* originated as a settlement of discharged legionaries, who were Roman citizens, lived in the town, and possessed land outside it. The *municipium* was a community of native inhabitants on whom Roman citizenship had been bestowed. There are no examples of either of these in Dorset. The third type was the *civitas*, or tribal capital, exemplified by Durnovaria (Dorchester). The inhabitants were not all Roman citizens until A.D.213, when citizenship was granted to all free-born individuals in the Empire. However, the leading members of the community would undoubtedly have been rewarded with citizenship for their services as magistrates.

The leaders of each tribe would elect annually four principal magistrates or *decuriones*, who would almost certainly have been made Roman citizens on entering office. There were two senior magistrates, or *duoviri iuredicundo*, and two junior, the *duoviri aediles*. The senior pair were responsible for the administration of justice, though important civil cases, criminal cases involving the death penalty, and all cases involving Roman citizens, were dealt with by Roman courts, presided over by the Governor or his deputy. The junior pair looked after public works, including the upkeep of public buildings and the provision of water supplies. All four magistrates were expected to celebrate their election in Roman style, with games, entertainments, and gifts to the community, such as improvements to the public baths or a new stage for a theatre.

The magistrates were answerable to the Romans for the collection of taxes, which were assessed by the Roman *censitores*, and revised every five years. Taxes were levied in both money and kind; the former were paid into the Imperial treasury, while the latter went to the Imperial services for which they were raised. Corn, for example, was usually delivered to the army authorities, while horses were required for both the army and the postal services.

Each tribe had to maintain the roads in its territory, and provide horses, coaches, wagons and posting stations for the postal service, although the latter was purely for government use. The tribe was further expected to furnish a regular quota of army recruits.

It is thought that before the conquest each Celtic tribe had been divided into areas for ease of control, and this practice was also followed by the Romans, so that a number of smaller centres existed to perform on a local scale some of the functions of the tribal capital. It is not known where such centres were in Dorset, though it has been suggested that two were at Vindocladia (probably Badbury) for East Dorset, and Wareham for Purbeck.

III. Durnovaria

The only known Romano-British walled town within the boundaries of present-day Dorset was Durnovaria, or Durnonovaria, on the site of what is now Dorchester. Unless, as is likely, there was a civilian settlement attached to an early fort which has not been located, the town was probably founded in about A.D.70, side-by-side with the old Durotrigian community of Maiden Castle, whose inhabitants gradually deserted it for the new Roman settlement. The name Durnovaria was formerly thought to come from two Celtic words, *dwr* (water) and *var* (way), signifying that it was the place where the main road from Londinium (London) to Isca (Exeter) crossed the river Frome; but this meaning is now considered doubtful, and a number of alternatives have been put forward. The north-south road between Ilchester and Weymouth (the latter of little importance then except as a harbour) also passed through the town.

The area of Durnovaria was about 70 to 80 acres, and in shape the town was roughly a quadrant, the west and south sides almost straight, while the Frome flowed around the north and north-east side. At first the town was probably undefended, but later, perhaps around A.D.200, it was surrounded by an earthen bank and ditch, the latter triple in places. Possibly up to a century later, the bank was reinforced by a stone wall, at least on the south, west and east sides. The line of the bank can be traced today by the avenues known as the Walks; and until these were laid out in the eighteenth century, the Roman earthen banks had remained standing. A fragment of the original wall can in fact still be seen at the top of West Walks. It was built up against the front of the earthen bank, with facings of coursed flints and limestone slabs, and filled in with a core of limestone and flint rubble, which is all that now survives. It rested on a foundation of flint and puddled chalk, and was about eight feet thick and probably at least twenty feet high to the level of the sentry walk. No evidence has yet been found of a wall on the north side bounded by the Frome, and it is possible that the river, which at that time would have been broad and marshy, was considered a sufficient barrier.

The total number and location of gates to the town is not known exactly, but three of them would have corresponded roughly with the present London, Weymouth and Bridport exits, and of these, there are indications that the west gate stood slightly to the south of the present High West Street, presumably approached by a causeway across the ditch. There was probably a gate at the south-east corner, as there is some evidence for a secondary road leading off in the direction of Wareham.

The street plan seems to have been mainly a grid of north-south and east-west streets intersecting at right angles. The principal street, or *decumanus maximus*, would have followed a course approximating to, but not identical with, the present High East and West Streets, and in the centre would almost certainly have been a market place, or *forum*, and town hall, or *basilica*, perhaps close to the modern Cornhill. Remains of Roman streets have been found in various parts of the town, and

as an example we may take a 50-foot stretch uncovered in 1949, running almost parallel with Somerleigh Road. It was 20 feet wide, with a gravel and flint surface resting on two layers of the same materials separated by an intermediate layer of rammed chalk, and on the east side there had been a gutter.

Despite the difficulties of systematic excavation beneath a modern town, traces of the Romano-British cantonal capital come to light nearly every time the foundations of a new building are dug: remains of houses, coins, pottery, glassware, trinkets, and fragments of furniture. Particularly worthy of mention is the magnificent hoard of more than 22,000 coins found in 1936 on the site of the present Marks and Spencer store, and now in the County Museum. A whole burial ground was unearthed on the site of Thomas Hardy's house at Max Gate, outside the town in accordance with Roman practice, and an even bigger one, accompanied by remains of timber and stone mausolea, has been found in recent years on the Grove Trading Estate at Poundbury.

The houses whose remains have been discovered generally conform to the roughly north-south and east-west alignment of the street plan, and follow the usual pattern of the Roman town house: a range of rooms served by a corridor or verandah along one side, sometimes with wings enclosing a courtyard. An unusually large proportion of them possessed tessellated mosaic floors, of which about fifty have so far been found, and at least two had a hypocaust, the Roman system of heating a room by means of hot air ducts under the floor. Evidently Durnovaria was a prosperous community, at least in the third and fourth centuries from which most of the substantial buildings that have been excavated date, with a good number of citizens who could afford luxuries and creature comforts. It is believed that the town may have been the home of a 'school' of mosaicists, whose distinctive style is recognisable in floors found at Fordington and Durngate Street, and also in some villas in the countryside, such as Frampton.

The most remarkable house discovered is that at Colliton Park, excavated just before the Second World War, and on view today behind County Hall. It evidently belonged to a man of position and wealth, and lay in the north-western corner of the Roman town, away from the main concentration of buildings, to which it was linked by a cobbled path. The site had not been built over since the Roman period, as mediaeval Dorchester was a considerably smaller place than its predecessor.

The house was begun at about the start of the fourth century, and added to later. It consisted of two ranges of rooms, adjoining to form a rough L shape. The western range contained the living rooms, all with tessellated floors, and one with a hypocaust. The southern range, which had a verandah along its northern side, contained a heated room, another with a niche for a household shrine, a kitchen, and what was probably a servants' room.

The walls were of flint bonded with limestone, and were plastered inside and out and painted in bright colours, varying from room to room indoors, but a uniform deep red on the outside. The roof was of stone slabs, except over two stokeholes adjoining the hypocaust rooms, which appear to have been covered with red tiles.

The house had a drainage system with channels designed to facilitate the washing of the floors, which were built at varying heights, descending to a main channel leading to a sump outside. To the rear of the living block, on the west, is a stone-lined pit showing traces of fire, which could possibly have been a lime kiln. At the front of the house was a well, and the path leading away eastward, presumably to join some street leading to the centre of the town. This path was only four and a half feet wide, and was evidently not used by wheeled traffic.

The house seems to have been abandoned by the end of the fourth century, a time at which most Romano-British towns were in decline as the grip of the Empire loosened in the face of internal lawlessness and raids from abroad. After the owners left it may have been occupied by squatters, who knocked holes in the floors and even buried dead infants underneath. The buildings show some evidence of deliberate destruction, possibly a result of the vandalism attracted by empty properties throughout history.

No trace has yet been found of the public buildings which Durnovaria must have had, such as the *basilica* already referred to, and the public baths implied by the aqueduct leading to the town. There is, however, one remarkable exception. A Roman town generally provided a circus or amphitheatre where games could be staged for the amusement of its inhabitants; we have already seen that the cantonal magistrates were expected to celebrate their accession to office by paying for public entertainments. Just to the south of Dorchester, beside the Weymouth road, stand the grass-grown banks of Maumbury Rings, one of the most impressive amphitheatres in England. Originally a Neolithic sacred enclosure, probably dating to before B.C. 2,000, it was converted by the Romans into an arena. The dimensions are 345 feet by 333 outside and 218 feet by 163 inside. The floor was lowered and covered with gravel, and the face of the bank was revetted with timber, behind which were probably tiers of wooden benches on the slope. A gangway ringed the arena floor, and in the centre of each side there was a recessed chamber above which would have been a box for important persons, including the *praetor*, or master of ceremonies. At the end opposite the entrance a square enclosure or den was cut in the natural chalk where animals could have been confined for combats between men and wild beasts. The amphitheatre would have held up to ten thousand spectators, though as it was an adaptation of an already existing structure actual audiences need not necessarily have reached this figure.

Durnovaria was supplied with water by a twelve-mile aqueduct, the course of which can still be traced over much of the final third of its length. An open channel seven or eight feet wide and three feet deep was cut in a levelled terrace along the hillsides, and fell at an average of two feet per mile from its probable intake some miles up the Frome at Notton, where there is a mill race whose head may represent approximately the original starting point of the aqueduct. The terrace and sometimes the channel itself can be seen most clearly west of Poundbury and up Fordington Bottom. The terminal point in the town has not yet been discovered, though one theory suggests the site of the present public gardens; at any rate, a cistern placed near the west gate, the highest point of the town, would have made possible a system of piping fed by gravity to supply the public fountains from which most householders would have drawn their supplies, and for the presumed, though still undiscovered, public baths. It was not usual in Roman towns to pipe water to individual houses, though a large conduit found at Colliton Park may have been a branch of the main supply tapped by the adjacent buildings. There were also some wells in the town for private use.

It has been suggested that the aqueduct served also as a canal, in conjunction with the Frome, for the carriage of goods, including perhaps stone and lime from Maiden Newton and bricks from near Southover; but the narrowness of the channel and the sharpness of some of its bends would have raised problems.

As well as an administrative centre, Durnovaria was a market centre for the surrounding countryside, and an important road junction and staging post. There is some evidence for small-scale industry being carried on. A hearth in South Street and a late forge at Colliton Park suggest lead and iron working, and it is possible that the Somerset Ham Hill stone used for sarcophagae at Poundbury and also for general building purposes was finished off locally. The existence of a tilery is suggested by five terracotta antefixes, now in the County Museum, moulded with a winged head design and probably used as finials with ridge tiles. All but one are from the same mould, and they are not a common feature. A hoard of bronze coins found at Poundbury included die-struck copies of official issues probably made either on the spot or in the town.

The density of settlement within Durnovaria is not known, though the Colliton Park area seems to have been spacious and lightly built over. There was some 'ribbon development' outside the walls along the eastern and south-western approach roads.

IV. Villas and Mosaics

Outside Durnovaria, the rural population, engaged almost entirely in agriculture and stock-raising, lived in small settlements or isolated huts; but more prosperous Britons began to

copy Roman ways and build themselves villas. There are proportionally fewer of these in Dorset than in some other parts of the country, reflecting the area's apparent backwardness compared, for example, with the northern section of the Durotrigian territory centred on Lindinae (Ilchester).

Villas in Britain were not usually country residences erected purely for pleasure, though a few such did exist; nor were many of them likely to have been built by Roman immigrants, but rather by native Britons anxious to demonstrate their social standing by adopting a Romanised way of life. The owner of a villa was frequently a successful farmer or merchant, and the villa itself would be the centre of a profit-making estate. The dwelling house would therefore be accompanied by a barn for grain, animals, tools, and slaves or employees, the whole enclosed by a surrounding wall and possibly a ditch.

In the humbler villas, dwelling house and barn were sometimes united in one building, divided by two rows of posts into a central nave and two aisles. Partitions could be inserted to cut off rooms at the ends or sides, and these were sometimes fitted with tessellated floors and hypocausts. Of the villas with separate dwelling house and barn, the earlier and simpler were only rectangular cottages entered by a door in the middle of one side. Later and more elaborate examples would have corridors and a facade, the latter generally consisting of a verandah with a door in the centre and a projecting wing at either end. In some cases the space enclosed by the wings was enlarged to form a courtyard. Other refinements might include a second storey, a separate bath suite, hypocausts, and tessellated floors. The latter are probably the best known form of Roman relic in this country. They were constructed of a mosaic of small stones or *tesserae* in various colours, laid out in classical designs with a varying degree of expertise and artistry.

Around the villa would be its fields, which were large and open, making for more efficient exploitation than the small enclosed fields farmed by the peasantry. Both arable and stock farming were practised, the latter at present thought to have increased in importance during the Roman occupation. The livestock of a villa usually comprised horses, cattle, sheep and pigs, while geese were often kept, with dogs and cats as domestic pets. The estate would consequently be able to supply its own milk, cheese, leather and tallow, as well as bread made from the grain grown in its fields and timber from its woods, while the women would do much of their own weaving. The chief items which had to be supplied from outside, apart from luxuries, were iron articles and pottery. All the staff of the estate were normally accommodated in the servants' quarters of the villa.

The two best known villas excavated in Dorset are at Maiden Newton and Hinton St. Mary. The former, named 'Frampton villa' by its discoverer, Samuel Lysons, was found in 1794, and subsequently covered over again. It stood on an L-shaped artificial platform which raised it above the low-lying, floodable land on the right bank of the Frome, and had at least six tessellated floors, one featuring the Christian *Chi-Rho* monogram; while another, a particularly elaborate example, had a central medallion, unfortunately damaged, of a horseman spearing a lion-like creature, perhaps Bellerophon and the Chimaera, and two surviving panels with scenes from the story of Venus and Adonis. The whole design was enclosed by guilloche borders, the main border showing dolphins and cormorants emerging from a mask of Neptune with a seaweed beard and hair intertwined with lobster claws. In a pair of flanking panels were couplets describing Neptune, the texts of which had been bungled by an illiterate artist. The Neptune design as described bears a striking resemblance to that in the apsidal section of a floor found in 1927 at Fordington, now in the County Museum, lending support to the theory of a Durnovarian school of mosaicists mentioned in the last chapter.

The choice of site on land liable to flooding is strange, and this, coupled with the absence of other raised platforms for kitchens, bedrooms and outbuildings, has led to one suggestion that the building may not have been a villa at all.

The villa discovered in 1963 at Hinton St. Mary was a substantial house which flourished in the fourth century A.D. The main buildings formed three sides of a rectangle, the fourth being enclosed by a ditch. In the best preserved wing was the *triclinium* or dining room, with a small annexe, containing a magnificent floor, which is now in the British Museum. The whole floor measures 28ft. 4in. long by 19ft. 6in. wide, and the smaller section, that of the annexe, features a central roundel with a scene of Bellerophon, mounted on Pegasus, slaying the Chimaera, and two flanking rectangular panels showing stags pursued by dogs against a background of trees. The larger section contains a picture believed to represent Christ, and if this is so it is the earliest portrayal of him so far known to have been made in Britain. This is in a central circle with a wide border formed of bands of wave, plait, fret and guilloche, and shows a fair-haired, clean-shaven man with dark, penetrating eyes, draped in garments of orange, white, black, grey and purple. Behind his head is the *Chi-Rho* monogram, and on either side is a pomegranate, symbolising eternal life. In quarter-circles at the corners of the mosaic are heads of four red-haired young men in red cloaks who may be the four evangelists, while semicircles between these corner panels contain further hunting scenes, except the one immediately below the central figure, which is filled by a large, spreading tree, possibly the tree of life.

Close to this floor was found an iron window grille, one of the most complete discovered outside Italy. Its function was to protect the window opening, which may or may not have been glazed.

A villa originally discovered in 1818 at Halstock had a floor with a geometrical design in blue, red, black and white *tesserae*. According to the description, a square was set diagonally within a broad border, and inside the square was a circle, which in turn enclosed a star-shaped pattern with a medallion in the centre, on which, as in each of the spaces between the circle and the square, was a design resembling a helmeted head. Excavation on the site in 1971 revealed two more geometrically patterned floors, one of which has certain details in common with a mosaic found at Olga Road, Dorchester.

A villa of relatively simple type was excavated in 1876 and 1965 in the north-western corner of the parish of Thornford. Following the standard winged plan, it appears to have had rough limestone walls about four feet high supporting a timber framed wattle-and-daub superstructure. Remains of six rooms have been found, one with a simple tessellated floor. A floor found at Lenthay Green, Sherborne, of which the central portion is now set in the floor of the dairy at Sherborne Castle, shows crudely executed figures of Apollo, with a lyre, and Marsyas, with a double flute. A villa at Hemsworth, which is unusual in that its employees appear to have lived in a nearby village rather than in servants' quarters at the villa, had a floor showing Venus surrounded by dolphins. Other villas with notable mosaics have been discovered at Wynford Eagle, Fifehead Neville, Newberry Terrace, Weymouth, and Preston, Weymouth.

V. Country Life Outside The Villas

Apart from the villa system, farming continued in the Celtic tradition, perhaps with small tenant farmers renting their holdings from a landlord, and living in small villages or isolated farms or huts. The remains of such settlements have been found all over Dorset, and are particularly abundant on the chalk uplands, such as Cranborne Chase. The huts of the period, flimsy and unstable structures which often had a short life, were usually rectangular in plan, though some earlier examples might be round, built of stone or wattle, and generally not more than twenty feet across. In addition to dwelling houses and farm buildings, a farm or village in a corn-growing area would have ovens, constructed on the hypocaust principle, for drying the grain not required for sowing, for British farmers frequently gathered their corn green and threshed it under cover. Once dried, the grain was stored in pits lined with basketwork and covered over. Both pits and ovens needed frequent renewal, so that a site occupied over a long period yields them in deceptive numbers. The area covered by the farm or village was generally enclosed by a ditch or bank.

One of the best examples of such a site was excavated near Woodcutts in 1884 by General Pitt-Rivers. Covering an area of four acres, it was approached by a twin-ditched roadway from the south-east and another from the north-west. Occupation lasted for almost the whole period of Roman rule, and three successive stages in the development of the settlement can be traced. It had already been inhabited for a generation or two before the conquest, and at this stage comprised a circular enclosure 300 feet in diameter, bounded by a broken ditch. Inside were a large number of pits and some working hollows for winnowing. There can have been room for only a few houses, traces of which have been lost, and it is possible that Woodcutts began as a single farm.

Between A.D.150 and 175, the whole site was enlarged, and three new ditched and banked enclosures were added. The largest, which contained a well 136 feet deep, was probably a pen for cattle or sheep. Of the other two, one contained two corn-drying ovens, and the second had what may have been a plasterer's floor. Pit storage was dying out at this time. Outside the settlement are two mounds, one of which seems to have been for burial purposes.

A complete reconstruction took place between A.D.310 and 325. New ditches and banks were built, cutting across the lines of the old. The new plan was of a main circle 280 feet across, and three smaller enclosures. The main circle contained a new well, at the bottom of which Pitt-Rivers found a bucket of the period, though he was unable to find water in either well. The three outlying enclosures yielded no evidence of occupation for dwelling purposes, and seem to have been entirely for farm work. In two of them traces of burials were found, while the third contained a corn-drying oven. The population of the settlement at this time may have amounted to a few dozen. 130 yards to the south-east, over the ditches of the approach road, was erected at this period a small but solid earthwork resembling an amphitheatre, 110 feet by 140, with an internal area 50 by 70 feet.

Woodcutts seems finally to have been abandoned between A.D.355 and 370, at a time of insecurity and increasing lawlessness as Roman rule in Britain crumbled.

Pitt-Rivers' excavations yielded much valuable information about the life of the Cranborne Chase area during the Roman period, and subsequent evaluation of the facts has revealed an unusual situation in this district. We have already seen that villa sites are rarer in Dorset than in many other parts of the country, and in Cranborne Chase they are virtually non-existent, though there are many farms and villages. A comparison of the average number of storage pits with the number in use on pre-Roman farms on similar soil seems to indicate that the Cranborne Chase farmers were deprived of about three-fifths of their produce, as opposed to the standard taxation rate of one-tenth or one-twelfth which prevailed elsewhere. The people of this area must have lived at a very low level of subsistence, and have been serfs rather than ordinary tenant farmers. The most likely explanation is that they were punished in this way for the severe resistance which they had offered to the invading army. It has been suggested that the Chase was an Imperial estate, in which the peasants worked to produce grain, meat and hides directly for the central Exchequer, which would account for the absence of the independent estates represented by villas. At Woodyates, where large numbers of coins were found, there could have been a military station for troops guarding the estate.

As mentioned earlier, stock farming is thought to have increased at the expense of arable during the Roman period. Evidence of this appears in the Chase, where many agricultural villages became deserted in the later third century, and existing field systems were replaced in some instances by systematic enclosures, of which we have seen an example at Woodcutts. This appears to have been a deliberate piece of government economic planning. By the end of the fourth century, British cattle and sheep were famed for their quality, and wool featured as an important item in the province's economy.

A different type of village site in another part of the county is presented by the settlement at Woodhouse Hill, Studland, excavated between 1952 and 1958. Two groups of buildings, which may not have been the only ones on the site, were unearthed on an east-facing slope overlooking Studland Bay. The first group, on the brow of the hill, had consisted originally of a round hut of post-and-wattle construction, and a second, probably similar, both of the first century, which would have been occupied at the time of the conquest. In the middle of the first century, the first hut was reconstructed in rectangular form, and then enlarged by the addition of lean-to extensions on three sides. The whole seems to have collapsed in the eighties of the same century. Finally, overlaying both the original huts, two substantial rectangular buildings or cottages, up to 35 feet in length, were erected in the third and fourth centuries. These were built of cob on foundations of rubble, with internal roof supports of timber, and housed both men and animals.

The second group of buildings, 25 yards to the south, likewise comprises cottages built over primitive first-century huts, one of them with a lean-to byre to allow the human inhabitants to use the whole interior of the cottage.

The overall picture at Studland is of a gradual enlargement and improvement of the dwellings of the peasantry during the Roman occupation. There was, however, no question of luxury for such people, whose standard of living remained close to basic subsistence level. They fed themselves by growing corn and rearing cattle, pigs, sheep and poultry, occasionally gathering shellfish from the shore nearby, and hunting with the sling, especially earlier in the period. They did some smelting of bronze in the first century, and later made simple iron tools. Objects found on the site give little evidence of Romanisation: some pottery of Samian type; a few brooches, all but one early and of native type; and some coins, mainly of the third century. The chief tangible benefit which the mass of the humbler peasants derived from the Roman occupation was the long period of peace which it brought, at least in this part of Britain.

VI. Roads and Communications

The success of the Romans in governing conquered territories derived from their all-round efficiency, far surpassing anything dreamt of by native rulers, which in Britain enabled them to unite into one province under a single system of administration what had previously been an island divided into the territories of numerous rival tribes.

Efficient administration demands efficient communications, and the network of roads which the Romans laid out across their Empire constituted as revolutionary an advance as the railways in the nineteenth century and the aeroplane in the twentieth. These roads, among the most easily identifiable and impressive relics of the era, varied in standard from elaborately engineered trunk roads linking the central government in Londinium with the cantonal capitals, to lesser roads serving a similar purpose within the cantons, and mere tracks for local use. The first class roads were made of rammed gravel on a foundation of large stones, were up to 25 feet wide, and frequently raised up in the form of a causeway between ditches. With characteristic Roman geometrical simplicity, they followed wherever possible a straight line from one landmark to the next. They would often change direction at the top of a hill, and did not always meet with absolute precision, a fact instanced by the double bend in the Badbury-Dorchester road on a hill-top near Puddletown.

The expense of maintaining roads fell on the tribes through whose territory they passed. For roads laid out by the central government, the canton was required to provide materials and labour gangs, who would work under the supervision of Roman military engineers, for the primary function of the roads was strategic.

There were three main Roman roads in Dorset. The principal south-western trunk road from Londinium to Isca, passing through Durnovaria, entered the county at Woodyates in the north-east and left it at Hunter's Lodge in the west. It was crossed by two transverse roads, that from Weymouth to Ilchester, which has previously been mentioned, and a second, from Hamworthy to the vicinity of Ashmore. The junction with this second road gave some importance to Badbury, identified by some

scholars with Vindocladia, though as a settlement it never seems to have reached any great size. Of the large network of secondary roads and tracks which must have existed to serve rural settlements, little trace has been found, but the three main roads can still be followed for much of their length.

The road from Woodyates to Badbury, which follows the same course as the present Salisbury-Blandford road for a short distance after it enters the county, is most dramatically visible in the length known as Ackling Dyke. Here the road itself is no less than 13 yards wide, with the cleared belt of bank and ditch on either side extending the overall width to 30 yards. From Badbury to Dorchester the road runs in a more or less straight line, and is entirely disused apart from a few short stretches followed by minor paths; traces of it are visible in places, such as Bere Down, Tolpuddle, and Puddletown. West of Dorchester, its line is still followed in part by the present-day Axminster road. The Dorchester-Weymouth road, extending from north to south in a straight line, is followed almost entirely by the modern road, and that from Dorchester to Ilchester is used for much of its length. The other transverse road is less well preserved. Between Ashmore and Badbury it is traceable only in the forested area of Cranborne Chase, and from the air in the ploughed fields near Badbury itself, while the southern section is visible in only a few places, though where it can be seen it is impressive; in a stretch north of Upper Merley Road it is up to 15 yards wide. After Upton it is practically lost, though a short length was discovered in 1930 in Carter's Avenue, Hamworthy. A feature of this road which long remained a mystery was its eastward deviation to Lake, near Wimborne, which now seems to be explained by the major military site discovered there.

Certain of the trunk routes were used by the Imperial post, an elaborate service of coaches and wagons operated, as has already been mentioned, at public expense for government use only, the burden of its upkeep falling on the cantons through which it passed. These roads were provided at twelve-mile intervals with *mutationes*, or changing-stations for horses, and *mansiones*, which were rest-houses for travellers. The local communities were expected to provide and feed horses and maintain the rest-houses, furnishing them with food and fuel. In cantonal capitals, the *mansiones* were usually large and commodious, with baths attached; while posting-stations in the country tended to develop into small settlements with rest-houses, baths and shops.

VII. Commerce, Industry and Art

Before the Roman conquest, trade between Britain and the Continent was extremely limited. The island supported itself in food and necessary manufactures, and a trickle of exports took place, as the ancient geographer Strabo records, including such items as corn, cattle, hides, hunting dogs, lead, silver, gold, tin and iron. Luxury goods were not manufactured in large quantities, and so trade in the reverse direction consisted mainly of luxuries from Gaul, purchased by a small number of wealthy Britons.

With the coming of the Romans, traffic between Britain and Gaul naturally increased. The new rulers began to exploit the British mineral deposits, which as in any Imperial province became almost exclusively state property. Silver, produced from the island's abundant lead deposits, was used extensively in the minting of coinage.

Meanwhile the trickle of Continental luxury goods into Britain swelled into a flood. For the tribal aristocracy, living in Roman style became a social and political necessity, a distinguishing mark of culture and civilisation. Foreign traders swarmed into the country during the latter part of the first century, and a steady drain of money out of Britain began in exchange for such items as Italian wine, Spanish sauces and olive oil, metal goods such as saucepans, jugs and lamps from Italy and later from the Namur area; and one of the best-known products of the Roman Empire, the red-gloss pottery traditionally, though incorrectly, called Samian ware, which turns up on virtually every site excavated. It was imported in large quantities, and was imitated by the island's own flourishing pottery industry.

During the second century, imports gradually fell in number as home industry began to supply many items which had hitherto come from abroad. In the third and fourth centuries came a decline in Romanised town life, the reasons for which are not yet understood, and the demand for imported goods dropped still further, with the result that a stable balance of trade between imports and exports was at last achieved.

Internal trade was at first carried on chiefly by means of *fora* or markets in the towns. As time passed and the countryside increased in prosperity, local fairs began to be held at intervals, where villa owners could sell their surplus products. Durnovaria would naturally have been the trading centre for the southern Durotriges. Blandford, whose appellation of "Forum' was attached only during the Middle Ages, was not a Roman town.

Dorset was in Roman times, as today, primarily a farming area, without heavy industry. It did possess, however, two minerals of especial interest: Kimmeridge shale and Purbeck marble. Bituminous shale from the Kimmeridge clay deposits, used locally as fuel, was also employed extensively in the manufacture of jewellery, decorative trays, and furniture, as well as spindle-whorls, used to weight the spindle for the hand-spinning of woollen thread. Large numbers of bracelets were made from it, shaped on lathes with flint tools, and the waste cores from these were found by later generations and thought to be a form of coinage, receiving the name 'Kimmeridge coal-money'. When freshly quarried, the material is more like slate than the worn, leathery objects to be seen in museums. Cut into panels, it could be used for veneering, or shaped into flat dishes and trays. Part of a shale panel, plaque or tray was found at Corfe Castle in 1964, and is now in the Red House Museum, Christchurch. It is about $\frac{1}{4}$ inch thick, bevelled at the edge underneath, and on top has a border of overlapping semicircles and part of a central rectangle with a similar border. The complete panel would have been about 21 inches by $17\frac{1}{2}$ in size. Scratch marks on the upper side suggest it may have been used as a working surface. The manufacture of furniture was more difficult and intricate, as the shale tends to split in three directions, and as it needed regular oiling to preserve its condition, such furniture must have been expensive both to buy and to maintain. Table legs with claw-shaped feet and conventionalised animal heads and forequarters were widely distributed in southern Britain, but were not common. Sites where they have been found include Colliton Park in Dorchester and Corfe Castle, and examples may be seen in the County Museum.

The shale industry dated from an early phase of the pre-Roman Iron Age, and workshops existed in a number of places, including Gaulter, near Kimmeridge, Gallows Gore at Worth Matravers, and Encombe, near Corfe Castle. There are also indications of an industry on Green Island in Poole Harbour.

Purbeck marble was worked in the area between Tyneham and Swanage, from the surface and from shallow quarries. The industry started after the Roman conquest, and flourished until about the middle of the second century. The stone was widely used for mortars, or mixing-bowls, where a very hard surface was required, and the greyish-white speckled type was made into tablets for inscriptions, the lettering usually being picked out in vermilion. The tombstone of Carinus found in the porch of Fordington church, Dorchester, is an example of such an inscribed tablet. The marble was also used for decorative panels and mouldings, and for lavers, large bowls used in public baths. After about A.D.150, the industry declined, due to the availability of other types of freestone with more even weathering qualities, but there was a partial revival in the second half of the fourth century, when output was limited to small mortars. The prosperity of the marblers of the first century is attested by the large proportion of imported pottery at a site at Langton Matravers, and another marble-working settlement which was occupied right through to the late fourth century has been found at Gallows Gore, Worth Matravers, which as we have seen was also a centre of the shale industry.

The ordinary Purbeck limestone was also quarried, and a small Roman altar discovered at Kingston in 1960 is of this material.

An industry which closely parallels one of the present day was the manufacture of pottery around Poole Harbour. A kiln or oven excavated in 1951 at Cleavel Point on the Ower peninsula gives an idea of this industry and its products. It consists of a dome of baked clay ten inches thick, and two clay flues on opposite sides. A considerable quantity of pottery was discovered, well-finished and burnished, but reddish-brown in colour instead of the normal black, and of a crumbly, sandy texture due to mis-firing. The fragments included pieces of large cooking-pot rims, pie-dish rims, sides of vessels with a lattice pattern, flat rims, and a countersunk handle following pre-Roman tradition. Several rough, hand-moulded clay props, and many fragments of rough pottery, show that the potters boiled sea-water to make salt when not engaged in making domestic wares. The date of this particular kiln is not known, but the types of pottery represented suggest that production went on in this area throughout the Roman period.

Some way inland at Corfe Mullen, a kiln was excavated in 1933 which operated for a short time around A.D.50, perhaps for the benefit of the army base at Lake. There is also evidence of a later industry at Corfe Mullen, dating from about the end of the third century, and producing the common black-burnished ware. It is believed that the Dorset potteries supplied some of their ware to the army from the second century onwards, as much pottery resembling their products has been found in the military zone of northern England and Scotland.

As well as local products, New Forest ware was used in Dorset. Its period of production lasted from the late third to the late fourth century, and in form and colour some of it imitated the reddish Samian ware.

The production of salt at the Cleavel Point kiln was probably characteristic of the association of the two industries around Poole Harbour. The juxtaposition would have been convenient, as clay was needed to produce the equipment for the as yet imperfectly understood process of salt-making, and fuel was also required for both industries. There was a second group of salt-works along the coast from Kimmeridge Bay to Tyneham Cap, using shale as fuel, and isolated evidence of salt working has been found at Worbarrow Bay, Osmington, and Jordan Hill, Weymouth.

Decorative art has already been touched upon when discussing shale furniture and mosaic floors. Before the conquest, the Britons were a race of gifted and original artists, but with the coming of the Romans the native style gave way to imitation of the work of the conquerors, being generally reduced to the mechanical copying of standard patterns. Imported metal ware and pottery were decorated with formal patterns or scenes from classical tradition, occasionally reaching a very high technical standard, as in the intricately figured Bacchic dance cut on a glass bowl found at Colliton Park, Dorchester. Also of interest is a small gem of cornelian, originally part of a ring, and bearing an intaglio figure of a marine centaur, found at Puncknoll in 1968. The centaur is blowing a wind instrument, probably a shell, and carrying a trident.

Roman sculpture generally followed Greek forms, without attaining the same inspiration and beauty. An example found in Dorset is part of a limestone relief of a horseman ploughed up on Whitcombe Farm, near Dorchester, in 1963. It is the centre portion of a slab, 27½ by 23 inches and 8 inches thick, and shows a bearded, bare-headed rider proceeding to the right but with head and shoulders turned to face the onlooker, wearing a short belted tunic and a cloak flying out behind him in curious vertical folds. He is armed with a thick lance, a shield, and a baldrick over his shoulder for a sword on his left side. The horse, a short-maned stallion with a prominent eye and nostril, ear pricked forward, and dropping tail, is guided by a neck rein. The work is rough, but certainly has vitality.

VIII. Coinage

For some time before the conquest, native British coins had been supplemented by a large number of imported Roman Republican *denarii*. The Durotriges had silver and bronze coins without inscriptions, whose designs were third-hand imitations of Greek originals, which had developed into a meaningless medley of lines and dots. After the invasion, it appears that the British tribes were forbidden to continue minting coins, and so until the end of the first century the old coinage still circulated, with Roman bronze pieces gradually appearing. When Trajan debased the silver currency of the Empire at the end of the first century, as much as possible of the existing coinage was called in, but in Dorset native coins remained in circulation until the middle of the second century. The subsequent history of Roman currency is a complex one, with frequent debasing reflecting political tumults in the Empire. For short periods in the third and fourth centuries, Roman mints were established in Britain, whose issues were marked with distinguishing letters, but other coins used in the province were struck at Rome and other Continental mints such as Trier and Lyon. Some illicit native imitations of Roman coins were produced in Britain in the first century until the real ones became plentiful, and again from the mid-third century onwards, when for reasons that are obscure official coins became scarce. The favourite coin with provincials, appearing in many hoards, was the pure silver *denarius*, which was replaced during the reign of Caracalla (A.D.211-217) by the larger *antoninianus*, a coin soon reduced in weight and purity.

Coins are found on a large proportion of Romano-British sites. Among bigger quantities discovered may be mentioned 4,400 bronze coins, mostly of the late fourth century, found in 1928 on the Weymouth Bay Estate at Jordan Hill. A considerable number of coins were found on the beach between Bridport and Eype in 1936 and 1937, dating from the third and fourth centuries, and including 56 *antoniniani*. The major hoard discovered in Dorset, and one of the biggest in Britain, was that of over 22,000 coins found in 1936 on the site of the present Marks and Spencer store in South Street, Dorchester. They are nearly all base silver *antoniniani*, ranging between A.D.200 and 257.

IX. Religion and Burials

The Romans imported into Britain their official religion with its state deities, Jupiter, Juno, Minerva, Mercury, Mars, and the rest, together with Emperor-worship, which was employed as one means of unifying the Empire, though it helped to provoke Boadicea's rebellion in A.D.60. However, while Roman systems of worship were set up in all the towns, the foreign cults never deeply affected the majority of the population, who went on worshipping their own deities, if sometimes with the name of a similar Roman god or goddess added.

The supreme god of the imported pantheon, Jupiter, is the object of the largest number of dedications found in this country, including that on a piece of an altar discovered in the structure of Godmanstone church in 1964. Next in popularity comes Mars, who as god of war was naturally a favourite in the army, while Mercury also enjoyed a strong following among the rank and file of the troops.

The shrines erected for local deities were, like those in Greece and Italy, designed as a dwelling for the god rather than a place to hold a congregation, and generally took a form which was also common in Gaul: a square central room or cell, surrounded by a verandah. At Jordan Hill, Weymouth, the remains of such a shrine were found in 1843, and re-examined in 1931 and 1932. These latter excavations revealed the foundations and lower courses of a massively built square structure, surrounded by a thin layer of concrete which may have been part of the verandah floor. The presence of quantities of domestic pottery and coins of the later Roman period suggests that the shrine may have fallen into disuse as such, and have been used by squatters during the fourth and fifth centuries.

A temple of the late fourth century, accompanied by a small house for the priest, was found in Maiden Castle, where the foundations of the two buildings are on display. It will be recalled that Maiden Castle had been abandoned by its inhabitants before the end of the first century, following the establishment of Durnovaria. Yet a sense of sanctity must have lingered around the site of the old Durotrigian settlement, and as Roman rule declined towards the end of the occupation, this shrine was erected. The central cell was 16 feet square, and the surrounding verandah had walls at least three feet high, designed to carry dwarf columns supporting a lean-to roof. The main entrance was

on the eastern side, approached by a well-made road of limestone, flint and chalk. The verandah walls had been plastered and painted, and its floor at least partly paved with red *tesserae*, while the cell had orginally possessed a cement floor which had later been renewed with stone roofing slabs. There were indications that it had contained a stone pedestal for the statue of the god, whose identity remains unknown. A puzzling variety of cult objects were found, including figures of Diana, Minerva, and a three-horned bull of tinned bronze surmounted by three female busts, which is often associated in both Celtic and classical tradition with springs and rivers, though there is no spring in Maiden Castle. The bull, with other objects from Maiden Castle, is on view in the County Museum. Another three-horned bull was found many years ago on Waddon Hill, where the Roman fort was discovered in 1959.

The small uninscribed altar of Purbeck stone mentioned earlier, discovered in 1960 at Kingston, near Corfe Castle, may indicate the site of a wayside shrine. It is just over 14 inches high, plain at the back, but carved at the front and sides into the normal Roman shape of base, die and capital. On the worn top there is the suggestion of the usual bowl-like hollow for offerings.

Christianity was imported along with other religions from the Roman Empire, and the mosaics from the Frampton and Hinton St. Mary villas are examples of well-to-do landowners embracing this faith. The *Chi-Rho* symbol which figures on these floors and on other Christian relics of the period is formed from the two Greek letters *X* and *P* with which the name of Christ begins. Another early Christian symbol was the fish, and this was engraved on the bowl of a silver spoon found in Princes Street, Dorchester, in 1898, together with a silver ligula which may have been used in connection with the Eucharist. It has been suggested that the large cemetery at Poundbury, outside Dorchester, could have been wholly or partly Christian, since nearly all the burials are consistently aligned from east to west with the feet at the east, and there is an almost total absence of the grave-goods which usually accompanied pagan burials, despite the wealth evidenced by the containers for the bodies and the remains of mausolea.

The traditional burial rite among the Durotriges and other western British tribes had been inhumation, by contrast with the eastern tribes, who practised cremation until about A.D.200. Of the burials discovered in Dorset, some are in lead coffins, as at Marnhull and Cann; others, as at Portland, in coffins hewn from solid stone; while there are instances of wooden coffins enclosed in long stone cists. The Poundbury cemetery has yielded examples of stone, lead and wooden coffins. At Kimmeridge, the skeleton of an old woman was found in a cist filled with earth, with no trace of a coffin. The head had been separated from the body and the lower jaw from the rest of the head. Similar examples have been found at Woodyates, Dorchester and Studland, and the practice may be a ritual survival from the Early Bronze Age. Objects found with skeletons include pottery, spindle-whorls of Kimmeridge shale, coins, hobnails from boots, and in the child's coffin at Cann the remains of leaves of the box shrub, which probably formed a wreath round the forehead: something which has not been found anywhere else in Britain.

The very few known instances of cremation in this region probably indicate that the deceased was either a foreigner or a Briton from another part of the province. The most remarkable example was discovered in a mound at Knob's Crook, Woodlands, the earliest Roman barrow or burial mound so far known in Britain. The barrow covers three pits, the largest of which contained the ashes of the body, items of Samian ware which date the burial to between A.D.70 and 85, broken objects of iron, bronze and steatite, and nails, which suggest that the body was in a wooden coffin when burnt. It appears that the pyre was off the burial site but close by, and that fragments from it were brought to the large pit. The other two pits were probably used for libations and leftovers from the pyre. All three were lined with clay. The deceased seems to have been called Quintus, as part of this name appears on one of the fragments of pottery, and to have been a Romanised foreigner, since the form of the Samian bowl and bronze studs buried with him were rare in Britain, and a fragment of Celtic metalwork is the kind of object a wealthy foreigner might collect.

The burial of another foreigner is commemorated by the slab of Purbeck marble discovered, as mentioned earlier, in the foundations of the porch of Fordington church during renovations in 1907-08. Measuring 2 ft. 11 in. by 2 ft. 4½ in., and at least 5 inches thick, it constituted the major part of a tombstone. The inscription, of the first or second century, shows that it was dedicated to Carinus, aged fifty, by his wife Romana and his children Rufinus, Carina and Avita. The slab, which presumably came from the Fordington cemetery outside the walls of Durnovaria, is now set into the inner wall of the church tower.

One of the great archaeological mysteries of Dorset is the Cerne Giant, a 180-foot high, aggressively masculine figure with a club, cut into the chalk hillside above Cerne Abbas, and preserved with remarkable devotion through the ages despite the influence of the nearby mediaeval abbey. One theory of its origin is that it is a Romano-British figure of Hercules.

X. Decline and Fall

At Woodyates, where the present-day Blandford-Salisbury road follows the course of its Roman predecessor through a broad saddle or pass in the chalk uplands, and where Pitt-Rivers excavated a Romano-British settlement, there may still be seen a relic of the declining years of the Roman occupation. Bokerly Dyke, an earthwork spanning the gap in the high ground over a distance of nearly four miles, follows a gently sinuous course from north-west to south-east along the watershed which forms the north-eastern corner of Cranborne Chase and the present county boundary. It consists of a rampart with a ditch on its outer or north-eastern side, and its flanks rest on naturally wooded high ground.

The Dyke was built in three stages. The first, dating from some time after A.D.325, ignored the road and the growing Woodyates settlement, and may have been intended primarily to protect or enclose pasture land. The fourth century was a period of growing danger and uncertainty for Britain, with the province and the Empire as a whole threatened by both external enemies and internal dissension. From 367 to 369, Britain suffered its most severe invasion to date from Picts, Scotti and Saxons, who were eventually repelled; but from this time onwards the security and prosperity of the island began steadily to crumble. It was probably under the impact of this invasion that Bokerly Dyke was reconstructed, this time unquestionably for military defence; it cut through the settlement, and its ditch cut through the road, though the latter was restored soon afterwards. Between 395 and 399, the defences of Britain were renovated for the last time under the Emperor's general Stilicho, and at this time the final reconstruction of the Dyke took place, a new central portion being built in front of the old work to give better tactical command of ground. Again the ditch cut the road, which this time was never re-opened. Meanwhile the Romans were gradually being forced to withdraw troops to meet threats nearer home. The last recorded official withdrawal was made by Stilicho himself in 401 or 402, and in 407 the usurper Constantine III, a common soldier who had been proclaimed Emperor by the army in Britain, took more out to oppose the Vandals and other barbarians who had invaded Gaul the previous year. The British cities appealed to the legitimate Emperor, Honorius, to re-establish his authority in the province, but by now the Goths were preparing to attack Rome itself, and in 410 Honorius wrote back ordering the British cities to look after their own defence. What happened after this is obscure. It seems that for a time the Roman structure of life survived, probably with the aid of Germanic mercenary troops and allies who were encouraged to settle on the frontiers and inland by grants of land. In eastern Britain, the increasing numbers of Saxon and other Germanic invaders during the fifth century eventually swamped the remnants of Roman organisation. In the west, which did not fall to the Saxons for another two centuries, the land was probably split up into small kingdoms or principalities whose rulers followed Roman ways for a time.

What, it may be asked, were the effects of nearly four centuries of Roman rule? We have seen that Roman culture was assimilated to some extent by the Britons, but in many ways rejected, even though all free-born Britons became Roman citizens by decree in A.D.213. The leading natives adopted a Roman style of life, but one acquired at second hand, for direct contact with Rome was limited. The occupying troops had never been predominantly of Italian stock, being drawn from Gaul and other parts of the Empire, and by the fourth century were mostly locally recruited Britons; and the same was true of many officials. The Roman religions never really superseded native cults. Virtually nobody can have remained untouched by the externals of Roman rule, whose unprecedented efficiency and elaborate organisation affected the life and affairs of the entire population; yet for the humbler classes, particularly in the countryside, the rulers must have been only a set of foreign masters, their system a veneer on the surface of native life, their purpose not to impart the benefits of a superior civilisation but to exploit the country for material gain. The old tribal divisions remained in existence, and as Roman rule declined towards the end of the occupation, local chiefs became increasingly centres of loyalty at the expense of the central government.

The physical monuments of Roman Britain crumbled during the Dark Ages, public buildings and fine private dwellings like that at Colliton Park being abandoned or destroyed as useless to the barbaric newcomers. Whole settlements disappeared from the map, since the Saxons preferred to build their villages in the valleys instead of on the high ground where large numbers of British settlements both before and after the Roman conquest had been. Despite all this, the present-day geography of Dorset still bears some traces of the period in the site of Dorchester and a number of other towns and villages, and the course of some forty miles of modern roadway. Of spiritual continuity there was none. Any remnants of Roman culture among the upper classes were swept away with the passage of time and the advent of new conquerors, and the influence of classical tradition on our modern civilisation dates from the Middle Ages onwards.

Suggestions for further reading.

There is unfortunately at the time of writing no complete full-scale book on Roman Dorset, and this short sketch is believed to be the first work to cover the subject as a whole.

Those readers who wish to pursue the subject further may find the following books useful. The list is by no means exhaustive.

Lewis, M. J. T. *Temples in Roman Britain.* 1966.

Margary, I. D. *Roman roads in Britain. 2nd ed.* 1967.

Rainey, A. *Mosaics in Roman Britain, 1973*

Richmond, I. A. *Hod Hill. Vol.* 2: *Excavations carried out between* 1951 *and* 1958 *for the Trustees of the British Museum.* 1968.

Richmond, I. A. *Roman Britain. 2nd ed.* (*The Pelican history of England*, 1). 1963.

Royal Commission on Historical Monuments (England). *County of Dorset. Vol.* 1: *West.* 1952. *Vol.* 2: *South-East, Part* 3. 1970. Vol. 3: *Central.* 1970. Vol. 4: *North.* 1972

Thomas, C., ed. *Rural settlement in Roman Britain.* 1966.

Wheeler, R. E. M. *Maiden Castle, Dorset.* 1943.

The bulk of the information used in compiling this study derives from articles and reports in the annual *Proceedings of the Dorset Natural History and Archaeological Society.* Other periodicals which may contain items of interest include: *Antiquity; Antiquaries' Journal; Archaeological Journal; Britannia;* and *Journal of Roman Studies.*



FIG. 1 Hod Hill, aerial view of Iron Age and Romano-British Fort. *See p. 58*

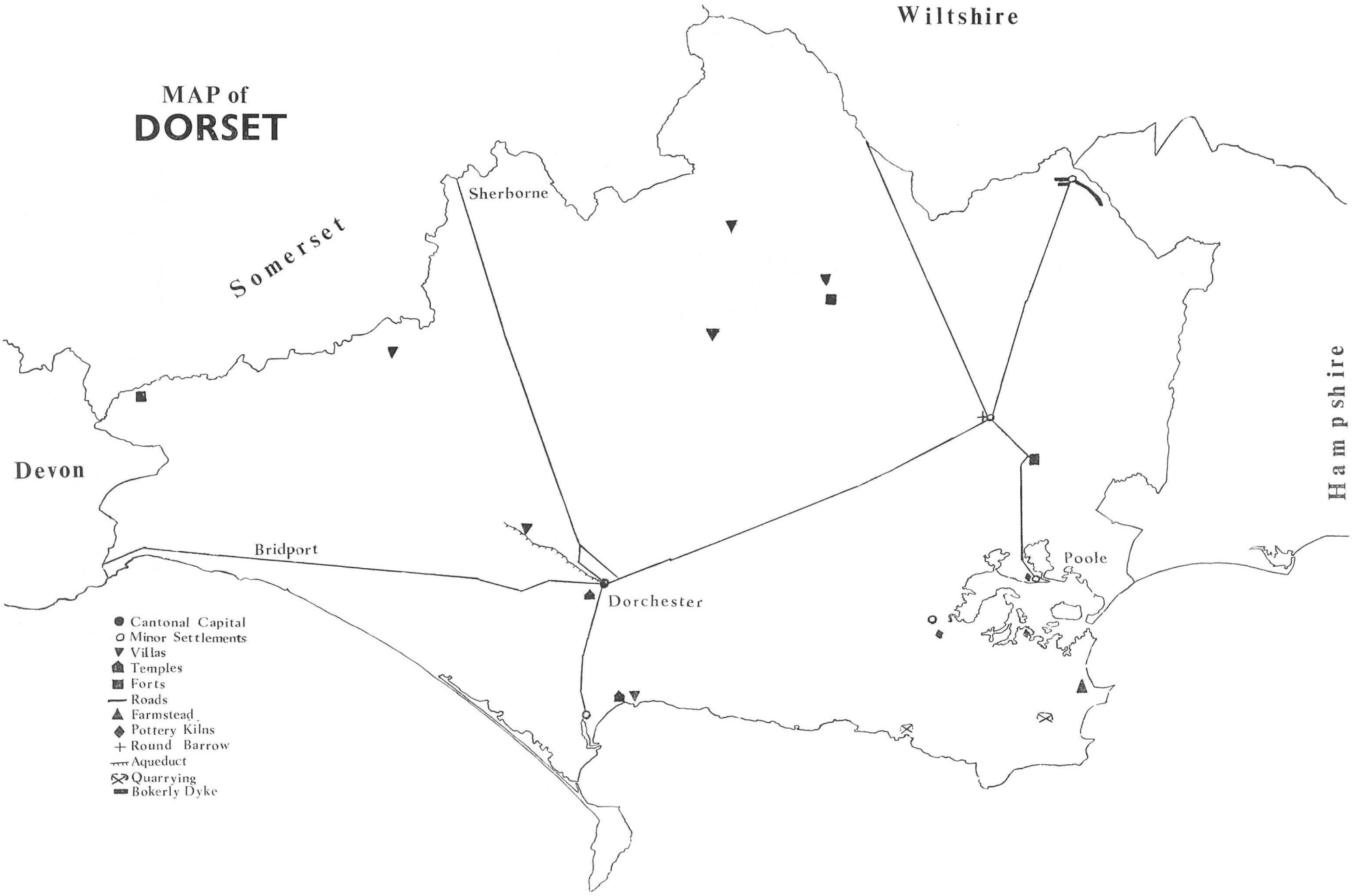


FIG. 2. Map of Dorset showing Roman Sites

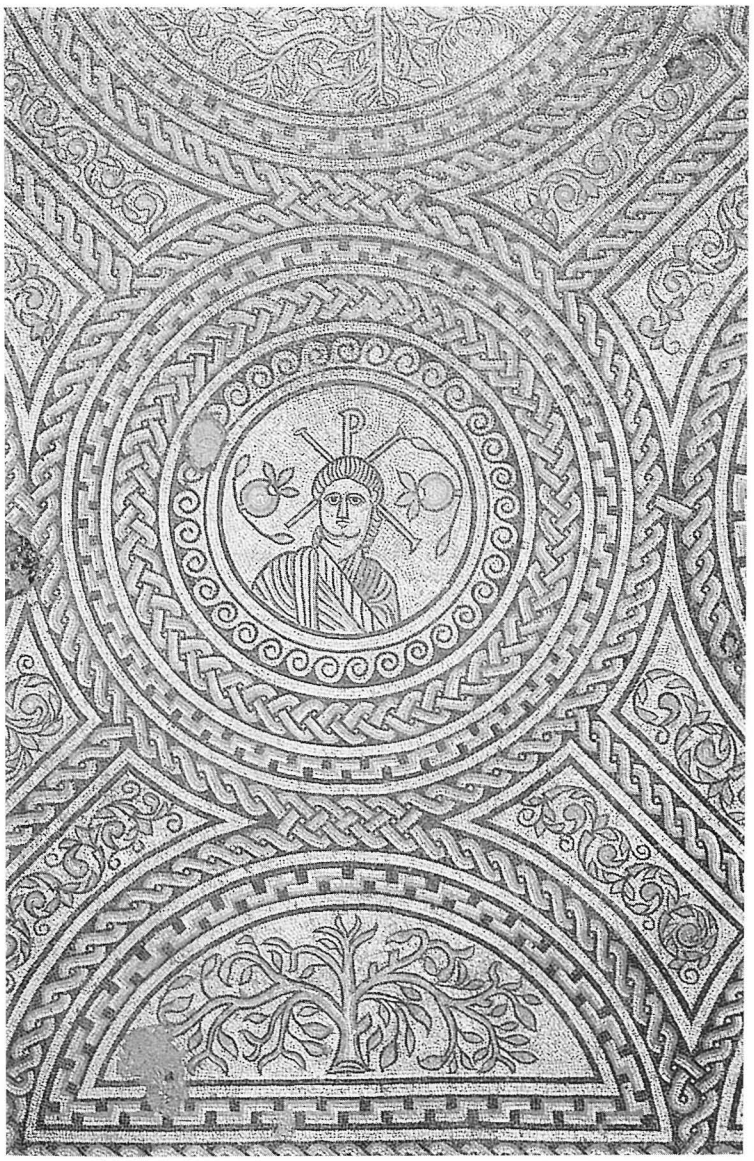


FIG. 3. Chi Rho Symbol depicted on the Christian Romano-British mosaic pavement, Hinton St. Mary, Dorset. See page 61.

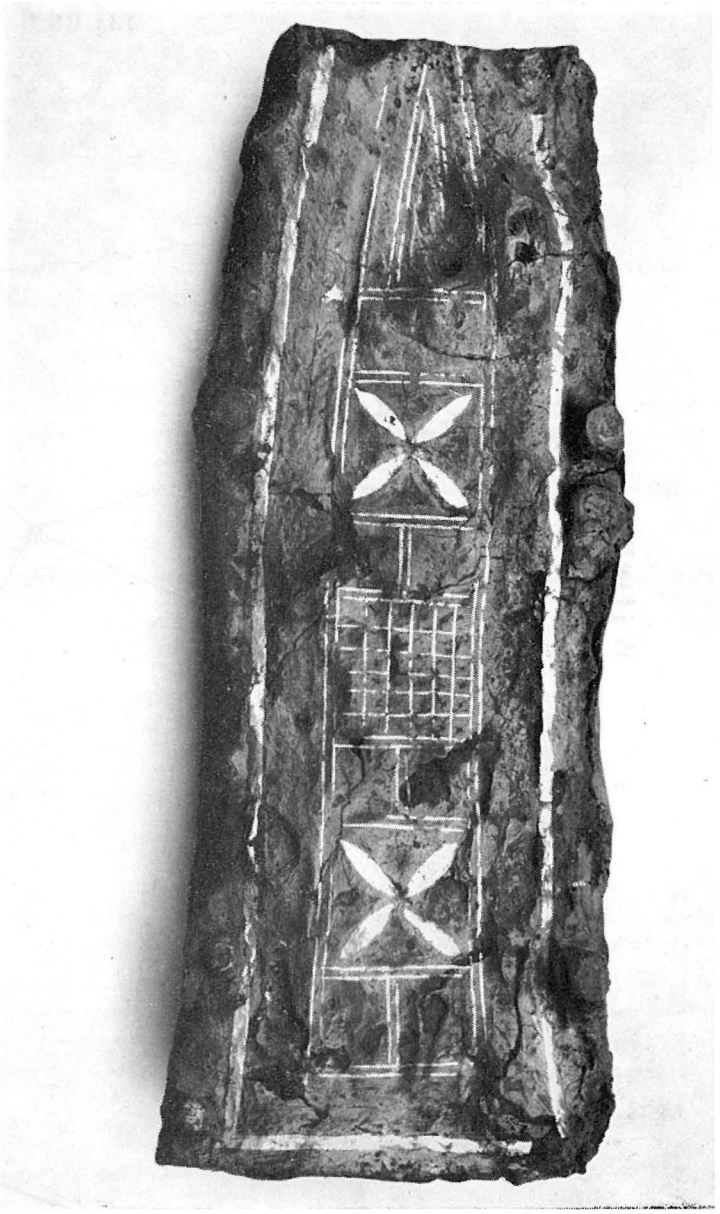


FIG. 4. 1st century A.D. legionary dagger scabbard. Iron with gold alloy and possibly niello inlay. Waddon Hill, Stoke Abbott. Now in Bridport Museum.



FIG. 5. Roman Rider Relief, found at Whitcombe Farm, near Dorchester. See page 64.



FIG. 6. Roman intaglio of cornelian depicting a Sea-Centaur. 2nd century? From Walls, Puncknoll.



FIG. 7. Jugs of black fumed ware found at Gallows Gore, Worth Matravers, Dorset.

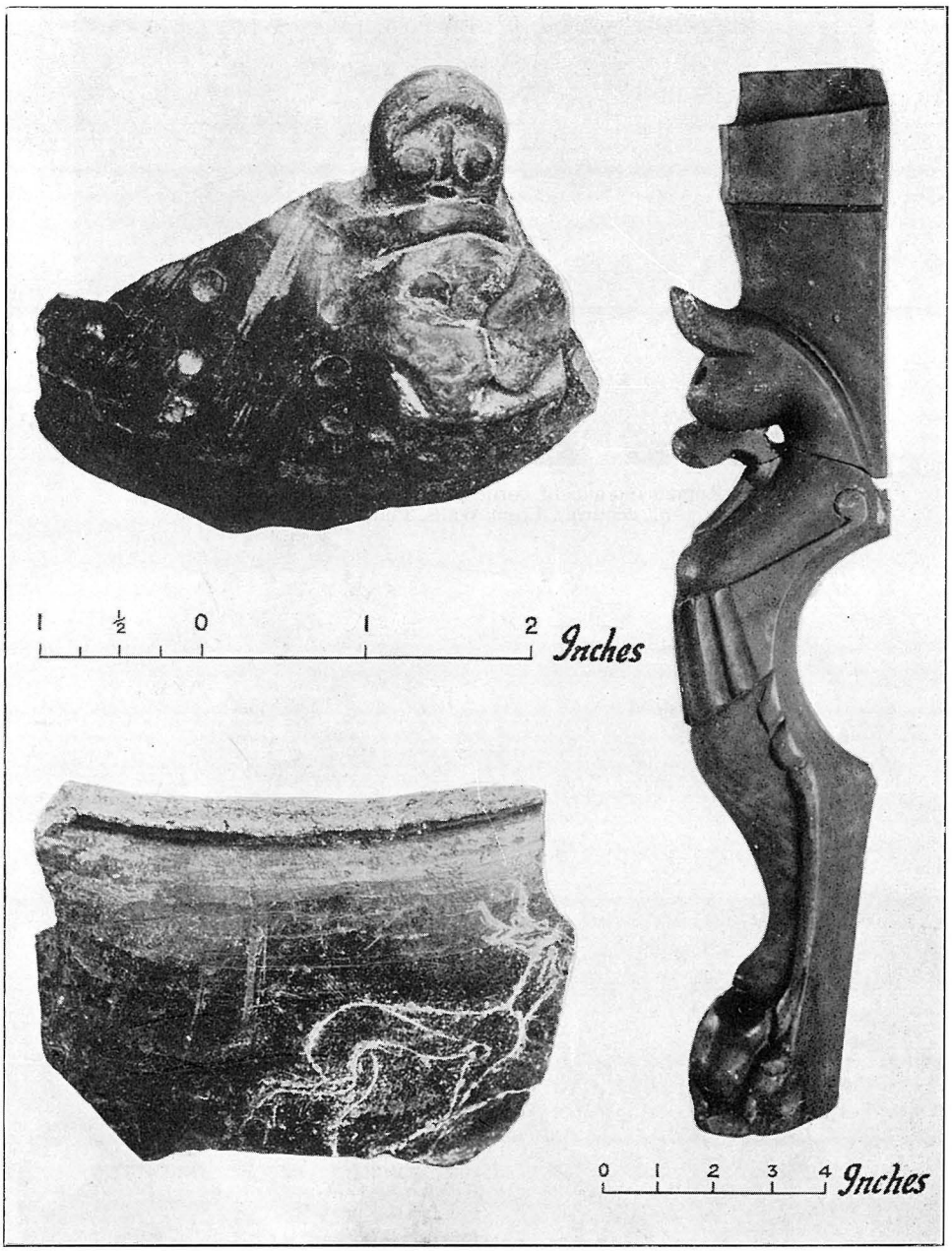


FIG. 8. Right: Table leg of Kimmeridge Shale. Top left: Grotesque female figure in high relief. Bottom left: Form of a running deer scratched on it. Both fragments of Roman black coarseware. All from Colliton Park Town House, Dorchester.

