Part II: The Iron Age People of Dunbar

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Introduction

After a detailed examination of every fragment of skeleton from the Dunbar cist,[1] it became clear that not less than twenty-one individuals had been buried there. This is a minimum estimate, for in such cases where there is a large mass of human remains which have become mixed within a burial area, then there are nearly always some fragments which, even though they can be tentatively placed together with other components of a particular skeleton could, nevertheless, represent one or more than one additional individuals.

As shown in the accompanying figures (1–4) only about half the skeletons which could be reassembled have sufficient skull and post-cranial bones remaining to make them even slightly satisfactory from an osteometric point of view. After the division of the sexes and separation of immature individuals, the samples are clearly too small to demand detailed statistical comparisons, although some data can be presented. However, the series is nevertheless very interesting, in that it is the largest Iron Age series of skeletal remains so far available in Scotland.

Preservation of the bones varied considerably, although the majority showed some breakage and post-mortem change, and in a number of instances bones were badly eroded. In all cases the skulls were to some extent incomplete, and in particular the facial region had suffered from breakage and decay.

Although the bones cannot be described as particularly brittle, they have a chalky texture characteristic of bones low in nitrogenous material. In this respect, they are similar to many of the Scottish short-cist bones examined by one of us (D.R.B.), but contrast with the bone preservation to be found in some prehistoric skeletons from southern England. Nevertheless, we have not considered it essential in this instance to undertake special bone hardening by the application of preservatives.

Sorting the remains into a minimum of twenty-one individuals has been no easy task. There is no need to elaborate here on the various factors which have to be considered in such work, since they have been described elsewhere (Brothwell, 1963). However, we do wish to say that this phase of the study was considerably assisted by excellent detailed photographs, field notes and drawings supplied by Dr Ian Longworth. It is worth stressing that such additional information can be of much value, and it is to be hoped that, eventually, all excavators will consider it a duty to assist specialist work in this way.

Some of the bones were clearly in articulation within the cist, and it seems possible to state from the evidence that at least four of the individuals were in

[1] See p. 173 *supra* for an account of the excavation of the cist at Lochend, near Dunbar.

crouching (or semi-crouched) postures. Thus, although the relatively few bones representing some skeletons might at first sight suggest that only parts of the skeleton (? taken from a burial elsewhere) had been placed in the cist, the evidence of articulation is a point against such an hypothesis. Also, the missing bones represent in particular those parts of the skeleton which more easily fragment and decay away (such as vertebrae, scapula, ribs and pelvis). One cannot, of course, be dogmatic on such questions, and of course there is no way of telling whether, for example, the missing skulls were removed for 'remembrance' or fetish reasons (procedures not unknown in recent populations).

Sex and Age

Even in complete skeletons the determination of sex and age can be difficult. In incomplete material such as the Dunbar series, estimates of this nature must remain very tentative. Of seventeen adult individuals in which we considered sufficient remained to warrant an estimate of sex, there was no evidence of a predominance of male or female (there being probably 12 males and 8 females, although three of these estimates are highly questionable).

Estimates of developmental age were determined mainly on the degree of dental attrition (in view of the doubtful value of skull sutures and the absence of intact pubic symphyses). The presence of well defined osteo-arthritic changes were also considered useful corroborative evidence. Of the twenty individuals probably of adult age, only thirteen could be placed tentatively in more restricted age groupings. These were as follows: 20–30 years, two persons; 30–40 years, six persons; 40–50 years, five persons. Only one child was identified, and from the state of the fully erupted milk dentition, was probably about 4 years of age. This noticeable lack of children's bones is surely significant from an archaeo-sociological point of view. The child/adult ratio of 1:20 is very different from that in early British cemeteries generally, and clearly for some reason children have been given very secondary burial importance.

General Description of the Remains

Because detailed identification of individual bones would make this report cumbersome and lengthy, we have endeavoured to give much of the general information as to what was available for study in the form of skeletal charts (figs. 1–4). The charts show the most likely anatomical (and individual) relationships of the majority of bones sent for examination. Some, however, could not be fixed into these schemes, especially bones of the hands and feet, and some vertebrae and scapula fragments.

The pairing of bones, especially the larger long bones, was one of the least arduous tasks, and in most cases we are satisfied with these associations. The charts have been prepared bearing in mind the relevant groups (as defined by the excavator, and related to position within the cist). There would appear to be less likelihood of the bones being mixed between groups, but there is a chance of slight misplacement within skeletal groupings.

