Report 1877

HB/P

Hereford, Castle Green Human bone report

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Fifty one articulated skeletons and thirty three non-articulated bone groups were examined. A scatter of miscellaneous bones from the site were also examined. These would have come from disturbed graves and so are probably only further parts of individuals already represented. Seven of the articulated skeletons came from "Charcoal burials". Some of these were in a very poor state of preservation but most of the bones from the site were in fair state, although rather fragmentary and with varying amounts of surface erosion.

In 2 of the articulated skeletons the skull does not appear to match the post-cranial remains. The skull in S63 appears female and the rest of the skeleton male while in S66 the reverse is true with an apparently male skull and female post-cranials. Most of the non-articulated bone groups contain the remains of more than one individual. Some of the individuals are represented by only one or two bones. The details are set out in Tables 1 and 2.

Because of the fragmentary nature of the remains it is not always easy to make a definite sexing. The most useful parts of the skeleton are the skull and pelvis but when these are missing an estimate can be made, based on the general robustness of the other bones. On this site all the adults are fairly large and well-built so this criterion is harder to apply. This means that some of the skeletons described as probably male may in fact be the larger and more robust females.

Aging for those individuals under 20 was based on epiphyseal fusion and tooth eruption, and for older individuals on dental wear and/or the appearance of the pubic symphysis.

The population as a whole

The individuals represented by the articulated skeletons and those represented by the bone groups are combined in the analysis below as the 2 groups are very similar in their composition. This gives a larger population to consider.

Table 3 - Population summary

Age (yrs.)	Male	Female	Total
0 - ½			7
½ - 2			7
2 - 7			10
7 - 15			5
'juveniles'			3
16 - 25	6	8	20
25 - 35	6	5	13
35 - 45	10		11
45+	1		1
'adults'	13	6	29
	36	19	106

The Total No. column includes those individuals for whom no sexing was possible.

Table 1 - Articulated skeletons

Skeleton No.	Age (years)	Sex	Stature (cms.)
5	25-35	F	165
7	6±1	juvenile	-
10	17-25	F	157
12	birth	infant	-
15	adult?	prob. M	171
16	¾±¼	infant	-
17	birth?	infant	-
20	¼±¼	infant	-
22	25-35	?	-
24	19-23	poss. M	-
25	2±½	juvenile	-
26	30-35	M	179
28	18-20	?	-
29	30's?	prob. M	179
30	27-30	M	175
33	17-25	M	173
34	birth	infant	-
35	45-50	M	175
36	1±½	infant	-
38	20-25?	?	-
40	birth	infant	-
43	6±1	juvenile	-
44	6±1	juvenile	-
46 *	17-25	?	-
47	18-20	prob. F	-
50	20-30?	F	-
56	30-35	M	176
58	18-21	M	168
60	20-25	prob. F	-
61	35-40	M	-
63	25-35	F	-
	adult	M	181
64	35-40	prob. M	180
65	35+ ?	poss. M	-
66	25-35	M	-
	adult	prob. F	159
68 *	?	infant	-
69	35-40	prob. M	174
70	20-25	F	168
71	35-45	M	-
72	½-¾	infant	-
73	adult?	?	-
74 *	17-25	?	-
76 *	20-25	F	157
78	adult	M	189
80 *	adult & juvenile		-
81	adult	M	174
82	adult	?	-
83	17-25	prob. F	164
84	4±2	juvenile	-
85	adult?	prob. M	-
86 *	13-16	juvenile	-
87 *	17-25	prob. M	180

Most of the burials contained a few bone fragments from other individuals which more correctly belong with the miscellaneous bones.

