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AN OSTEOLOGICAL ANALYSIS OF HUMAN REMAINS FROM
KAYENTA ANASAZI SITES IN NORTHERN ARIZONA

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INTRODUCTION

This manuscript was originally prepared for publication in 1972 in satisfaction of an agreement into which I had entered with the Museum of Northern Arizona to collaborate with their staff archaeologists to produce a monograph on the archaeological salvage of the sites from which came the skeletal remains discussed herein. Our agreement was to complete our respective contributions by the end of 1972 for immediate in-house publication. My contribution was a summary chapter entitled "Human Burials" that was to have been integrated with the cultural context provided by the archaeologists, and an appendix containing the detailed descriptions of the individual skeletons. Six years later it occurs to me that I am likely to become a skeleton myself waiting for the archaeologists' contributions, which were to have been the major part of the publication. The only course left open to me is to launch this cart in the faint hope that the horse may someday put in an appearance.

As I recall, the archaeological sites were distributed along a sixty-mile railroad right-of-way connecting the strip-mining operation of the Salt River Project at Black Mesa with its power generator at Page. The

¹I gratefully acknowledge the permission of the Navajo Tribe to conduct this research.

S.R.P. sites might be thought of as having been obtained from a transect across the heartland of the Kayenta Anasazi area of northeastern Arizona. This transect might even be random, though probably not representative, since the area selected by the S.R.P. engineers presumably reflects nothing more complicated than the optimum balance between the most direct route and the most constant grade, without regard for cultural features. I am not sure how many sites were included in the right-of-way, as some number of them may not have contained burials. Those sites that did have burials were distributed in the range from Basketmaker III to Pueblo III times, or between approximately A.D. 400 and 1300.

HUMAN BURIALS

A total of seventy human burials was recovered and these were somewhat unequally distributed among nine sites (see Table I). Since there were only three burials dating to the Basketmaker III period and one burial with no date, these are excluded from consideration here and are described only in the appendix on Human Osteology. The remaining burials fell into two roughly equivalent groups, one dated at about A.D. 1000 (26 skeletons), the other at about A.D. 1250 (40 skeletons). Since twenty-nine (43.9%) of these sixty-six skeletons were individuals of less than 18 years of age and since virtually none of the skeletons was completely intact, the two groups are treated here as a single homogeneous sample except in a few instances where it is both feasible and important to compare them with each other.

Morphological Variation

Tables II through XIV summarize a variety of selected morphological traits. Metric data are included only for adults and are segregated by sex. The majority of the non-metric variables selected reflect neither sexual dimorphism nor dependence upon adult developmental status. The exceptions are noted in the individual tables and, where differentiation by sex was required, the samples were restricted to adults. Observations of dental morphology were obscured by the high degree of dental attrition more or less ubiquitous in Southwestern populations, even in relatively young individuals, and by the great frequency of ante mortem tooth loss. For example, it was possible to determine simply the presence or absence of shovelling in the maxillary incisors in only 16 individuals with permanent

incisors erupted. Evidence of shovelling, unlike most features of crown morphology, survives a considerable amount of attrition. When shovelling was noted, it was invariably pronounced, and in no instance was the absence of shovelling observed.

A comparison of the selected metric variables (Tables II through V) with the same measurements obtained on the prehistoric inhabitants of the Puerco Valley to the southeast (Wade 1970) reveals that the Kayenta people, both male and female, were somewhat smaller in nearly all dimensions. However, the two populations are closely comparable in regard to selected measures of shape (Tables VI & VII). These facts suggest that the differences between the two populations are more likely to be attributable to dietary or disease effects rather than substantial genetic differences. Paradoxically, the mortality data, discussed below, suggest the contrary. Perhaps nutritional differences affecting growth adversely in the Kayenta population without a concomitant effect on mortality account for their smaller size.

To further support the contention that the genetic distance between the Kayenta and Puerco populations was not great, they show remarkable similarities among the non-metric variables summarized in Tables VIII through XII. When the frequencies of these traits are compared in the two populations, there are few significant differences and, although the proportions differ in some instances, variants that predominate in one population do so in the other in all instances. Another trait that shows remarkable similarity in frequency of occurrence in the Kayenta and Puerco populations is perforation of the coronoid-olecranon septum, a trait that may be only indirectly hereditary. Benfer and McKern (1966) suggest that this septum is more often intact when the skeleton is generally robust,

hence more often in males than in females. Table XIII summarizes this condition in both sexes and in fact the septum was perforated about twice as often in female humeri (29.4%) as in male humeri (14.3%).

In the Pueblo II-III samples of the Kayenta population no crania were observed that were not modified to a noticable degree by cradleboard deformation. Without exception this deformation was of the lambdoid variety as opposed to the occipital, or more vertical, form. There were some significant differences in the frequencies of the various forms of cradleboarding between the Pueblo II sites and the Pueblo III sample from NAl1,047 (see Table XIV). There was a marked increase in the frequency of right-side deformation in the later period, although the left-side and symmetrical variants continued as well. Whether or not this difference reflects a change in the pattern of cradleboard usage is a matter of conjecture. It is noteworthy that in neither period were there significant differences by sex in the variants of cradleboard deformation.

Evidences of Disease and Physical Trauma

There were three categories of consistently occurring skeletal pathologies in the Kayenta population, as in many other prehistoric New World populations. These were 1) non-specific osteophytosis of the vertebral centra, frequently extending to the apophyseal joints; 2) dental pathologies resulting from rapid attrition and subsequent decay; and 3) lesions affecting the orbits and/or parietals, described as spongy hyperostosis. Each of these is, in its own way, age-related, and all were so common in Southwestern populations that they may be regarded as having been pandemic features in this area at least during the late prehistoric period. Tables XV through XVII quantify the occurrences of vertebral osteophytes by age,

sex, degree, and region of the vertebral column (Note: see the appendix on Human Osteology for a more detailed description of osteophytic involvement of the vertebral column, including kyphosis and disc herniation, as well as other joint surfaces, including possible cases of hereditary degenerative arthritis and ankylosing spondylitis). In these tables it can be seen that the degree of severity of osteophyte formation increased with age in both sexes and in all three regions of the vertebral column. However, note that young males were consistently and significantly less affected than young females. By middle age and continuing into old age this relationship was reversed, with relatively greater degrees of osteophyte formation in male vertebrae. Congenital fusion of the second and third cervical centra was noted in five individuals, significantly all males, four of whom came from the same site (NAll,047). From the same two sites were four individuals, all males including one of the individuals with C2-3 fusion, with sixth lumbar vertebrae that were definitely fused to the sacrum in two cases and probably so in the other two. Fusion of the fifth lumbar centrum to the sacrum was noted in two individuals, one of each sex. Partial or complete fusion of one or both sacro-iliac joints was noted in five individuals. These included two males, both over fifty years, and three females, one over 55 years, the other two between 25 and 30 years. Various degrees of osteophytic lipping, or incipient fusion, of the sacro-iliacs were observed in many of the remains. Spondylolysis affecting the fifth lumbar was noted in two individuals, a male and a female, both between fifty and fifty-five years of age. Degenerative changes associated with temporo-mandibular joint arthritis showed a clear

predominance of occurrence in females (6 of 8 cases), and in middle-aged to elderly individuals (7 of 8 cases).

Another age-related pathology is the occurrence of lesions of spongy hyperostosis. Table XVIII summarizes the characteristic orbital and parietal areas of involvement of these lesions. Owing to the fragmentary condition of many of the crania and the relatively frequent absence of either the orbital or parietal portions of the skull, no attempt has been made to quantify the simultaneous involvement of both regions in the same individual. It should be noted, however, that these lesions are found at times in both the orbits and the parietals (occasionally extending into the occipital bone near lambda), and at other times in only one of these regions. It can be seen in Table XVIII that cases of extreme involvement of either the orbital or parietal regions are restricted to individuals under five years of age and that, in this age range, there are no individuals not affected to some degree. Although cases of slight to moderate involvement are still common between the ages of five and ten years, there is a decrease in the frequency of occurrence as well as the severity of the lesions. Beyond ten years of age there are relatively few occurrences of these lesions and the majority of the cases are slight. The apparent trend reflected here can be explained in one, or possibly both, of two ways. First, the increasing frequency of absence of the lesions with increasing age may indicate that those individuals who survived beyond the age of five years included many who were not seriously affected in infancy. An alternative explanation is that virtually all individuals in the population were affected to the extent of manifesting the lesions to some

degree. In those who survived, the lesions became increasingly obscured by the processes of repair beginning at some time after infancy was completed. Either way it is apparent that the more severe expression of the lesions was associated with infant mortality. Kunitz and Euler (1972) attribute the lesions of spongy hyperostosis to probable iron deficiency anemia resulting from protracted nursing of infants and aggravated by chronic diarrhea.

Significant dental pathologies occurred at virtually all ages, with only a few of the infants examined showing no evidence of disease. Tables XIX and XX include data from observations of various dental pathologies in individuals with 28 or more permanent teeth erupted. The frequency of carious lesions increased in the order of distal location of the teeth (*i.e.*, $M > P > C > I$). The occurrence of carious lesions in only 30.0 % (130 of 433) of the teeth examined is a misleading observation. It is probable that in the majority of teeth (62.9%) displaying extreme attrition, carious lesions, especially the commonly occurring ones on the occlusal surfaces of the posterior teeth, were obscured or totally worn away. In fact these lesions probably contributed to the breakdown of enamel resulting in rapid attrition. Nearly half (49.1%, or 448 of 913) of the alveoli examined in thirty-five adults showed clear evidence of ante mortem loss, with total resorption of the alveoli in a great many instances.

Evidence of traumatic injury was fairly rare and not noticeably patterned in occurrence. Traumatic injuries, some very minor, were noted in twelve individuals. Two cases of healed rib fractures were noted. Three individuals displayed healed fractures of long bones, a

left femur, a right tibia, and a left ulna, all of which occurred in the proximal diaphysis. Three individuals had small depressed lesions in the outer table of the braincase. One instance of a broken nose was observed, in which the inferior ends of the nasals were healed in an abrupt downward angle. For the remainder, there were four cases, one involving a knee and three the elbow, of osteitis or osteophytosis suggestive of a traumatic origin.

Demography

Tables XXI through XXIV are composite life tables computed from estimates of age at death of individuals in the Kayenta series. Determination of age was possible for 67 of the 70 skeletons in the series, 37 of these from the large Pueblo III site, NA11,047. Since the burials from this site constitute the only large bloc of skeletons in the series, it seems reasonable to hazard the difficulties of small sample size by examining their age and sex distribution separately from the combined total. In regarding the mortality data of the burials from NA11,047 (Figure 1, bottom), there is a noticeable preponderance of age among the females relative to the ages at death of males. It might be tempting to relate this observation to an hypothesis of sex-dependent status in the pattern of burials at the site, but in fact the same phenomenon is apparent in the mortality summary of the total series (Figure 1, top), in which the sex ratio is approximately equal (19 males : 21 females), so that the burials from NA11,047 represent a good approximation of the entire series in regard to age by sex. Survivorship curves (Figure 2) derived from Tables XXI and XXII bear out this contention with regard to

age alone. These data strongly suggest that there was a significantly greater early mortality among males than among females throughout the Pueblo II-III sequence of occupation in the Kayenta area. Survivorship curves (Figure 3) based upon sex illustrate this difference. Figure 4 illustrates a significant departure of the Kayenta survivorship curve from those of two other, chronologically comparable, Southwestern populations, that from the Puerco Valley (Houck) studied by Wade (1970), and Bennett's (1967) "middle population" from Point of Pines. With the differences of sex averaged together, survivorship was greater in the Kayenta population during the periods of pre-adulthood and middle age than in the other two populations whose curves are quite similar.

Figure 1. Age/sex profile of burials from all Kayenta sites (top) and from NA11,047 (bottom).

