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ANDOVER (PORTWAY INDUSTRIAL ESTATE) - THE INHUMATIONS

Ancient Monuments Lab No 760776

Period: Anglo-Saxon

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A total of 69 numbered inhumation burials were presented to the laboratory for examination, including the double graves of 2 and 13. The following numbers were found to contain the remains of more than one individual:

1) Inh. 1: Fragment of a second frontal bone.

2) Inh. 6: Duplication of fragments of left and right femora and tibiae.

3) Inh. 17: A left talus and calcaneus belonging to an adult were present. These were very similar to the right pair from Inh. 18 and it was therefore assumed that they came from Inh. 18.

4) Inh. 22: 9 deciduous teeth not belonging to Inh. 22 were present.

5) Inh. 25: An anterior fragment from a second mandible was present.

6) Inh. 38: There was duplication of an atlas, axis and right zygoma. There was also a possibility of a third individual owing to the presence of two first molars with an age estimate of less than 25 years, but lacking other evidence it was impossible to state whether this actually represented a third individual or admixture of bone.

7) Inh. 60: A duplicate set of teeth was present from an individual aged 35-45 years. (The main burial was of a juvenile).

There were therefore eight possible further individuals present in addition to the numbered inhumations, making a total of a probable minimum number of 77 (the conclusion may only be tentative since possible confusion of the bones cannot be ruled out). Of these secondary burials only those from Inh. 38 and 60 yielded enough data for analysis, but for the purposes of this report the number of individuals present was taken as 77.

Three of the burials could be regarded as being fairly well preserved (4, 45, 62), but the remainder were in a poor condition. The amount of bone present for each individual ranged from three tooth crowns (Inh. 10) to a fairly complete skeleton (Inh. 62 - most bones represented). There were no complete skeletons and in most cases the bones that were available were broken or damaged in some way.

Population Statistics

The inhumations from Portway were assessed for details of age, sex and stature for an analysis of the structure of that part of the site. Since the bone preservation was poor most of the estimates obtained are only approximate (this applies particularly to the age of the individuals). The results for each inhumation are shown in Appendix 1.

Age

The table below outlines the methods used in assessing the ages of the Portway inhumation sample.

Table 1: Methods Used in Assigning Ages at Portway

Method	Juvenile/Sub-Adult/Adult	Inh.No.	Total No of Individuals
Tooth Development	Juvenile	10,13A,16,17,20,24 30,36,39,40,44,46, 47,54,58,60(i),61 62,63,66,69	21
Tooth Development	Sub-Adult	15	1
Epiphyseal Union	Juvenile/ Sub-Adult	27	1
Tooth Development + Epiphyseal Union	Juvenile	67	1
Tooth Development + Tooth Wear	Sub-Adult	32	1
Tooth Wear	Adult	1,2,3,5,6,7,9,11,12, 19,21,22,25,26,28, 29,31,35,37,38(i), 38(ii),38(iii),41, 42,43,45,48,49,51, 52,53,55,56,59, 60(ii),64,65	37
Tooth Wear + Epiphyseal Union	Adult	4	1

Method	Juvenile/Sub-Point/Adult	Inh.No.	Total No of Individuals
Pubic Symphysis	Adult	2A	1
"Bones" general	Adult	13,14,18,23,33,50	6
No estimate possible	-	57,68	2
			72

It is immediately apparent that the majority of individuals were aged by means of the dentition, this generally being all the evidence that was available. Tooth development was estimated by means of the chart of Schour and Massler (1941) and tooth wear on that of Miles (1963). Where epiphyseal union was employed only general estimates were feasible owing to poor bone preservation and this applied also to the few "adults" where skeletal development was complete but no further evidence was available for ageing the subjects.

Clearly the accuracy of ageing of this population sample was limited by the data available; for the juveniles, where dental development is generally the most reliable method anyway, this was not significant but on the adults tooth wear is affected by a number of different variables, for example diet, and although the chart used was revised originally from an Anglo-Saxon series its applicability to the Portway sample is restricted by general lack of knowledge of rates of wear etc., therefore the age estimates based on this must be regarded as approximate (note the large ranges given for some individuals). Only one individual could be aged by means of the pubic symphysis (this is affected by fewer variables than tooth wear), using the method of Gilbert and McKern (1973).