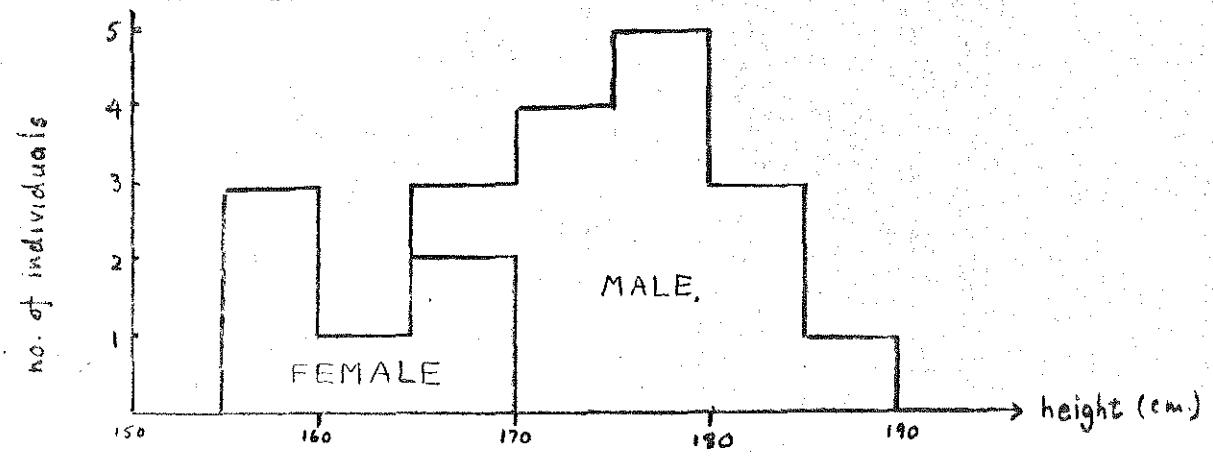
* = "Charcoal burial"

Table 2 - Non-articulated bone groups

Skeleton No.	No. of individuals	Age (years)	Sex
1	1	$\frac{1}{2} \pm \frac{1}{4}$	infant
2	1	$1\frac{1}{2}$-2	infant
3	1	adult	?
4	1	25-35	F
6	1	$1 \pm \frac{1}{4}$	infant
8	2	8 ± 1	juvenile
		35+?	poss.M
9	1	adult?	?
11	1	birth	infant
13	1	$\frac{1}{2}$?	infant
14	1	adult	?
18	5	5-10?	juvenile
		adult	poss. F
		adult	F
		adult	M
		35-45?	M
19	1	35-45	?
21	2	20-25	?
		2-7	juvenile
23	2	adult	M
		old	M
27	1	35-45	M
31	1	adult	?
32	4	adult	poss.F
		adult	?
		7-10	juvenile
		4 ± 1	juvenile
37	1	8 ± 1	juvenile
39	1	35-45	M
41	1	25-35	prob.F
45	3	15-20	prob.M
		20-35?	F
		30+	prob.M
48	1	25-35	?
49	2	20's	prob.F
		adult	?
51	1	12-15	juvenile
52	6	adult	M
		adult	M
		adult	prob.F
		adult	?
		17-25	?
		6 ± 1	juvenile
53	1	old	prob.M
54	1	35-45	poss.M
59	1	adult	M
62	1	$2 \pm \frac{1}{2}$	infant
67	2	adult	poss.F
		?	juvenile
75	1	adult	prob.M
77	1	17-25	M
79	1	?	juvenile?

Among those adults whose skeletons were complete enough to be tentatively sexed, the male to female ratio is nearly 2:1. This cannot be explained away by saying that the less robust female bones have differentially decayed as many far thinner juvenile bones are well preserved. As mentioned above, there is some uncertainty in sexing those skeletons that lack both skull and pelvis and this will have contributed to the apparent imbalance. The fallibility of size alone as a sexing criterion can be clearly seen from the statures:

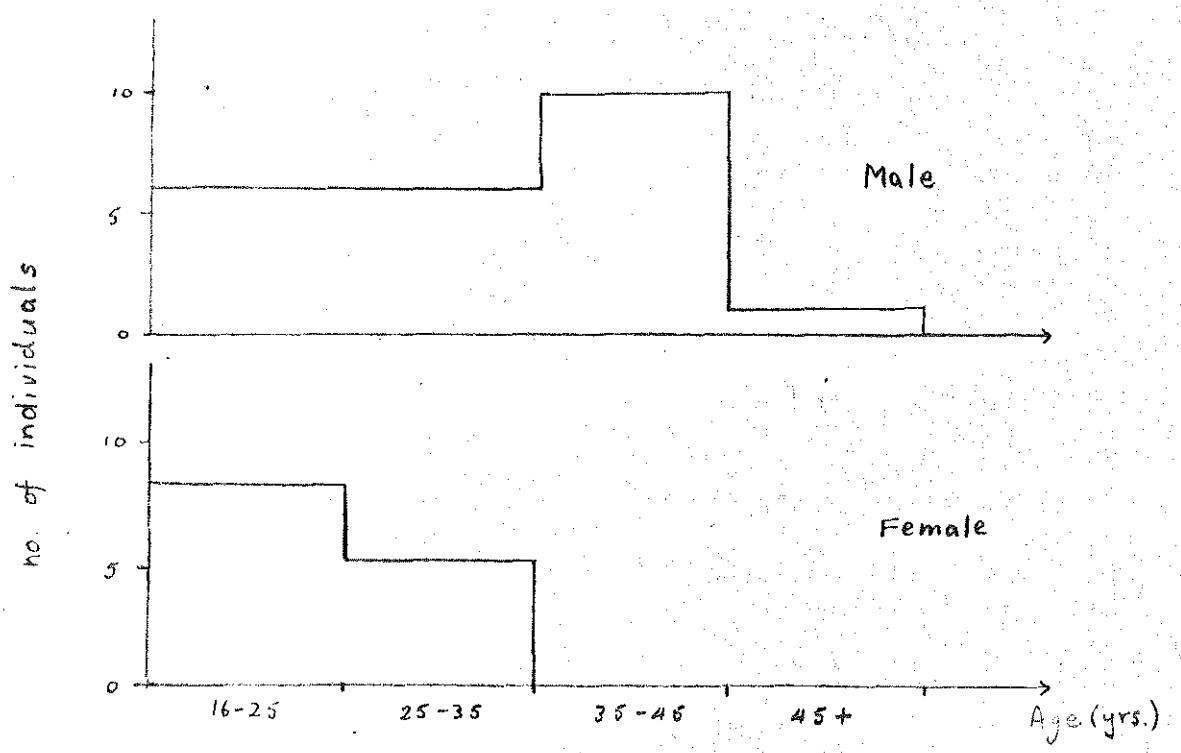
Diagram 1 - Stature distribution



The male-female divide is quite sharp with virtually no overlap, reinforcing the view that the larger and more robust females may have been mis-classified as male. This will have accentuated the bimodal form of Diagram 1 as Trotter and Gleser's stature formulae give taller heights for males with the same long bone measurements.

The age distribution for adults is again rather lop-sided, but probably only as a result of the relatively small sample size. It would seem however, that the males tended to live longer than the females.

Diagram 2 - Adult sex distribution



Among the juveniles and infants, who form nearly a third of the population, the age spread is fairly uniform but, as expected, the highest numbers died as infants. A fair proportion also died as young children but most of those that survived to seven reached maturity.

The "Charcoal Burials"

These seven burials were a complete mixture with one infant, 2 juveniles and 5 adults represented. Those adults for whom age estimates were made were all under 25. One grave (S80) contained the remains of both an adult and a juvenile.

In general the remains were more poorly preserved than for the site as a whole with some of the bones very severely eroded.