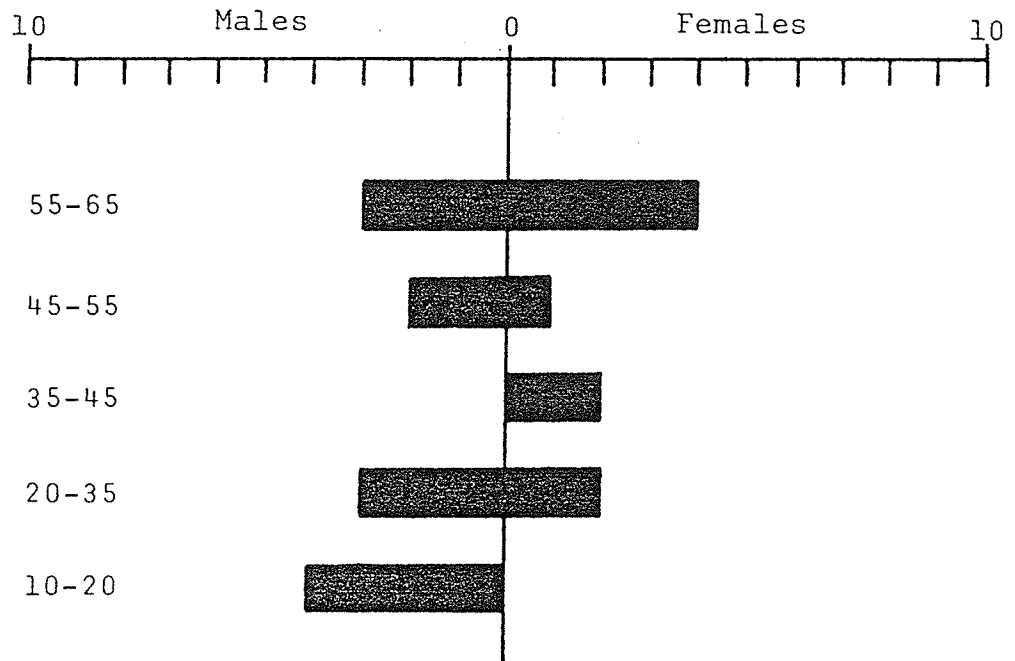
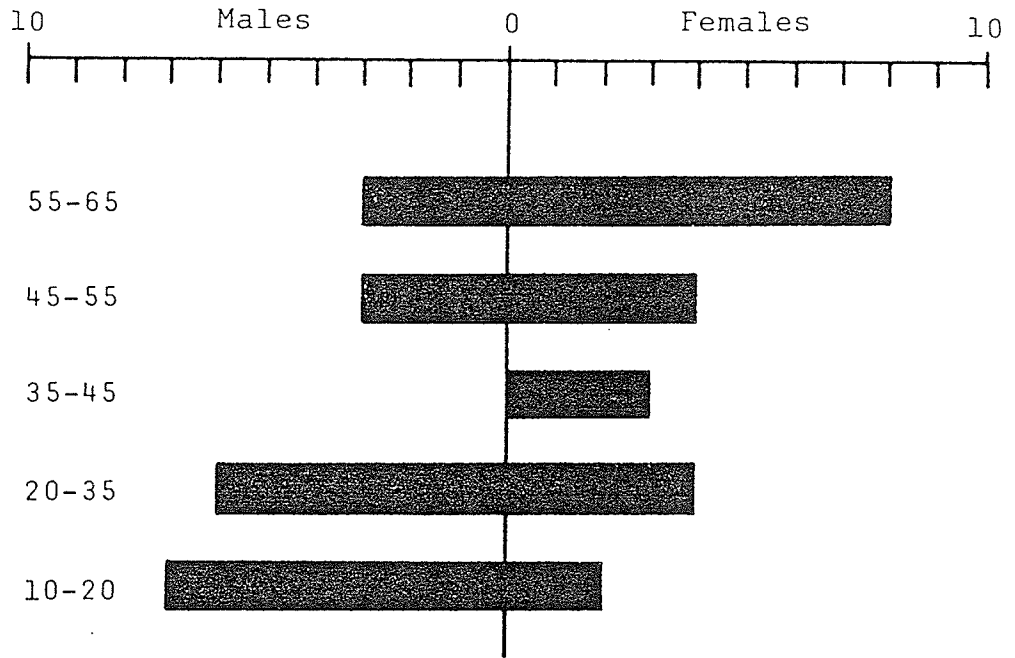


Figure 2. Survivorship: NA11,047 compared to total Kayenta series.

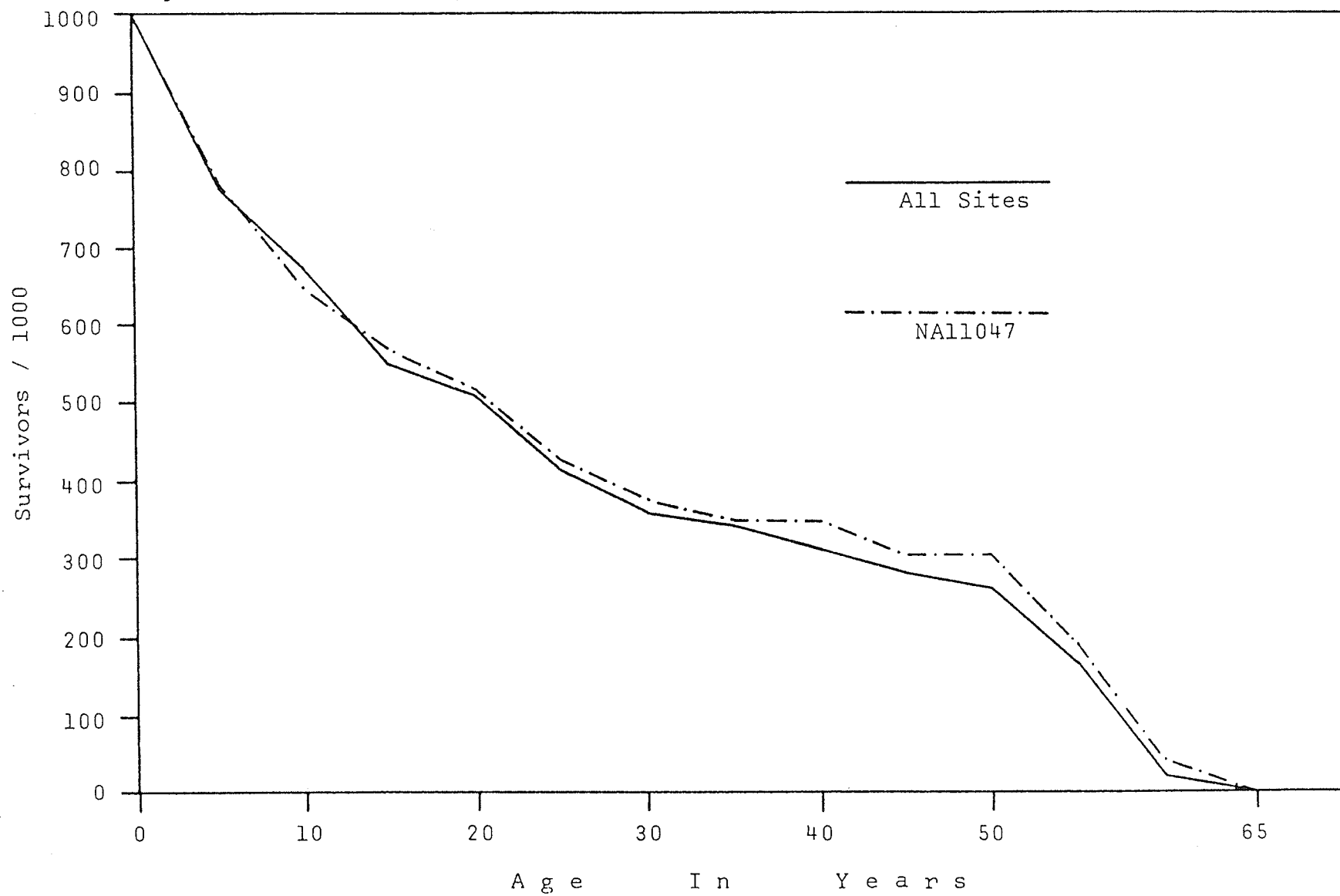


Figure 3. Survivorship: comparison of Kayenta males and females.

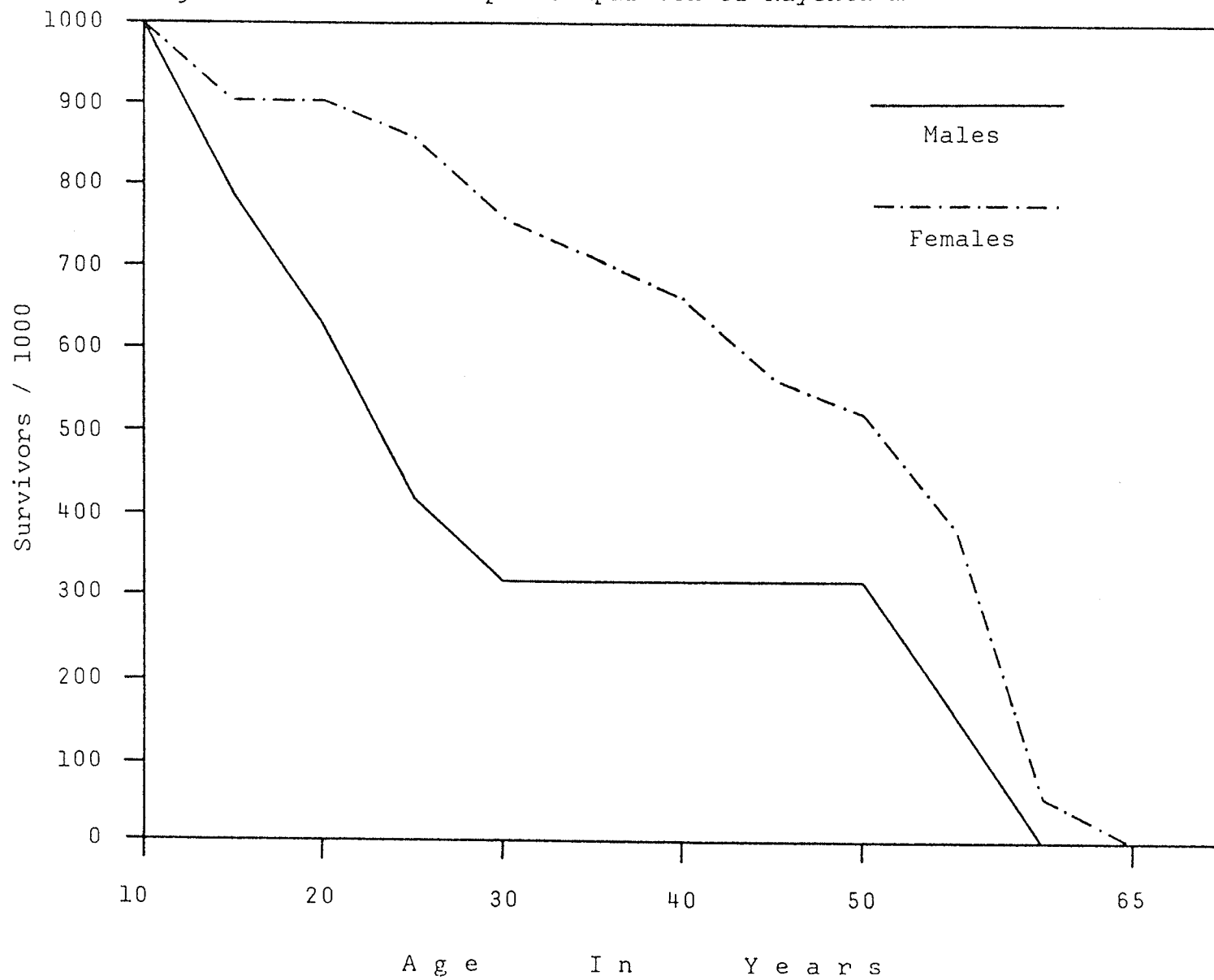


Figure 4. Survivorship: comparison of Kayenta (S.R.P.) with two other series.