The Trade Fortunes of Poole, Weymouth and Lyme Regis, 1600-1640

By Dr. W. B. Stephens

THE bland assertion that the county of Dorset possessed "on the South Shore three good Haven Townes, Lime, Waymouth, and Poole"[1] requires some comment with regard to the seventeenth century, for casual observation tends to obscure the complications of economic facts. When a military gentleman visited the county in 1635 he found Poole "standing into the Sea like Portsmouth, handsomely built and well provided with shipping". In the middle of Weymouth he "cross'd a broad Haven over a fayre Archt, woodden, draw Bridge, to which many Ships of a pretty Burthen doe come", and "tumbled downe a stony and craggy way into Lyme; where at a low water, I rode into the rare and unparallell'd Harbour called the Cobb, wherein . . . I found betweene 30 and 40 indifferent good Vessels, and of a pretty Burthen, all safely lodg'd and bosom'd. It is big enough to hold as many more . . . it is so strongly encompass'd, as they feare no wracke, . . . although they have incroach'd so farre into Neptunes bosome".[2]

This observer's comments contained elements of truth, for he clearly discerned the greater significance of Lyme Regis over the other two ports. Nevertheless, he is misleading as far as Poole is concerned, for the trade of that ancient port had, unlike that of all the other ports of the south-west, sadly diminished by James I's reign.[3] The reasons for its decline, for the importance of Lyme Regis, and the somewhat lesser status of Weymouth, lie partly in the comparative physical facilities of the three ports. A survey by officers of the Royal Navy and of Trinity House undertaken in 1698 sums up more professionally the demerits of Poole and Weymouth as ports. They found that Poole Harbour "though assisted by a considerable Fresh from Dorchester, and is a capacious water when all its shoal grounds are covered with the tide, nevertheless it has not above 8 foot of water for a great space without the mouth of it at low water, and the rise of the spring tides do not exceed 8 foot or more, and those very uncertain and remiss. The shoals are very large, and the channels very crooked. There are very few vessels that will venture into it when they can choose to do otherwise". Of Weymouth and Melcombe Regis they noted that "the tides rise no more than 7 foot or thereabouts — alike uncertain as at Poole . . . and have not above 3 foot of water in the entrance to the Harbour".[4]

The Cobb at Lyme Regis, however, was an artificial erection which "the Inhabitants, with much Industrie and Charge, have built in the Sea, by piling together great Rocks, which at lowe Water have made the Harbour safe for Barkes of good Burthen to ride in".[5] Lyme could thus offer harbour facilities the other two ports could not rival.

Quantitative evidence of their trade tends to bear out this analysis of the "pecking order" of the three ports, though some care must be taken in interpreting it. The ports were administratively linked in the seventeenth century as the "Port of Poole". The customs headquarters was at Poole and many of the fiscal records officially pertain to "Poole" without any further indication. In fact Poole itself was commercially of little significance and most of the trade recorded under its name was carried on through its member ports, Weymouth and Lyme Regis. When composite totals for the whole port of "Poole" can be broken down they are revealing of the true state of affairs. An illustration is provided by returns of dues known as the "pretermitted" customs duties which fell on cloth (Table 1).

Figures for imports of wine (Table 2), one of the staple commodities brought into the ports, support the general picture though here Weymouth shows as slightly more significant than

TABLE 1

PRETERMITTED DUTIES ON CLOTH EXPORTS (£s)[a]

	1622	1635	1638
Poole	13	57	7
Weymouth	597	237	99
Lyme Regis	471	519	265

(a) P.R.O., E. 351/781; E. 122/198/7; E. 122/211/1. Because these duties did not fall on all types of cloth, the picture given is slightly distorted, but for the purpose used here sufficiently valid. *Cf.* for 1614, 1615, Weymouth and Lyme: P.R.O., S.P. 14/108/31.

TABLE 2[a]

(i) WINE IMPORTS IN 1636 (TONS)

	French	*Spanish*	*Total*
Poole	—	45	45
Weymouth	115	32	147
Lyme Regis	105	25	130

(ii) DUTIES ON WINE IMPORTS, 1641 (£s)

Poole	21
Weymouth	71
Lyme Regis	75

(a) P.R.O., E. 122/198/7.

TABLE 3

NEW IMPOSITIONS LEVIED (£s)[a]

	1634	1635	1636	1637	1638	1639
Poole	53	87	259	162	74	123
Weymouth	372	328	630	894	629	1386
Lyme Regis	558	517	1689	1822	1098	1577

(a) P.R.O., E. 122/198/7.

Lyme Regis. The sale of wine, of course, tended to be more local than that of other goods for it did not carry well over long distances. Certainly Weymouth with Melcombe Regis was the largest urban centre in the county.[6]

More representative of the import trade as a whole are the totals of the duties known as the "new impositions" which fell largely but not entirely on imports, and again the relative importance of Lyme Regis is evident (Table 3).

Apart from the Newfoundland fisheries, in which they shared, the main trade of both Lyme Regis and Weymouth was in the export of woollen cloth "by transporting these Cloths into France, a near Cut from these Partes", and returning "laden

1. N. Coker, *A Survey of Dorsetshire* (1732), p.5.
2. *A Relation of a Short Survey of the Western Counties made by a Lieutenant of the Military Company in Norwich in 1635*, ed. J. G. Wickham Legge, Camden Miscellany xvi, Camden 3rd ser. lii (1936), pp.69, 72-3.
3. *Cf.* A. Friis, *Alderman Cockayne's Project and the Cloth Trade* (1927), p.67.
4. Quoted in A. R. Bayley, *The Great Civil War in Dorset, 1642-1660* (1910), p.7.
5. Coker, *op. cit.*, p.11.
6. C. A. F. Meekings (ed.), *Dorset Hearth Tax Assessments, 1662-1664* (1951), p.xxxi.

with wine, cloth and divers other useful commodities".[7] The Customs books reveal that the most significant import was French cloth — linen and canvas — and this was shipped in in large quantities. Indeed, apart from wine, this French cloth was the only import of note.[8]

Linen and canvas were liable to the "new impositions", so that bearing in mind the relative share of the three ports, indicated in Table 3 above, Table 4 gives some idea of the fortunes of the port of "Poole" as a whole (i.e. in effect the fortunes of Weymouth and Lyme Regis) as far as imports are concerned.

It is evident that there was a fairly steady level of imports from 1611 rising somewhat to 1622. This was adversely affected by the trade crisis of the early 1620s, and a limited recovery by 1625 was followed by a plunge into the depths in 1628 and 1629 when the French market was seriously affected by war. Thereafter there was again recovery by the mid 1630s to a level comparable with that earlier in the century.

TABLE 4

VALUES OF IMPORTS AT THE DORSET PORTS PAYING NEW IMPOSITIONS[a]

(£s)

Year		*Year*		*Year*	
1611	19532	1620	21100	1629	6166
1612	19622	1621	24798	1630	14673
1613	19139	1622	25525	1631	13285
1614	18628	1623	21173	1632	29012
1615	18280	1624	20071	1633	18268
1616	21151	1625	24286	1634	19534
1617	23291	1626	29173	1635	18340
1618	21971	1627	25077		
1619	22927	1628	1961		

(a) P.R.O., E. 190/351/797-821.

As for exports, examination of the Customs books shows that like other Western ports cloth exports were important. Weymouth and Lyme Regis, however, differed from the others in that they exported virtually nothing but woollen cloth. Almost all of this went to France, mainly to Rochelle, St. Morlaix and St. Malo, and to a much lesser extent to Spain.

In the early years of the century the level of cloth exports at both Weymouth and Lyme Regis was significant, though understandably both ports shared in the general slump in the cloth trade of the Western ports, at its worst in 1628, caused by the war with France and Spain. After that, however, the fortunes of Lyme and Weymouth diverged. Weymouth shared the general decline as a cloth exporter with other western ports including Bristol, Barnstaple, Bideford, Dartmouth and Plymouth, while Lyme Regis alone with Exeter had fully recovered from the slump before the Civil War. Indeed Lyme Regis of all the provincial ports shared with Hull and Exeter, though at a somewhat lower level, the distinction of remaining important cloth-exporting ports in the 1630s; the trade of all other ports in this commodity fell away. These general trends in the history of the English provincial ports I have dealt with in detail elsewhere.[9] It is not intended to go over this again here, but rather to examine the nature of the types of cloth shipped from Lyme Regis and Weymouth and the possible relevance of this to the problem of the divergent fortunes of the two ports in the 1630s. Tables 5 and 6 show the main types of cloth exported from Weymouth and Lyme Regis over the first four decades of the century.

It is clear from these that before the 1630s, at least, the trade of both ports was concentrated on those types of "old drapery" in which the south-west specialized. In particular they exported kersey cloth (often called dozens), a cloth which was lighter than the traditional broadcloth and which had been evolved in the area in the sixteenth century. Some kersies were fine and may have been pure worsted, others more likely coarser and probably a mixture of woollen and worsted. The Devon dozen, at least, was, unlike normal worsted, a fulled cloth.

The main centres of production of these cloths was in East Devon, Dorset, Wiltshire (for Ilminster dozens and "Sarum plains")[10] and Reading. Cloth from the North Devon-West Somerset area included the so-called Dunsters and Tauntons, and the newer coarse "Barnstaple bays". The Taunton area also produced "cottons", a woollen cloth made in imitation of cotton, and Welsh-produced "cottons" also found their way to the Dorset ports by way, especially, of Bristol. The new serges and perpetuanas, lighter materials than the older broadcloth, were of growing importance in the 1630s, and were destined to become the chief manufacture of Devon and West Somerset later in the century. Cloth of the same name, and no doubt similar, was also made in Dorset and Wiltshire on a small scale and in Hampshire too: this formed one of the two main types of cloth exported from Southampton.

The explanation of the success of Lyme Regis in the 1630s appears to lie to a large extent in its proximity to the booming port of Exeter and its geographical position in relation to part of the industrial hinterland served by Exeter. This was the Devon-West Somerset area, the most significant and fastest expanding woollen area of the period. Exeter was, of course, in the best position topographically to take advantage of this development. It took the lion's share of the growth and blossomed in these years into the second cloth port in the provinces, excelled only by Hull. Lyme Regis, however, also fared well, for it was much better placed to serve this industrial area than was Weymouth. Indeed Lyme Regis was used extensively by non-local merchants, the port books revealing that exporters from Bristol, Bridgwater,

7. Coker, *op. cit.*, pp.5, 35-6.
8. E.g., P.R.O., E.190/871/6; 876/8; Friis, *op. cit.*, p.66.
9. W. B. Stephens, 'The Cloth Exports of the Provincial Ports, 1600-1640', *Econ. History Rev.* 2nd ser. xxii (1969); and W. B. Stephens, 'Further Observations on English Cloth Exports, 1600-1640', *ibid.* xxiv (1971).
10. These were 'white kersey-like fabrics': G. D. Ramsay, *The Wiltshire Woollen Industry in the Sixteenth and Seventeenth Centuries* (1943), p.109.

TABLE 5

MAIN TYPES OF CLOTH EXPORTED FROM WEYMOUTH, 1608—1639

(in pieces except where otherwise stated)

	1608[a]	1611[b]	1615[c]	1622[d]	1626[e]	1636[f]	1639[g]
Devon dozens	812	884	1970	1089	1321	—	—
Dorset, Ilminster and Reading dozens	4511	5383	10186	11181	10834	2775	2285
Dunsters, Bridgwaters and Tauntons	6	3	153	111	714	21	363
Barnstaple bays	—	—	—	—	157	—	—
Serges and perpetuanas	29	38	940	?	2716	445	1051
Broadcloth (in short cloths)	—	3	17	7	275	7	605
Cottons	—	—	—	—	298	21	358
Sarum plains	—	—	—	120	642	88	77

(a) P.R.O., E. 190/869/8.
(b) P.R.O., E. 190/870/7.
(c) P.R.O., E. 190/871/4.
(d) P.R.O., E. 122/211/1. Serges and perpetuanas did not pay the "pretermitted" duties recorded in this source.
(e) P.R.O., E. 190/873/9. For various reasons a difficult book to interpret. Figures must be regarded as maxima.
(f) P.R.O., E. 190/876/6.
(g) P.R.O., E. 190/1036/7.

TABLE 6

MAIN TYPES OF CLOTH EXPORTED FROM LYME REGIS, 1602—1636
(in pieces except where otherwise stated)

	1602[a]	1616[b]	1622[c]	1627[d]	1636[e]
Devon dozens	[2540]	2693	1582	1060	—
Dorset, Ilminster and Reading dozens	[1202]	11314	12705	4403	14472
Other kersies	[66]	3	1664	253	—
Dunsters and Tauntons	[1814]	4722	3931	1556	3015
Bays	[320]	120	244	236	144
Barnstaple bays	—	146	300	188	20
Serges and perpetuanas	[22]	204	?	83	189
Cottons (in goads)	[1255]	24754	84636	11200	39600
Says	[156]	641	?	320	—
Sarum plains	—	—	4	114	—

(a) P.R.O., E. 190/868/7. This covers the half year Easter-Michaelmas, 1602. Totals given are doubled and approximate.
(b) P.R.O., E. 190/871/6.
(c) P.R.O., E. 122/211/1. Serges, perpetuanas and probably says did not pay the "pretermitted" duties recorded in this source.
(d) P.R.O., E. 190/874/3.
(e) P.R.O., E. 190/876/8. Probably duty free "wrappers" not included in totals for other years are included in the figures given in this port book. Here totals have been adjusted to allow for this and must be regarded as approximate.

Chard and Taunton frequently shipped cloth from the Cobb — as did Tiverton merchants, whose natural outlet was really Exeter, and Exeter men themselves.[11] Among the latter were such important merchants as Ignatius Jurdain, the doughty puritan alderman who showed his mettle by assuming control in 1625 of the rioting city abandoned by its mayor and officers at a time of plague,[12] and Roger Mallock, the royalist magnate.[13] No doubt the Exeter merchants used Lyme Regis as they did Dartmouth as a sort of outport of their own main port to be used when convenient shipping was not available at Exeter.

At the same time Lyme Regis was situated sufficiently to the east to have a share also in the same Dorset, Wiltshire and Berkshire cloth-producing areas on which Weymouth relied. Tables 5 and 6 indicate that while before the 1630s both ports numbered Devon dozens as one of their chief types of cloth export, shipments in that period were on the whole greater from Lyme Regis. For other cloths from the West Somerset-Devon area — Dunsters, Tauntons and Barnstaple bays in particular — Lyme's exports were consistently at a much higher level than Weymouth's. Even when we consider the "dozens" (particularly Dorset dozens) from the area to the north and east of Lyme Regis, Weymouth's involvement was over the whole period less.

Indeed Lyme's export figures for 1636 show that by then, although the shipments of Devon dozens had unaccountably disappeared, it was exporting a vastly increased number of Dorset and other dozens — representing probably at least six times the number of pieces of such cloths leaving Weymouth in the 1630s. And it had also increased its exports of "cottons".

Weymouth on the other hand had not only largely lost its trade in cloth from the Devon-Somerset area but had also a considerably diminished export of Dorset dozens, which were still the chief type of cloth shipped from the port.[14]

It is noteworthy, too, that Lyme Regis does not appear to have been able to obtain any substantial share in the enormous expansion of the manufacture of serges and perpetuanas which occurred in the Devon-Somerset area in this period. Such of these cloths as left Lyme Regis were chiefly shipped by Exeter men,[15] but the quantities (see Table 6) have no relation to those of Exeter itself, where, for example, some 7,600 pieces as well as very large quantities of other cloths were exported in 1638.[16] Figures for Weymouth (Table 5), it is true, appear to show a growth in the serge-perpetuana trade, though it is likely that these were cloths produced in the more immediate hinterland.

The reliance of both ports, despite their divergent fortunes, on "old" rather than "new draperies", a contrary state of affairs to that pertaining at Exeter, is revealed in the analysis of exports in the 1630s which forms Table 7.

TABLE 7[a]

(£s)

	Tax on old draperies	*Tax on new draperies*	*Total*
Weymouth(1636)	322	70	392
Lyme Regis (1633)	982	262	1,244
Exeter (1636)	855	1,105	1,960

(a) P.R.O., E. 190/876/16; 875/3; 949/3. Tax according to Book of Rates of 1604, estimated from cloth totals.

Throughout the 1630s Lyme Regis continued to export mainly to France, and was unique in being the only provincial cloth port continuing to deal chiefly with that market on a large scale. Exeter by then had gained a foothold in the Netherlands market with its serges and its perpetuanas, while still enjoying a substantial trade with France,[17] and it was doubtless its connection with its larger neighbour that enabled Lyme Regis to partake to a degree in its success. It must not be assumed, however, that the position of the three ports thereafter ossified. The state of affairs after the Restoration requires further investigation. There is evidence, for example, that by the 1670s Poole had achieved a relative recovery to a position of parity with Weymouth, and even weathered the effects of the dislocation of the French trade in the years 1678-80 better than Lyme Regis.[18] Later still, however, the "pecking order" of the pre-1640 period seems to have been re-established. In the customs duties (tonnage and poundage) for the half-year March to September, 1689, Lyme Regis accounted for £2,112, Weymouth for £390 and Poole for a mere £82.[19]

11. E.g., P.R.O., E.190/871/6.
12. W. B. Stephens, *Seventeenth Century Exeter* (1958), pp.13-15.
13. W. B. Stephens, 'Roger Mallock, Merchant and Royalist', *Trans. Devonshire Assoc.* xcii (1960).
14. *Cf.* Friis, *op. cit.*, p.66.
15. E.g., P.R.O., E.190/874/2.
16. *Ibid.*, 950/7.
17. Stephens, *Seventeenth Century Exeter*, *op. cit.*, *passim.*
18. B. M., Stowe MS 324.
19. *Calendar of Treasury Books, 1689-92*, ix Pt. i, p.ccxviii.

Bishop Secker's Diocesan Survey

By J. H. Bettey

An interesting source of information about the condition of the Church of England in Dorset during the eighteenth century is provided by a notebook kept by some of the Bishops of Bristol at various times during the century, and which is now among the Diocesan Records deposited in the Bristol Archives Office (EP/A/2/2). From 1542 until 1836, Dorset formed part of the oddly-constituted diocese of Bristol, which consisted of Bristol itself and the surrounding parishes together with the county of Dorset. The bishopric of Bristol was among the most poorly endowed of English bishoprics, and was generally regarded by the bishops as no more than a stepping-stone on the way to more lucrative sees. Few of them remained long at Bristol, and only rarely did they visit Dorset. In 1735, Bishop Secker, who was only at Bristol for two years (1735-37), conducted a diocesan survey and made brief notes on all the parishes in his diocese. These were continued occasionally by later bishops, particularly by Thomas Newton who conducted another survey in 1766. The Bristol part of the diocese is entered first in the notebooks, then the Dorset parishes, divided into the five deaneries, Bridport, Dorchester, Pimperne, Shaftesbury and Whitchurch. Finally notes were made on the several Dorset parishes which were "peculiars", that is they remained under the special jurisdiction of the Dean of Salisbury or of some other ecclesiastical authority. Although the notes on each parish are generally quite brief, they provide an illuminating glimpse of the church in Dorset during the 18th century, and, since they were intended only for the bishops' use, they are quite uninhibited in their descriptions of the clergy and of parochial conditions.

It is evident from the notes that Dorset was no exception to the general 18th century practice of pluralism and non-residence among the clergy. A great many of the clergy had more than one benefice and often lived at some distance from Dorset. Generally a curate was appointed by the non-resident incumbent, often at a very low salary, but frequently the curate himself served more than one parish, or was an incumbent who acted also as curate in a neighbouring parish. For example, in 1735 it was noted that the rector of Chilfrome and Wraxall "has not resided since his institution . . . and lives at Westbourn near Midhurst, Sussex. Mr. Osborn, Vicar of Bradpole, is his curate". The rector of Langton Herring in 1766 was "John Richardson, M.A., Fellow of Kings College, Cambridge and tutor to Lord Milton's sons at Eton". The incumbent at Tarrant Hinton in 1735, John Crabb, lived at Bremmer in Hampshire. His nephew acted as his curate but was also curate of Tarrant Monkton and rector of Hammoon. At Iwerne Minster in 1766 the Vicar, Mr. Burgis, lived at Offenham near Evesham. "Mr. Rummey of Blandford takes care of the church for half a guinea each Sunday". At Weston Buckhorn in 1766 the Bishop noted wryly that the rector, Mr. Wetham, "does not reside constantly and complains much of ill-health, tho' he looks the picture of health itself". The incumbent at Wyke Regis in 1735, Michael Festing, secured the Bishop's permission to live at Windsor "on account of his wife's ill-health and for the education of his boys at Eton". His curate, Samuel Payne, received a salary of £40 per annum.

One result of the widespread pluralism both of incumbents and curates was that in many parishes there was only one service each Sunday. There were, however, many exceptions to this, and a number of parishes which obviously had resident and energetic clergy. One such was Ashmore where in 1766 it was noted that the rector, Mr. Barber, was resident in the parsonage house and conducted two services each Sunday, preached and catechised the children regularly. The incumbent of Cattistock, John Haynes, was noted by the bishop in 1735 as a good and conscientious man. He had come to Cattistock in 1700, and was still there in 1752 when it was noted that he "appeared at the visitation in high Health having recovered of the small pox about two years before". He remained at Cattistock till his death in 1758. In Dorchester the incumbent of St. Peter's and Holy Trinity, John Hubbock, had been instituted in 1752, and in 1766 he is described as "a worthy man and constantly resident . . . is also master of the Free Grammar School and lives in the school house, the parsonage house being only a poor thatched cottage". He preached twice every Sunday and also conducted services on Wednesdays and Saturdays. This is one of the very few references to weekday services, apart from Wimborne Minster where there were daily services with four singing men and four choristers.

The Holy Communion was celebrated only on the great festivals, in most parishes no more than three or at most four times a year. It is evident that very few parishioners actually received the Holy Communion on these occasions. The members of communicants are given in 1766 and with a few exceptions are very low indeed. For example at Poorstock where there were said to be 232 families in the parish the number of communicants was about 25. At Pimperne there were 62 families all members of the Church of England, but "communicants seldom exceed 25". Similar figures occur for parishes all over the county, though there were a few exceptions. At Wareham where the historian, the Reverend John Hutchins, was rector he celebrated the Holy Communion four times a year and there were 70 or 80 communicants although nearly half the 250 families in the parish were Presbyterians. The incumbent of Blandford Forum in 1766, Mr. Cooth, was also rector of Portland, but he resided at Blandford and administered Holy Communion "every six weeks to about 100 communicants, at great festivals near 200". Most remarkable of all were the numbers who attended at St. Peter's and Holy Trinity, Dorchester. The Holy Communion was celebrated on the first Sunday in each month and there were between 150 and 200 communicants. These are exceptions, however, and in general the number of communicants in each parish was very low indeed.

The only other activity of the clergy which is mentioned in the notes is catechising the children, but apart from this there is no indication of other duties nor of what standard of life and work was expected. The bishops were obviously greatly interested in the political affiliations of the clergy and these are often recorded in the notes particularly by Bishop Secker in 1735. For example at Wimborne in 1735 the incumbent, Thomas Hooper, is described as "very good, much esteemed, whig, resident", while at Tarrant Gunville the incumbent, Daniel King, is "good, rich, votes with the whigs, resident". Thomas Pope, at Burstock, is described as "good, sensible, tory, resident", while Thomas Ridley at Blandford Forum in 1735 is written off as "weak, tory, resident, old". The bishop was obviously irritated by James Webb at Moor Critchell who "never declares himself in party matters".

Inevitably in notes of this kind, particular prominence is given to those clergy who brought themselves to the bishops' attention by misdemeanours of various kinds. In reading of these men it is necessary to bear in mind the very great difficulties which faced the parochial clergy, the isolation and loneliness of their position, the very infrequent contacts they can have had with their fellow clergy and the very rare occasions when they ever saw their bishop. Moreover there was no provision for clerical ill-health or for old age. It must also be remembered that irregularities attracted far more attention than did the activities of a clergyman who quietly resided in his parish and dutifully ministered to his congregation. Several of the Dorset clergy during the 18th century attracted the notice of their bishops. The curate at Melbury Bubb in 1766 was reprimanded for not conducting the

services or celebrating the Holy Communion and for failing to keep the parish registers. More serious was the situation at Gussage All Saints in 1735 where the Vicar, Rees Prosser, was "very wicked and drunken. Severely reproved and threatened. To be proceeded against for the next great fault". At Hampreston the Rector William Foster was described as "a bad man". His parsonage house had burnt down and although collections had been made to enable him to rebuild it, he had spent the money and continued to live in Poole. At Worth Matravers the incumbent, Samuel Marsh, is described in 1735 as "wicked, mad, now on board a man of war". His wife and four children receive the income. Mr. Pope of Corfe Castle serves the parish for 5 shillings a week to their satisfaction". Charles Dobson at Chettle was noted by the bishop in 1735 as being "very drunken and wicked, hath been in jayl", similarly Mr. Shuttleworth of Preston was said to reside in Weymouth and to be "scandalously drunken and profane"; while at West Parley in 1766 Benjamin Bower was noted as "This Bower is a worthless fellow and much in debt". Dr. Thomas Dibben who was vicar of Fontmell Magna and rector of Fifehead Neville in 1735 and served both churches himself was described simply as "disordered in his head". Undoubtedly the incumbent with the most varied experience was William Morgan who was at Piddletrenthide in 1766. It was noted that his brother, John Morgan, was a prebendary of Winchester and "a very worthy good man", but William Morgan who had once been a curate at St. George's, Hanover Square then became "private tutor to that Earl of Ferrer who was hanged for murder". He then apparently left the church and became a Quaker, and had preached as such in various places including Bristol. After this he was employed as a spy abroad, and finally returned from his travels to become vicar of Piddletrenthide. The bishop described him as "a most strange wild man, with some parts, and, I am afraid, of very indifferent life and conversation".

Most of the church buildings seem to have been in a reasonable state of repair. Seldom is anything mentioned other than minor defects and generally it is stated that these are being dealt with. Only two churches are noted as being in a really bad state of repair. One was Wyke Regis which was said to be "in very bad repair, dangerous going to it, timber both in tower and church rotten". They are now mending the South Isle, but being chiefly Dissenters do the work unwillingly . . . seats infested and rotted with droppings . . . ". The other was nearby at Radipole which was said to be "decayed and weake and kept together by iron cramps". This was the mother church of Melcombe Regis and it is noted that the whole Corporation and majority of the town are dissenters. Bishop Secker in 1735 described the church which had stood at Blandford Forum, "The Church burnt with the town June 4th, 1731, consisted of three large Isles and two chancells all covered with Lead, and had a tower with a leaded shaft or small spire with five bells, a clock and chimes". Secker also suggests that there had previously been a parish church at Milton "of which there is not now the least remains". This tradition was later to be repeated by Hutchins (Hutchins 3rd Ed., Vol. IV), though there seems to be no firm evidence to support it. At St. James' Church, Poole, it was noted in 1735 that "there are now but two bells in the tower, three having been taken away".

A particularly interesting feature of the notes is the account they give of dissent in Dorset during the 18th century. It is clear that the older forms of dissent were very strong in many places in the county, and that Methodism had made little headway, though because during the later years of the 18th century Methodists often continued to attend the services of the Church of England, there was obviously some doubt as to whether they were properly to be described as dissenters or not. At Bridport in 1766 the bishop noted that there were "about 433 families, of which no less than 130 are dissenters of various denominations, *viz.* 56 Presbyterians, 49 Independents, 11 Anabaptists, 14 Quakers, No Methodists. There are four reputed Papists who attend Mass at Chideock about three miles from here where there is an ancient Mass house, the priest's name is Compton". At Wyke Regis in 1735 there were 200 families of Presbyterians, eight of Quakers and four of Anabaptists. At Wareham the very high number of dissenters in 1735 was explained by the fact that "The former Rector was a Lunatick and this occasioned the increase in Presbyterians". Lyme Regis with its strong Puritan tradition and history of resistance to the royal forces during the Civil War, was still strongly independent in 1735 and the bishop noted "Incumbent Mr. Syms good, his predecessor Mr. Hallet had been minister there sixty years, seldom used the surplice or conformed in any respect strictly to the rules of the church. This did not lessen the number of Dissenters and now ten out of sixteen and the generality of the town are such". It is interesting that in the parish church at Lyme Regis in 1735 the communion table was still placed in the middle of the chancel as had been the practice during the Commonwealth, "the Communion table not set altarwise but with a rail quite round it in the middle of the Chancell". John Wesley preached several times in Shaftesbury, and although he was often dissatisfied with the response and was to write in his *Journal*, "I scarce know a town in England where so much preaching has been to so little purpose", it is clear that Methodism was well-established there by 1766. The bishop comments that the principal Methodist teacher was John Haime, a native of the town, by trade a button-mould-cutter, who left his home "for fear of a prosecution for sheep-stealing, enlisted soldier, afterwards was discharged from the army, then returned and commenced Methodist teacher". This is undoubtedly a very biased and inaccurate view of this interesting man, and a very different picture of him emerges from the study entitled *The Haimes, A Dorset Family*, by John W. Haime (1970).

As would be expected the Catholics were most numerous in places around the houses of the few important Catholic families. A number of Catholics were reported in the parishes around the Arundels at Chideock, around the Welds at Lulworth, where there were eighty or ninety families of Catholics or one in three of the population in Lulworth itself, and around Sir John Webb's house at Canford Magna. The Hussey's residence at Marnhull is also described as "a house to which there is a great resort of papists on Sundays".

There are few references in the notes to parish life or of the doings of parishioners, though those that do occur are very interesting. In a few parishes moral delinquents are noted so that further proceedings may be taken against them in the church courts, as for example at Blandford Forum in 1735 where it is noted that "Catherine Piddle, Prudence Paine, Christian Adam have had bastards — impudent creatures that do penance yearly without shame". There are also occasional disputes, as at Maiden Newton in 1735, where there were two patrons, Sir William Wyndham and Mr. Horner who upon any vacancy took it in turn to nominate the next incumbent. But the living had been vacant for many years because of a dispute between the two patrons as to whose turn it was. The parish had meanwhile to be served by the incumbent of Toller Fratrum. Most interesting of all is the dispute involving the village musicians at Melbury Osmond in *c.* 1750, particularly in view of what Thomas Hardy was later to write about Mellstock. The bishop noted that he had been obliged to settle "an unhappy difference between Mr. Feaver (the rector) and Daw, the churchwarden and others about singing of psalms with various instruments". The quarrel was settled by the bishop forbidding the use of such instruments "and both parties promised to live in concord for the future. The churchwarden had assumed powers which did not belong to him".

Finally, these notes would prove valuable to local historians interested in the population changes of Dorset parishes, for they provide figures of the number of families in each parish in 1766. They would, therefore, form a valuable stage in the population history of any parish between the various taxation returns and other population figures of the 17th century and the first official Census in 1801.



The Mediaeval Deer-Parks of Dorset XIII

By J. D. Wilson

AUTHORITIES

AD	Descriptive Catalogue of Ancient Deeds in the PRO
Cal CR	Calendar of Close Rolls.
Cal PR	Calendar of Patent Rolls.
Cal SP Dom	Calendar of State Papers Domestic.
Crawford	O.G.S. Crawford, *Archaeology in the Field*, 1953.
Fry	Fry's Typescript in the Dorset County Museum.
Gerard	Thomas Gerard, *A Survey of Dorsetshire*, 1732.
Good	Ronald Good, *The Old Roads of Dorset*, 1966.
Hutchins	J. Hutchins, *The History and Antiquities of Dorset*, 3rd ed., 1861-70.
Leland	L. Toulmin Smith (Ed.), *The Itinerary of John Leland in or about the years* 1535-43, 1908-10.
Oswald	Arthur Oswald, *Country Houses of Dorset*, 1959.
Wightman	Ralph Wightman, *Portrait of Dorset*, 1965.

MARSHWOOD (29) AND CREKELADE (12)

THE twin parks of Marshwood and Crekelade pose problems which the present paper can claim only to illuminate, not to solve. Firstly, both Saxton (fig. 1) and Speed show them as sharing a common boundary running roughly north and south, with Crekelade Park on the west. This common boundary is unique among Dorset parks and its purpose is difficult to explain. If one park antedated the other, why, when the second was established, should an internal boundary between the two be preserved? If, on the other hand, they were created at the same time, why make them as separate entities with an internal division?

The second problem is the complete disappearance of the place-name Crekelade. For the sake of uniformity the spelling used by Saxton has been adopted for this now forgotten name; it appears, as will be seen, in a variety of spellings in the medieval documents and Hutchins, though following Saxton's rendering, also introduces an otherwise unknown variant. He says: "Here were two parks, the largest of which was called Marshwood Park; the other, adjoining to the former, called Brekelade or Crekelade Park". (Hutchins, 3rd ed., II, p.260). The name has not survived in any local field or other place names. Though the first reference to more than one park in Marshwood Vale comes in 1329, not until 1430 is Crekelade Park mentioned by name. In 1463 one John Cryklade granted lands in Marshwood Vale to William Beawshen, though there is no mention of the park in the document which records the transaction.

The absence of truly characteristic park earthworks in the area is the third problem: the fieldworker here must point to topographical features from which the park boundary may be inferred, rather than to physical remains which prove it. This is the more surprising in an area where large hedge banks are not uncommon, where modern farming has not yet made great inroads upon them, and where the parks were apparently of quite early foundation.

To examine the documentary evidence in detail, the earliest reference so far found dates from 1315. An Inquisition Post Mortem mentions ". . . a park, with game, containing by estimation 200 acres, whereof the pasture is worth yearly 6s. 8d, besides the sustentation of the game." (Fry, Dorset IPMs, 422). It is not safe to assume from this that there was then only one park in existence; in any event, in 1329 there were certainly more than one, for an inquiry was then made into ". . . trespasses in the parks and free chaces of Robert le Fitz Payn at Merswode, co. Dorset". (Cal. PR, Ed. III, 1327-30, p.435). By 1357 the parks had become royal property: "Appointment of Peter Blount and Peter Colfax to take carpenters, masons and other workmen for the repair of the manor and the enclosure of the parks of Mersshwode co. Dorset, in the hands of the King's son Lionel, Earl of Ulster, and to put them on the said work at the Earl's wages, for one year". (Cal PR, Ed. III, 1354-58, p.642) From 1383 comes a typical reference to the appointment of a keeper of the royal parks: "To the receiver or reeve of the manor of Merswodevale co. Dorset for the time being. Order from 12 February, 5 Richard II, so long as he shall have the same to pay to John Morgan the king's esquire the wages pertaining to the office of keeper of Merswodevale parks and the bailiwick of Whitchurch thereto pertaining, which are in the king's hands among other lands etc., of Edmund de Mortuo Mari earl of March by reason of the nonage of his heir, as William Halghton and other keepers heretofore had the same; as on the aforesaid date the king granted that office to the said John for life, so long as the same should remain in the king's hand". (Cal. CR, 6 Richard II, Part II, p.266). In 1401 Henry IV granted the office of keeper of the Marshwood parks to William Somercotes (Cal. PR, Henry IV, 1401-5, p.26), and it was perhaps during his term of office that a commission was formed "to enquire into the report that certain evildoers went to the manor of Mersshwod and the hundreds of Whitchurche and Mersshwode, co. Dorset, in the king's hands by reason of the minority of Edmund son and heir of Roger, late Earl of March, and committed divers trespasses in the parks and stews there". (Cal. PR, Henry IV, 1408-13, p.180).

As already mentioned, the first reference which names Crekelade Park is found in 1430, together with some other local place names which might also merit investigation. "Assignment by Richard Melbourne, the king's escheator in the county of Dorset, to John, Earl of Huntingdon, and Anne his wife, late the wife of Edmund, Earl of March and Ulster, of the said Anne's dower out of the manor of Mersshewode, including lands called 'Podelhurst', crofts called 'Notecroft' and 'Wildeham', a close called 'Mersshe', a croft called 'Stokehull' in a close called 'Brodemede', pasture called 'Carmedyneslond', messuages, cottages, rents, and a park called 'Crykelade' and etc." (AD, Vol. II, p.356). From this it might appear that at that time, and perhaps for the first time, the two parks were separately owned.

Several documents of 1438 and 1440 refer, among many other properties in West Dorset, to "Litylparrok in Mersshewodevale". (Cal. CR, 16 Henry VI, pp. 189 and 190-191). Can this refer to one of the parks? As O.G.S. Crawford pointed out, the word "park" is derived from the Old English "pearroc", an enclosure. (Crawford, p.191). The idea is tempting, but the name "Litylparrok", one of a long list of properties in private hands, is certainly not found elsewhere in reference to either of the parks. The next indubitable reference to Marshwood Park does in fact speak of that park only: "January 13, 1460, Westminster. Grant for life to the king's servant Thomas Baker of the household, for good service against the rebellion, of the office of parker of the park of Mersshewode, co. Dorset, in the king's hands by reason of the rebellion and of an act in the parliament held at Coventry on 20 November last against Richard, Duke of York, and others: to hold himself or by deputies, with the usual fees, wages and profits". (Cal. PR, Henry VI, 1452-61, p.535).

However, the next royal appointment to the office of keeper mentions both parks once again: "June 28, 1474, Westminster. Inspeximus and confirmation of letters patent of the king's mother Cecill, Duchess of York, late wife unto Richard, rightful king of England, dated at her castle of Berkhampsted, 25 June, 13 Edward IV, granting for her life to her servant Ralph Kyrisshawe, squire, one of the sewers of her chamber, the office of keeping her parks of Mershewode, co. Dorset, receiving the accustomed fees at the hands of her receiver there with all other

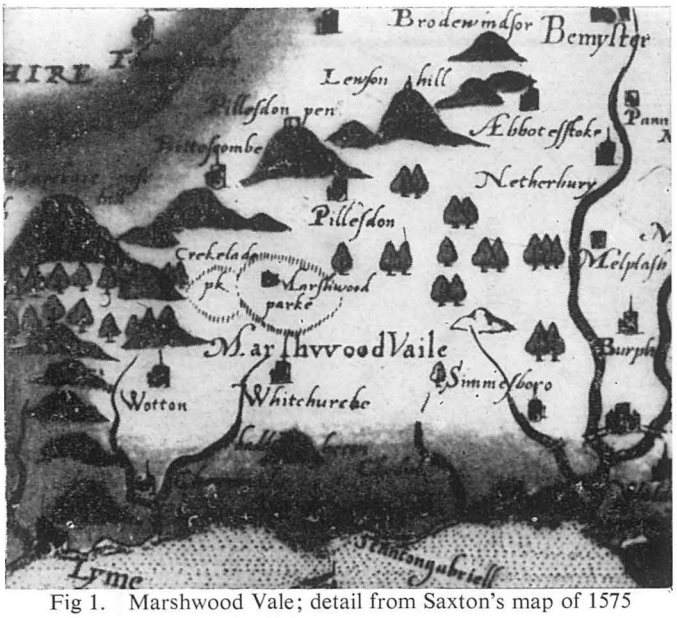


Fig 1. Marshwood Vale; detail from Saxton's map of 1575

profits; and grant to the said Ralph of the said office for life on the death of the duchess, receiving the accustomed fees from the issues of the lordship of Marshwode with all other profits". (Cal. PR, Ed. IV—Henry VI, 1467-77, p.447). Similar appointments recorded in 1485 and 1488 refer to Marshwood Park only. Leland, writing in the 1530's or 40's, commented: "Chare Water risith a 3 miles above Charemouth by North in a Park of the Kinges caullid Marsche Woodde". (Leland, 2nd ed., Vols 3/4, p.60).

Another documentary reference to Crekelade as well as to Marshwood Park occurs in 1547: "Whereas by patent, 25 Feb. 35 Henry VIII, were granted to Queen Katherine for life . . . the lordships and manors of Knoll, Steple and Creche, and Marshwood alias Marssheowood Vale, Dors., the parks of Marshewod and Crekelad, the office of feodary of Marshwood, Dorset . . . now in fulfillment of his father's intention the king, after his said father's death and before his own coronation, having by patent created Hertford duke of Somerset, grants to him the reversion of the premises above recited and granted to the Queen". (Cal. PR, Ed. VI, 1547-8, p.124).

Three years later other Dorset parks are mentioned: "At the humble petition of the king's uncle Edward Duke of Somerset . . . grant to the said Edward . . . the office of feodary of Marshewoode, and the lordships and manors of Knolle, Steple, Creche, and Crose Castell, and the petty customs and prisages of wine in Pole, and the parks of Canforde, le Holte, Marshewoode and Crekelade". (Cal. PR, Ed. VI, 1549-51, p.430). In 1553 the lordship and manor of Marshwood and the two parks were granted to the Duke of Northumberland (Cal. PR, Ed. VI, 1553, p.181) and later that same year Queen Mary granted them to her cousin, Gertrude, marchioness of Exeter. (Cal. PR, Philip and Mary, 1553-4, p.81).

Reference has been made before in this series to the "Certificate as to Parks in Dorset" of 1583. (Cal. SP Dom, Eliz. I, Vol. 163). The two Marshwood Vale parks are listed under the heading "Hundred of Whitchurch" as follows: "Marshwood Park, belonging to Sir Amias Paulet, 3 miles or thereabouts in compass 'but disparked and converted into divers tenements'. Cricklade Park, lands of Mr. Baker in Kent, but is likewise disparked and converted to pasture and tillage, in compass 2 miles or thereabouts".

The phrase "belonging to Sir Amias Paulet" is qualified by a book of Offices under the Crown dating from about 1588, which contains the reference: "Sir Amers Paulets by inheritance; Marshwoode, Keeper of the Park, Fee £6.20d p.a." (Cal. SP. Dom, Eliz. I, 221, p.33). Whatever Sir Amias's exact title to the estate may have been, a valuation of royal properties made under James I in 1609 contains no references to Marshwood Vale or its parks, and thereabouts their history evidently closed.

Thomas Gerard in his Survey of Dorset, written between 1625 and 1634, speaks of this former royal manor with an elegiac note: "The principal place in it is called Mershwood, which gave it the name, and was antientlie of much accompt, as the two parkes adjoining seems to affirme . . . but little doth now remain at Mershwood worthie the honour of the place and the owners of it, the parks beeing disparked, the names dispersed, and the house onlie able by ruins to shew it has been such". (Gerard, pp.13-14).

There can be little doubt as to the general position of the parks. Three-quarters of a mile south-east of Marshwood Church is Park Farm, with fields called Little Park and Great Park close by. A similar distance further to the south-south-east is Lower Park Farm, and just to the west of this farm are five fields with park names: Higher 5 Acres Park, Lower 5 Acres Park, Little Park Meadow, Park Four Acres, and Eight Acres Park. The position of these fields is shown by shading on the sketch map, fig. 2. Taken in conjunction with Saxton's map, a small area of which is reproduced as fig. 1, these names, and the position of Marshwood Castle, which is presumably the building which Saxton shows within the boundary of Marshwood Park, provide the basic data from which the park boundaries must be deduced. In the almost complete absence of characteristic park earthworks, the deduction must rely largely on topographical probability.

Marshwood Vale is almost completely enclosed by high ground: on the north by the steep slopes of Bettiscombe and Marshwood; on the west by Lambert's Castle and Coney's Castle; on the south by Coneygar Hill, the slopes above Whitchurch village, Coppet Hill and Denhay Hill; on the east by the ridge along which runs the road from Bridport to Broadwindsor. The area of the Vale occupied by the parks may perhaps be more closely defined by reference to the mediaeval road system. *In The Old Roads of Dorset* (p.69) Professor Good describes a mediaeval road which traversed the Vale from south-east to north-west and is still largely in use today. It ran from Dottery by way of Broad Oak, Paddock's Cross, Shave Cross and Marshwood Cross to Marshwood village. A southern branch turned off at Broad Oak and led past Denhay Farm, Purcombe Farm, Cutty Stubbs, Mandeville Stoke, Valehouse and Northay farms to Fishpond and Hawkchurch. Both branches of this old road can probably be identified in part with the boundaries of Marshwood and Crekelade parks. Nothing has been found to suggest that the parks extended significantly to the north or south of them, and, given the basic lack of convincing earth-works, the most problematical parts are the eastern and western boundaries and the possible junction of the two parks.

Crekelade Park seems to present fewer problems, though the suggested outline, shown on the sketch map, is by no means thought of as being established beyond question. Nothing resembling a park bank can be found along the old road from Charing Cross westwards past Marshwood Cross to point B. The line of hedge running south from this point to A is shown as tree-lined on the 2nd, 1904 edition of the 6 in. O.S. map; its northern half has been thinned out in recent years, but further south it retains a bank as much as 18 ft. wide in places, though never more than 4 ft. high. This line is taken to mark the eastern side of Crekelade Park. It is suggested that from B the line of Mutton Street and Nash Lane can be taken as the park boundary, though there is no trace of earth-works to support the theory.

The western side of the Park is believed to be defined by the present metalled lane running south along the eastern side of Lambert's Castle, and then, passing Peter's Gore, by Abbott's Wootton Lane. No feasible line for the western side of the Park can be established further down the slope to the east. Opposite Nash Farm the Lambert's Castle lane has on its eastern side an impressive hedge bank some 22 ft. wide and 4 ft. high. This bank can, however, be followed northwards, with some variations in width, around the southern edge of Marshwood village and beyond Marshwood Church to point C, on the old road coming up from Mutton Street. Should this line, which is marked on the sketch map, be taken as part of the park boundary? It will be noticed that it is also the county boundary for much of the distance, and that both north and south of Nash Farm bank and boundary both make some sharply angled bends.

Southwards from Nash Farm, through the angles already mentioned, the bank continues, though not quite so large, and

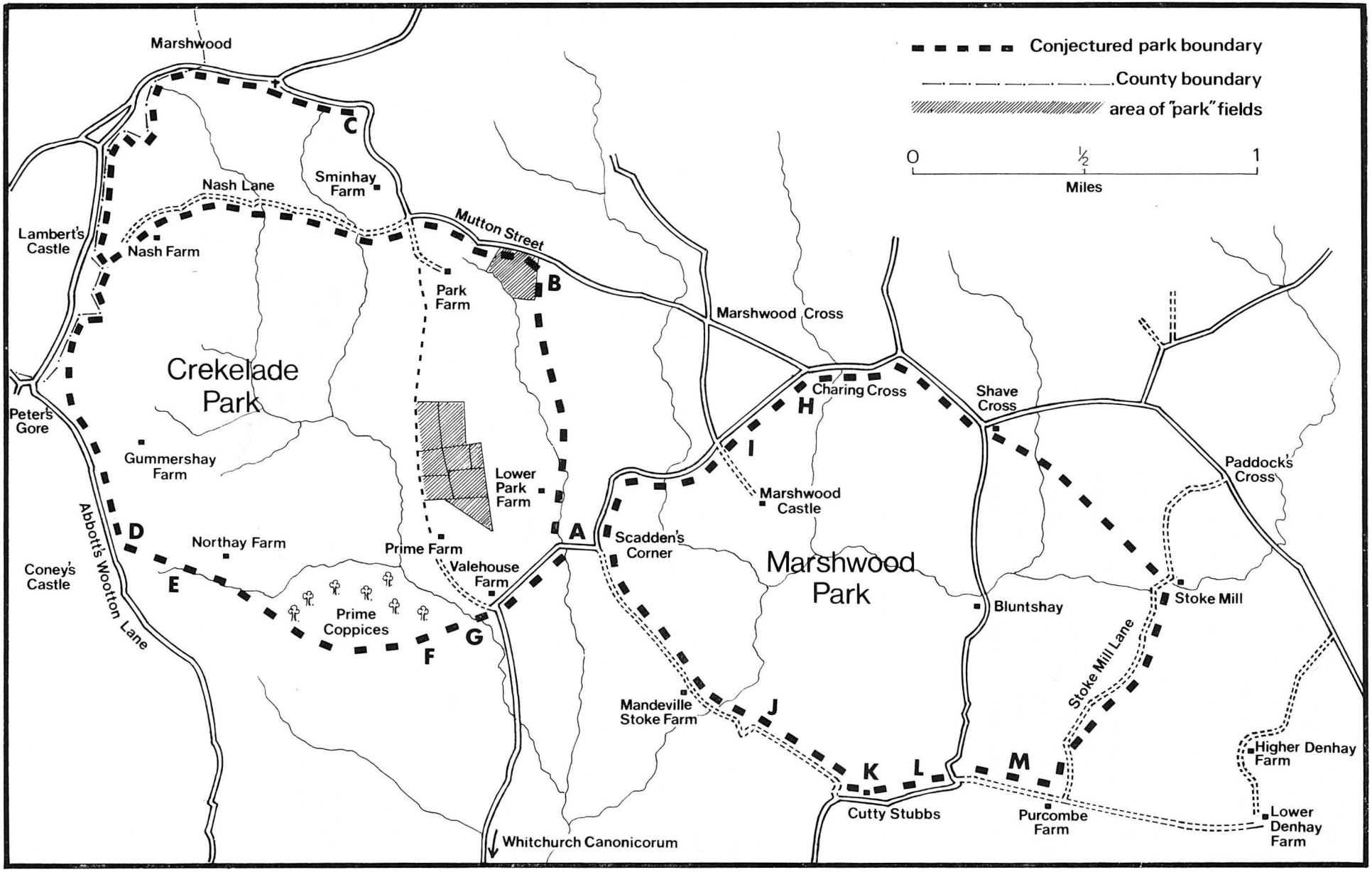


Fig. 2. Marshwood and Crekelade Parks

rregularly across the angle between the lanes by Peter's Gore, ust below the old Nag's Head. From this point southwards, the astern side of Abbott's Wootton Lane has a much less impres- ive bank than further north, but is still taken as the park bound- ary as far as point D. Here a deep and wide gully leads down owards Northay Farm. Close to the lane it has a small bank on ts southern edge, but further down the slope as the gully becomes hallower the bank increases in height until at E it is some 8 ft. igh. Beyond this point the flattened remains of a bank can be raced across a field to the lane south of the farm.

As already mentioned, Northay Farm is on the southern branch of the mediaeval road discussed by Professor Good. Although his map shows an old road along the line D-E, he mplies that the main course of his through road led by Northay nd Gummershay to Peter's Gore, and that it reached Northay rom Valehouse on a line which is now a bridle road around the orth side of Prime Coppices. However, nowhere does this line how any embankment, and for the southern extremity of Crekelade Park a line to the south of Prime Coppices is preferred, by virtue of an embankment leading down to the stream south of Valehouse Farm, on the line F-G. The connection between Northay and point F is admittedly indeterminate: the various edges show no notable embankment and make no continuous ine. Along F-G however is a wide flat bank, from 18 ft. to 21 ft. wide though at most only 3 ft. high, the southern edge being lways the higher. It will be noticed that this bank is aligned with the length of metalled road beyond the stream, though no mbankment can be found along that lane. From the bend in the ane just west of Scaddens Corner, the hedge line running directly o point A is not embanked. Nevertheless it is felt that this line ompletes a reasonably convincing outline for Crekelade Park.

But the problem which remains unanswered is the junction of he two parks, as shown by Saxton and Speed. The conclusion eached after extensive field work is that though closely adjacent hey did not in fact share a common boundary. The reasons for this onclusion can best be understood by reference to the sketch map. t has already been said that no embankment can be found along he road between Charing Cross and point B. But north of Marsh- wood Castle a bank can be traced on the south side of the road rom H to I: first as a low ploughed-out remnant along the edge of the field, then as a hedge bank ranging from 20 ft. to 25 ft. vide. Again, south of the Castle at J-K, along the line of the old oad north-west of Cutty Stubbs, a somewhat similar feature can e seen: a bank 17 ft. or 18 ft. wide and some 3 ft. high, on the astern side of the lane. This is on the line of Professor Good's oad, though further north his line diverges from the present ane north of Mandeville Stoke Farm and heads directly for Valehouse by what is now an unhedged footpath. But he also akes Mandeville Stoke Lane as a mediaeval road, and this urely completes the most likely line for the south-western corner of Marshwood Park, although only at one further point, half- way between Mandeville Stoke Farm and Scaddens Corner, can ne relatively insignificant length of bank be found.

If there was a common boundary between the two parks, these wo converging lines for the western end of Marshwood Park llow for little more than the quarter of a mile north of Scaddens Corner, and this, if the suggested outline of Crekelade Park is orrect, would necessitate some right-angled bends which would e highly uncharacteristic. Moreover a direct route between Whitchurch with its important medieval shrine, Marshwood Castle and points north would be blocked. All this, and the ap- arent pointlessness of continuing to treat two parks as separate ntities yet maintaining an internal subdivision even when they ere under the same ownership, would seem to argue conclusively gainst the arrangement suggested by Saxton and Speed.

A further point should be made here about the use which has een made of the mediaeval road system as described by Pro- essor Good. He points out that roads which he believes to be nedieval in origin may not necessarily have remained in use hroughout the mediaeval period, but could have risen or fallen n popularity for a variety of reasons. An example of this may be he road which he describes as leading north from Whitchurch, y way of Valehouse Farm and Prime Farm, straight to the road hich climbs past the Sminhay Farms to Marshwood Church and village. At the outset of field investigations, this line north of Prime Farm, still a bridle path and marked on $2\frac{1}{2}$ in. and 6 in. O.S. maps with double hedge lines and rows of trees, looked a very likely site for the communal boundary of the parks. But examination showed no embankment, such as we found on the line A-B a little to the east, and the latter was thought likely to be the eastern side of Crekelade Park. The Prime Farm road could then hardly have been available as a through route for much of the mediaeval period, any more than could an east-west road Professor Good also mentions, from Bluntshay to Valehouse, passing just south of Marshwood Castle. Access to parks was permitted at various times and for various purposes, as is made clear in previous papers in the present series (e.g. Harbin's Park, *Proceedings* Vol 86 and Gillingham, *Proceedings* Vol 87), but a commonly used through route seems highly unlikely.

To continue with the southern side of Marshwood Park, the line J-K seems to be extended eastwards, after a break at Cutty Stubbs, by L-M, a massive hedge bank on the north side of the lane. This is in places up to 20 ft. wide and sometimes well over 10 ft. high. It clearly rules out the possibility of the road past Bluntshay to Shave Cross marking the eastern side of the Park: in any event this road is too close to Marshwood Castle and is nowhere suitably embanked. Beyond M, no trace of the bank could be found close to Purcombe Farm, but Stoke Mill Lane would seem to be a likely line for the continuation of the park boundary. Along the eastern side of the Lane, from N to O, is a bank measuring as much as 18 ft. to 20 ft. wide and 3 ft. high. Whether the park boundary ran on from point O through the angle of the lane to Paddock's Cross, and then back along the line of the old road to Shave Cross is uncertain. The irregular line would not be typical, and no embankment could be found to support this theory. More likely would be a line leaving Stoke Mill Lane just north of the Mill and curving north-westwards towards Shave Cross, but here again no evidence was forthcoming, with the possible exception of an embanked length of hedge leading south-east from the Shave Cross Inn along the line of the parish boundary.

The suggested boundaries would enclose an area of some 980 acres for Crekelade Park (or about 1140 acres if the line by Marshwood Church is accepted), and a somewhat similar area, roughly 940 acres, for Marshwood Park. Virtually the whole area is on the blue clays of the lower lias. As Ralph Wightman pointed out, (Wightman, p.158) the Vale was always sparsely inhabited because untainted water supplies were so scarce—though surface water is abundant. It is noteworthy that the Royal Commission on Historical Monuments list no building within the park areas dating earlier than the 17th century, with the exception of Marshwood Castle.

The outline suggested here for the two parks of Marshwood Vale, is, most regrettably, largely theoretical: a state of affairs as unsatisfactory for the field worker as for the reader. All that can be claimed is that extensive field work failed to reveal any more convincing physical evidence, and that the suggested outlines for the parks are at least tenable. Some problems still remain—for instance that Saxton shows Marshwood Park as appreciably larger than Crekelade, which is supported by the 1583 Certificate as to Parks in Dorset. Here, more than for most of the mediaeval park sites of Dorset, there is ample room for conjecture, and readers' comments on the topographical problems of the parks of Marshwood Vale would be especially welcome.

AFFPUDDLE (P.1) AND MANSHAM (46)

Thomas Gerard's *Survey of Dorset* was written between 1625 and 1634 but not published until a century later, in 1732. When it finally appeared it included a map of the county of which the superscription reads: "To the Honble. George Dodington Esqr, this MAP of DORSETSHIRE is humbly Dedicated by his most humble Servt. John Wilcox". The map shows most of the parks which Saxton had included two centuries earlier, but with the addition of a park immediately south of Affpuddle. No other reference to a park there has been found, and this map alone would not have justified its inclusion in the list of possible park

sites. However apparent justification was found in a field named "The Park" in the Tithe Apportionment. This field lies half a mile south of Affpuddle Church, on the west side of the B3390 road and immediately north of Sares Wood. Athelhampton Park (*Proceedings*, Vol. 88) lay on the same ridge a couple of miles to the west.

Various banks can be found in and around Sares Wood, but none have the characteristics of a mediaeval park bank; lengthy examination of the Wood, neighbouring hedge lines and parish boundaries suggested very strongly that no embanked mediaeval park had existed in the locality.

It had been thought that this ghost of a park might offer a solution to the problem of Mansham, number 46 on the check list of Dorset parks. This is a place-name which Colonel Drew described tersely in his card index as "unidentified", a description which it still merits. The reference to Mansham, in the Patent Rolls for 1315, is as follows: "July 18. The like to William de Bourne, William de Hardene and John de Erle, on complaint by William de Whytefeld (or Whitefeld) that, although the king lately took him and his men and possessions under his protection the Abbot of Bynedon and brothers Robert de Abbotesbury William de Stanlak and John le Vox, fellow monks of the Abbot, Hilary de Bere, Robert Golde, John le Bakere of Midhurste and Stephen de Waudene, with others, with divers animals depastured the herbage growing in his meadow at Mansham, co Dorset, cut down his trees and carried away the trees and other goods of his, broke his park there, and took and drove away certain beasts impounded there by him and his servants, and assaulted and imprisoned his servants". (Cal. PR, Ed. II, 1313-1317 p.406).

The de Whytefelds were seated at Woodsford Castle; as Arthur Oswald pointed out, William de Whytefeld was granted a licence to crenellate the Castle in 1337. (Oswald, p.50). Since Woodsford is less than three miles south-west of Sares Wood the suggestion that the two were connected carried obvious weight. Though a blank has been drawn as far as Sares Wood is concerned, it still seems likely that this part of Dorset may hide the site of Mansham Park.

King's Stag and Caesar's Deer

By Michael Bath, M.A.

THE story of the white hart which gave its name to what we now call the Blackmore Vale (though that name is also ancient) is one of the best known and most attractive Dorset legends. It was first made widely known in the county by Hutchins, and though it has often been referred to by subsequent local antiquarians and popular topographers it has never been comprehensively examined in any depth. My purpose is to look again at some of the sources of the legend, though these may be familiar documents to local historians, and further to compare the legend with some of its probable analogues, which lie outside the county, and may be less familiar.

The story is best retold by quoting the standard account as it appears in the third edition of Hutchins' *History of Dorset*, under the sub-heading "King Stagg Bridge" in the entry for the parish of Pulham.

> *King Stagg Bridge* in this parish is noticed by Coker in the following terms:— 'From Mapowder the Brooke passeth through deepe and dirtie soil under King's Stagge Bridge, which got that name upon this occasion: King Henry the Third haveing disported himself in the Forrest of Blackmore, he spared one beautifull and goodlie White Harte, which afterwards T. de la Linde, a neighbour gentleman of ancient descent and especiall note, with his companions persuing, killed at this place; but hee soone founde howe daungerous it was to be twitching a Lion by the eares, for the Kinge tooke soe great indignation against him that he not onlie punished them with imprisonment, and a grievious ffine of money, but for this fact he taxed their lands, the owners of which ever sithence yearlie untill this daye paye a round summe of money, by way of amerciement, unto the Exchequer, called White Harte Silver, in memorie of which this county needeth noe better remembrance than the annual payment. The posterity of this man ever after gave for their armes White hartes heads in a redd shield, when as formerly they gave the coate of Hartly (Argent, a cross engrailed gules), whose heire they had married. And the Forest alsoe from that time begane to lose its ancient name, and to be called the Forrest of White Harte.'

The person here spoken of as T. de la Linde must have been Sir John de la Lynde, who was forester of Blackmore in the reign of King Henry the Third, there being no evidence of a T. de la Lynde having lived in that period. Sir John de la Lynde was a person of some distinction, and an account of him and his family may be found under Hartley in Great Minterne hereafter, and under Winterborne Clenston, vol. 1. p. 188. The story rests wholly on tradition, which probably owes its origin to many trespasses committed in this and neighbouring forests during the reign of Henry III; and no contemporary or documentary evidence relating to it has been met with.

Near this place, on the road to Sturminster Newton, is a small inn called "King's Stag", its sign displaying a stag with a gold collar round its neck, and underneath the following lines:

> When Julius Caesar landed here
> I was then a little deer;
> When Julius Caesar reigned King
> Round my neck he put this ring
> Whoever shall me overtake,
> Save my life for Caesar's sake.

The virtue of this account is, firstly, that it preserves the colourful language of Coker's *Survey of Dorsetshire*, and secondly that it presents all the information necessary to an understanding of the scholarly cruces involved in the legend, which I would summarise under the following headings: (1) the historicity of the story; is it fact or fantasy? (2) the identity and genealogy of the de la Lyndes, (3) the origin and nature of the fine known as "white hart silver", (4) the origin and meaning of the inn-sign. Of these problems the last is the one which so far has attracted least attention, but is in fact the most interesting of them all. The earliest editions of *Hutchins* lack both the above virtues[1]. Instead of quoting Coker, Hutchins was content in his first edition merely to paraphrase him. He includes the story in an appendix to vol. 2. on "The Vale and Forest of Blakemore or White-Hart". In the second eddition the material is redistributed under the various parish headings, and the account of Coker is

quoted verbatim, as above, but for the mention of the inn-sign we are indebted to Hutchin's two Victorian editors. We are not therefore justified in assuming from the documentary evidence that its antiquity predates the nineteenth century.