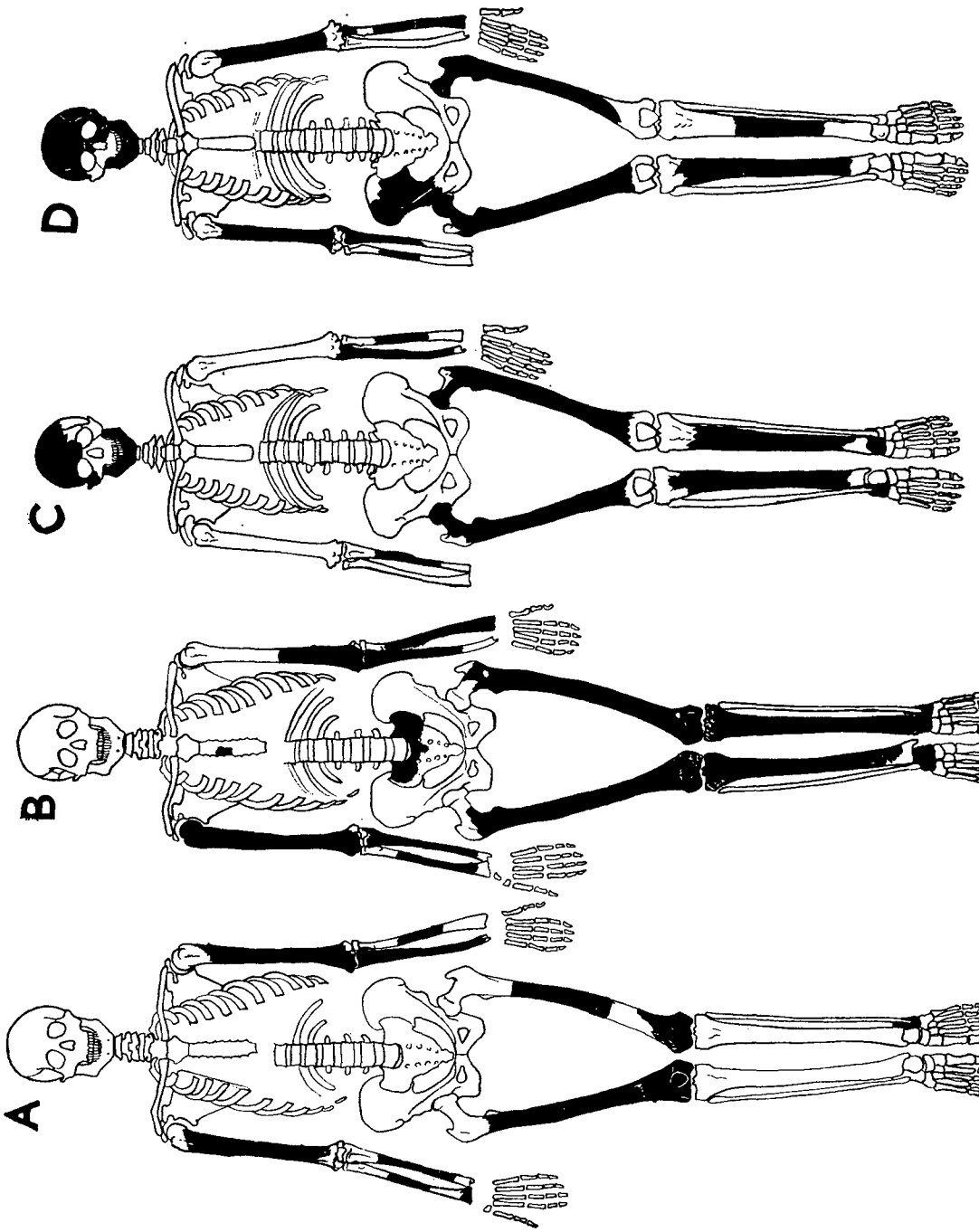

FIG. 1

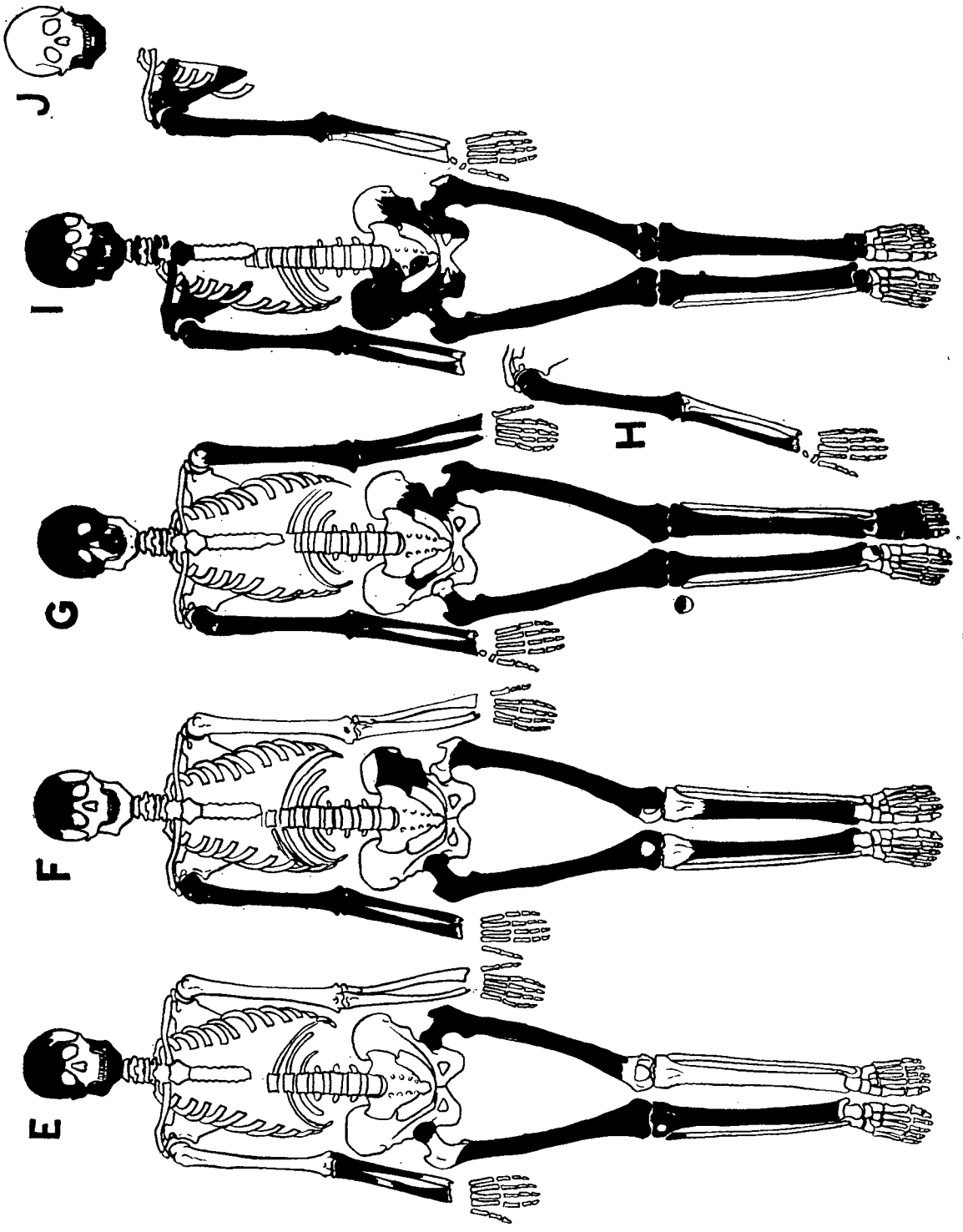

FIG. 2

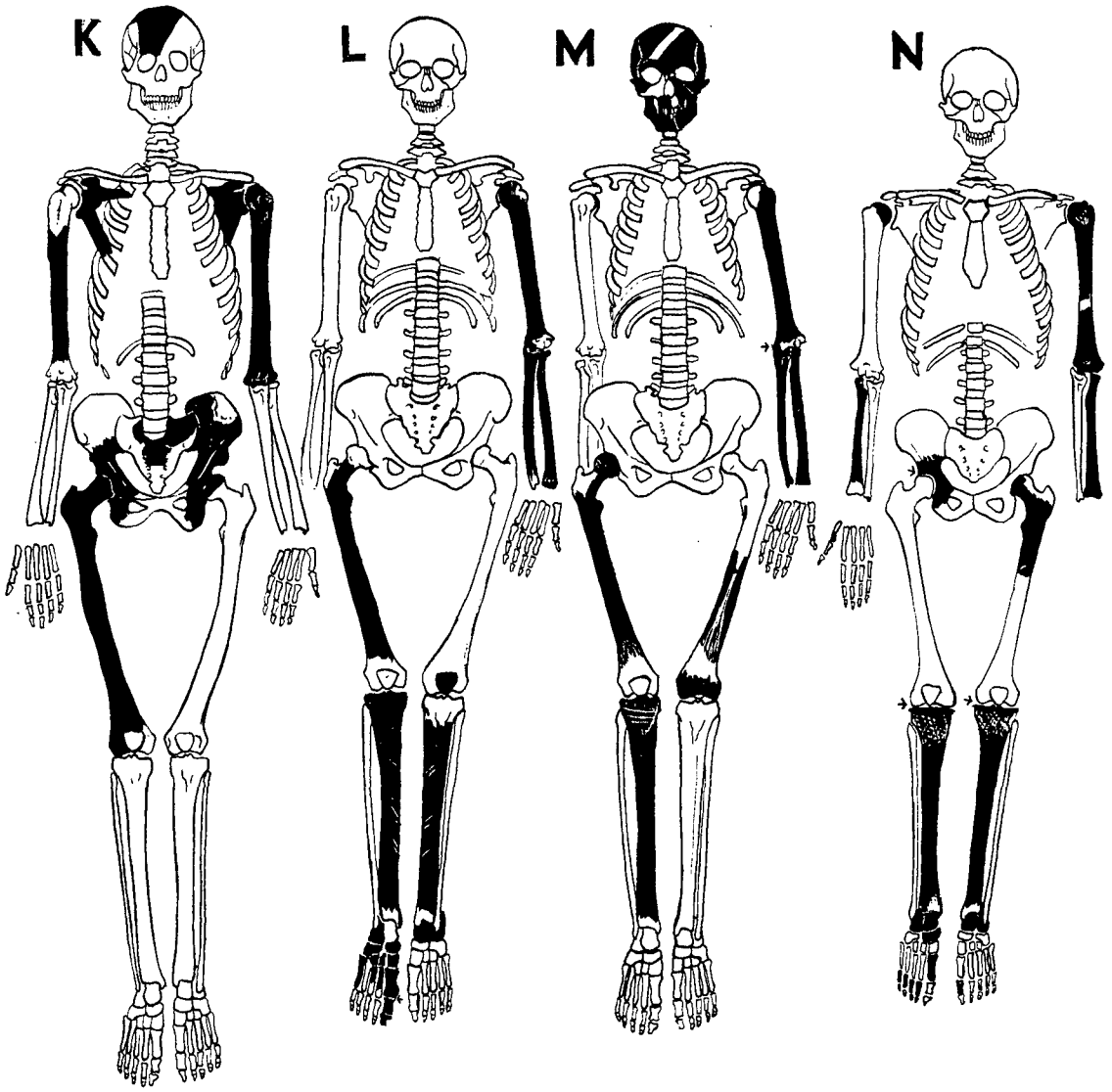

FIG. 3

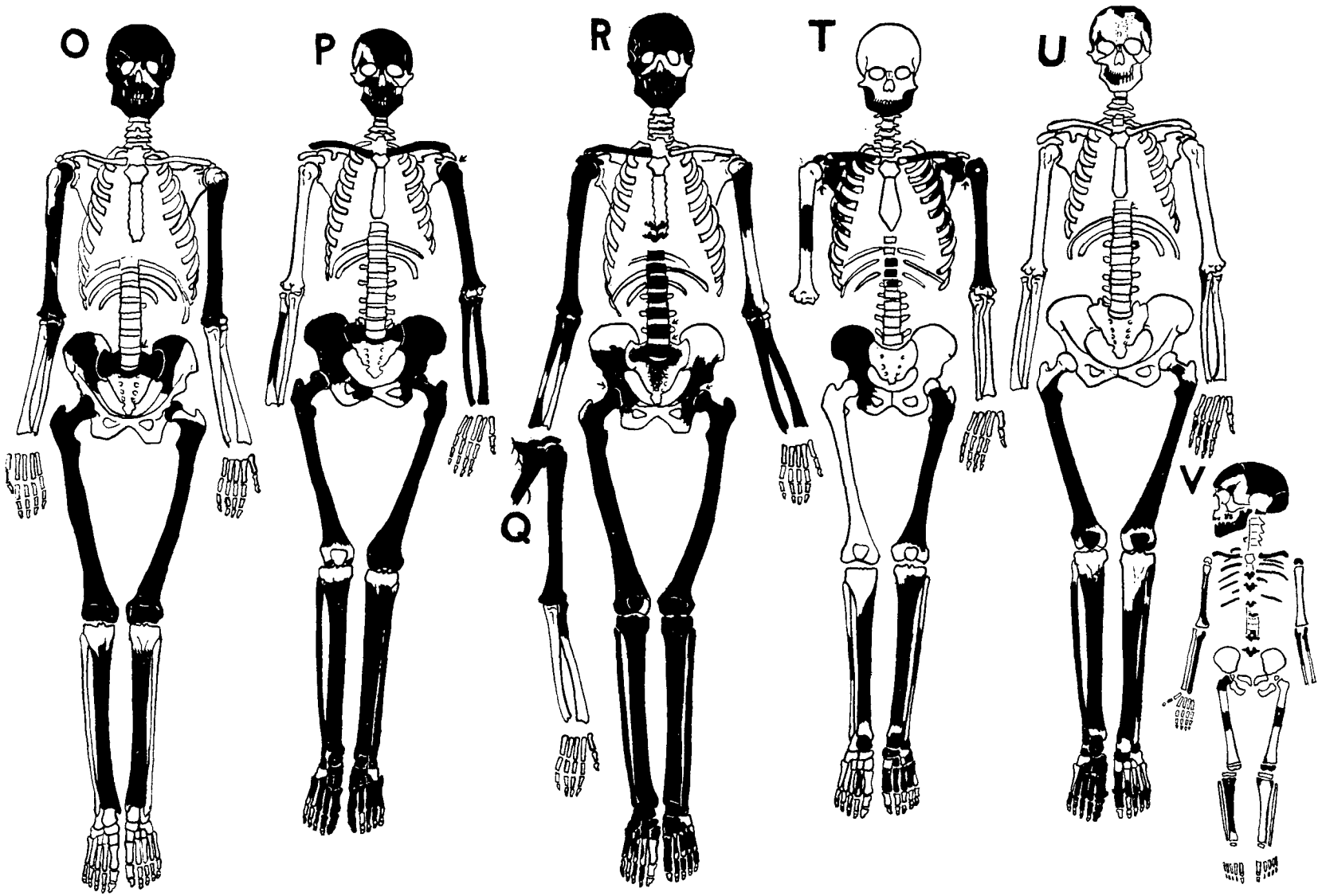

FIG. 4

As it would seem desirable to be able to refer to individual skeletons without continual reference to the multiple numbers given by the excavator to the bones from the cist, we have used capital letters as the most easy reference method (but excluding S, which has been employed by the archaeologist to denote surface finds). Thus, we have labelled the skeletons A to V.