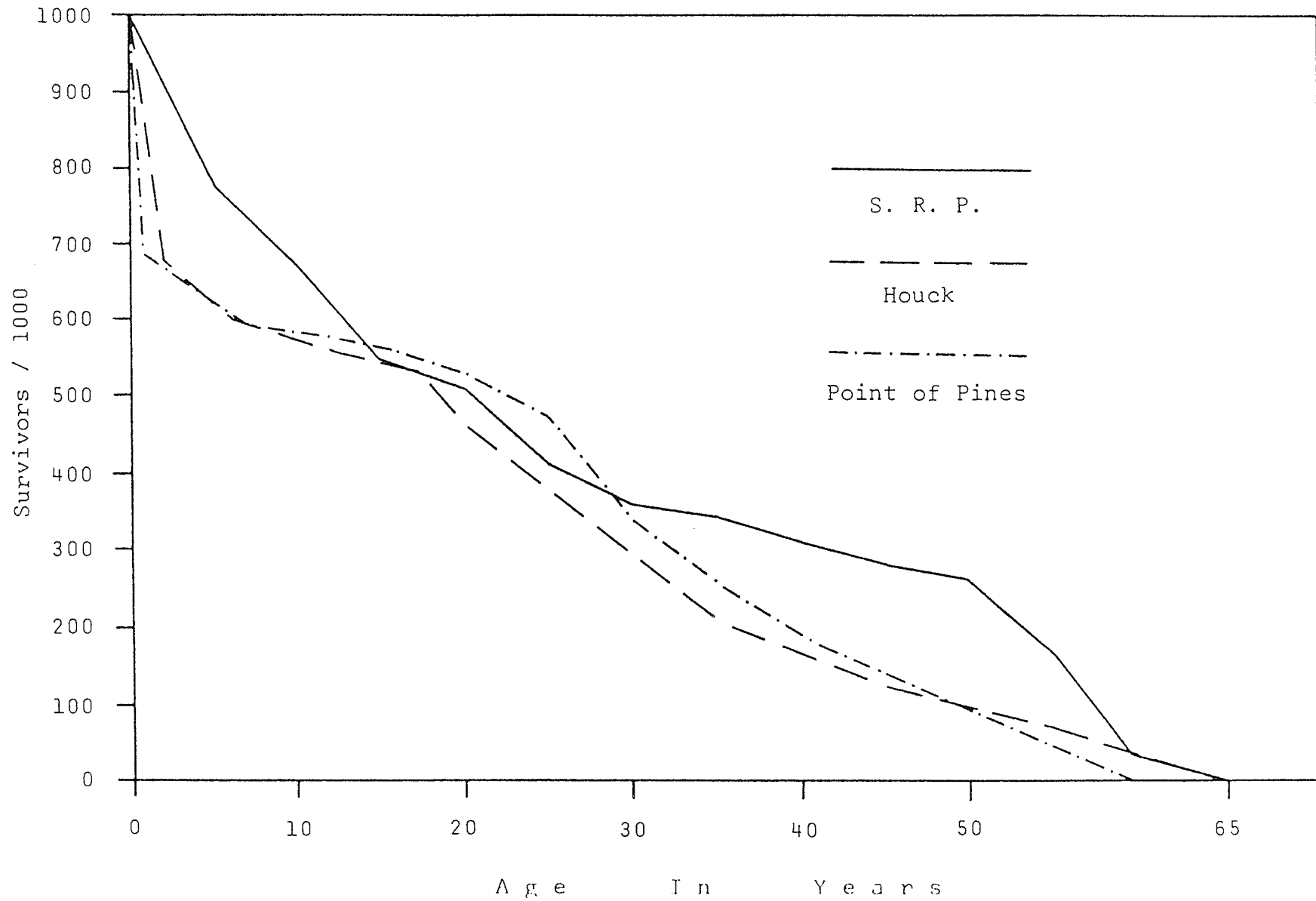


TABLE I
DISTRIBUTION OF HUMAN REMAINS BY SITE AND TIME PERIOD

Site Number	Period*	Approximate Date*	Number of Skeletons
NA10,738	Pueblo II	A.D. 1000	6
NA11,043	Pueblo III	A.D. 1250	2
NA11,047	Pueblo III	A.D. 1250	38
NA11,053	Basketmaker III	A.D. 600	1
NA11,057	Pueblo II	A.D. 1000	9
NA11,058	Basketmaker III	A.D. 600	2
NA11,070	Pueblo II	A.D. 1000	2
NA11,095	?	?	1
NA11,125	Pueblo II	A.D. 1000	<u>9</u>
			70

*Refers to burials rather than sites.

TABLE II
SUMMARY OF SELECTED CRANIAL MEASUREMENTS, ADULT MALES

Measurement	N	Mean	σ	Range
Minimum frontal breadth	8	95.1	4.16	91-102
Total facial height	5	117.4	4.76	113-125
Upper facial height	9	68.7	4.64	60-77
Bizygomatic breadth	5	139.4	1.20	137-145
Nasal height	9	49.8	2.86	44-53
Nasal breadth	9	24.9	1.45	22-27
Nasion-basion length	7	101.4	2.15	98-104
Basion-prosthion length	5	92.6	0.99	90-98
L. orbital height	8	35.9	1.96	32-39
L. orbital breadth	9	37.3	1.50	34-39
Mandibular length	8	103.5	5.42	93-109
Bicondylar breadth	8	118.3	4.13	113-124
Bigonial breadth	9	98.3	4.39	92-106
L. ramus height	11	53.7	4.82	46-59
Symphyseal height	12	33.5	3.63	26-38

TABLE III
SUMMARY OF SELECTED CRANIAL MEASUREMENTS, ADULT FEMALES

Measurement	N	Mean	σ	Range
Minimum frontal breadth	7	92.3	5.28	86-101
Total facial height	5	111.2	4.44	106-117
Upper facial height	7	66.1	4.95	55-69
Bizygomatic breadth	4	131.0	4.62	123-136
Nasal height	7	47.9	2.27	46-51
Nasal breadth	6	24.2	0.75	23-25
Nasion-basion length	5	96.8	4.09	91-100
Basion-prosthion length	4	94.5	5.45	87-99
L. orbital height	7	34.7	1.25	33-37
L. orbital breadth	7	37.1	1.22	36-39
Mandibular length	7	102.1	1.68	100-105
Bicondylar breadth	7	113.0	7.05	98-120
Bigonial breadth	10	92.8	7.63	77-105
L. ramus height	11	49.5	4.08	44-55
Symphyseal height	14	31.2	4.02	25-37

TABLE IV
SUMMARY OF SELECTED POST-CRANIAL MEASUREMENTS, ADULT MALES

Measurement	N	Mean	σ	Range
L. humerus length	10	294.0	12.72	278-314
L. humerus max. head dia.	9	41.2	0.78	39-46
L. ulna length	6	248.5	8.04	237-257
L. radius length	6	234.3	7.94	223-244
L. femur max. length	11	414.2	20.55	394-457
L. femur max. head dia.	10	42.0	1.70	40-45
L. tibia max. length	8	344.4	12.44	327-364
L. fibula length	6	336.0	9.76	322-347
L. clavicle length	4	146.5	5.92	142-155
Sacral height	10	105.6	8.51	92-118
Sacral breadth	5	114.4	3.78	110-119
Stature	14	1559.8	50.40	1497-1672

TABLE V
SUMMARY OF SELECTED POST-CRANIAL MEASUREMENTS, ADULT FEMALES

Measurement	N	Mean	σ	Range
L. humerus length	8	274.8	11.44	258-292
L. humerus max. head dia.	6	37.5	1.05	36-39
L. ulna length	3	230.3	14.36	214-241
L. radius length	4	215.5	9.00	203-223
L. femur max. length	7	386.6	13.25	367-402
L. femur max. head dia.	11	37.8	1.08	36-40
L. tibia max. length	4	329.3	4.35	325-335
L. fibula length	4	317.5	9.09	306-327
L. clavicle length	5	134.2	3.56	130-138
Sacral height	2	95.5	12.02	87-104
Sacral breadth	2	105.0	4.24	102-108
Stature	8	1461.4	34.10	1405-1505

TABLE VI
SUMMARY OF SELECTED SKELETAL INDICES, ADULT MALES

Index	N	Mean	σ	Range
L. orbital	8	96.8	6.68	84.2-105.9
Nasal	9	50.2	4.75	44.0-59.1
Upper facial	5	51.1	0.90	49.3-53.1
L. brachial	6	79.8	2.17	78.0-83.5
L. humero-femoral	10	70.8	1.75	68.1-73.6
L. platymeric	14	75.4	7.82	59.4-89.3
L. pilastric	15	107.7	11.60	83.3-125.0
L. platycnemic	14	61.8	7.06	54.5-78.6
L. crural	7	85.3	0.78	83.4-87.1
Sacral	6	112.4	14.16	100.0-139.9

TABLE VII
SUMMARY OF SELECTED SKELETAL INDICES, ADULT FEMALES

Index	N	Mean	σ	Range
L. orbital	7	93.5	3.30	86.8-97.2
Nasal	6	50.4	2.12	47.1-52.2
Upper facial	4	52.0	2.88	50.0-56.1
L. brachial	3	79.2	3.23	76.2-82.6
L. humero-femoral	5	69.4	0.80	68.4-70.3
L. platymeric	15	71.7	4.76	63.6-80.0
L. pilastric	13	103.5	6.17	92.0-113.6
L. platycnemic	11	61.0	2.70	58.1-65.6
L. crural	4	84.0	2.73	81.8-87.7
Sacral	1	124.1	--	---

TABLE VIII
VARIATION IN FORM OF INFERIOR MARGIN OF NASAL APERTURE

Sharp		Rounded	
<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
13	39.4	20	60.6

TABLE IX
VARIATION IN PTERION FORM

	H		X		K	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
Left	16	100.0	0	0	0	0
Right	16	100.0	0	0	0	0

TABLE X
VARIATION IN INTER-SUTURAL OSSICLES

	Left				Right			
	<u>Present</u>		<u>Absent</u>		<u>Present</u>		<u>Absent</u>	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
Wormian bones	32	88.9	4	11.1	36	97.3	1	2.7
Os Inca	3	7.9	35	92.1	--	--	--	--
Epipteric bones	2	20.0	8	80.0	1	9.1	10	90.9
Asterionic bones	14	73.7	5	26.3	14	66.7	7	33.3

TABLE XI
VARIATION IN SELECTED CRANIAL FORAMINA

		Left		Right	
		<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
Supra-orbital foramen:	Open	27	77.1	28	77.8
	Closed	8	22.9	8	22.2
Infra-orbital foramen:	Single	23	85.2	23	85.2
	Double	4	14.8	4	14.8
Mental foramen:	Single	38	100.0	38	100.0
	Double	0	0	0	0
Parietal foramen:	Present	13	39.4	23	71.9
	Absent	20	60.6	9	28.1

TABLE XII
VARIATION IN FEMORAL MUSCLE ATTACHMENTS

		Left						Right					
		<u>Slight</u>		<u>Medium</u>		<u>Extreme</u>		<u>Slight</u>		<u>Medium</u>		<u>Extreme</u>	
		<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
Third trochanter:	Males	3	18.8	10	62.5	3	18.8	2	14.3	9	64.3	3	21.4
	Females	0	0.0	7	50.0	7	50.0	0	0.0	4	36.4	7	63.6
Linea aspera:	Males	0	0.0	11	68.8	5	31.3	0	0.0	9	64.3	5	35.7
	Females	0	0.0	12	85.7	2	14.3	0	0.0	12	85.7	2	14.3

TABLE XIII
FREQUENCY OF PERFORATION OF CORONOID-OLECRANON SEPTUM

	Left				Right			
	<u>Perforated/Unperforated</u>				<u>Perforated/Unperforated</u>			
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
Males	1	10.0	9	90.0	2	18.2	9	81.8
Females	2	22.2	7	77.8	3	37.5	5	62.5