The earliest account of the white hart legend is to be found, not in Coker's *Survey of Dorsetshire (1732)*[2] which Hutchins quoted, but in an earlier work originating outside the county, namely Camden's *Britannia*. Although it seems to duplicate my quotation of Coker, Camden's account is worth having verbatim since it is the earliest. Indeed it is worth quoting *because* it seems to duplicate Coker.

> At the spring head of *Frome*, where the soile is most fruitfull, the forrest of *Blackmore* sometimes thicke, and full of trees, but now thinner growne, yeildeth plentiful game for hunting. This by a more common, and better knowne name is called *The Forrest of white hart*. The reason of which name, the Inhabitants by tradition from their forefathers report to be thus. When King Henry the Third came hither to hunt, and had taken other Deere, he spared a most beautifull and goodly White-Hart, which afterwards *T. de la Lynde* a gentleman of this countrey with others in his company tooke and killed: but how perillous a matter it was to bee twitching (as they say) of a lion they soone found and felt. For the king conceived great indignation, and high displeasure against them, put them to a grievous fine of money for it, and the very lands which they held, pay even to this day every yeare by way of amercement a piece of money into the Exchequer, which is called *White hart silver*.

The text of this is taken from the translation of Camden made by Philemon Holland in 1610.[3]. If in reading it you have the feeling that you have read it before, the reason is that its wording is so close to Coker's narration, which I have quoted from *Hutchins* at the beginning of this article. Not only has Coker poached Philemon Holland's vivid figure of "twitching the lion", but other phrases such as "a grievous fine" and "great indignation" are taken over intact. There can be little doubt that Coker's account is based on Holland's translation of Camden. The only substantial piece of information for which Coker is not indebted to Camden is the reference to the arms of Hartly, which *Hutchins* dismisses as "inaccurate". The original documentary source of the story is thus Camden, not Coker (or Thomas Gerard), though the local connections of the latter might lead one to suppose otherwise. Camden, unlike Coker, gives as his source local tradition such as "the inhabitants from their forefathers report to be thus . . ." Such an acknowledgement is valuable insofar as it points us where to look—not in the Public Record Office, but in the testimony of local tradition as it is recorded in place names and pub signs.

The only elements in the tradition which tend to confirm its historical basis are the name de la Lynde, which is well attested and has already been the subject of investigation[1] and the question of the fine or tax known as white hart silver. I propose to do no more than summarise the evidence on both.

The history of the de la Lyndes is given in *Hutchins* (third ed. vol. 1. p. 188) under Winterborne Clenston. In 12 Hen. II John de la Lynde held the bailiwick of the forests of Gillingham, Blackmore and Poorstock. Sir John de la Lynde went to France the same year as ambassador to Louis IX, and two of his letters to Henry III survive. *Hutchins* speculates that, as there is no record of a de la Lynde bearing the initial "T" at this period the story most probably relates to this Sir John. The question of the coat of arms is almost certainly one of Coker's red herrings. The family descended to the 16th century in Dorset with property at different times at Fordington, Clenston, Glanvilles Wootton and elsewhere. In the 16th century Avice de la Lynde married a Lychett Trenchard, as doubtless Hardy noted before adopting that curious christian name for his three heroines in *The Well Beloved*.

There has been considerable scepticism over the subject of White Hart Silver. Richard Gough in the supplementary notes on Dorset in his 1806 translation of *Camden* remarks that "*White Hart Silver* seems to have been only *Leet money*". His scepticism derives from the fact that no record of the imposition of the tax survives. And yet Thomas Fuller in his *Worthies of England* gives a brief account of the story of de la Lynde and the fine, which he claims "was imposed on the whole county (as accessory for not opposing him) which is paid . . . to this day into the exchequer" and adds "Myself hath paid a share for the sauce, who never tasted any of the meat; so that it seems king's venison is sooner eaten than digested". Fuller was rector of Broadwindsor in the 1630's, which is doubtless when he paid for the sauce. And yet despite Fuller's explanation it is not clear how a tax could be levied for such an offence on the whole county, nor how the whole county could have opposed de la Lynde in his pursuit of Henry's deer and it seems likely that Fuller is simply rationalising after the event.

Whether or not it was imposed on the whole county, white hart silver is nonetheless fact and not fantasy. The question was examined by J. S. Udal in a series of articles in *Notes and Queries* which are conveniently summarised in his *Dorsetshire Folklore* (p. 151 seq). Udal was informed that the fine was paid on the Whatcombe estate owned by J. C. Mansell-Pleydell (the first President of this Society). The Whatcombe estate at this time comprised Winterborne Clenston, which had been the property of the de la Lyndes, and which presumably bore the tax for that reason. Mansell-Pleydell's son, who was Udal's correspondent, said he thought the annual payment had been in the region of £1.10s. and that this had been commuted about 1880 to a final lump sum at the suggestion of the revenue authorities, who were doubtless tidying up one of the odder fiscal anomalies. Udal concludes that "the story as to the origin of the fine is not so apocryphal as has been supposed in some quarters". The conclusion is justified insofar as the fine is the only piece of legal evidence in favour of the legend.

There is one further piece of evidence that needs to be recorded. In a wall of the south chapel of Glanvilles Wootton church there is a series of encaustic tiles dating from the 14th century, each six inches square. One of the tiles depicts a deer in white slip decoration, another shows a bowman with hound, and another a horseman, possibly carrying a spear. The original tiles are much broken up, and some 19th century imitations now pave the floor. Local tradition associates these tiles with the white hart and with de la Lynde, as E. R. Dale's print of 1876, a copy of which hangs in the chapel, confirms. However it must be said that the relevant hunting scenes are only three out of a total of thirty-five different tile patterns which include various heraldic arms and motifs, some of doubtful attribution, of which no other has any discernable bearing on the local legend[5]. It would be nice to think that these tiles are the earliest reference to the de la Lynde episode, but it may be that they illustrate no more than commonplace hunting scenes, appropriate enough in what was a royal forest. One cannot say even that it is a *white* hart that is depicted, since all the designs are white on a brown ground.

The name "King's Stag" again is probably only evidence of popular belief, not of historical fact. A. Fogersten (*The Place Names of Dorset*)[6] notes that there was a boundary stake here marking the limit of three parishes, alluded to in a 13th century perambulation, and he derives the name from "King's stake" noting that "The popular legend of the White Hart lacks historical confirmation". But one need not accept this derivation as decisive, since it leaves some puzzles (why "king's" stake, for instance?), and even if it is right the name shows clearly the magnetic attraction of the legend, to which it irresistably alludes.

The inn sign also shows this magnetic attraction. Originally hung outside the old King's stag Inn on the Hazelbury Bryan road, near the bridge, it was moved on the demise of that establishment to a site opposite the present Green Man, which dates from early in the last century. The sign disappeared within living memory, and was described to me by Lt. Col. J. L. Yeatman. It showed a white deer with a gold ring round its neck. On the reverse side was the rhyme, as recorded in the third edition of *Hutchins*. It was taken down during the War for restoration by a firm in Bournemouth. Unfortunately the firm went bankrupt, and in the subsequent confusion the sign disappeared.

The interesting feature of the inn sign is its allusion to Caesar, for the legend of Caesar's deer is of great antiquity and of European extent. In its essential form the legend purports to record

the discovery of a deer with a golden collar bearing a Latin inscription dedicating the animal to Caesar and prohibiting its capture. A discussion of the legend and some of its versions can be found in *Notes and Queries* (1934)[7] but an exhaustive examination must await further research. Enough can be shown of the analogues to bring the story of Thomas de la Lynde into a somewhat different perspective from the familiar one. Although medieval forms of the legend dedicate the deer to Caesar, there are classical versions which take us back before the days of the Empire. Aristotle tells of a white hart which Diomedes consecrated to Diana which was killed by Agathocles, King of Sicily, a thousand years later[8]. Pliny, in his *Natural History*, that great source book of medieval bestiology, asserts that "The life of stags is generally acknowledged to be long. After 100 years one was captured with gold rings which Alexander the Great had put on it, which were concealed beneath folds of plump skin."[9]

At Senlis (Oise) there is preserved a legend that Charles VI, hunting in his youth in the royal forest, captured an old stag with a collar round its neck bearing the inscription "Hoc me Caesar donavit".[10] The legend crops up again in a book by Piers Andrea Mattioli (?1500-1577). Mattioli was physician to the Emperor Maximilian II. He translated the *De Materia Medica* of Dioscorides to which he added a commentary which includes a story that a hind was found after countless years bearing a collar with the following inscription: "Noli me tangere, quia Caesaris sum". Mattioli says (amplifying a detail which he doubtless had from Pliny) that it was impossible to cut its throat because of its silver collar, which was practically hidden by its hide.

The legend is most likely to be familiar to English readers through Thomas Wyatt's well-known sonnet 'Whoso list to hunt, I know where is an hind,' in which his mistress, sometimes thought to be Anne Boleyn, is described as an elusive deer who evades all her lovers. The reason is that she is sacred to Caesar, and bears round her neck a collar on which is inscribed the legend, "Noli me tangere, for Caesar's I am/And wild for to hold, though I seem tame". Wyatt died at Sherborne, but that is mere coincidence, for his sonnet is based on one of Petrarch's in which Laura is figured as a beautiful white hind, "Una candida cerva . . ." who has returned to God, for whom she was reserved. "Nessun me tocchi . . . Libera farmi al mio Cesare parve" reads the collar round her neck. In translating this into "Noli me tangere . . ." Wyatt is reverting to the Latin wording as Mattioli gives it. Clearly Wyatt has some independent knowledge of the legend besides his model, Petrarch. It is possible that he is indebted to the imitation of Petrarch's sonnet by Giovanni Antonio *Romanello*, 'Una cerva gentil . . .', which first appeared in 1480. Romanello's formula for the motto is:

> Toccar non lice la mia carne intera
> CAESARIS. Enim sum . . .

The latter Latin tag (despite the punctuation) corresponds to Mattioli's quia Caesaris sum' and Wyatt's 'for Caesar's I am'. One of the early editors of Petrarch remarks that the phrase 'Noli me tangere quia Caesaris sum' had become proverbial[11].

Frederick II, long regarded as the greatest sovereign of his age, is reputed in October, 1230, to have inserted a brass ring bearing a suitable inscription, into the gills of a pike. The fish was recaptured 267 years later, measuring 17 to 19 feet and weighing 550 lbs. (Such mathematical accuracy is an invariable sign of fabrication.) The skeleton was preserved in the cathedral at Mannheim, but upon examination by a German anatomist was found to contain the vertebrae of a plurality of pike.[12] Such fish stories may not be proof of Holy Roman miracles, but they are evidence of the persistence of popular superstitions. They indicate a popular belief that certain animals could serve as symbols of human longevity or fame, particularly as they were consecrated by some outward token such as a ring or collar to the memory of a great man. Just as Frederick II preserved his continuity, if not identity, with Caesar in his very title, so the great ones of the earth, whether Henry III or Charles VI who recapture the miraculous deer, become associated with the immortality of the first Caesars. Of the origin of the belief we can only guess, but if we are of Frazerian persuasion, we might think we saw some kingship or succession ritual lurking in the background, and we might appeal to the earliest version as given by Aristotle, in which the deer is dedicated to Diana, goddess of the sacred grove, for confirmation. Gibbon would doubtless have relished the transformation of pagan superstition into Holy Roman miracle.

If we turn closer to home the most familiar evidence of the legend will be found hanging on the signs outside inns. The prevalence of the sign of the white hart, often depicted with a collar, is not direct evidence of Caesar's deer. Almost certainly the publicans have borrowed the motif, as was customary, from the heraldic armoury, where it figures as the badge of Richard II. Richard, who bestowed the badge liberally on his supporters so that it became a badge of faction, probably derived it from the white hind which it is said his mother, the Fair Maid of Kent, bore. There is no evidence which explicitly links this heraldic motif with the legend of Caesar, but it seems reasonable to assume that there is a connection.[13]

A more certain manifestation of Caesar's deer is recorded from Windsor Forest. Nicholas Upton, in his *De Studio Militari* gives the following account:

> Et ut multociens audivi, per unum cervum prope forestam de Wyndesore occisum apud quendam lapidem vocatum Besaunteston juxta Bageshott, qui quidem cervus habuit unum collarium aureum, quo erat sculptum,
>
> Julius Cesar quant ieo fu petis
> Ceste coler sur mon col ad mys.[14]

Nicholas Upton does not explain why Caesar should have written in Old French, but his version of the motto is more interesting to us than that given by Mattioli. Mattioli's 'Noli me tangere, quia Caesaris sum' is clearly a variant of the motto which appears in Wyatt and Romanello, whereas Nicholas Upton's rhyme, if you translate it from Old French to vernacular English will be found to translate two lines exactly of the King's Stag Inn sign as recorded by *Hutchins*.

Another vernacular version of the inscription is recorded from Yorkshire. John Ray records in his Itinerary as follows:

> Then we rode through a bushet, or common, called Rodwell Hake (Rothwell Haigh), two miles from Leeds, where (according to the vulgar tradition) was once found a stag, with a ring of brass about its neck, having this inscription:—
>
> 'When Julius Caesar here was king,
> About my neck he put this ring:
> Whosoever doth me take
> Let me go for Caesar's sake'.[15]

The remarkable similarity of these verses to the inn sign at King's Stag, 300 miles away, is evidence of the vigour of popular tradition. By comparing analogues one can often tell much about the transmission of the literary sources of the legend; for instance, Mattioli's account of thick folds of skin shows clearly his debt to Pliny, and many of the Latin versions of the motto appear to have a common literary source. But the method of transmission of the vernacular version remains a mystery. One might speculate that, like the Ballads, it was transmitted orally. Only fresh evidence and further research will tell.

We are not entitled to conclude that the story of Henry III's white hart, which de la Lynde killed, has no basis in fact. But what is certain is that at some stage it has become associated with popular tradition which is purely fable. In the past our local historians have assumed that the facts were what was most worth pursuing, but we might feel that what is most interesting in the account was rather the fable.

References

1. For bibliographical details see Douch, *A Handbook of Local History: Dorset*, p.13.
2. *Tom. Survey of Dorsetshire*, commonly but erroneously attributed to John Coker, rector of Mappowder, was probably the work of Thomas Gerard of Trent, c.1625. For ease of recognition I refer to it as *Coker* in this article. See E. H. Bates-Harbin's article on Thomas Gerard in the *Proceedings*, XXXV, 55-70.

3. Camden's *Britannia* first appeared in Latin in 1586 and went through numerous editions and enlargements before the earliest translation in 1610 by Philemon Holland. Holland's was the only English version until Edmund Gibson's in 1695, Gibson's wording does not resemble Coker's in the de la Lynde story: e.g. "they were soon made sensible how dangerous it is to provoke a lion". Richard Gough, the editor of Hutchins, published his translation of *Britannia* in 1789, 2nd. ed. 1806.
4. e.g. *Coker* pp.26, 28, 73, 108 and 120; *Hutchings* 3rd. ed. vol i, pp.188; *Notes and Queries for Somerset and Dorset*, xv, pp.146-151.
5. The *Inventory* for Dorset of the Historical Monuments Comission (1970) vol. iii, part 1, p.97 has a description of the tiles with atributions and illustrations.
6. Uppsala, 1933.
7. pp.133, 174, 231 and 212.
8. Aristotle, *De Mirabilis Auscultationibus*, cap. 110. Though traditionally attributed to Aristotle, the work is probably of Peripatetic origin.
9. Book viii, 32 (50).
10. The story is found in the Annals (known under several different titles) written by Robert Gaguin (d.1501).
11. See Kenneth Muir and Patricia Thomson, *Collected Poems of Sir Thomas Wyatt* (Liverpool, 1969) p.266-267.
12. See Francis Day, *The Fishes of Great Britain and Ireland* (London, 1880-4) vol. 2, p.144. The story, which gets frequent mention in books on fish, originates with Conrad Gesner, the celebrated naturalist. v.Gesner, *Historia Animalium.* (Tiguri, 1558) Lib. IV, p.5.
13. See John Gough Nichols, "Observations on the Heraldic Devices discovered on the Effigies of Richard II and his Queen in Westminster Abbey", *Archaeologia*, XXIX (1840) p.32 seq.
14. Upton's MS, which dates from c.1440, was edited by Edward Bysse (London, 1654). Nicholas Upton was sometime precentor of Salisbury Cathedral.
15. *Select Remains of the Learned John Ray*, ed. William Derham (1740) p.153. Ray's account was noticed in an early issue of the *Folk Lore Record* (III, ii, 1881) which came to Hardy's attention. I first came across the legend whilst studying Hardy's unpublished Commonplace Books in the County Museum. The volume entitled *Facts* contains Hardy's note of the rhyme from Hutchins, and the Yorkshire variant. Hardy alludes to the legend in chapter two of *Tess of the D'Urbervilles.*

Archaeological Notes and News for 1973

Edited by R. A. H. Farrar

AN UPPER PALAEOLITHIC IMPLEMENT FROM PILSDON PEN, DORSET

A chance examination of some of the flint artefacts recovered during Mr. P. S. Gelling's excavations at Pilsdon Pen hill-fort (ST 412013) brought to light the implement illustrated here (Fig. 1), which seemed of sufficient importance to merit separate publication. The implement was found in the topsoil and therefore has no stratigraphic significance in the context of the excavation. I would like to thank Mr. Gelling for showing the flints to me, and for his co-operation in the preparation of this note, which has also benefited from a discussion with Dr. J. B. Campbell.

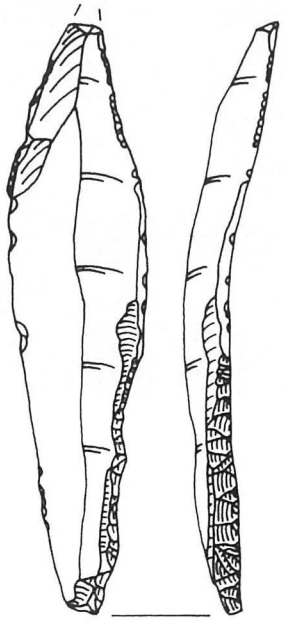


FIG. 1. An Upper Palaeolithic Implement from Pilsdon Pen, Dorset. Actual Size

Description

The implement is fashioned on a slightly curved flint blade. The pointed tip has broken off, but otherwise the dimensions are intact: length 7.8 cm., breadth 1.9 cm., thickness 0.55 cm. The flint itself is mottled grey in colour, with some lighter inclusion, and has faint bluish-white patination in places. Secondary working consists of steep blunting retouch on the lower right-hand side, and some marginal trimming on both edges at the distal end. All retouch is from the bulbar surface. Other small flake scars which occur on both faces along the lateral edges are probably the result of use or damage.

Discussion

Morphologically this implement is a shouldered point, and on typological grounds it can be described as Late Upper Palaeolithic, since it is in the late-glacial and very early post-glacial period that such implements constitute a characteristic element amongst the lithic component of hunter-gatherer society in Western Europe.

Exact parallels to this implement from any British site are not known to the author, but the Upper Palaeolithic station at Hengistbury Head, Hampshire[1], has produced a range of tanged and shouldered points of closely related type, and unpublished data assembled by Dr. J. B. Campbell shows that the type is not uncommon in the Upper Palaeolithic of southern Britain.

Little can be said about Pilsdon Pen as a Palaeolithic site, since the find is an isolated one, and must presumably be regarded as a casual loss. However, the presence of Mesolithic industries on hill-top locations subsequently used for hill-forts is a common phenomenon, and possibly relates to the use of such spots as game observation posts during hunting. Pilsdon Pen, with its commanding position, would certainly be a suitable look-out point from which to follow herd movements.

None of the other Pilsdon Pen flints examined were typologically diagnostic, except for a fine Neolithic leaf-shaped arrowhead, and a consideration of the flint assemblage as a whole must await the conclusion of the present series of excavations.

Function

Shouldered points are normally considered to be projectile implements, the shoulder serving to facilitate hafting, and there is no strong reason for supposing that this was not the case with the present implement, since the curvature of the blade does not seem too pronounced for the purpose. However, in view of Semenov's remarks on the use of shouldered points as knives[2], it was decided to examine the implement for possible wear patterns. With the assistance of Mr. P. C. Buckland, the point was examined in the University of Birmingham Geology Department beneath a binocular microscope, and magnified photographs taken. The missing tip of the implement inevitably hampered such an investigation but, with this excepted, there was no visible trace of polishing due to use. In fact the only obvious signs of wear which the examination revealed, were a cluster of striations on the bulbar surface at the top left-hand side of the implement, just below the truncation. These striations were all parallel to the bulbar axis of the implement, and thus indicate functional movement backwards and forwards on this axis. According to Semenov (*ibid.* 18—19) such a wear pattern could be consistent with either use, though heavy use as a knife would

1. A. Mace, 'The excavation of a Late Upper Palaeolithic open-site on Hengistbury Head, Christchurch, Hants.', *Proc. Prehist. Soc.*, Vol. 25 (1959), 233—59.
2. S. A. Semenov, "Prehistoric Technology", 1964, 93.

produce far more complex striations. Thus no conclusion can be drawn from this examination, since the evidence does not contradict use as a projectile. Nevertheless, use as a projectile can presumably only be suggested by negative evidence, since such a function would not be expected to produce a definitive wear pattern.

Conclusion

The presence of a shouldered point from Pilsdon Pen adds another site to the as yet small number of open-air Upper Palaeolithic locations identified in southern England.

ALAN SAVILLE

INTERIM NOTE ON EXCAVATIONS AT THE CULVER WELL MESOLITHIC SITE, PORTLAND, 1973

Further excavation of the Mesolithic habitation site has shown that the large limestone floor on top of the shell-midden is rectangular in shape, but unfortunately the northern end disappears under mediaeval strip-lynchets and the southern end is under the Portland Bill road. It can now also be confirmed that there is a second floor, at right angles to the first and partly overlapping its southern end. A very thin layer of brown loamy clay separates the two floors, indicating that the second floor is slightly later than the first; the industry associated with both floors is Mesolithic and there is no immediately apparent difference. In several trenches evidence has been found of an occupation phase preceding, or partly contemporary with the formation of the large shell-midden that underlies the main limestone floor; thus we are dealing with at least three occupation phases, possibly more. A post-hole associated with the earliest phase was found; this suggests that shortly before, or at the beginning of the development of the midden, Mesolithic people here lived in a form of shelter requiring posts to prop up some form of roof, possibly grass; later on they had more elaborate shelters employing stone.

Finds again included many picks, shell-beads, microliths, and another countersunk pebble; the most unusual find was a limestone pebble about 3.5 cm. in diameter with a hole pierced through it for suspension as an ornament.

A second radiocarbon date has been obtained from charcoal from the new hearth excavated last year near the edge of the midden—5,151 bc $\pm$ 97 (BM 960), which is very close to the previous date of 5,200 bc $\pm$ 135 (BM 473). Thermoluminescence dates obtained compare with the uncalibrated radiocarbon dates, and some more research may therefore be required in this respect.

This season's work indicates that it will be necessary to excavate a much larger area than originally planned.

SUSANN PALMER

TWO SANDSTONE OBJECTS FROM THE DITCH OF A BARROW AT KINSON, BOURNEMOUTH

The much disturbed barrow at Fairway Caravan Park, Kinson, Bournemouth (SZ 05049560) was excavated over Easter 1973 by members of the South Wessex Archaeological Association and the Department of Archaeology of the University of Southampton. Nothing remained to date the primary use of the site, the area having been too much disturbed in recent times; a barbed and tanged arrowhead was, however, found in disturbed material. The fineness of its manufacture would suggest a Beaker or Early Bronze Age date. The site was subsequently used as the focus for a Middle Bronze Age cremation cemetery. In the intervening period the ditch of the barrow silted; this would initially have been very rapid as the ditch had been dug in sand. Several objects were found in the ditch-fill, and it is the object of this note to draw attention, in advance of the final excavation report[3], to two of these.



A

Photos: Nick Bradford

B



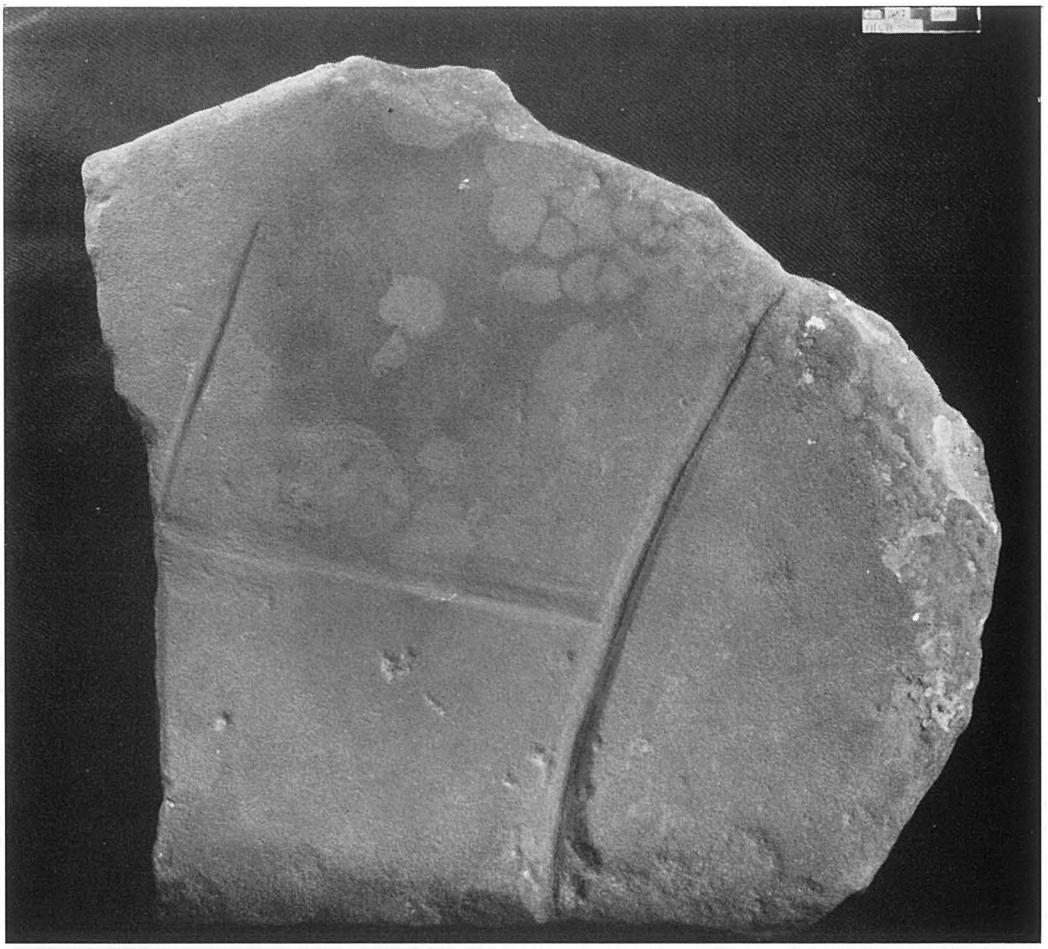
FIG. 2. Two views of the conical sandstone object from Kinson, Bournemouth.

The conical object shown in Fig. 2, A and B, was found at the bottom of the ditch and must have been deposited there very shortly after the barrow was constructed. It is of coarse sandstone, 7 cm. in height and 6 cm. across the top. It would appear that a piece has been broken from one side but as the incised design seems to take account of this we cannot be sure. Mobiliary art is exceedingly rare in the earlier part of the Bronze Age. The Folkton drums, found with a Beaker burial in Yorkshire, were, until recently, the only examples[4], and these bear no resemblance to the piece in question. During the recent re-excavation of a barrow at Rudston, Yorkshire, however, several carved chips of sandstone of Beaker date were recovered from the ditch[5].

Certain of the Middle Bronze Age urns were buried in the ditch at Fairway and they show clearly that it had not completely silted at this time. From the very top of the ditch-fill a larger

3. The final report is expected to appear in Vol. 3 or 4 of *Rescue Archaeology in Hampshire*.
4. *Archaeologia*, Vol. 52, 1890, 14—15, Plates I and II.
5. *Yorks. Arch. Journ.*, Vol. 44, 1972, 8, Fig. 7.

A



B



FIG. 3. Re-used saddle quern from Kinson, Bournemouth (A) Upper and (B) lower surface. *Photos: Nick Bradford*

sandstone object was recovered (Fig. 3, A and B). This had originally been used as a saddle quern. Saddle querns are rare in earlier Bronze Age contexts (although this may be due to a lack of excavated habitation sites) but they are quite commonly found on Middle Bronze Age sites such as at Itford Hill, New Barn Down, and Cock Hill in Sussex, and Shearplace Hill in Dorset[6]. This stone was subsequently grooved on both surfaces thus rendering it useless as a quern. Grooved stones have been found on several Middle Bronze Age settlement sites—Dean Moor, Devon, Thorny Down, Wilts., and Shearplace Hill, Dorset —although they are all much smaller than the one in question[7]. It is thought that they were used as sharpening stones for bronze implements and that their greater frequency coincides with an increased use of such tools and weapons[8].

I wish to thank Mr. A. ApSimon for his advice both during the excavation and in connection with this note, Mr. Nick Bradford for the photographs of the objects, and Mr. Richard Hall for having brought the article on the re-excavation of the barrow at Rudston to my attention.

JOHN HEDGES

A LATE BRONZE AGE URN FROM TYNEHAM, DORSET

This discovery was made in the autumn of 1969 on Ministry of Defence land in the Tyneham valley. Small-scale gravel extraction in connection with the arrangement of targets had taken place on a low ridge that forms the central spine of the valley between the Purbecks to the north and the coastal hill that ends in Gad Cliff to the south. Just to the south-west of the find-spot (at about SY 875803) a disused army strong-point commands a fine view down to the sea at Worbarrow. Sherds of pottery were noticed in soil-debris fallen from a vertical edge of the small gravel-quarry and diligent search by the Superintendent of Works, Mr. Gray, and his assistants, retrieved most of the pot, together with comminuted bone fragments and a few teeth. The first-named writer visited the scene soon afterwards together with the C.O. of Lulworth Camp and Mr. Gray.

The Site

The bedrock of the low central ridge is composed of banded gravel and clay and it seems that the urn had been buried in a small pit about 2 ft. in diameter (0.6 m.) and dug 1½ ft. (0.5 m.) into bedrock. This pit, still partly visible in section, had been refilled with bedrock after the urn had been placed in it, apparently upright. A thickness of only 6 ins. (0.15 m.) of brown soil overlay the feature. Although the pit had been dug near the highpoint of the local terrain, where a barrow might well be suspected, the exposed face of the small quarry gave no evidence of either a mound or a ditch. However, since gorse-bushes thickly shroud the top of the rise, it is not impossible that a small barrow might lie concealed there.

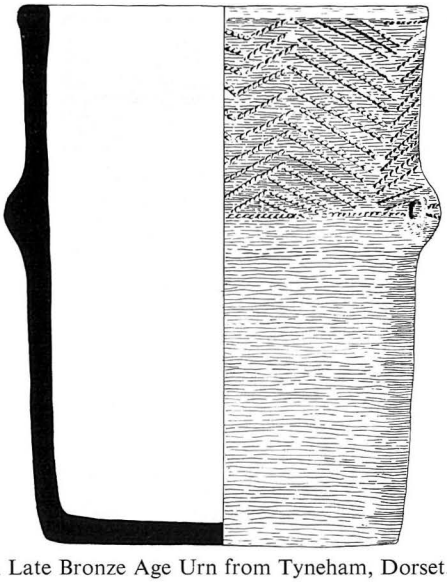


FIG. 4. A Late Bronze Age Urn from Tyneham, Dorset. Scale ¼

The late Mr. John Calkin's assessment of the urn[9] is given below. The Cornish affinities that he has pointed out are unusual, it appears, and only two other vessels of similar derivation are known from Dorset. Of the three, two have turned up close to the coast and lend weight to the notion of movement by sea from the south-west.

The cremated remains recovered after the discovery of the urn comprise mainly small bone slivers. Bones as small as this offer no help in identification of sex or stature. The only useful clue lies with the half-a-dozen teeth. Their small size, shallow roots, and lack of abrasion, point to a child's milk-teeth.

The Urn

This bucket-shaped urn (Fig. 4) has been well fired, showing reddish-brown surfaces with a black core, which is almost gritless except for a few quartz grains. The upper two fifths is decorated with about sixteen bands of vertical chevron, carefully executed in single-cord technique. Immediately below, a pair of wide imperforate dimple-ended handles are joined by a single line in the same technique, whilst two similar lines have been impressed on the upper surface of the handles.

Though bucket-shaped, this urn does not belong to the ordinary Deverel-Rimbury tradition of Dorset, but shows pronounced Cornish features. Miss F. M. Patchett, writing in 1943 on Cornish Bronze Age Pottery, described her Class F as Late Bronze Age urns of Middle Bronze Age tradition. The Tyneham urn may be compared with her urns F 1, 2, 4, 7 and 22[10], all of which show cord-impressed chevrons. F 1 from Tresawsen is the nearest parallel both in form and decoration and also in its pair of imperforate handles. The width of the latter and their decoration are evidently a survival from the decorated ribbon handles of the Cornish biconical urns.

Another Cornish bucket urn was found by the Piggotts on Crichel Down, Dorset[11]. This has two zones of vertical chevrons in imitation cord technique, whilst another turned up among nearly a hundred Deverel-Rimbury urns in the Latch Farm barrow, Christchurch[12].

N. H. FIELD and J. B. CALKIN

INTERIM REPORT ON EXCAVATIONS AT LAKE FARM NEAR WIMBORNE, 1973

Our second season lasted three weeks, but in very difficult weather conditions. It was so hot and dry that part of the site had to be abandoned in the third week owing to the impossibility of seeing colour differences in the soil. Thanks are due to all those who came at their own expense to help and to a party from The College of Sarum St. Michael, Salisbury, organised through Miss Eileen Hornsby; to members of the Salisbury Museum Archaeological Research Group; to boys of the Bishop Wordsworth School, Salisbury, and to members of the Wimborne Museum Society. Dorset County Council was very helpful in allowing us to use their highway depot and in lending equipment, and Poole Corporation in giving financial aid and clearing an area of the site. Mr Norman Field has, once more, done invaluable work in organising everything and his collaboration and advice are appreciated.

Work in the two areas begun last year was developed. The western area, nearest the road, produced a number of features only two of which appear to have any relationship. It is an area devoid of buildings but has many pits, trenches and gulleys which cannot be understood in the small area available. At the west end

6. *Proc. Prehist. Soc.*, Vol. 23, 1957, 204; *Sussex Arch. Coll.*, Vol. 75, 1934, 167; *ibid.*, Vol. 98, 1961, 101, Plate XB; as displayed in Devizes Museum.
7. *Trans. Devonshire Assoc.*, Vol. 89, 1957, 33, Plate 7A; *ibid.*, Plate 7B; *Proc. Prehist Soc.*, Vol. 28, 1962, 323, Fig. 23.
8. *Trans. Devonshire Assoc.*, *ibid.*, 71.
9. Deposited with the Dorset County Museum.
10. *Arch. Journ.*, Vol. 101 (1944), 17; Vol. 107 (1950), 44.
11. *Archaeologia*, Vol. 90 (1944), 71, B8.
12. *Proc. Prehist. Soc.*, Vol. 4 (1938), 184.

of the site there is a perceptible thickening of the thick black soil that produces medieval pottery. This is clearly the garden of a building which must have been on the road. A ditch running north-east to south-west now seems to be the limit of this garden, but Victorian pottery persists almost to the natural gravel. This raises a doubt over the identification last year of a gravel spread as the Roman road.

The other area to the east has now shown evidence of four distinct periods. The second of these consists of the defensive ditch of a fort, running diagonally across the area. The ditch was originally about 5.0 m. wide and 2.0 m. deep with sides well cut to an angle of 40°. There is at present no evidence of any other ditch or rampart belonging to this defensive system, so it is impossible to be sure to which side of the ditch the fort lies. The ditch had cut into two Phase 1 features (gullies or post-pits) but time did not allow their precise nature to be determined. The ditch had been filled in, well consolidated, and the ground levelled off and lowered for a structure of Phase 3, consisting of a timber building in alignment with our trench. This building has at present only one satisfactory wall, but, last year, indications of floor joists were noted. A large shallow pit was cut into it, to the east, and this is now seen to be on the site of earlier but smaller pits, of which nine have been excavated. Phase 4 reverts to the diagonal, a similar alignment to the Phase 2 ditch, but there are also several post-holes with stone packing. This is the area, at the east end, at which work could not proceed, so we cannot even speculate on the nature of the remains.

The finds this year have been rather poor, except for the glass, which includes fragments of a fine blue flagon. Two of the coins can be identified as Claudian (one probably *RIC*, 84).

The site remains threatened by the Wimborne by-pass and this raises a serious doubt as to the propriety of continuing the excavation on the present modest scale. The need for a large and detailed investigation has been established.

GRAHAM WEBSTER

AN ANCIENT CAUSEWAY AT LAZERTON FARM, STOURPAINE

A plan in the Royal Commission volume for Central Dorset[13] shows a short but straight mediaeval parish or manorial boundary to the east of Hod Hill (from ST 86271041 to 86441035). It is aligned with the Roman 'Ashfield' gate giving access, through the Iron Age defences at the top of the hill, to the early Roman fort. Initial investigation by Mr M. Cahill in collaboration with the writer revealed that there was a fine unrecorded causewayed feature along the mediaeval line, prominent between points A and B on the plan (Fig. 5) and still discernible between points B and C. Between A and B it is flanked to the south by a wide ditch and low bank.

Excavation in 1972 and 1973, by permission of Lt. Col. J. F. Warren of Lazerton Farm, threw light on the matter without conclusively resolving it[14]. The wide ditch proved to be flat-bottomed and contained 18th-century building debris in the fill, and both it and the low bank are regarded as post-mediaeval. The bank to the north, however, now 2 ft. (0.7 m.) high, yielded an 18th-century sherd in its upper structure but was found to overlie a two-phase sequence, the earlier element of which was a flat causeway originally 16 ft. (4.9 m.) wide, composed simply of flints laid on the old ground surface. A side-ditch, 3½ ft. (1.0 m.) wide, lay closely paralled to the south. The second phase was represented by a raised camber of broken chalk topped by a few flints, covering the original causeway but respecting its side-ditch. The latter appears to have been already well covered by 1 ft. (0.3 m.) of soil, containing a mediaeval sherd, before the ultimate widening and heightening of the bank (from spoil excavated from the wide flat-bottomed ditch?).

13. R.C.H.M., "Inventory of Historical Monuments in the County of Dorset", Vol. III (Central Dorset), Part 2, 260.
14. A nearly complete section through the earthwork was achieved by two separate cuttings, a little distance apart, at front and rear of the main bank.

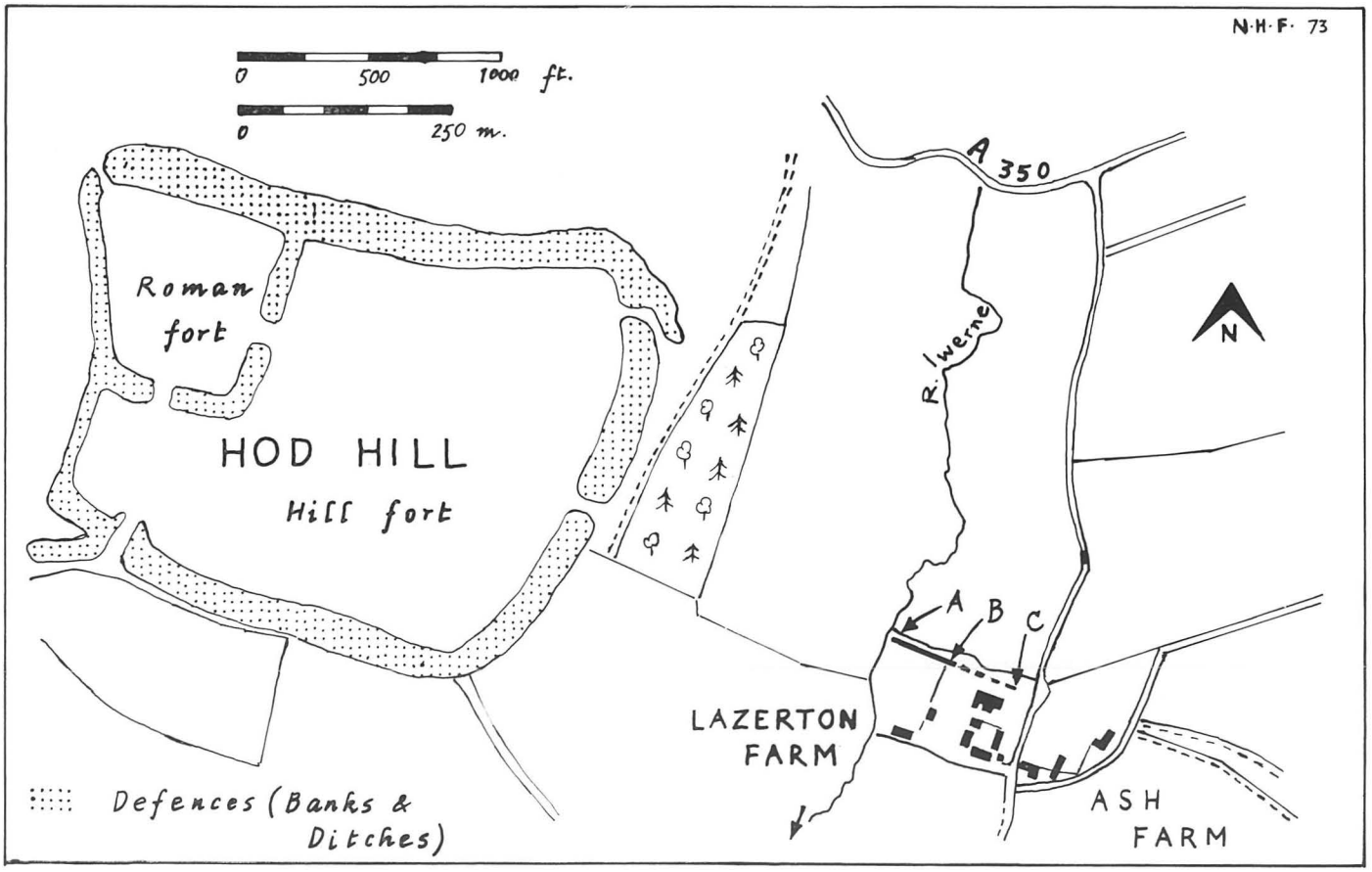


FIG. 5. Ancient causeway at Lazerton Farm, Stourpaine.

The phase 2 camber contained no dating material, but the silt in the side-ditch contained snail shells and one small sherd, possibly Iron Age. Odd scraps of Iron Age type pottery lay below and on the flints forming the primary causeway. To sum up, it is distinctly possible that the original causeway, in its two phases, represents a Roman feature crossing low ground by the Iwerne brook, when the Roman fort was being serviced from the military site at Lake Farm near Wimborne.

N. H. FIELD

FRESH FINDS FROM THE IRON AGE AND ROMAN SITE AT WORBARROW BAY, TYNEHAM

We are indebted to Mr M. J. Cahill for preserving the finds described below. They were collected from the scree slope and cliff section between SY 86938003 and 87017995 during several visits over recent years. Fresh material is constantly being revealed by active marine erosion. The site is well known, if not well understood, and full references to previous finds and observations are given in R.C.H.M., "Dorset," Vol. II, Part 3, 612.

A section some 90 m. long is at present (1972) exposed in the cliff top and this provides a general impression of the stratification. It consists of about 60 cm. of reddish-brown sandy soil, beneath the slightly darker top soil, containing fragments of limestone, beach pebbles, flint flakes, hammer-stones of flint, shale fragments, animal bones and coarse pottery. These occur more frequently towards the bottom of the layer, and a greater concentration of limestone blocks occurs for some 10 m. on either side of a point about 30 m. from the north end of the exposure. In this part of the section there is more occupation debris and the soil is generally darker, but nowhere can there be seen the thick black deposits referred to in earlier reports.

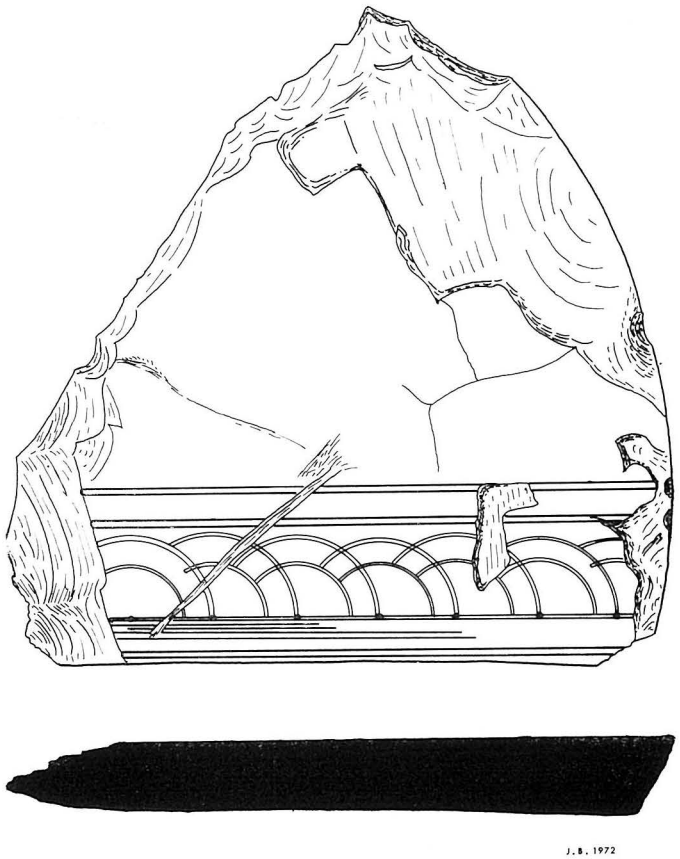


FIG. 6. Part of a decorated shale disc from Worbarrow Bay, Tyneham. Actual size.

In December 1971 the writer noticed what appeared to be the lower part of a wall foundation about 35 m. from the north end of the section. This showed, in section, as a 'pit' 30 cm. wide and 50 cm. deep, cutting through the occupation layer, containing sandstone blocks at its base and 30 cm. of broken flints above. Mr Cahill noted, in 1970, "a four feet deep pit, 1½ feet wide, with rounded profile, at the bottom of which was a layer of broken bones around 2 inches thick;" perhaps a burial.

The Finds

Pottery

(a) Four sherds of samian ware (a rim and a base from plain vessels, one rim decorated *en barbotine*, and a chip bearing the edge of a potter's stamp).

(b) A complete bead-rim bowl of Maiden Castle War Cemetery type[15]. Two other Durotrigian sherds, both rims: one from a bead rim bowl, the other from a bowl with an internally ledged rim.

(c) Thirteen rim and body sherds of black-burnished ware, mostly cooking-pots but including a countersunk handle, plain platter, and flat rimmed 'pie-dish'.

Kimmeridge Shale

(a) Three cores of Calkin's class A1, B1, and D1[16], and a probable rough-out for a hand-made armlet.

(b) Fragment of a decorated shale disc (Fig. 6).

Flint

(a) Part of a ridged flake similar to those prepared for making shale-trimming tools[17].

Human Bones

(a) Most of the cranium, maxilla, and mandible of the skull of a mature adult. The maxilla contained a very worn left third molar, incisor, and canine, the third molar being decayed. Apparently the first two molars had been lost some time before death, although the opposing teeth in the mandible were only slightly less worn than the others. The teeth of the almost complete mandible carried a heavy deposit of calculus and the right canine and first molar were carious.

(b) The left clavicle.

(c) A fragment of the left scapula.

(d) One thoracic vertebra.

Although these were the only fragments of the skeleton recovered, Mr Cahill thought that the orientation of the skull in relation to the thoracic bones and manus visible in the scree suggested a crouched posture with the head approximately to the south-west. He also noted that the complete 'War Cemetery' bowl was very near this burial. No evidence for a cist was recorded.

Comments

The pottery represented compares closely with that collected previously and preserved at the County Museum, whilst the shale and flint could support earlier suggestions that this was a shale workshop site. These appear to be the first human bones recorded from the site, but the probable circumstances of their burial need not dissociate them from an early stage in its occupation.

JOHN BEAVIS

INTERIM REPORT ON EXCAVATIONS AT WARREN HILL, DEWLISH, 1972

A small excavation was carried out by the Department of History and Archaeology, Weymouth College, at Warren Hill, Dewlish (SY76039726) as part of a long-term study of the evidence of Iron Age and Romano-British settlement surrounding the Dewlish Roman Villa. We are grateful to Mr C. W. Bissell for

15. Wheeler, "Maiden Castle" (1943), 232.
16. Calkin, *Proc. Dorset N.H. & A.S.*, Vol. 75 (1953), 56.
17. *Ibid.*, 60.

permission to excavate, and to Mr J. Boyden who actively encouraged and financially supported the work, and whose aerial photography revealed the site.

From the air the site can be seen as a roughly elliptical ditch, the northern arc of which appears to be interrupted by a causeway, lying with its long axis (of *c.* 45 m.) orientated approximately north-east, on the north-facing chalk slope of Warren Hill. It is one of a number of similar enclosures which appear to be associated with well preserved 'Celtic' fields on the surrounding downland.

Trenches 2 m. wide were cut through the ditch at the highest and lowest points at which it crossed the slope. The higher trench showed the ditch to be 2.15 m. wide and 0.95 m. deep, whilst in the lower trench it was 1.40 m. wide and 0.75 m. deep. Sections showed a V-shaped profile with a flat bottom 0.20 m. wide. No remains of a bank were detected.

The main phases of silting were as follows. Clean chalk rubble, weathered from the sides of the ditch, quickly filled its lower third; a soil may have begun to form. This was followed by a fresh deposit of chalk rubble on the inner margin of the ditch only; this may have been derived from the destruction of an inner chalk bank. Layers of darker brown soil and the modern plough soil completed the silting. There was no evidence for the ditch having been recut.

Pottery from all levels consisted of small, abraded, featureless body sherds in a gritty paste, fired black internally, and reddish-brown on the external surface. A piece of abraded tegula came from the destruction of the possible bank; ox bones and a tooth from the primary silting completed the finds.

A geophysical survey will be carried out before further work on this site is planned.

JOHN BEAVIS

FIFTH INTERIM REPORT ON EXCAVATIONS AT DEWLISH ROMAN VILLA, 1973

The third full season of excavation on the Roman Villa at Dewlish by Weymouth College of Education took place during July and August 1973, generously supported by Mr and Mrs J. A. Boyden, Mr. and Mrs J. R. Boyden, and the Society.

Ten further rooms of the Villa were explored, making a total to date of twenty-four. Trial trenching indicates rooms beyond the point reached this year, and a further range of rooms with painted plaster walls turning along the south-east side of the supposed courtyard.

The wing of the main building south-west of the *triclinium* (room 11) of 1972 clearly includes the villa's baths. However, the excavation of these rooms (15—22) is not complete, and it is not yet possible to determine the function of the individual rooms or the layout of the baths.

As before, the walls show two clear phases of building, the first in a yellow sandy mortar, the second in a white chalky mortar. Room 14 belonged to phase 1 only, and was demolished to make way for the apse of room 11. It was replaced by room 15 to a much smaller plan. At the same time the other rooms were drastically rebuilt and provided with mosaic floors.

In room 17 a fragment of mosaic survived in the west corner showing a band of wave crest pattern inside a coarse red border. Below this floor was an earlier earth or timber floor, with two black-burnished ware pots let into the floor probably as water containers. The surrounding area was roughly paved with stone roof slabs showing signs of burning.

The presumed mosaic floor in the adjacent room 18 had been ploughed off but a similar earth floor existed beneath its foundations. with the tile and mortar base of a hearth or oven on its north-east side. In both rooms 17 and 18 the early floors were sinking into a large depression which had been filled up at the time of their construction, and the foundations of the partition wall had been carried down into it. This depression may represent a phase earlier than the stone building or may be a natural hollow on the site.

Room 16 had a channelled hypocaust stoked from its south-west corner (Fig. 7). Most of the slabs covering the channels had been robbed, but fragments of the mosaic floor show a coarse red border, then a two-strand guilloche, then a foliated scroll similar to that in the apse of room 11. The fragment in the north corner has a red marginal line, and must be of a different design from that of the other two fragments.

From here onwards, the villa had been built up on a platform, as far as rooms 20—22, to keep floor levels more or less the same, and consequently ploughing down the slope has removed the remaining rooms almost to their foundations. Nothing can be said about room 19; room 20 is in effect a three-sided apse containing a channelled hypocaust, and 21 and 22 (which may well have been part of room 20) were large plunge baths lined with concrete. They were both full of mortar and building rubble, and although the upper two-thirds had been ploughed away, it seems likely that they had been filled up in Roman times and refloored as normal rooms.



FIG. 7. The robbed hypocaust in Room 16, Dewlish Roman Villa, Dorset.

A trial trench beyond this point indicated that here the floor level of the villa dropped considerably and further (later?) bath buildings may follow in a better state of preservation. In particular a glimpse was had of what may be an eight-sided plunge bath with white tessellated floor and lined with Kimmeridge shale panels.

Digging was also carried out on the extension to the villa behind rooms 4—9 and reached by passage 10. Room 23 had a timber floor and painted plaster walls and ceiling. Thirteen coins were found here. Room 24 had unpainted walls and an earth floor. There were many burnt patches and indications of workshop activity. In the east corner a large rope-rimmed storage jar drilled with small holes all over had been built on its side into a block of mortar, perhaps to serve as an oven.

It is tempting to see rooms 23 and 24 as the estate office and workshop, but the possibility that 24 is a very large kitchen cannot be ruled out. The excavation of this room is not yet complete, and another room seems to exist across the passage from room 23.

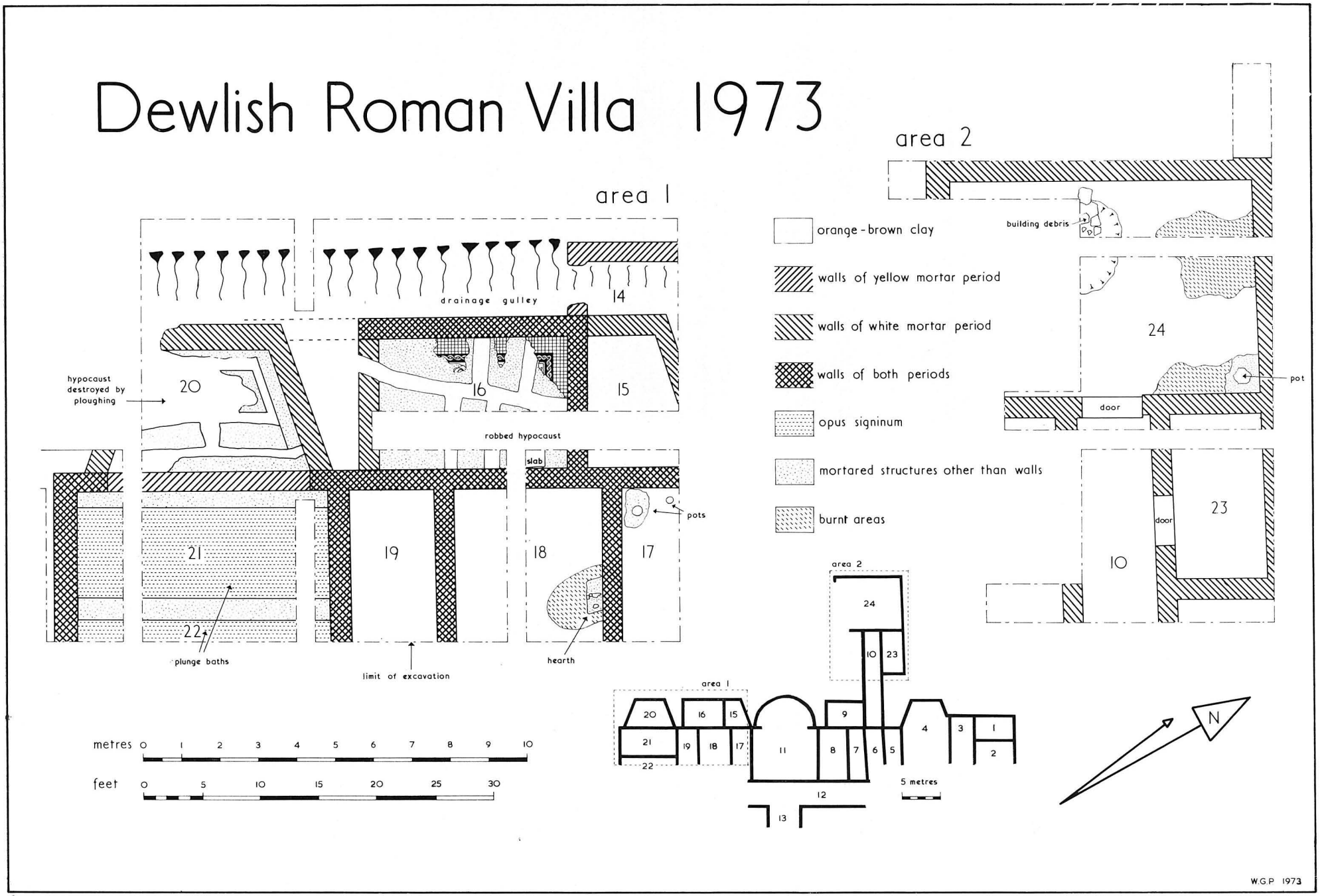

Dewlish Roman Villa 1973
area 1
area 2
drainage gulley
14
hypocaust destroyed by ploughing
20
16
15
robbed hypocaust
slab
pots
21
19
18
17
22
plunge baths
limit of excavation
hearth
orange-brown clay
walls of yellow mortar period
walls of white mortar period
walls of both periods
opus signinum
mortared structures other than walls
burnt areas
building debris
24
pot
door
10
23
metres 0 1 2 3 4 5 6 7 8 9 10
feet 0 5 10 15 20 25 30
area 2
area 1
11
12
13
9
8
7
6
5
4
3
2
1
5 metres
N
W.G.P. 1973

FIG. 8.

As in previous years there were very few small finds, owing to the short life of the villa and the fact that it was cleared before abandonment. There was however rather more pottery; the vast majority is black-burnished ware category 1, with a very small quantity of New Forest and Oxford wares.

At the conclusion of the excavation the leopard and gazelle fragment[18] of the mosaic floor in room 11 was lifted by Dorset County Museum to be prepared for display in Dewlish House. Finds are held by Weymouth College of Education pending ultimate transfer to Dorset County Museum.

W. G. PUTNAM

SECOND INTERIM REPORT ON THE ROMANO-BRITISH WELL SITE AT NORDEN, CORFE CASTLE

The second and final season of excavation took place in August 1973[19]. No further area clearance was attempted, the main object being to examine in more detail the features revealed in 1972 and if possible to establish the chronological sequence. On completion of the work the site was completely back-filled. The finds made in 1972—3 and the excavation notebooks will be deposited in the Dorset County Museum on completion of the full report, which it is intended to publish in a future volume of these *Proceedings*.

Structural Evidence

Differences in technique of construction suggested that the well was built in two phases, the second represented by the splayed entrance and steps. A number of walls were found, also of two-phase construction; the majority were built of a combination of chalk blocks, limestone, heathstone and blocks of ironstone, all very roughly dressed. Three of the walls may well represent part of a square or rectangular building which may have had two doorways set closely together in its northern wall. Inside and outside this structure, and around the well, floors of chalk blocks and limestone flags were in evidence, in one case made of chalk debris probably resulting from the manufacture of tesserae. Overlying some of the floors, probably after their disuse, three rough, circular hearths had been constructed.

Trial sections cut through the structural levels showed evidence of earlier phases, but because of the complexity of the sequence already revealed it was decided not to extend the excavation.

The Finds

A number of coins were found, and some iron and bronze work. Waste centres from armlet manufacture as well as other offcuts suggested a shale-working industry nearby, and numerous chalk tesserae were found in the area immediately behind the well. The pottery consisted of a large quantity of black-burnished ware and derivatives, as well as imported wares from the New Forest and possibly from the Oxfordshire kilns. There were a number of decorated and plain samian forms, and a few amphora sherds. Numerous animal bones were excavated, some with evidence of butchery; species represented were horse, ox, sheep and pig.

Discussion

Comments must at this stage be of a tentative nature. The coins found in 1972—3 indicate occupation, not necessarily continuous, from the mid–3rd to the mid–4th century A.D., but those found earlier by Mr P. A. Brown extend this from the early 2nd to the early 5th century.

As to the nature of the site, it is fair to suggest that it was related to the industrial site, only two hundred yards away, excavated by Sunter in 1968, but the well and the associated building may have been of religious character. The large number of coins found overall, the well itself, with its rather grand approach, the two uninscribed altars, and the rather tentative evidence of what may be votive pottery, similar to examples from religious contexts on Hadrian's Wall, point in this direction.

MICHAEL HUGHES

SIXTH INTERIM REPORT ON THE HALSTOCK VILLA, 1973

In 1973 the investigation of the bath suite was continued, and since it was determined, by the end of the season, that there were open ditches on three sides of the complex while, on the fourth, excavation revealed no further buildings, it was decided that the limits of the baths were now established. Excavation within the scheduled area on the north side of Common Lane being therefore virtually complete, it is proposed to publish a final report on the barn area and bath suite in these *Proceedings* as soon as possible. The following is a brief summary of the final interpretation of the bath building.