Osteometric Variability

Measurements were possible on a number of the skulls, and many of the long bones.

In the case of the skull, breakage and erosion prevented a full list of measurements being taken on each specimen. Individual craniometric dimensions are given in Table I. Even when one has a substantial series of skulls for comparison with other groups, statistical comparisons are fraught with dangers. In the case of the Dunbar specimens, comparisons must be doubly cautious. After division of the

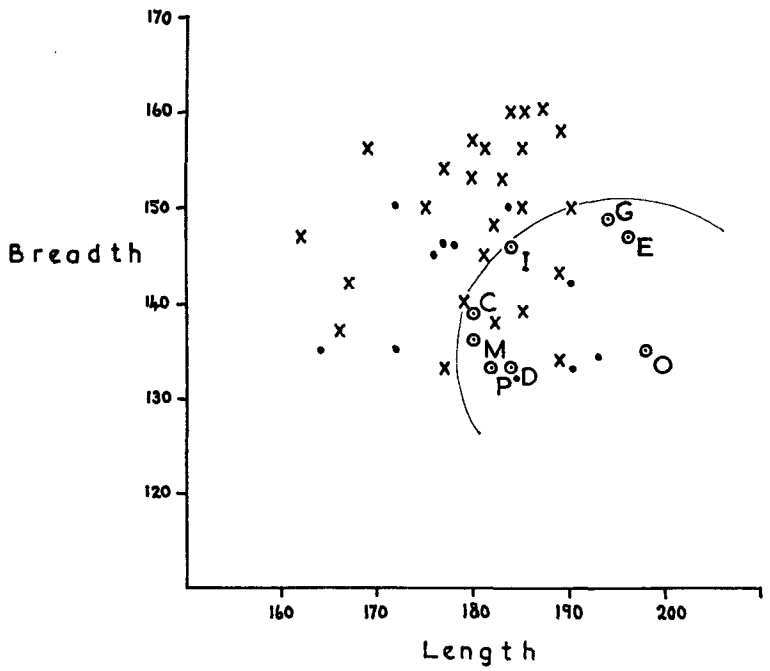

Fig. 5

sexes, the numbers which must 'represent' the group in comparative work is in the order of four or five only. Also, we have no idea how related these individuals were, and how typical they were of the Iron Age population as a whole. Nevertheless, a few comments about their physical make-up might be tentatively made.

In fig. 5, skull length and breadth is plotted for the Dunbar specimens (males and females) and a sample of short-cist skulls (again giving an indication of scatter for both sexes). It is interesting to note that in the Dunbar skulls we may see a trend