TABLE XIV
VARIATION IN LAMBDOID CRANIAL DEFORMATION

		Left			Symmetrical			Right		
*Degree:		1	2	3	1	2	3	1	2	3
	Males	0	1	0	1	1	2	0	0	0
<u>Pueblo II</u>	Females	0	0	1	0	2	1	0	0	1
	U/D	0	0	2	0	1	0	0	0	0
	Total	0	1	3	1	4	3	0	0	1
	Males	0	0	2	0	1	3	0	0	4
<u>Pueblo III</u>	Females	0	1	2	0	0	4	0	0	2
	U/D	0	0	0	0	1	2	0	0	4
	Total	0	1	4	0	2	9	0	0	10

* 1 = Slight
2 = Medium
3 = Extreme

TABLE XV
OSTEOPHYTIC LESIONS AFFECTING CERVICAL VERTEBRAE

		Absent		Slight		Medium		Extreme	
		<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
<u>Age:</u>									
18-35	Males	7	87.5	1	12.5	0	0.0	0	0.0
	Females	2	50.0	2	50.0	0	0.0	0	0.0
36-55	Males	0	0.0	0	0.0	0	0.0	3	100.0
	Females	2	66.7	1	33.3	0	0.0	0	0.0
56+	Males	0	0.0	1	33.3	0	0.0	2	66.7
	Females	1	16.7	3	50.0	1	16.7	1	16.7

TABLE XVI
OSTEOPHYTIC LESIONS AFFECTING THORACIC VERTEBRAE

		Absent		Slight		Medium		Extreme	
		<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
<u>Age:</u>									
18-35	Males	8	88.9	0	0.0	1	11.1	0	0.0
	Females	1	33.3	2	66.7	0	0.0	0	0.0
36-55	Males	0	0.0	0	0.0	2	66.7	1	33.3
	Females	0	0.0	4	80.0	1	20.0	0	0.0
56+	Males	0	0.0	1	33.3	0	0.0	2	66.7
	Females	2	33.3	1	16.7	3	50.0	0	0.0

TABLE XVII
OSTEOPHYTIC LESIONS AFFECTING LUMBAR VERTEBRAE

		Absent		Slight		Medium		Extreme	
		N	%	N	%	N	%	N	%
Age:									
18-35	Males	5	71.4	0	0.0	1	14.3	1	14.3
	Females	1	25.0	2	50.0	1	25.0	0	0.0
36-55	Males	0	0.0	0	0.0	0	0.0	3	100.0
	Females	0	0.0	1	16.7	5	83.3	0	0.0
56+	Males	0	0.0	0	0.0	1	33.3	2	66.7
	Females	2	28.6	1	14.3	2	28.6	2	28.6

TABLE XVIII
 LESIONS OF HYPEROSTOSIS SPONGIOSA

Orbital								
<u>Age:</u>	<u>Absent</u>		<u>Slight</u>		<u>Medium</u>		<u>Extreme</u>	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
0-5	0	0.0	3	50.0	2	33.3	1	16.7
5-10	1	20.0	3	60.0	1	20.0	0	0.0
>10	18	64.3	10	35.7	0	0.0	0	0.0
Parietal								
<u>Age:</u>	<u>Absent</u>		<u>Slight</u>		<u>Medium</u>		<u>Extreme</u>	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
0-5	0	0.0	2	33.3	1	16.7	3	50.0
5-10	1	25.0	2	50.0	1	25.0	0	0.0
>10	23	71.9	6	18.8	3	9.4	0	0.0

TABLE XIX

SUMMARY OF DENTAL PATHOLOGIES

<u>Carious Lesions</u>								
	<u>Incisors</u>		<u>Canines</u>		<u>Premolars</u>		<u>Molars</u>	
Maxillary	*4/42	9.5%	3/25	12.0%	13/58	22.4%	40/74	54.1%
Mandibular	3/51	5.9%	5/40	12.5%	17/71	23.9%	45/72	62.5%

* No. of teeth with lesions/No. of teeth examined

<u>Attrition and Abscessing</u>						
	<u>None-Slight</u>		<u>Medium</u>		<u>Extreme</u>	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
Attrition	2	5.7	11	31.4	22	62.9
Abscessing	5	15.2	5	15.2	23	69.7

TABLE XX
ANTE MORTEM TOOTH LOSS IN 35 ADULTS

	Incisors		Canines		Premolars		Molars	
Maxillary	68/112	60.7%	28/56	50.0%	46/114	40.4%	76/157	48.4%
Mandibular	62/120	51.7%	15/59	25.4%	51/119	42.9%	102/176	58.0%

* No. of teeth lost/No. of alveoli examined

TABLE XXI
COMPOSITE LIFE TABLE: TOTAL SAMPLE

x	d'_x	d_x	l_x	${}^{1000}q_x$	L_x	T_x	0e	0e_x
0-5	15	224	1000	224	888.0	5171.0	5.17	25.9
5-10	7	104	776	134	724.0	4283.0	5.52	27.6
10-15	8	119	672	177	612.5	3559.0	5.30	26.5
15-20	3	45	553	81	530.5	2946.5	5.33	26.7
20-25	6	90	508	177	463.0	2416.0	4.76	23.8
25-30	4	60	418	146	388.0	1953.0	4.67	23.4
30-35	1	15	358	42	350.5	1565.0	4.37	21.9
35-40	2	30	343	87	328.0	1214.5	3.54	17.7
40-45	2	30	313	96	298.0	886.5	2.83	14.2
45-50	1	15	283	53	275.5	588.5	2.08	10.4
50-55	7	104	268	388	216.0	313.0	1.17	5.9
55-60	10	149	164	909	89.5	97.0	0.59	3.0
60-65	1	15	15	1000	7.5	7.5	0.50	2.5

67 1000

TABLE XXII
COMPOSITE LIFE TABLE: NA11,047

x	d'_x	d_x	l_x	$1000q_x$	L_x	T_x	0e	0e_x
0-5	8	217	1000	217	891.5	5333.0	5.33	26.7
5-10	5	135	783	172	715.5	4441.5	5.67	28.4
10-15	3	81	648	125	607.5	3726.0	5.75	28.8
15-20	2	54	567	95	540.0	3118.5	5.50	27.5
20-25	3	81	513	158	472.5	2578.5	5.03	25.2
25-30	2	54	432	125	405.0	2106.0	4.88	24.4
30-35	1	27	378	71	364.5	1701.0	4.50	22.5
35-40	0	0	351	0	351.0	1336.5	3.81	19.1
40-45	2	54	351	154	324.0	985.5	2.81	14.1
45-50	0	0	297	0	297.0	661.5	2.23	11.2
50-55	4	108	297	364	243.0	364.5	1.23	6.2
55-60	6	162	189	857	108.0	121.5	0.64	3.2
60-65	1	27	27	1000	13.5	13.5	0.50	2.5

37 1000

TABLE XXIII
COMPOSITE LIFE TABLE: TOTAL MALES

x	d'_x	d_x	l_x	${}^{1000}q_x$	L_x	T_x	0e	0e_x
10-15	4	211	1000	211	894.5	4078.0	4.08	20.4
15-20	3	158	789	200	710.0	3183.5	4.03	20.2
20-25	4	211	631	334	525.5	2473.5	3.92	19.6
25-30	2	104	420	248	368.0	1948.0	4.64	23.2
30-35	0	0	316	0	316.0	1580.0	5.00	25.0
35-40	0	0	316	0	316.0	1264.0	4.00	20.0
40-45	0	0	316	0	316.0	948.0	3.00	15.0
45-50	0	0	316	0	316.0	632.0	2.00	10.0
50-55	3	158	316	500	237.0	316.0	1.00	5.0
55-60	3	158	158	1000	79.0	79.0	0.50	2.5

TABLE XXIV
COMPOSITE LIFE TABLE: TOTAL FEMALES

x	d'_x	d_x	x	$^{1000}q_x$	L_x	T_x	0e	0e_x
10-15	2	95	1000	95	952.5	6832.0	6.83	34.2
15-20	0	0	905	0	905.0	5879.5	6.50	32.5
20-25	1	48	905	53	881.0	4974.5	5.50	27.5
25-30	2	95	857	111	809.5	4093.5	4.78	23.9
30-35	1	48	762	63	738.0	3284.0	4.31	21.6
35-40	1	48	714	67	690.0	2546.0	3.57	17.9
40-45	2	95	666	143	618.5	1856.0	2.79	14.0
45-50	1	48	571	84	547.0	1237.5	2.17	10.9
50-55	3	142	523	272	452.0	690.5	1.32	6.6
55-60	7	333	381	874	214.5	238.5	0.63	3.2
60-65	1	48	48	1000	24.0	24.0	0.50	2.5

21 1000

APPENDIX

HUMAN OSTEOLOGY

This appendix is a comprehensive assay of the skeletal morphology, including both metric and non-metric variation, and pathology of the human remains, as well as sex and age determinations where possible. Due to extreme attrition and frequent ante mortem loss, observations of dental morphology were rarely possible with a few noted exceptions. Stature estimates follow Genovés (1967). All other measurements and observations follow the procedures set forth by Swedlund and Wade (1972). The metric data are presented in Tables I through VII at the end of the appendix.

NA10738

BURIAL 1

Sex: Female.

Age: Advanced (56+ years).

Stature: 1405 mm. (based on femoral length with 17 mm. subtracted to correct for age in excess of 30 years).

Condition: The cranial remains were in good condition, with a relative few measurements and observations being unobtainable.

The post-cranial remains were in somewhat poorer condition. These consisted of the majority of the major long bones; the lower cervical, several thoracic, and lumbar vertebrae in variable condition; approximately half the ribs, most of which were fragmented; an intact left scapula and clavicle, as well as fragments of the right scapula; the innominates and sacrum, in poor condition; and a few hand and foot bones, most of which

were fragmentary.

Morphology: The cranium exhibited extreme lambdoidal cradleboard deformation, with an asymmetrical angle to the left side. There was a slight sagittal crest. The temporal lines and nuchal crest were moderately developed, as were the mastoid processes, both of which were notched. The left digastric groove was shallow, the right was quite deep. The mylohyoid ridges and genial tubercles were well developed, gonial eversion was moderate, and there was a moderate degree of alveolar prognathism. The auditory meati were oval in form. The nasal form was concave-convex in profile and hourglass-shaped in frontal view. The inferior margin of the nasal aperture was sharp-edged. Observations of sutural variations were obscured by advanced synostosis. The supra-orbital foramina were notches, rather than distinct, enclosed foramina. The infra-orbital, mandibular, and mental foramina were single in occurrence, and a single parietal foramen was present to the right of the sagittal suture.

Observations of post-cranial morphology were sharply limited due to the condition of the bones present and the total absence of many features. Shaft bowing and torsion were moderate in the femora; the left femur had a relatively slight third trochanter, while this feature was much more pronounced in the right femur. The olecranon septum of the left humerus was intact (unperforated); the right humerus lacked this feature altogether.

Pathology: The only significant pathological feature of the cranium was the ante mortem loss of all teeth except the upper left second premolar and the lower right canine and first premolar, displaying moderate to severe attrition. The lower premolar was possessed of a large distal carious lesion. Severe abscessing was still in evidence in spite of the near-total alveolar resorption.

In the post-cranial skeleton there was considerable evidence of advanced, degenerative osteoarthritis. Moderate to extreme osteophytosis affected the anterior surfaces of the cervical and thoracic centra, with anterior fusion and kyphosis of two upper thoracics (see Plate 1c), lessening noticeably in the lumbar. Apophyseal osteophytes were also present throughout the vertebral column, but these principally involved the lumbar (see Plate 1b), with apophyseal fusion of the fifth lumbar to the sacrum (see Plate 1a). Also in evidence was an exostotic profusion involving the trochanters of both humeri.

BURIAL 2

Sex: Undetermined.

Age: Young child (4-6 years).