Phases I and 2 are substantially as described in Volume 94. Phase 1 consists of a caldarium (15) and tepidarium (16) with furnace and flue, with Phase 2 on a similar orientation but with larger caldarium (4) and tepidarium (5), and with a hot plunge bath (6) on the western side.

To this bath, in Phase 3, was added a heated room (7) described in the last interim report; to the north of this were three small square rooms (11, 12 and 13) and a longer narrow room (14) orientated north-south on the west side of room 3, which was also built in this stage. Room 3 was partially excavated in 1972 and is now revealed as a small swimming bath—or large cold plunge bath—originally with internal measurements of 7.93 m. by 4.5 m., but later reduced in length to 6.25 m.

Phase 4 is seen as an interim stage when bathing facilities were maintained during major reconstruction. A heated bath building was constructed, west of Room 14 and the swimming bath (3). Part of this building was excavated in 1972 and designated Room 8, but it is now seen to consist of three compartments, two of them (8 and 9) with floors supported on brick pillars, and the third (10), only 1.83 m. by 0.98 m., on a channelled hypocaust, adjacent to the furnace. When this bath was completed the earlier baths (4—7, 11—13) were dismantled, and the L-shaped Room 1 with its mosaic was constructed, and south of this the channelled hypocaust mosaic room (2).

The final Phase 5 consisted of the reduced swimming bath (3), at the north end of the suite, with the narrow room (14) separating it from the heated baths (8—10) on the west. South of this came the 'inverted' L-shaped room (1) with the foot of the L running alongside Rooms 3 and 14 and just touching the south-east corner of Room 8, while at the south end of the suite, at the head of the L, came the heated Room 2.

Excavation of the villa will continue to the south, on the opposite side of Common Lane, outside the area at present scheduled as an ancient monument.

R. N. LUCAS

EXCAVATIONS ON THE ROMAN VILLA AT BARTON FIELD, TARRANT HINTON, 1973

Work continued throughout 1973, six more trenches being opened in the northern wing (Building II), revealing limited remains of walls and chalk floors. At the south-east end of this wing the ground level falls away gently from the 300 ft. contour, and it was concluded from the trial-trenches T3 and 4 excavated in 1972 (Fig. 9) that building remains in this area could have been destroyed by severe robbing or by the plough to such an extent as to make identification difficult. However, sufficient evidence was recovered to complete the plan, from the remains of chalk make-up for the floors and of the foundation trenches cut in the chalk bedrock.

The wing proved to measure 91 feet by 36 externally, with mortared flint walls 1 ft. 9 ins. thick supporting a roof tiled with Purbeck stone. Features and finds suggest that its function was for working and storage. As stated in last year's report, Room IV

18. *Proc. Dorset N.H & A.S.*, Vol. 94 (1972), 84, Fig. 8.
19. The editor of these Notes apologizes for his slip in describing the site, in Vol. 94 (1972), 76, as south instead of north of the castle.

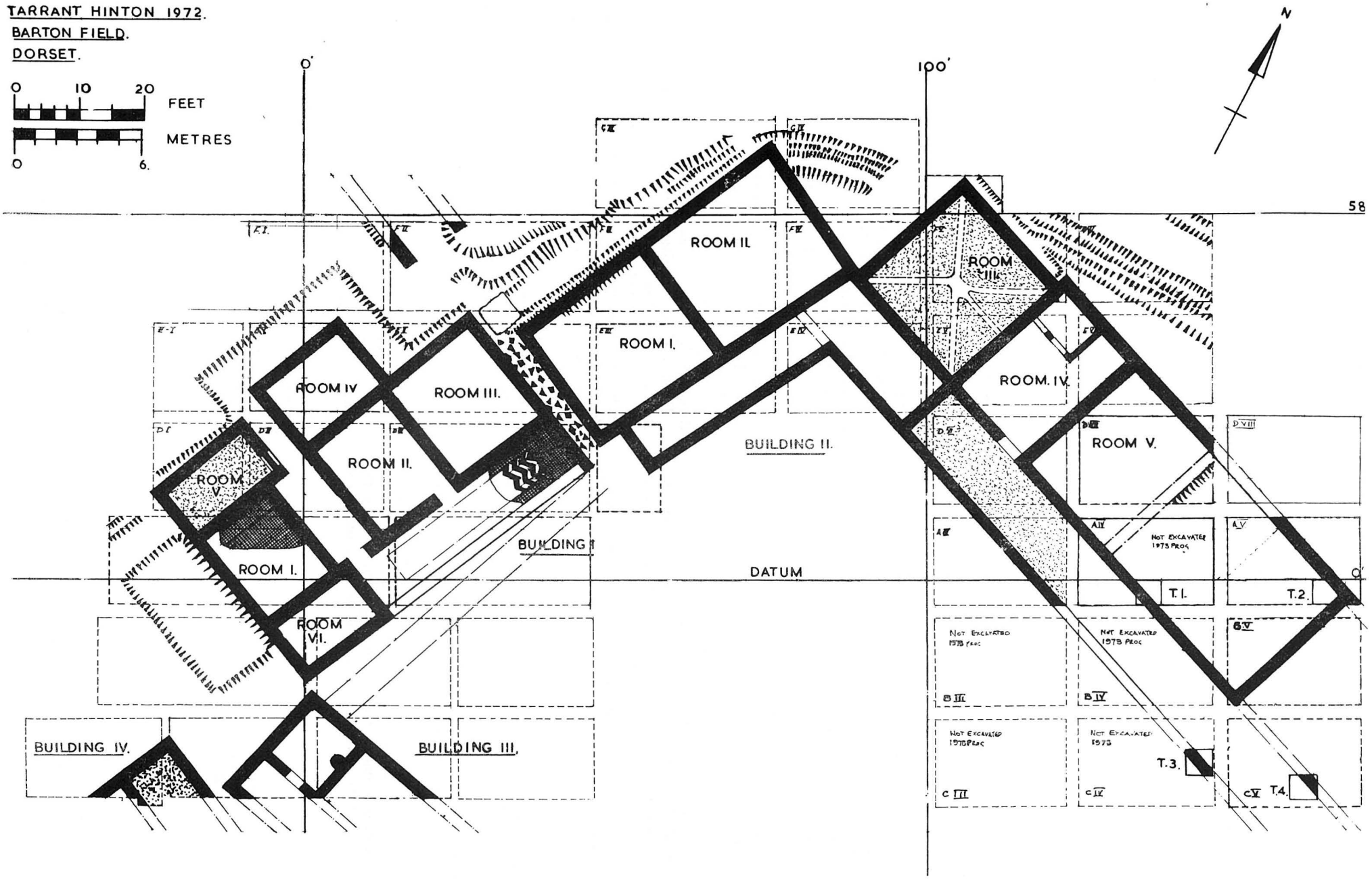

TARRANT HINTON 1972.
BARTON FIELD.
DORSET.
0 10 20
FEET
METRES
0 6.
0'
100'
N
58
ROOM II.
ROOM III.
ROOM I.
ROOM IV
ROOM III.
ROOM II.
ROOM V
ROOM I.
ROOM VII.
BUILDING II.
BUILDING I
DATUM
ROOM IV.
ROOM V.
NOT EXCAVATED 1973 PROG
T.1.
T.2.
T.3.
T.4.
BUILDING IV.
BUILDING III.

FIG. 9

contained a small storage bay for locally made tesserae, and several large worked stone blocks were found against one of the walls. In Room VI a small hearth was found filled with material including a mixture of cerrusite (lead carbonate) and charcoal, although no moulds or objects made there have been met with.

A further 40 coins, mainly of the 4th century, came largely from the old Roman land surface which was clearly defined at the eastern end of the range. A child burial was found here, below this land surface at a point where it was covered by chalk make-up for the building.

Future Work

The portions of the four buildings forming the Tarrant Hinton complex, as so far known, lie in the centre of Barton Field, which is now required for sowing by the owner, who has provided generous help during the four seasons of work. However a mortared flint wall was located by trial trenching a hundred yards to the north of the present site, and some thirty yards in from the eastern boundary of the field, and an area fifty yards square has been made available for exploration.

R. M. TANNER

THE LOST ROMAN POTTERY SITE AT BAGBER, MILTON ABBAS

It is now generally accepted that the commonest, hand-made variety (Category 1) of Romano-British 'black-burnished' cooking pottery, known for convenience as BB1, and found in both military and civil establishments in most regions of Roman Britain, was not only inspired by Durotrigian models but was to a considerable but uncertain extent actually manufactured by Durotrigian potters[20]. This remarkable and unexpected regional contribution to the economy of the province seems to have been an enduring one, but there is evidence that at certain times and in certain areas, as in the Brue valley, Somerset, and at Rossington Bridge near Doncaster, pottery of identical character was produced. Recently developed scientific methods of analysis have done most to pin down the sources and determine the distribution of Iron Age and Romano-British coarse wares, but much remains to be done, and the archaeologist can contribute by drawing attention to all potential sources of supply. With the exception of Corfe Mullen in the Stour valley[21], the only production site yet suggested in Durotrigian territory outside the Isle of Purbeck —although there may well have been many—is that of Bagber, Milton Abbas. If authenticated, this site would be distinctive in lying on the Chalk, albeit covered with Clay-with-flints, instead of on the Tertiary sands and gravels.

Excavations in 1841 and 1891

The Bagber site was first examined by Charles Warne in December, 1841, and described by him in *The Archaeologist*, No. 8, April, 1842, 94-5. His original notes, giving a small amount of further information, are preserved in the County Museum in his bound MS. volume 'Illustrations to the History of Dorset', 374[22]. In a field on Bagber Farm, occupied by a Mr. Ingram, where ploughmen were 'inconvenienced by a large quantity of flint', he uncovered foundations of a rectangular building of 44 by 25 ft., within which the great quantity of fragments of pottery was one of the reasons for his conclusion that it was a site of pottery manufacture. The pottery mainly consisted of black-burnished ware; one or more pieces were perforated as colanders, but the only shape specified was of a 'common type' described as a 'goblet', and this we must assume was a beaker of New Forest ware. The only sherds surviving from 1841 are in fact pieces of metallic-lustred New Forest flasks with white painted decoration (D.C.M. 1886.9. 145-8, Hogg collection). There were four coins ranging from the mid 2nd to the mid 3rd century A.D.—a sestertius of M. Aurelius, and denarii of Alex. Severus, Gordian and Philip junior.

A portion of a Kimmeridge shale disc (1885.16.103)[23] thought to be part of a potter's wheel is now appreciated as belonging to a table-top of the three-legged variety known in this country from the carved legs from Dorset and elsewhere, and from illustration in funerary sculpture. It is impossible to say whether J. C. Mansel-Pleydell, the first president of this Society, was correct in identifying a less complete shale fragment, found by him in his subsequent work on the site in 1891, as a similar object[24], and if so whether part of the same one, since it has not survived, but even one such luxury article would be unexpected on a site of a pottery industry. On the other hand Warne's opinion of the nature of the site cannot be taken lightly. Pitt-Rivers expressed the view that it was the source of pottery used in his Cranborne Chase settlements, and it was he who asked Mansel-Pleydell to re-excavate, and was apparently not disillusioned by the results[25].

Warne interpreted two portions of querns, or quern-like stones, as for pulverizing and kneading the clay; but more significant, perhaps, were 'many small and very thin pieces of stone, chiefly of a rude triangular form, with smooth, sharp edges, similar to the thin pieces of wood of like shape and nature, now used in our potteries for bringing the clay into the requisite shape'. Several of these objects survive in the Museum and are here illustrated (Fig. 10) together with the bone handle, mentioned by Warne, with remains of an iron tang embedded in it. Three of Warne's objects are of sandstone, the largest one being a simple and relatively coarsely-grained pebble with little sign of wear. The other two, however, of more finely-grained sandstone, and the fourth, which is 'triangular' and made of finely-grained limestone with siliceous veins, have sharply worn edges, and I can confirm the modern use, at A. Harris and Son's pottery at Wrecclesham, Surrey, of a wooden 'ribber' of the same shape and size as Warne's limestone piece[26].

Mansel-Pleydell rediscovered the site, on Clay-with-flints, in 1891, excavating three chalk-cut pits or 'chambers'[27]. Two were circular and 'communicated' with each other in a manner not explained. The first was 6 ft. in diameter with a clay lining subjected to intense heat. In the second (diameter unstated), a large solid table of natural chalk, 3 ft. high and occupying an area of 3 ft. by 2 ft., had been left unexcavated in the centre of the pit, 'supporting' a flat stone of greensand of unstated but presumably appropriate size. The third 'chamber,' larger than the others and with its floor 8 ins. lower, was presumably nearby, and probably less regular in plan, since it was only stated to have rough walls showing marks of the workmen's tools.

An industrial purpose seems likely, although not, from the evidence available to us, necessarily potting. Evidence for the firing of BB1 in our region[28] suggests the use of bonfires, or perhaps pit clamps, rather than of up-draught kilns, if that is what these things were. The direction of Mansel-Pleydell's thoughts is, however, clear, from his comparison of the second circular pit with the Shoebury (Essex) pottery-kiln of 1895, in which the floor of the firing chamber was formed by the top of an inverted core of solid clay built in the centre of the furnace floor[29], instead of a more conventional arrangement such as fire-bars radiating from a central pedestal.

It is not clear why, despite the treatment of the site as a pottery factory throughout his text, Mansel-Pleydell referred to it as a brick-kiln in his title; his list of objects found includes only one fragment of a roof-tile. Besides the above-mentioned shale piece,

20. A. Detsicas (ed), "Current Research in Romano-British Coarse Pottery", C.B.A. Research Report No. 10, 1973, 63—5 (Peacock), 67—103 (Farrar).
21. *Proc. Dorset N.H. & A.S.*, Vol. 90 (1968), 174—80.
22. Curiously, Warne did not describe Bagber in his "Ancient Dorset", 1872, although in Wake Smart's appendix therein, on Kimmeridge shale, there is a summary probably contributed by Warne. There are also summaries in Hutchins' "History of Dorset", ed. 3, Vol. I, 1861, 562, and Vol. IV, 1870, 398.
23. J. B. Calkin, *Proc. Dorset N.H. & A.S.*, Vol. 94 (1972), 48.
24. *Proc. Dorset N.H. & A.F.C.*, Vol. 13 (1892), 184—5; Vol. 17 (1896), 128.
25. *Ibid.*, Vol. 13, 23—4.
26. The ribber has many uses besides that of smoothing out the ribs formed on the insides of vessels thrown on the wheel, and need not imply a throwing technique rather than hand-building with or without the aid of a turn-table; use for scribing lattice and other decoration is one possibility.
27. *Ibid.*, Vol. 17, 128—31.
28. A. Detsicas (ed.), *op. cit.*, 92—3.
29. P. Corder, *Arch. Journ.*, Vol. 114 (1957), 16.

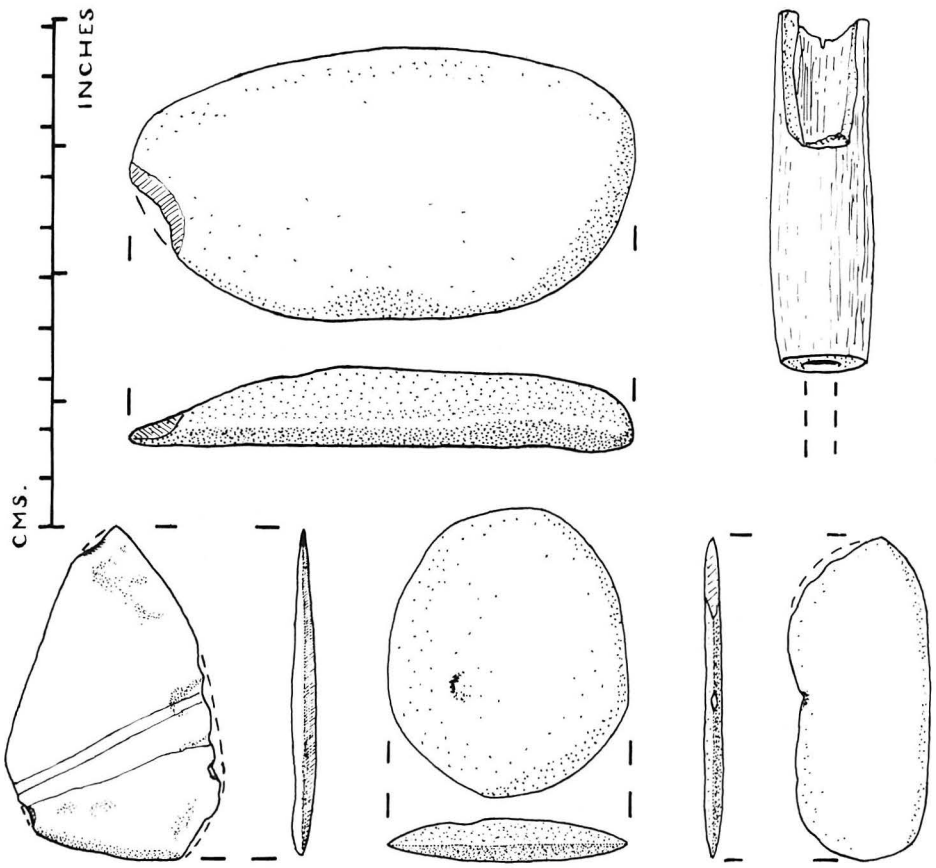


FIG. 10. Stone modelling tools and bone handle from Bagber, Milton Abbas, 1841.

the finds included a coin of Vespasian (A.D. 69-79) to add to Warne's later issues, balls of baked clay 'probably used for propping up the vessels in the kiln', and more of Warne's 'thin pieces of fine-grained limestone, with sharp and worn edges'. Presumably somewhat larger than these, and possibly more like the first and largest of the four implements of Warne's that we illustrate here, were 'several triangular, thin, and finely-grained concretionary stones from the Bagshot series, probably made use of to knead the clay, from the Reading and Woolwich Beds some little distance off'.

The pottery included some plain samian which has not survived, one base sherd being allegedly stamped OFNARIS. One complete vessel and fifteen sherds of coarse ware are listed, one of 'fine whitish-clay'; the remaining fourteen, ranging in colour from red to black-brown, with some variation in coarseness, are probably to be taken as mostly, if not all, black-burnished ware with a greater or lesser degree of oxidation in the firing. The complete vessel alone has come down to us, given by Mansel-Pleydell in 1896, a handled jug or flask of black-burnished ware (D.C.M. 1901.2.13; Fig. 11). The fourteen sherds included two (or perhaps four) colander-perforated pieces, three with 'eyelets' (perhaps cooking-pots with countersunk lugs), and four handles, two of them stated to be from jugs one of which was similar to the complete example. The proportion of handled vessels thus seems high, but there is no clue as to the criteria adopted in selection for mention.

The Bagber flask

The vessel illustrated in Fig. 11 is the only potential product of a Bagber pottery industry in our possession. It is complete except for a small area in the middle of the body, but the edge of the base is somewhat worn. It is a one-handled flask of BB1 ware with a relatively wide funnel-shaped neck and plain rim slightly ledged internally. The body colour, shown in fracture where the wall is thinnest, is a medium chocolate-brown with a trace of dark grey core; the surfaces are a fairly uniform black, slightly browned in the fractured area. The outer face is smoothly burnished horizontally, except in the neck where the presence of the handle encouraged vertical treatment, without much sign of the

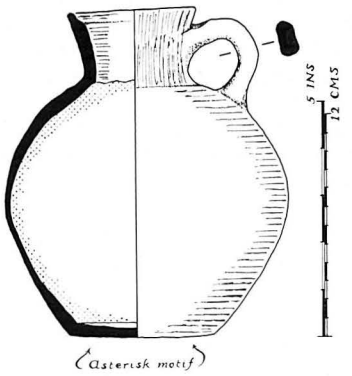


FIG. 11. Flask in black-burnished ware, Bagber, Milton Abbas, 1891, faceting common in BB1 burnish. The underside of the base is similarly treated, but reveals on close inspection a 6-rayed asterisk motif roughly and lightly scribed right across. The somewhat carelessly finished inner face of the neck is horizontally burnished to its base, where folds in the clay suggest that it may have been made separately and welded on. Below this the interior of the vessel is horizontally striated as a result of brushing or wiping, as is common in BB1 cooking-pots, especially those of the 3rd or 4th century. The handle was secured at its lower end by a mortise and tenon joint, the tip of the tenon appearing flush with the inner wall when viewed through the fractured side; this very secure method of attachment is common in BB1 flasks, and I have noticed it in the oval 'fish-dish' too[30].

The one-handled flask in BB1 is a regional class and does not seem to have been exported in quantity. Although doubtless derived from the Roman forms in white or cream ware, perhaps even before the conquest[31], the most exact copy appears to be

30. Rim sherd from Foxholes Road, Bournemouth, 1909, in reserve collection, Red House Museum, Christchurch.
31. Wheeler, "Maiden Castle, Dorset", 1943, Fig. 74, No. 230, which, however, although correctly described as of 'native' rather than Roman ware, has a foot-ring and is not in the typical BB1 Durotrigian fabric.

the ring-neck from the 1st century Hut C at Studland[32], although an unpublished neck from the Verne, Portland (D.C.M. 1938.11) runs it close. Calkin's otherwise unparalleled flasks from Gallows Gore, described as 'of the familiar black fumed ware', had rims recalling the ring-neck type and were on that account ascribed to the 2nd century[33].

Nearer to our Bagber type, however, and also from Hut C, is Studland No. 29, but this retains the foot-ring of the Roman prototypes; the tenon joint of the handle is, however, well illustrated. Another flask with foot-ring, similar handle attachment, and short everted lip (1852.2.1), was found with an inhumation burial at West Stafford near Dorchester, accompanied by Durotrigian vessels of ultimate pre-Roman Iron Age forms, and close by another burial with a 1st century samian dish of Drag. form 22.

Insecurely dated examples, where the form of the base is unknown, occur at the Grange, Steeple (with tenon)[34], Encombe 'obelisk site' (with tooled patterns flanking the four-ribbed handle—the neck is missing)[35], and at Iwerne[36]. The latter has a plain cup-like rim, like that from Steeple, and there is a similar rim in the Museum (0.153.1), unprovenanced but probably from Dorchester, with tenon-jointed two-ribbed handle. At the potters' field at Redcliff, Arne[37], where most vessels are of 3rd and 4th century types, and 1st-century pottery seems altogether lacking, there were upper portions of two examples, both with the cup-rim and indications of a tenon-jointed handle. Further evidence suggestive of a relatively late date for the cup-rimmed type comes from Brownsea Island in Poole Harbour, where a site currently under observation by Mr Alan Bromby has produced two such rims amongst pottery predominantly of the later 3rd or 4th century.

The only other flask of this one-handled class of which I am aware, for which there is any independent dating evidence, is an almost complete example with plain base and two-ribbed tenon-jointed handle[38], from a deposit at Wollaston House, Dorchester, above a layer yielding two sherds from a thin-walled castor ware vessel not earlier than the late 2nd century. This, however, has a narrow neck with vestigially beaded lip. A complete globular flask in the Museum (0.152.1) from North Square, Dorchester, also with plain base but with a simple rib-less handle, has a wider neck with a flattish projecting lip. No type under consideration matches the Bagber flask with its slightly funnel-shaped neck.

This review would be incomplete without reference to a flask of similar globular shape, with plain flat base and a fairly wide upright neck with thickened lip, from Sutton Poyntz Waterworks, Weymouth (1898.3.1). This vessel has two girth grooves on the shoulder, and its handle is peaked, perhaps in imitation of the thumb-grips of bronze or silver jugs which are occasionally reproduced in more sophisticated, wheel-thrown wares outside our region. Two-handled versions of the globular flask are also to be expected on occasion; an example in the Museum (1954.3, Eldon collection) is published from Lynch, Corfe Castle, with plain base, plain strap handles, and upright neck with beaded lip[39].

It seems likely that BB1 flasks of this general form were long in production, and it will be unwise at present to press particular datings, beyond suggesting that ring-necks and foot-ring bases seem early features and cup-rims late. The Bagber flask possesses none of these features, and, as we have seen, there is evidence for activity on the hill-top from the 2nd if not from the 1st century A.D., right through into the 4th century.

32. *Proc. Dorset N.H. & A.S.*, Vol. 87 (1965), 178, No. 37.
33. *Ibid.*, Vol. 69 (1947), 43. They have plain bases. Their 'combed' wavy line decoration is one of the unparalleled features, but the varying tooled patterns that Calkin mentioned as occurring round the bases of their handles may be compared with those on other regional BB1 forms, such as the handled cups from the potters' field at Redcliff (*ibid.*, Vol. 81, 1959, 123).
34. *Purbeck Papers*, I, 215—20, Fig. XX.I.
35. In Mr P. A. Brown's possession.
36. *Arch. Journ.*, Vol. 104, 1954, 60, Fig. 11. This is described by Hawkes as a 'grey jug-top'; it is presumably in BB1, but the closure of the Pitt-Rivers Museum at Farnham makes it impossible to check.

The significance of the Bagber flask

We may now ask what bearing the vessel has upon the question of pottery-making here, which we have seen as suggested, but not demanded, by the nature of some of the other finds and the structures as they were described by Mansel-Pleydell. The flask is clearly not a factory waster, and we noticed earlier that the edges of the base showed signs of wear. It could be argued that this wear amounts to more than we could expect from some eighty years of occasional movement on a museum shelf. Potters, however, have need of vessels for domestic use as well as for water-containers for their work. On the other hand, the suggestion that handled vessels of one kind or another were unusually common on the site need not, if it were true, imply a potter's specialization in a particular class of vessel; ritual activity at a hill-top shrine, with which the occurrence of part of one or perhaps two shale tables would be more consistent, is equally possible. No other finds suggest such an establishment, however, and we are left with the structural evidence for industrial activity involving intense heat, the curious stone wafers, and the convictions of Warne and Mansel-Pleydell, and perhaps of Pitt-Rivers, although we have no evidence as to whether he visited the site during excavation.

Mineral analysis of a small sample of the vessel, taken from the edge of the fracture, has thrown no positive light on its source. Mr David Williams, research student in the Department of Archaeology, Southampton University, has kindly reported as follows.

> "Unfortunately this one sample does not appear to differ enough in the character of the grains or in the proportion of minerals present, from sherds from Stoborough, Redcliff, etc. So for the present at any rate it does not seem possible to distinguish mineralogically between these several Dorset centres".

The vessel could therefore be a product of a Purbeck factory; equally it could have been made at Bagber of local clay and sand, obtained from the Reading Beds which approach about a mile to the south, or perhaps even from alluvial deposits, which might be supposed to include sand deposits derived from the weathering of the Tertiary cap once overlying the Chalk[40].

The location of the Bagber site

Mansel-Pleydell rediscovered Warne's site partly through his own geological knowledge[41], partly through the assistance of the oldest inhabitant[42], but neglected to give a closer location than Bagber Farm. Rediscovery could not only lead to excavation, but could meanwhile contribute surface finds useful in evaluation.

The bounds of Bagber Farm clearly preserve those of a strip-like manor like those in the Iwerne valley described by C. D. Drew, bisected longitudinally by a droveway between two common fields. The southern side marches with the Milborne St. Andrew parish boundary, the northern with the similar long straggling hedgerow shared with Hewish Farm (O.S. 6-in. sheets SY79 NE and 89 NW). The mediaeval settlement, of which there are no obvious earthwork traces, would have lain in the valley bottom, near the present farmhouse alongside the brook and the road running southwards from Milton Abbas to Milborne.

Only a small portion of the farm lies east of the farmhouse, rising to the crest of Cayle's Down; this has been searched without result, but we are entitled to dismiss it since Warne in his "Illustrated Map of Dorsetshire: its Vestiges" (1865), clearly sited his 'Bagber Pottery' west of the brook. On the west, the whole extent of the farm, stretching across the downs to the edge of the valley of the Devil's Brook, has been searched, mostly while under plough or young crop, since the 6 in. MS. geological

37. Material recovered by P. A. Brown, mostly in the writer's hands pending publication.
38. In the writer's hands, pending publication.
39. *Purbeck Papers*, I, 220, Fig. XXII.
40. For the regional Tertiary deposits, derived ultimately from the south-western granites of the Dartmoor massif, see D.P.S. Peacock in A. Detsicas (ed.), *op. cit.*, 63.
41. *Proc. Dorset N.H. & A.F.C.*, Vol. 17, 127.
42. Newspaper cutting in H. J. Moule's M.S. Notebook IX (1895—8), 120, in the Dorset County Museum.

survey map at the Geological Museum, South Kensington, suggests too constant a capping of Clay-with-flints to allow the search to be appreciably narrowed. No telling debris has, however, come to light in searches over the past three years. With the exception of West Bagber Copse, which already existed in Warne's day and therefore cannot have been then under plough, the only area insufficiently searched, owing to the conditions, consists of the field alongside the road, on the north side of the drove, the long field on the south side and its squarish neighbour to the west, together with the gore between the latter and the drove. These fields have been in pasture since the search began in 1971, but attention probably needs to be concentrated only upon the long field and its neighbour, south of the drove, which, alone amongst the Bagber fields, have not been ploughed, according to the tenant's son, Mr David Hawkins, for many years. Neither he, nor Mr George Dufall of Bagber, who has worked on the farm for some forty years, have observed significant debris or soil anomalies in the ploughed fields. The two permanent pasture fields meet by the Dutch barn beside the drove, at the first crest, about 425 feet above sea level (SY 800992), where the Geological Survey records 'Thin Clay with Flints,' and a site about this point has the merit of agreeing quite well with that roughly fixed in Warne's archaeological map of the county[43]

Miscellaneous finds on and near Bagber Farm

A few objects found during the search deserve some notice here, although none appears to have any direct bearing on the nature or location of the site. A body sherd of coarse black ware, Iron Age or Romano-British, was found at SY 817997, south-east of Cayle's Down Copse at the east end of the farm. Search across

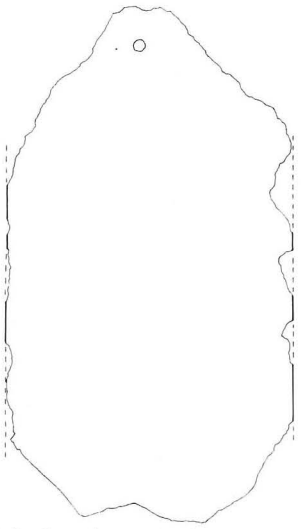


FIG. 12. Shale roof-tile found near Bagber farmhouse, Milton Abbas, 1972. (Scale $\frac{1}{6}$).

the Milborne parish boundary, in the triangular field on Frogmore (formerly Coles) Farm, which offered the nearest ploughed surface to the area we have defined as the likely one, produced evidence in the north-east corner (801989) for a late prehistoric flint industry; a dozen flakes included three worked as scrapers. The only pottery seen here were a few scraps of recent earthenware and tile, but a lump of Purbeck marble at least $2\frac{1}{2}$ ins. thick, with adherent sandy lime mortar indicating use as building stone, is in this hill-top context more likely to be Roman than mediaeval. It has the characteristic *Paludina* fossils and may have been roughly dressed but certainly not polished.

A shale roof-tile from the valley bottom, about 1 in. thick, with neatly cut edges surviving in several places, and now roughly hexagonal but perhaps originally rectangular (Fig. 12), was passed to me by Mr Hawkins with the information that it had been found "in the meadow by the old road" near the farmhouse. Investigation of the recently ploughed field immediately north of the buildings and between the brook and the present road showed a strip of flinty rubble running northwards, apparently the feature referred to by Mr Hawkins. Some miscellaneous debris of modern appearance suggested that it was of no great age, and it seemed to run out north-westwards to the field gate opening on the Milborne road, but the association may have been fortuitous, and we could be dealing with a road running through the missing mediaeval settlement. Some mediaeval sherds are noted below. The shale roof-tile was found, according to Mr Dufall, about half way up the field (SY 807995).

Mr F. Dimes of the Institute of Geological Sciences (Geological Museum, South Kensington) has very kindly furnished the following report.

> "The specimen is a dark brown to black bituminous shale which shows in places a conchoidal fracture. When a flame is applied the specimen ignites with some difficulty giving off a black bituminous smelling smoke. On the weathered edge surfaces the laminae have curled into flakes up to 15 mm. across.
>
> In order to determine the geological horizon of the specimen, it was inspected closely for macrofossils. None were found. A small piece of the tile was taken so that it could be broken down and searched for microfossils. R. Harland (Palaeontological Department, Leeds Office) reports:— 'The sample proved to be extremely difficult to break down and even after a week in hydrofluoric acid only a part of the sample had been digested. After two weeks of treatment the sample was examined and found to be barren'.
>
> As it was not possible to determine the geological horizon of the tile by means of any contained fossils, it was next compared with specimens in our collections from known horizons and localities. In general appearance and characteristics it is not inconsistent with the Kimmeridge Oil-Shale and 'Coal'. The famous 'Kimmeridge Coal' is really a bituminous oil-shale. On the Isle of Purbeck it rises from the beach 200 yards east of the headland Clavel's Hard and it was mined in adits driven into the cliff, and in surface workings.
>
> You will appreciate that in the absence of fossils it is not possible absolutely to state that your specimen is from the Kimmeridge Clay formation, Jurassic in age, but in my opinion on a 'by eye' examination I consider that it is Kimmeridge Oil-Shale and probably from the Isle of Purbeck area. It must be remembered, however, that there are some outcrops of dark bituminous shales of Kimmeridge age in the Weymouth district".

Evidence for interest in Kimmeridge shale, except as a domestic or industrial fuel, is lacking after its heyday in the Roman period as a raw material for making small objects and furniture. At that time it was also employed occasionally for floor-tiles and tesserae, even outside the region[44], as well as locally for such purposes as lining cists. Use for roofing, although not hitherto recorded, would not be surprising, and would be assumed Roman without hesitation under normal circumstances, especially where, as here, an occurrence some 14 miles from the nearest outcrop suggested the likelihood of an established trade, which the evidence does not at present allow for any later period. No other Roman material, however, was observed in the vicinity of the farmhouse, and, as we have noted, the tile itself, despite its present appearance, may not have been of that roughly hexagonal form common in Roman stone roof-tiles.

Inspection yielded, instead, three body sherds of hand-made early mediaeval coarse ware, one of them in the garden plot in front of Mr Dufall's cottage (80849932), the others close to the ploughed up trackway beside which the tile was found. They lend weight to the suggestion that the site of the mediaeval settlement lies in or near the area of the existing buildings. If the shale tile is nonetheless Roman, it may have been introduced from the hill-top site.

The tile, flints and mediaeval sherds were kept, and deposited in the Dorset County Museum.

R. A. H. FARRAR

43. Mrs Pleydell-Railston may have had some personal knowledge when she located the site "on the summit of the hill west of Bagber farm house" (*Proc. Dorset N.H. & A.S.*, Vol. 52, 1930, 12).

44. R.C.H.M., "Dorset", Vol. II, 1970, Part 3, 525. Its structural use in the Roman villa at Dewlish is noted above.

INTERIM REPORT ON EXCAVATIONS AT POUNDBURY, DORCHESTER, 1973

The eighth season of excavations at Poundbury lasted for ten weeks, work being concentrated on an area of almost half an acre at the centre of the Christian cemetery and Post-Roman settlement. Areas previously excavated lay to the west (Site B), south (Site E), and east (Site D), leaving unexplored only the northern limits of the site, which will require further investigation although not immediately threatened by development. We are again most grateful to Wyvern-Marlborough Ltd. and the Southern Electricity Board for permission to work on the site and to R. S. Kennedy Ltd. for the loan of a compressor and road drill.

Our thanks are also due to all those who have helped on the excavations over the past eight years and to the following who acted as assistant supervisors: John Beavis, Alan Graham, Philip Heathman, Tim Marshall, Howard Pell, Keith Ray, and Elizabeth Storey. We are also indebted to the following for their work on the processing of finds: Charlotte Bradshaw, Susan Elwyn, Alison Freeman and John Rastrick; also to Christopher Buckland-Wright and Rachel Cullen Reader for their continuing work on the examination of the human and animal skeletal remains. The excavation would not have been possible without the assistance of the officers of the Dorchester Excavation Committee and of the Dorset County Museum to whom we also extend our grateful thanks.

The Late Roman Cemetery

Within the area of 11,000 sq. ft. mechanically stripped in 1973 almost 500 graves were located, of which 200 were excavated (Fig. 13). No mausolea were discovered, but ten special burials were cleared, including one group of seven lead coffins near the north-west corner of the Wyvern-Marlborough factory. An eighth lead coffin from this group had already been discovered in 1964 during the construction of the factory[45], while a large empty grave discovered this year under the remains of a nearby Nissen hut is almost certainly that from which a ridge-topped Portland stone coffin was removed in 1940[46]. Clearly the most important group of special graves, at least in the surviving portion of the cemetery, it consisted of five adults and two children each enclosed in a simple lead-lined wooden coffin, the body within surrounded by the usual gypsum plaster packing. No evidence for monuments overlying the graves was recorded.

Further south, near Mausoleum 10, two more lead-lined wooden coffins were uncovered amongst a group of ordinary inhumations some of which were accompanied by grave-goods. One contained a male, another a woman accompanied by remains of her brownish hair arranged in two six-strand braids on the crown of the head. This is by far the most elaborate of all the recent discoveries of hair in Dorchester, although not the largest in quantity. Nearby three graves contained between them five unworn coins of the third decade of the 4th century, the coins in each case lying in the region of the body, in one case actually in the deceased's hand. This would then suggest a late Constantinian date for this part of the cemetery, a date which accords with that for the neighbouring mausoleum, examined in 1972. A child's grave, also part of this group, yielded a complete bone distaff with shale whorl, a bone ring and a hair-pin, while a juvenile girl close by was accompanied by several ornamented bronze bracelets. Another adult in this group had been placed in a wooden coffin equipped with iron angle-brackets.

To the north-west, near Mausoleum 8, another large empty grave buried beneath a Nissen hut, and still containing small chips of Hamstone, is almost certainly that from which a Hamstone coffin, now in the Dorset County Museum, was removed in 1940[47]. No trace of structure was noted in the vicinity of the grave but considerable disturbance had been caused by the construction of the hut. This burial had encroached upon the upper fill of two ordinary inhumations placed at a greater depth on either side.

Another interesting burial group lay midway between Mausolea 10 and 7, consisting of one coffin with angle-brackets, another with a very thin and decayed lead lining, the gypsum packing almost totally dissolved, and the third in a wooden coffin without lining but with traces of gypsum packing. All three contained remains of adults. Another adult with a bone comb was perhaps a woman.

The Development of the Cemetery

With the completion of this year's work the following resumé of the cemetery's history can be put forward. The site had been an open hillside in the 3rd century with, to the east at the foot of the slope, two groups of buildings of a relatively humble nature but in part, at least, of domestic character. During the late 3rd century and early 4th century, two very dissimilar cemeteries grew up beside these buildings. One of these was a group of irregularly sited cremations and inhumations, some with grave-goods, outside the more northerly house; the other, in the courtyard of the southerly building, was a cemetery of Christian type, with oriented inhumations without grave-goods, regularly laid out. This latter cemetery, focussed on an adult male interred in a gypsum-packed lead coffin, had soon expanded to cover the whole of the courtyard; it next encroached upon the west and north wings of the house, which was demolished in the early 4th century, before spreading up the hill, skirting the north house with its distinctively pagan cemetery.

The expanded cemetery covered an area of approximately half an acre, bounded on the south and west by ditches. Placed at regular intervals throughout this enclosure were five groups of special burials—the largest being that investigated this year—consisting mainly of lead-coffined inhumations.

In the second quarter of the 4th century, the first two mausolea (R9 and 10) were erected over groups of lead coffins, with the addition, later, of a stone coffin in R10. In the later 4th century the cemetery expanded into a new and larger enclosure of between one and two acres, the special burials in the main consisting of groups of stone and wood-coffined burials enclosed in mausolea. There seems to have been some further extension of the cemetery south of this area and stretching along the southern edge of the hill-fort, including two stone-coffined burials and three inhumations in separate enclosures, but the date is uncertain. Uncoffined inhumations dispersed in shallow graves throughout the cemetery, and dating perhaps to the 5th century, represent the final use of the site as a burial place.

The Post-Roman Settlement

The whole of the settlement except the eastern limits and the south-western perimeter, buried under existing buildings, has now been investigated; the plan (Fig. 14) shows all but a few of the outlying features.

On Site E work was completed on the enclosure surrounding the ruins of Mausolea 9 and 10, with the clearance of a substantial palisade trench along the north side. North-west of Mausoleum 10 this palisade trench, 3 feet wide by 4 feet deep, filled with stone rubble and soil, clearly cut an earlier trench, apparently part of a discontinuous enclosure, running between Buildings PR1 and 4. The complex round the mausolea would thus appear to be a later addition to what we might suppose to be the original nucleus of Buildings 1—4. The interpretation of this part of the site is problematic, but it is clear that the palisade trenches not only respected the two mausolea but incorporated them in some larger structure which itself passed through two stages of development.

To the west of this enclosure, remains of what may be a double entrance-way were uncovered (see foot of Fig. 14). At the south end the butt-ends of two palisade trenches form an outer portal 15 feet wide while two more post-pits 25 feet to the north represent the inner gates. Curving palisade trenches flank the

45. *Proc. Dorset N.H. & A.S.*, Vol. 88 (1966), 109 (Grave 1); R.C.H.M., "Dorset", Vol. II, 1970, part 3, 584, burial 'h' (i).
46. R.C.H.M., *op. cit.*, 583, burials 'e', plate 229.
47. *Ibid.*, 583—4, Plate 229.

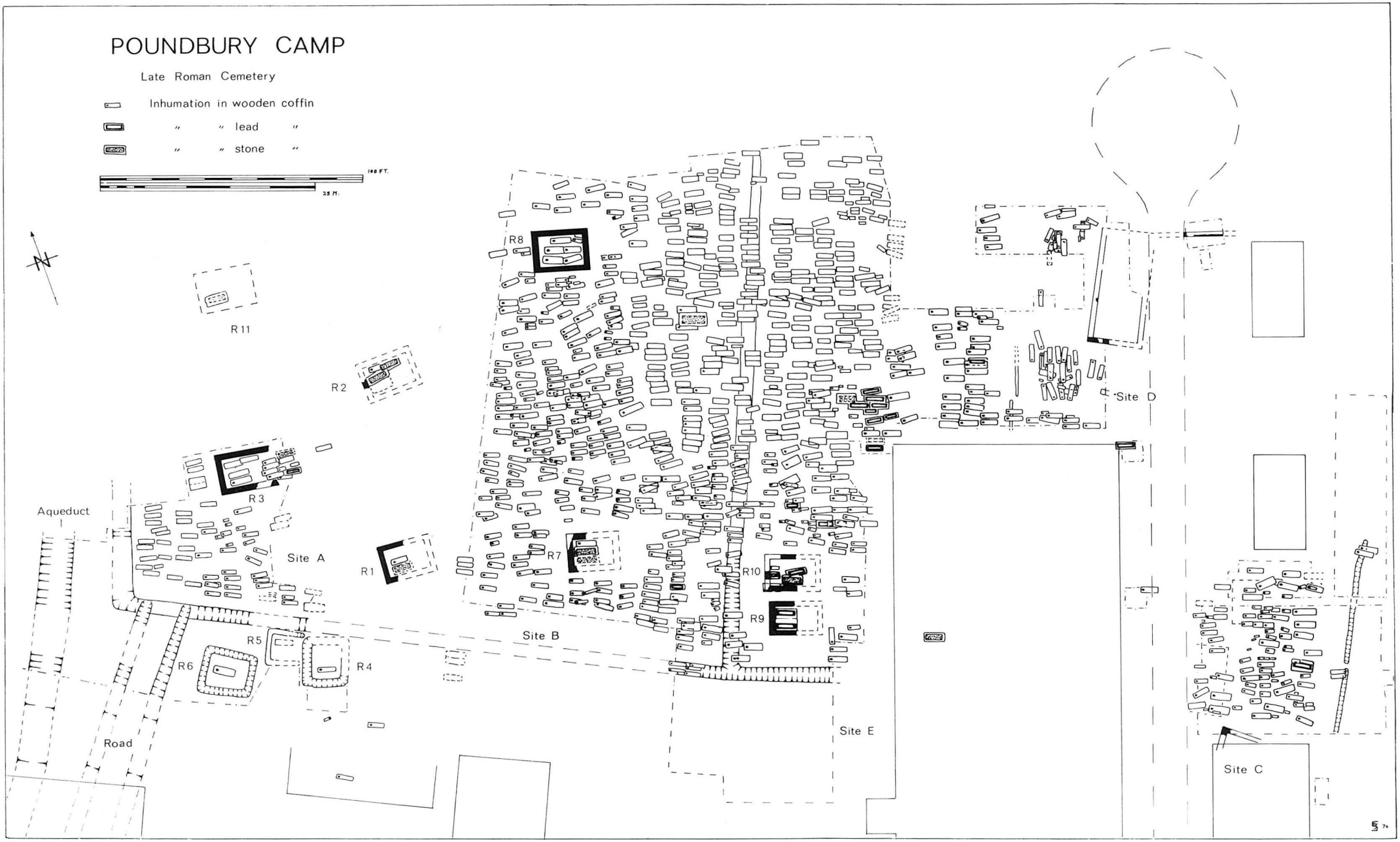

POUNDBURY CAMP
Late Roman Cemetery
Inhumation in wooden coffin
" " lead "
" " stone "
100 FT.
25 M.
R11
R2
R8
R3
Aqueduct
Site A
R1
R7
R10
R9
Site B
R5
R6
R4
Road
Site E
Site D
Site C

FIG. 13.

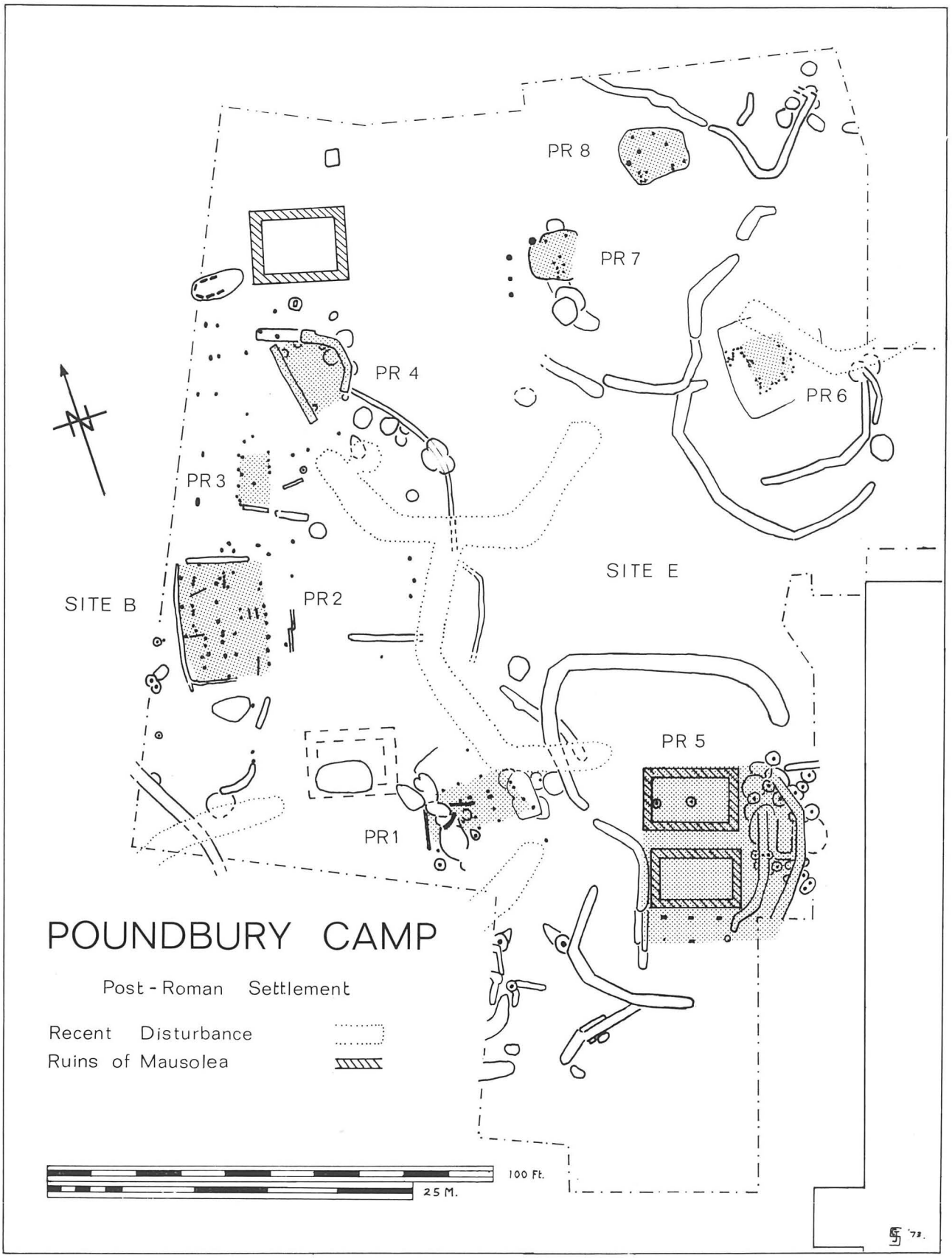

PR 8
PR 7
PR 4
PR 6
PR 3
SITE E
SITE B
PR 2
PR 5
PR 1
POUNDBURY CAMP
Post - Roman Settlement
Recent Disturbance
Ruins of Mausolea
100 Ft.
25 M.

FIG. 14.

passage between the gates, movement along it being further restricted by the addition of a fence blocking half its width. A side entrance, likewise reduced in width in its later stages, lay between this entrance and Building PR5.

To the north a hearth and corn-drying oven adjoined Building PR1, the corn-drying oven being later filled in, and cut into by a series of post-holes, possibly part of Building 1 itself. Further north again a complex of irregular enclosures surrounded three smaller buildings, PR 6—8. The enclosures passed through at least two phases and consisted of discontinuous lengths of shallow U-shaped trench; the existence of several butt joints suggested an original use as foundation trenches for palisades. Building PR 6 consisted of a rectangular wattle hut, 12 feet by 8 feet, situated on a shallow ledge cut in the hillside; PR 7 also lay on a ledge, but in this case the structure consisted of post-holes placed round the edge of the depression. PR 8 was notable for consisting of a roughly bowl-shaped hollow with post-holes mainly round the edge, the major roof support lying in the middle of the west side, rather in the manner of a Saxon *Grubenhaus*. However no pair to this post was visible at the east end.

Finds included clay loom-weights and fragments of double-sided bone combs. Other finds from the features of this period included iron knives, a small buckle and looped attachment from leather harness, and a large decorative iron mount, roughly in the form of a stylized bird, which had originally been mounted on a wooden object.

Summary of the Post-Roman Settlement

The date of this settlement is still far from certain but its general character appears to be that of a small farming community based on a mixed economy in which the rearing of cattle and cultivation of wheat and barley predominated. Three buildings (PR 1—3) of a domestic or agricultural nature can be recognised, centred on the small hall-like structure PR 2, the enclosure surrounding them seemingly of a defensive nature and incorporating two ruined mausolea in a strong-point commanding a complex entrance on the south side. PR 4 and the neighbouring mausoleum may likewise form another entrance, facing downhill eastwards towards the three small huts set within their own enclosures. The presence of a sunken-floored hut, and the absence of imported Mediterranean wares characteristic of Celtic communities of the 5th to 7th centuries in the west, might suggest a Saxon community, but the buildings PR 4 and 5 and the enclosure connecting them are so out of character with known Saxon structures that a purely Saxon context seems unlikely. The absence of imported pottery could be a reflection of poverty and need not rule out a community of a sub-Roman character; the presence of *Grubenhaus*-type buildings could be regarded as an indication of links with the immigrant communities, or even of a mixed community in the formative years of Wessex.

C. J. S. GREEN

SOME ARCHAEOLOGICAL AND HISTORICAL NOTES ON SITES IN THE BRIDE VALLEY

The Excavation of a Cairn on Black Down, Kingston Russell

With a grant from the Department of the Environment investigation of the area in the vicinity of barrows 6g, 6h and 6n was continued[48]. The Royal Commission's 'ditched bowl barrow', Kingston Russell 6n, was not listed by Grinsell in "Dorset Barrows", 1959, nor in the Commission's Vol. I, 1952, but was added when the great Ridgeway Barrow Group was reconsidered as a whole for the second volume. The national grid reference is SY 578904.

Excavation showed not a large bowl barrow but a small flint cairn covering a cremation contained in an overhanging-rim urn. What appeared on the surface to be a large barrow ditch was found to be the convergence of two linear ditches. A small cremation cemetery to the east of the cairn contained five token burials in small holes and the crouched inhumation of a young child with a miniature biconical urn. The feet of the child had been cut off before burial and were missing. The linear ditches were sectioned in several places but no clue to their origin was found.

A detailed report will be published when the investigation is complete.

A Flint Axe from Littlebredy

A highly polished flint axe was found in plough-soil near the top of White Hill, Littlebredy (SY 59308925). Length 16 cm., width at cutting edge 6 cm. tapering to 3 cm. at the other end; maximum thickness 3 cm. The cutting edge had a diagonal break.

A Hammer-stone from Litton Cheney

Half of an unfinished pebble 'hammer-stone' was found by Mr T. Foot near Hodder's Copse, Litton Cheney at SY 53059045. The original quartzite pebble had a length of 14 cm. and a width of 11 cm. Typical 'hour-glass' drilling from both sides had caused the pebble to fracture along the central line of weakness before the operation was completed.

A Quern-stone from Puncknoll

The lower stone of a sandstone rotary quern was found on the surface by Mr D. Etherington at SY 53458812 on the north side of Puncknoll Knoll. Previous discoveries of Iron Age/Romano-British material have been noted at this site by the writer. The stone has a milling surface conical in section, and the raised socket has a distinct lip. Diameter 34 cm.; thickness 12 cm. at centre; socket diameter 4 cm., depth 3 cm.

A Romano-British Occupation Site at Coombe, Litton Cheney

West of the road from the A35 at SY 536916 a Chalk spur with underlying Eggardon Grit and Greensand juts southward from the main ridge. The flattish top of the spur shows an area of dark earth associated with samian and Romano-British coarse pottery as well as much burnt limestone debris. The site, with its adjacent spring, resembles that at Pins Knoll on the same contour, about a kilometre to the south-east. Limestone is not local to either site and was brought for building purposes from the Jurassic south side of the Bride valley.

St. Luke's Chapel, Ashley, in the Parish of Longbredy

Hutchins has no evidence to offer as to the origin and nature of this well known ruin in its romantic woodland setting (SY 55808793), or to the early history of Ashley itself. A search of mediaeval records has shown, however, that one ploughland at Assheleghe (in the ancient parish of Litton) was given in 1246 by William de Lindington (Litton), to Robert, Abbot of the Place of St Edward (Netley Abbey near Southampton), and his church, 'for ever'. A charter dated 1251 grants to the monks of Netley Abbey free warren in their demesne lands of Waddon (now Friar Waddon) and Assheleghe. In a court case dated 1320, Ralph de Gorges, then Lord of the Manor of Litton, disputes with Netley the ownership of the land, and the gift of William of Lindington is restated. Waddon and Assheleghe continued in the possession of Netley until the Dissolution when all passed into the hands of Sir William Paulet, at which point Hutchins begins his account of Ashley. There is a mention that in 1338 the bailiff at Assheleghe was a clerk in holy orders.

Lack, in the Diocesan Record Office at Salisbury, of any record of a church at Ashley, the late mediaeval date for the fabric of the chapel, and the above association with a Cistercian monastic foundation, may well suggest that Ashley was farmed as a cell of Netley and that the chapel was built for the use of a small religious community.

A Deserted Mediaeval Village at Sturthill

The site of this village (SY 51559080), the 'Sterte' of Domesday Book, has been under observation by the writer for a number of years. Although now completely obliterated it was at Domesday

48. R.C.H.M., "Dorset", Vol. II, 1970, Part 3, plan p.460.

comparable in size with most of the other villages in the Bride valley. As with Kingston Russell, the other deserted village in the valley, records are frequent for the 13th and 14th centuries. Hutchins gives a list of Rectors to 1545 and says that it seemed to have been neglected from 1547. Both Kingston Russell and Sturthill seem to have been in comparable stages of decay by the Hearth Tax of 1664 when each is recorded as having eight houses. When Hutchins wrote, traces of the chapel of St Luke with its graveyard were still visible.

The site of the chapel marked by Ordnance Survey was confirmed by human skeletal remains found when a water pipe was laid. The churchyard wall referred to by Hutchins can also be found under the present hedge on the north side, bounding what is now a bridle path but was then the sunken road running round the graveyard. In 1972-3 a change of land use to arable, with levelling and deep ploughing, showed clearly the metalling of the mediaeval road system. It is identical with the road system shown on the 1811 edition of the O.S. 1 in. map and corresponds to the present bridleways and footpaths. The general layout of the houses along the street was shown by black earth and building debris. Substantial remains of a house still shown standing on the first O.S. map were also uncovered.

Longbredy Hutt

The name of this turning to Longbredy off the Dorchester-Bridport road (A 35) derives from the inn which was sited on the north side of the road (SY 57019131). The outbuildings and garden were on the south side. It is significant that the first licence for this house was granted to Elizabeth Crofts, widow, in 1753, the same year that the Harnham, Blandford and Dorchester Turnpike Trust was set up, with one of its toll gates at this point. The closure of the inn must also be related to the expiration of the Turnpike Trust in 1879. As late as the 1930's the hedge and wall marking the garden boundary could be identified, though house and outbuildings had completely disappeared. In 1964, ahead of the construction of the dual carriageway, the round barrow near the inn site was excavated and removed. Debris from the house was found piled up against the barrow. The threshold of the back door and the line of the north wall were found, as well as the footings of an outhouse which had been built against a vertical section cut in the side of the barrow. A local tradition that the Hutt had a good water supply was substantiated when a stone-lined well, 60 feet deep containing 15 feet of water, had to be filled with concrete, as it lay in the path of the east-bound carriageway.

C. J. BAILEY

INTERIM REPORT ON EXCAVATIONS AT MOIGNE COURT, OWERMOIGNE, 1973

Summary of Previous Excavation[49]

In 1971, in advance of levelling operations, the ditch of the enclosure bank surrounding most of the earthworks of *c.* 4—5 acres associated with the moated manor site of Moigne Court (SY 772857) was sectioned and showed evidence for two re-cuts, both undated, and some preliminary work was done on part of one central platform, which proved to be of unitary build, of limestone capped with chalk.

In 1972 this investigation was continued and a second platform was stripped. On the first, Building A, *c.* 36 by 8 m., with a chalk floor and limestone walls almost totally robbed, had possessed internal wooden partitions and two entrances on the north side, one of them indicated by a burnt wooden door and a large threshold-stone. There was no firm evidence for a date before the late mediaeval or early post-mediaeval period, but the finds suggested use as a cow-shed and stable. Building B, at right angles to A and separated from it by a cobbled yard, measured 20 by 7 m. with at least three rooms. Finds, including 15th-century door-keys and a fine bronze stirrup of the 16th/17th century, suggest that the building may, ultimately at least, have been the main dwelling of an emerging late mediaeval yeoman farmer.

Residual Romano-British sherds and pieces of worked Kimmeridge shale were fairly common.

Excavation in 1973

The final season's excavation confirmed the hypothesis that Building B was the main living-house of a Tudor yeoman farmer. Some 20 m. by 7 m., with walls of random-coursed rubble limestone and flints jointed with lime mortar, the house comprised screens-passage, hall, closet (separated from the hall by a screen), "parlour," and kitchen. Evidence pointed towards an early 16th century date of construction, with extensive robbing in the late 17th to early 18th century. Most of the walling, the fireplace and the stone door-frame had been totally robbed. A dump of pegged limestone roof-tiles had been discarded by the robbers. Some early woodland window glass, and other glass finds, have been chemically analyzed by Dr D. C. Watts of Guy's Hospital Medical School; important light has been shed on manufacturing techniques.

A stable annexe[50] to the north of the building had an off-centre limestone-paved drain, hard-standing, and timber slots indicating stalls. A roadway to the west was fronted by an entrance, near which were found a number of iron and bronze horse-harness buckles, with three iron spurs on a cobbled yard to the north. Small end-wall buttresses were located, one totally robbed-out. This stable would have accommodated the household riding horses, the work horses being housed in Building A, the stable/cow-shed at right-angles to the farmhouse and excavated in 1971-2.

Beneath the Tudor farmhouse were the remains of a Romano-British settlement. A preliminary investigation of the pottery suggests that it flourished during the 3rd and 4th centuries. That these remains were some of the outbuildings of a more imposing structure is suggested by quantities of painted wall-plaster, pegged slate roof-tiles and other building debris, sealed by the floor of the Tudor farmhouse and apparently used by the farmer as make-up. Large quantities of 3rd to 4th-century pottery and some building debris were found in a *sondage* about 100 m. to the south-east. It is suggested that a substantial structure, possibly a villa, stood over in this part of the field, and provided a source of make-up for the Tudor farmer's house-foundation, and probably also of building stone.

The period between the 4th and the 16th centuries is represented solely by a shallow ditch, which produced 13th-century pottery, and by scattered 15th-century sherds. A silver halfpenny of Richard II belongs to a phase before the Tudor farmhouse.

Worthy of note amongst the finds were a base silver groat of Edward VI, struck in the name of his father, Henry VIII, and dating to 1547-8; a base silver groat of Mary, bent at some stage in the form of a love-token[51]; sherds of "Donyatt" slip-ware of the 16th/17th centuries similar to wares from the recently excavated Somerset kiln site; an uncommon sherd of delftware from the second half of the 16th century; an intact glass pharmaceutical vial, probably dating to about 1600; and a complete and rare late 16th-century decorated bronze stirrup.

