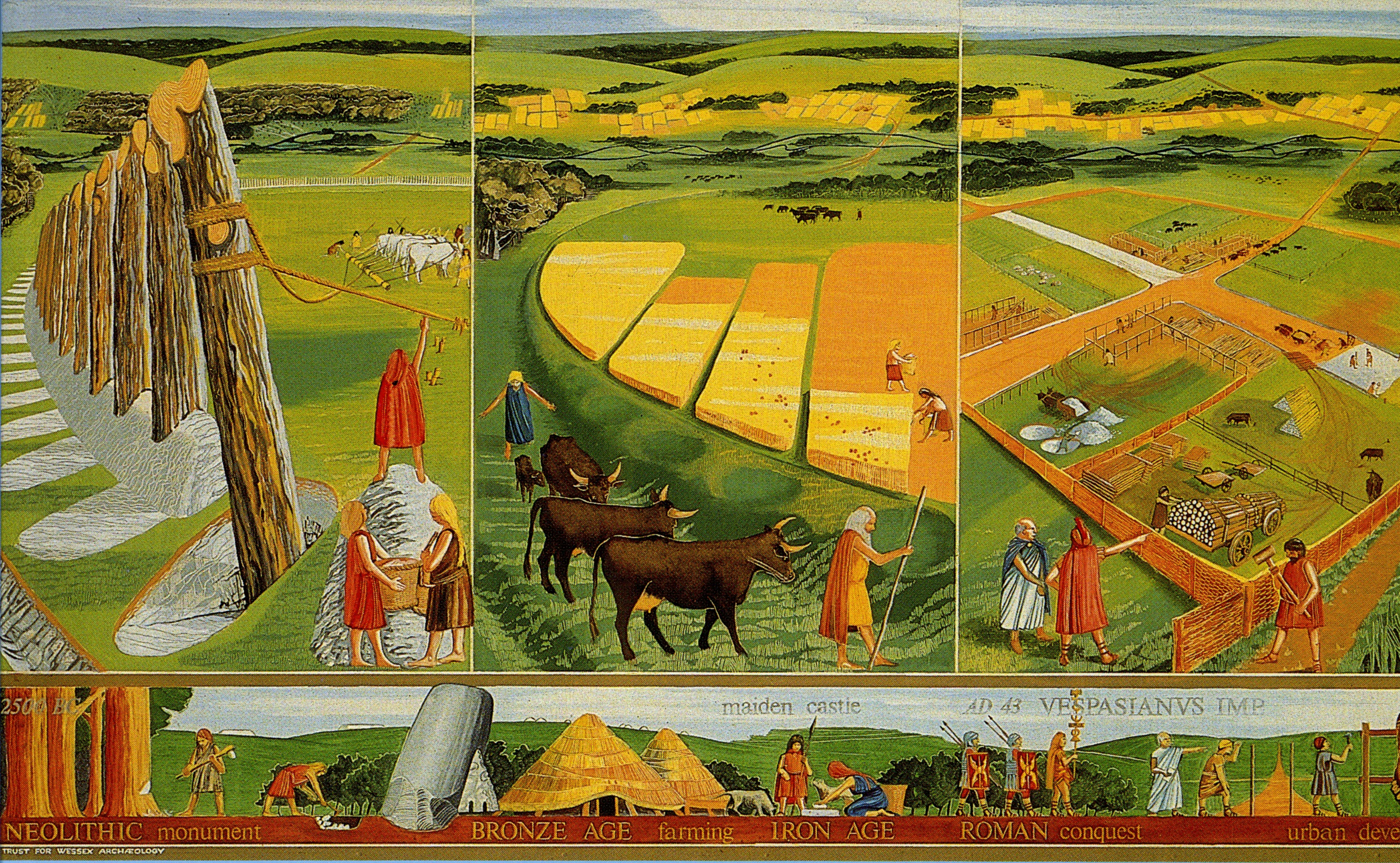