The age distribution of the sample is shown in the figure below:-

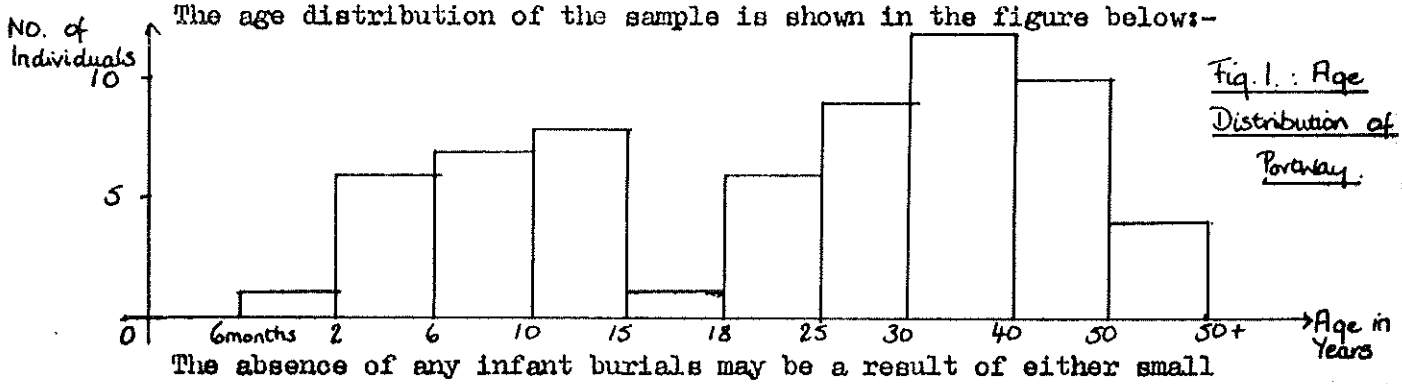

Fig. 1. : Age Distribution of Portway.

The absence of any infant burials may be a result of either small sample size or burial practice. Likewise the large number of individuals aged below 30 years (38 out of a total of 70) may equally be the outcome of sample bias, burial practice or early mortality in the population in question. It is impossible to attribute the cause positively on the evidence available.

Sex

Sex was assessed for most individuals by non-metrical methods; this was based primarily on the sex characteristics of the pelvis with the skull used as secondary evidence. In a few cases it was also possible to measure the vertical diameter of the femoral head but no other metrics were available. No attempt was made to sex juveniles (below 18 years) for the reason that data was generally not available and where it was, it was felt that the criteria for sexing juveniles was too inaccurate for their use to be justifiable.

The results (see Appendix 1) showed that there were an approximately equal number of males and females present. The large number of unsexed juveniles reflects the age distribution of this population. There was no evidence to support that the sexes showed different mortality rates, thus females could not be shown to have a younger age at death than males and vice versa. However the sexed sample was extremely small and this must be emphasized when considering the age and sex distribution of the group.

Stature

Stature was estimated using maximum lengths of the long bones and Trotter's chart (1970 - see Appendix 1 for results). It was only possible to assess stature on ten individuals, therefore no further analysis could be justified.

The Dentition

Where possible teeth were examined for evidence of dental health and disease, diet and any possible inherited dental anomalies (eg third molar absence). Although on the whole the teeth were well preserved the maxillae and mandibles necessary to such information were not; therefore a record was made where possible of individual features although analysis was not necessarily undertaken.

Dental Wear

The degree of wear on the occlusal surfaces of the molar teeth was used for the purpose of ageing only. The amount of wear and its location on various teeth may sometimes yield information with regard to dietary and chewing habits but there was insufficient data present at Portway for such analysis to be made.

Caries and Abscesses

Observation for caries could be made on 57 sets of teeth at Portway. Proper analysis of the rate of caries incidence could not be made since the total number of teeth present was unknown (the number of caries against the total number of teeth is used rather than the number of carious teeth per mouth since the latter tends to obscure the fact that teeth may be missing). However for those individuals where data was available it could be shown that 43 of the 57 sets had no caries present, therefore 25 per cent of the mouths analysed had some form of carious infection.