P. R. WALKER

SOME RECENT ARCHAEOLOGICAL DISCOVERIES IN DORSET

In addition to the notes below, several discoveries of minor character, or for which insufficient information is as yet available, may be recorded here. (i) *The Daily Telegraph* for 2 Nov., 1973, notes the discovery, at the Priest's Way caravan park, Swanage, of four 'Iron Age' inhumation burials. (ii) A colour snapshot, given in 1972 to the County Museum by Mr P. M. Lightfoot of Saplings, 3 Crawford Park, Spetisbury, near Blandford, shows a

49. This summary is based on short progress reports published by the Department of the Environment in "Archaeological Excavations, 1971" and *ibid.* 1972 (H.M.S.O.), contributed respectively by Mr D. J. Viner and Mr P. R. Walker, and on further information from the latter—*R. A. H. Farrar.*
50. Inability to distinguish this feature in 1972 led to the supposition that the house was 27 m. instead of 20 m. long.
51. The writer is indebted to Dr J. P. C. Kent of the British Museum for comments on the coins.

crouched inhumation on its left side, discovered at that address in a shallow chalk-cut grave, and described as a twin burial. (iii) Mr P. A. Brown draws attention to the discovery of many chalk tesserae at the site near St Edward's Bridge, Corfe Castle, in addition to the few of 'ferruginous shale' mentioned in his report in the last volume of *Proceedings*, p. 88. These are doubtless further evidence of the local knapping industry that has recently been shown to be an aspect of the important industrial area at Norden.

An Undated Inhumation Burial Found at Hilton

Mr C. J. Bailey contributes the following note. "An inhumation found at this point (ST 77570349) between Hilton and Ansty Cross was reported by the engineer, Mr Cowley, who gave permission for investigation by E. Flatters and the writer. The head of a crouched, adult burial had been cut off by the machine digging the reservoir. The body had been laid on its left side facing the east. There was no trace of grave-goods. The area in the immediate vicinity of the grave was examined with negative results and no other graves were noticed during the excavation of the very large area".

For 'Celtic' fields in the immediate area, see Group (49), Little Down, in R.C.H.M., "Dorset", Vol. III (1970), Part 2, 334.

Some Finds at Eggardon Hill-Fort, Askerswell

Mr J. E. Hancock of Bristol, has informed me that during a recent visit to Eggardon, in connection with one of his archaeological reconnaissance flights, he noticed many "Chesil Beach' sling-stones, and part of a rotary quern, as a result of ploughing at the western approach to the hill-fort, between and up to the base of the ramparts and through the entrance.

A Saddle-Quern from Stinsford

Mr P. F. Williams writes "Further to the report on Mesolithic and Beaker artefacts from Charminster and Stinsford parishes (*Proceedings*, 94, p.87) a saddle-quern of medium-grained sandstone of 'pinkish' colouration was found half buried at the base of the hedge on the southern boundary of the pasture field at SY 69959198 in the summer of 1973. It was presumably from a camping or more permanent habitation site in the near vicinity but removed hither as a result of modern farming operations. The help of Mr J. F. Cowley of County Hall is acknowledged in identifying the stone. The quern remains at present with the writer".

Mr Williams gives dimensions as length 10 ins., width 6.25 ins., height 4.75 ins., and provides sketches which will be deposited in the County Museum with other papers relating to this annual report. Meanwhile we may note that querns of this type were found at Maiden Castle in both Neolithic and Iron Age 'A' horizons.

A Roman Coin from Halstock

Mr R. N. Lucas wishes to record the discovery of an *antoninianus* of the Gallic emperor Postumus (A.D. 259—68) found by Mr R. Pinner in the garden of his home, Dorset House, Halstock (ST 533083) about 25 metres south-east of the church. The coin, retained by the finder, has reverse *Uberitas Aug.*

R. A. H. FARRAR

Obituary

Joseph Addison 1895-1972

JOSEPH ADDISON was born at Bishop Auckland. His apprenticeship with Bolckow-Vaughan and education at Armstrong College was interrupted from 1915 to 1919 while he served in the Royal Engineers mainly in Mesopotamia. He then returned to the firm for ten years, serving first as junior and later as senior assistant to the Chief Engineer and in 1919 became Chief Mechanical and Electrical Engineer to the Cowpen Coal Co. Ltd., Blyth. In 1947 he became Chief Engineer to No. 4 Area, East Midlands Division of the National Coal Board and two years later the Chief Mechanical Engineer of No. 3 Area, retiring in 1960. His work included the design of winding, hauling and pumping equipment, the conversion of drives from steam to electric and of electric plant from 60 to 50 cycle; testing, a feed water plant, combustion, by-product coke ovens and brick works. Shaft sinking, caissons for bridge foundations, erection of aerial ropeways, installation of railway sidings and coaling staithes.

On retirement he went to live in Dorset and interested himself in recording the watermills of that county in which activity the present writer was fortunate to be associated with him. The result of this work was published in three papers in the Transactions of the Newcomen Society, "Dorset Water Mills" volume XXXV, 1962-1963, "Addendum to Dorset Water Mills" volume XXXVI, 1963-1964, and "Dorset Water Mills; second addendum" volume XLI, 1968-1969. Subsequently he directed his enquiries to the iron horse gears still to be found there and on which he had completed the field work and research shortly before his death. He was an all-round engineer, meticulous in all he did, a superb draughtsman and a man of wide interests which he shared with both humour and insight; all this made him a splendid companion. His work was shared in all its aspects, including field work, by Mrs. Addison.

R. WAILES

Dorset Rainfall, 1973

By D. J. Paxman

STATISTICS

The general rainfall over the county in 1973 amounted to only 23·33 inches, which is 36 per cent less than in an average year.

Monthly summary:

	Rainfall 1973	*Average* 1935-59
January	2·0	3·9
February	1·0	2·7
March	·8	2·5
April	2·0	1·9
May	2·9	2·4
June	1·9	2·1
July	2·1	2·6
August	1·6	2·9
September	2·6	3·2
October	2·2	3·7
November	1·4	4·6
December	2·8	4·2

The highest yearly total was at Melbury House though it was a mere 29·52 inches. The driest station was Abbotsbury with 19·48 inches.

GENERAL REPORT

1973 stands as the second driest year in the Dorset records. First place is still held by 1921 when the general rainfall was 19·46 inches (a more representative figure than the 17·92 indicated in the volume of our *Proceedings* dealing with that year). The only other years which came close were 1864 (23·66 inches) and 1870 (23·81 inches). The records go back to 1856.

Every month had less than its average rainfall or only marginally more, but the shortfall of rain was very evenly spread across the year. Thus, although most stations had one, two or even three periods of absolute drought, these barely lasted the fifteen consecutive rainless days needed to qualify for this official description. The even spread of such rain as there was helped to maintain water supplies and to disguise the lack of rainfall from the casual observer.

The dryness of 1973 is the more remarkable when one remembers that the second half of 1972 was also dry. Over the whole period of eighteen months to the end of December, 1973 the deficiency in rainfall was 31 per cent.

There was no snowfall of note. There was a snow cover of between one and two inches in some areas on February 25th, but this all melted within two days.

HEAVY FALLS OF RAIN

Only on July 14th and October 15th did a day's rain exceed one inch over more than half the county, but by our usual standards neither occasion merits detailed description. It was on the earlier of these dates that the heaviest fall in a single day occurred (1·89 inches at Okeford Fitzpaine).

THE WIDER SCENE

There is a good deal of evidence which suggests that a long-term change is taking place in the climate of the northern hemisphere. The mean atmospheric temperature has fallen and there has been both a decrease in the vigour of the general atmospheric circulation and a southward shift in the prevailing pressure systems and their associated climatic belts. One may instance the rapid southward advance of the sea ice, especially since 1958, such that for the first time this century ships going into Icelandic ports have been impeded by drifting ice. There is also the southward advance of desert conditions south of the Sahara.

In our own latitudes a southward displacement of the tracks of the great Atlantic depressions as they move from west to east, and a reduction in their vigour, would mean the British Isles being less affected by the warm rain-bearing westerlies which are the key to our climate. We therefore look for such evidence as lower rainfall and generally colder weather, especially colder winters with Britain more frequently in the easterly circulation of the westward extension of the Siberian anticyclone.

Recent Dorset rainfall records certainly show some evidence of decreased rainfall. For some years in this report we have used the years 1935 to 1959 as a standard by which to judge what is

STATION	OBSERVER	Greatest fall in 24 hours		Days with 1 in. or more	Days with ·01 in. or more	DEPTH OF RAINFALL IN INCHES												Total for Year
		Depth	Date			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
Abbotsbury (Rodden Row)	Miss A. M. Hutchings	·74	1/4	0	137	1·57	·80	·57	2·11	2·68	1·32	1·59	1·19	2·14	2·22	1·25	2·04	19·48
Beaminster (East Street)	W. A. Stiby	1·05	27/6	3	140	2·33	1·98	·89	2·50	2·68	2·11	2·33	2·20	3·47	2·12	1·62	3·03	27·26
Blandford (Bryanston)	Miss A. M. Jaques	1·17	27/6	4	126	1·66	·88	·67	1·81	2·65	2·33	1·93	2·05	2·22	1·78	1·53	3·44	22·95
Bournemouth (Alderney Reservoir)	B'mouth & Dist. Water Co.	1·53	15/10	1	125	1·76	·62	·57	1·54	3·46	1·94	·76	1·26	2·28	2·73	1·03	2·46	20·41
Branksome (Bourne Valley)	J. M. Sonley	1·45	15/10	1	120	1·75	·73	·51	1·71	3·29	1·90	·84	1·54	2·32	2·58	1·21	2·27	20·65
Bridport (East Road)	E. J. Hine	1·38	27/6	3	—	2·23	1·00	·62	1·88	1·79	2·42	2·36	1·54	3·09	2·25	1·31	2·67	23·16
,, (North Chideock)	H. J. F. Smith	—	—	—	—	1·93	1·15	·71	2·12	2·47	1·41	2·38	1·72	2·64	1·96	1·36	2·67	22·52
Buckland Newton (Brockhampton Gate)	Major A. M. Hall	1·50	12/7	2	166	2·17	·80	·90	1·92	2·95	1·72	2·93	1·27	2·59	1·84	1·44	2·88	23·41
Cattistock (Manor Farm)	R. J. Bere	1·46	5/8	4	131	2·52	1·03	1·06	2·57	2·53	1·62	2·27	2·37	3·38	3·09	1·71	3·33	27·48
Charminster (Forston Pumping Station)	C. H. Carter	1·09	14/7	2	155	2·14	1·07	·78	2·59	2·80	1·23	1·89	1·81	2·69	2·37	1·59	3·00	23·96
Corfe Castle (Waterworks)	Dorset Water Board	1·56	15/10	2	124	2·70	1·04	·69	2·03	3·11	2·26	1·23	·88	2·75	3·00	1·42	2·66	23·77
Dorchester (Alfred Road)	J. R. Oliver	1·23	1/4	3	146	2·32	1·26	·80	2·46	3·23	1·84	2·18	1·62	2·43	2·61	1·62	3·06	25·43
,, (Queen's Avenue)	Miss A. Yeatman	1·15	1/4	—	—	2·06	1·24	·78	2·30	3·02	1·77	2·22	1·52	2·18	2·61	1·55	3·03	24·28
,, (Higher Kingston)	H. F. Middleton	1·11	14/7	3	127	1·91	1·05	·71	2·23	2·73	2·01	1·93	1·51	2·39	2·32	1·18	3·04	23·11
,, (Martinstown)	Mrs. E. S. Symonds	1·58	14/7	3	135	2·56	1·14	·92	2·49	3·31	1·59	3·87	1·59	2·74	2·94	1·54	3·18	27·87
Evershot (Melbury House)	W. H. Wright	1·66	14/7	2	—	1·95	1·41	1·49	2·33	3·52	2·28	3·02	3·17	2·90	2·41	1·76	3·28	29·52
Forde Abbey	G. D. Roper	1·16	5/8	1	142	2·51	1·05	·61	2·52	2·85	1·56	2·73	1·87	2·50	2·50	1·28	2·94	24·92
Maiden Newton (Lower Wraxall)	Mrs. K. Aldridge	1·46	14/7	2	142	2·26	1·04	1·01	2·37	2·48	1·69	2·67	2·22	2·96	2·56	1·68	3·29	26·23
Mapperton	V. Montagu	1·10	27/6	1	106	2·17	·93	·87	1·76	2·54	2·59	2·25	1·76	2·92	2·06	1·47	2·75	24·07
Marnhull (Great Down Lane)	Mrs. E. M. Payne	1·36	14/7	2	168	1·87	1·35	·79	1·80	2·78	2·06	2·53	1·93	2·28	1·56	2·36	2·92	24·23
Milton Abbas (Gate House)	Miss Wansbrough	1·39	14/7	3	—	1·87	1·15	·78	1·52	3·48	2·18	2·50	2·13	2·33	2·01	1·66	3·71	25·32
Minterne	The Lord Digby	1·47	5/8	2	154	2·25	1·23	·99	2·35	3·07	1·64	2·53	2·38	3·62	2·17	1·88	3·59	27·70
Netherbury (The Garden House)	J. K. Newsom Davis	·99	14/9	0	136	2·10	·91	·84	2·18	2·54	1·94	2·07	1·81	3·39	2·00	1·48	2·65	23·91
Okeford Fitzpaine (Pumping Station)	Dorset Water Board	1·89	14/7	2	122	1·75	·97	·53	1·59	2·60	2·48	3·07	1·71	2·59	1·57	1·67	3·01	23·54
Owermoigne (The Mill House)	J. Whatmoor	1·55	14/7	3	131	1·67	1·03	·54	1·78	2·30	2·13	2·35	1·07	2·29	1·99	1·12	2·65	20·92
Parkstone (Grammar School)	Met. Society	1·30	15/10	3	126	1·27	1·36	1·43	2·51	2·80	2·08	·80	1·13	1·57	2·43	1·04	2·23	20·65
Poole (Pitwine's Gasworks)	J. M. Sonley	1·18	15/10	2	—	1·75	·53	·60	1·58	3·03	2·04	·52	1·51	2·24	2·46	·93	2·32	19·51
Shillingstone (Green Hills)	E. Nimmo	1·42	14/7	3	125	1·76	·89	·62	1·48	2·38	2·40	2·65	2·74	2·79	1·39	1·65	2·94	23·69
Stour Provost (Diamond Farm)	Mrs. E. H. Trechmann	1·18	14/7	1	139	1·55	·94	·58	1·59	2·35	1·86	2·81	1·47	2·12	1·02	2·02	3·04	21·35
Swanage	K. Moore	1·25	15/10	2	128	2·01	·98	·57	1·79	2·77	2·22	·81	1·08	2·27	2·39	1·05	1·98	19·92
Wareham (East Stoke, River Lab.)		1·27	14/7	3	146	2·17	·84	·63	2·25	2·74	1·92	2·11	1·09	2·39	1·95	1·22	2·09	21·40
,, (Furzebrook Research Station)	D. C. P. Malt	1·38	15/10	3	99	2·25	1·01	·68	2·08	3·58	2·16	2·17	1·30	3·10	2·49	1·19	2·44	24·45
,, (Trigon)	D. Sturdy	1·40	14/7	3	136	1·73	·90	·74	1·86	2·91	1·86	2·07	1·06	2·38	2·19	1·04	2·52	21·26
Wimborne (Clevedon Lodge)	Dr. E. H. Markby	1·18	15/10	2	138	1·63	·75	·82	1·75	3·44	2·10	1·38	1·41	2·08	2·33	1·19	2·51	21·39
,, (Corfe Mullen, Central Avenue)	A. H. Dunn	1·24	19/6	3	161	1·92	·92	·88	1·95	4·03	2·12	·91	1·42	2·37	2·65	1·25	2·78	23·20
,, (Corfe Mullen Pumping Station)	Dorset Water Board	1·11	15/10	1	119	1·53	·60	·67	1·67	3·15	1·88	·93	1·24	2·03	2·36	1·16	2·54	19·76
,, (Stanbridge Mill Pumping Stn.)	B'mouth & Dist. Water Co.	—	—	—	—	1·72	·80	·59	1·84	3·35	2·12	1·37	1·58	2·06	1·91	1·29	3·05	21·68
,, (Walsford Bridge Pumping Stn.)	B'mouth & Dist. Water Co.	1·33	15/10	2	132	1·62	·63	·76	1·61	3·14	1·96	1·35	1·38	1·98	2·30	1·19	2·56	20·48
Winfrith (Atomic Energy Establishment)	D. C. Fraser	1·86	14/7	2	132	1·96	1·01	·69	2·13	2·80	1·80	2·72	1·61	2·56	2·42	1·00	3·12	23·82
AVERAGE FOR THE COUNTY				2	136	2·00	1·02	·76	2·04	2·85	1·95	2·07	1·62	2·57	2·23	1·42	2·81	23·33

average. It is noteworthy that in the fourteen years since 1959 Dorset's rainfall has been three per cent less than in the earlier period, and that over the five most recent years (1969-73) it has been twelve per cent less. There is need for caution in interpreting records that are both local and short-term. Although in Dorset and in most southern counties 1972-73 saw an exceptionally prolonged dry period, there were other areas of Britain where rainfall was up to the average, and 1973 was actually wetter than usual in the far north of Scotland.

The need for caution is even more apparent when one considers recent winters. While the sea ice and the glaciers have advanced, the British winters have remained surprisingly mild.

Much is already known of the major changes in British climate in historic times, though the ultimate cause of these changes is as yet unknown. A long period of slow improvement began about 1700 and continued into the early years of our own century. Within this period there were two temporary setbacks. The first was the cold period from 1760 into the early 19th century that gave us the typical Dickensian picture of a snowy Christmas, and the second was another cold period from 1874 to 1895. There followed a period of optimum climate comparable with that which prevailed in Norman England and lasting until the late 1930s. Since that time there has been a deterioration which has become more rapid and more obvious since 1958.

The present trends have led to much speculation including sensational articles in the popular press concerning a new ice age! As yet, however, the trends have not been fully identified, nor do we know whether they represent a reversal of the upward trend that began in 1700 or are merely another temporary interruption of it. It will not be possible to forecast the continuance of such climatic movements until the mechanism behind them is fully understood.

THE KENT STORM OF SEPTEMBER 20TH, 1973

In this storm an area of Kent had a rainfall of seven inches within a single day. It was an occurrence in the same category as the storms that resulted in the Lynmouth disaster of 1952, and the eleven inch rainfall at Martinstown, Dorset, in 1955[1], and the more recent storm at Camelford, Cornwall, in 1957[2]. The Martinstown rainfall remains the highest ever recorded in the British Isles in a single day.

RAINFALL STATIONS

The new station at Buckland Newton (Brockhampton Gate) is at NGR ST712055. The gauge is 375 ft. above sea level.

Similar information for two existing stations has not been previously given:—

Wareham (East Stoke, River Laboratory) SY870867 27 ft. ASL.
Winfrith (Atomic Energy Establishment) SY820870 85 ft. ASL.

The height of the gauge at Netherbury (The Garden House), NGR SY470993, is now given as 200 ft. ASL.

Reports are no longer available from Sherborne (Barton Gardens). The station at Blandford (Stour Road) closed when Mr. R. Biddulph went to live in Berkshire in 1972. Mr. Biddulph was Editor of this Report from 1950 to 1953.

REFERENCES

1. *Proc.* Vol. 77 (1955) pp.86-89 and map p.96. D. J. Paxman.
2. *Proc.* Vol. 79 (1957) p.22.

Geology

By John C. W. Cope

SPONTANEOUS COMBUSTION OF SHALE AT KIMMERIDGE

Mr. D. I. Cole of Southampton University has visited the site of the spontaneous combustion of the Kimmeridge Oil Shale (or Blackstone) around Clavell's Hard, where this horizon was formerly worked as "coal" (see photograph in 1898 *Purbeck Memoir*, p.53). This began in the autumn of 1973, and at the time of writing is still burning. It appears to be the first spontaneous combustion of shale recorded in Dorset since the "Lyme Volcano" occurrence of 1908. It is hoped to publish a fuller account by Mr. Cole of this event in a future issue of the *Proceedings*.

THE BASAL GAULT PEBBLE BED

The basal conglomerate of the Gault is seldom well exposed owing to slip of clays above it (and often beneath it, too). However, this horizon was admirably exposed during 1973 at the eastern end of St. Oswald's Bay, and was seen to be largely composed of highly-rounded vein quartz pebbles together with polished chert and other rock fragments. The tooth of an ichthyosaur was found in the pebble bed here and appears to be the first record of such a find at this horizon in Dorset. The tooth is very well preserved and has clearly not been rolled to any appreciable extent as it shows fine surface ornament.

VERTICAL PIPES IN THE DORSET CHALK

The writer has noticed, for many years, vertical solution pipes in the Dorset Chalk. In many areas these can be seen to be of Eocene age, as they have a fill of Reading Beds. However, around Durdle Door and Man-o'-War Cove the cliffs of near vertically-dipping Chalk have vertical pipes within them. These pipes are clearly thus post-orogenic (i.e. post-Miocene) in age. Having recently heard Dr. G. A. Kellaway talk on his views of the Pleistocene history of Southern England, it seems to the writer that these pipes could well be of Pleistocene age. It is hoped to arrange to collect samples of the clays to confirm this, and to try to identify any large blocks, possible glacial erratics, in the area. A large boulder of mica-schist was found on the beach nearby a few years ago, and clearly any further such finds are worth recording.

THE BASAL SHELL BED OF THE PORTLAND STONE

Mr. W. A. Wimbledon writes: "The Basal Shell Bed is the lowest rock unit of the Cherty Series of the Portland Stone on the Isle of Portland and the western mainland outcrop. The rich gastropod and bivalve fauna of the bed has been described by Cox (*Proceedings*, 1925). This horizon is also the source of many ammonites; these have never been studied in detail, and Cox in his paper only figured one nucleus.

"The Basal Shell Bed consists of three units, all of them very shelly, with an average total thickness of 2.75 m. The lower or main unit is micritic, the upper part of it being porcellanous. Parts are heavily bioturbated, while at other levels discrete *Thalassinoides* burrows are apparent, notably a third of the way up the bed. The main unit is 2 m. thick and overlies the Portland Clay; it grades up into a very shelly red marl with an average thickness of 0.15 m. This in turn grades up into the top unit which is a hard white pelletal micrite which is between 0.30 and 0.75 m. thick. On the mainland these measurements are constant as on the Isle of Portland, and the three divisions can also be recognised. The thicknesses given by Arkell (*Proc. Geol. Assn.*, 1935) for the Basal Shell Bed at Ringstead Bay and Chalbury Camp were underestimated. Between Portesham, the western limit of the Portland Stone outcrop, and Chalbury Camp near Preston, the Basal Shell Bed is poorly exposed and no complete sections are to be seen.

"Ammonites occur at many levels in the Basal Shell Bed; they are most abundant in the base of the top unit, but also occur commonly in the base of the main unit, the junction of the main unit and the red marl, and the middle of the top unit. They are thickly encrusted with oysters on their upper surfaces (this is also the case in the overlying Cherty Series). The combination of the micritic sediment, its heavy bioturbation and the heavy encrustation of the larger fossils suggest a slow rate of deposition. Although all the evidence suggests slow deposition at this time, a collection of over 100 ammonites from these horizons has hitherto failed to show any marked faunal differences between the top and bottom of the Basal Shell Bed.

"The following previously described species have been collected from the Basal Shell Bed:

Ammonites bononiensis de Loriol
Gigantites giganteus (Sowerby) Buckman
G. zeta Buckman
Briareites polymeles Buckman
Crendonites leptolobatus Buckman
Trophonites pseudogigas (Blake)
Galbanites cretarius Buckman.

"No attempt has been made here to revise generic assignations of these ammonites, but it is hoped that it will prove possible to do this in the near future".

ICHTHYOSAUR REMAINS FROM THE OXFORD CLAY

The following account is based on a report sent to me by Mr. A. McChlery of Weymouth College of Education.

Ichthyosaur remains were found in the Oxford Clay of Jordan Cliff to the north of Weymouth at the end of October, 1972. These were in the Jordan Cliff Clays which are probably of Cordatum Zone age. Excavation exposed a vertebral series of 33 dorsal centra and five caudal centra, with neural spines and ribs. There was evidence of disturbance in the anterio-dorsal and particularly in the posterio-dorsal/caudal regions.

In April, 1973 the site was extended for several metres on all sides of the 1972 excavation. A mid-dorsal centrum, six ribs and numerous rib fragments were found, but none of the critical parts for certain identification. It was considered that an area of reasonable expectation had been examined and the site was closed.

Apart from molluscs, other finds included a number of other vertebrae, both ichthyosaur and plesiosaur, two saurian teeth and a fish tooth.

None of these remains was particularly well-preserved. Nearly all the centra showed either distortion or "pyrite decay". The rib fragments are pieces between 2 and 3 cm. in length and even when re-assembled are sufficiently distorted to obscure the natural curvature.

The ichthyosaur remains have been tentatively identified by Mr. J. B. Delair as probably *Ophthalmosaurus* sp. The main interest of the specimen lies in the fact that these are the largest remains recorded from the Oxford Clay of Dorset. The Dorset County Museum has a collection of 12 centra from the Oxford Clay (G 118), and the Geological Survey Museum has some vertebrae of *Macropterygius* (GSM 85855-6) from the Oxford Clay nearby (see Delair, *Proceedings*, 1966).

It seems most probable that other reptilian remains have been found in the Dorset Oxford Clay, but have not been recorded. This in turn suggests that any such specimens remain in private hands; it would therefore be useful to know of any such material in private collections.

Botany

By Professor R. D'O. Good

RECORDS in 1973 were not as numerous as in many years but they included one or two of special interest. First to be mentioned was the finding, by K. M. Godfrey, of a small patch of *Polygonatum multiflorum*, Solomon's Seal, in an eastern part of Cranborne Chase. This species was first recorded for the county by Dale about one hundred years ago, and *A Geographical Handbook of the Dorset Flora* remarks that it 'is probably native in Cranborne Chase, though perhaps now extinct'. Dale's record was the only one for that area and the circumstantial evidence suggests that Godfrey's find may have been made at the same place. If so then the plant has apparently continued to exist in very small quantities for at least a hundred years, during which it has never been noticed. If this is indeed the case it encourages the hope that other species thought to have disappeared from the county may still exist undetected.

Artemisia verlotorum, a casual which was recorded as flowering well at Herston, Swanage in November by W. G. Teagle, is a new county record; and the fern *Dryopteris lanceolatacristata* has been noted on two occasions, by Miss K. Gorringe some years ago in Purbeck, and in 1972 by A. C. Leslie near Sherborne, but no formal record of it seems to have been published. Both these plants are well illustrated in Butcher's *New Illustrated British Flora*.

Another find that may prove to be a new county record is that of a *Pyrola sp.* on Studland Heath. Unfortunately it was not possible to make a positive identification of it, but it will be examined more carefully in the coming season and may prove to be *Pyrola rotundifolia*. At all events it is hoped to give a firm identification for the plant in next year's report, but meanwhile the record should be regarded as *sub judice*.

Three rare casuals have also been noted, namely *Bupleurum rotundifolium* at Puddletown by J. K. Hasler; *Lythrum hyssopifolium* at Verwood by D. and M. J. Parrish; and *Nicandra physalodes*, the Shoo-fly Plant or Apple of Peru, at Chesilton, Portland by W. G. Teagle. The first record for the last-named was by A. C. Leslie in Proc. D.N.H.A.S., vol. 92, p.46.

Marine Invertebrates

By J. B. Hawthorne

SPRING TIDES are expected to have a greater range than normal for the next two years, as the moon is nearer to us than usual. It is hoped that some of the Society's naturalists will enjoy observing the extreme low shore and that they will submit a record of what they see. I should be pleased to see close-up photographs and be very grateful for notes of the quantities of shore animals that are seen.

On-shore storms cast a variety of species on to Weymouth beach in December (20.12.73):

Calliactis parasitica. Several dozen. Most attached to empty *Buccinum undatum* shells. One was attached to a heap of *Crepidula fornicata.*

Nereis fucata. Three of these ragworms were found in broken *Buccinum* shells occupied by the hermit crabs *Eupagurus bernhardus* in two cases, and *E. cuanensis* in the third.

Eupagurus cuanensis. One specimen in a broken *Buccinum* shell. This shell also contained a *N. fucata*, a *Pilumnus hirtellus* (hairy crab) and a *Porcellana longicornis* (porcelain crab). The hermit transferred to a better *Buccinum* shell when put in an aquarium, and showed itself to be in good health.

Portunus puber. Three large specimens; dead but undamaged.

Buccinum undatum. Several full-grown live specimens. They had young laminarian plants growing on their shells.

Gibbula magus. Large numbers at the southern end of the beach.

Chlamys opercularis. One live specimen with a bright orange shell.

Lutraria lutraria. Several alive, but with damaged shells.

Cladonema radiatum. A single medusa was found in a sample of seawater collected from the shore at Kimmeridge, 1.7.73.

The following notes are a selection kindly supplied from his records by Mr. D. R. Seaward:

Lepidopleurus asellus. Dredged off Weymouth beach (4 fm) and Church Ope Cove (16 fm), 24 & 25.3.73. First Dorset record.

Emarginula conica. Small Mouth, just sub-littoral, 2.12.72 and dredged off Church Ope Cove (16 fm) and The Verne (10 fm) — several specimens, 26.3.73. Not recorded since mid-19th century.

Cantharidus montagui. Dredged off Church Ope Cove (16 fm) — several specimens, 25.3.73. Not recorded since 19th century.

Acteonia senestra. Osmington Mills, among low shore algae, 1.11.73. First Dorset record.

Eubranchus farrani. East Fleet, from *Codium.* 3.11.73. First Dorset record.

Crenella prideauxi. Dredged off Church Ope Cove (16 fm). Attached to stone, 25.3.73. Rare, not recorded since 19th century.

Land Arthropods other than Lepidoptera

By A. J. Brown, F.R.E.S.

1973 was a very good year for insects, in contrast to the previous one, and several species were seen in large numbers.

Records have been received from E. F. Coetzee, J. R. Cox, Milton Abbey School Natural History Society, and D. Sturdy.

This report also contains several records collected by Christopher Searle and myself on joint field trips. Such records carry no initials.

INSECTA

ORTHOPTERA

Acheta domesticus (House Cricket), rubbish tip on Warmwell Heath 30 ix 73; *Chorthippus albomarginatus* (Lesser Marsh Grasshopper), Lodmoor 18 vii 73 (E.F.C.), Studland 16 ix 73 (J.R.C., M.A.S.); *Leptophyes punctatissima* (Speckled Bush-Cricket), Cranborne Chase 4 viii 73, Briantspuddle Heath 10 viii 73, Weymouth 22 ix 73 (E.F.C.), Milton Abbas 1973 (M.A.S.); *Tetrix ceperoi* (Cepero's Groundhopper), Bere Heath 15 iv 73 (confirmed by Dr. D. R. Ragge); *Tettigonia viridissima* (Great Green Bush-Cricket), several interesting records including Maiden Newton 31 viii 73, Bradford Down 2 ix 73.

ODONATA

Records were received for 23 species of dragon- or damselfly. Among these were:— *Aeshna cyanea*, Lodmoor 18 vii 73, 26 viii 73, Weymouth 9 ix 73 (all E.F.C.), Studland 18 xi 73 (J.R.C., a very late record); *Anax imperator*, Studland 24 vi 73 (J.R.C.); *Orthetrum coerulescens*, Studland 1973 (J.R.C.); *Sympetrum flaveolum*, Warmwell Heath 30 ix 73 (confirmed by E. C. Haes, Sussex Naturalist Trust).

HYMENOPTERA

Ichneumon amatorius, Weymouth 1 vii 73; *Lissonata setosa*, Lodmoor 18 vii 73; *Podalona hirsuta*, Lodmoor 18 vii 73; *Ophion luteus*, Weymouth 13 vi 73 (all E.F.C.).

Mr. D. Sturdy sent some parasitised acorns from Worgret and Cold Harbour Heaths to the Museum. The parasite was a Cynipid Wasp, *Andricus quercus callicus* (Burgsdorff), first recorded in Britain in Salcy Forest, Northants in 1961.

DIPTERA

Cheilosia illustrata, Weymouth, one caught in a spider's web, 28 vii 73; *Eristalis arbustorum*, Weymouth 27 viii 73, six specimens (both E.F.C.).

COLEOPTERA

Carabus violaceus, Ilsington Wood 14 ix 73; *Staphylinus oleus*, Weymouth 25 viii 73 (both E.F.C.).

ARACHNIDA

ARANEAE

Amaurobius terrestris, Lodmoor, three with funnel webs, 29 vii 73 (E.F.C.); *Aranea diadema*, Lodmoor 30 vi 73 (E.F.C.); *Argiope bruennichi*, Studland 16 ix 73 (J. Robinson of M.A.S.); *Tibellus oblongus*, Weymouth, one on nettle 25 vi 73; Lodmoor, one on thistle 30 vi 73 (E.F.C.).

Lepidoptera

By Alan T. Bromby

THE long fine Summer made this the best season for some years. *Papilio machaon*, *Nymphalis polychloros* and *Argynnis lathomia* are records which are somewhat suspect owing to the increasing practice of breeding and releasing butterflies; it is pleasing to record *Hamearis lucina*, after a lapse of some years. Outstanding among the moth records are those of *Celerio galii* and *Rhodometra sacraria*.

A very high proportion of the records are selected from lengthy lists of species taken in light traps at Furzebrook, Arne and Stoborough, which inevitably gives a bias towards heathland habitats in the S.E. of the County.

Records were received from the following field workers:—
A. Bicker, A. T. Bromby, Miss E. I. Cherrill, F. R. Clafton, E. F. C. Coetzee, J. R. Cox, A. H. Dunn, H. Halahan, Dr. J. K. Hasler, R. C. Hodger, Mrs. E. M. Keats, D. C. Malt, Milton Abbey School Natural History Society, C. Nimmo, Dr. T. Norman, Mrs. M. Norman, B. P. Pickess, Brigadier W. P. T. Roberts, B. Skimmer, W. G. Teagle, The Baron C. de Worms.

Papilio machaon L. Common Swallowtail. Broadstone 10.7. (W.P.T.R.).

Pieris brassicae L. Large Garden White. Arne very scarce this year, maximum 10+ on 22.8. and 24.8. (B.P.P.).

Leptidea sinapis L. Wood White. Reported as 'numerous' in Corscombe area (E.M.K.); 4 at a West Dorset locality in early June (H.H.).

Colias croceus Fourc. Common Clouded Yellow. Bexington 8.9. (C. de W.); Portland 3.8., 1.9. and 22.9. (F.R.C.).

Aphantopus hyperantus L. Common Ringlet. Milton Abbas 8.7., and Green Hill Down 8.7. (M.A.S.N.H.S.); Houghton (H.H.); and Tarrant Rushton (A.B.) no dates given.

Limenitis camilla L. White Admiral. Arne 1 to 7 daily between 29.6. and 1.8. (B.P.P.); Puddletown 2 on 29.7. and 2 on 30.7., and Moreton on 7.8. (J.K.N.); Studland 29.6. and then regularly until 21.7. (J.R.C.); Sturminster Newton (H.H. and A.B.) no dates given.

Vanessa atalanta L. Red Admiral. First recorded at Studland on 18.5. (J.R.C.); Ichneumonised lava in High Houghton in May (H.H.); reported as abundant in September by several observers.

Vanessa cardui L. Painted Lady. First recorded at Studland on 28.5. (J.R.C.); scarce this year except at Portland in August which had a day maximum of 5 (F.R.C.).

Nymphalis polychloros L. Large Tortoiseshell. 2 reported as seen in a garden at West Dorset, no date given (H.H.).

Aglais urticae L. Small Tortoiseshell. Several observers commented on the abundance of this species.

Polygonia c-album L. Comma. Arne 22.3., 7.4., 19.4., 26.4., 25.9. and 22.10. (B.P.P.); Swanage 8.7., 29.7. and 30.7. (W.G. T.); Corfe Mullen 12.8., 23.9. and 8.10. (A.H.D.); Weymouth 31.7. and 1.8. (E.F.C.C.); Higher Houghton 2 on 29.9. (H.H.) also reported from Canford and Wimborne (A.B.).

Argynnis paphia L. Silver-washed Fritillary. Woods east of Dorchester 16 between 3.7. and 10.8. including 1 var. valezina (J.K.H.); Arne 6 on 30.7. including 1 var. valezina (A.H.D.); Green Hill Down 8.7. (M.A.S.N.H.S.); an exceptionally good year for this species at Studland (J.R.C.).

Argynnis lathonia L. Queen of Spain Fritillary. Briantspuddle 7.8. and 9.8. (E.F.C.C.).

Clossiana euphrosyne L. Large Pearl-bordered Fritillary. Powerstock and Higher Houghton (H.H.) no dates given.

Clossiana selene Schiff. Small Pearl-bordered Fritillary. Several in Corscombe area on 16.6. (E.M.K.); a few recorded at Houghton and Powerstock (H.H.) no dates given.

Euphydryas aurinia Rott. Marsh Fritillary. Near Corscombe several on 16.6. (E.M.K.).

Hamearis lucina L. Duke of Burgundy. Powerstock a worn specimen in early June (H.H.).

Celastrina argoilus L. Holly Blue. Several observers remarked on the absence of this species in 1973; the only record being Corfe Mullen 2 on 7.9. (A.H.D.).

Acherontia atropos L. Death's-head Hawk. Charmouth 24.9. (E.I.C.).

Celerio galii Rott. Bedstraw Hawk. Swanage 28.7. 1 at honeysuckle; 29.7. 1 at dusk and then 2 females at m.v.; 1.8. 1 at dusk and then 1 female at m.v. Fertile eggs obtained and over 50 moths eventually emerged, mostly in January (B.S.).

Deilephila porcellus L. Small Elephant Hawk. Furzebrook 18.6. (D.C.M. and N.R.W.).

Macroglossum stellatarum L. Humming-bird Hawk. Swanage 7.7. (J.R.C.); Dorchester mid July (E.M.S.); Furzebrook 11 between 28.8. and 6.9. (D.C.M. and N.R.W.); Broadstone 11.9. (A.H.D.); Portland 16.9. and 18.9. (F.R.C.).

Harpyia bifida Brahm. Poplar Kitten. Stoborough 12.8., 16.8., 20.8. and 21.8. (N.R.W.).

Harpyia furcula Clerck. Sallow Kitten. Furzebrook 8 between 14.8. and 23.8. (D.C.M. and N.R.W.).

Stauropus fagi L. Lobster Prominent. Arne 27.6. (B.P.P.); Furzebrook 26.5. and 22.6.; 19 between 1.7. and 27.7. (D.C.M. and N.R.W.).

Drymonia dodonaea Schiff. Light Marbled Brown. Furzebrook 9 between 6.6. and 21.6. (D.C.M. and N.R.W.).

Chaonia ruficornis Hufn. Lunar Marbled Brown. Furzebrook 4 between 7.5. and 12.5., 2 on 28.5. (D.C.M. and N.R.W.); Stoborough 11.5. and 17.5. (N.R.S.).

Pheosia tremula Clerck. Greater Swallow Prominent. Stoborough 2.8. and 3.8. (N.R.W.).

Pheosia gnoma F. Lesser Swallow Prominent. Arne 32 between 21.5. and 3.9. (B.P.P.); Furzebrook 147 between 26.5. and 24.9. (D.C.M. and N.R.W.); Stoborough 7 between 7.5. and 16.8.

Notodonta trepida Esp. Large Prominent. Arne 24.5. and 27.5. (B.P.P.); Furzebrook 20 between 18.5. and 26.6. (D.C.M. and N.R.W.); Stoborough 12.5., 21.5. and 22.5. (N.R.W.).

Lophopteryx capucina L. Coxcomb Prominent. Arne 15 between 24.5. and 2.9. (B.P.P.); Stoborough 22.6. and 21.7.

Odontosia carmelita Esp. Scarce Prominent. Furzebrook 14 between 21.4. and 12.5. (D.C.M. and N.R.W.).

Clostera curtula L. Large Chocolate-tip. Arne 27.5. (B.P.P.); Brownsea 25.5. (A.T.B.).

Clostera pigra Hufn. Small Chocolate-tip. Furzebrook 29.7. (D.C.M. and N.R.W.).

Habrosyne pyritoides Hufn. Buff Arches. Arne 24.6., 25.6. and 26.6. (B.P.P.); Furzebrook 276 between 19.6. and 1.8. (D.C.M. and N.R.W.); Stoborough 29.6., 8.7. and 10.7. (N.R.W.); Milton Abbas 4 on 7.7. (M.A.S.N.H.S.); Swanage 10.7. (W.G.T.).

Thyatira batis L. Peach Blossom. Arne 6.7. (B.P.P.); Furzebrook 12 between 21.6. and 20.8. (D.C.M. and N.R.W.); Stoborough 5.7. (N.R.W.).

Tethea ocularis L. Figure of Eighty. Furzebrook 18.6., 23.6. and 24.6. (D.C.M. and N.R.W.).

Tethea duplaris L. Least Satin Lutestring. Arne 18.6. and 6.7. (B.P.P.).

Achlya flavicornis L. Yellow-horned Lutestring. Arne 51 between 22.2 and 27.3. (B.P.P.); Furzebrook 21 between 6.3. and 20.3. (D.C.M. and N.R.W.); Stoborough 2 on 17.3. (D.C.M. and N.R.W.).

Polyploca ridens F. Frosted Green Lutestring. Furzebrook 17.4 20.4. and 6.5. (D.C.M. and N.R.W.).

Dasychira fascelina L. Dark Tussock. Arne 27 between 13.7. and 11.8. (B.P.P.); Furzebrook 20 between 19.7. and 10.8. (D.C.M. and N.R.W.); Stoborough 10 between 14.7. and 4.8. (D.C.M.).

Trichiura crataegi L. Pale Eggar. Furzebrook 17.9. (D.C.M. and N.R.W.).

Macrothylacia rubi L. Fox. Arne 8.6. and 17.6. (B.P.P.); Stoborough 8.6. and 18.6. (D.C.M. and N.R.W.).

Gastropacha quercifolia L. Common Lappet. Furzebrook 4.7. and 5.7. (D.C.M. and N.W.R.); Stoborough 10.7. and 14.7. (N.R.W.).

Saturnia pavonia L. Empress. Furzebrook 22.5. (D.C.M. and N.R.W.).

Drepana binaria Hufn. Oak Hook-tip. Furzebrook 30.5., 31.5., 8.6. and 12.8. (D.C.M. and N.R.W.); Stoborough 2 on 19.8. (N.R.W.).

Drepana falcataria L. Pebble Hook-tip. Arne 13 between 20.6. and 22.8. (B.P.P.); Furzebrook 41 between 28.5. and 23.8. (D.C.M. and N.R.W.); Stoborough 10.7. and 12.8. (N.R.W.).

Drepana lacertinaria L. Scalloped Hook-tip. Arne 26 between 22.5. and 4.9. (B.P.P.); Stoborough 12.7., 11.8. and 24.8. (N.R.W.).

Cilix glaucata Scop. Chinese Character. Arne 2.6. and 14.6., 30.7. and 17.8. (B.P.P.); Furzebrook 17 between 26.5. and 28.8. (D.C.M. and N.R.W.); Stoborough 14 between 30.5. and 20.8. (N.R.W.).

Nola cucullatella L. Short-cloaked Black Arches. Arne 25.6. and 4.7., 3 on 5.7. and 7.7. (B.P.P.).

Nola albula Schiff. Kent Black Arches. Arne 12.7. (B.P.P.).

Atolmis rubricollis L. Red-necked Footman. Furzebrook 18.7. (D.C.M. and N.R.W.).

Comacla senex Hubn. Round-winged Footman. Arne 26.6. (B.P.P.); Stoborough 26.6. (D.C.M. and N.R.W.).

Cybosia mesomella L. Four-dotted Footman. Arne 634 between 18.6. and 3.9. (B.P.P.); Furzebrook 10 between 7.6. and 16.8. (D.C.M. and N.R.W.); Stoborough 4 between 9.7. and 17.7. (N.R.W.).

Eilema griseola Hubn. Dingy Footman. Arne 19 between 2.8. and 31.8. (B.P.P.); Furzebrook 95 between 28.7. and 21.9. (D.C.M. and N.R.W.); Stoborough 32 between 28.7. and 4.9. (N.R.W.); Swanage 10.8. (W.G.T.).

Diacrisia sannio L. Clouded Ermine. Arne 1.7. (B.P.P.); Furzebrook 27.6. (D.C.M. and N.R.W.); Stoborough 26.6. and 27.6. (N.R.W.).

Procris statices L. Common Forester. Milton Abbas 8.7. (M.A.S.N.H.S.).

Euxoa nigricans L. Garden Dart. Furzebrook 3.8., 24.8. and 26.8. (D.C.M. and N.R.W.); Stoborough 1.8., 8.8., 9.8., 16.8. and 17.8. (N.R.W.).

Euxoa tritici L. White-line Dart. Arne 16.8. (B.P.P.); Furzebrook 30.7. and 11.8. (D.C.M. and N.R.W.); Stoborough 21.7. (N.R.W.); Weymouth 21.8. (E.F.C.C.).

Agrotis vestigialis Hufn. Archer Dart. Arne 23.7., 16.8., 26.9. and 3.9. (B.P.P.); Furzebrook 5 between 26.7. and 18.8. (D.C.M. and N.R.W.).

Agrotis ipsilon Hufn. Dark Dart. Furzebrook 28.5., 4 on 30.7., 31.7., 56 in August; 65 in September; 39 in October; and 26 in November (D.C.M. and N.R.W.); Stoborough 17.6. (N.R.W.); Winterbourne Stickland 23.9. (C. de W.).

Peridroma porphyrea Schiff. Pearly Underwing. Stoborough 8.9. (R.W.); Portland a few in early September (C. de W.).

Diarsia brunnea Schiff. Purple Clay. Furzebrook 30 between 22.6. and 2.8. (D.C.M. and N.R.W.); Milton Abbas 7.7. (M.A.S.N.H.S.).

Amathes agathina Dup. Heath Rustic. Arne 7.9. (B.P.P.); Furzebrook 44 between 5.9 and 25.9. (D.C.M. and N.R.W.).

Amathes castanea Esp. Grey Rustic. Arne 7.9. (B.P.P.); Furzebrook 63 between 25.8. and 26.9. (D.C.M. and N.R.W.); Stoborough 2 on 6.9. and 7.9. (N.R.W.).

Amathes baja Schiff. Dotted Clay. Arne 5.8. (B.P.P.); Furzebrook 13 between 18.7. and 12.8. (D.C.M. and N.R.W.); Stoborough 7.8. (N.R.W.).

Amathes ditrapezium Schiff. Triple-spotted Clay. Furzebrook 18.7. and 20.7. (D.C.M. and N.R.W.); Stoborough 25.7., 26.7. and 1.8. (N.R.W.).

Amathes triangulum Hufn. Double Square-spot. Furzebrook 233 between 11.6. and 7.8. (D.C.M. and N.R.W.).

Amaplectoides prasina Schiff. Green Arches. Furzebrook 13.6., 3 on 21.6. (D.C.M. and N.R.W.); Milton Abbas 3 on 27.7. (M.A.S.N.H.S.).

Naenia typica L. Gothic Type. Arne 9.9. (B.P.P.).

Anarta myrtilli L. Beautiful Yellow Underwing. Arne 38 between 26.5. and 24.8. (B.P.P.); Furzebrook 14.8., 17.8. and 20.8. (D.C.M. and N.R.W.).

Polia nebulosa Hufn. Grey Arches. Arne 30.6., Furzebrook 38 between 22.6. and 23.7. (D.C.M. and N.R.W.).

Hadena thalassina Hufn. Pale-shouldered Brocade. Arne 24.6. (B.P.P.).

Tholera cespitis Schiff. Hedge Gothic. Stoborough 27.6. (N.R.W.)

Cerapteryx graminis L. Antler. Arne 29.7. (B.P.P.); Stoborough 5.7., 18.7., 25.7. (N.R.W.).

Orthosia gracilis Schiff. Powered Quaker. Furzebrook 39 between 19.4. and 27.5. (D.C.M. and N.R.W.).

Panolis flammea Schiff. Pine Beau. Arne 18.3. (B.P.P.); Furzebrook 4.4., 11.4., 2 on 24.4. 27.4. (D.C.M. and N.R.W.).

Leucania pudorina Schiff. Striped Wainscot. Arne 4.7. and 5.7. (B.P.P.).

Leucania l-album L. White L Wainscot. Furzebrook 7 between 1.9. and 21.9. (D.C.M. and N.R.W.); Portland plentiful in early September (C. de W.).

Arenostola pygmina Haw. Small Wainscot. Arne 22.8. (B.P.P.); Furzebrook 33 between 20.8. and 10.10. (D.C.M. and N.R.W.).

Arenostola phragmitidis Hubn. Fen Wainscot. Arne 28.7. (B.P.P.).

Nonagria dissoluta Treits. Brown-veined Wainscot. Arne 22.8. and 3.9. (B.P.P.); Stoborough 20.8. (N.R.W.).

Caradrina ambigua Schiff. Vine's Rustic. Arne 22.8., 23.8 and 3.9. (B.P.P.); Furzebrook 28 between 15.9. and 20.10. (D.C.M. and N.R.W.); Portland early September (C. de W.).

Dypterygia scabriuscula L. Bird's-wing. Furzebrook 34 between 16.6 and 12.7. (D.C.M. and N.R.W.); Stoborough 8 between 9.6. and 3.7. (N.R.W.).

Apamea furva Schiff. Confused Brindle. Stoborough 23.7., 26.7. and 28.7. (N.R.W.).

Petilampa minima Haw. Small Dotted Buff. Stoborough 14.7. and 28.7. (N.R.W.).

Celaena leucostigma Hubn. Brown Crescent. Stoborough 18.8. (N.R.W.).

Hydraecia oculea L. Common Ear. Arne 3.9. (B.P.P.); Furzebrook 7 between 14.8 and 28.8. (D.C.M. and N.R.W.).

Gortyna micacea Esp. Rosy Ear. Arne 24.7. (B.P.P.).

Gortyna flavago Schiff. Orange Ear. Furzebrook 14 between 9.9. and 8.10. (D.C.M. and N.R.W.); Stoborough 13 between 12.9. and 7.10 (N.R.W.).

Zenobia retusa L. Double Kidney. Arne 2.8. (B.P.P.); Furzebrook 15.8., 17.8., 24.8. and 25.8. (D.C.M. and N.R.W.).

Cryphia perla Schiff. Marbled Beau. Arne 22.8. and 27.8. (B.P.P.); Furzebrook 10 between 14.8. and 28.8. (D.C.M. and N.R.W.); Swanage 70 between 11.8. and 20.8. (W.G.T.); Weymouth 2.8. and 18.8. (E.F.C.C.).

Cryphia muralis Forst. Marbled Vert. Stoborough 5.7. and 6.7. (N.R.W.); Swanage 15.8., 16.8., 18.8., 19.8. and 23.8. (W.G.T.).

Apatele leporina L. Miller. Furzebrook 2 on 13.7., 24.8. (D.C.M. and N.R.W.); Stoborough 1.8. (N.R.W.).

Craniophora ligustri Schiff. Crown. Furzebrook 3.7. and 21.7. (D.C.M. and N.R.W.).

Cucullia umbratica L. Common Shark. Furzebrook 21.6., 5.7., 6.7., 8.7., and 12.7. (D.C.M. and N.R.W.).

Lithophane socia Hufn. Pale Pinion. Furzebrook 24.9. (D.C.M. and N.R.W.).

Lithophane leautieri Boisd. Blair's Pinion. Furzebrook 70 between 3.10. and 26.11. (D.C.M. and N.R.W.); Stoborough 1.11. (N.R.W.).

Lithophane ornitopus Hufn. Grey Shoulder-knot. Furzebrook 3.1. and 30.3. (D.C.M. and N.R.W.).

Leucochlaena hispida Gey. Beautiful Gothic. Portland plentiful in early September (C. de W.).

Brachionycha sphinx Hufn. Common Sprawler. Furzebrook 4.12. (D.C.M. and N.R.W.).

Aporophyla lunula Stroem. Black Rustic. Arne 4.12. (B.P.P.); Furzebrook 602 between 19.9. and 2.12. (D.C.M. and N.R.W.); Stoborough 30 between 24.9. and 7.11 (N.R.W.); Winterbourne Stickland 23.9. (C. de W.).

Aporophyla australis Boisd. Feathered Brindle. Portland early in September (C. de W.).

Greposia aprilina L. Common Merveille-du-jour. Furzebrook 10 between 6.10. and 31.10. (D.C.M. and N.R.W.).

Eumichtis lichenea Hubn. Feathered Ranuncule. Furzebrook 4.10., 5.10., 7.10. and 25.10. (D.C.M. and N.R.W.); Stoborough 29.9. (N.R.W.); Portland plentiful early in September (C. de W.).

Parastichtis suspecta Hubn. Suspected. Stoborough 17.7. (N.R.W.).

Eupsilia transversa Hubn. Satellite. Furzebrook 7 between 18.2. and 7.3. (D.C.M. and N.R.W.).

Dasycampa rubiginea Schiff. Dotted Chestnut. Furzebrook 28.3., 5.4., 7.4. and 2.5. (D.C.M. and N.R.W.); Stoborough 14.4. (N.R.W.).

Omphaloscelis lunosa Haw. Lunar Underwing. Arne 20 between 22.9. and 13.10. (B.P.P.); Furzebrook 1018 between 13.9. and 31.10. (D.C.M. and N.R.W.); Stoborough 482 between 9.9. and 23.10. (N.R.W.); Winterbourne Stickland 80 on 23.9. (C. de W.).

Anchoscelis helvola L. Flounced Chestnut. Furzebrook 77 between 7.10 and 13.11 (D.C.M. and N.R.W.).

Tiliacea citrago L. Orange Sallow. Winterbourne Stickland 23.9. (C. de W.).

Conistra vaccinii L. Common Chestnut. Arne 9 between 29.1 and 5.3., 28.10. and 6.11. (B.P.P.); Furzebrook a total of 216 during the year (D.C.M. and N.R.W.); Stoborough 6 between 25.1. and 20.3.; 4 between 30.9. and 21.10. (N.R.W.).

Conistra ligula Esp. Dark Chestnut. Arne 30.10. (B.P.P.); Furzebrook 13 between 31.10. and 5.12. (D.C.M. and N.R.W.).

Bena prasinana L. Green Silver-lines. Furzebrook 25.7. and 30.7. (D.C.M. and N.R.W.).

Earias clorana L. Cream-bordered Green. Arne 4.7. (B.P.P.); Furzebrook 29.6. (D.C.M. and N.R.W.); Stoborough 23.7., 26.7. and 28.7. (N.R.W.).

Nycteola revayana Scop. Large Marbled Tort. Arne 7.8. (B.P.P.).

Eustrotia uncula Clerck. Silver Hook. Arne 24.5., 19.6. and 27.6. (B.P.P.).

Plusia festucae L. Gold Spot. Furzebrook 26.7. and 23.8. (D.C.M. and N.R.W.); Stoborough 11.8. and 19.8. (N.R.W.).

Plusia jota L. Plain Golden Y. Furzebrook 12 between 9.7. and 26.7. (D.C.M. and N.R.W.); Milton Abbas 3 on 7.7. (M.A.S.N.H.S.); Swanage 11.7., 13.7., 14.7. and 15.7. (W. G.T.).

Plusia pulchrina Haw. Beautiful Golden Y. Furzebrook 10 between 7.6. and 16.8. (D.C.M. and N.R.W.).

Plusia gamma L. Common Silver Y. Arne 7.8., then 51 between 16.8. and 9.9., and 14 between 18.9. and 24.9. (B.P.P.); Furzebrook 4 between 20.5. and 31.5.; 18 between 1.6. and 30.6.; 66 between 1.7. and 31.7.; 140 between 1.8. and 31.8.; 476 between 1.9. and 30.9.; 175 between 1.10. and 31.10.; 57 between 1.11. and 31.11. and 6 between 1.12. and 3.12. (D.C.M. and N.R.W.); Stoborough 21.6.; 10 between 6.7. and 31.7.; 20 between 1.8. and 31.8.; 55 between 1.9. and 30.9.; 36 between 1.10. and 31.10. and 5 between 1.11. and 8.11. (N.R.W.); Weymouth earliest 23.6. (E.F.C.C.); Portland abundant early in September (C. de W.).

Lygephila pastinum Treits. Plain Blackneck. Furzebrook 2 on 11.7., 13.7. and 28.7. (D.C.M. and N.R.W.).

Schrankia costaestrigalis Steph. Pinion-streaked Snout. Arne 20 between 18.6. and 14.7.; 28.7.; 26.8.; 8 on 3.9.; 5 on 8.8.; 16.9.; 2 on 24.9.; 7.10. (B.P.P.).

Zanclognatha tarsipennalis Treits. Brown Fanfoot. Arne 16 between 27.6. and 14.7.; 10 between 24.7. and 12.8. (B.P.P.).

Herminia barbalis Clerck. Common Fanfoot. Arne 26.6.; 3 on 17.7. and 28.7. (B.P.P.).

Calothysanis amata L. Large Blood-vein. Arne 16.8.; 2 on 17.8. (B.P.P.); Stoborough 8 between 29.6. and 3.11. (N.R.W.); Swanage 2.7. (W.G.T.); Weymouth 13.7. (E.F.C.C.).

Cosymbia albipunctata Hufn. Birch Mocha. Arne 22.5., 24.5., 30.5., 15.6., 23.7.; 2 on 28.7.; 29.7.; 2 on 1.8.; 11.8.; 19 between 14.8. and 2.9. (B.P.P.); Furzebrook 20.7.; 18.8., 19.8., 20.8. and 23.8. (D.C.M. and N.R.W.); Swanage 30.6. and 1.7. (W.G.T.).

Scopula promutata Guen. Mullein Wave. Arne 3.9. (B.P.P.); Furzebrook 10.9. and 15.9. (D.C.M. and N.R.W.); Swanage 23.8. (W.G.T.).

Rhodometra sacraria L. Vestal. Swanage 7.9. (J.R.C.); Portland early in September (C. de W.).

Nycterosea obstipata F. Narrow-barred Carpet. Arne 27.8. (B.P.P.); Furzebrook 20.8. and 28.8. (D.C.M. and N.R.W.).

Anticlea dericata Schiff. Streamer Carpet. Furzebrook 27 between 27.3. and 17.5. (D.C.M. and N.R.W.).

Perizoma alchemillata L. Small Rivulet. Arne 23.6., 4.7. and 20.7. (B.P.P.); Furzebrook 16.7. and 13.8. (D.C.M. and N.R.W.).

Perizoma alchemillata L. Sandy Carpet. Stoborough 18.6. and 6.7. (N.R.W.).

Mesotype virgata Hufn. Oblique-striped. Stoborough 25.8. and 27.8. (N.R.W.).

Lygris testata L. Common Chevron. Arne 75 between 28.7. and 9.9. (B.P.P.).

Cidaria fulvata Forst. Barred Yellow. Stoborough 20.8. (N.R.W.).

Chloroclysta siterata Hufn. Red-green Carpet. Arne 15.10. (B.P.P.).

Chesias legatella Schiff. Streaked Carpet. Arne 1.11. (B.P.P.); Furzebrook 21.10. (D.C.M. and N.R.W.).

Odezia atrata L. Chimney-sweeper. Milton Abbas 8.7. (M.A.S. N.H.S.).

Horisme tersata Schiff. Fern Carpet. Milton Abbas 7.7. (M.A.S. N.H.S.).

Mysticoptera sexalata Retz. Small Seraphim. Arne 8 between 21.6. and 11.7.; 2.8. and 9.8. (B.P.P.).

Acasis viretata Hubn. Brindle-barred Yellow. Arne 27.6., 6.7. (B.P.P.).

Orthonama lignata Hubn. Oblique Carpet. Furzebrook 27.8. (D.C.M. and N.R.W.).

Ortholitha plumbaria F. July Lead-belle. Arne 24.6. and 28.7. (B.P.P.).

Ortholitha chenopodiata L. Shaded Broad-bar. Arne 2.8. (B.P.P.); Furzebrook 13 between 29.7. and 21.8. (D.C.M. and N.R.W.); Stoborough 2 on 14.7.; 11.8. (N.R.W.).

Eupithecia icterata Vill. Tawny Speckled Pug. Arne 17.8. (B.P.P.); Weymouth 30.7. (E.F.C.C.).

Eupithecia nanata Hubn. Narrow-winged Pug. 822 between 21.5. and 19.9. (B.P.P.).

Eupithecia abbreviata Steph. Brindled Pug. Arne 29.5., 30.5. and 31.5. (B.P.P.).

Ellopia fasciaria L. Barred Red. Arne 23.7. (B.P.P.); Furzebrook 14 between 10.7. and 21.8. (D.C.M. and N.R.W.).

Ennomos quercinaria Hufn. August Thorn. Arne 30.7., 1.8. and 12.8. (B.P.P.); Furzebrook 35 between 18.7. and 31.8. (D.C.M. and N.R.W.); Stoborough 15 between 23.7. and 26.8. (N.R.W.)

Deuteronomos alniaria L. Canary-shouldered Thorn. Arne 52 between 13.8 and 23.9. (B.P.P.); Furzebrook 143 between 9.8. and 11.10. (D.C.M. and N.R.W.); Stoborough 7 between 9.8. and 22.9. (N.R.W.).

Deuteronomos fuscantaria Steph. Dusky Thorn. Furzebrook 28 between 21.9. and 30.10. (D.C.M. and N.R.W.).