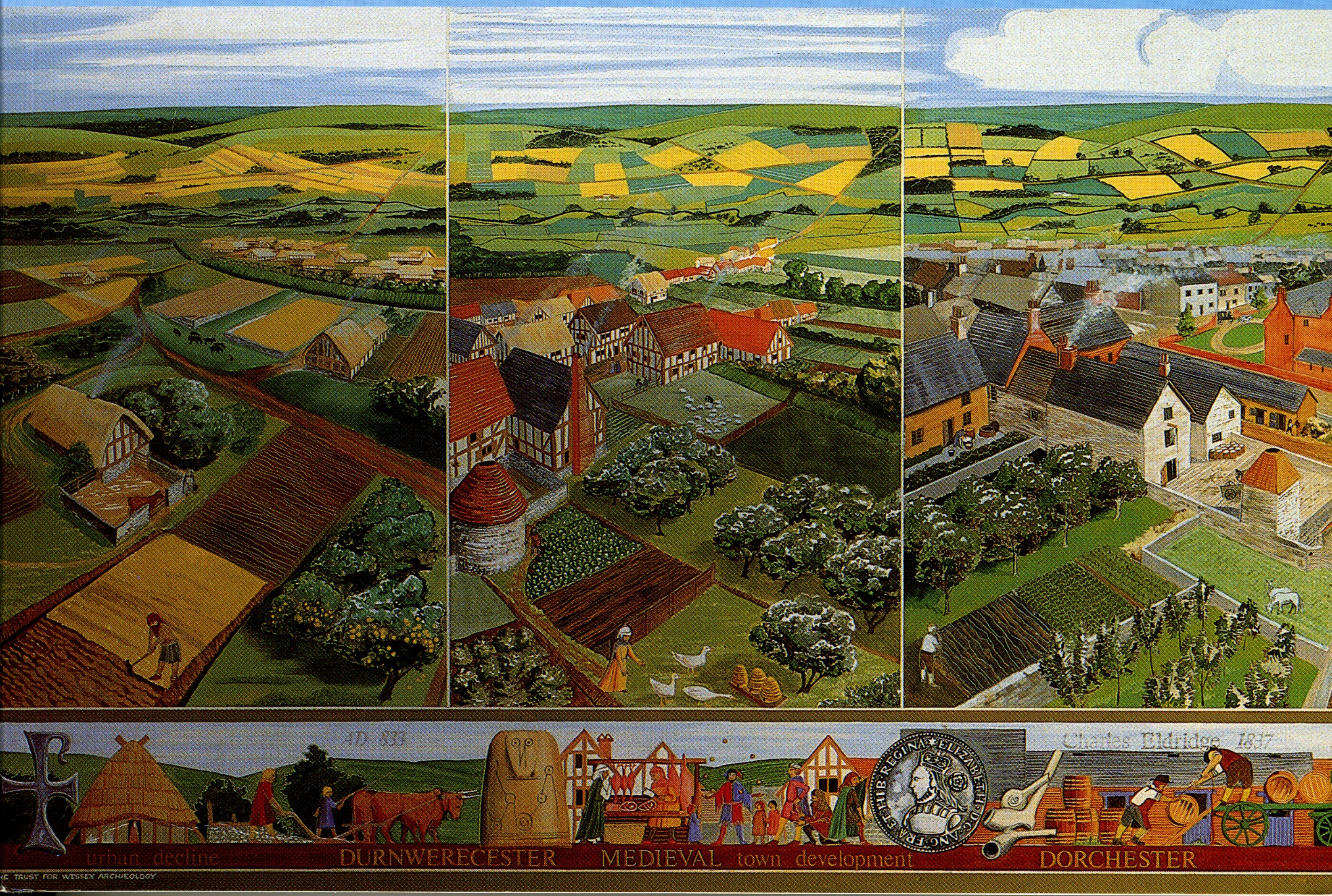