TABLE I

BASIC MEASUREMENTS OF THE DUNBAR SKULLS

		Males							*Females*				
		D	E	G	I	K	O	R	C	F	M	P	U
Glab-occip. L.	(L)	184	196	197	184	–	198	174?	180	–	180	182	–
Max. horiz. B.	(B)	133	147	149	146	–	134·5	–	139	–	136	133	–
Min. frontal B.	(B′)	99	106	103	90	–	99	100·5	–	–	98	–	–
Basi-breg. Ht.	(H′)	133?	–	–	139	–	–	–	–	–	–	134	–
Basi-nasion L.	(LB)	101?	–	–	139	–	–	–	–	–	–	103?	–
Frontal Arc	(S_1)	125	144	135	131	132?	135	126	123	130	123	124?	–
Parietal Arc	(S_2)	128	125	132	140	130	128	127	119	118	123	123	129
Occipital Arc	(S_3)	115	–	130	115	–	117?	–	–	–	118	117	–
Frontal Chord	(S'_1)	112	122?	111	114	115	121	111	109	115	109·5	109?	–
Parietal Chord	(S'_2)	115	113	118	122	116	117	122?	108	105	112·5	111	112
Occipital Chord	(S'_3)	95	–	107	110	–	96	–	–	–	97	101·5	–
Biasterionic B.	(Bi. B)	102	–	115	116	–	127	–	113	–	104·5	125	–
Nas.-alv. Pnt.	(G′ H)	–	–	–	73?	–	–	–	–	–	–	–	–
Basi-alv. Pnt.	(GL)	–	–	–	95·5?	–	–	–	–	–	–	–	–
Facial B.	(GB)	–	–	95	98?	–	–	–	–	–	–	–	–
Palate B.	(G_2)	–	–	–	43·5	–	43·5	40	–	–	–	–	–
Palate L.	(G'_1)	–	–	–	45	–	47?	43?	–	–	–	37·5?	–
Orbit B.	(O'_1)	40?	–	41	–	–	41	–	–	–	–	–	–
Orbit Ht.	(O_2)	32·5?	–	37	–	–	37	–	–	–	–	–	–
Nasal B	(NB)	–	–	26	30	–	26?	–	–	–	–	25	–
Nasal Ht.	(NH′)	–	–	–	–	–	–	–	–	–	–	–	–
Bicondylar B.	(W_1)	116·5	–	–	123	–	119·2	–	–	–	–	–	–
Bigonial B.	(GoGo)	–	103?	–	104?	–	91	–	–	–	–	–	–
Bimental B.	(ZZ)	43·1	43·8	–	47·5	–	47·4	49	44	–	39	44·2	–
Sagit. Ht. Mand.	(H_1)	34?	34	–	30·9?	–	34·3	39?	–	–	31?	29	–
Max. proj. L.	(ML)	103	–	–	98	–	106	–	–	–	–	–	–
Proj. L. Ramus	(RL)	57	–	–	62	–	59	–	–	–	–	–	–
Condyle L.	(CYL)	17·5	20·7	–	21·6	–	22·5	20	–	–	–	–	–
Mandib. Angle	(M<)	126·5	118	–	120·5	–	116	121	–	–	–	–	–
Least Ramus B.	(RB)	33·5	31·5	–	31	–	37·2	35	32	–	29	–	–

for lower breadth and higher length values. Although this may indicate an actual trend to mesocephaly in the Iron Age (the Bronze Age people being predominantly brachycephalic), only by more finds can we hope to substantiate this statement.

Basic long bone measurements were taken on all long bones where the condition of the bone surface permitted fairly accurate recording. This data is presented in Tables II, III and IV. Because of the difficulty in associating long bones of upper and lower limbs with certainty, we have selected, whenever available, the maximum length measurement of the femur for the computation of total stature. Alternatively, we have used lengths of the humerus (the tibia providing no additional stature results). Employing the regression formulae of Trotter and Gleser (1952) for females, and Trotter and Gleser (1958) for males, we obtained the following statures. Error of the determination has not been given, but it must be appreciated that any such stature must only be regarded as a 'best fit' estimate. The statures were: male skeletons G = 5 ft. $4\frac{1}{4}$ in.; H = 5 ft. $8\frac{3}{4}$ in.; I = 5 ft. $8\frac{3}{4}$ in.; J = 5 ft. $6\frac{1}{4}$ in.; K = 5 ft. $6\frac{1}{2}$ in.; O = 5 ft. $5\frac{1}{4}$ in.; Q = 5 ft. 7 in.; R = 5 ft. 6 in.; female skeletons F = 5 ft. $3\frac{3}{4}$ in.; P = 5 ft. $0\frac{1}{2}$ in. For the males, the range was from 5 ft. 4 in. to 5 ft. 8 in., and there is therefore no indication that they were a particularly tall or short group.

TABLE II

DUNBAR IRON AGE, FEMORA*

Skeleton		*Maximum length* (Fe L_1)	*Oblique length* (Fe L_2)	*Trochant length* (Fe L_3)	*Minimum A.P. diameter* (Fe D_1)	*Transverse diameter* (Fe D_2)
U	1 right	–	–	–	–	–
	2 left	–	–	–	–	–
R	35 left	442	439	428	27	32
	35 right	–	–	–	–	–
O	19 left	–	–	–	25	33*
	19 right	431	424	407·5	25	34·5
I	25 left	–	–	–	23·5	37·5
	25 right	472	469	448·5	24	37·5
P	9 left	402	398	387	21·5	31
	11 right	–	–	–	22·5	31
G	50 left	422	418	406*	24·5	35
	47 right	–	–	412	24	35
T	S. right	–	–	–	24	36·5
	4 left	–	–	–	24	36·5
B, C & D	S. left	–	–	–	24·5	37
	S. right	–	–	–	24	37
	S. left	–	–	–	23	35·5
	S. right	–	–	–	23	34
E	44 left	–	–	–	25	35
	49 right	–	–	–	23·5	35
B	S. left	–	–	–	23·5	32
	S. right	–	–	–	25	38
K	24 right	445	–	426	23	36
F	44 left	–	–	–	24	36·5
	31 right	437	432	–	25	37
M	30 right	–	–	–	23	37
N	45 left	–	–	–	24	31

* an asterisk indicates a questionable measurement.

DISCONTINUOUS TRAITS OF THE SKULL

Work at present being undertaken at the British Museum (Natural History), strongly suggests that certain discontinuous (that is, non-metrical) traits will prove of importance in judging genetic distances of early British populations from one another. Although for the Scottish Iron Age series, our sample numbers are totally inadequate from a comparative point of view, it would seem worthwhile – indeed essential – to record this information with the hope that additional data of this period will permit further analysis. Definitions of these variants are given in Brothwell (1963) and need not be repeated here.