Deuteronomos erssaria Schiff. September Thorn. Furzebrook 39 between 2.9. and 6.10. (D.C.M. and N.R.W.); Stoborough 3 between 16.9. and 20.9. (N.R.W.).

Selenia tetralunaria Hufn. Purple Thorn. Furzebrook 67 between 16.4. and 1.9. (D.C.M. and N.R.W.); Stoborough 36 between 16.7. and 17.8. (N.R.W.).

Apeira syringaria L. Lilac Thorn. Arne 6.7. (B.P.P.); Furzebrook 4.7., 20.7. and 1.8. (D.C.M. and N.R.W.).
Epione repandaria Hufn. Common Bordered-beauty. Furzebrook 6 between 4.8. and 9.9. (D.C.M. and N.R.W.).
Lycia hirtaria Clerck. London Brindled-beauty. Stoborough 28.1. and 1.2. (N.R.W.).
Bistoa strataria Hufn. Oak Brindled-beauty. Arne 2.3., 28.3. and 5.4. (B.P.P.); Furzebrook 143 between 5.3 and 4.5. (D.C.M. and N.R.W.).
Cleora cinctaria Schiff. Ringed Beauty. Arne 23.5. (B.P.P.).
Dyscia fagaria Thunb. Grey Scalloped Bar. Arne 6 between 21.5. and 15.6. (D.C.M. and N.R.W.).
Plutella maculipennis Curt. Grey Diamond-backed Smudge. Arne 2.6., 6.6., 28.6.; 2 on 1.7.; 5.7., 7.7., 18.7., 19.7.; 3 on 21.7.; 26.7., 27.7., 28.7., 7.8.; 2 on 11.8.; 16 on 13.8.; 19 on 14.8.; 15.8., 16.8; 3 on 17.8.; 3 on 19.8.; 2 on 21.8.; 23.8.; 4 on 24.8.; 27.8.; 2 on 28.8.; 2 on 1.9.; 2 on 2.9.; 5 on 3.9.; 4.9., 8.9.; 2 on 14.9.; 31.9., 12.11., 15.11. and 29.11. (B.P.P.).

Correction to 1971 Report

Please delete the record of *Plusia gracilis*.

Vertebrates

Fish

By M. Ladle

I WISH to thank Derek Moody, Harry Casey, Jon Bass, Philip Belden, Glyn Morgan and Mr Warne for reports during the past year. Few unusual fish were reported but good summer weather was responsible for the many records of fishes which are approaching the northern limit of their geographical range in Dorset.

A brief summary of my records for the past four years indicates the distribution of freshwater fish species in East Dorset as follows:

(A) R. Frome, (B) R. Piddle, (C) R. Stour, (D) Ponds and lakes.

The records of anglers suggested that an unusually large run of Salmon entered the River Frome in 1973, an impression which was confirmed by the numerous fish seen on spawning redds in the lower reaches of the river during December.

MARINE

Scylliorhinus canicula (Lesser spotted dogfish). Poole Bay, September.
Raja montagui (Spotted ray). Swanage bay, April (♀ Mature 3 lb.).
Raja clavata (Thornback ray). Abbotsbury, December (14 lb.).
Raja microocellata (Painted ray). Swanage Bay, April-July (8 fish, largest 11 lbs.).
Conger conger (Conger eel). Swanage Bay, Warbarrow Bay, Durdle Door. April-December.
Trisopterus luscus (Pouting). Swanage—Abbotsbury. Whole year.
T. minutus (Poor Cod). (As pouting).
Pollachius pollachius (Pollack). Swanage—Weymouth. As in other years large shore-caught pollack were found to have been feeding on sand smelts.
Gadus morrhua (Cod). Abbotsbury. December. (I fish 9 lbs.).
Gaidropsarus vulgaris (Three bearded rockling). Swanage. Summer.
Ciliata mustela (Five bearded rockling). Poole—Swanage. January-April.
Dicentrarchus labrax (Bass). Poole—Durdle Door. January-September. (Largest fish examined 12¼ lb.).
Spondyliosoma cantharus (Black Bream). Swanage. April, May, June (15♀♀2♂♂ examined).
Crenilabrus melops (Corkwing Wrasse). Swanage. January.
Labrus bergylta (Ballan Wrasse). Swanage. April-June.
Scomber scombrus (Mackerel). Swanage. Summer.
Gobius niger (Black Gody). Poole Quay. January-September.
Callionymus lyra L. (Dragonet). Swanage Bay. April.
Blennius gattorugine L. (Tompot Blenny). Swanage 11.5.73. in 3 fathoms of water.
Crenimugil labrosus (Thick lipped grey mullet). Durlston-Kimmeridge. January-September (largest fish 5 lbs. 6 oz.).
Platichthys flesus (Flounder). Poole—Weymouth. All year. A specimen coloured both sides and with the eyes on the right was reported (from Sandbanks) by Mr Warne.
Solea solea (Common sole). Poole—Swanage. Autumn.
Balistes carolinensis (Trigger fish). Portland. 9.9.73 (1 lb. 11ozs.).

FRESH WATER

Lampetra planeri A,B.
Lampetra fluviatilis A,B.
Petromyzon marinus A.
Thymallus thymallus A,C.
Salmo salar A,B,C.
Salmo trutta A,B,C,D.
Salmo gairdneri A.
Esox lucius A,B,C,D.
Anguilla anguilla A, B, C, D.
Cyprinus carpio D.
Barbus barbus C.
Gobio gobio A,C,D.
Tinca tinca A,C,D.
Blicca bjoernka C.
Alburnus alburnus C.
Phoxinus phoxinus A,B,C.
Rutilus rutilus A,B,C.
Leuciscus cephalus C,D.
Leucisus leuciscus A,B,C.
Noemacheilus barbatulus A,B,C.
Perca fluviatilis C,D.
Micropterus salmoides D.
Pomatoschistus minutus A.
Liza ramada A,C.
Cottus gobio A,B,C.
Gasterosteus aculeatus A,B,C.
Pungitius pungitius A,B.
Platichthys flesus A,B,C.

Amphibians

By Robert V. Skinner

Common Frog. *Rana temporaria* L.

Hatching spawn found in flood water at Charminster Weirs on 11th February (S. J. Slade, Hardyes School). Three found by a stream in the Abbey grounds on 21st May (M.F.R., Milton Abbey School N.H.S.).

Common Toad. *Bufo bufo* L.

First heard calling on Studland Heath N.N.R. on 9th March. Seems to have been more numerous this year (J. R. Cox). Many toadlets found in woody clearings and boggy places on Studland Heath on 18th August (N. Humphries). Sixteen small toads counted along about 25 yards of a path on Studland Heath on 21st September. One medium toad seen on 15th October which was the last date for the area (J. R. Cox).

Reptiles

By Robert V. Skinner

Viviparous Lizard. *Lacerta vivipara* Jaquin.

The first record of the year for the Studland Heath N.N.R. was the observation of two lizards on 18th February (J. M. Breeds). Another individual was seen in dune heath in the same area on 23rd February and the species was recorded on nine dates in March (J. R. Cox). The last recorded observation for Studland Heath was 21st October (J. M. Breeds). One individual

was found in Dorchester Market on 11th April but it was injured and later killed (D. Moody). Another lizard was found dead in Fernside Avenue, Parkstone, on 8th August (S. L. Pipe). These last two specimens were retained by Dorchester County Museum for the collection.

Sand Lizard. *Lacerta agilis agilis* L.

One found in a garden near Broadstone Golf Course (A. H. Dunn). The first observation for the year on Studland Heath N.N.R. was of a greyish juvenile on 10th March (J. R. Cox). This species was also seen on five other dates in March on Studland Heath. The last recorded date for the year for Studland Heath N.N.R. was 21st October when two adults and a juvenile were observed (J. M. Breeds).

Slow Worm. *Anguis fragilis* L.

Two blue spotted males found in Delcombe Woods on 16th May (R. King, Milton Abbey School N.H.S.). The first record for Studland Heath N.N.R. was on 20th March (Miss C. E. Ollivant). One large, slightly blue spotted individual was seen on 5th May at Studland Heath (J. R. Cox and D. Wheeler). Last recorded date for Studland Heath N.N.R. was 21st October (L. Howells and J. R. Cox). One specimen was found in early June in a garden at Corfe Mullen (A. H. Dunn).

Grass Snake. *Natrix natrix helvetica* Lacepède.

First recorded on Studland Heath N.N.R. on 11th February (J. M. Breeds). There were four more recordings during March. The last records for the year for Studland Heath were for four individuals, one of which had very recently fed, on 21st October (J. M. Breeds, J. R. Cox, D. T. Ireland).

Smooth Snake. *Coronella austriaca* Laurenti.

One long, very light coloured individual seen near the Roman Road, Corfe Mullen on 9th June (A. H. Dunn).

Adder. *Vipera berus* L.

Two quickly moving specimens seen in Morden Park on 18th April. One dead specimen found at Russell Quay, Arne on 7th May. No marks to indicate the cause of death (A. H. Dunn). Despite the fine summer it does not appear to have been a good year for Adders and several excursions into Milton Woods, always a good hunting ground, produced only one record of two specimens on 24th June (C.H. and T.T., Milton Abbey School N.H.S.). One individual, which had been deliberately killed by someone, was found on Studland Heath on 11th February (J. M. Breeds). Two males observed on 23rd February on Studland Heath (J. R. Cox). At least thirteen individuals were recorded on ten dates during March on Studland Heath. The last recording for the area was for a juvenile on 27th October (D. Wheeler and P. Darley).

Mammals

By Mrs. E. M. Keats, B.Sc., F.G.S., A.M.A.

I WOULD welcome more observations on mammals in Dorset and am grateful to those members who have sent in records for 1973. Some only of these records can be printed in the space available but all are useful and will be filed for future reference.

The Mammal Society is conducting a survey into the distribution and status of the Harvest Mouse. The organisers are Mr. Stephen Harris and Mr. Roger Trout and they would welcome any information on this species. I have a few data sheets, anyone interested should contact me. I should also be glad to have records of this species for the county report.

I have been asked to remind members about an item in the December *Newsletter*. The Mammal Society and Nature Conservancy have launched an Otter Survey and would welcome help with this. Mr. R. E. Stebbings, Monks Wood Experimental Station, Abbots Ripton, Huntingdonshire, is the organiser, he is also responsible for a national collection of bats or bat remains, any material unsuitable for mounting for the Dorset County Museum should be sent to him. I would be grateful for details of identification supplied for such material. More bat records are required but careful identification is essential, rarely can species be identified in flight.

The following have submitted reports:—E. F. C. Coetzee, Mrs. A. M. Cox, J. R. Cox, D. A. Dolphin, A. H. Dunn, W. M. Grange, also records direct to the Dorset County Museum, C. E. G. Maltby, Milton Abbey School Natural History Society, Mrs. K. B. Parkyn, M. F. Robertson, Mrs. J. F. Teagle, W. G. Teagle, J. Tinegate.

The check list numbers and scientific names are as listed in *The Identification of British Mammals*, by G. B. Corbett, British Museum (Natural History) 1969. In addition to the records of species listed the following species were also reported:—55. Rabbit, *Oryctolagus cuniculus*. 57. Grey Squirrel, *Sciurus carolinensis*. 62. Long-tailed Field-mouse, *Apodemus sylvaticus*.

1. Hedgehog, *Erinaceus europaeus*. Records from a number of areas have been submitted including a number of garden records particularly from Dorchester, as well as the usual road toll.
2. Mole, *Talpa europaea*. Molehills throughout much of the county indicate a wide range of habitats occupied by moles. At times the molehills are, surprisingly, in rather wet areas. In June a large specimen was observed for some time about midday moving about in long grass, near Winfrith. There were no signs of runs or molehills nearby.
3. Common Shrew, *Sorex araneus*. A small number of records have been submitted. Mr. Maltby records fewer Common Shrews at Kingston Russell and suggests the cats may have reduced numbers. One was seen in March on Lodmoor and Mr. and Mrs. Teagle found remains of seven in milk bottles, in south-east Dorset. Litter was also a hazard to small mammals. A dead specimen found at Halstock Leigh in north-west Dorset on 8th November was taken to the Dorset County Museum. Useful records have been made this way and sometimes the specimens are fresh enough to be mounted for the museum.
4. Pygmy Shrew, *Sorex minutus*. Two specimens were taken to the museum, one which had been killed by a cat at Broadwey on 1st March and one from Wolfeton, Charminster, in the autumn. Live and dead specimens were recorded by the warden on Studland National Nature Reserve and another dead one was found at Swanage.

12. Natterer's Bat, *Myotis nattereri*. A male killed in collision with a car was picked up, identified and preserved by Mr. W. G. Teagle. This specimen was found on Whiteway Hill near Tyneham on 29th October.

    An unidentified bat was seen for several days hanging on a sunlit wall at Abbotsbury, it flew off at dusk each evening.

24. Fox, *Vulpes vulpes*. Records of sightings and evidence of fox activity are reported from many areas although few records from west Dorset have been received. Three dead specimens were taken to the museum. A fox carrying a rabbit was seen in April at Milton Abbas and another also carrying a rabbit at Ulwell, Swanage in May. Several were seen in gardens in built-up areas and droppings on the drive at Keepers Cottage, Milton Abbas contained fruits of the Blackthorn and earlier in the autumn Bramble berries.

27. Stoat, *Mustela erminea*. Two specimens were taken to the museum, one had been killed by a terrier dog on 14th February at Higher Bockhampton. One large animal raided the budgerigar aviary at Keepers Cottage, Milton Abbas on numerous occasions and in spite of efforts to plug all possible entrances took a number of birds, finally it killed a Mynah bird which was in a cage. During the later part of the year it was seen in the empty aviary.

28. Weasel, *Mustela nivalis*. Weasels have been recorded from Kingston Russell, Little Bredy, Herston, Hazelbury Bryan and Studland. A family party of five were seen in Milton Woods on 13th June and one carrying prey which seemed larger than itself was seen on the Lower Delcombe Road on 14th September. Mr. Coetzee was quietly watching a Weasel and a Field Mouse at Frome Whitfield on 2nd October. He was standing still and the mouse ran between his legs and

into undergrowth behind him. The Weasel followed, circled several times around Mr. Coetzee's feet and then jumped over them once and then moved quite slowly away in the direction from which it had come, apparently unconcerned by the human presence.

30. American Mink, *Mustela vison.* One seen running on ice on the Lower Lake, Morden Park on 18th February was thought to have killed a pinioned Red-crested Pochard. A dead one was seen on the road at Bovington on 9th June, one on Lower Delcombe Road on 18th August and one on the same day on the road near Hazelbury Bryan.

31. Badger, *Meles meles.* A number of records have been submitted and several setts recorded right on the coast. Road casualties seem to be widespread. A maximum of six badgers were seen together at a sett near Dorchester in late May, three at least were adults. As reported by Mr. Teagle, the Press and the Dorset Naturalists' Trust, three badger cubs were rescued from a sett near the seafront at Swanage in March, when building work started on the site and they were successfully reared by Mike Tuck and Tony Phelps. The three were released in late summer and finally established themselves in the wild, a success story which involved tremendous effort on the part of those who reared the cubs. Mr. E. A. J. Buckhurst has taken over as County Badger Recorder and hopes members will continue to let me have Badger sett records for this report and for his survey.

32. Otter, *Lutra lutra.* Mr. J. R. Cox recorded Otter spraints along the edge of Little Sea, Studland, in most months of the year and an old spraint on an Alder trunk by the Sherford stream, near Morden. An Otter was seen swimming into reeds in Poole Harbour near the entrance to the Wareham Channel on 26th August.

34. Grey Seal, *Halichoerus grypus.* One was seen briefly off Shell Bay about midday on 11th April.

43. Sika Deer, *Cervus nippon.* Four reports from the heathland area have been received.

45. Roe-deer, *Capreolus capreolus.* This species seems to be widely distributed. Large numbers can occasionally be seen together particularly early in the year when young crops are coming up in the fields and the Roe come out to feed from woods and scrub cover. Thirty-eight were reported in a field near Milton Abbas on 19th March, generally, however this species is not seen in large groups. A doe feeding two kids was seen at Crincombe on 25th June. A doe which crawled across a road and into a garden in November had had both forelegs broken by gun shot and had to be destroyed. Two Roe were seen on Lodmoor on 14th January.

47. Reeve's Muntjac, *Muntiacus reevesi.* An unconfirmed report of this species being seen near the Wessex Stadium, Weymouth has been received for September, 1972. Unfortunately without more information this cannot be definitely accepted, please make careful notes of every detail seen if you suspect a sighting of this small secretive deer.

53. Brown Hare, *Lepus capensis.* One was seen lying in a form about 30 yards from a study window at Kingston Russell from 8 a.m. to 3 p.m. on 22nd January and when Mrs. Maltby went to make sure it was alive it lolloped away, it was a cold day with the temperature as low as 27°F. Mr. Maltby reports, secondhand, a leveret being suckled on the road on Long Bredy Hut hill, on 25th February. Other records sent in help to fill some of the gaps in the National Survey, such as four seen on the Ridgeway by Mr. Dolphin on 7th March, 1972, and several seen at Herringston by E.M.K. and others on 27th May, 1973. Have we really not recorded Hares around Maiden Castle before? They have certainly been seen but not noted. Mr. Robertson saw a Hare running across Keepers Cottage drive on 9th May with a dandelion flower in its mouth.

56. Red Squirrel, *Sciurus vulgaris.* Mrs. K. B. Parkyn has again kept careful records of the sightings on Brownsea Island of Red Squirrels. I am most grateful for her observations which she has been making for ten years. The total squirrels recorded in 1973 was 108 against 133 in 1972, and, these were seen between 28th January and 25th November. One group of four, two groups of three and six groups of two were seen, all in the months of July, August and September.

63. Yellow-necked Mouse, *Apodemus flavicollis.* One was caught by Mr. A. H. Dunn in his greenhouse in Corfe Mullen on 4th December, followed by a Long-tailed Field-mouse on 10th December.

66. Brown Rat, *Rattus norvegicus.* A plague of this species at Melcombe Bingham caused considerable damage on a farm. This record fills a gap in the National scheme of recording presence or absence of species for each 10Km. square.

67. Water-vole, *Arvicola terrestris.* A lower jaw with some flesh adhering was found near the vinery on Brownsea Island by Mr. A. Turner on 19th April, it was given to Mr. Teagle. It is possible that it had been dropped by an avian predator but Mr. A. Wise has confirmed that Water-voles are present on the island. This species was also recorded for the Bourne, Poole, the stream in Milton Abbey grounds, Lodmoor and the Pipley stream, Studland.

69. Short-tailed or Field Vole, *Microtus agrestis.* This species was recorded at Corfe Mullen, Swanage, Studland, St. Aldhelm's Head Quarry, Lytchett Minster and Radipole Lake in 1973.

Dorset Bird Report—1973

By F. R. Clafton

INTRODUCTION

UNDOUBTEDLY the most encouraging feature of this report is the fact that the number of individual contributors has grown so dramatically. The coverage particularly in the fields of wildfowl and wader counts and in the recording of migratory movement both on land and at sea could hardly be bettered but there are still gaps to be filled in the documentation of distribution in certain parts of the county.

The increase in the volume of contributions has coincided with a basic reorganisation in the method used by the editorial panel in the compilation of this report. The Sub-editors have prepared the text of their respective sections in virtually final form so that the Editor's task has been reduced to one of fitting together the pieces to form what is hoped is a uniform whole. The sections have been written by D. N. Arnold (divers to swans), Mrs. A. Russell (hawks to game birds, skuas, gulls, terns and auks), Dr. D. J. Godfrey (crakes, rails and waders), J. C. Follett (tits to thrushes and finches, buntings and sparrows), A. H. Dunn (doves to crows) and T. Hooker (warblers to starling). Although the responsibility for this report must rest on the shoulders of the Editor, the credit is entirely due to the team. J. C. Follett has also administered the collection and distribution of the raw material as well as acting as captain of the editorial crew.

The Systematic List gives details of all species recorded within the county during the year, again an impressive list. Two species are new this year, Broad-billed Sandpiper and Savi's Warbler; another Red-rumped Swallow occurred, only a year after the first for the county. As usual, the local records Committee have had to consider numbers of records of unusual species. Where appropriate, the record has been forwarded to the "British Birds" Rare Birds Committee whose judgement has been accepted. One or two sightings remain unresolved for the moment, in particular a large raptor in Purbeck in Sep. Our task continues to be made difficult through the appearance of what must be presumed to be escapes from captivity — the now annual Bar-headed Goose, Flamingo and Red-headed Buntings (both on Portland and in Purbeck) and the impressive Purple Gallinule at Lodmoor in June.

The numbering used in the Systematic List is that given in the B.O.U. Check List (1952) whose order is followed and where scientific names may be found.

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SYSTEMATIC LIST

1. Black-throated Diver

Four birds were noted off Portland Bill in Jan.-Feb. and then a marked easterly movement of 15 birds between 1 Mar. and 13 May. Single birds were also recorded in Aug. and Oct. The only other records were of single birds in Portland Harbour on 25 Nov. and Studland Beach on 15 Dec.

2. Great Northern Diver

A single bird flew west off Portland Bill on 4 Feb. and 8 occurred during the spring passage, from 27 Mar.-6 May. Two birds frequented Poole Harbour in Jan. and 1 in late Dec. Up to 5 were noted in Portland Harbour from 17 Nov. to the end of the year.

4. Red-throated Diver

At Portland Bill 11 birds were noted between 24 Mar.-13 May and a single bird on 26 Oct. This movement was also reflected at Chesil Cove where lone birds were seen on 27 Apr. and 4 May. Once again winter sightings were few in number. Four birds were noted at Portland Harbour on 28 Jan. but only 2 in Feb. Two birds were also present in Poole Harbour in the Jan.-Feb. period. Single birds were recorded in Studland Bay, Portland Harbour and Weymouth Bay during Dec.

— Unidentified Divers

At Portland Bill there were 9 Jan. sightings. The spring passage (1 Mar.-18 May) was moderate, consisting of 103 divers of which 65 were unidentified. 75% of the birds were flying E. Nine birds on 24 Apr. and 11 on 3 May indicated the height of the passage. There were only 3 July-Aug. sightings but a mainly easterly movement was recorded from 13 Oct. to the end of the year: Oct. (10 sightings), Nov. (10) and Dec. (29). Winter records came from Portland Harbour, Chesil Cove and Studland Bay.

5. Great Crested Grebe

Although no breeding was recorded, summering birds were noted at Sherborne Lake, the Fleet, Crichel Lake and Arne. Numbers were high at Arne: 24 in May, 6 in Jun. Reports of wintering birds came from Poole Harbour (up to 12) and the Weymouth area (peaks: 20 on 10 Feb.; 22 on 24 Dec.). It would seem that the Weymouth flock has declined in recent years.

Eight birds flew E. off Portland Bill on 26-27 Apr. and 1 E. on 6 Oct.

6. Red-necked Grebe

Single birds occurred in the Weymouth area in Jan. Feb. and Nov. and in Poole Harbour in Jan. and Oct.-Dec. A lone bird at Milton Abbas Lake on 1 Jan. was a new record for the area.

A solitary bird, possibly the same individual, was seen off Portland Bill on 18 and 27 Jan. and 11 Feb.

7. Slavonian Grebe

Up to 30 birds were noted in Portland Harbour in both winter periods. In Poole Harbour the numbers were smaller than usual, 15 birds at Arne in Feb. being the largest single count.

8. Black-necked Grebe

Mainly recorded in Poole Harbour, peaks 9 on 16 Jan. and 3 in Dec. Single birds were also recorded on 7 Jan. at Abbotsbury and on 19/20 Feb. in Weymouth Bay.

9. Little Grebe

Some 30 pairs bred, and 3 more pairs were suspected to have bred. As usual the main wintering flocks were on Radipole Lake (41 on 19 Mar.) and the eastern Fleet (50 on 28-31 Dec.).

16. Manx/Balearic Shearwater

653 birds were noted off Portland Bill during the spring passage (25 Mar.-2 Jun.), of which 581 flew E. and 65 W. The peak counts were on 3 May (101) and 27 May (115). This passage was also noted at Chesil Cove; peaks: 100 on 17 May and 320 on 2 Jun.

Summer movement was light, 104 sightings between 11 Jun.-30 Jul. but the sight of Shearwater rafts off the Bill was quite exceptional. On 23 Jun. a raft of 150 birds was noted and on 24 Jun. 180 birds in two rafts.

Autumn movement was also minimal (21 birds 5 Aug.-13 Oct.).

Balearic Shearwaters occurred on 2 Jun. (2 E.), between 5 Aug.-18 Sep. and on 20 Oct. (33 birds in all). Fishing birds were noted close in shore to the Chesil Beach on 30 Jun. (2) and 20/21 Jul. Two feeding methods were observed, "plunge-diving" from flight, using wings once in the water, and surfacing with the wings raised; and "dipping" head and neck submerged only, wings raised and feet lowered to skip over the surface (D.C.M.).

The only records other than at Portland were of a single Manx W. in Mar. at West Bexington and a small passage off the Purbeck coast on 29-30 Apr. (15 E.).

21. Sooty Shearwater

The only records were from Portland Bill, 29 Aug. 2 Oct. (1 E.) and 20 Oct. (1 W.).

26. Fulmar

At least 1 pair bred successfully on the Purbeck cliffs and up to 6 pairs are thought to have nested. The first record in the area was a single bird on 28 Jan.

At Seacombe up to 19 birds were present throughout the breeding season but no nests were found.

About 15 pairs are thought to have bred at Portland Bill but only 1 chick was seen. Adult birds were present from 1 Jan.-22 Sep. and then from 23 Dec. to the end of the year. The peak count was 45 in early Mar.

27. Gannet

Recorded throughout the year at Portland Bill. In accordance with recent years, large fishing flocks were present on most days in Jun.-Jul. The flocks usually numbered about 100, but on 29 Jun. 300 birds were fishing.

The usual spring movement was observed (Mar.-May) when 1,687 birds flew E. and 649 W. showing the usual 3 : 1 easterly bias.

Gannets were recorded virtually daily from Aug. to mid-Nov. peaks: 275 on 5 Aug., 100 on 11 Sep., 200 on 2 Oct. Autumn movements were inconclusive: 1,591 E., 1,451 W.

28 Cormorant

The Gad Cliff colony held 100 nests.

Dusk counts at the mouth of Poole Harbour showed peaks of 127 (7 Jan.), 114 (19 Feb.), 66 (4 Mar.) and 196 (24 Dec.). Flocks were noted at Shell Bay (30 on 10 Mar.), Holton Shore (40 on 6 Apr.), Littlesea (30+ Aug.-Oct., 50 on 23 Sep.) and Sandbanks (58 on 2 Dec.). Small parties were also noted inland during the winter months.

In the Weymouth area parties were smaller: Portland Harbour (20+ 1 Jan.), Fleet (15+ 26 Aug.) and Radipole Lake (14 on 27 Jan., 12 on 8 Jul. and 19 on 6 Oct.).

At Portland up to 12 birds roosted on the West Cliffs during Jan. and early Feb. but rarely seen during the breeding season. Movements were observed in both spring (25 E.: 23 W, 6 in from S.) and autumn (47 E: 23 W. and 19 out S.).

29. Shag

No reports of breeding received.

Regularly present at Portland Bill: Jan.-May (up to 12), Jun.-Jul. (up to 4) then becoming more numerous through the autumn (57 on 31 Aug., 60 on 11 Sep., 100 on 18 Sep.). The numbers then declined to no more than 50 in Oct.-Nov. and 15 in Dec.

Flocks were noted in Portland Harbour: 30+ on 6 Jan. and 40+ on 15 Dec. and flying out of Poole Harbour: 79 on 7 Jan., 2 on 11 Feb., 10 on 3 Mar. and 36 on 24 Dec.

30. Heron

Breeding was recorded at 3 sites. At Brownsea Island 114 nests were counted, of which 101 were successful. One pair bred at Moigne Combe and at least 7 pairs at Sherborne Lake.

Single birds were noted on many rivers but larger parties appeared on open waters at Holton Shore (up to 6), Littlesea, Studland (up to 8), Fleet (22 on 9 Jun.), Lodmoor (15 on 17 Jul.) and at Radipole Lake (12, Jan.-Feb., up to 18, Oct.-Dec.).

Movement at Portland and Portland Harbour from 23 Apr.-15 Oct. involved some 30 birds. A single bird roosted in a dead elder at Verne on 29 Dec.

38. Bittern

Only recorded in the Weymouth area. One bird was seen at Radipole Lake Jan.-4 Mar. and from 9-27 Dec. The bird at Lodmoor in Dec. and 14-20 Apr. was possibly the same individual. One at Kingston Maurward Jan.-early Apr.

45. Mallard

At least 70 pairs bred, mainly on the lakes, with few records received from the river areas. As usual large numbers were recorded during the moult (Jun.-Sep.), the largest flocks occurring at Crichel Lake (900 Sep.), Abbotsbury (200 Sep.), Radipole Lake (190 Aug.), Littlesea (132 Aug.). Winter numbers were generally low in the Weymouth area with the exception of a count of 300 at Abbotsbury on 12 Dec. Peak winter counts in E. Dorset were similar to those in previous years: Poole Harbour (416 Jan., 424 in Oct., 619 in Dec.); Crichel Lake (300 Jan., 350 Oct. and 300 Nov.) and Littlesea (392 Dec.).

A light movement was noted at Portland Bill and Harbour in May and Oct.-Dec.

47. Garganey

The majority of the spring records came from Radipole Lake. A pair was noted on 15 Mar. and a drake until 29 Mar. A duck was then seen on 4 May, a pair on 7 Jun., a drake on 16 Jun. and a duck on 15 Jul. Single birds were seen at Lodmoor from 10-23 Mar. and a pair on 1 Apr. A duck was also seen at Langton Herring on 10 May and a pair at Cranborne Cress Beds on 24-25 Mar. The only autumn records came from Radipole Lake; 2 drakes and 3 ducks were seen 17-20 Aug., a drake 21-29 Aug. and then 2 ducks 3-10 Sep.

49. Gadwall

A pair bred 6 young at Beer Farm Pond (S.P.W.C.). This is the first record of Gadwall breeding in Dorset.

At Littlesea the peak count was 35 on 9 Jan.; small numbers remained until 16 Mar. There was a late return, the first being 3 on 4 Nov., the flock building to 21 birds on 31 Dec. The Sherborne Lake flock reached 12 (22 Feb.-6 Mar. and 30 Oct.). A pair was seen at Cashmore Pond on 10 Mar.

There were only 3 records at Radipole Lake; single birds on 20 Feb., 2-3 Sep. and 16 Sep. Larger numbers were present at the Fleet; at Abbotsbury; 12 on 4 Feb. and 29 on 18 Nov. and Langton Herring 6 on 16 Apr.

A single bird flew E. off Portland Bill on 28 May.

50. Wigeon

In the Fleet the winter flock numbered 5,000 in early Jan., it then declined until the summer when 3 or 4 birds were present in May and early Jun. Two birds returned on 9 Aug. and the flock quickly built up to 100 (30 Aug.) and 2,500 (21 Oct.). The peak count was 5,500 on 30 Dec. Small parties visited West Bexington, Portland Harbour, Weymouth Bay, Lodmoor, Radipole Lake, Stalbridge and Woodsford (100 on 24 Feb.).

In Poole Harbour the Jan.-Feb. count was higher than usual (Jan. 1,121) and 700 birds were attracted to Littlesea on 4 Feb.;

there were fewer birds in the latter part of the year, however, the peak being 697 birds on 16 Dec.

Some 50 birds were involved in autumn movements at Portland Bill.

52. Pintail

The peak counts of the year were in Poole Harbour: 456 in Jan., 407 in Feb., 158 in Dec.

The only other concentrations were in the Fleet; Langton Herring (85 on 16 Feb.); Abbotsbury (105 on 12 Dec.). There were very few winter records at Radipole Lake but a pair were noted from 2-7 May and a drake on 1-2 Jun. Records also came from Portland Harbour, Sherborne Lake, Compton Valence and Portland Bill (2 E. on 13 Oct.).

53. Shoveler

Monthly duck counts in recent years have shown that few waters regularly hold more than 50 birds. The peak counts were at Radipole Lake (58 on 1 Dec.), Langton Herring (80 in Jan.-Feb.) and Sherborne Lake (40 in Jan., 50 Oct.-Dec.).

The only summer records came from Radipole Lake (4 on 7 Jul.) and Sherborne Lake (5 on 5 Jun.).

55. Scaup

Numerous in Poole Harbour during the winter months. The highest counts were at Littlesea (77 on 28 Jan.), a record for this water, and Arne (50-70 in mid-Feb.). Nine birds were still at Arne on 10 Apr. Five birds arrived at Littlesea on 4 Oct. and the flock then built up to a peak of 40 on 18 Nov. The peak count at Arne was 30+ on 25 Nov.

In recent years this duck has been seen at Radipole Lake in increasing numbers, but the presence of up to 24 birds from 24 Feb. to 17 Mar. was abnormal.

56. Tufted Duck

Seven or 8 pairs bred on Dorset lakes.

The highest winter counts came from Radipole Lake (460 on 12 Jan., 350 on 16 Dec.), Poole Park (170 on 10 Feb., 303 on 22 Dec.), Sherborne Lake (52 on 1 Dec.) and Littlesea (49 on 14 Jan.).

Most wintering birds had departed by early April but summering, supposed non-breeding, pairs were seen at Radipole Lake, Milton Abbas Lake, and Abbotsbury during Jun.-Jul.

57. Pochard

Two pairs bred on inland lakes, these being the first breeding records since 1948. Summer records also came from Radipole Lake but no breeding was proved.

Most recorders report a drop in numbers; the peak counts came from Radipole Lake (185 on 18 Feb., 151 on 16 Dec.), the Fleet (180 on 18 Nov.), Corfe Mullen (90 on 16 Jan.), Littlesea (101 on 16 Dec.) and Sherborne Lake (31 on 16 Oct.).

60. Goldeneye

The major concentrations were in Poole Harbour (87 on 18 Mar., 60+ in mid-Dec.) and the Fleet (130+ on 24 Feb., 70+ on 26 Dec.). Portland Harbour attracted more birds than usual, the peaks being 15 on 27 Jan. and 8 or 9 on 9 Dec. A small flock was noted at Radipole Lake 26 Nov.-31 Dec., the maximum count being 7 on 11 Dec.

Perhaps the most surprising record is that of an adult drake in the Fleet from 29 Jun.-2 Jul.

Movement was noted off Portland Bill on 7 Jan., 13 Oct. and 2 Dec.

61. Long-tailed Duck

Harbour mouth counts at Poole Harbour have shown the presence of up to 6 birds from early Jan.-Mar., and up to 7 in Dec. Three birds were also noted at Arne on 9 Nov. and 4 at Brands Bay on 21 Nov.

A drake stayed at Radipole Lake from 1 Jan.-25 Apr. and a pair was seen at Ferrybridge from 1 Jan.-10 Apr.; 3 being noted 31 Mar.-10 Apr. A drake was at Abbotsbury on 16 Apr. Up to 4 birds were recorded in the Weymouth area in Nov.-Dec.

There was only one spring record at Portland Bill; three E. on 24 Apr. Winter movements were noted at the Bill and Chesil Cove: single birds on 27 and 31 Oct.; up to 12 birds on 2 Dec. (3 E.) and 1 on 15 Dec.

62. Velvet Scoter

Reports from Portland Harbour show the presence of 4 birds from 2-6 Jan. and 18-26 Apr.; 2 from 7 Jan.-17 Apr. In Dec. up to 3 birds were noted in the Harbour and up to 5 in Weymouth Bay.

The only Poole Harbour record is of a drake recorded on a dusk count on 24 Dec.

The spring passage at Portland Bill showed a well marked easterly movement, 37 birds passing the island between 27 Mar. and 27 Apr. This movement was also noted at Chesil Cove on 15 Apr. when 7 birds flew S., towards the Bill.

During the autumn movement (23 Aug.-Nov.) 23 birds flew E.

A duck was then present on 18 and 25 Nov.; a pair on 1 Dec. then, from 5 Dec. onwards a flock regularly on the sea off the Bill: 6 from 5-16 Dec., 8 on 21 Dec., 9 on 24 Dec., and 10 from 26 Dec. onwards.

64. Scoter

The largest winter gatherings were recorded at Portland Bill (20-30 in Jan.-Feb., 40 on 15 Jan.), Studland/Shell Bay (6 on 30 Mar., 20 on 15 Dec.) and Weymouth Bay (7 on 14 Oct.), and Arne (7 on 26 Dec.). Single birds were also noted in Portland Harbour, the Fleet, Littlesea and off Durlston Head and Chesil Cove.

The spring passage at Portland Bill was moderate; birds were recorded on most days 2 Mar.-31 May, peaks: 156 on 26 Apr., 106 on 26 Apr., 128 on 13 May. Total sightings 1,158 (954 E.; 204 W.). This movement was reflected at Chesil Cove between 10 Mar.-28 May when 33 birds were noted, mainly flying S. towards the Bill.

Summer movement was shown at Portland Bill when 93 birds were counted in late June (53 E.; 40 W.), at St. Aldhelm's Head on 2 Jul. when 30 birds flew W. and at Abbotsbury on 29 Jul. when 25 birds were seen. A duck was also noted at Arne on 10 Jun. A total of 2,506 birds were counted on the autumn passage at Portland Bill (1 Jul.-1 Dec.) the majority flying W. (1,672 W, 709 E, 125 others). The bulk of the records came in July (1,135) including peaks: 203 on 10 Jul., 249 on 24 Jul, 199 on 25 Jul. and 149 on 28 Jul., the passage was then moderate until 140 birds passed the Bill on 12 Oct.

69. Red-breasted Merganser

Counts in Poole Harbour and the Fleet/Portland Harbour reveal a considerable increase in the species; Poole (259 on 17 Feb., 359 on 1 Dec.); Fleet/Portland Harbour (280 on 24 Feb., 280 on 21 Dec.). Large numbers stayed in the Weymouth area until mid-Apr. (100 on 19 Apr.) and small parties had returned by 23 Oct.

At Portland Bill the early spring birds, 5 between 3-13 Apr., flew W. while on 25 Apr. 10 birds flew E. The autumn movement between 6 Oct.-2 Nov. was largerly westerly.

70. Goosander

Rather more records than usual: 2 over Littlesea 27 Jan.; a drake at Arne 24-27 Feb.; a drake on the River Stour near Wimborne on 18 Nov., 2 ducks and a drake in Poole Harbour 17 Nov.-22 Dec. and a duck at Ferrybridge throughout Dec.

71. Smew

A duck at Shipsal Point, Arne 7-9 Feb., a duck at Radipole Lake 9-31 Dec. and 6 at Abbotsbury on 12 Dec. were the only records.

73. Shelduck

The Shelduck is becoming more common in the Weymouth area. It is present in all months of the year in the Fleet, being more numerous from late Feb.-May; peak count 110 on 31 May. Winter records at Radipole have steadily increased; peak counts 20 on 21 Mar.; 30 on 12 Dec. Six pairs bred in the area: Abbotsbury (2), Langton Herring (3), Lodmoor (1).

The peak winter counts in Poole Harbour (2,240 in Feb., 1,863 in Dec.) are somewhat above average, the highest counts in recent years being 2,870 in Jan. 1970 and 2,582 in Jan. 1971. Thirty pairs bred in the area.

— Grey Geese

Seven geese (probably White-fronted Geese) flew E. over Portland Harbour on 2 Dec. and 4 grey geese flew W. off Portland Bill on 14 Oct.

75. Grey Lag Goose

A single bird flew E. off Portland Bill on 3 May and a lone bird (the same individual?) stayed on Lodmoor from 5-12 May. On

5 Oct. 7 flew low over the Observatory at Portland and then out to sea in an easterly direction.

76. White-fronted Goose

Only noted during winter movements. On 1 Jan. 12 flew S. over Ferrybridge and on 7 Jan. 32 flew S.E. over Arne and 10 E. over Sturminster Marshall. On 29 Nov. 5 flew N.W. over Colehill followed on 30 Nov. by several over Colehill, after dark and 9 over Weymouth.

80. Brent Goose

Brent Geese have reached unprecendented numbers in both Poole Harbour (72 on 26 Jan., 100+ on 24 Feb., 101 on 16 Dec.), and the Fleet (110 on 12 Dec.).

Passage birds were noted at Portland Bill on 13 Jan. (12 E.) and 4 Feb. (5 W.) and in the Fleet on 13-15 Jan. (up to 8) and 24 Feb. (3) and 1 at Radipole Lake/Lodmoor on 14 Jan. Movement was also recorded at Weymouth Bay on 18 Oct. (3), Ferrybridge on 19 Oct. (1) and Langton Herring on 21 Oct. (1), Portland Harbour between 21-25 Nov. (6) and 2 Dec. (1 E, 1 W) at Portland Bill on 2 Dec. (1), 21 Dec. (5 E.) and 31 Dec. (2 W.) and at St. Aldhelm's Head on 9 Dec. (18 E.).

82. Canada Goose

Only 6 pairs bred according to reports received. The peak counts from Poole Harbour show a steady increase in flock size: 421 on 12 Jan., 385 on 17 Aug., 404 on 16 Sep. and 334 on 16 Dec.

The only movement was in Apr.: at Langton Herring (3 on 15 Apr.), Portland (3 on 7 Apr. and 16 Apr., 2 on 18 Apr. and 5 E. on 26 Apr.).

84. Mute Swan

Only 11 breeding pairs reported.

As usual the major flocks were in the Fleet: 685 in Feb., 894 in Nov. Winter counts were low at Radipole Lake but numbers built up in Mar. (127), May (110) and Aug. (130+). The Poole Harbour counts were lower than usual. Up to 40 birds wintered at Woodsford.

There were 4 records of birds passing Portland Bill.

85. Whooper Swan

Four birds flying S.W. from Portland Harbour on 28 Jan. were the first recorded from the island. Four birds were also at Woodsford on 20-21 Feb., 1 at Littlesea on 9 Dec. and 24 at Abbotsbury on 12 Dec.

86. Bewick's Swan

Up to 58 at Woodsford from 17-28 Feb., 5 staying to 10 Mar. An immature visited Middlebere, Arne on 15 Feb. Up to 4 birds were noted in the northern parts of Poole Harbour in Dec. and 1 at Littlesea on 2 Dec. Twelve birds flew over Lodmoor and Langton Herring on 1-2 Dec., Stalbridge on 11 Dec. and 5 over Radipole Lake on 29 Dec.

91. Buzzard

Although only 6 nests were reported, 27 pairs and nearly 100 sightings of single birds recorded from all over the county and during every month of the year. From one nest 2 young fledged successfully, but from another nest 25 ft. up in a dead ivy-covered larch, the young were found dead on the ground, after the tree had fallen. The nest was made of birch twigs and foliage.

An exceptionally pale bird was seen at West Knighton, and 1 hovering Kestrel-like for periods of up to 2 minutes, E. of Creech. 1 flew S. out to sea at Portland Bill on 25 Aug. Reports of parties of 4-6 birds were not infrequent and there was one record of 7 together.

93. Sparrowhawk

Two pairs raised 2 young each, and at least 3 other pairs were thought to have nested. Over 150 sightings for the year, and said to be increasing in some areas.

During March 1 was regularly present at a Starling roost. A very large female plucking a Magpie near Swanage. One flew into a window while carrying a Song Thrush and was killed, the specimen was given to the museum. Reported taking birds from a bird table at Middlemarsh and several observers mention frequent visits to gardens.

99. Marsh Harrier

Only 2 records this year, a female near Weymouth on 21 Apr., and on 27 Dec. 1 at Bower Point, Poole Harbour.

100. Hen Harrier

At Arne at least 5 different birds (2 males) roosted Jan.-12 Apr., but never more than 4 on any one date. In autumn, first seen on 1 Oct. and at least 6 different individuals (2 males) Nov.-Dec. Only single birds were seen during the day, and then only occasionally, indicating the considerable distances covered by these birds on hunting forays. Thus many of the other sight records around Purbeck could presumably refer to birds from the Arne roost, e.g. 1, occasionally 2 on Studland Heath, Jan.-Apr. and Nov.-Dec., at Swineham on 3 Mar., Grange Heath in Jan., St. Aldhelm's Head from 30 Mar. to 27 Apr. and again from 9 Nov. to 2 Dec., Worth Matravers in Mar., the Tyneham valley in Feb. and the Holton shore in Oct. and Dec., all records of singles.

Single birds reported from Briantspuddle on 2 Mar. (a male), at Abbotsbury on 7 Apr. and at Portland Bill on 28 Oct. (ringtail) were presumably different individuals. Reports of ringtails at Seacombe on 2 May and Abbotsbury on 26 Jul. should perhaps be treated as "Hen or Montagu's".

102. Montagu's Harrier

The only certain records were at Evershot on 22 Jul. and at Morden Bog (ringtail) on 16 Sep. but further singles, most probably this species were near Maiden Newton in May and at Knowle Hill on 7 Jun.

103. Osprey

One at Abbotsbury on 25 Jul. and a single at Arne on 5 dates, 11-19 Sep.

104. Hobby

Three young fledged from the only known nest but an adult with juveniles reported from another locality and pairs were present at three other sites.

First noted in spring at Portland Bill on 21 Apr. (in off sea) and in the first half of May there were reports from Stalbridge, Portland, Weymouth, Chapman's Pool and Sutton Bingham; 1 flew past St. Aldhelm's Head as late as 1 Jun. and another flew N. over Portland Bill on 2 Jun.

More widely reported in Aug. and Sep. At Stour Provost a male was seen taking House Martins from a roof where they were sunning themselves. Last records were from Corfe Castle, an immature on 1 Oct. and over Radipole School where an adult was seen catching dragonflies on 5, 13 and 16 Oct.

105. Peregrine

One flew over central Portland on 17 Oct. At another coastal locality a female was present from 13 Feb. to 1 Apr. and again from 21 Oct. onwards but not during the summer. One on Dorset/Devon border at Uplyme, 31 May.

115. Red-legged Partridge

In Jul. 5 minute juvs. at Winspit. Coveys of 6-9 noted at the following places, Langton Herring, Middlebere, Coombe Valley and Woodsford. Two were found dead. Fifteen breeding season pairs reported.

116. Partridge

Ten young with adults seen at Langton Herring in Aug. Coveys of up to 12 were seen at 6 localities, and 9 pairs were reported.

117. Quail

The only records of this species were as follows:—Portland 4 May and 1 Jun.; Langton Herring a male on 31 May; 1 heard in Jun. and Jul. at Wyke Down and Maiden Castle and 1 near Sixpenny Handley on 17 Jun.

118. Pheasant

A hen sat tight on a nest at Rodden and over 20 other pairs were noted. It appears to have been a good breeding season according to several observers.

120. Water Rail

Breeding confirmed on Brownsea, up to 3 birds present and young seen on 30 Jun.; probable at Littlesea with 6 territories apparent, and at Salterns Marsh, Arne in summer; and possibly at Bridehead where 1 was present on 30 Jun. and 24 Jul. One dead at N. Portland on 27 Aug., and 1 calling at night at Portland Bill on 10 Sep., where also recorded in Jan., Mar. and Nov. Autumn, winter and early spring reports from many widespread

localities, including the dried-up stream at Winspit, a 650-ft. altitude kale field at Compton Valence on 22 Dec., and a few yards from the sea at Balaclava Bay, Portland on 6 Nov.

121. Spotted Crake

One seen at Radipole Lake on 21 Apr. (PGL) and calls believed to be of this species, heard at Ridge Moors, Arne at 9 p.m. on 3 Jul. (SPWC).

125. Corncrake

One was seen perched on telegraph wires at dusk on 13 May by the postmistress at Worth Matravers (per SPWC).

126. Moorhen

Present in the breeding season around Poole Harbour at Arne (3 prs.), Newton Bay and Ower (4 and 5 young seen), Littlesea (8, or possibly 10, territories), and Poole Park. Two nests at Compton Valence, 3 young seen at Langton Herring; very plentiful on the R. Bride at Burton Bradstock, young birds receiving some protection from the islands, with tree roosting noted in vulnerable areas. No exceptionally large flocks were noted, but 52 at Radipole on 23 Jan. and 42 on Radipole on 17 Nov., 35 at Spettisbury on 14 Nov., 30 at Corfe Mullen on 28 Feb., and 23 in a field near the R. Iwerne at Hod Hill on 18 Feb.

127. Coot

Breeding reported from R. Stour at Corfe Mullen (*ca.* 4 prs.), and Turnerspuddle Heath (2 prs. and 1 young). Present all year round at Littlesea, 3 at Langton Herring on 31 May, and 1 near Chickerell on 8 May. On the Fleet, *ca.* 2,000 on 5 Jan., and winter peaks elsewhere were 123 at Radipole in Dec., and 95 and 89 at Littlesea in Dec. and Jan. More unusual occurrences were 30 at Portland Harbour entrance on 3 Dec., 115 at Abbotsbury on 29 Jun., and 1 at Chesil Cove on 24 Dec.

131. Oystercatcher

At least 2 breeding pairs along the Chesil Beach. In Poole Harbour, no breeding records submitted, but maxima at Arne in May, Jun. and Jul. of 80, 30 and 40 suggest an appreciable summer population. At Portland autumn records from 27 Jun. onwards with peaks of 15, 21 and 64 on 10, 18 and 19 Aug., the mid-Aug. peak now being established as an annual occurrence; autumn passage numbers were 115 E., 19 S.E., 13 S. and 54 W. A similar influx at Brownsea, with 601 on 27 Aug. and still 500 there on 11 Nov.; and at Arne, monthly maxima from Aug. to Dec. of 132, 153, 200, 250 and 150 suggest that the August numbers are not greatly diminished later in the year. Winter concentrations elsewhere in Poole Harbour of 102 at Shore Road on 28 Dec., 43 at Holton on 18 Nov.; and a Harbour total of 598 in Dec., 5 more than in Dec. 1972. As usual, much scarcer beside the Fleet, with maxima of 17 near Ferrybridge in Feb., and 11 at Langton Herring on 13 Jun. Spring passage reports include 6 at Bowleaze on 27 Apr., a small party after dusk near Wimborne on 12 May, and at Portland Bill reported over the period 6 Apr. to 20 May, with 7 on 15 Apr.

133. Lapwing

Breeding season reports from Sherborne, Branscombe, High Stoy, Holnest, Batcombe, Compton Valence (4 eggs on 30 May), Burton Bradstock (but not at Bexington this year), Herbury Gore (3 young on 13 May) and Langton Herring (2 or 3 prs.), Arne, and Witchampton. Flocking reported in Jun. at Batcombe, Buckland Newton, and Chesil Beach (up to 80, with interesting evidence of moulting, on 26 Jun.), and as many as 750 at Corfe Mullen on 13 Jul. Winter flocks widespread on farmland and wetland, but not very large (*ca.* 700 Lodmoor on 21 Jan.) and no outstanding cold weather movements, although 200 and 350 were noted at Portland Bill on 1 and 2 Dec.

134. Ringed Plover

Breeding status apparently little changed from 1972. A survey of the Chesil Bank on 2 Jul. located 75 pairs, and 7 individuals; as some had well-grown young as early as mid-May, the breeding population was probably somewhat greater than was found in the July census. Again no successful breeding reported from Poole Harbour; of 2 nests on Studland Beach, the eggs of 1 were destroyed by a beach ball impact, and the eggs of the other disappeared. Modification of the habitat on the nature reserve shore at Brownsea (by shingle dumping at a selected site, since experience shows this species favours such places) might enable this species to breed successfully in East Dorset. Passage peaks noted in Aug., of 300 at Ferrybridge, 27 at Weston, 80 at Kimmeridge, 40 at Radipole, 22 on Brownsea, and 39 at Arne; and in September at Langton Herring (20) and Sutton Bingham (7). Winter concentrations in the Fleet, with 200 on 17 Nov. and, 100 on 21 Dec. and in Jan.; and in Poole Harbour, where maxima were 36 at Shore Road on 4 Feb., at least 50 in Brands Bay on 21 Nov. and over 40 in Shell Bay in Dec. At Portland Bill, 4 in spring, and 91 records from 7 Jul. to 14 Oct., with 27 on 19 Aug.

135. Little Ringed Plover

Spring records from Langton Herring on 16 and 27 Apr. (GW), and Lodmoor on 27 Apr. (CER). One on Radipole on 31 Jul. (G. Liljedahl, CER) and 1 on 16 Aug. at Ferrybridge (CER).

139. Grey Plover

An estimate of at least 50 on Shell Bay (GW) was the highest total in the first winter period in Poole Harbour, but a count of 105 on Brownsea on 14 Dec. was exceptionally large. Other maxima in Poole Harbour were 45 at Arne in Dec. and 35 by Shore Road in Dec. A few reports from Holton, Ower and Brands Bay. Largest numbers around the Fleet at the Bridging Camp, where 48 on 21 Jan. and "50-55" in late Dec. At Ferrybridge 12 on 22 Jan. and 22 Dec., 1 on 2 May and 31 Jul., and then several from 10 Sep. to end of year. A maximum of 12 at Langton Herring on 25 Sep. Single birds at Lodmoor on 1 May, central Fleet on 9 Jun. and Radipole on 4 Oct. Portland Bill had 2 records in May, with autumn passage in late Aug. (2, 1 and 3 birds on 3 dates), 1 twice in Sep., and 2 E. on 26 Oct., and the call of this species was heard at night on 7-8 Oct.

140. Golden Plover

At Maiden Castle 400 in Jan. and Feb., 300 on 14 Apr., 50 on 26 Sep., 450 on 2 Nov., and 350 in Dec. At Horton crossroads 250 in Jan. and Mar., with *ca.* 800 (TH) in Nov. and Dec. Other concentrations: 47 at Ackling Dyke on 2 Nov.; 60 at Henstridge airfield in Nov. and Dec.; up to 100 in Feb., 28 in Jan., and 40 in Dec. at Compton Valence, and 44 in Feb. at nearby Frome Vauchurch; 300 at Marnhull in Dec. and 80 at Rodden on 2 Dec. A few records from other localities; at Portland Bill 2 Feb. records, and 1 heard in Apr.; in autumn 3 singles in Aug., then 14, 4, 30, 1 and 8 on 5 Sep. dates and 1 occasionally from 30 Sep. to 29 Nov.; up to 6 in cold weather on 1 and 2 Dec.

142. Dotterel

At Portland Bill, 2 on 23 Aug., 3 on 24 and 25 Aug., and 1 on 26 and 27 Aug.; records of singles flying S. over the Chesil Beach on 25 Aug. (DCM) and over Weston, Portland on 12 Sep. (GW) may refer to wanderings of these same individuals.

143. Turnstone

A maximum of 25 in the mid-Fleet area on 6 May, up to 12 at Ferrybridge in the first winter period, and up to 18 on 8 Nov. in the eastern Fleet. Some evidence of passage there with 14 at Ferrybridge on 7 Aug., a maximum of 4 at Langton Herring on 9 Aug., with 1 there in Jun. and 2 in Jul. At Portland up to 4 in Apr., with autumn passage from 25 Jul. to 4 Sep., 6 on 7 Aug. In Poole Harbour, the largest flock was 28 on 28 Dec. in Shell Bay, and 22 were there on 18 Feb. Up to 5 in Dec. at Patchins Point, where absent only in Jun. and Jul., and up to 9 at Shore Road in Sep. Singles at Arne and Poole Park, 3 at Holton on 26 Jul., and 1 at Kimmeridge on 28 Aug.

145. Snipe

That there was only 1 breeding record, from Witchampton where several pairs were present in late May, perhaps epitomizes the dry summer. Winter concentrations at Woodsford (*ca.* 100), Wareham (*ca.* 100), Ridge (*ca.* 100), Sherborne (50), Wimborne Stour (73), Canford (50), Cranborne cressbeds (34), up to 80 at Lodmoor in Jan. and Feb. and 70 in Dec., Corfe Common (38) and Radipole (50). Other winter records from at least 25 localities. At Portland, 3 singles in Apr. and records of 1 or 2 from 25 Jul. to 2 Dec., with 4 on 1 Oct.

147. Jack Snipe

In the first winter period reports from a stream near Corfe Mullen, Lodmoor, Ferrybridge, Worth Matravers, Fleet Bridging Camp and Herbury; in Oct. from Ferrybridge; and in Nov. and Dec. from Lodmoor (3 on 8 Dec.), Gillingham clay pits, Dorchester, Fleet Bridging Camp, Radipole (1 in Sep., Oct and Dec.), and Sydling St. Nicholas.

148. Woodcock

Roding, or presence in the breeding season, reported from Tarrant Rushton, Horton, Woodlands (Cranborne), Uddens, Brownsea (5 pairs), Buckland Newton, and Melbury Bubb, but no summer records at Delcombe this year. Winter reports from Studland in Jan. and Mar. (2); N. Weymouth in Feb.; and in the second winter period from Compton Valence (Dec. and Oct.), Langton Herring, High Stoy, Brownsea, Canford, Arne, Worth Matravers, Lydlinch, Studland, and the RFA vessel *Resurgent* in Portland (on 30 Nov.).

150. Curlew

Presence in Apr. and May at Whitcombe Vale, Tadnoll, and Buckland Newton, suggests breeding activity in these areas. In Newton Bay 9 on 4 Apr. and 7 on 9 May raise the possibility of breeding on the S. side of Poole Harbour, but these may have been summering non-breeders, as may 3 at Arne in May and 1 at Holton on 29 May. An increase in Poole Harbour just after the breeding season was, as usual, quite noticeable; in Jun. the Arne maximum was 120, and there were 70 at Holton on 25 Jun. Poole Harbour count maxima of 657 in Feb., and 658 in Nov., were about 150 lower than in 1972; there were 350 at Arne in Dec., and 250 in a field adjacent to Brands Bay in Feb. Very few recorded around the Fleet; the maximum was 6 at Langton Herring on 29 Apr. At Portland, 3 singles in winter; spring passage comprised 19 sightings, with 9 on 29 Apr., mostly moving E.; and autumn passage totalled 29 sightings between 10 Jul. and 3 Nov. Elsewhere 3 at Lodmoor on 28 Aug. and 1 Sep., and singles in Mar., Apr. and Jun.; 2 at Radipole on 27 Oct., and 1 in Dec.; 1 at West Bexington on 3 May, 20 at Corfe Castle on 20 Jan.; up to 10 by the Corfe Mullen Stour in winter and 2 at Cowgrove, Wimborne on 2 Dec.

151. Whimbrel

No winter records this year. At Arne, spring passage noted from 16 Apr. to 24 May, and birds flying over in the evening between 21 Apr. and 12 May totalled 473 in Apr. and 2,020 in May, with 356 on 6 May; autumn passage covered 19 Jul. to 13 Sep. Spring passage at Portland from 11 Apr. to 5 May, 72 E., 11 W., and 6 N., with 32 on 4 May and 20 on 22 Apr.; and autumn passage there was from 18 Jul. to 7 Sep., with 7 W. on 18 Aug., and otherwise 1 to 3 birds on 21 dates. Spring reports from West Bexington, Weymouth, Lodmoor, Herbury, Ferrybridge, Radipole, Langton Herring, Owermoigne, Studland, Holton, Poole Harbour and Swanage; and in autumn from Burton Mere, Ferrybridge, mid-Fleet, Langton Herring, Studland, Poole Harbour and East Creech.

154. Black-tailed Godwit

The wildfowl count data for Poole Harbour, and maxima from Arne were as follows:

Poole: Jan. 530; Feb. 699; Mar. 112; Apr. 360; May 0; Jun. 0; Jul. 0; Aug. 98; Sep. 164; Oct. 412; Nov. 364; Dec. 380.

Arne: Jan. 60; Feb. 5; Mar. 700; Apr. 500; May 21; Jun. 30; Jul. 51; Aug. 65; Sep. 80; Oct. 57; Nov. 200; Dec. 250.

These indicate a rather larger wintering population than usual in the first winter period, comparable with the normal early-spring migratory influx. Other places frequented by the Poole Harbour flock were Ower (500 on 16 Apr. and 300 on 28 Dec.), Cleavel (350 on 26 Jan.), Brownsea (420 on 20 Jan.), Holton (412 on 4 Oct.), and Stoborough (98 on 26 Dec.). At Radipole, 3 in Mar. and singles in Jul. and Aug.; 2 at Langton Herring on 18 Mar., and on 18 Aug. a single there.

155. Bar-tailed Godwit

In Poole Harbour a maximum of 105 in Feb. (37 Shore Road, 68 Brownsea), and 86 in Dec. (68 Shore Road, 18 Shipstal); 47 at Shore Road on 19 Jan. and 9 in Newton Bay on 29 Dec. At Arne absent from Jan. to Mar., but a peak of 30 on 3 May, 1 to 3 in Jun. and 1 to 2 in Jul., but 5 on 17 Jul.; not more than 5 in Aug. to Dec. Migrants at Portland: 110 W. in line abreast on 18 Aug., and 3 E. on 13 Oct.; 18 and 30 E. on 23 and 24 Apr. over Portland Harbour; 3 N.W. at Chesil Cove on 20 Apr.; *ca.* 70 off the Chesil on 26 Apr.; 18 at Ferrybridge on 24 Apr.; and 13 and 34 at Langton Herring on 20 and 27 Apr. A few at Langton Herring, Ferrybridge and Radipole in autumn, and 4 at East Fleet on 28 Dec.

156. Green Sandpiper

In the first winter period, reported from Stalbridge, Tincleton, Waddock Cross, Bere Regis, and Cranborne (usually at watercress beds); and in the second from Stalbridge, Bagber (R. Lydden), and Sydling St. Nicholas. Passage reports from 25 Jun. to 14 Sep., from Arne, where 5 on 29 Jul. and 6 on 14, 15 and 20 Aug.; and within this period from Sutton Bingham, Stalbridge (2), Hammoon, Corfe Mullen, Turnerspuddle, Bere Regis, Stoborough, Langton Herring, Lodmoor, Radipole, Wolverton, Bagber, Wynford Eagle and Brands Bay. Spring records from Cranborne (23 Apr.), Compton Valence (2 on 10 May), and Bere (2 on 14 Apr.).