EXCAVATIONS AT GREYHOUND YARD, DORCHESTER 1981–4

Peter J. Woodward, Susan M. Davies, and Alan H. Graham



EXCAVATIONS AT THE OLD METHODIST CHAPEL AND GREYHOUND YARD, DORCHESTER, 1981–1984

by Peter J. Woodward, Susan M. Davies, and Alan H. Graham

The Trust for Wessex Archaeology

with contributions from:

M.J. Allen, D.M. Archer, J. Bayley, P.S. Bellamy, H.E.M. Cool, J. Draper, P. Ensom, C.J.S. Green, S. Hamilton-Dyer, K. Hartley, M. Hassall, M. Henig, J. Jones, L.J. Keen, J.V.G. Mallet, M. Maltby, J.G. McDonnell, J. Mills, Q. Mould, A. North, H. Pengelly, J. Price, R. Reece, J. Rogers, R.H. Seager Smith, L. Stacey, S. Staines, V. Straker, J. Timby, R. Tomlin, E. Watkins, D. Williams, J. Winder, A. Woodward.

1993

Dorset Natural History and Archaeological Society
Monograph Series: Number 12
Series Editor Jo Draper

8.6 OYSTER AND OTHER MARINE MOLLUSC SHELLS

by Jessica Winder

AIMS

The three aims of this investigation into the marine mollusc shells from the Greyhound Yard site were to see if the relative abundance of different species through time fell into any discernible pattern; to find out whether the oyster shells found in medieval deposits had originated in the Roman levels; and to determine the place from which the oysters had been collected.

All the marine shells were considered for the quantification procedures. However, for most of the site only a few shells were recovered from each context so twelve contexts with larger than average sample size were selected for the more detailed examination required for inter-phase and inter-site comparisons and determination of place of origin. See Appendix 21, microfiche 6.

METHODOLOGY

Oyster shells were studied in detail from twelve contexts which were placed in five groups considered relevant to the enquiry as above in Table 68.

The shells recovered from each context were sorted according to species and counted; the valves of oysters were separated into right and left valves, and then into those that could be measured and those too broken to be measured. This latter proceeding gave an indication of the degree of damage sustained by the shells.

In addition to sorting and counting the oyster valves in these selected samples, for right valves the maximum width and maximum length were recorded to the nearest millimetre; and the age of the oyster at death estimated. The absolute growth rate of shells in each context and in each group was calculated using the mean maximum width measurement for the oyster shells in each age group. Evidence of infestation or encrustation by various marine organisms was noted on both right and left valves on a presence or absence basis.

Table 68: The contexts selected for the detailed study of oyster

Group	Context	Context set	Period	Period details
1	4167	42/12/03	6	1st–early 2nd AD. Pit fill
2	2326	45/14/14	9/10	Late Roman with residual early Roman pottery. Loam layer in courtyard 1995
	2394	51/02/05	9/10	Late Roman with residual early Roman. rubble layer in courtyard 1995
	4615	45/11/06	9	3rd/4th century AD with earlier material. Levelling layer
	1284	44/17/05	10	3rd/4th century AD with earlier residual pottery. Upper fill pit 1300
	1457	44/19/02	8	3rd/4th century AD with earlier 1st century material. Back fill of cess pit 1425
3	2163	44/07/07	8	2nd/early 3rd AD. Fill pit 2164
4	1343	61/14/01	12	Medieval with 68% residual RB pottery. Loam layer
	2128	61/02/11	12	Medieval with 99% residual RB pottery. Loam layer
5	2347	61/01/05	12/13	Medieval with 96% residual RB pottery. Fill of pit 2345
	2270	61/01/03	12/13	Medieval with 93% residual RB pottery. Rubble layer, robbing of hypocaust, room 1978
	2274	61/01/03	12/13	Medieval with 99% residual RB pottery. Rubble layer, robbing of hypocaust, room 1978

ABUNDANCE OF MARINE MOLLUSC SPECIES

The majority of marine shells were oysters but thirteen other species of British marine mollusc were found in a total of 383 contexts. In order of importance, the numbers of these species are shown in Table 69.

A couple of top shells (*Gibbula* sp) and venus shells (*Venus* sp) were present; as well as one worn shell of an exotic species of cowrie from a post-medieval context.

The frequency with which the non-oyster species of marine mollusc appeared in different Romano-British and medieval periods of the occupation of the site was complex (Table Mf. 70). The same species were recovered from Periods 7 and 12. However, a higher proportion of carpet shells and spiny cockles were found in Period 7, whereas most cockles, limpets, mussels, whelks and winkles were found Period 12. The majority of great scallops were found in post-medieval contexts (Period 15-16).