Skeletal anomalies

Burial S50 has 2 congenitally fused lower thoracic vertebrae. S56 has 6 sacral vertebrae instead of the usual 5. S60 has perforate coronoid fossae in both humeri. S74 has an unfused metopic suture in the skull. S61 has Schmorl nodes on 7 of the lumbar and thoracic vertebrae. These are due to a normal but genetically linked degenerative change of the intervertebral discs. Set end

Pathology

There is evidence of degenerative joint disease (osteo-arthritis) in most of the older individuals, with bony lipping of the vertebrae and long bone articulations.

Two individuals (S26 and S87) show clear evidence of rheumatoid arthritis of the spine with several of the vertebral bodies fused giving the 'poker spine' which is characteristic of the later stages of the disease. In S26 four lumber vertebrae are fused, the extra bone extending from the ventral to lateral parts of the bodies. In S87 seven thoracic vertebrae are fused with a single band of extra bone extending down the right lateral side of the vertebral column. A third individual (S69) may also have been affected but only a few fragmentary vertebrae remain.

S81 also shows what may be a rheumatoid arthritis of the spine but, instead of the usual ankylosis (fusion) of the vertebral bodies, it is the neural arches that are fused.

S85 shows extensive periosteitis on the pelvis, femora and distal parts of the arms. This widespread infection could not be trauma induced and so indicates a generalised infection of some sort.

Burial S78 shows widespread bone changes which Dr J L Price describes as follows: "There is trabecular thickening and widening of the cortex of the femur which has a spongy appearance, and the changes are suggestive of Paget's disease. This is supported by the presence of similar changes in a rib. The distribution of changes is unlike that of mixed metastatic deposits."

Among the miscellaneous bones are 2 femora showing abnormal bone deposits. The first, from L36 was also described by Dr Price: "There are irregular erosive cortical

changes on the lower lateral margin of the femur. There is some reactive sclerosis present. The changes are probably infective and could result from soft tissue infection rather than primary bone infection." The other (from L37) shows extra bone laid down on the surface along the linea aspera and on the lower side of the femoral neck. The femoral head showed some osteo-arthritic lipping so these extra bone deposits may also be defenerative changes, although not of a normal type.

Dental pathology

In general the teeth are in a good state preservation with few caries or abscesses, although most of them show a fair amount of wear, calculus deposits vary from slight to severe.

Trauma

A left femur associated with S5 has an ossified haemetoma on the medio-ventral side about half way down the shaft.

S66 has a fractured rib which had mended several years ante mortem.

A skull from L17 shows clear evidence of having been attacked with a sharp cutting weapon such as a sword. There is no apparent healing of the injuries which suggests that they were inflicted immediately prior to death. There are at least three distinct cuts (see diagram 3). Assuming these wounds were inflicted from the front, the assailant was right-handed.

Acknowledgements

I am grateful to Miss T Molleson of the British Museum (Natural History) for X-raying Burials S78 and L36 and to Dr J L Price for his comments on the X-rays.

References

Brothwell, D R (1972) Digging up Bones.

Trotter, M and Gleser, G C (1958) Amer. J. Phys. Anthrop. 15 (79-123)