157. Wood Sandpiper

Autumn passage reports from Langton Herring, 2 on various dates from 29 Jul. to 14 Aug., 3 on 11 Aug., and 1 up to 25 Sep. At Radipole occasional singles from 28 Jul. to 9 Sep. Otherwise singles at Lodmoor on 1 Sep., Portland Bill on 19 Aug. and Weston on 29 Jul., and Bere Farm on 10 Sep.

159. Common Sandpiper

In spring recorded at Langton Herring between 19 Apr. and 20 May, also 3 at Lodmoor from 28 to 12 May (CER); Wimborne on 4 May; Portland Harbour in Apr. on 20th (2) and 26th, and on 5 May; 2 at North Portland on 17 May, 2 at Sherborne on 1 and 5 May. At Portland Bill 1 to 5 on 17 dates between 15 Apr. and 15 May, with 5 on 15 and 21 Apr. Widespread return passage records, beginning with 4 at East Fleet on 29 Jun. Largest numbers were at Langton Herring (11 on 29 Jul.), Radipole (5 on 13 Jul.), Sutton Bingham (up to 10), Portland Bill (9 on 4 and 6 Jul., 10 on 18 Jul. and 5 on 24 Aug.), Arne (12 on 3 Aug.), Eype (4 on 8 Jul.), and Abbotsbury Beach (6 on 23 Aug). Winter records from Newton's Cove and the Nothe (30 Oct. to end of Dec, up to 3 birds), Balaclava Bay, Portland, West Lulworth (1 on 23 Nov.), and Brownsea.

161. Redshank

Breeding records from Witchampton (*ca.* 8, with 4 eggs in 1 nest, on 26/27 May); Brands Bay, Studland; Wimborne up Monkton and the Chesil Beach. Probably 12 pairs along the Chesil. *ca.* 80 at Herbury on 31 Mar. and *ca.* 70 in the Fleet on 29 Jun. Very large winter totals for Poole Harbour of 1,317 in Feb. (largest since 1,361 counted in Oct. 1969) and 927 in Nov; biggest flocks were 445 in Jan. and 495 in Dec. at Fitzworth, 400 at Arne in Feb., 309 at Holton in Nov. and 320 in Holes Bay in Jan. Up to 3 on Lodmoor, where 1 on 8 Apr. and 2 on 30 Jun. (but no mention of breeding), and up to 4 at Radipole. Other records in autumn and winter from Cranborne, Wimborne, Sherborne, Cashmoor, Hounstout Beach and Ferrybridge. At Portland Bill, 1 on 21, 22 and 24 Apr.; return passage 23 Jun. to 13 Oct., with 73 sightings, peaks of 21 on 29 Jul., 5 on 8 and 9 Aug., and 6 on 23 Aug. and 7 Sep., the majority going W. In winter, 2 records of 2 and 1 in Dec.

162. Spotted Redshank

At Arne, where absent only from 20 May to 18 Jun., monthly maxima were:— Jan. 12; Feb. 7; Mar. 1; Apr. 4; May 35; Jun. 30; Jul. 53; Aug. 54; Sep. 90; Oct. 90; Nov. 40; Dec. 7.

Otherwise, 1 N.W. at Littlesea on 16 Sep.; 2 at Morden Bog on 26 Aug.; Portland Bill, 1 on 30 Jul. and 26 Aug., 1 at Weston on 25 Sep.; 2 at Langton Herring on 9 Sep. and 1 on 11 Aug. and 13 and 25 Sep., 1 on Chesil Beach on 2 Jul.; 1 at Radipole from 16 to 25 Jun., and 1 to 4 from 29 Aug. to 14 Sep., with 6 on 31 Aug. In the north, 1 at Sherborne on 23 Sep., at Sutton Bingham 1 on 16 Sep. and 21 Aug., and 3 on 4 Mar.

165. Greenshank

Monthly maxima from the principle haunts as follows:

S.E. Arne: Jan. 0; Feb. 1; Mar. 1; Apr. 1; May 0; Jun. 0; Jul. 13; Aug. 9; Sep. 8; Oct. 7; Nov. 0; Dec. 1.

N. Arne: Jan. 0; Feb. 0; Mar. 0; Apr. 0; May 0; Jun. 0; Jul. 5; Aug. 19; Sep. 5; Oct. 0; Nov. 0; Dec. 0.

Brownsea: Jan. 0; Feb. 0; Mar. 0; Apr. 0; May 0; Jun. 0; Jul. 0; Aug. 2; Sep. 4; Oct. 0; Nov. 1; Dec. 3.

Fitzworth: Jan. 0; Feb. 0; Mar. 0; Apr. 0; May 0; Jun. 0; Jul. 0; Aug. 20; Sep. 0; Oct. 12; Nov. 0; Dec. 5.

Radipole: Jan. 0; Feb. 0; Mar. 0; Apr. 0; May 1; Jun. 0; Jul. 0; Aug. 1; Sep. 6; Oct. 14; Nov. 15; Dec. 0.

Lodmoor: Jan. 0; Feb. 0; Mar. 0; Apr. 3; May 0; Jun. 1; Jul. 0; Aug. 2; Sep. 0; Oct. 0; Nov. 0; Dec. 0.
Ferrybridge: Jan. 6; Feb. 0; Mar. 0; Apr. 0; May 0; Jun. 0; Jul. 0; Aug. 1; Sep. 1; Oct. 11; Nov. 6; Dec. 4.
East Fleet: Jan. 0; Feb. 5; Mar. 0; Apr. 0; May 0; Jun. 0; Jul. 0; Aug. 0; Sep. 0; Oct. 15; Nov. 10; Dec. 9.
Mid-Fleet: Jan. 6; Feb. 6; Mar. 6; Apr. 1; May 0; Jun. 2; Jul. 9; Aug. 8; Sep. 2; Oct. 0; Nov. 0; Dec. 10.

Other records from Studland peninsula, 1 in Aug., Sep. and Nov., 2 in Jul. and Oct.; Lytchett Bay, 5 on 11 Aug. and 1 on 26 Aug. and 16 Sep.; Holton, 3 on 8 Oct.; 1 at Wareham in Jan.; 1 at Corfe Mullen in Sep. and Oct.; 1 at Wimborne in Nov. and Dec.; 1 at Chapmans Pool on 12 Aug.; 1 at Gillingham and Sherborne in Aug.; and Abbotsbury had 4 on 2 Apr. and 1 on 29 Aug. At Portland 1 on 28 Apr., 1 on 27 Jul. and up to 4 in Aug., calls at night on 4/5 Sep., and 1 on 5 Sep.

169. Knot

Most reports were of small numbers on passage in autumn, maxima were 12 on 31 Aug. and 8 on 26 Sep. at Langton Herring, at Ferrybridge present from 9 Aug. with 8 on 31 Aug. and 1 still present in Oct. and Nov., 15 at Portland Bill on 31 Aug. and 4 on 13 Oct., at Brownsea 5 on 16 Aug. and 15 Sep., 12 on 15 Oct., and at Kimmeridge 5 on 28 Aug. and 6 on 2 Sep. Spring records from Ferrybridge, 4 on 6 Apr. and 1 on 20 May, 1 at Langton Herring on 31 May, 9 flew in at Portland Bill on 3 May and 1 was present on 19 May. In winter, a single bird at Langton Herring on 24 Nov., 2 at Shell Bay on 20 Jan. and 2 at Ferrybridge on 21 Jan.; 26 at Shipstal Pt. on 18 Oct. and at Arne 21, 5, 6 and 10 on 8, 11, 13 and 22 Dec.

170. Purple Sandpiper

At Portland Bill present in every month except Jun., with 1 on 6 and 14 Jul., exceptionally early; monthly maxima were: Jan. 9; Feb. 6; Mar. 6; Apr. 14; May 7; Jun. 0; Jul 1; Aug. 2; Sep. 2; Oct. 7; Nov. 11; Dec. 13.

Elsewhere, up to 4 in Jan. at The Nothe and 2 in late Feb. and early Mar., and up to 4 in Dec.; 1 at Ferrybridge on 1 Jan., and 1 by Portland Harbour in Jan., 24 Nov. and late Dec.; 1 at Lyme Regis on 13 Nov. and 12 in Mar.; 2 at Kimmeridge on 1 Jan. and 25 Feb., and up to 3 in Nov. and Dec.; and 1 at Peveril Pt. on 3 Mar.

171. Little Stint

Up to 37 at Langton Herring on 23 Sep. were an almost unprecented number (31 at East Fleet in 1951); 5 there on 29 Jul., 15 on 29 Aug., still 15 on 29 Sep. and 5 on 7 Oct. and 1 on 21 Oct. At Herbury Gore 1 on 7 Jun., at Ferrybridge 1 on 30 Aug. and 28 Sep. Reported at Radipole from 9 Aug. with 2 on 10 Sep. and 29 Sep., 3 from 30 Sep. to 2 Oct., then 1 recorded on 29, 30 and 31 Oct. Another late bird photographed at Sutton Bingham on 21 Oct., and 1 at Kimmeridge on 18 Nov.

178. Dunlin

Larger numbers wintering in Poole Harbour this year, Wildfowl Count maxima of 3,147 in Feb. and 2,450 in Nov. Up to 3,000 reported from Shore Road in Jan. (PRK) and 2,000 in Feb. (DJG), 2,000 at Arne on 1 Dec. (GW), and 1,100 on 18 Dec. (BPP), 1,800 at Shell Bay on 18 Feb. (KMG), 1,200 at Brownsea on 28 Nov. (AJW) and 1,000 at Holton in early Dec. Around the Fleet, 380 at Ferrybridge on 13 Jan. and up to 300 in Feb., a noticeable peak in spring with 1,000 at Langton Herring on 27 Apr. (GW), and up to 450 at Ferrybridge and 1,000 at Littlesea (Fleet) (RAF) in Dec. A few summer reports: 100 at Langton Herring on 10 Jun., 28 at Ferrybridge on 11 Jun., 1 by Harbour on 10 Jun. and 12 Jul., 6 on the Chesil on 2 Jul., and 2 at Arne in Jul. At Portland no records till spring passage 15 Apr.-29 May, with 84 sightings, 49 E., 25 W., 6 N.; 22 W. on 9 Jun. were "probably Dunlin", 1-4 birds on 13 dates between 29 Jul. and 10 Sep., and a further 48 birds over the period 5 Oct. to 1 Dec., 10 and 12 in Oct. and 20 on 2 Nov.

179. Curlew Sandpiper

At Radipole and Ferrybridge up to 3 and 2 respectively between 28 Aug. and 11 Sep., and at the former up to 3 from 28 Sep. to 2 Oct.; at Langton Herring up to 4 from 2 to 9 Sep., and 2 from 23 to 26 Sep. On Brownsea, 3 on 29 Aug. and 8 Sep., and at Kimmeridge 1 on 1 and 2 Sep. feeding with other waders. Off Portland Bill, 1 with 4 Dunlins on 21 Aug., 1 on the East Cliffs on 16-17 Sep., and 1 at Chesil Cove on 8 Sep.

181. Sanderling

The usual spring passage began with 4 at Ferrybridge on 20 Apr., rising to 14 on 25 Apr.; after 7 on 3 May no reports there until 38 on 13 May, rising to 50 on 15th, with 15 still there on 26 May and 1 on 11 Jun. Reports from Langton Herring roughly contemporaneous, with 4 on 26 Apr. and estimates of 100 and 40 on 13 and 14 May. At Radipole 2 on 11 May, at Arne 10 on 24 May and 2 on 3 Jun.; at Portland Bill 1 on 4 May. Return passage began with 7 at Ferrybridge on 21 Jul., but only up to 5 there in Aug. and 2 at Langton Herring. Shell Bay had 6 on 16 Sep., and 7 on 14 Oct.; up to 4 on Brownsea in Sep. From 23 Sep. to end of year up to 4 at Shell Bay, and 2 at Shore Road, Sandbanks in late Dec.

183. Broad-billed Sandpiper

One at Sutton Bingham on 5 Sep. was the first recorded in Dorset (accepted by the Rare Birds Committee) (A. Bundy, B. J. Mathews and D. E. Paull).

184. Ruff

The maximum count of the Wareham wintering flock was 41 at Ridge Quay and 2 on the Piddle meadows on 28 Jan.; 39 (including 3 white-headed birds) on 21 Jan. on the Stoborough marshes; 31 there on 11 Feb., and 31 again on 26 Dec. (with 3 white-headed birds again); reports of up to 16 on Bestwall fields nearby in Jan. and Feb. An unusual autumn passage at Langton Herring began with a reeve on 29 Jun., followed by a ruff which was entirely black except for a white belly on 11 Jul. On 23 Sep. 3 birds were present, followed on 25 Sep. by up to 19 (mainly males) "following the plough" and feeding on the field after ploughing, and 3 others; still 12 on 7 Oct. and 2 ruffs on 10 Oct. Other reports from Radipole, 1 from 29 Aug. to 5 Sep.; Sutton Bingham, 2 (reeves) on 21 Apr. and 1 on 16 Sep.; Brownsea, 1 on 23 Sep.; 1 male and 2 females at Arne on 23 Sep.; and singles at Kimmeridge on 28 Aug., and Lodmoor and Woodsford on 14 and 24 Sep. respectively.

185. Avocet

On Brownsea 3 from 20 to 27 Mar., 1 in late Jun., then 2 on 20 Nov. rising to 5 on 30 Nov., remaining all winter. Also, 1 flying N.W. from Littlesea on 28 Oct., up to 3 at Arne in Nov. and 2 in Dec., 1 at Goathorn on 2 Dec., and 1 at Holton 7 Dec., all quite probably some of the 5 Brownsea birds. Elsewhere, 1 at Abbotsbury on 22 Jul. and 2 at Langton Herring on 21 Nov.

187. Grey Phalarope

At Portland Bill 1 on sea all day on 13 Oct.

189. Stone Curlew

Present on the Dorset border near Martin Down in May and Jun., and at another site about 2 miles away on 16 Jun.

193. Arctic Skua

A total of 51 spring (49 E., 1 W., 1 not recorded) records from 16 Apr. to 13 May at Portland Bill, peaks, 7 on 3 May, 6 on 6 May, 1-4 birds on 17 other dates. Summer records number 5 and for the autumn a total of 32 seen from 23 Aug. to 10 Nov.; 1-3 birds on 23 dates, no real passage peaks (7 in Aug., 18 in Sep., 6 in Oct., 1 in Nov.).

A passage of 43 was also noted off Chesil Cove between 30 Apr. and 2 Jun.; other records included 2 at Radipole on 29 Apr. and at St. Aldhelm's Head 1 on 29 Apr., 9 Jun. and 2 Sep.

Unidentified small Skuas at Portland included 3 spring and 10 autumn records.

194 Great Skua

On 24 Apr. 7 were seen chasing gulls 4 miles south of St. Aldhelm's Head. On 7 Apr. a "probable" off Portland west cliffs, and on 22 1 flew S.W. over Portland Harbour. At Portland Bill an average spring passage consisted of 13 sightings (11 E., 2 W.), from 5 Apr. to 27 May. In autumn 9 between 3 Aug. and 4 Nov. 3 on 12 Oct. and 6 singles.

Additionally singles were seen from a ship off the Bill on 26 Sep. and 16 Nov.

195 Pomarine Skua

Off Portland Bill, another good spring passage — complete records were as follows:— 1 on 24 Apr., 4 on 4 May, 15 on 9 May and 2 on 13 May all flying E. Also 3 "probables" in May.

During the autumn, 1 hunting off shore on 10 Jul., 1 W. 28 Aug., 1 found freshly dead in a quarry near Southwell on 15 Oct., 1 E. on 19 Oct., 3 W. 22 Oct. and 4 E. on 10 Nov.

Off Chesil Cove 1 on 30 Apr., 10 on 23 May and 17 other "probables" between 4 May and 2 Jun.

Off St. Aldhelm's Head 1 pale phase bird on 29 Apr.

198. Great Black-backed Gull

Five pairs nested on Brownsea. Mostly small numbers reported, the main peaks being as follows:— up to 200 on the Portland Harbour Breakwater on 21 Sep. and approx. 250 on 23 Dec. *c.* 30 at Radipole 19 Oct. At Portland Bill a peak of 47 on 22 Apr. and 49 on 24 Apr. Visual passage Mar-May, 137 flew E., 247 W., 3 in S. to N. Autumn, 40 flew W. as early as 22 Jul. Erratic numbers subsequently, peaks of 70 on 26 Aug., 87 on 1 Sep., 100 on 25 Nov., 50 on 3 Dec. Visual movements, Jul.-Nov. gave totals of 572 E., 1,091 W., 73 out to S.

199. Lesser Black-backed Gull

2-3 pairs nested on Brownsea, and a pair stayed in the Verne Herring Gull colony all July.

Present on Littlesea in small numbers, 1-3 in most months, with a small increase in Oct., at least 25 Studland Bay 12 Oct. At Arne still a very rare bird, the only records being 1 on 15 and 5 on 16 Apr., 1 on 30 Jul.

5 ads. on Furzey Island 14 Jan. Portland Harbour/Ferrybridge 14 on 5 Aug., 10 on 14 Sep., 12 on 12 Oct. Radipole Lake 10 on 1 Apr., 12 or 13 on 5 May.

At Portland spring visual movements were 37 E., 84 W., 2 in S. to N., seen every month in small numbers, 1-4 birds, with peaks of 20 on 18 Apr. and 17 on 21st. 1-10 on many other dates. 1-5 birds first 10 days of May but then 1 or 2 only until 28 Jun., 4 ads. Autumn up to 9 latter part of Jul., 33 on 18 Aug. up to 20 on several dates. 36 on 3 Sep. 15-16 birds on 13-14 Oct. 9 on 3 Dec.

200 Herring Gull

On Brownsea *c.* 450 pairs nested on the reserve, the numbers for the rest of the Island are unknown. Nesting continues on a factory roof in Wyke Regis, but the numbers of pairs is uncertain. The gullery on the Verne Citadel was watched regularly during the summer and an estimated 150 young were reared.

Peaks at Littlesea 124 on 4 Mar. and 151 on 18 Nov.

201. Common Gull

Visual passage at Portland Bill — Spring 339 E.; 189 W.; 5 in N. The new Southwell Sewer revealed fluctuations indicating passage, 55 there on 9 Apr., 47 on 13th, 50 on 27 Apr.

Autumn, first 4 on 8 Jul., 1-4 regularly to 10 Aug., then 10 single birds recorded only until 2 on 30 Sep. and steadily increasing numbers in Oct. up to 35 off the Bill and isolated peak of 250 at Southwell Sewer on 26 Oct. 51 on 2 Nov., then under 20 except for 102 W. on 15 Dec. and 80 on 28 Dec.

Other peaks were noted at Langton Herring 300+ on 24 Feb. and "hundreds" in Weymouth Bay on 3 Feb. and 3 Mar., also at Radipole. Up to 300 on the Fleet 8 Apr., at Hermitage present throughout Dec. usually over 100 coming predominantly from the S.E. each morning.

205. Mediterranean Gull

Portland/Ferrybridge 1 "almost adult" 13-21 Jan., an ad. on 6 and 28 Aug., on 27 Oct., on 11 Nov., and on 9 Dec. and probably the same ad. at Balaclava Bay 13-23 Dec. and East Fleet on 28 Dec. (CER, DCM, DJF).

Other records were at Radipole 1 sub-ad. on 17 Mar., 1 ad. in summer plumage on 20 Mar. 1 ad. Weymouth on 3 Mar., 1 sub-ad. flew E. off Portland Bill on 3 May, and at Radipole 1 ad. on 3 Oct. (DNA, RAF, DJF).

207. Little Gull

Seen during every month of the year. 1 Poole Harbour 6 Jan., at Portland Harbour/Ferrybridge 1 ad. on 2 Jan. and an imm. from Jan.-Mar., approx. 8 different birds recorded from 6 Aug. to end of Dec.

At Radipole an ad. on 27 Feb. and in Mar. and Apr. an ad. and imm. were seen, 2 in May and 3 on 4 Jun. From 1-20 Jul. 1 ad. + juv. were present. Up to 8 different birds in Aug. and Sep. An ad. in Oct. and 1 ad. and 1st year bird in Nov. and 1st year in Dec.

Off Chesil Beach 1 ad. flew S.W. on 23 Mar. and an imm. on 27 Apr., and on 21 Oct. At Langton Herring an imm. on 13 May and 2 the next day, 1 ad. and 1 juv. off Abbotsbury on 4 Nov. On 1 Oct. 1 hawking for insects with many Black-headed Gulls over fields W. of Kimmeridge.

On Brownsea Is. 1 imm. on the lagoon on 24 and 31 May and 1 ad. and 1 imm. on 15 Aug. Two records for Littlesea this year, imm. on four dates in May, and an adult on 25 Aug., possibly the same bird that visited Brownsea.

At Portland Bill singles on 15 Apr. and 17 Apr. 2 flew E. on 4 May, 1 imm. E. 6 Aug., 4 juv. E. 22 Aug., 1 E. 29 Aug. 1 ad. W. 7 Sep., 2 E. 16 Sep., 1 imm. 13 Oct., 1 E., 18 Nov. and 1 E. 2 Dec.

208. Black-headed Gull

On Brownsea 63 prs. nested. On the Wood Bar Islands in Poole Harbour up to 3 men were seen collecting eggs on 4 dates in May.

1,000 birds at Radipole on 10 Feb. and on 6 Aug. an estimated 2,000-3,000. Up to 500 in the Fleet on 19 Apr., and at Langton Herring 250+ imms. on 14 May, and approx. 200 on Portland east coast on 9 Jul. At least 350 E. of Kimmeridge Bay on 29 Aug.

At Portland as usual, very variable in regularity and numbers. Spring visual movements:— 21 E.; 35 W.; 5 N. Rising in numbers in Jul.-Sep. period with Southwell Sewer peaks of over 50 on 17 and 26 Jul.; 62 on 9 Aug. 87 off the Bill on 30 Sep. 123 on 7 Oct. and 257 on 14 Oct., and at Southwell Sewer 66 on 1 and 14 Oct., 80 on 27, 62 on 31 Oct. and 63 on 1 Nov. Visual movements Jul.-Nov. 822 E.; 510 W.; 1 N.

At Arne seen throughout the year, as in previous winters many thousands gather in Wareham Channel before dusk before moving on.

211. Kittiwake

On a boat trip round the Purbeck Cliffs in mid-Jun. a 36% increase in the numbers of pairs noted near Seacombe and St. Aldhelm's Head. 190 pairs counted in Purbeck and Portland West Cliff colonies *c.* 145 nests. 7 first returned to their breeding ledges on 2 Feb. and 22 on 20 Feb. 3 young were still at nests on 16 Aug.

Present off Portland shore sporadically, 150 on 11 Jan., 100 on 12th, and 120 on 13 Jan. Numbers declining sharply in Sep., few in Oct. except 22nd when 724 flew W. Thereafter the usual winter pattern of erratic movements, mostly E. e.g. 72 on 3 Nov., 265 on 4 Nov., 105 on 10th and 130 on 21 Dec.

1 ad. on Littlesea on 20 May (unusual here), and off the Chesil, approx. 100 on 2 Jun.

212. Black Tern

The first one was seen off Chesil Cove on 30 Apr., and another there on 28 May. On 3 May off Portland Bill, 150 flew E. (1 in an a.m. flock of 129 together and other smaller flocks in the evening). On 26 May, 4 E. and on 26 Jun. 8 E. Subsequently singles only, on 28 Jun., in Jul. (2), Aug. (2) and Sep. (1).

On 28 May 2 E. over Portland Harbour. At Radipole 3 on 3 May and 1 on 29 Aug. and during Sep. 3 on 3rd and 6th, 5+ on 7th and 8th, and 2 on many dates until 26 Sep. At Arne the only record was 2 on 26 Jul. One bird present on Brownsea Island during Sep., 1 flew over Littlesea on 25 Sep. and 1 on 30th, and 2 on 7 Oct.

On 5 Oct. 1 in Poole Park, and at Langton Herring 1 on 8 and 25 Sep.

217. Common Tern

An estimated 58 pairs on Brownsea, but very few young were reared.

Scrape and display noted nr. Wimborne in early May, but this was later submerged by flooding. On the Chesil Beach about 130 on 29 Jun. First seen at Abbotsbury on 7 Apr., and at Langton Herring there were approx. 55 on 29 Apr.

At Arne numbers were small, the largest gathering being 20+ on 21 Aug. (see also under C/A Tern).

218. Arctic Tern

2 pairs on the Chesil Beach on 29 Jun. The few specifically identified were as follows:— Portland Bill 1 on 4 May, and 2 on 1 Aug., and a total of 12 on 6 dates in Aug., and 1 on 29 Sep. Ferrybridge, 1 on 6 Aug. (see also under C/A Tern).

217/218. C/A Tern

Over Portland Harbour on 23 Apr., 24 flew E., and between 24 Apr. and 5 May *ca.* 270 flew S. off Chesil Cove (on 4 days).

At Portland Bill there were *c.* 640 sightings (535 E.) on the spring passage, peaks being 147 on 24 Apr. (plus 106 "Tern sp." far out), 97 on 27 Apr., and 133 on 3 May. Regular off shore in Jun. and Jul. (160 on 28 Jun., exceptional). *c.* 400 autumn sightings, Aug. to 14 Oct. and a late single on 26 Oct.

219. Roseate Tern

At Langton Herring 6 on 23 Apr. On Brownsea 1 in full summer plumage on 24 May, and 1 off the Chesil on 29 May. 1 flew W. off Portland Bill on 22 Jul.

222. Little Tern

130 estimated on the Chesil Beach on 29 Jun., but whether any young were raised is not known. Very scarce in spring at Arne. First recorded at Ferrybridge, 2 on 19 Apr. and 30 at Langton Herring on 27 Apr. During May 6 on 1st, Holton Shore, 21 on 2nd at Lodmoor.

In autumn at Arne first noted on 27 Jul., and then fairly regularly until 9 Sept. Max. counts, 40+ on 13 Aug. and 30+ on 24th. Almost all were adults, only 2 were imms. on 13 Aug. Last seen at Ferrybridge 1 on 28 Sep.

223. Sandwich Tern

On Brownsea *c.* 23 pairs raised *c.* 25 young. First recorded 1 on 22 Mar. Sandbanks Ferry. A total of 240 sightings (167 E.; 52 W.; 2 N.) from Portland Bill during the spring. Visual movements 6 Jul.-16 Oct. 99 E.; 148 W. Small movements also noted off Chesil Cove. 2 Swanage Bay on 5 May; at Arne numbers usually small but 25 on 14 May and 30+ on 17 Sep. Two late records, 1 Weymouth Bay 24 Oct. and 1 near Sandbanks on 30 Oct.

224. Razorbill

During a boat trip round the Purbeck Cliffs 16 birds were seen in mid-Jun. At Portland about 12 breeding pairs. First noted on the breeding ledges 3 on 18 Feb. Up to 24 birds Mar. to Jun. Only 2 sightings in Aug. rising to 24 in Sep. and 166 in Oct. (58 on 13th, 31 on 12th, 26 on 14th), visual movements: 148 E.; 35 W. Regular amongst Auk flocks Nov.-Feb.

Small numbers seen in Portland and Poole Harbours.

226. Little Auk

4 together flew E. with other auks on 12 Oct. at Portland Bill

227. Guillemot

About 40 breeding pairs at Portland Bill, visiting ledges apparently in winter, up to 30 in Jan., 72 in Feb. 1 pr. with juv. on sea 7 Aug.

On the Purbeck Ornithological Group's boat trip, 500 were seen in mid-Jun.

At Portland visual autumn movements, 57 E.; 24 W. A summer plummaged bird was on the ledges on 3 Dec.

224/227. Razorbill or Guillemot

At Portland Bill winter gatherings at peaks on 6 Jan. 650 seen in half an hour, 500 on 11 and 12 Jan. 2,000 on 13 Jan., but no more than 100 later.

Autumn: appreciable numbers from 30 Sep. (48) onwards. 431 on 12 Oct. all flying E., 153 on 1 Nov. Autumn visual totals 1,081 E.; 294 W. Rising numbers in Dec., 200 on 21st, 500 on 31st.

229. Black Guillemot

In Portland Harbour 1 in summer plumage on 21 Jan. and 1 winter-plumaged on 9 Dec.

230. Puffin

39 seen on Purbeck Cliffs and about 6 breeding pairs at Portland where they were seen carrying fish in Jun. and Jul. First recorded on 8 Mar.

232. Stock Dove

This species is still an under-recorded bird. Breeding reported in 8 localities. Large flocks reported from Portland, outside the breeding season, with a maximum of 300 from the end of Oct. to 9 Dec. A flock of 50 on 9 Sep. at Langton Herring.

234. Woodpigeon

Only 7 reporters for this bird. Nesting birds reported to suffer from predators in urban East Dorset. An interesting nest built of fine wire was reported from Compton Valence, and vast flocks decimated rape and turnips at Wynford Eagle. In central Dorset 3 birds on a lawn were observed to lift their wings in turn for a rain wash. A maximum of 28 seen at Portland in Jul., and up to 300 at Langton Herring in Jan.

235. Turtle Dove

Again no breeding reports but birds heard calling in the breeding season at Blagdon Hill, Manor Farm, Cranborne, Studland Heath, Morden Park, and Abbotsbury Gardens. At Portland an early bird on 29 Mar. followed by 100 on 30 Apr. In autumn a max. of 60 on 8 Sep.

— Collared Dove

Evidence of spring arrivals at Portland with max. 13 on 26 Apr. but no autumn build-up of numbers. This species is still spreading among habitations in new areas — Long Bredy, Briantspuddle, Worgret Heath, Gussage All Saints and Brownsea. Reports of flocks at Langton Herring 105, 25 Sep., 39 flying S. at Studland Heath 16 Sep., 36 at Herston 6 Oct. and 20 at Milldown, Blandford in Nov. Does not breed at Compton Valence or Morden!

237. Cuckoo

First appearances came from the Purbeck coast at Worth on 22 Mar. and later 1 flew in off the sea at St. Albans Head on 23 Apr. Other early arrivals at Hammoon 14 Apr., Stalbridge 15 Apr., Corfe Mullen 18 Apr. (a day late here!) and spring passage at Portland 19 Apr. to 30 May; in autumn 1 to 3 birds from 16 Jul. to 1 Oct. Juvenile birds seen in Aug. at Church Knowle, Corfe Mullen, Langton Herring and Studland Heath. Three pairs worked the Arne Reserve and last sighting on 2 Sep. Still a scarce bird in the N.W.

241. Barn Owl

This species is spreading and increasing with over 60 records sent in. However, only 6 nests reported, no doubt many more were not located. Three casualties reported at Charmouth, Sixpenny Handley and at Winterbourne Zelston where the bird was found dead in a hollow tree. Seen in daylight at The Moors, Ridge-Arne Road and at Norden Farm, Corfe Castle. A young bird seen at Coombe Keynes on a field gate at 1100 hrs. and also a juvenile flushed from a hole in an Ash tree at Green Hill Down.

246. Little Owl

Reports suggest that this species is static in its breeding status in the county. Only a few nests found this year but juveniles show that successful breeding took place. Interesting reports of a bird being mobbed by Redpolls and another of a bird seizing a Blue Tit on the ground by an observer's window. At Portland, 1 to 3 birds seen throughout the year.

247. Tawny Owl

At least 27 breeding pairs or nests reported in widespread areas, with a report of 10 pairs breeding in 1 central valley. Local reserves have at least 2 to 3 pairs. A stunned bird found at Portland B.O. was released unharmed after 4 days. One pair bred in a "Kestrel" box in Purbeck and feeding observations were made. Another down-covered juvenile was found and reared successfully on rats.

249. Short-eared Owl

In the east, 1 at Littlesea 21 Oct. and at Arne 1 on 7/8 May. At Portland 1 spring record on 8 Apr. In autumn at least 23 sightings and in Oct., 7 in view at one time. Wyke Regis Coastguard reported 5 in front of his look-out on 16 Oct., may have been the Portland birds. One reported at Langton Herring on 29 Oct.

252. Nightjar

Reports from 13 localities suggest an improved distribution. This year several reports from downland near Whiteways Hill, from Gears Mill, Shaftesbury and from Compton Valence. The heaths were well covered with 7 males at Arne, 5 in Puddletown Forest, and 3 each at Wareham Forest, Brownsea and Thorncombe Woods, and records from heaths S. of Poole Harbour.

255. Swift

No breeding reports sent in but many first-sightings, starting 22 Apr. at Wimborne and the bulk of birds from the first week of May. Departures took place chiefly from 15 Jul. to 24 Aug. at Portland with a late bird on 7 Oct. Large flocks were seen

at Langton Herring, 1,000 on 15 Jul., and up to 500 at Radipole on 14 Jul. First aid, with brandy, was given to a bird picked up injured at Briantspuddle; it revived and flew away happily.

256. Alpine Swift

One bird flew over Portland Bill on 7 Oct. (4th Portland record).

258. Kingfisher

Far fewer breeding reports. Five fledged young seen at Frampton, a nest at Corfe Mullen, and often seen on the R. Stour between Cowgrove and Canford. On the R. Allen, often seen upstream from Walford through Witchampton to Monkton Up Wimborne. A great many winter records from the coast, including Bridport, Langton Herring and Abbotsbury, Ferrybridge, Portland Harbour, Radipole, Lodmoor, Poole Harbour and Park, and autumn records from Wool, Bere Regis and Stalbridge. One bird fished the Portland B.O. Pool, was later caught and ringed.

259. Bee-eater

One flew S. to N. over Lodmoor on 25 Jun. (P. Toynton). Record accepted by R. B. Cttee.

261. Hoopoe

Seen only in the spring. First at Smedmore, 22-23 Mar. (JCM), then Rodwell, Weymouth on 25 Mar. (Mrs. Walker), Bere Regis to Wareham Road on 4 Apr. (AM); singles at Portland Bill on 29 Apr. and 4 May; also 1 at Compton Valence on 4 May (JDP) and at Winfrith Heath on 5 May (Mrs. M. Moxon). Later birds seen at Eype Hill, Bridport on 14 May (Mr. Bennett), at Burton Bradstock on 14 May (HHC) and at Radipole School on 22 May (per DNA). As usual it is impossible to assess how many individuals might have been involved.

262. Green Woodpecker

This species appears to be well established. At least 30 breeding pairs reported and sightings throughout the year from 21 observers. Portland, where it does not breed, had a few autumn records, mostly juveniles.

263. Great Spotted Woodpecker

Reported from 29 localities with 12 breeding pairs. This species is still under observed but it may be slightly on the decline in urban areas. Interesting report of a juvenile that flew into the Public Health Laboratory, Dorchester, stayed 15 minutes and flew out again. Another report of a female feeding a juvenile from a suspended bone in a garden, and another female flying to a crack in a tree with oak apples where they were opened.

264. Lesser Spotted Woodpecker

More numerous reports this year from 14 areas but most cases only reported 1 sex. However, a juvenile was seen at Long Bredy and a pair with young in a dead tree near Minterne. A female or juvenile seen to bathe in a garden pond at Dorchester.

265. Wryneck

Conspicuous by deaths, alas, this year! Portland had 3 birds in Aug. and 2 in Sep., of these 1 was found dead in the road. A second dead bird was found but the corpse too old to be related to the others. In Sep. a dead bird was found in Winterbourne Stickland and another at Corfe Castle flew into a house window and killed itself. Still another dead bird was found at East Knighton and handed into the Museum. Live birds were seen at Portland East Weares 15 Sep. and another bird was seen at Littlesea Shore 16 Sep.

271. Woodlark

Scanty reports this year do not give the true picture. Morden Park and Morden Bog had 2/3 singing males in the breeding season. 2 birds flew over Colehill in Feb. and a singing male heard and seen at Powerstock Common, a new area. Portland reported a bird on 22 Oct.

272. Skylark

This species is certainly under-reported this year. An abundant breeding bird at Portland. At Lodmoor, 14 pairs in breeding season with a map submitted with territorial distribution. Breeding also reported along the Chesil Beach and at Langton Herring and Corfe Mullen River Meadows. Flocks in winter noted at Gussage All Saints 80, and at Portland a maximum of 300 in Dec. Scarce at Arne Reserve at all times.

273. Shore Lark

A bird first seen on Studland Bay dunes on 18 Feb. (KM and DJG) and again on 18 Mar. (DJG, JRC and PGH). One reported by Mr. and Mrs. Moore at Studland 15 Dec., seen again on 29 Dec. (BJF) and on the same day a pair seen at Brownsea Lagoon (AJW). At Portland, 1 on the E. coast on 28 Dec. which was re-discovered in Jan. 1974.

274. Swallow

First arrivals reached the county on 4 Apr. with the chief influx on 15 Apr. Departures included several birds in 5 areas in Nov., the last on 18 Nov. Breeding was very poorly reported upon, only 6 areas. At Portland, the spring passage showed a peak of 500 on 29 Apr. and flocks of 126, 11 May, and 100 on 20 May. In the autumn 700 on 7 Sep. 1,000 on 24 Sep., 300 on 6 Oct. and 150 on 25 Oct. and up to 30 in early Nov. Arne produced a max. of 700 on 25 Aug.

275. Red-rumped Swallow

One at Portland Bill on 29 Jul. (GW, J. A. Lucas). First island record and the second for Dorset. (Accepted by RBC).

276. House Martin

Breeding reported from 7 areas only but a new colony of 3 pairs at Portland Coastguard Cottages at the Bill. At Long Bredy early nests were deserted owing to high winds but birds returned in July to breed. At Lodmoor Car Park birds were seen to feed on insects on the tarmac. Most arrivals were from 15 Apr. to the end of the month; 6 early birds on 1 Apr. at Worth. Peak flocks in the spring were 230 20-24 Apr. at Portland, and in May, 150 at Radipole and 100 at Littlesea. Autumn numbers were higher:— 2,243 at Portland on 30 Sep. which was a massive northward movement off the sea! Arne also had a north-west movement of 500 21-23 Sep.

277. Sand Martin

Breeding only reported from 3 areas: very much under-recorded. 70 pairs at Carey, nr. Wareham, 20 pairs at Henbury Gravel Pits, and a very meagre population near Burton Bradstock. At Arne, numbers on migration were well below average. At Portland small numbers were seen 13 Apr. to 29 May and in autumn a max. of 100 on 7 Sep. Larger flocks of 500 were seen at Lodmoor 8 Sep., and 500 at Radipole on 20 Aug.

279. Raven

Report of only 1 pair breeding in Purbeck, where young were seen in the nest on 13 May. A pair of birds were seen by 3 observers in the White Nothe area in Jul., Oct. and Nov. No breeding at Portland and only 3 other sightings, at Powerstock Common, Studland and Worbarrow Bay.

280. Carrion Crow

Reports sent in give little of value on the county's population. About a dozen nests located but none in the W. At Portland, 2 pairs bred in the N. A bird at Herringston had a white wing-bar and white at the base of its tail. A similar, but not the same bird was seen at Radipole.

281. Hooded Crow

2 birds seen at Abbotsbury Swannery on 22 May — the only record.

282. Rook

Good breeding season reported from 7 rookeries and in some areas new sites established. A flock of 1,300, mixed with Jackdaws was seen flying to a roost on Goathorn Peninsula at 1930 hrs. on 8 Oct. An interesting report of an imm. bird pecking at the rump of an adult hare, it persisted and later a Jackdaw did the same action, whereupon the hare attacked the bird with its forepaws.

283. Jackdaw

Breeding reports were scarce. A bird seen feeding young in a chimney-pot late Jun. at Moonfleet, 1 pair nested at Arne, 3 pairs nested at Green Hill Down, and a large colony at Dogbury Camp, Minterne. Numerous birds on sheep's back at Chapmans Pool noted. Maximum count at Portland B.O. was 200 on 23 Aug.

284. Magpie

Reports indicate that this bird is very common throughout the county and numbers are increasing. Six breeding pairs at Arne Reserve. A flock of *c.* 20 in a field at Halstock were seen on 11 Feb. At Studland Heath a bird was seen being plucked and eaten by a female Sparrowhawk.

286. Jay

Another species that is increasing. 10 pairs breeding at Arne N.R. 3 pairs at Greenhill Down. A party of 6 seen flying over St. Albans Head on 7 May and 1-3 seen at the Verne and Portland B.O. in May. Frequently seen in autumn carrying acorns from Goathorn direction to Studland Heath.

288. Great Tit

After a comparatively bad season in 1972, an improvement in population levels was noted in a number of areas. At Green Hill Down 5 pairs bred (1 more than in 1972); 13 pairs in nest boxes at Bracketts Copse (2 more than 1972); at Studland Reserve at least 15 territories recorded — the same as last year; at Arne Reserve *ca.* 12 pairs breeding; 3 pairs at Langton Herring; at least 3 pairs at N. Portland (1 under the old railway station platform) and 1 pair bred at Southwell, Portland. Other nests reported in Weymouth and Buckland Newton.

289. Blue Tit

Good level of population reported from many areas. 9 nest boxes occupied at Bracketts Copse (1 more than in 1972); 9 pairs bred at Green Hill Down (compared with 6 last year); but fewer territories recorded at Studland Reserve — 20 as against 30 last year. At Arne Reserve *ca.* 20 pairs breeding. At least 10 pairs bred at Langton Herring and a good season at N. Portland with at least 15 pairs. Breeding also reported from several other areas. 2 pairs at Frome Whitfield nested in holes in trees only a couple of yards apart. A pair in a nest box at Briantspuddle had 11 eggs in early May. At Studland a pair nested in a vertical metal pipe in the centre of the entry to Knoll House Car Park. The pipe is about 3 ft. in height and the nest was nearly at ground level. From Buckland Newton comes a report of a bird sitting on a bird table pulling up string with its feet to reach suspended fat. This action was repeated the next day when there was no fat on the string (per JCW). CER reports *ca.* 50 birds at E. Weare (N. Portland) on 28 Aug., whilst PBO recorded maxima of 10 in Aug. and Sep. but 18 on 15 and 22 Oct. and 20 on 23 Oct., with 11 and 12 on first 2 days of Nov., but subsequently no more than 6.

290. Coal Tit

About 12 pairs breeding on the Arne Reserve. Frequently seen on the Studland Reserve, but no breeding proved and only 1 territory recorded. Noted at all seasons on Brownsea and in many of the coniferous areas of the Poole Basin, including Puddletown Forest, and at Briantspuddle Heath where a pair were feeding young on 26 May and a nest was noted in the nearby Southover Heath wood on 31 May. One pair bred on Green Hill Down and another pair recorded at Langton Herring. A bird seen at Winspit on 22 Mar. was possibly of the continental race. One was seen at Compton Valence on 30 Dec. and noted as not being a common bird in that area. The only Portland records are of 1 at Weston on 29 Aug. and 3 in the Observatory area on 30 Sep.

292. Marsh Tit

Only a few records received and reference to the Bird Reports of recent years indicate quite clearly that the 1973 records do not reflect the true county distribution of this species. A pair bred in a nest box at Briantspuddle, and a pair were present at Frome Whitfield. At Green Hill Down 1 pair bred; at Studland Reserve 5 territories recorded (7 last year) and at Arne at least 6 pairs bred where BPP comments that the species is slowly increasing. A pair seen feeding young on 10 Jun. at Langton Herring.

293. Willow Tit

Breeding reported from the Woodlands area; a pair feeding young in a nest box at Milton Abbas (MFR) (most unusual); and adults with juvs. at Bracketts Copse in Jun. Apart from these reports birds were seen in the breeding season at W. Bexington, near Buckland Newton, Stoke Abbott, in the Hammoon area, Sherford Bridge, Bloxworth, and on the Studland-Sandbanks road. Present at Green Hill Down but no nest located. Various autumn and winter reports, including an observation on 19 Mar. when 1 was seen and heard calling continuously from a willow tree in the boatyard at Lovells Cafe, Shell Bay.

294. Long-tailed Tit

Reports indicate a good year and a continuing excellent level of population. 6 pairs at Green Hill Down (2 last year); 13 territories recorded at Studland Reserve (1 pair with 7 young); *ca.* 12 pairs during the breeding season at Arne; and 3 territories at Bracketts Copse. Breeding and/or pairs also reported from Briantspuddle, Culpeppers Dish (pair with 7 young), Beaulieu Wood, Winspit, Corfe Mullen and Moonfleet. On Studland Heath a nest begun on 1 Apr. was destroyed by a squirrel a month later and reports of other nests destroyed come from Bracketts Copse and Thorncombe Wood. Summer, autumn and winter family parties and flocks reported from Parkstone, Patchins Point (Poole Harbour), Morden Park, Winspit, Herston, Holworth, N. Portland, Briantspuddle, Godmanston, Plush, Frampton, Hermitage, Stour Provost, Langton Herring, and from Central Portland, and in the Bill area there were 2 in the Observatory garden in Mar.

295. Bearded Tit

Following the large immigration into Dorset in the autumn of 1972, documented in the last report, small numbers stayed on through the early months of 1973, at Bexington (last seen on 31 Mar.), in 2 or 3 reed beds around Poole Harbour (last seen in early April), but apart from the colony at Radipole, which continues to flourish, no other reports of breeding in the county in 1973 were received. The early 1973 reports included 2 at the Studland Reserve — a "first" for the Reserve. Singles noted at Lodmoor on 20 Apr. and 28 Jul. A small movement was noted at Poole Harbour reed beds in the autumn but max. numbers did not exceed 8-10. A f. trapped at Arne on 11 Dec. had been ringed as a first-year bird in Holland on 8 Oct.

296. Nuthatch

Successful breeding in nest boxes reported from Tannhills Wood (6 young), and from Bracketts Copse (2 broods). Other breeding records were of 2 pairs at Green Hill Down, 2 pairs in the Pamphill area, and a pair in Delph Wood, Broadstone. Sightings throughout the year reported from various other areas. At Compton Valence JDP reports 2 regularly visiting his bird table — the first time for many years. JFT and WGT report 2 coming down to take food near the stream at the base of Corfe Castle on 2 Mar. and comment "evidently used to being fed by parked motorists". On a less happy note, 1 flew into the windscreen of a car and was killed on 7 Apr. near Oakers Wood.

298. Treecreeper

Breeding reports from Studland Reserve (possibly 4 pairs); Green Hill Down (1 pair proved breeding); Beaulieu Wood; Chapmans Pool (probable breeding); Frome Whitfield (ad. feeding single juv.); Langton Herring (1 pair); and Fleet (1 pair). Other reports of singing birds and/or pairs suggest probable breeding at Stour Provost, Sherborne, Kingston Lacey, Colehill, Wimborne area, and Netherbury (1 in full song on 4 Jan.). Noted as only occasional visitor at W. Parley. On Portland 1 at Pennsylvania Castle on 29 Sep. and 1 in Easton Churchyard on 22 Oct.

— **Short-toed Treecreeper**

The recognition of English records is still under consideration by the R.B.C. In the meantime, in the same locality in the E. of the county as in 1972, 5 pairs were located and identified (3 pairs last year) and 1 nest was destroyed by a predator and another incomplete nest was found. These plus 1 report from the W. of the county have been added to the list of reports under consideration.

299. Wren

Breeding population obviously increasing in all areas. 12 pairs at Green Hill Down compared with 5 in 1972. At Arne in the Common Bird Census area there was a leap in population from 28 pairs in 1972 to 46 in 1973. On Studland Reserve at least 140 and possibly 150 territories, and at Bracketts Copse 27 territories recorded. Autumn movement at Portland reflected by 1-8 birds in Jul. and Aug., rising to 22 by 27 Sep. and reaching totals of 40-50 at times in Oct., with up to 30 remaining through Nov. and Dec.

300. Dipper

Breeding confirmed — young seen — on R. Yeo, R. Wey, R. Brit, R. Bride, at Abbotsbury, and in 1 new area on a tributory

of the R. Frome from where SPB sends a most detailed, interesting and informative account of the courtship and behaviour patterns of the adults and of the feeding of a young bird. One fledgling was observed to leave the nest and was fed in a nearby location, though the adults were still taking food to the nest itself. Soon after this it was reported that the nest was discovered and removed by a small boy, so it is not possible to say whether 1 or any of the young survived. There was also 1 other case this year of a nest being robbed by children. A Dipper was seen "in the middle of Bridport" (presumably on the river!) on 24 Mar. 14 trapped and ringed on a 50-yard stretch of the R. Brit at Beaminster, apparently 2 pairs and their offspring (JAW).

301. Mistle Thrush

Breeding reported from Arne Reserve (3 pairs), Langton Herring (2 pairs), Moonfleet (1 pair), Stour Provost (in public car park), Beaulieu Wood, near Weymouth, and at Fortuneswell, Portland. Summer and autumn flocks reported from various areas, including 25-30 at Moreton Cross on 16 Jul., 40+ at Arne on 16 Aug. and 42 on 25 Sep. Little evidence of any movements at Portland.

302. Fieldfare

Winter flocks reported from many areas in the early and late seasons of the year. A number of Apr. records were received and the last seen in spring were 17 up to 14 May at N. Portland. First recorded again on 3 Oct., with 2 at Portland B.O., and also seen on the same date at N. Portland. At the Observatory a max. of 15 on 31 Oct. and 14 on 1 Nov. Reported as being more numerous than usual in the Netherbury area in October (KND).

303. Song Thrush

No breeding recorded on the Studland Reserve, but 4 pairs at the Arne Reserve, 2 at Green Hill Down, 1 pair at Beaulieu Wood and in the 1-Km study square at Weymouth 5 territories recorded, 1 with 2 broods. Fully fledged young noted at Winfrith on 18 Apr. 5 or 6 breeding pairs in the Portland Obs. area. Migration movements noted at Portland in spring from 16 to 27 Apr., with a peak of 13 on 23 Apr. In autumn from 9 Sep. with max. of 50 on 3 and 11 Oct., 75 on 16 Oct., and 50 on 17 Oct. With the colder weather in November a marked influx was noted with 50 on 26 Nov. and 100 on 27 Nov. Subsequently 40-50 were present until the end of the year. One heard in song on 20 Dec. at Central Portland (DEW).

304. Redwing

Flocks of from 20-100 reported from several areas from Jan. to Mar. Last seen were 50+ at Corfe Mullen on 19 Apr. and noted at N. Portland on 20 Apr. and at Central Portland on 23 Apr. Autumn and winter flocks tended to be larger than those in the early part of the year, ranging up to 500 at Hermitage, in 2 flocks. The first autumn record was of 15 near Stalbridge on 8 Sep. (TS). At the Portland Observatory in autumn they were first heard on the night of 30 Sep./1 Oct. with *ca.* 50 on the 3 Oct. and then 1-23 until the 8th. This was followed by an immense S.-N. movement in light rain, heavy overcast and moderate N.E. wind on 11 Oct. It was estimated that 8,000 passed over the Observatory area in 2 hours, but observations at Easton (W. Oddie) revealed an even greater and more prolonged movement. An estimated 15,000 birds passed over the Island as a whole. Erratic movement continued through Oct. and on a smaller scale in Nov. and early Dec.

307. Ring Ouzel

Spring: At Portland Observatory 28 Mar.-1 May, 13 birds on 11 dates. At N. Portland recorded 5 Apr.-3 May. Elsewhere — a m. and f. on 8 Apr. at Bulbarrow (EDVP). As usual more sightings in autumn starting with a most unusual record of 1 above Chapman's Pool on 8 Jul. and another for 3 days at St. Aldhelms Head from 20 Aug. (WTH). Thereafter reports from Sep. onwards with 2 at Portland B.O. on 9 and 10 Sep., and 29 birds between 3 Oct. and 2 Nov. on 9 dates with a peak of 10 on 16 Oct. At N. Portland 20 recorded from 9 Sep.-23 Oct. (CER) and 1 at Chesil Cove on 2 Nov. (DJF). 1 at Winspit on 11 Oct. (SPWC).

308. Blackbird

Numerous in all areas, though with apparently some diminution in numbers in observed areas; e.g. 12 pairs at Studland Reserve (less than last year), and in the 1-Km study square at Weymouth 30 pairs compared with 36 last year. *Ca.* 15 breeding pairs at Arne and at least 20 pairs in the Obs. area at Portland. No significant spring passage noted. 1 in song at Dorchester on 31 Jan. Marked autumn passage at Portland from 1 Oct. (10 birds), *ca.* 100 on 3 Oct., 105 on 6 Oct., 200 on 11 Oct., 300 on 16 Oct., 150 on 17 Oct., 100 on 26 Oct. and 80 on 1 Nov. Partial albinos noted at Compton Valence in spring (JDP).

311. Wheatear

The only breeding record for 1973 was of a pair in the quarries in Central Portland, but the nest was dug out (? by rabbits) on 22 Jun. and it is not known if any young survived (DEW). Spring arrivals noted from 18 Mar. (at Portland, Worbarrow, Studland and Langton Herring), and recorded up to 29 May. At Portland B.O. 821 sightings with peaks of 70 on 8 Apr. and 100 on 23 Apr. At N. Portland 218 recorded 29 Mar.-15 May.

Autumn return first reported at Hartland Moor, 1 on 25 Jul. (AJB). Then reported from several areas through to early Nov. At Portland B.O. 1,671 sightings between 27 Jul. and 8 Nov., with peak of 143 on 18 Aug.

317. Stonechat

Breeding reports of a total of 40 pairs from Poole Basin areas, Stinsford, Purbeck Cliffs, Lodmoor, Langton Herring, Wyke and Ferrybridge. A new breeding location noted at Stoney Down. An excellent breeding year reported from Burton Bradstock, and 2 pairs, both successful, in the Portland Obs. area. In all it seems to have been a very good year for this species. Winter reports from N. Dorset areas. Autumn passage at Portland much less pronounced than in 1972, with 10-14 from late Sep. through Oct. and 1-4 only after 3 Nov. At Winspit 7 on 21 Sep., 15 on 22 Sep., then smaller numbers until early Oct., with 9 on the 3 Oct.

318. Whinchat

No reports of breeding. Spring passage at Portland B.O. from 19 Apr.-15 May, comprising a total of 80 birds with peaks of 15 on 30 Apr. and 11 on 1 and 11 May. At Central Portland 10 from 21-27 Apr., with peak of 6 on 26 Apr. At N. Portland 27 from 27 Apr. First seen at Winspit on 28 Apr. The only spring record at Arne was 1 on 1 May. 2 at Brownsea on 3 May.

Autumn passage noted at Portland B.O. as exceptionally heavy with 1,014 sightings 26 Jul.-6 Oct., and peaks of 150 on 23 and 24 Aug. and 100 on 27 Aug. At N. Portland recorded 18 Aug.-6 Oct., with day max. of 10 on 25 Aug., and at Central Portland 171 recorded 10 Aug.-5 Oct. with max. of 21 on 28 Aug. and 22 on 9 Sep. Inland reports of autumn sightings in Aug. and Sep. from Milton Abbey, Stinsford, Stalbridge, Corfe Mullen and 6 at Gillingham on 15 Sep. of which 1 — a juv. — was trapped and ringed (EDVP). A late imm. seen at King Down, Badbury Rings on 21 Oct. (JCF).

320. Redstart

No breeding records in 1973 and only small numbers noted on spring and autumn passage. First seen was 1 at Peveril Point on 1 Apr. (JDP). At Portland B.O. 72 sightings between 15 Apr. and 19 May, with peaks of 12 on 18 Apr. and 10 on 30 Apr. At N. Portland 52 recorded 15 Apr.-15 May. On Brownsea 2 on 26 Apr. and 1 on 27 Apr. 1 at Arne on 3 May.

Autumn passage at Portland B.O. produced only 73 sightings 1 Aug.-14 Oct., with a late single on 28 Oct. A f. or imm. at Winspit on 26 Jun. Elsewhere only ones and twos in Sep. and Oct., reported from Kingston, Church Knowle, Thorncombe Wood, Chaldon, Radipole, Weymouth, Abbotsbury, Studland, Brownsea, Arne, Holton Heath, Stalbridge and Wimborne.

321. Black Redstart

It is always difficult with a partially wintering species such as this to be sure when spring migration starts and autumn migration ends, but birds present in the period Jan.-Mar. and in Dec. can almost certainly be regarded as wintering and such were reported from Portland, Kimmeridge, and the Nothe and Newtons Cove at Weymouth. What were presumably spring migrants noted at N. Portland on 22 Mar, at Wyke on 22 Mar. (3), St. Aldhelms Head 27 Mar. and Worth on 29 Mar. (all singles), and 2 at Gad Cliff on 1 Apr. and 1 at Handfast Point on 14 Apr. At Portland B.O. 57 spring sightings from 18 Mar. to 15 May. A single m. was noted in song at Portland on 1 Jun. In autumn from Sep. to Nov. there are reports from various

places (mostly singles) including Stalbridge, Gillingham, Brownsea, Lulworth, Weymouth and N. Portland. At Portland B.O. 67 sightings on 25 dates 1 Oct.-24 Nov., with peaks of 12 on 26 Oct. and 10 on 2 Nov.

322. Nightingale

Spring migration noted at Portland B.O. with singles on 15 and 21 Apr., 3 on 30 Apr. and 1 on 3 May. At N. Portland singles on 14, 22 and 23 Apr. 2 at Norden (Corfe Castle) on 4 May and 2 singing at Tyneham on 24 May, but not heard again. First noted at Stalbridge on 18 Apr. where several present in Jun. and Jul. and 2 feeding young on 21 Aug. Other territories noted were at Lydlinch Common, Tarrant Rushton and at Hermitage. Song heard but no proof of breeding at Langton Herring, Holton Heath, Shillingstone, Powerstock Common, Buckland Newton and Sydling St. Nicholas. Not recorded at Bracketts Copse — the first time since the Reserve was established in 1965. Autumn movement — singles at Portland on 12, 18 and 29 Aug., and on 4 Sep.

324. Bluethroat

The only records are from Portland B.O. and consist of 2 on 9 Sep. (1 of which, an imm. f. was trapped), and another imm. f. trapped on 6 Oct.

325. Robin

At Arne Reserve *ca.* 35 pairs located. 13 territories at Studland Reserve (fewer than in 1972), and at Bracketts Copse 29 territories mapped. In the 1-Km. square at Weymouth there were 7 pairs, compared with 5 the previous year, and a pair there with young on 19 Jul. probably indicated a second brood. Two nests at Briantspuddle failed, but a considerable increase and spread in population was noted at Burton Bradstock (HHC). Movements at Portland noted in small numbers in Apr. and May and again from 2 Aug. rising to 10-18 in the last 10 days of Sep. Up to 20 seen often in Oct. with peaks of 22 on 5 Oct. and 27 on 29 Oct. A pair noted displaying at Upton on 31 Dec. (PRK).

327. Grasshopper Warbler

Not a good year! Earliest reports from Portland on 14 Apr. and Abbotsbury on 17 Apr., with main arrival date 26 Apr., when birds were singing at Lodmoor, Studland N.R., Arne N.R. and Worth Matravers. Breeding season records came from areas near Weymouth, Sherborne, Dorchester, Purbeck, Wimborne and Cranborne. The latest sighting reported was on 3 Aug. near Buckland Newton. Passage at Portland B.O. — 14 Apr. to 9 May, 61 sightings on 20 dates, with peak of 12 on 18 Apr. 29 Jul. to 26 Sep., 25 sightings on 16 dates, peak of 6 on 5 Sep.

329. Savi's Warbler

One trapped and ringed at Radipole Lake on 20 Aug. will constitute the first record for the county when ratification is received from the R.B. Cttee.

333. Reed Warbler

Slightly better coverage of this species this year (10 observers; only 4 in 1972). The earliest arrival was at Abbotsbury on 19 Apr., at Lodmoor on 27 Apr., Studland on 28 Apr. and Wimborne on 29 Apr. and breeding was confirmed in these areas, also on the R. Frome near Woodsford, Holton Heath, Arne N.R. (25 prs., slightly fewer than last year), and Sherborne Lake. One sang at Winspit on 14 Jun. The last report was on 10 Oct. at Radipole Lake. Passage at Portland B.O. — 26 Apr. to 18 Jun., 22 sightings on 9 dates, with peak of 7 on 14 May and 25 Jul. to 15 Sep., 10 sightings on 9 dates.

337. Sedge Warbler

A rather poorly covered species. The earliest report is from Portland B.O. on 15 Apr. with arrivals noted at Wimborne on 17 Apr., Abbotsbury on 19 Apr., Bockhampton on 24 Apr., Lodmoor and Swanage on 27 Apr., Studland N.R. on 28 Apr., Holton Heath on 2 May, Arne N.R. on 3 May, Winspit on 9 May and Sherborne Lake on 12 May. Breeding was reported at Langton Herring, Radipole Lake, Lodmoor, Dorchester, Studland N.R., on the R. Allen at Wimborne and Witchampton. Passage at Portland B.O., 15 Apr.-1 Jun., 45 birds and 26 Jul.-6 Oct., 125 birds.

338. Aquatic Warbler

A total of 16 birds (all immature) trapped and ringed at Radipole Lake in 1973, 3 on 5 Sep. and singles on 13 other dates 13 Aug.-18 Sep. (accepted by R.B. Cttee.).

339. Melodious Warbler

All records from Portland B.O. — at least 5 individuals: 11 Aug., 1 trapped and ringed in Observatory garden. 17, 18, 20, 21 and 24 Aug., 1 near Radio Station. 7, 10 and 11 Sep., 1 trapped and ringed in Obs. garden. 18 and 19 Sep., 1 in Obs. garden, not caught. 21 and 22 Sep., 1 in Coastguard Cottage garden, trapped and ringed.