There does seem to be some inter-phase differentiation in species representation. This is difficult to interpret because of the known residuality problems. It does seem to indicate that, despite residuality and contamination tending to homogenise the contents of the layers, by incorporating material from earlier phases, the relative abundance of species did change with time. It is also obvious that the shellfish were probably collected from a variety of coastal localities because the habitats of the species differ from deep water to the littoral on a variety of substrates.

ABUNDANCE OF OYSTERS

Ten thousand eight hundred and ten oyster shells representing an MNI of 5927 were found in 975 different contexts. The twelve selected contexts contained 1263 oyster valves or 772 MNI. In other words 13% of the oysters were found in just 1.2% of the contexts, leaving an average of only eleven valves in each of the remaining contexts.

In order of magnitude of abundance, the percentage of oysters represented in each phase is shown in Table 70. The highest percentage from any single phase (28.97%) was recovered from Period 12, phase 61 with a further 11.38% in phases 62 and 63. A total 40.35% of all site oysters belonged to the medieval period. A high degree of residuality from earlier Roman layers was evident in the medieval deposits. For example, 99% of the pottery in contexts 2128 and 2274 was Romano-British. It is therefore likely that other material such as the shells are also residual.

Marine shells were virtually absent from pre-Roman contexts and those recovered were probably intrusive.

SIZE COMPARISONS IN OYSTERS

Four out of five of the grouped samples subjected to extra analysis showed no significant difference in size characteristics in two sample t-tests (Table Mf. 72). Group 5 was significantly different. A t value of 2 or more normally indicates a significant difference between two samples.

Table 69: The species of marine mollusc shells other than oyster

Common name	Latin name	MNI
Cockle (COCKL)	*Cerastoderma edule* (L.)	373
Winkle (WINK)	*Littorina littorea* (L.)	251
Limpet (LIMP)	*Patella* spp.	93
Carpet shell (CARP)	*Venerupis decussata* (L.)	53
Mussel (MUSS)	*Mytilus edulis* L.	39
Whelk (WHELK)	*Buccinum undatum* L.	34
Spiny cockle (SPIN COCKL)	*Acanthocardium* spp.	29
Great scallop (SCAL GT.)	*Pecten maximus* (L.)	16
Saddle oyster (SADD OYST)	*Anomia ephippium* (L.)	6
Dog whelk (DOG WHELK)	*Nucella lapillus* (L.)	3
Variegated scallop (SCAL VAR.)	*Chlamys varia* (L.)	1

T-tests on the individual samples of which the groups were composed are shown in Table Mf. 73. It was context 2347 alone in group 5 that was responsible for the difference in the size of group 5, the results from context 2270 being regarded as unreliable because of the small sample size.

The sample from context 1284 was discovered to be significantly different in size in five out of eleven comparisons but this was not apparent in the group 2 comparisons of which it was a part.

AGE OF OYSTERS

The distribution of age groups in the grouped samples is depicted in archive. The wide range of ages, «1-16 years, and the even way the specimens are distributed across the age range, is thought to be an indication that the oyster bed in which they originated was an uncultivated one and that no direct or indirect selection procedures were operating during their collection. The age frequencies in the oysters from context 2347, which was noted as being significantly different in size from the other samples, exhibited no distinguishing features.

GROWTH RATE OF OYSTERS

The growth rate curves for the grouped samples is depicted in archive. There was a slight difference in the absolute growth rate of the oysters from context 2347 (and group 5) in comparison with that obtained for the other samples. All samples shared much the same growth rate for the first few years but during the fifth to sixth years oysters from 2347 seem to have experienced a growth spurt which led to a higher than average size subsequently.

INFESTATION OF OYSTERS

Evidence was found for ten types of epibiont organism that had encrusted or infested the oyster shells. These included the characteristically shaped burrows of the marine polychaete worms *Polydora ciliata* which has an ubiquitous coastal distribution, and *Polydora hoplura* which is confined to the south and south-west coast of England. The honeycomb-like borings of the sponge *Cliona celeta* were an indication not only of the age and thickness of the shells but also perhaps of oyster beds lying in relatively shallow and warm waters. Calcareous tubes of both *Pomatoceros triqueter* and *Hydroides norvegica*, were recorded along with acorn barnacles of the *Balanoides* type, sea-mats or Polyzoa and encrusting 'ross' or Sabellid sand tubes which all tend to occur in higher frequencies on shells on the rich, softer sediments within Poole Harbour than on the firmer substrates of Poole Bay.