(*a*) Wormian and Inca bones

Of five skulls where the sutures were sufficiently patent to permit examination

TABLE III

DUNBAR IRON AGE, TIBIAE

Skeleton		*Maximum length* (Ti L_1)	*Oblique length* (Ti L_2)	*Articular length* (Ti L_3)	*Maximum A.P. diameter* (Ti D_1)	*Transverse diameter* (Ti D_2)
G	47 left	347	341	–	31.5*	25
	47 right	351	349	68*	36	24
O	26 left	–	–	–	34	25
	19 right	–	–	–	–	–
I	16 left	–	–	72*	37·5	26
	26 right	369*	372	77	35	25
T	4 left	–	–	–	32	21
	4 right	–	–	–	–	–
U	1 left	–	–	–	–	–
	2 right	–	–	–	28	19
F	44 left	–	–	–	–	–
	44 right	–	–	–	–	–
C	S. left	–	–	–	33	22
	S. right	–	–	–	33	22
R	35 left	354	355	77	37·5	23
	35 right	–	–	–	26·5	24
L	52 left	–	–	68·5	34	22
	49 right	–	–	–	34	22·1
E	44 right	–	–	–	36	25
P	9 left	–	–	–	30	22·5
	11 right	–	–	–	33	21
B	S. left	–	–	–	32	23
	54 right	–	–	–	33	24
N	45 left	–	–	–	33	21·5
	25 right	–	–	–	34	21
M	30 left	–	–	–	37	21
	S. right	–	–	–	34*	20

for extra sutural bones, one skull displayed two lamboid wormians and another specimen five such bones. No Inca bones were noted.

(*b*) Metopism

No instance of a patent metopic suture was found in eight frontal bones.

(*c*) Parietal notch bone

Of seven sides which were intact, a parietal notch bone was present in two instances.

(*d*) *Torus mandibularis*

Precise assessment of this character is not easy, but we are satisfied that our figures do not overstate the frequency of the mild form. Of eight mandibles, six showed the form to a slight degree, and only two were without.

TABLE IV

DUNBAR HUMERI

Skeleton	*Maximum length* (Hu L_1)	*Maximum breadth at centre shaft* (Hu D_1)	*Minimum breadth at centre shaft* (Hu D_2)	
H 17	333·5	26	21·5	Right
I 15	314	25	20	Right
B S(1)	310 approx.	22	16	Right
G 39	320	25	17	Right
J 24	313	24·5	18	Right
F 55	309	22	18	Right
Q 9	320	21·5	19·5	Left
R 21	339 approx.	23	19	Right
N 20	–	20	16	Left
K or P 11	–	22	17·5	Left
L 42	–	20	17	Left
T 3	–	20	18	Left
O 18	306	23	18	Right
O 22	–	24	19	Left
G 48	–	21	16	Left
A S(2)	–	22	17·5	Right
A S(3)	–	21	16	Left
30	–	21	18	Right
M 35	–	22	18	Left
D 54	–	18	16·5	Left
D S(4)	–	21?	19·5?	Right
B S(5)	–	–	–	Right
11 & 59	–	21	15	Right

(*e*) *Torus auditivus*

No case in seven skulls.

(*f*) *Torus palatinus* and *T. maxillaris*

No cases in five skulls.

Owing to the incomplete state of the skulls a number of other characters could not be recorded in this small series.

EVIDENCE OF DISEASE AND INJURY

Considering the smallness of the sample available for study, and the incompleteness of these skeletons, there is a noticeable amount of abnormality. This takes the form not only of common diseases, but also less common changes. To begin with the least common anomalies, in skeleton O (originally skull 13) there is clear evidence of biparietal thinning. This puzzling thinning of a region of the outer and middle tables of the parietal bones has been described mainly in Egyptian populations, but a few cases are now known in Britain (Brothwell, 1967). In the central area of both the parietals of this Dunbar skull is a large but shallow elliptical crater.

TABLE V

CARIES, TOOTH LOSS, AND CHRONIC ABSCESSES IN THE DUNBAR SERIES

Teeth	*Upper jaw* 1	2	3	4	5	6	7	8	*Lower jaw* 1	2	3	4	5	6	7	8	*Total*
No. of teeth examined	8	9	11	11	9	11	8	4	6	11	15	13	17	15	15	8	171
Caries	–	–	–	–	1(L)	1(L) 1(R)	–	–	–	–	–	–	–	–	1(L) 2(R)	2(R)	8 (5%)
No. of teeth possible	9	12	12	12	12	12	9	5	22	22	22	21	21	22	20	13	246
teeth lost (ante-mortem)	–	–	–	–	2(R)	1(R)	–	–	2(L) 3(R)	2(L) 3(R)	3(R)	–	1(R)	3(L) 3(R)	2(L) 2(R)	2(L) 1(R)	30 (12%)
No. of sockets examined	19	12	12	12	12	12	9	5	22	22	22	21	21	22	21	14	248
Chronic abscesses	1(L)	–	–	–	1(L) 1(R)	1(L) 1(R)	1(R)	–	–	1(L) 1(R)	–	1(L)	–	1(L) 2(R)	1(R)	–	13 (5%)

(L) and (R) symbols stand for left and right side of the jaws.

Although there is some slight post-mortem erosion, there is no doubt at all about the ante-mortem nature of these main changes. The antero-posterior radiograph of part of the vault (Pl. XXV, 1) shows clearly the extent of the thinning, and also the absence of change to the inner table of the skull. Although it has been suggested in the literature that such changes may be associated with senility, the condition of the bones in this skeleton and the degree of dental attrition suggests an age for the person of no more than 30–40 years.

At the neck of the right femur of skeleton I is a circular aperture which expands into a small but well defined rounded cavity. Radiographic examination (Pl. XXV, 2) shows clearly the shape and limitations of this cavity, possibly the result of a small bone cyst.