Of the 14 individuals with caries, four had more than one tooth affected (three on 38(ii) and 59, six on 38(i) and 53). The most common site was at the cemento-enamel junction, followed by the crown and then by occlusal caries. There was only one example (38(ii))of a tooth with such a large caries that not only could its point of origin not be determined but also there was pulp exposure and an abscess infection at the tooth root. The finding that most caries were at the cemento-enamel junction is common at this period (see Moore and Corbett 1971)and is generally attributed to poor dental hygiene (food becoming packed around the gingival margin). Further the general absence of caries in the majority of individuals may be associated with the absence of sucrose from the diet (a marked increase in the number of occlusal caries occurs at the same time as greater use and availability of cane sugar in the 17th century).

Abscesses were noted in only two individuals out of a total of 28 for whom data was available. In one (mentioned above) the infection could be linked with a large carious lesion. In the other (Inh.55) extreme wear of the tooth leading to pulp exposure and subsequent infection seemed to be the cause rather than a caries.

Periodontal Disease

The occurrence of periodontal disease with subsequent alveolar recession indicates inflammation of the gingival margin, frequently as a result of poor dental hygiene with food packing as a result. At Portway data was available for 23 individuals: 3 showed slight, 6 moderate and 14 severe peridontal disease. However it could be shown that there was in part an age trend present such that severity did not usually occur until after 30 years (two exceptions being nos. 53 and 56). There was no significant difference between the sexes in distribution.

Other Dental Evidence

There was insufficient data available for the analysis of any other dental data. This included the following: calculus deposits, enamel hypoplasia, reduction or absence of teeth and rotation or crowding.

"Green-Staining of the Bones"

A number of individuals from Portway were noticed to have copper alloy (green) staining on various bones. Observations were therefore made for the location of the staining (for possible positioning of artefacts containing copper), and age and sex of the individuals involved. (See Appendix 3 for full results).

Location of the staining was largely confined to the chest, arms and hands. A total of 17 individuals showed evidence on the chest (clavicles, sternum, ribs, vertebrae or scapulae). In 12 cases this could be shown to be laterally orientated: thus on 6 the right side was affected, on 3 the left, on 1 both and on 2 it was indeterminate. In 5 instances the medial area was involved (eg manubrio-sternum). It is possible that the apparent lateral inclination on some individuals was the result of disturbance in the grave but in view of the number of individuals involved it is felt that this is unlikely.

On the arms all the bones were involved. On 2 individuals the staining was at the proximal end of the humerus , and included the deltoid tuberosity and the area superior to it. On one the proximal medial border of the ulna was involved, on another the mid-shaft of the radius and ulna and lastly on 3 individuals the wrist was stained. In all cases the right arm not the left was involved.

4 individuals had green-staining of the hands; in all cases this was found on the phalanges (ie the fingers).

5 individuals had green-staining on the base of the skull (on the mandible, lower dentition or occipital). Since the practice of putting a coin in the mouth of the deceased is not found at this period it is suggested that the staining was caused by movement or disturbance of the head after burial such that the head came into contact with a copper containing artefact.

A final instance involved staining of the anterior proximal left femur on Inh. 61.

The age distribution of the copper-alloy staining was found to be insignificant but analysis of the sexes of the individuals concerned showed that more females were involved than males - see Table 2.

Table 2 Sex Distribution of Green-Staining

Sex	No of Individuals
Female	8
? Female	2
Male	2
? Male	1
Juvenile	4
Unsexable	4
Total:	21

The occurrence of green-stained bones at Portway could be shown to affect certain areas of the body and females more than males such that it can be suggested that it was not accidental but was the result of direct contact with objects containing copper. The involvement of chest, arms, wrists and fingers suggests that jewellery on the body was probably the cause rather than the presence of grave goods, but this needs to be checked against the evidence for grave goods for greater certainty.