Stature: Undetermined.

Condition: The cranial remains were in poor condition. A significant number of measurements and observations were impossible to obtain. The base and most of the left side of the cranial vault were missing, as was the major portion of the left side of the mandible. The mandibular deciduous teeth were all present and erupted. The maxillary deciduous teeth present were the molars, right canine, and right central incisor, all fully erupted.

The posterior skeleton was represented only by the shafts of the leg bones, a few rib fragments, and a badly eroded right scapula. Measurements and observations were minimal.

Morphology: Extreme lambdoidal cradleboard deformation was noted, with an asymmetrical angle to the left. Because of the early age at death, the sagittal crest, temporal lines, and mastoid processes were only slightly developed. Genial tubercles were slight. There was a moderate degree of

alveolar prognathism and no eversion of the gonion. The right auditory meatus was oval in form and the inferior margin of the nasal aperture was rounded. There was a remnant of the metopic suture and coronal, sagittal, and lambdoidal (bilateral) wormian bones were present. The supra-orbital foramina were notched and the infra-orbital foramina were single in occurrence. Both left and right parietal foramina were present. The right mandibular foramen was single in occurrence, as were both mental foramina. The single maxillary incisor present displayed moderate shovelling.

No significant morphological features of the post-cranial skeleton were observed.

Pathology: There were moderately advanced lesions of spongy hyperostosis in the roofs of both orbits, with no apparent involvement of the cranial vault.

The few post-cranial remains showed no pathological features.

BURIAL 3

Sex: Female.

Age: Advanced (56+ years).

Stature: 1432 mm. (based on femoral length with 17 mm. subtracted to correct for age in excess of 30 years).

Condition: The cranial vault was intact and in good condition, although the facial bones were fragmentary and disarticulated. The mandible was complete and in good condition. The only tooth present was the left mandibular first premolar; all other teeth were lost prior to death, with near-total alveolar resorption.

The post-cranial remains consisted of eroded and fragmentary leg bones; the lumbar vertebrae, innominates, and sacrum, all badly eroded; the left patella; and a few hand and foot bones.

Morphology: The cranium displayed moderate, symmetrical, lambdoidal cradle-board deformation. There was a slight sagittal crest, moderate temporal lines, moderately developed mastoid processes and nuchal crest, and shallow digastric grooves. Mylohyoid ridges were pronounced, genial tubercles were slight in expression, and gonial eversion was slight. The auditory meati were oval in form. Bilateral lambdoid wormian bones were present. Observation of coronal or sagittal wormians was obscured by advanced synostosis. Asterionic bones were present on both sides. The left supra-orbital foramen was notched and a parietal foramen was present on the right side. Both mandibular and mental foramina were single in occurrence.

In the post-cranial skeleton, few observations were possible. A moderate third trochanter was present on the left femur and both femora had moderately developed lineae asperae. Both femora showed medium torsion and shaft bowing.

Pathology: Several cranial pathologies were noted. All the teeth except a single mandibular premolar had been lost well before death. Abscessing, extreme attrition, and carious lesions were probable contributing factors. There was severe dehiscence in the tympanic plates. There was evidence of temporo-mandibular joint arthritis, with degenerative changes in both condyles and mandibular fossae. This condition was more pronounced on the right side, with considerable flattening of the condyle.

The spines and apophyseal joints of the lumbar and first sacral vertebrae all bore heavy osteophytic proliferations (see Plate 2a & c). The centra of these vertebrae were missing, as were all the cervical and thoracic vertebrae. There were, however, no osteophytes or signs of degeneration on the occipital condyles. There was extreme degeneration and osteophytosis of the sacro-iliac joints (see Plate 2b), and the pubic symphysis

was sharply angulated anteriorly. The indications were that these pathologies may be attributable to ankylosing spondylitis.

BURIAL 4

Sex: Undetermined.

Age: Infant (0-3 years).

Stature: Undetermined.

Condition: The condition of the cranium was poor, consisting of numerous fragments of the cranial vault and the right ramus of the mandible. No measurements were possible and observations were severely limited.

The post-cranial remains consisted of the shafts of the right humerus and ulna and both femora; and a very few fragments of ribs and vertebrae. No measurements or significant observations were possible.

Morphology: Ante mortem cranial deformation was likely, but the remains were too fragmentary to specify to what extent cradleboarding may have contributed. The only morphological features noted were as follows. The right supra-orbital foramen was notched, the right mandibular foramen was single in occurrence, and an unobliterated metopic suture was present.

Pathology: A slight proliferation of spongy hyperostosis was present on the roof of the right orbit, the left orbit not being observed, and on the parietals and occipital, probably in the vicinity of lambda.

BURIAL 5

Sex: Undetermined.

Age: Undetermined (adult).

Stature: Undetermined.

Condition: The cranial remains consisted of the right side of the cranial vault, with the remainder of the skull entirely lacking.

The post-cranial skeleton was represented by a single rib fragment.

Morphology: Moderate symmetrical cradleboard deformation of the lambdoid variety was present. Sagittal cresting and temporal markings on the right side were moderately developed. There was a slight nuchal crest. The right mastoid process was moderately developed, with a shallow digastric groove. There was a slight styloid process on the right side and the right auditory meatus was oval in form. Although the coronal suture was not observed, both sagittal and bilateral lambdoid wormian bones were present.

Pathology: Although the orbits were missing and not observed, there was a moderate spongy proliferation of bone on the parietals and occipital within an irregular radius of approximately 50 mm. of lambda (see Plate 3).

BURIAL 6

Sex: Female.

Age: Young adult (21-35 years).

Stature: Undetermined.

Condition: The condition of the cranium was poor. The base of the skull and much of the face were entirely missing. The cranial vault was present, though badly fragmented. The maxilla was present virtually as a unit and the mandible lacked only the left ramus and gonial region. All the teeth were present.

The post-cranial remains consisted of all the major long bones, in eroded or fragmentary condition; the first four cervical vertebrae, fourth through eighth and twelfth thoracic vertebrae, and all five lumbar, all in eroded or fragmentary condition; an intact right innominate and fragments of the left innominate and sacrum; a few rib fragments; fragmentary clavicles; and a few fragmentary hand and foot bones.

Morphology: The skull displayed extreme lambdoidal cradleboard deformation, angled to the right. The nuchal crest and mastoid processes were moderately developed. Digastric grooves were deep. Mylohyoid ridges were medium in expression. Genial tubercles were pronounced. There was slight gonial flaring on the right side. There was a moderate degree of alveolar prognathism. The auditory meati were oval. The nasal aperture had a rounded inferior margin. The coronal suture was not observed, but the sagittal and lambdoid (bilateral) sutures both had wormian bones. The infra-orbital, mandibular, and right mental foramina were all single in occurrence. The maxillary incisors all displayed marked shovelling. The maxillary first molars showed a distinct four-cusp pattern, the maxillary second and third molars had a 3+ pattern, and all six of the mandibular molars had a 5Y pattern.

In the post-cranial skeleton, there was a moderate degree of ischial tuberosity eversion; moderately developed third trochanters and lineae asperae, and a moderate degree of torsion and shaft bowing characterized the femora.

Pathology: All the teeth were erupted normally except for a slight angular impaction of the left mandibular third molar. There was a total of three occlusal caries affecting the maxillary third molars and five buccal and occlusal carious lesions in the mandibular dentition, involving four molar teeth. In addition, there was a very slight degree of hyperostotic pitting of the orbits and parietals.

In the post-cranial skeleton, in spite of the total absence of osteophytes on the vertebral centra, there was a moderate degree of lipping of the anterior margins of the sacro-iliac joints.

NA11043

BURIAL 1a

Sex: Undetermined.

Age: Infant (0-3 years).

Stature: Undetermined.

Condition: The cranial remains were in poor and fragmentary condition. Represented were fragments of the cranial vault, the right half of the mandible, and a few unerupted, deciduous maxillary teeth.

The post-cranial remains included the diaphyses of the major long bones, a few vertebral centra and rib fragments, unfused sternbrae, scapulae, innominates, and a few hand and foot bones, all lacking epiphyses.

Morphology: These remains were too fragmentary for any significant morphological observations.

Pathology: The only pathological feature noted was a slight pitting of the roofs of the orbits and a slight to moderate occurrence of spongy hyperostotic areas on the parietals and occipital.

BURIAL 1b

Sex: Undetermined.

Age: Infant (0-3 years).

Stature: Undetermined.

Condition: The cranial remains, in poor condition, were represented only by fragments of the cranial vault.

The post-cranial remains consisted of the fragmented diaphyses of the arm bones.

Morphology: No morphological observations were possible.

Pathology: The roofs of the orbits and the parietal fragments displayed a slight degree of spongy hyperostotic pitting.

NA11047

BURIAL 1

Sex: Male.

Age: Pre-adult (18-20 years).

Stature: 1534 mm. (based on femoral length).

Condition: The cranial remains consisted of three incisor teeth and nothing more.

The post-cranial skeleton was somewhat better represented but still fragmentary and incomplete. Included were fragments of the arm bones, eroded femora, and fragments of the lower leg bones; fragments of the cervical and upper thoracic vertebrae, eroded lower thoracics and lumbar; the majority of the ribs, most of which were fragmented; fragments of the clavicles and scapulae; eroded innominates and sacrum; and a few fragmentary hand and foot bones.

Morphology: The only cranial observation was the notation of marked shovelling of the maxillary right central incisor.

Ischial tuberosity eversion was moderate and the teres process of the right scapula was moderately developed. In the femora, the third trochanters and lineae asperae were medium in expression, and torsion and shaft bowing were moderate. The only other feature noted was a sacralized first coccygeal vertebra.

Pathology: There were no apparent pathologies.

BURIAL 2

Sex: Female.

Age: Middle-aged (36-55 years).

Stature: Undetermined.

Condition: The cranium was in fair condition, lacking the basi-occiput and most of the left parietal and sphenoid.

The post-cranial remains were comprised of eroded or fragmented remnants of the major long bones; eroded fragments of all the vertebrae; fragments of approximately half the ribs; eroded sternum, clavicles, scapulae, innomimates, and sacrum; and a few fragments of hand and foot bones.

Morphology: The cranium exhibited pronounced symmetrical, lambdoidal cradleboard deformation. There was a medium sagittal crest and the temporal lines were medium in expression. The mastoid processes were moderately developed with shallow digastric grooves, and the styloid processes were moderately developed. The mylohyoid ridges were pronounced and the genial tubercles were medium. Gonial eversion was pronounced and there was a moderate degree of alveolar prognathism. The auditory meati were oval. The nasal bones were triangular in form, with a concave-convex profile, and the inferior margin of the nasal aperture was rounded. The lambdoid suture was not observed, but inter-sutural bones were not present elsewhere in the skull. The supra-orbital foramina were notched, and the infra-orbital and mandibular foramina were single in occurrence.

Post-cranial observations were restricted to the femora, which displayed medium third trochanters and lineae asperae and moderate shaft bowing.

Pathology: There was apparent temporo-mandibular joint arthritis on the right side, with flattening and degeneration of the mandibular condyle. This condition may also have affected the left side, since

neither mandibular fossa showed any significant changes and the left condyle was missing. The only other cranial pathologies were dental. At least two alveoli in the maxilla and five in the mandible had been subject to ante mortem tooth loss with near-total resorption. Of the ten posterior teeth present, six were carious, with a total of ten lesions. In addition, the right maxillary canine had two carious lesions. Attrition was extreme.

In the post-cranial skeleton, there was a slight degree of anterior lipping of the left sacro-iliac, the condition being more pronounced on the right side. There was moderately severe osteophytic lipping of the lower lumbar and first sacral vertebral centra. Lipping was absent or slight in the thoracics and the cervicals were not observed. The apophyseal joints of the lumbar were also lacking.

BURIAL 3

Sex: Male.

Age: Advanced (56+ years).

Stature: 1497 mm. (based on femoral length with 17 mm. subtracted to correct for age in excess of 30 years).