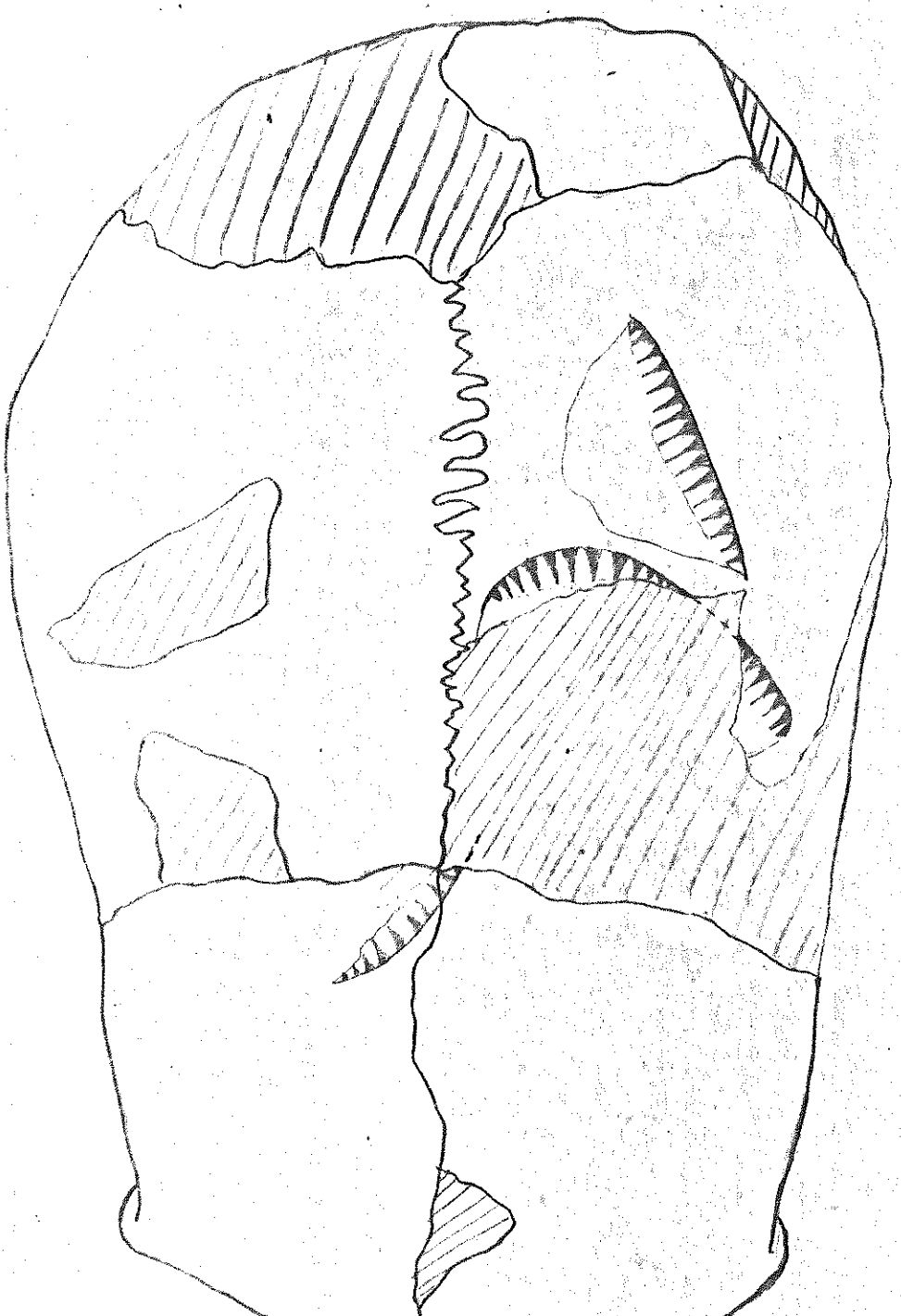


Diagram 3:-

Sketch drawing of skull L17 showing position + direction of cuts

// = missing areas

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Skeletal anomalies

Burial S50 has two congenitally fused lower thoracic vertebrae. S56 has six sacral vertebrae (instead of the usual five) and in S5 and S58 the fifth lumbar vertebra is partly sacralised. The older male in S45 has only four sacral vertebrae. Burials S24, S50 and S61 all show Schmorl's nodes in the thoracic and lumbar vertebrae. These are due to a normal but genetically linked degenerative change of the intervertebral disc material. The skulls of S74 and S75 have unfused metopic sutures and those of S7 and S45 (the younger male) have wormian bones in the lambdoid suture. S60 has perforate coronoid fossae in both humeri.

Burial S5 has the lower lateral premolars congenitally absent. The corresponding milk teeth were however lost ante mortem. In S76 the lower left third molar is impacted and the left lower canine malpositioned.