340. Icterine Warbler

4 sightings from Portland B.O., 24 Aug. and 1 Sep., 1 in garden of Old Higher Light. 9 Sep., 1 between Admiralty fence and public house. 15 Sep., 1 in off sea at the Bill, tired, moved slowly N. to Admiralty Gate at the Bill.

343. Blackcap

This species has received better coverage this year with 30 observers' records compared with 17 in 1972. Spring arrivals were noted from the first week in Mar., with peaks at Portland B.O. of 30 on 18 Apr. and 50 on 30 Apr. — a total of 243 sightings between 7 Apr. and 1 Jun. Breeding was reported from at least 14 areas, well scattered through the county. Autumn passage was noted at Portland B.O. between 28 Jul. and 3 Nov. — 134 sightings with peak of 20 on 1 Oct. Late birds were noted at Winspit — up to 11 Nov., and Lodmoor — on 20 Oct. Wintering birds: 1 m. at Fortuneswell from 6 to 12 Jan., 1 f. at Weston from 1 to 17 Jan., another between 24 Feb. and 8 Mar., 1 f. at Easton on 18 Feb. 1 at Compton Valence on 2 Jan.; 1 m. and 1 f. at Broadstone on 11 Jan. A first-year male was ringed at Bagber on 26 Nov.; 1 at E. Weare on 9 Dec.; 1 present N. Portland on 22 Dec. At Lyme Regis, a m. daily 20 Jan.-16 Feb. was joined by a f. on the latter date. The m. was seen to drive Greenfinches, Chaffinches, various tits and even a Robin away from the bread and fats put out for it (John Fowles).

345. Barred Warbler

One in the Winspit valley on 10 Aug. (SPWC). One at Lodmoor, 17-23 Oct., trapped and ringed (DAD, K. Parker). At Portland B.O. at least 2, possibly 4 individuals (1 trapped and ringed) between 15 and 30 Sep.

346. Garden Warbler

Not well covered this year, but no shortage of breeding birds. Spring passage was noted between 15 Apr. and 1 Jun., with 47 sightings at Portland B.O. Only small numbers were reported elsewhere, e.g. only 6 sightings between 27 Apr. and 21 May at E. Weares, Portland. Breeding was reported from E. Weare, Beaulieu Wood and 2 areas near Minterne Magna, Holway Wood and Thorncombe Wood. Autumn passage was noted between 26 Jul. and 22 Oct. at Portland B.O. — 144 sightings, with peak of 12 on 7 Sep.; at Winspit — between 25 Aug. and 15 Oct. with max. of 4 on 30 Aug.

347. Whitethroat

Still very poor population figures for this species, although territories were noted in at least 21 parts of the county. Only 2 prs. bred on the Arne Reserve, only 5 on Studland N.R., 1 on Lodmoor, 1 on Green Hill (Milton Abbas), less than 5 at Langton Herring, at least 5 at E. Weares, about 10 prs. at E. Fleet, 3 or 4 territories between Minterne Magna and Buckland Newton; otherwise all records are for isolated pairs. Spring arrivals at Portland B.O. — 144 fell between 11 Apr. and 29 May with peaks of 30 on 30 Apr., 25 on 1 May, 26 on 3 May. At East Weares at least 8 were noted on 27 Apr. and 25 on 3 May. Small numbers passed through Winspit between 25 Apr. and 9 May. Autumn passage at Portland B.O. fell between 29 Jul. and 15 Oct., with 218 sightings, the peak of 18 on 18 Aug. 20 were noted in N. Portland on 28 Aug. 50 sightings at E. Weares between early Aug. and 27 Sep. Small numbers through Winspit — 28 Jul. to 31 Aug.

348. Lesser Whitethroat

It would appear to have been "a good year" for this species, with breeding confirmed or probable in some 11 parts of the county. Spring passage at Portland B.O. fell between 23 Apr. and 14 May, with 13 of the 17 sightings on 14 May. First arrivals at Swanage, Studland, Arne, Charlestown and Fleet were between 13 and 15 May; the highest number at Chapmans Pool was 5 on 18 May. Autumn passage at Portland B.O. was between 29 Jul. and 8 Oct., with peak of 6 on 10 Sep. The total of 68

signtings included considerable duplication as ringing revealed that some birds remained in the area for some weeks.

352. Dartford Warbler

This species is the subject of a R.S.P.B. Special Study, beginning Jan. 1974. The Dorset population has made a steady recovery since the 1963 drop, when only 4 breeding pairs were recorded for the county, to the present encouraging situation with an estimated 120 pairs. Many old localities, including outliers in West Dorset, have been recolonised and there are some new sites. Present sites are in at least 19 separate areas. Post breeding dispersal was indicated by singles at Portland B.O. between 27 Oct. and 4 Nov. — 4 sightings of 1 or 2 birds.

354. Willow Warbler

Abundant on passage and breeding population. Spring passage fell between 5 Apr. and 1 Jun., with over 1,335 sightings at Portland B.O. — peaks of 275 on 17 Apr., 100-120 on 23 and 30 Apr.; the day max. at E. Weare was 150+ on 14, 15 Apr. with a total exceeding 377 between 7 Apr. and 15 May. The first at Radipole was on 31 Mar.; the remaining "firsts" were in April. Breeding populations in regularly covered areas were as follows: Bracketts Coppice—down from 14 to 8 pairs; Green Hill Down and Beaulieu Wood—each 3 prs.; Studland N.R.—approx. 50 prs., an increase; Arne N.R.—a slight decrease to *ca.* 30 prs.; Burton Bradstock—a particularly good season. Autumn passage: through the Winspit valley — between 27 Jul. and 18 Aug., with at least 50 on 6 Aug.; Herston (Swanage) — between 27 Jul. and 20 Aug.; Portland B.O. — approx. 760 sightings between 27 Jul. and 2 Oct., peak of 90/100 on 18, 19 Aug. On 26 Aug. several, exhausted, landed on a yacht 20 miles S. of Portland in fog.

356. Chiffchaff

Winter records: Jan.-Feb.—singles at Weston, Studland, Nothe and Chapelhay (Weymouth), Lodmoor, Woodford cress beds and 2 at Hooke (Beaminster). Nov.-Dec.—singles at Weston, Radipole School and Nothe; 2 at Radipole Lake. Spring arrivals: Portland B.O.—2 on 12 Mar., regular from 24 Mar. to 14 May, *ca.* 550 sightings with 70 on 8 Apr., 75 on 14 Apr., 50 on 23 Apr. E. Weare—peak of 50 on 14 Apr. First reports through the county range between 9 Mar. and 5 Apr., with the commonest arrival dates at inland sites being the last week in March. Breeding populations were slightly down at Arne N.R.—*ca.* 20 prs; and Bracketts Coppice—from *ca.* 15 in '72 to 8 territories; but much as last year at Studland N.R. with *ca.* 8 territories. Green Hill Down—3 prs.; Beaulieu Wood—2 prs. 3 territories at Frome Whitfield; a pair probably bred at Easton for the first time. Autumn passage: at Portland B.O.—between 4 Sep. and 5 Nov., *ca.* 220 sightings, peak of 30 on 23 Sep. Migrants trickled through Swanage and Winspit between 10 Sep. and 29 Oct., with a late one at Winspit on 20 Nov.

357. Wood Warbler

Either a very poor year for breeding, or inadequately covered. No confirmed breeding records; territories held on Gore Heath, Cranborne, Hogstock Wood (Crichel Estate), Sturminster Newton. Not recorded in N.W. Dorset. Autumn: 1 at E. Weare on 17 Aug.; 1 in Coastguard Cottage garden Portland B.O. on 2 Sep.

364. Goldcrest

The high population level has been maintained throughout the county. Spring passage: Portland B.O.—139 sightings between 8 Mar. and 2 May, with a peak of 30 on 20 Mar. E. Weare—small numbers recorded between 1 Jan. and 27 Apr. Holton Heath—small numbers only between 8 Jan. and 12 Mar. Breeding: Langton Herring—4 prs. with yng.; Corfe Mullen—at least 2 prs. in one road; plentiful in Parkstone and Stour Provost gdns.; Arne N.R.—a further increase to *ca.* 35 territories, including areas of gorse. Bracketts Coppice—an increase to 7 territories; Studland N.R.—8 territories; Green Hill Down—2 prs.; Beaulieu Wood—1 pr.; Hincknowle (Melplash)—8 territories; also bred at Upton and Frome Whitfield. Autumn passage: Portland B.O.—singles on 3, 7 and 24 Aug., regular from 28 Aug. to 4 Nov.: 557 sightings with 50 on 27 Sep., 6 Oct. and 24 Oct. E. Weare—230+ recorded between 29 Aug. and 31 Dec., day max. *ca.* 32 on 27 Sep. Holton Heath—1 or 2 noted between 3 Oct. and 17 Dec.; West Parley—common in winter, but not seen Apr.-Aug.

365. Firecrest

Two adults seen feeding at least 4 young at a Purbeck coastal locality on 30 Jul. (G. Gregory). Frequently sighted outside the breeding season, mainly near the coast. Jan.-Apr.: Portland B.O.—13 sightings on 12 dates; E. Weare—6 between 5 Feb.-16 Mar, 1 singing on 26 May; Arne N.R.—1 on 29 Jan.; Winspit—2 on 3 Jan.; Studland N.R.—2 on 25 Feb.; St. Aldhelms Head—1 on 6 Apr.; Sandsfoot Castle—1 on 24 Mar.; Brownsea Is.—1 on 27 Mar. and 14 Apr.; Morden Heath (N.)—2 on 14 and 26 Mar., at least 1 still there on 15 Apr. Wimborne/Canford Hth.—1 on 18 Apr. Sep.-Dec.: Portland B.O.—78 sightings on 37 dates between 7 Sep. and 27 Nov., with 6 on 6, 24, 25 and 28 Oct.; E. Weare—16 between 15 Sep. and 23 Dec.; Durlston Head—1 on 21 Oct.; Bagber—1 f. netted and ringed on 7 Dec.; Morden Park—1 with Goldcrests and tits on 28 Nov.; Shell Bay (Studland)—1 or 2 with mixed tit/*Regulus* flock in sand dunes on 29 Dec.

366. Spotted Flycatcher

Generally smaller numbers this year, both on passage and breeding. Spring passage: Portland B.O.—78 sightings on 18 dates between 30 Apr. and 2 Jun.; E. Weare—130 passed through between 3 May and 24 Jun., max. 40 on 15 May, a small trickle through Winspit valley between 3 and 11 May; first at Studland was on 3 May. Breeding: Briantspuddle, Radipole School; Beaulieu Wood 1 pr. (2 broods); Green Hill Down—present, but did not breed; Corfe Mullen; Edmondsham; Wimborne (only 1 pr. — unsuccessful — Deans Court, usually 5-6 prs.); Compton Valence—scarce, probably did not breed. Present at Hyde (Wareham). Autumn: Portland B.O.—165 sightings between 5 Aug. and 11 Oct., peak of 47 on 18 Aug., otherwise, daily totals were less than 8 birds. N. Portland—*ca.* 200 through between 12 Aug. and 6 Oct.; max. *ca.* 20 on 28 Aug.; Winspit—18 Aug. to 28 Sep., max. 12 on 31 Aug.; Arne N.R.—31 between 30 Jul. and 28 Sep. Selective feeding noted at Chapmans Pool where Tortoiseshell butterflies were taken but Peacock and Red Admiral butterflies left.

368. Pied Flycatcher

Spring passage was very light: Portland B.O.—only 4 (all male) between 15 and 24 Apr.; E. Weare—5 between 15 Apr. and 1 May; Chapmans Pool—1 m. on 21 Apr.; 1 f. on 29 Apr. No breeding season sightings this year; 1 at Long Bredy on 2 Jul. was well ahead of the main passage which began on about 1 Aug. Autumn: Portland B.O.—115 sightings between 12 Aug. and 15 Sep., peak 16 on 23 Aug. Central Portland—37 between 1 Aug. and 5 Oct.; E. Weare—65 between 12 Aug. and 1 Oct. Winspit—3 sightings between 28 Aug. and 31 Aug. other singles were noted at Minterne Magna, Brownsea Is., Studland Hth., Wimborne, Wareham, Weymouth, Langton Herring, Herbury Gore and Beaminster.

371. Dunnock

Breeding records indicate a stable and plentiful population: 20 territories on Studland Heath; *ca.* 15 prs. on Arne N.R., 9 prs. in a Weymouth study square; 5 prs. on Green Hill Down, 2 prs. Beaulieu Wood; plentiful on Portland; but no movements were detected through Portland areas.

373. Meadow Pipit

The Portland records give a good idea of the status and movements of the species in the county. Visible movement in spring: 26 Feb. to 29 Apr.—567 arrivals (S./N.); 99 out (S.); the count of 60 "grounded" birds on 20 Apr. included some migrants, the resident population in the Observatory area being 20-30. The autumn figure of *ca.* 80 on 8 Aug. included local birds plus offspring. Autumn movements were more scattered in direction, mainly between 10 Sep. and 18 Nov. during which period 1,803 were seen leaving S.; 20 E.; 223 W.; and 1,019 arrived from the S. moving N. About 100 were present during cold weather on 30 Nov., but only 28 on 31 Dec. At Arne N.R. light N.W. passage was noted on 18 Apr.—50+ in small parties; and marked passage during last 2 weeks in Sep. to N.W.—200+ on 21 Sep., 32 on 30 Sep. Breeding: at least 5 prs. N. Portland; 8 territories (13 in '72)—Studland N.R.; *ca.* 25 prs. Arne N.R.; 13 prs. held territories on Lodmoor. Winter flocks: Wyke—21

on 29 Dec.; Lodmoor—*ca.* 30 on 25 Dec.; N. Portland—*ca.* 35 flying to roost on 9 Dec.; Arne peninsula—50+ on 15 Jan. Minterne Magna—*ca.* 20 throughout Dec.

375. Tawny Pipit

Portland B.O.—1 on 23 and 24 Aug.; 1 trapped and ringed on 9 Sep. (accepted by R.B. Cttee.).

376. Tree Pipit

Spring passage: Portland B.O.—77 sightings between 14 Apr. and 15 May and 1 on 29 May, peak of 17 on 23 Apr.; Chapmans Poole—1 in full song on 14 Apr.; Arne N.R.—singles on 17, 18 Apr. and 10 May; Briantspuddle—1 flew N. on 26 Apr. Breeding: Bracketts Coppice—bred for first time; Powerstock Common—2 territories on 23 Apr.; Morden Park—1 singing on 18, 25 Apr. and 2 May; Holton Heath—1 singing on 29 May; Woodlands (Cranborne)—1, Birches Copse, 15 May and 16 Jun.; Briantspuddle Heath—1 singing on 28 Apr. and a pair seen copulating and seen carrying nest material. Autumn passage: Portland B.O.—1 or 2 on 6 dates between 31 Jul. and 15 Aug., main passage between 16 Aug. and 7 Oct. with a late single on 20 Oct., in all 324 sightings on 43 dates, peaks of 60 on 24 Aug. and 40 on 25 Aug.; Arne N.R.—singles on 14 and 24 Aug.; Briantspuddle—a few heard flying over in late Aug.

379. Rock/Water Pipit

Breeding far more widely along the coast than submitted records suggest—Portland B.O.—8-10 pairs; 1 pr. Southwell (Portland). In winter, 40 were present in P.B.O. area on 14, 15 Oct., singles flew N. over Weston on 25 Sep. and on 7, 29 Oct.; Arne N.R.—always a few present on saltings, up to 15 noted in Nov.; 8 or more on Worbarrow beach on 28 Dec.

— **Water Pipit**

Lodmoor—regularly recorded 7 Jan. to 14 Apr., day max. 20; 5 on 7 Nov. and up to 10 regularly from 17 Nov.; Radipole—1 on 7 Apr.; Bere Regis cress beds—1 on 17 Jan. and 28 Feb.

380. Pied/White Wagtail

A good breeding season for Pieds in many parts of the county—particularly noted at Burton Bradstock, but none within the Portland B.O. area. Winter records: Radipole Car Park numbers rose to at least 120 on 3 Mar., dropping to about 20 on 1 Apr. At Morden—more than 15 were feeding on plough on 30 Jan. 25 flew to roost on Colehill (Wimborne) on 15 Feb.; Portland B.O.—1-3 present sporadically (and again in Nov.-Dec.). N. Portland—total of 70 sighted in Jan., day max. 6, 95 in Feb., day max. 12, 40 in Mar. Passage: spring Portland B.O.—78 sightings between 27 Feb. and 30 Apr., including 37 on direct S./N. passage. Autumn: Radipole—30 on 19 Aug., rising to 250 on 20 Oct. and 24 Nov., falling to 25 on 29 Dec. Wimborne—*ca.* 350 by Julians Br. on 9 Sep.; Studland (Knoll Car Park)—13 on 15 Oct.; Arne N.R.—up to 30 in Oct./Nov.; Kimmeridge—at least 50 resting in Car Park during strong passerine movement on 1 Oct.; Portland B.O.—numbers rising from 16 on 31 Aug. through Sep. to peaks of 139 on 30 Sep., 156 on 6 Oct., 280 on 7 Oct., 137 on 8 Oct., 115 on 12 Oct., 124 on 21 Oct., quickly falling. 605 departures were noted S., 68 W., 398 N. N. Portland—472 sightings between mid-Sep. and end Oct., day max. 100 on 6 Oct., 74 in Nov., 55 in Dec. Lodmoor—15-20 roosting between 22 Sep. and 31 Dec. Gillingham—30 on 21 Sep., 350 on 18 Nov., 300 on 15 Dec.

— **White Wagtail**

Langton Herring—2 on 16 Apr.; Portland B.O.—3 on 17 Apr., 1 on 18, 1 on 24 Apr.; 52 (1-9 on 14 dates) between 29 Aug. and 29 Sep.

381. Grey Wagtail

The breeding population remains high and several pairs reared 2 broods, 1 at least, reared 3 broods. Winter records of resident birds and scattered records of wintering birds cover most of the county: some 40 localities. Arrivals through Portland B.O. were of 4 only between 4 Mar. and 17 Apr.; but the autumn, post-breeding movement was more marked, with 156 sightings between 16 Aug. and 2 Nov., peak 32 on 31 Aug. (48 S., 2 W., 6 N.).

382. Yellow Wagtail (and Sub-species)

A very poor breeding season in the county apparently, with no definite evidence reported; but a heavy autumn passage was noted, particularly along the Fleet and through Portland. The spring arrivals fell between 14 Apr. and 1 Jun. at Portland B.O. with 44 sightings on 18 dates, peak of 10 on 23 Apr. 4 had reached Wimborne (R. Stour) by 21 Apr.; 1 at Winspit on 23 Apr.; 1 at Arne on 26 Apr., 1 on 19 May; 1 m. at Lodmoor on 26 Apr.; 1 at Radipole on 28 Apr. The first autumn record was of 1 at Langton Herring on 1 Jul., then small numbers until 26 Aug. when *ca.* 60 were seen; a large movement was noted along the Fleet on 29 Aug. and *ca.* 60 were noted at Ferrybridge on 3 Sep., 45 on 5 Sep., 2 on 3 Oct. At Radipole—2 on 4 dates to 19 Aug., 60 on 29 Aug. and only 3 on 3 Sep. links with Portland B.O. data to indicate a fairly concentrated passage movement: 3 singles to 22 Jul., main passage 28 Jul. to 25 Sep. followed by singles up to 24 Oct., peaks: 300 on 25 Aug., 150 on 3 Sep., 110 on 6 Sep., 120 on 7 Sep. — total *ca.* 1,510 sightings. Visible departures: 380 S.; 113 on 25 Aug., 120 on 26 Aug., 100 on 29 Aug. Movement during this period was noted in many other parts of the county.

— **Blue-headed Wagtail**

Two at Portland B.O. on 23 Aug.; 2 at Bere Regis cress beds with yellows on 29 Aug.

384. Great Grey Shrike

All records were of single birds, at Hartland Moor on 4 Jan. (JRC *et al*), on 18 Jan. at Hatch Cottage, R. Frome, Dorchester (Mr. Hansford), on wires at Scotland Farm on 1 Feb. (SPWC), on 3 Feb. at Binnegar Plain (AR) and on the Holton shore on 5 Feb. (DJG). 1 at Portland B.O. on 8 Oct. was the only record later in the year.

386. Woodchat Shrike

Single, immature birds at Portland B.O. on 21 Aug. (trapped and ringed) and between 6-11 Oct. (seen daily) (accepted by R.B. Cttee.).

388. Red-backed Shrike

An immature bird was trapped and ringed at Portland B.O. and seen from 20 to 22 Sep.

389. Starling

Roosts: Marnhull—7 Mar. 205,000; 9 Mar. 280,000; 11 Mar. 267,000; 16 Mar. 405,000; 29 Mar. 51,000; 15, 25, 27 Nov. less than 2,000; 6 Dec. *ca.* 100,000; 16, 21 Dec. 200,000; no accurate count for winter 73/74 (EDVP). Sandbanks—1,500 over Sandbanks were joined by *ca.* 4,280 from Studland Heath at about 1630 hrs. on 6 Jan. On 9 Jan. 4,275 flew over Studland Hth. to the roost between 1610-1645 hrs. (JRC). Radipole—5,000 at Radipole Lake on 6 Jan. (CER). Langton Herring—1,000 flying to roost on 9 Aug. (CER). Winspit—an unusually large flock of *ca.* 2,000 on 8 Mar. (SPWC). Breeding: at Arne N.R. 9 pairs were located; flocks of young birds frequently on saltings in summer (BPP). Portland B.O.—present throughout the year. In winter: 2,000 on 24 Jan., otherwise generally small numbers. 750 on 20 Mar., 400 N. on 21 Mar., only 50 on 27 Mar., but 200+ on 31 Mar., 200 on 6 Apr., then no more than 20. Visible movements: Mar./Apr. 87 out S., 429 S./N. (400 on 21 Mar.); 30 Sep. to 18 Nov.: 3,756 out S. (1,340 on 1 Nov.), 1,698 S./N. (418 on 24 Oct., 500 on 17 Nov.); gatherings of juvs. in summer included 300 on 31 Jul. and 110 on 24 Jul. No counts for Aug./Sep. Varying numbers Oct./Nov.: 1,500 on 13 Oct., 500, 600 on 12, 15 Oct., 450 on 1 Nov.

391. Hawfinch

As usual very few reports: 1 at Studland on 7 Apr., 1 at Portland B.O. on 29 Apr.; a m. by the main road between Damerham and Cranborne on 5 May; 1 at Worth Matravers on 7 Jul.; and records of singles (possibly the same bird) from Milldown, Blandford on 10 and 27 Dec.

392. Greenfinch

Breeding reported from Beaulieu Wood, Briantspuddle, Arne Reserve (5 pairs), Corfe Mullen, and several breeding pairs at Portland B.O. with 3 simultaneous nests in *C. leylandii* hedge in the Observatory garden. These reports obviously do not reflect the county breeding distribution of this species. Autumn and winter parties noted at Lodmoor, Bowleaze, Langton Matravers and Holton Heath. *Ca.* 100 at E. Weare, Portland on 5 Oct., and at Portland B.O. 300 on 24 Sep., 250 on 21 Oct., and 150-200 later in Oct. and through Nov. and Dec., with numbers decreasing in late Dec. Visual movements showed only small numbers in spring, but unusual numbers departing in autumn with 347

out to the S. from 7 Oct. to 18 Nov., peaks on 21 and 27 Oct. and on 18 Nov.

393. Goldfinch

At least 2 pairs bred at Beaulieu Wood, and 2 pairs at Corfe Mullen, where the young from a second brood did not leave the nest until 1 Sep. The 5 young from a pair at Briantspuddle disappeared, but a second brood was successful. As in the preceding species these reports do not in any way reflect the county breeding distribution. Passage in spring noted at Arne (28 on 18 Apr. and 25 on 2 May), and at Portland B.O. 14 Apr.-12 May with peaks of 65 on 15 Apr. 84 on 24 Apr., 71 on 28 Apr., and 58 on 12 May. Autumn flocks of up to *ca.* 20 recorded at Holton, Lodmoor, and at Forston (S. of Godmanstone), up to 40 on 13/14 Sep. at Radipole School, and *ca.* 50 at E. Weare on 27 Sep., with 60 there on 17 Oct. The autumn movement was more marked, with reports from Studland Reserve from 29 Sep.-30 Oct., with day max. of 15 N.W. on 29 Sep. and 1 Oct., and at Arne 25+ N.W. on 3 Oct. At Portland B.O. rising numbers in Sep. with peaks in Oct. and early Nov. Visual movement showed 1,371 out S. 30 Sep.-3 Dec., with max. of 210 S. on 22 Oct.

394. Siskin

No breeding reports for 1973, but from Jan. to mid-Apr. reports from many areas ranging from singles to parties of up to 30. These reports come from Parkstone, Poole, Broadstone, Ferndown, Parley, Merley, Canford, Colehill, Patchins Point and Holton on Poole Harbour, Studland, Swanage, Upton, E. Weare, Morden, Stinsford, Briantspuddle, Frome Whitfield, Bagber, Hooke and Sherborne. The last spring record seems to be of 1 at Holton Heath on 7 May. Seen again in autumn at Portland from 24 Sep., where there were 36 sightings on 13 dates to 18 Nov., with 1 at N. Portland on 22 Dec. Seen at Winspit on 28 Oct. From then until the end of the year reports of varying numbers from many of the localities noted above. Many reports refer to the birds feeding on peanuts, and it seems they have a predeliction for those red nylon bags — a point discussed on B.B.C. radio in February. (This could presumably only be proved by hanging up bags of differently coloured nylon, all containing peanuts!)

395. Linnet

In the early part of the year numbers at Portland B.O. were 300-400 from Jan.-Mar., falling to 120-150 in Apr.-May. At Southwell (Portland), and at Maiden Castle flocks of 300 in Jan. Recorded at N. Portland in Feb. and Mar. Spring visual passage at Portland B.O. 27 Mar.-12 May, with 195 out S., 16 out W., and 472 in from S. to N. Breeding recorded from Burton Bradstock, Langton Herring, N. Portland (at least 10 pairs), Portland B.O. area (abundant), Briantspuddle, Arne Reserve (*ca.* 20 pairs), Studland Reserve, Lodmoor (4 pairs rearing 2, 4, 3 and 2 young), Bowleaze (2 pairs), and Green Hill Down (5 pairs). Autumn flocks reported from Kimmeridge, Lodmoor and Maiden Castle. At Portland B.O. the autumn build-up went from 500 in late Aug., to 1,000 through much of Sep., 1,200 on 30 Sep., 3,250 on 6 Oct., 2,000 on 12 Oct. Then *ca.* 600 on 4 Nov. falling to 200-300 to end of year. The autumn visual passage from 23 Sep. to 18 Nov. showed 10,834 out S., 8 out W., and 662 S. to N. with peaks on 6 and 12 Oct.

396. Twite

At Portland B.O. 2 on 4 Nov., 1 on 5 Nov. These are the only 1973 records.

397. Redpoll

The only breeding records are from the Studland Reserve. Otherwise parties and flocks from Jan.-Apr., and again from late Sep. to the end of the year. In the early part of the year "many" at Cannon Hill, Colehill, max. of 27 in Corfe Mullen area, up to 40 in Jan. at Hooke, and also noted in small numbers near Minterne, Sherborne, Woodsford, Radipole, Ferrybridge, Holton, Arne, Morden, W. Parley and Holme Lane. A party of 7 at Powerstock Reserve on 23 Jan. contained 1 Mealy Redpoll (JKND). AHD reports birds on the ground feeding on *mollinia* grass. Much larger numbers seen in autumn and winter, with maxima of 45 at Arne on 23 Dec., *ca.* 120 at Studland Heath on 14 Oct., 23 at Canford Heath, 21 at Holton Heath and *ca.* 50 at Sherford on 8 Nov. A single at Lydlinch on 19 Dec. was the first of the winter reported there. Up to 18 at Hermitage on 27 Dec., where a flock were seen mobbing a Little Owl, on 2 Dec. At N. Portland 21 recorded from 21 Sep. Coastal movement of *ca.* 40 with Linnets and Goldfinches at St. Aldhelm's Head on 21 Oct., and 3 flew E. over Swanage on 27 Oct. At Portland B.O. a record number of autumn sightings (201), from 24 Aug. (exceptionally early) to 11 Nov.

400. Serin

One at Bincleaves, Weymouth on 10 May (RAF). At Portland B.O. a m. on 24 Jul., and a single on 29 Oct. (accepted by R.B.C.).

401. Bullfinch

Breeding noted at Green Hill Down (2 pairs), Beaulieu Wood, Frome Whitfield, Studland Reserve (7 pairs), at Arne (4 pairs), and at N. Portland, where many juvs. seen (DCM). No marked spring or autumn passage at Portland B.O., though 8 noted on 28 Oct. The species does not breed in the Obs. area.

402. Scarlet Rosefinch (Grosbeak)

A f. or imm. at Portland B.O. on 15 Sep. (accepted by R.B.C.). Second Portland/Dorset record.

404. Crossbill

Despite the lack of Dec. records in 1972, it seems likely that at least some of the many noted during the autumn irruption did in fact remain in the county through the winter, as evidenced by Jan.-Mar. records from Milton Abbas, Arne, Colehill, Holton Heath, Morden, Brownsea, Studland, Broadstone and Briantspuddle. Although there are no proved breeding records for 1973, the continued presence of birds into May at Holton Heath, Goathorn, Brownsea and Morden, and later (July) records from Brownsea and Holt Heath, does at least suggest that breeding may have taken place within the county. 3 (including 1 m.) recorded at Portland B.O. on 29 Oct.

407. Chaffinch

Some decrease in breeding population noted at Studland Reserve — *ca.* 40 pairs compared with 52 in 1972, but an increase of from 7 to 14 pairs at Green Hill Down. 27 pairs at Arne and 7 pairs in the 1-Km. study square at Weymouth. Winter flocks of *ca.* 40 at Turnerspuddle, *ca.* 500 in kale at Woodsford, *ca.* 300 near Wareham in Mar., up to 120 in Jan. and Feb. at Portland B.O. and *ca.* 40 at Langton Herring in Jan. At the latter end of the year 16 at Littledown Reserve on 15 Dec., 60+ on shoreline at Shipstal on 24 Nov., and up to a max. of 80 at Portland B.O. on 27 Oct. Visual movements noted at N. Portland of 280 to the N.W. on 20 Oct. and 60 in the same direction on 22 Oct. No comparable movements noted in the Portland B.O. area, where 133 were recorded flying S. and 164 to the N. between 30 Sep. and 18 Nov. 27 noted flying W. over Burton Bradstock on 11 Nov.

408. Brambling

In the early part of the year reported from the Dorchester and Woodsford areas in some numbers (flocks of 100+), from Radipole, and 2 near Studland on 25 Feb. The last seen were 1 in Canford Park on 9 Mar., 4 near Herringston (Dorchester) on 10 Mar., and 1 at E. Weare, Portland on 17 Apr. (CER). First seen again on 1 Oct. at Portland B.O. with 144 sightings to 25 Nov., with max. of 20 on 6 Nov., and at Central Portland 85 sightings 1 Oct.-25 Nov., with max. of 35 travelling N. on 7 Nov. Elsewhere *ca.* 20 in an apple orchard at Stoke Abbot on 3 Nov., and thereafter small numbers at Sydling St. Nicholas, Badbury Rings and Woodsford to the end of the year.

409. Yellowhammer

Presence in breeding season reported from many areas, showing a fairly general and steady population throughout the county. Winter flock of up to *ca.* 40 at Littledown Reserve in Dec. At Portland recorded in all months, mainly in small numbers, but 18 on 23 Dec., 36 on 28, and 17 on 31 Dec.

410. Corn Bunting

Reports indicate that distribution along the coast and inland in suitable areas remains reasonably constant. 2 males singing N. of Sherborne in Jul., and 9 birds counted at East Burton on 16 Apr. At Portland present throughout the year and breeding. 70 present on 9 Feb., and up to 50 on several occasions. At least 10 present in the Langton/Moonfleet areas from early Apr.-early Oct. Winter parties of up to 21 seen near the Fleet and a flock of 80 at Southwell on 10 Mar.

415. Cirl Bunting

The only records are of a male singing near Wyke Church on 22, 24 Mar. and 1 Apr., and a single male in the Portland Obs. area on 26 Mar.

416. Ortolan Bunting

At least 3 individuals present on 3 Sep. in the Portland Obs. area, 1 on 4, and 1 on 5 Sep. 1 at Southwell, Portland on 4 Sep., 2 on 8 Sep., and 1 there the next day. 2 at Weston, Portland on 4 Sep. (Some of these records probably refer to the same birds).

421. Reed Bunting

In the early part of the year flocks noted on Canford Heath (*ca.* 30 on 15 Feb.), and at Woodsford (*ca.* 60 in a kale field on 24 Feb.). Autumn and winter flocks of *ca.* 80 at Gillingham on 21 Sep., 50 there on 15 Dec., and up to 20 at Hermitage in Dec. Feeding in gardens of houses reported in Mar. from W. Parley and Upton. Breeding reported from Langton Herring, and from R. Allen and R. Stour valleys. At Arne *ca.* 15 breeding pairs, and 15 pairs at the Studland Reserve — approx. the same as last year. 8 pairs holding territory on Lodmoor and at least 2 were known to have successfully reared 3 young each. No marked spring passage at Portland; in autumn 69 sightings in Oct. and 35 sightings in Nov. See also Report on Bird Ringing.

422. Lapland Bunting

A single bird (possibly the same individual in each case) in fields near Portland B.O. on 21 and 30 Oct., and on 3, 5, 18 and 25 Nov. 2 at the Grove, Portland on 11 Nov. (DEW).

423. Snow Bunting

3 seen in dunes, Studland on 25 Nov. 4 seen there and on the beach from 9 Dec. to end of year.

424. House Sparrow

Present and breeding at Portland B.O., carrying nesting material in virtually every month. Normal summer build-up (mainly juvs. feeding on stubble) gave counts of 790 on 7 Aug. and 725 on 9 Aug., falling to *ca.* 120 in Oct. and Nov. Complete albino seen at Radipole car park on 5 Aug., feeding normally with other house sparrows, and a partial albino seen at Swanage in Nov.

425. Tree Sparrow

No large wintering flocks reported at either end of the year. Small numbers noted at Woodsford, Radipole and in the Dorchester area. The only breeding report is of 4 nests at Stour Provost (same number as last year) (GFS). At Portland B.O. small numbers recorded on dates from Jan. to Mar. 2 present on 19 May were the only evidence of spring passage, and 1 was noted at Worth on 13 Apr. (SPWC). In autumn recorded on 13 dates at Portland B.O. from 10 Oct. onwards, with peak of 98 on 28 Oct. Last seen was 1 on 2 Nov. No observed departures or arrivals.



SUMMARY OF MONTHLY WILDFOWL COUNTS — 1973

Species	Water	Count Dates						
		14 Jan.	18 Feb.	18 Mar.	16 Sep.	14 Oct.	18 Nov.	16 Dec.
Mallard	Poole	416	250	185	261	424	291	617
	Fleet	8	11	6	91	102	83	72
	Radipole	51	40	60	49	70	29	55
	Crichel	300	100	30	900	350	300	50
Teal	Poole	1811	897	520	531	526	1418	715
	Fleet	19	41	46	20	98	0	9
	Radipole	59	107	112	65	105	67	75
	Crichel	13	12	0	6	11	43	50
Wigeon	Poole	1121	674	55	23	319	456	697
	Fleet	5000	2000	160	468	2803	3060	3720
	Crichel	37	47	0	0	0	0	0
Pintail	Poole	456	407	138	3	19	131	158
	Fleet	0	35	22	2	28	39	31
	Radipole	0	5	0	0	0	0	2
Shoveler	Poole	48	55	31	1	7	15	57
	Fleet	38	1	37	18	0	14	50
	Radipole	15	30	13	0	38	25	31
Tufted Duck	Poole	115	204	86	8	9	44	265
	Fleet	0	0	0	0	2	0	0
	Radipole	361	198	39	0	66	160	335
	Crichel	31	42	71	3	4	8	0
Pochard	Poole	62	24	15	5	13	14	118
	Fleet	0	0	0	1	37	180	0
	Radipole	25	185	40	1	18	8	151
	Crichel	16	2	11	0	14	1	7
Goldeneye	Poole	68	76	87	0	3	35	34
	Fleet	15	12	7	0	1	15	39
Red-breasted Merganser	Poole	62	135	92	0	24	50	87
	Fleet	145	210	212	0	0	174	149

Summary of Monthly Wildfowl Counts — continued

Species	Water	Count Dates						
		14 Jan.	18 Feb.	18 Mar.	16 Sep.	14 Oct.	18 Nov.	16 Dec.
Shelduck	Poole	2025	2240	1275	90	453	503	1863
	Fleet	24	24	46	35	1	2	44
	Radipole	6	2	0	0	0	0	4
Canada Goose	Poole	421	97	101	404	25	90	334
	Crichel	8	8	19	0	0	0	0
Mute Swan	Poole	39	27	11	44	7	36	12
	Fleet	583	685	492	581	818	894	663
	Radipole	39	81	127	96	24	13	8

COUNTS OF WADERS AND OTHER ESTUARINE SPECIES — 1973

Participation in the B.T.O.'s "Birds of Estuaries Enquiry" has continued and details of the results are given below. Counts were made on the Sunday nearest to the 15th of each month, except for 8 Apr., 6 May, 29 Jul. and 26 Aug. Grateful acknowledgement is made to all who have assisted with the co-ordinated counts (JCF, LMM, RB, PRK, RM, JKE, AHD, BPP, AFC, CEO, PGH, JRC, KMG, DJG, HRS, RVD, EFCC, DNA, SD, REHR, CER, DAD, AN).

POOLE HARBOUR

	Jan.	Feb.	Mar.	Apr.	May	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Great Crested Grebe	6	6	2	—	8	—	—	—	—	6	10
Slavonian Grebe	5	5	5	—	—	—	—	—	—	7	3
Little Grebe	—	1	6	—	6	9	2	2	10	8	11
Black-necked Grebe	—	—	—	—	—	—	—	—	—	2	—
Cormorant	82	61	120	91	52	62	110	63	138	93	89
Shag	1	1	1	9	—	—	—	4	9	1	1
Heron	5	12	5	10	9	13	8	5	3	16	6
Water Rail	2	—	—	—	—	—	—	—	4	—	1
Moorhen	35	1	9	5	—	17	10	8	15	21	35
Coot	109	163	39	9	—	25	36	30	33	84	300
Oystercatcher	387	629	476	145	129	381	589	542	746	413	798
Lapwing	650	324	125	35	2	245	117	—	423	97	236
Ringed Plover	13	31	3	1	4	44	71	55	32	35	6
Grey Plover	20	36	26	—	—	—	—	3	28	6	55
Turnstone	2	31	18	2	6	2	4	7	23	4	18
Common Snipe	—	108	21	1	—	—	—	—	7	13	3
Jack Snipe	—	—	—	—	—	—	—	—	—	14	—
Curlew	470	657	523	301	19	262	339	266	442	658	528
Whimbrel	—	—	—	1	18	—	2	—	—	—	—
Black-tailed Godwit	530	699	112	350	—	120	98	164	89	364	313
Bar-tailed Godwit	15	105	12	—	—	—	3	16	19	40	86
Green Sandpiper	—	—	—	—	—	—	4	—	—	—	—
Common Sandpiper	—	—	—	—	—	6	6	7	9	—	—
Redshank	1282	1317	419	94	154	319	636	302	538	929	785
Spotted Redshank	7	—	—	—	—	—	5	1	6	—	8
Greenshank	—	—	—	—	—	5	28	10	16	—	6
Knot	—	—	20	—	—	—	5	—	12	—	—
Dunlin	1874	3147	123	5	97	115	47	313	210	2450	1366
Curlew Sandpiper	—	—	—	—	—	—	—	4	3	—	—
Sanderling	—	—	—	—	—	—	—	7	7	—	—
Ruff	—	60	—	—	—	—	—	—	—	1	—
Avocet	—	—	—	—	—	—	—	—	—	—	5
Great Black-backed Gull	72	32	14	13	13	17	19	5	14	29	21
Lesser Black-backed Gull	2	15	2	—	—	4	20	—	9	3	3
Herring Gull	946	1412	1144	577	302	746	622	317	421	746	306
Common Gull	14	12	23	8	45	3	5	1	2	73	6
Black-headed Gull	1054	1740	1065	763	505	2347	1619	1222	303	1138	538
Common or Arctic Tern	—	—	—	—	45	57	7	6	—	—	—
Little Tern	—	—	—	—	5	—	15	—	—	—	—
Sandwich Tern	—	—	—	—	6	51	38	11	3	—	—

	Jan.	Feb.	Mar.	Apr.	May	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Great Crested Grebe	—	1	—	—	—	1	—	1	—	—	15
Slavonian Grebe	—	—	—	—	—	—	—	—	—	—	1
Little Grebe	—	24	34	—	—	3	12	—	—	—	4
Cormorant	2	25	7	3	5	11	17	13	21	57	39
Shag	—	—	—	—	—	—	—	—	—	—	40
Heron	3	7	13	6	10	14	—	4	2	1	2
Water Rail	2	3	1	—	—	—	—	—	1	8	2
Moorhen	3	13	26	2	1	5	22	3	6	45	14
Coot	1	2115	236	81	—	—	116	—	275	1000	218
Oystercatcher	—	—	15	18	5	6	—	—	2	3	3
Lapwing	114	290	21	3	2	125	77	80	78	82	172
Ringed Plover	—	—	93	3	60	43	30	155	95	210	81
Grey Plover	—	—	—	—	—	—	—	—	15	23	15
Turnstone	—	—	—	—	25	—	1	—	4	10	8
Common Snipe	30	67	62	16	—	—	1	3	5	34	64
Jack Snipe	—	—	1	—	—	—	—	—	—	1	1
Curlew	—	—	2	1	—	—	—	—	—	—	—
Whimbrel	—	—	—	—	1	—	—	—	—	—	—
Black-tailed Godwit	—	—	—	—	—	—	1	—	—	—	—
Bar-tailed Godwit	—	—	—	—	—	—	2	4	1	3	5
Common Sandpiper	—	—	—	—	—	12	6	3	—	—	—
Redshank	9	20	113	7	5	15	6	1	19	21	36
Greenshank	—	—	—	2	1	1	5	1	15	10	2
Knot	—	—	—	—	—	—	4	2	25	—	—
Little Stint	—	—	—	—	—	—	1	3	2	—	—
Dunlin	41	—	148	212	400	45	284	70	189	493	497
Curlew Sandpiper	—	—	—	—	—	—	1	3	1	—	—
Sanderling	—	—	—	1	100	—	1	6	—	—	2
Great Black-backed Gull	4	7	6	2	—	1	1	31	26	14	45
Lesser Black-backed Gull	1	1	2	—	—	—	6	20	25	9	—
Herring Gull	11	137	427	9	30	141	86	839	241	477	300
Common Gull	6	5	23	30	—	—	4	10	4	36	61
Black-headed Gull	11	831	219	67	102	798	1329	354	584	1252	676
Common or Arctic Tern	—	—	—	—	8	5	—	—	—	—	—
Little Tern	—	—	—	—	6	22	—	—	—	—	—
Sandwich Tern	—	—	—	—	2	1	—	2	3	—	—

BIRD RINGING IN DORSET — 1973

It is unfortunate that this report has to be incomplete this year as the data from the Radipole Acrocephalus Group was not available at the time of writing. It is understood that some 6,000 birds were marked at Radipole in the 1973 season, more than the total accumulated by other stations and individuals. The Table which follows is drawn up from the accumulated totals of A. T. Bromby, T. Squire, K. W. Parker, J. R. L. Caunter, A. R. Child, J. A. Wigzell, F. R. Clafton and Portland Bird Observatory.

The Table of Ringing Recoveries is remarkable in a number of respects. It is extremely satisfying to be able to record that of the 43 ringing recoveries listed, no less than 27 are "controls" — the recapture of birds already carrying rings, the bird then being released again with the possibility of further news of it still in prospect. No less than 6 Reed Buntings revealed substantial movement (in two cases from overseas) and all were controls. The case of the 2 Long-tailed Tits caught together in Norfolk and recaught, still together, only 15 days later on Brownsea is equally remarkable. All 3 Dunlin recoveries, 2 out of 3 Oystercatchers and 4 out of 5 Warblers were also controls as was the Polish-ringed Goldcrest, a truly awe-inspiring journey.

TABLE OF BIRDS RINGED

Manx Shearwater	1	Curlew	2	Woodpigeon	13
Heron	1	Black-tailed Godwit	1	Turtle Dove	1
Mallard	22	Bar-tailed Godwit	1	Collared Dove	34
Teal	9	Common Sandpiper	8	Cuckoo	1
Shelduck	1	Redshank	30	Tawny Owl	2
Mute Swan	6	Knot	2	Kingfisher	15
Kestrel	4	Little Stint	1	Green Woodpecker	3
Sparrowhawk	1	Dunlin	261	Great Spotted Woodpecker	5
Water Rail	2	Curlew Sandpiper	7	Skylark	4
Moorhen	37	Lesser Black-backed Gull	1	Swallow	178
Coot	1	Herring Gull	1	House Martin	32
Oystercatcher	70	Black-headed Gull	4	Sand Martin	10
Lapwing	13	Common Tern	38	Carrion Crow	1
Ringed Plover	5	Sandwich Tern	22	Rook	1
Grey Plover	1	Razorbill	2	Jackdaw	1
Dotterel	1	Guillemot	1	Magpie	21
Snipe	24	Stock Dove	5	Jay	14

Species	Date of Ringing	Place of Ringing	Date of Recovery	Place of Recovery
Mallard	6.10.70	Slimbridge (Glos.)	2.3.73	Marnhull 85 km. S.
Teal	15.10.68	Brownsea Island 50° 42′ N. 1° 58′ W.	—.5.72	Muzhi (Tumen), U.S.S.R. 65° 22′ N. 64° 40′ E.
Mute Swan	8.4.73	Priors Down, Stalbridge	9.8.73	Semley (Wilts.) 15 km. N.E.
,, ,,	8.4.73	,, ,, ,,	18.8.73	Cheddar (Soms.) 40 km. N.W.
Moorhen	11.6.72	Steinburg, Schleswig-Holstein 53° 45′ N. 9° 33′ E.	9.10.73	Forde Abbey, nr. Chard 50° 53′ N. 2° 58′ W.
Oystercatcher	18.1.69	Brownsea Island	29.7.73	Papa Stour, Shetland 1075 km. N.
,,	26.2.71	,, ,,	25.6.73	Ijsselmeer Polders, Netherlands 52° 44′ N. 5° 51′ E.
,,	3.8.73	Wainfleet (Lincs.)	26.12.73	Brownsea 305 km. S.W.
Dunlin	13.10.72	Brownsea Island	20.9.73	Vlieland, Netherlands 53° 16′ N. 4° 59′ E.
,,	7.9.69	Insel (Mecklenburg), E. Germany 54° 02′ N. 11° 30′ E.	16.2.73	Radipole Lake, Weymouth 50° 36′ N. 2° 28′ W.
,,	14.10.73	Angle Bay, Pembroke	27.10.73	Brownsea 235 km. E.S.E.
Great Black-backed Gull	22.6.69 (nestling)	Old Harry Rocks, Studland	5.6.73 (on nest)	Brownsea 6 km. N.N.W.
Black-headed Gull	29.5.73 (nestling)	Ijsselmeer Polders, Netherlands 52° 20′ N. 5° 34′ E.	5.8.73	Owermoigne, Weymouth 50° 40′ N. 2° 19′ E.
Blue Tit	16.8.73	Radipole Lake	24.9.73	Portland Bill 11 km. S.
Long-tailed Tit	7.10.73	Gt. Yarmouth (Norfolk)	22.10.73	Brownsea 340 km. S.W.
,, ,,	7.10.73	,, ,, ,, (both birds caught and controlled still together)	22.10.73	,, ,,
Song Thrush	9.8.72	Portland Bill	26.4.73	Weymouth 10 km. N.
Blackbird	17.10.71	Portland Bill	9.1.73	Par (Cornwall) 155 km. W.
Stonechat	8.10.72	Portland Bill 50° 31′ N. 2° 27′ W.	28.12.72	Porcuna (Jaen), Spain 37° 52′ N. 4° 11′ W.
Redstart	21.8.71	Portland Bill	—.4.73	Mold (Flints) 295 km. N.
Willow Warbler	8.5.71	Byfield (Northants)	3.5.73	Portland Bill 195 km. S.S.W.
,, ,,	20.8.72	Worth Matravers	1.7.73	Walton (Surrey) 142 km. N.E.
Chiffchaff	18.4.72	Portland Bill	(1972)	Dublin City 410 km. N.W.
,,	28.7.73	Lostwithiel (Cornwall)	17.9.73	Portland Bill 155 km. E.
,,	8.7.72	Sark, Channel Islands 49° 27′ N. 2° 21′ W.	14.4.73	Portland Bill
Goldcrest	6.10.71	Mierzeja Wislana (Gdansk), Poland 54° 21′ N. 19° 19′ E.	28.10.73	Portland Bill
Meadow Pipit	5.10.72	Portland Bill	29.12.73	La Gaeilly (Morbihan), France 47° 46′ N. 2° 09′ W.
Pied Wagtail	15.7.73	Carnforth (Lancs.)	18.11.73	Gillingham 360 km. S.
Yellow Wagtail	25.8.73	Portland Bill	4.9.73	Radipole Lake 11 km. N.
,, ,,	27.8.73	Radipole Lake	5.9.73	Portland Bill 11 km. S.
,, ,,	3.9.73	,, ,,	7.9.73	,, ,, ,,
Starling	8.10.72	Portland Bill	26.12.73	Maiden Newton 30 km. N.N.W.
,,	5.6.72	Lepel (Vitebsk), Byelorussia S.S.R. 54° 52′ N. 28° 22′ E.	6.1.73	Parkstone 50° 43′ N. 1° 57′ E.
Greenfinch	8.10.65	Portland Bill	8.7.73	Weymouth 10 km. N. (note age)
Linnet	27.5.73 (nestling)	Portsmouth (Hants.)	25.9.73	Portland Bill 105 km. W.S.W.
,,	25.10.72	Portland Bill	14.5.73	Malvern (Worcs.) 170 km. N.
,,	4.10.73	Portland Bill	17.10.73	Azur (Landes), France 43° 48′ N. 1° 18′ W.
Reed Bunting	29.10.72	Jersey, Channel Islands 49° 13′ N. 2° 13′ W.	4.5.73	Portland Bill
,, ,,	22.4.73	Falsterbo, Sweden 55° 23′ N. 12° 15′ E.	3.11.73	Gillingham 51° 02′ N. 2° 16′ W.
,, ,,	15.11.72	West Bexington	27.12.73	Portsmouth (Hants.) 115 km. E.N.E.
,, ,,	18.8.73	Chew Lake (Soms.)	27.12.73	Hinton St. Mary 46 km. S.S.E.
,, ,,	23.6.73	Frampton (Glos.)	28.10.73	Gillingham 76 km. S.
,, ,,	25.2.73	Warminster (Wilts.)	21.10.73	,, 17 km. S.S.W.

Great Tit 268
Blue Tit 308
Coal Tit 52
Marsh Tit 21
Willow Tit 4
Long-tailed Tit 192
Treecreeper 15
Wren 154
Dipper 14
Mistle Thrush 6
Fieldfare 25
Song Thrush 78
Redwing 44
Blackbird 265
Wheatear 4
Stonechat 24
Whinchat 19
Redstart 9
Black Redstart 3
Nightingale 18
Bluethroat 2
Robin 149
Grasshopper Warbler 8
Reed Warbler 84
Sedge Warbler 78
Melodious Warbler 3
Blackcap 140
Barred Warbler 2
Garden Warbler 43
Whitethroat 40
Lesser Whitethroat 23
Willow Warbler 365
Chiffchaff 271
Goldcrest 177
Firecrest 16
Spotted Flycatcher 20
Pied Flycatcher 17
Dunnock 135
Meadow Pipit 40
Tawny Pipit 1
Tree Pipit 16
Rock Pipit 5
Pied/White Wagtail 142
Grey Wagtail 18
Yellow Wagtail 33
Woodchat Shrike 1
Red-backed Shrike 1
Starling 290
Greenfinch 191
Goldfinch 48
Siskin 8
Linnet 463
Redpoll 7
Bullfinch 73
Chaffinch 104
Brambling 2
Corn Bunting 24
Reed Bunting 243
House Sparrow 2
Tree Sparrow 4

Index

Reports and Papers in Italics

A Trial Excavation on the Bradford Barrow, Pamphill, Dorset 1969 30–33
Adder 112
Addison, J. — Obituary 103
Affpuddle 79
Amphibians 111
An Iron Age and Romano-British Settlement at Broadmayne 44–49
Ancient Causeway at Lazerton Farm, Stourpaine . 87–88
Andricus Quercuscalisis, Notes on the Gall . . . 29–30
Arachnida 107
Archaeological Discoveries 101–102
Archaeological Notes and News for 1973 83–102
Arne 108
Axmouth 18

Badbury Rings 52
Badger 113
Bagber, Milton Abbas, Roman Pottery site . . 93–96
Bailey, C. J. 100–101
Barton Field, Tarrant Hinton 91–93
Bath, M., *King's Stag and Caesar's Deer* 80–83
Beavis, J. 88–89
Bettey, J. H., *Bishop Secker's Diocesan Survey* . . 74–75
Bindon Landslip of 1839 18–29
Bird report 114–134
Bishop Secker's Diocesan Survey 74–75
Blackley, M. W. L. and Carr, A. P., *Ideas on the Origin and Development of Chesil Beach, Dorset* . 9–17
Botany 106
Bradford Barrow, Pamphill, Dorset 1969, The trial Excavation on the 30–33
Branigan, K., *Vespasian and the South-West* . . 50–57
Bride Valley 100–101
Bridport 75
Broadmayne, An Iron Age and Romano-British Settlement at 44–49
Bromby, A. T., *Lepidoptera* 108–111
Brown, A. J., *Land Arthropods other than Lepidoptera* 107
Bugler, J. and Drew, G., *Roman Dorset* 57–70
Bupleurum rotundifolium 106
Bury Wood Camp 53

Carr, A. P. and Blackley, M. W. L., *Ideas on the Origin and Development of Chesil Beach, Dorset* . 9–17
Casterley Camp 52
Chaldon Down, Dorset, The Excavation of Three Round Barrows on 34–43
Charmouth Fish and the Parish Lantern 8
Charterhouse 55
Chesil Beach, Dorset, Ideas on the Origin and Development of 9–17
Cirencester 55
Clafton, F. R., *Dorset Bird Report, 1973* 114–134
Collins, M. A. 43
Coombe Valley, Geology of 7–8
Cope, J. C. W., *Geology* 105–106
Corfe Castle, Norden 91
Corfe Mullen 64
Council and Officers . . . . . Front cover
Crekelade 76
Culver Well, Mesolithic Site 84

Deer Parks of Dorset XIII 76–80
Dewlish Roman Villa 89–91
Dewlish, Warren Hill 88–89
Dobunni 56
Dorchester, Poundbury 97–100
Dorset Bird Report, 1973 114–134
Dorset Rainfall, 1973 103–105
Drew, G. and Bugler, J., *Roman Dorset* 57–70
Durnovaria 59–60
Durotriges 44, 49, 65
Durotrigian burial 45–46
Durotrigian pottery 45–49

Excavation of Three Round Barrows on Chaldon Down, Dorset, 1969 34–43
Excavations on the Roman Villa at Barton Field, Tarrant Hinton, 1973 91–93
Exeter 54, 73

Farrar, R. A. H. (Ed.), *Archaeological Notes and News for 1973* 83–102
Farrar, R. A. H., *Recent archaeological finds* . . 101–102
Farrar, R. A. H., *Roman pottery site, Bagber* . . 93–96
Field, N. H. 87–88
Fifth Interim Report on Excavations at Dewlish Roman Villa, 1973 89–91
Fish 111
Fleet 14
Flint artefacts 41–43
Fresh Finds from the Iron Age and Roman Site at Worbarrow Bay, Tyneham 88
Furzebrook 108

Geology 105–106
Geology of Coombe Valley 7–8
Good, R. D'O., *Botany* 106
Grass snake 112
Green, C. J. S. 97–100

Halstock 61
Halstock Villa 91
Ham Hill 55
Hawthorne, J. B., *Marine Invertebrates* . . . 107
Hedges, J. 84–86
Hinton St. Mary 61
Hod Hill 52–55
Hughes, M. 91

Ideas on the Origin and Development of Chesil Beach, Dorset 9–17
Ilchester 59
Ilminster 72
Insecta 107
Interim Note on Excavation at the Culver Well Mesolithic Site, Portland, 1973 84
Interim Report on Excavations at Moigne Court, Owermoigne, 1973 101
Interim Report on Excavations at Poundbury, Dorchester, 1973 97–100
Interim Report on Excavations at Warren Hill, Dewlish, 1972 88–89
Interim Report on Excavations at Lake Farm near Wimborne, 1973. 86–87
Iron Age and Romano-British Settlement at Broadmayne 44–49

Jordan Hill 64

Keats, E. M., *Mammals* 112–113
Kimmeridge 63
Kingsholm 55
King's Stag and Caesar's Deer 80–83
Kinson, Two Sandstone Objects 84–86

Ladle, M., *Fish* 111
Lake Farm 86–87
Lake, Wimborne 54
Land Arthropods other than Lepidoptera 107
Lang, J. B., *Notes on the Gall Andricus Quercuscalisis* 29–30
Lang, J. B., *The Charmouth Fish and the Parish Lantern* 8
Late Bronze Age Urn from Tyneham 86
Lazerton Farm, Stourpaine 87–88
Lepidoptera 108–111
Lost Roman Pottery Site at Bagber, Milton Abbas . 93–96
Lucas, R. N. 91
Lyme Regis 18, 71–73, 75
Lyme Regis, 1600-1640, The Trade Fortunes of Poole, Weymouth and 71–73
Lythrum hyssopifolium 106

Maiden Castle 52
Mansham 79
Mammals 112–113
Marine Invertebrates 107
Marshwood 76
Mediaeval Deer-Parks of Dorset XIII 76–80
Mesolithic Site, Culver Well 84
Milton Abbas, Bagber 93–96
Moigne Court, Owermoigne 101

Nettleton 55
Nicandra physalodes 106
Norden, Corfe Castle 91
Notes on the Gall Andricus Quercuscalisis . . . 29–30

Obituary — Joseph Addison 103
Oldbury Hill 53
Owermoigne, Moigne Court 101

Palaeolithic implement from Pilsdon Pen . . . 83–84
Palmer, S. 84
Pamphill, Dorset 1969, The trial excavation on the Bradford Barrow 30–33
Paxman, D. J., *Dorset Rainfall, 1973* 103–105
Pilsdon Pen 52
Pilsdon Pen, Palaeolithic Implement from . . . 83–84
Pitts, J., *The Bindon Landslip of 1839* 18–29
Poole 71–73
Poole, Weymouth and Lyme Regis, 1600-1640, The Trade Fortunes of 71–73
Portesham 8
Portland 8–16
Pottery, Bronze Age 43
Poundbury, Dorchester 97–100
Poxwell 8
Purbeck 8
Putnam, W. G. 89–91

Rainfall report, 1973 103–105
Rainfall stations 104–105
Reading 72
Reptiles 111–112
Roman Coinage 64
Roman Dorset 57–70

Samuel, Miss M. 7–8
Saville, A. 83–84
Sea Mills 56
Second Interim Report on the Romano-British Well Site at Norden, Corfe Castle 91
Sixth Interim Report on the Haltsock Villa, 1973 . 91
Skinner, R. V., *Amphibians* 111
Skinner, R. V., *Reptiles* 111–112
Some Archaeological and Historical Notes on Sites in The Bride Valley 100–101
Some Recent Archaeological Discoveries in Dorset . 101–102
Spettisbury Rings 52
Stephens, W. B., *The Trade Fortunes of Poole, Weymouth and Lyme Regis, 1600-1640* 71–73
Stoborough 108
Stourpaine, Lazerton Farm 87–88

Tanner, R. M. 91–93
Tarrant Hinton, Barton Field 91–93
The Bindon Landslip of 1839 18–29
The Charmouth Fish and the Parish Lantern . . 8
The Excavation of Three Round Barrows on Chaldon Down, Dorset 1969 34–43
The Mediaeval Deer-Parks of Dorset XIII . . . 76–80
The Trade Fortunes of Poole, Weymouth and Lyme Regis, 1600-1640 71–73
Townson, W. G., *Geology of Coombe Valley* . . 7–8
Trial Excavation on the Bradford Barrow, Pamphill, Dorset, 1969 30–33
Two Sandstone Objects from the Ditch of a Barrow at Kinson, Bournemouth 84–86
Tyneham, Late Bronze Age Urn 86
Tyneham, Worbarrow Bay 88
Tyneham 63

Vertebrates 111–113
Vespasian and the South-West 50–57

Waddon Hill 54
Walker, P. R. 101
Warren Hill, Dewlish 88–89
Webster, G. 86–87
Weymouth 71–73
Weymouth and Lyme Regis, 1600-1640, The Trade Fortunes of Poole 71–73
White, D. A. *The Excavation of Three Round Barrows on Chaldon Down, Dorset 1969* 34–43
White, D. A., *The Trial Excavation on the Bradford Barrow, Pamphill, Dorset 1969* 30–33
White, M. 39–41
Wilson, J. D. *The Mediaeval Deer-Parks of Dorset XIII* 76–80
Winterbourne Steepleton 54
Wimborne, Lake Farm 86–87
Wiveliscombe 55
Woodcutts 62
Worbarrow Bay, Tyneham 88
Worlebury 52

Young, D., *An Iron Age and Romano-British Settlement at Broadmayne* 44–49