Condition: The cranium was in good condition, with nearly all bones intact but largely disarticulated.

The post-cranial skeleton was less well preserved but still in fair condition. Bones present included the major long bones, either eroded or badly fragmented; all the vertebrae, in eroded condition; fragments of about half the ribs; the clavicles; eroded and fragmented scapulae, innominates, and sacrum; and most of the hand and foot bones, some of which were badly fragmented.

Morphology: Cradleboard deformation of the cranium was extreme and of the lambdoid variety with an asymmetrical angle to the right. The temporal lines and nuchal crest were moderately expressed. The mastoid processes were pronounced, with deep digastric grooves, and the styloid processes were also quite markedly developed. The mylohyoid ridges were pronounced, genial tubercles moderately developed, and gonial eversion was medium. Alveolar prognathism was quite pronounced. The auditory meati were oval in form. The nasal bones formed an hourglass configuration and were concave-convex in profile. The inferior margin of the nasal aperture was rounded. The only inter-sutural bones noted were bilateral wormians in the lambdoid suture. The left supra-orbital foramen was a distinct foramen, while the right was notched. The infra-orbital foramina were double in occurrence on both sides. Mandibular and mental foramina were single. There was a parietal foramen on the left side only.

Ischial tuberosity eversion was moderate on the left side (right side not observed). The femoral third trochanters and lineae asperae were moderately developed, shaft bowing was minimal, and torsion was medium. Both humeri had intact olecranon septa.

Pathology: There was mild temporo-mandibular joint arthritis evidenced by incipient faceting and degeneration of both condyles. Ante mortem dental loss, probably attributable to attrition and abscessing, was extreme. The only remaining teeth were a right third molar in the maxilla and the left lateral incisor, canine, first premolar, and third molar in the mandible. These teeth contained a total of five carious lesions and were extremely worn.

There was a moderate degree of anterior lipping of the sacro-iliacs. Pronounced osteophytosis affected the centra of the lower cervicals, upper thoracics, and lumbar. Moderate osteophytes were present in the lower thoracics and absent in the upper cervicals. The articulation of the fifth lumbar with the sacrum shows lateral faceting (left side) indicative of incipient fusion (see Plate 4a). The first thoracic vertebra has a fused right rib. This rib shows evidence of a healed fracture and is facted with the rib below (see Plate 4b).

BURIAL 4

Sex: Undetermined.

Age: Older child (7-12 years).

Stature: Undetermined.

Condition: The cranium was in fair condition. Much of the basi-occipital and speno-parietal regions were missing on the right side. The nasals and the right mandibular condyle were also missing and the cranial vault was largely disarticulated.

The post-cranial remains were poorly preserved and were comprised of shaft fragments of all major long bones except the right radius and ulna; fragments of all vertebrae except the first two cervicals; a few rib fragments; intact clavicles; fragments of the innominates and sacrum; and a few fragmented hand and foot bones.

Morphology: The skull displayed pronounced lambdoidal cradleboard deformation, with an asymmetrical angle to the right. There was a slight sagittal crest and the temporal lines and nuchal crest were moderately expressed. The mastoid processes were moderately developed

with shallow digastric grooves. The mylohyoid ridges were moderately expressed, genial tubercles were prominent, and gonial eversion was moderate. There was a medium degree of alveolar prognathism. The auditory meati were oval in form. The nasal bones were hourglass-shaped, with an indeterminate profile. The inferior margin of the nasal aperture was rounded. A trace of the metopic suture remained, and there were coronal and bilateral lambdoid wormian bones, as well as an asterionic bone on the left side (right side missing). The supra-orbital foramina were both notched. The infra-orbital, mandibular, and mental foramina were all single in occurrence. Single foramina occurred in both parietals. The maxillary incisors showed pronounced shovelling. In the maxillary dentition, the first molars showed a 4 cusp pattern, the second molars a 4- pattern. In the mandible, the first molars showed a 5Y pattern, the second molars a 5+ pattern.

Ischial tuberosity eversion was medium on the left side (right side missing). Third trochanters were entirely lacking and linea aspera development was moderate in the femora. Femoral shaft bowing and torsion were also medium.

Pathology: The dentition showed no significant wear or other pathology except for the occurrence of small occlusal caries in the right mandibular second molar. There was a small depressed lesion, with evidence of healing, above the left orbit at the anterior end of the superior temporal line.

There were no apparent post-cranial pathologies.

BURIAL 5

Sex: Undetermined.

Age: Young child (4-6 years).

Stature: Undetermined.

Condition: The cranial remains were very poorly preserved, consisting only of very small fragments of the cranial vault, eight deciduous teeth, and a few unerupted permanent teeth.

The post-cranial skeleton was also poorly preserved and included diaphyseal fragments of the major long bones, fragmentary innominates, and a very few vertebral fragments.

Morphology: No significant observations were possible.

Pathology: The only pathology noted was the occurrence of small occlusal carious lesions in the left mandibular second molar (deciduous).

BURIAL 6

Sex: Male.

Age: Young adult (21-35 years).

Stature: 1534 mm. (based on femoral length).

Condition: The only cranial remains recovered were the left maxillary third molar, the left mandibular second premolar, the right mandibular canine, and the right mandibular first premolar.

The post-cranial remains were much more complete and reasonably well preserved. All the major long bones were present, although most of these were somewhat eroded. Also included were a complete set of vertebrae, including a sixth lumbar, in good to fair condition; all the ribs; the major part of the sternum; intact clavicles; fragmented scapulae; innominates and sacrum, in good to fair condition; and a nearly complete set of hand and foot bones.

Morphology: The only cranial observations were of the single third molar which displayed a 3+ cusp pattern. This tooth also had a

mesial-occlusal facet suggestive of an angular impaction.

Ischial tuberosity eversion was medium. The teres processes of the scapulae were quite strongly developed. Third trochanter and linea aspera development were pronounced in the femora, and shaft bowing and torsion were moderate. The sixth lumbar and first two coccygeal vertebrae were sacralized (see Plate 5c).

Pathology: Carious lesions were present in two of the four teeth. Large mesial and buccal caries and a small occlusal lesion were present in the third molar and the lower right canine contained a mesial cavity.

The sacro-iliac joints displayed circumferential lipping, slight right side, more pronounced on the left. The odontoid articulation of the atlanto-axial joint had pronounced osteophytic development (see Plate 5b). There was fusion, both central and spinal, of the second and third cervical vertebrae (see Plate 6). The centra of the cervical and upper thoracic vertebrae showed slight osteophytic lipping. This condition was somewhat more pronounced in the lower thoracics and lumbar, becoming extreme in the fourth and fifth lumbar (see Plate 5a). Apophyseal joint involvement was only very slight.

BURIAL 7

Sex: Male

Age: Young adult (21-35 years).

Stature: Undetermined.

Condition: The cranial vault was badly fragmented and most of the basal area was missing. The facial bones were fragmentary and disarticulated. The mandible, however, was intact.

The post-cranial skeleton was in poor condition, badly eroded and fragmented, with many bones missing. Fragments of all the major

long bones were present. The only cervical vertebrae recovered were the upper three, in fair condition. There were also fragments of the thoracic and lumbar vertebrae. About half the ribs were present, mostly fragmented. Also included were the manubrium and corpus of the sternum, in fair condition; an eroded right clavicle; fragmentary scapulae; innominates and sacrum, in poor condition; and a few fragmentary hand and foot bones.

Morphology: Extreme cradleboard deformation of the lambdoid variety was noted, with asymmetrical angle to the right. The mastoid processes were strongly developed, with deep digastric grooves. Styloid processes were slight. The mylohyoid ridges and genial tubercles were slightly developed. Gonial eversion was medium and there was pronounced alveolar prognathism. The auditory meati were oval in form. The inferior margin of the nasal aperture was sharply defined. Lambdoid wormian bones were present on the right side only. The sagittal suture lacked wormian bones and other sutures were unobserved. On the right side (left side missing) the supra-orbital foramen was a canal and the intra-orbital foramen was single. There were bilateral parietal foramina. The mandibular and mental foramina were single in occurrence. The maxillary incisors were markedly shovelled. Cusp patterns were distinguishable only in two maxillary molars; the left third molar showed a 3+ pattern and the right second molar had four well developed cusps.

The olecranon septum was perforated in the right humerus (part missing in the left humerus). The only other morphological observations in the post-cranial skeleton were of the femora. These displayed moderately developed third trochanters and linea asperae, and medium shaft bowing and torsion.

Pathology: The only cranial pathologies noted were dental. Of the 21 teeth present, nine contained a total of 12 carious lesions. Alveolar resorption was extreme, abscessing was moderate to severe, and attrition was moderate.

Relatively few observations of the post-cranial remains were possible. There was a spiny exostosis, perhaps traumatic in origin, on the lateral epicondyle of the right humerus. The second and third cervical vertebrae were fused together in both the central and spinal articulations (see Plate 6).

BURIAL 8

Sex: Undetermined.

Age: Middle-aged (36-55 years).

Stature: Undetermined.

Condition: The cranium was in poor condition, lacking entirely the facial and basilar regions, with a badly fragmented vault. The mandible was missing except for a small fragment of the body surrounding the symphysis. There were also five loose mandibular teeth.

The post-cranial remains were in very poor condition, consisting only of fragments of the major long bones, a few rib fragments, part of the left scapula, and a few fragmentary hand and foot bones.

Morphology: The cranium exhibited extreme lambdoidal cradleboard deformation, with an asymmetrical angle to the right side. The nuchal crest was moderately developed. The mastoid processes were prominent, with shallow digastric grooves. The genial tubercles were pronounced. The auditory meati were oval. There were bilateral wormian bones. The right supra-orbital foramen was notched and there was a single parietal foramen on the right side.

The only post-cranial observations were made on the right femur, in which the third trochanter, linea aspera, and shaft bowing were all medium in expression.

Pathology: There was a slight to moderate hyperostotic pitting of the orbits, with a slight involvement of the parietals and occipital. Of the five mandibular teeth recovered, four were anterior teeth with no caries. The left third molar contained a large carious lesion on the occlusal surface. All five teeth were extremely worn.

There were no apparent pathologies in the meager post-cranial remains.

BURIAL 9

Sex: Undetermined

Age: Infant (0-3 years).

Stature: Undetermined.

Condition: The cranium was disarticulated and fragmented, lacking the basilar region, most of the orbits, and the nasal bones. The mandible was intact.

There were fragments of the humeri, femora, and the right radius, ulna, tibia, and fibula. The only other post-cranial remains were two rib fragments.

Morphology: There was extreme, symmetrical, lambdoid cranial deformation. The mastoid processes were predictably slightly developed, with deep digastric grooves. The mylohyoid ridges and genial tubercles of the mandible were moderately expressed, gonial eversion was slight, and there was a slight degree of alveolar prognathism. The auditory meati were oval. The inferior margin of the nasal aperture was rounded.

There were bilateral lambdoid wormian bones. The supra-orbital foramina were notched. The infra-orbital, mandibular, and mental foramina were all single in occurrence.

Pathology: There was a moderately severe spongy proliferation in both orbits. The parietals and occipital were not involved.

BURIAL 10

Sex: Male.

Age: Young adult (21-35 years).

Stature: 1672 mm. (based on femoral length).

Condition: The cranium was in excellent condition and lacked only small portions of the left ramus and occipital condyle.

The major long bones, with the exception of the right femur and fibula, were present and in fair condition. All the vertebrae were present, with the exception of the sixth and seventh cervicals, including a sixth lumbar. The cervical and upper thoracic vertebrae were in good condition, the remainder less so. Most of the ribs were recovered and the majority of these were in good condition. The sternum was in fair condition. The clavicles, scapulae, innominates, and sacrum were fairly intact but seriously eroded. The hand and foot bones were fairly well represented, although most were eroded and some fragmented.