Evidence of further uncommon pathology is seen at the right knee region of skeleton E. Unfortunately, there is much damage and post-mortem erosion, with the result that what may have been a more complete disease picture has been considerably obscured by decay. The main area of involvement appears to be just below the proximal articular end of the tibia. Although fragmented, there is clear evidence that within the cancellous tissue was a slightly irregular but somewhat rounded cavity. In association with this lesion was a proximal fragment of fibula, showing mild periostitis; also one of the distal condyles of the femur displays a slight bone reaction which could perhaps also be explained as the result of the same regional infection. Perhaps the primary reaction was in the form of a Brodies abscess, with a secondary inflammatory spread on to the femur and fibula?

The oral health of the Dunbar people could not be considered excellent, although compared with modern British frequencies, dental decay is relatively small. On the other hand, tooth loss was not uncommon, and we have noted ante-mortem loss in incisors, canines, premolars and molars. Chronic abscesses are relatively common. Further statistics on the dental pathology are given in Table V. Tooth loss and

caries frequencies are compared with other early British samples in fig. 6. The Dunbar figures are higher than for the long-cist people, but smaller than the English Iron Age/Roman sample. Periodontal infection, as judged from alveolar recession, seems likely to have affected six of ten individuals (and although assessment of alveolar recession is subjective, probably three were affected to a slight degree, one

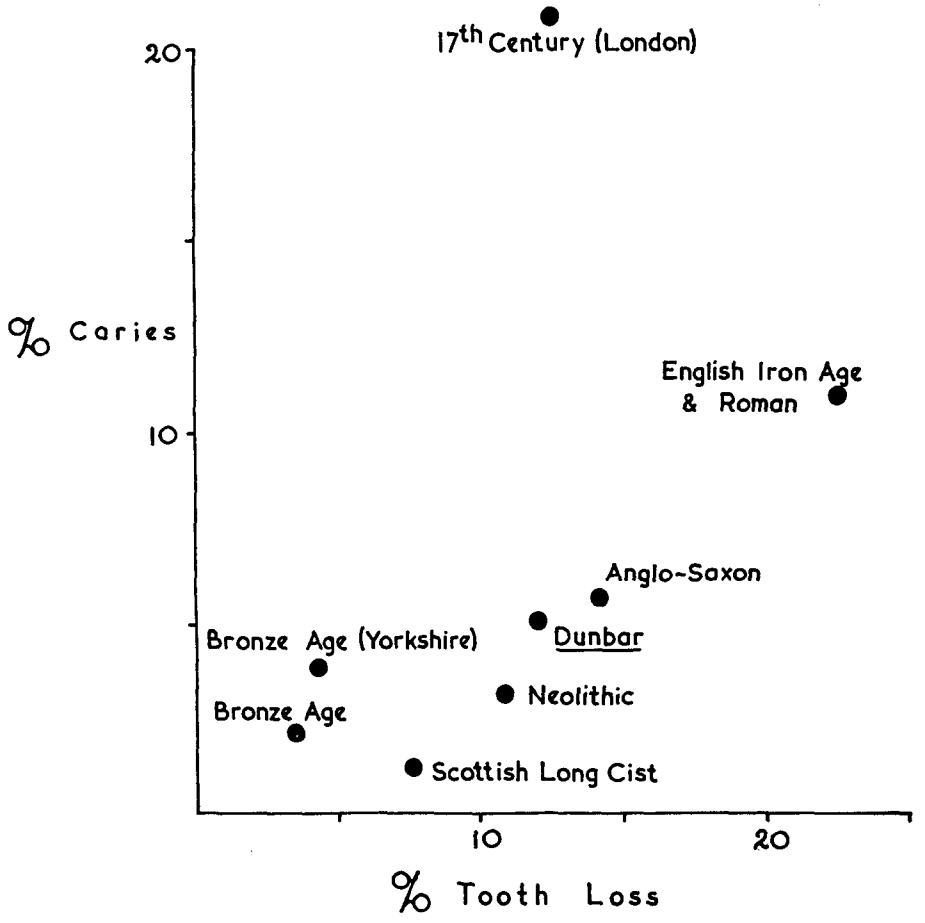

FIG. 6

to a medium degree, and two to a considerable degree). Calculus deposits were present in eight of ten individuals (in four cases slightly, and in four to a considerable degree). Very slight enamel hypoplasia was present in the dentitions of four out of five persons. In two cases, there was edge-to-edge bite, with overbite in another. In the upper dentition of skeleton R, one of the molars has failed to erupt, and is seen radiographically to be reduced to a small odontome-like structure (Pl. XXV, 3).

Bone changes resulting from one or other form of rheumatic disease were seen – albeit slightly in some – in six of the skeletons. Bone deformities, suggesting that both

osteo-arthritis and rheumatoid arthritis occurred, were also noted in unassociated cervical vertebra and phalanges. A phalanx showing 'lipping' and 'punched-out' areas is shown in fig. 7. Skeletons L, M, N, O, R and I probably display some degree of arthritic change, the bones involved including vertebrae, a metatarsal, tibiae, a scapula, ulnae and a sacrum. In no case are these arthritic changes so pronounced that one must correlate the degree of joint deformity with old age.

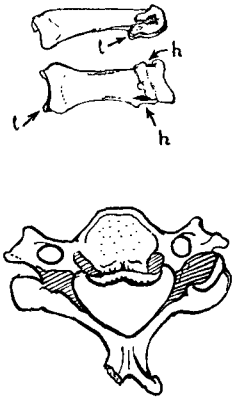

FIG. 7. *Above*, deformed phalanx; *below*, damaged cervical vertebra

The only indication of trauma in the Dunbar bones is in a cervical vertebra (Dunbar 9). This shows well defined damage (see fig. 7) which may well have resulted from a deep sword cut to the neck at the time of death.