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Appendix 1. Results of Age, Sex and Stature Estimates by Individuals

Inhumation No	Age (in yrs)	Sex	Stature
1	30-40	F	160 cm. c.5'3"
2	30-35	M	-
2A	45-55	F	165 cm. c.5'5"
3	40-50	F	-
4	22-25	F	164 cm. c.5'4"
5	25-30	M	164 cm c.5'5"
6	30-35	M	-
7	35-45	F	-
9	50+	M	-
10	3-4	Juvenile	-
11	30-40	F	-
12	40-55	M	-
13	Adult	?F	-
13A	4	Juvenile	-
14	Adult	?M	-
15	15-18	Juvenile	-
16	11-12	Juvenile	-
17	7-8	Juvenile	-
18	Adult	M	-
19	25-35	?M?F	-
20	8-9	Juvenile	-
21	45+	-	-
22	24-30	-	-
23	Adult	-	-
24	5	Juvenile	-
25	45+	? F	-
26	55+	M	-

Inhumation No	Age (in yrs)	Sex	Stature
27	6–15	Juvenile	–
28	42–48	M	–
29	35–45	M	–
30	9–10	Juvenile	–
31	50+	–	–
32	18–25	–	–
33	Adult	–	–
35	30–40	?F?M	172 cm. c.5'8"
36	18 mths– 2 yrs	Juvenile	–
37	35–45	M	181 cm. c.5'11"
38(i)	45–65	M	–
38(ii)	35+	F	–
38(iii)	< 25	–	–
39	7	Juvenile	–
40	8–9	Juvenile	–
41	40–45+	F	–
42	25–35	F	154 cm. c.5'1"
43	25–35	?? M	–
44	12–14	Juvenile	–
45	25–35	F	156 cm. c.5'2"
46	6	Juvenile	–
47	11	Juvenile	–
48	18–25	Sub-adult	–
49	25–30	M	–
50	Adult	F	–
51	25–30	–	–
52	30–35	F	–
53	18–30	F	–

Inhumation No	Age (in yrs)	Sex	Stature
54	18–25	–	–
55	40–50	M	–
56	25–30	? M	170 cm. c.5'7"
57	–	–	–
58	5–6	Juvenile	–
59	45+	F	–
60(i)	11–12	Juvenile	–
60(ii)	35–45	–	–
61	c.12	Juvenile	–
62	12	Juvenile	–
63	12–13	Juvenile	–
64	50–60	F	164 cm. c.5'5"
65	35–45	? M	–
66	3–4	Juvenile	–
67	14	Juvenile	–
68	–	Juvenile	–
69	4–5	Juvenile	–

Appendix 2. Comparison of Adult Sex Estimates Based on Osteology and Grave Goods

	Male	?Male	Female	?Female
Sexing based on Osteological Evidence: report by JDH	2,5,6,9, 12,18,26,28, 29,37, 38(i),49, 55	14,19,43, 56,65	1,2A,3,4,7,11, 38(ii),41,42, 45,50,52,53, 59,64	13,25,35,
Sexing based on Osteological Evidence: report by CW	1,2,5,6,7,9, 12,14,18,26, 28,29,37,43, 49,55,56		2A,3,4,11,13, 19,21,22,25,32, 35,38,41,42,45, 50,51,52,53,59, 64,65	48,54
Sexing based on Associated Grave Goods	2,5,6,7,12, 14,18,26,28, 29,33,37,43, 49,55,56		1,2A,3,4,9,11, 13,19,21,22, 23,25,31,32,35, 38,41,42,45,48, 50,51,52,53,54, 59,64,65	

Appendix 3. Individuals from Portway with Green-Stained Bones

Inh. No.		Location of Stain	Sex
1	-	Right Side of Chest	F
2A	-	Central chest - manubrio-sternum	F
7	-	1 rib - chest	F
11	-	Right humerus, proximal extremity	F
12	-	Right radius - wrist	M
16	-	Anterior mandibular dentition	Juvenile
	-	Central chest	
19	-	Left chest	?M
	-	Phalanges of the hand	
22	-	Central chest	?
25	-	Right radius and ulna, mid-shaft	?F
	-	Lateral chest, both sides	
26	-	Right ulna, proximal extremity	M
32	-	Dentition	?
	-	Left chest	
33	-	Right wrist and fingers	?

Inh. No.		Location of Stain	Sex
35	-	Right proximal humerus	?F
	-	Right wrist	
	-	Right chest	
42	-	Right chest	F
	-	Right angle of mandible	
44	-	Central chest	Juvenile
48	-	Right chest	?(Sub-adult)
	-	Base of skull	
52	-	Anterior mandible	F
	-	Central chest	
53	-	Left chest	F
	-	Fingers	F
59	-	Lateral chest	F
61	-	Anterior proximal left femur	Juvenile
	-	Left chest	
	-	Fingers	
67	-	Right chest	Juvenile