Boreholes that failed to penetrate the shell were noted. These included the more familiar small regular holes rasped by gastropods such as *Ocenebra erinacea* (sting winkle) and *Nucella lapillus* (dog whelk). In addition, however, the presence of a large boring bivalved mollusc *Gastrochaena dubia* commonly called the flask-shell was recorded in thicker shells. This is similar in appearance and effect to the ship worm. It has not previously been recorded before in archaeological or modern populations of oyster shells but it has been noted as excavating its flask-shaped burrow in dead mollusc shells, sandstone and limestone along the south and south-west coasts of Britain. Its occurrence in the Greyhound Yard oysters is probably due to the fact that the exceptionally large and thick shells provided just the right habitat.

The types of infesting and encrusting organisms, and their relative frequency are depicted in archive. Context 2347 oyster shells were not remarkably different from other samples. The large burrow of *Gastrochaena dubia* was recorded in this medieval sample as well as firmly phased Romano-British ones. This could be taken either way, as supporting the idea that the shells in contexts phased to the medieval were derived from Romano-British deposits, or that such infestation was common to oysters in both phases.

Table 70: The percentage representation of oyster by stratigraphic block in order of magnitude

Stratigraphic block	Description	% Oysters
61	Early medieval	28.97
44	Romano-British	27.89
45	Later Romano-British	12.22
42	Early Romano-British	7.52
62	Medieval	5.91
63	Medieval	5.47
71	Post-medieval	3.95
51	Later Romano-British	3.71
43	Early Romano-British	3.02
46	Later Romano-British	0.84
72	19th Century	0.47
21	Neolithic	0.02
22	Prehistoric	0.02

INTER-SITE COMPARISONS OF OYSTER SIZE

The grouped samples from Greyhound Yard were compared with modern and excavated samples from Poole (Table Mf. 74).

There was no significant difference in size between groups 1 and 5 and the modern relaid oysters dredged from the Wytch Channel and South Deep in Poole Harbour. The five groups did show a significant difference in size from the modern wild oysters dredged from Poole Bay. They were also significantly different from all the samples obtained from the waterfront excavations in Paradise Street. Previous tests have indicated a similarity between most of the Paradise Street samples and the modern Poole Bay shells.

No significant difference in size was found between groups 1 to 4 and the archaeological shells from Thames Street in Poole which themselves differ from the modern oysters recorded to date. It seems likely that oysters in this group of similarly sized specimens hailed from a location in the Harbour from which no sample is yet available.

In summary there was a direct relationship between some groups of Greyhound Yard shells and modern relaid oysters from within the Harbour. There was also a similarity between other groups and archaeological shells from Thames Street in Poole for which the exact location of the source bed within the Harbour is not yet known. On the basis of size, none of the Greyhound shells are likely to have originated in Poole Bay.

CONCLUSIONS

The findings of the analysis of marine shells from Greyhound Yard can be summarised as follows. Inter-phase differentiation in relative abundance of species was demonstrated although interpretation of these patterns was not possible because of inprecise dating and problems of residuality.

With the exception of oyster shells from context 2347, there was no significant difference in size between most of the selected samples from Romano-British and medieval phases; and even context 2347 shared a similar distribution of age groups and types of infestation. The evidence suggests that oysters in four of the five medieval contexts examined were derived from Romano-British deposits, while oysters from the remaining context 2347 were different but not necessarily medieval.

Finally, two of the groups of oyster shells showed no significant difference in size from modern oysters dredged from South Deep and Wytch Channel in Poole Harbour. Four of the groups were similar to shells from archaeological excavations at Thames Street in Poole which were probably from an unlocated oyster bed within the Harbour. There was no relationship between any of the Greyhound shells and those collected from wild beds in Poole Bay. The oysters were probably from a natural uncultivated bed.

8.7 MINERALISED COPROLITES AND CESS

by M. J. Allen

Five mineralised organic specimens were submitted for description and identification. Each was examined and gross morphology described. The fabric and matrix were then examined under a x10 – x30 stereo-binocular microscope. The detail descriptions are to be found in archive. The specimens are otherwise summarised in Table 71.