Morphology: Lambdoidal cranial deformation was extreme, with an asymmetrical angle to the right. The skull displayed moderately developed sagittal and nuchal crests, and temporal lines. The mastoid processes were well developed and notched, and the digastric grooves were deep. The styloid processes were moderately developed. The

mylohyoid ridges and genial tubercles were moderately developed, gonial eversion was slight, and there was a moderate degree of alveolar prognathism. The auditory meati were oval. The nasal bones formed an hourglass configuration and the nose was concave-convex in profile. The inferior margin of the nasal aperture was rounded. There was a proliferation of inter-sutural bones, with bilateral coronal and lambdoid, as well as sagittal wormian bones, bilateral asterionic bones and an epipteric bone on the left side. The maxillary incisors showed marked shovelling. In the maxilla, the first molars had 4 cusps, the second molars a 4- pattern, the left third molar a 3 cusp, and the right molar a 3+ pattern. In the mandible, the first and third molars displayed a 5Y pattern, the second molars a 5+ pattern. The supra-orbital foramina were both notched. The left infra-orbital foramen was single, the right double. The mandibular and mental foramina were single. A single parietal foramen was present on the left side.

The olecranon septa of both humeri were intact. The sixth lumbar vertebra was sacralized. Ischial tuberosity eversion was medium. The scapulae had moderately developed teres processes. The left femur had no third trochanter, a moderately developed linea aspera, and a medium degree of shaft bowing and torsion.

Pathology: The only cranial pathologies noted were dental. With a complete set of 32 teeth present, one maxillary and five mandibular molars each displayed small carious lesions, uniformly on the buccal surfaces of the mandibular molars and on the occlusal surface of the maxillary molar. Neither abscessing nor alveolar resorption were in evidence and attrition was moderate.

There were no significant post-cranial pathologies.

BURIAL 11

Sex: Female.

Age: Advanced (56+ years)

Stature: 1471 mm. (based on femoral length with 17 mm. subtracted to correct for age in excess of 30 years).

Condition: The cranium was in fair to poor condition. The cranial vault was reasonably intact but the majority of the facial and basilar regions were missing, as well as the left mandibular ramus.

The post-cranial remains were in extremely poor condition. These included reasonably intact leg bones; fragments of the left humerus and ulna; fragmentary clavicles, scapulae, and innominates; and a very few small fragments of vertebrae, ribs, hand and foot bones.

Morphology: Asymmetrical lambdoid cradleboard deformation, angled to the left, was quite pronounced. There was a slight sagittal crest, medium temporal lines, and a well developed nuchal crest. The mastoid processes were moderately developed, with deep digastric grooves. Styloid processes were slight. The mylohyoid ridges were pronounced. There were medium genial tubercles. Gonial eversion (right side) was moderate. The auditory meati were oval. Possible sutural variations were obscured by advanced obliteration. The right mandibular and both mental foramina were single in occurrence.

The femora possessed well developed third trochanters and moderate linea aspera development. Femoral torsion and shaft bowing were medium.

Pathology: Temporomandibular joint arthritis, with faceting and degeneration of the condyle, was in evidence on the right side (left side not observed). In the anterior left maxillary fragment and in the posterior mandibular alveoli virtually all teeth were lost well before

death, with nearly total resorption of the alveoli. The remaining teeth were extremely worn.

The only pathological occurrence noted in the very meager post-cranial remains was a moderate degree of circumferential lipping of the auricular surfaces in the ilia.

BURIAL 12

Sex: Female.

Age: Advanced (56+ years)

Stature: 1494 mm. (based on femoral length with 20 mm. subtracted to correct for age in excess of 30 years).

Condition: The right side of the cranium was virtually intact and well preserved; however, most of the left side of the skull and the left condyloid process were missing.

All the major long bones were present, though somewhat eroded. All vertebrae were present, but in poor condition. There were also major fragments of the sternum, clavicles, scapulae, innomates, and sacrum; and a few fragmentary ribs and hand and foot bones.

Morphology: The skull displayed extreme symmetrical deformation in the lambdoid region. There was a slight sagittal crest, medium temporal lines, and a pronounced nuchal crest. The mastoid processes showed medium development with deep digastric grooves. Styloid processes were small. The mandible displayed well developed mylohyoid ridges and genial tubercles, and moderate gonial eversion on the right side (left side not observed). The auditory meati were oval. The nasal bones were hourglass-shaped and concave-convex in profile. The nasal aperture had a sharply defined inferior margin. Intersutural bones, if present,

were totally obscured by the obliteration of the major sutures, with the exception of an apparently unipartite os Inca. The left supra-orbital foramen was notched, while there was a distinct foramen on the right side. The right infra-orbital foramen was single, as were the mental and mandibular foramina on both sides. Parietal foramina were absent.

Ischial tuberosity eversion was moderate. The olecranon septa were intact in both humeri. Third trochanter and linea aspera development were pronounced in both femora, while shaft bowing and torsion were moderate.

Pathology: All teeth were lost ante mortem with nearly total resorption.

Moderately severe osteophytes were present on the centra of the lower thoracic, lumbar, and first sacral vertebrae, with fairly extensive apophyseal involvement in the lumbar. This condition was less severe in the cervicals and upper thoracics. There was also slight anterior lipping of the sacro-iliac joints. There was a healed fracture in the proximal shaft of the left femur.

BURIAL 13

Sex: Undetermined.

Age: Young child (4-6 years)

Condition: The cranium was essentially complete, all bones more or less intact, but the cranial vault was disarticulated.

The post-cranial remains consisted of the shafts of the leg bones, humeri, left radius, and left ulna; the unossified centra of the lumbar and lower thoracic vertebrae; nearly all the ribs, most of which were fragmented; and fragments of the right clavicle, right scapula, and both innominates.

Morphology: There was moderate symmetrical lambdoid deformation of the cranium. The sagittal and nuchal crests and the temporal lines were very slight. The mastoid processes were slight. The digastric groove was shallow on the left side, deep on the right. The mylohyoid ridges and genial tubercles were slight and there were slight degrees of gonial eversion and alveolar prognathism. The auditory meati were oval. The inferior margin of the nasal aperture was rounded. There were bilateral lambdoid wormian bones. Both supra-orbital foramina were notched. The infra-orbital, mandibular, and mental foramina were all single in occurrence and there were single, bilateral parietal foramina.

In the femora, linea aspera development was minimal and there was a medium degree of shaft bowing.

Pathology: There was very slight pitting of the orbits. There was a somewhat more pronounced, but still slight to moderate hyperostotic involvement of the superior-anterior parietals, and no involvement of the occipital. All the deciduous molars were present, as well as the deciduous mandibular canines. Of these, the maxillary second molars each had small occlusal caries on the lingual surfaces, and three of the four mandibular molars contained a total of six small occlusal caries.

There were no apparent post-cranial pathologies.

BURIAL 14

Sex: Undetermined.

Age: Young child (4-6 years).

Stature: Undetermined.

Condition: The cranium was in poor condition. The cranial vault was badly fragmented and the basilar and most of the facial regions were

missing. The alveolar portion of the right maxillary and the major part of the mandible were present. Also included were the deciduous teeth, lacking only the maxillary central incisors.

There was no post-cranial skeleton.

Morphology: There was minimal development of the mastoid processes, mylohyoid ridges, and genial tubercles. There was a slight degree of gonial eversion on the left side (right side missing). The auditory meati were oval. The supra-orbital foramina were both notched. The left mandibular foramen (right side missing) and both mental foramina were single. The incisors displayed a moderate degree of shovelling.

Pathology: Small carious lesions were observed in the mandibular second molars. There was a slight pitting of the orbits and a definite spongy thickening of the parietals and possibly the occipital (the extent and location were uncertain due to the extreme fragmentation of the posterior cranial vault).

BURIAL 15

Sex: Undetermined.

Age: Young child (4-6 years).

Stature: Undetermined.

Condition: This burial was in extremely poor condition, consisting of a few small cranial fragments, a deciduous incisor, five unerupted permanent teeth, and no post-cranial remains.

Morphology: There was both a permanent and a deciduous maxillary left central incisor. Both of these displayed marked shovelling.

Pathology: There were no apparent pathologies.

BURIAL 16

Sex: Undetermined.

Age: Young child (4-6 years).

Stature: Undetermined.

Condition: The cranium was in poor condition. Aside from numerous small fragments, there was a large piece of the frontal, the left maxilla, the left parietal, and the mandible which lacked only the right ramus and posterior alveoli.

There were fragmentary shafts of the femora and tibiae, a very few vertebral fragments, and part of the right clavicle.

Morphology: Lambdoid deformation of the cranium was pronounced, with an asymmetrical angle to the right. The mylohyoid ridge (left side only) and genial tubercles were minimally expressed and there was a slight degree of gonial eversion on the left side. The left auditory meatus was oval in form. There were bilateral lambdoid wormian bones (other sutural variations could not be observed). The left supra-orbital foramen was notched and there were single occurrences of the infra-orbital, mandibular, and mental foramina on the left side (right side not observed). The deciduous maxillary incisors showed moderate shovelling.

There were no post-cranial observations.

Pathology: There was moderate spongy proliferation in the left orbit, also involving the left parietal and occipital adjacent to lambda (right side observations could not be made). There was moderate attrition of the anterior deciduous teeth and three of the molars contained a total of six occlusal caries.

There were no apparent post-cranial pathologies.

BURIAL 17

Sex: Female.

Age: Young adult (21-35 years).

Stature: 1505 mm. (based on femoral length).

Condition: The cranium was complete and in good condition.

The post-cranial skeleton was represented by all the major long bones, though most were somewhat eroded; the lower three cervical, upper six and lower four thoracic, and all the lumbar vertebrae, most of which were in good condition; major fragments of the manubrium, clavicles, scapulae, innomimates, and sacrum; and a few fragmentary ribs, and hand and foot bones.

Morphology: Symmetrical lambdoid deformation was pronounced. There was a slight sagittal crest and moderately developed nuchal crest and temporal lines. The mastoid processes were prominent, with deep digastric grooves. There were moderately developed styloid processes. There were prominent mylohyoid ridges and genial tubercles. Gonial eversion was slight and there was a moderate degree of alveolar prognathism. The auditory meati were oval. The nasal bones were hourglass-shaped and concave-convex in profile. The inferior margin of the nasal aperture was rounded. There were bilateral lambdoid wormian bones and asterionic bones. The supra-orbital foramina were distinct (i.e., unnotched); the infra-orbital, mandibular, and mental foramina were all single. In the maxilla, the first and second molars had four well developed cusps, and the third molars displayed a 3+ pattern. In the mandible, the second molars and right third molar all had a 5Y pattern.

Ischial tuberosity eversion was marked. The left scapula had a well developed teres process. In both humeri the olecranon septa were

perforated. The femora had pronounced third trochanters and moderate lineae asperae. Femoral torsion was moderate and shaft bowing minimal. Pathology: Temporomandibular joint arthritis was in evidence on the right side, with degenerative flattening of the condyle. Both the condyle and mandibular fossa were mildly exostotic. There was no evidence that the left side was afflicted. Abscessing and alveolar resorption were advanced. There were a total of five teeth lost prior to death. Attrition was moderate and there were a total of six carious lesions in five of the maxillary molars.

Extensive areas of osteitis involved the shafts of the femora (especially the left femur, which displayed considerable thickening), the tibiae, and at least the left fibula (see Plate 7). There was no apparent involvement of other bones. There were slight osteophyte formations on the anterior centra of cervicals 5 through 7 and the third lumbar. There was also the beginning of apophyseal joint osteophytosis in the lumbar region. The sacro-iliac joints showed degeneration and pronounced osteophytosis, especially on the left side in which incipient fusion was apparent.

BURIAL 18

Sex: Female.

Age: Middle-aged (36-55 years).

Stature: 1485 mm. (based on femoral length with 14 mm. subtracted to correct for age in excess of 30 years).

Condition: The cranium was in fair to poor condition, with much of the facial and most of the basilar regions missing.

All the major long bones were present and in fair condition. All vertebrae were present and in good to fair condition except for

the poorly preserved thoracics and upper lumbar. There were major fragments of the sternum, clavicles, scapulae, innominate, and sacrum. Most of the ribs were present, in good condition, and about half the hand and foot bones were present, though eroded and fragmentary.