SUMMARY AND CONCLUSIONS

The skeletal remains available for examination form a somewhat limited series. It is, however, an important one in that it is the only Scottish Iron Age group available for study. Although one can in no sense be dogmatic about the data, it does however suggest a number of perhaps significant points. In the first place, there is a puzzling absence of children in the tomb, which seems best explained on sociological and not biological grounds. There is some indication that these Dunbar people were physically different from the preceding Bronze Age (short cist) population. As regards their palaeopathology, various anomalies were noted, and in the case of their oral health – if the small sample may be taken as representative of the Scottish Iron Age group – they showed less caries but more tooth loss than previous British Bronze Age populations.

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Appendix I

Human Remains from the Hopes, Cockburnspath[1]

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Incomplete and, in parts, considerably eroded remains of a single skeleton were available for examination. These fragments included much of the skull vault, part of the mandible, most of both tibiae and femora, and smaller and more eroded pieces of pelvis, scapula, clavicle, a number of vertebrae, ribs, fibulae, and tarsal bones. The individual was male, and was probably a young adult (certainly not immature).

Skull

The following measurements could be taken:

Maximum length	=	179 mm.
Frontal arc	=	125 mm.?
Parietal arc	=	121 mm.
Occipital arc	=	117 mm.
Frontal chord	=	109 mm.?
Parietal chord	=	109 mm.
Occipital chord	=	91·5 mm.

There is no evidence of metopism, and no torus mandibularis or auditivus. There are no wormian bones.

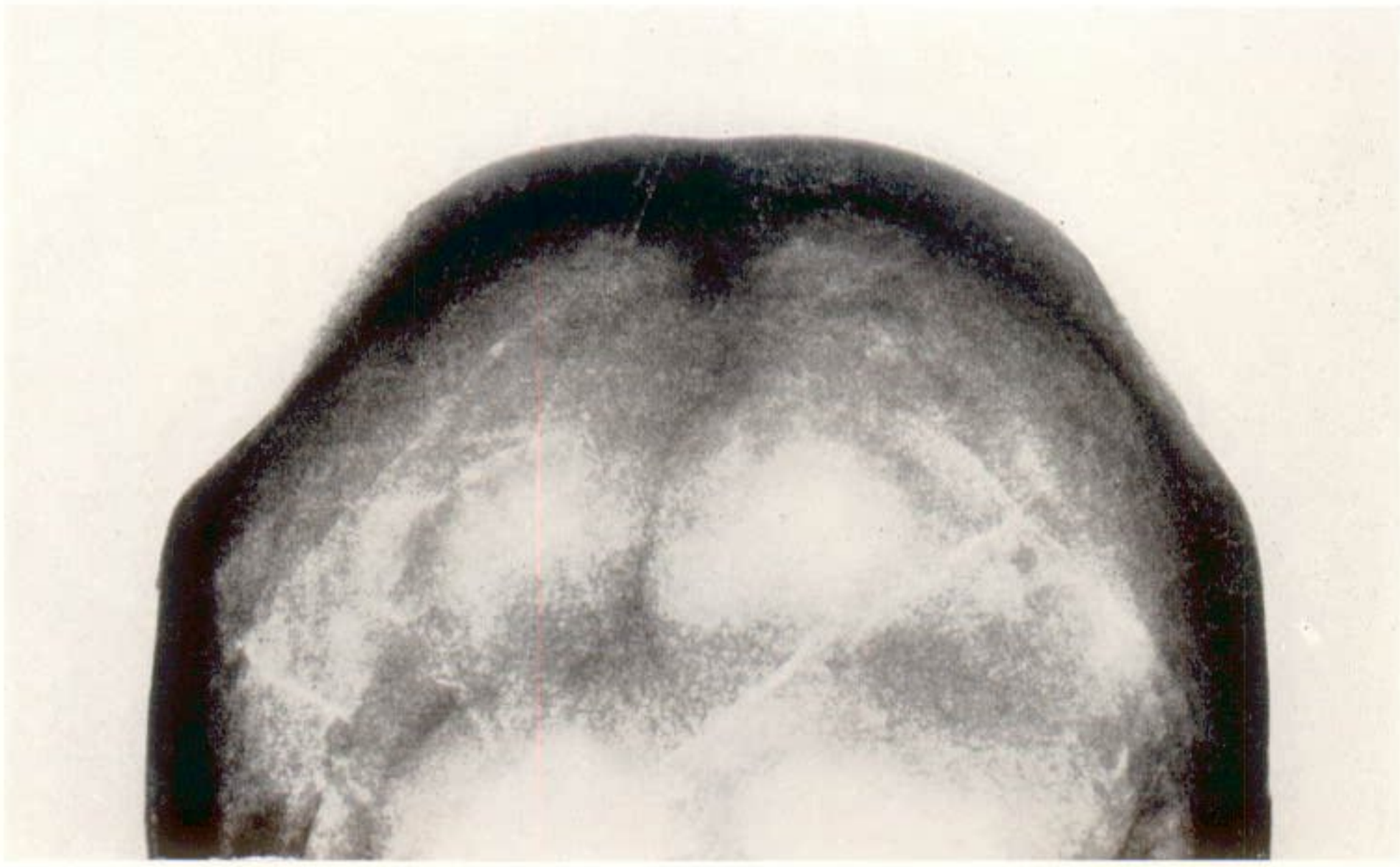
Long bones

Only one long bone, the right femur, was sufficiently well preserved to give a maximum length measurement, Fe L_1 = 420 mm.

From this length, and by the application of a regression formula (Trotter & Gleser, 1958. *Amer. J. Phys. Anthrop.*) a total stature of 5 ft. 4 in. was estimated.

Owing to erosion, no shaft dimensions could be taken.

[1] See p. 183 for excavation report.



(1.) Antero-posterior radiograph of the vault of skull of skeleton O showing biparietal thinning

(2.) Radiograph of the neck of the right femur of skeleton I showing small cavity, possibly the result of a bone cyst

(3.) Radiograph of upper dentition of skeleton R in which one of the molars has failed to erupt