Morphology: Lambdoidal cradleboard deformation was pronounced and asymmetrically angled to the right side. The nuchal crest and temporal lines were moderately developed. The mastoid processes were prominent, with deep digastric grooves. Styloid processes showed medium development. There were prominent mylohyoid ridges and genial tubercles. Gonial eversion was pronounced. There was a medium degree of alveolar prognathism. The auditory meati were oval. The nasal bones were hourglass-shaped and concave-convex in profile. The nasal aperture had a rounded inferior margin. The lambdoid suture, which had bilateral wormian bones, was the only suture not obscured by obliteration or fragmentation. The left supra-orbital foramen was notched and the left infra-orbital foramen was single in occurrence (right sides not observed). The mandibular and mental foramina were all single, and there was a single parietal foramen on the right side.

The olecranon septa of both humeri were intact. Ischial tuberosity eversion was slight. The left scapula displayed a prominent teres process. The femora showed strong development of the third trochanters and moderately developed lineae asperae. Femoral torsion and shaft bowing were moderate.

Pathology: There were three maxillary and six mandibular teeth not lost prior to death. Alveolar resorption was extreme, as was attrition of the remaining teeth. There was a total of six carious lesions affecting five of the nine teeth.

In the post-cranial remains there were relatively few pathologies. In particular, there was an unusual absence of vertebral osteophytes, considering the age of the individual. However, there was moderately severe anterior lipping of the sacro-iliac joints, more so on the left than on the right side.

BURIAL 19

Sex: Male.

Age: Advanced (56+ years).

Stature: 1522 mm. (based on femoral length with 17 mm. subtracted to correct for age in excess of 30 years).

Condition: The cranium was in fair condition, missing only the facial and basilar regions on the right side, as well as the right mandibular ramus.

The post-cranial remains included all the major long bones, in fair to poor condition; all the vertebrae, their preservation varying between good and poor; eroded clavicles; well preserved left scapula, left innominate, and sacrum; eroded right scapula and innominate; about half the ribs, in fragmentary condition; and a few eroded and fragmentary hand and foot bones.

Morphology: Lambdoid cradleboard deformation was moderate and symmetrical. The sagittal and nuchal crests and the temporal lines were medium in expression. The mastoid processes were moderately developed, with deep digastric grooves. Styloid processes were prominent. The mylohyoid ridges and genial tubercles were pronounced. Gonial eversion was extreme on the left side (right side missing). The auditory meati were oval. The nasal bones formed an hourglass and were concave-convex in profile. The nasal aperture had a sharp inferior margin.

There were bilateral coronal and lambdoid wormian bones and a single asterionic bone on the right side. The supra-orbital foramina were both notched. The infra-orbital, mandibular, and mental foramina were all single in occurrence, and there was a single parietal foramen on the right side.

Neither olecranon septum was perforated. Ischial tuberosity eversion was medium. The left scapula had a moderately developed teres process. Third trochanter and linea aspera development were pronounced in the femora. Femoral torsion and shaft bowing were average. The first coccygeal vertebra was sacralized.

Pathology: There was a spongy hyperostotic proliferation on the parietals lateral to the posterior half of the sagittal suture. The orbits showed no obvious bony changes. With the exception of the mandibular left canine, all the teeth had been lost prior to death with near-total resorption of the alveoli.

There were pronounced osteophytes on the centra and apophyseal joints of the lower three lumbar vertebrae. There was a more moderate involvement in the lower thoracic, upper lumbar, and first sacral vertebrae (upper and mid-thoracics, lacking centra, were not observed). Pronounced osteophytosis also involved the centra of the lower cervical vertebrae. In addition, the lower four lumbar centra were kyphotic, with anterior collapse in lumbar 2, 3, and 4, and posterior compression in the fifth lumbar. There was a healed fracture of the proximal shaft of the left ulna, with pronounced exostotic lipping of the humeral articulation. The anterior margins of the sacro-iliac joints displayed pronounced lipping.

BURIAL 20

Sex: Male.

Age: Middle-aged (36-55 years).

Stature: 1562 mm. (based on femoral length with 14 mm. subtracted to correct for age in excess of 30 years).

Condition: The skull was in good condition, complete except for minor areas of erosion.

The major long bones were all present, their condition varying from good to poor. All vertebrae were recovered in good condition with the exception of the somewhat deteriorated lumbar. Also present were major fragments of the clavicles, scapulae, innominate, and sacrum. About half the ribs, most of which were fragmented, and about half the hand and foot bones, also eroded and fragmentary, were recovered.

Morphology: Lambdoidal cradleboard deformation was pronounced, with angling to the left side. The sagittal and nuchal crests and the temporal lines showed moderate development. There was medium expression of the mastoid processes, with deep digastric grooving. The styloid processes were pronounced. The mylohyoid ridges and genial tubercles were pronounced. Gonial eversion was extreme on the left side, more moderate on the right. There was a moderate degree of alveolar prognathism. The auditory meati were oval. The nasal bones had the characteristic hourglass shape and were concave-convex in profile. The inferior margin of the nasal aperture was rounded. There were bilateral lambdoid wormian bones and bilateral asterion bones. There were no other apparent inter-sutural bones. The left supra-orbital region contained a distinct foramen, while the right foramen was notched. The infra-orbital, mandibular, and mental foramina were

all single occurrences. There was a single parietal foramen to the right of the sagittal suture. Of the five maxillary molars present, attrition obscured the cusp patterns of all except the right second molar, which had four distinct cusps.

Neither olecranon septum was perforated. There was a medium degree of ischial tuberosity eversion. The left scapula possessed a moderately developed teres process. In the femora, third trochanters were moderate, the lineae asperae were pronounced, and torsion and shaft bowing were moderate.

Pathology: There was a healed depressed fracture of the outer table of the right parietal, about 15 x 25 mm. in extent, and about 25 mm. above the mid-point of the right lambdoid suture. There was temporomandibular joint arthritis on the right side, with degenerative changes in the condyle. The left side was apparently not affected. About half the alveoli showed ante mortem tooth loss, with advanced resorption. Attrition and abscessing were extreme. There was a total of seven large carious lesions afflicting six of the fourteen remaining teeth.

There was pronounced osteophyte formation on the centra of the cervical (see Plate 8b), lower four thoracic, and lumbar vertebrae. This condition was much less severe in the remaining thoracics. There were large, spiny osteophytes on the patellae (see Plate 8c), with corresponding growths on the tibial tuberosities, and prominent, smooth lipping of the medial margins of the femoral medial condyles. There was osteophytic involvement of all the tibio-femoral articulations, especially prominent at the right proximal joint. Lipping of the sacroiliac joint was most advanced on the right side, in which anterior fusion had occurred (see Plate 8a). There was fusion of the second

and third cervical vertebrae (see Plate 6). In addition, there was pronounced osteophytosis of the odontoid articulation of the atlas and axis, in which a large, bony spur had extended up to basion, subsequently broken off and formed an articular surface with the main odontoid spur.

BURIAL 21

Sex: Undetermined.

Age: Infant (0-3 years).

Stature: Undetermined.

Condition: This burial was in extremely poor condition, consisting solely of fragments of the cranial vault, right orbit, and right tympano-mastoid region.

Morphology: No significant observations were possible.

Pathology: There was a slight degree of pitting of the superior margin of the right orbit and the parietals.

BURIAL 22

Sex: Male.

Age: Pre-adult (18-20 years).

Stature: Undetermined.

Condition: The cranium was in poor and fragmentary condition.

There were fragments of the major long bones; a complete set of vertebrae, including a sixth lumbar; innominates and sacrum; a few ribs; and a few foot bones.

Morphology: There was extreme lambdoidal cradleboard deformation, angled to the left side. The nuchal and sagittal crests were medium in expression. The mastoid processes were pronounced, with deep digastric grooves. The mylohyoid ridges and genial tubercles showed

average development. There was slight gonial eversion on the left side (right side missing). The auditory meati were oval. There were bilateral lambdoid wormian bones. The mandibular foramen was single on the left side, the right mental foramen was also single, and there was a single parietal foramen on the right side. The maxillary incisors showed marked shovelling. In the maxilla, the first molars had four distinct cusps, the second molars a 4- pattern, and the third molars were missing or possibly unerupted. In the mandible, the first molars were not observed, the second molars had a 5Y pattern, and the third molars displayed a 6Y cusp arrangement. Small enamel pearls were observed in the mandibular dentition, including the lingual surfaces of the third molars and the distal surface of the right third molar.

In the post-cranium, ischial tuberosity eversion was average and the femora displayed moderate degrees of linea aspera development and shaft bowing.

Pathology: There was a slight pitting of the orbits and parietals. There was some evidence of abscessing and at least one tooth lost, with partial resorption of the alveolus, in the mandible. The five mandibular molars present contained a total of eight carious lesions. The maxillary dentition was free of significant pathologies.

In the post-cranial remains, the only pathological occurrence noted was the fusion, both central and spinal, of the second and third cervical vertebrae (see Plate 6).

BURIAL 23

Sex: Undetermined.

Age: Adolescent (13-17 years).

Stature: Undetermined.

Condition: The skull was in very poor condition. There were large fragments of the frontal and left parietal, most of the left body and ramus of the mandible, numerous miscellaneous fragments, and 31 loose permanent teeth.

There were shaft fragments representing the humeri and the right radius, femur, and tibia. There was a fragmentary left scapula and right innominate and a very few small fragments of ribs and hand and foot bones.

Morphology: There was pronounced lambdoidal cradleboard deformation, angled to the right side. The sagittal crest was slight, and the temporal lines and nuchal crest were moderate. The genial tubercles were medium in expression. The left auditory meatus was oval. There were bilateral lambdoid wormian bones. The left supra-orbital foramen was unnotched. The maxillary first and second molars had patterns of 4 cusps, the third molars 3+ patterns. The five mandibular molars present all displayed 4+ patterns. The maxillary incisors showed marked shovelling.

The only post-cranial feature noted was the average expression of the linea aspera in the right femur.

Pathology: The mandibular second molars each had a single carious lesion on the buccal surface.

There were no apparent post-cranial pathologies.

BURIAL 24

Sex: Undetermined.

Age: Young adult (21-35 years).

Stature: Undetermined.

Condition: The skull was in fair condition, lacking much of the facial and basilar regions and most of the left mandibular ramus.

There were major fragments of the right humerus, both ulnae, left radius, and both tibiae and fibulae. The vertebrae present, in varying degrees of preservation, included only the cervicals and first four thoracics. There were also fragments of the manubrium, left clavicle, right scapula, a few ribs, and a few hand and foot bones.

Morphology: There was a pronounced degree of symmetrical lambdoid deformation of the cranium. There was a slight sagittal crest and moderately developed temporal lines and nuchal crest. The mastoid processes were well developed, with deep digastric grooves. The styloid process (right side only) was prominent. Mylohyoid ridges and genial tubercles were pronounced. Gonial eversion was moderate and there was an average degree of alveolar prognathism. The auditory meati were oval. The nasal bones were hourglass-shaped and had a concave-convex profile. The inferior margin of the nasal aperture formed a gutter. There were bilateral lambdoid wormian bones. The supra-orbital foramina were notched. The left infra-orbital, right mandibular, and both mental foramina were single in occurrence. There was a single parietal foramen on the right side. The maxillary incisors showed strong shovelling. In the maxilla, the first molars had 4 cusps, the second molars 4- patterns, the left third molar a 3+ pattern, and the right third molar a 3 cusp pattern. In the mandible, the first and second molars were present and all showed a 5Y pattern.

Significant observations of post-cranial morphology were prohibited by the paucity of material.

Pathology: There was a slight pitting of the orbits, with no apparent

involvement elsewhere. There was a small benign osteoma in the roof of the right orbit. Dental attrition was moderate and only a single small carious lesion was noted on the occlusal surface of the left maxillary third molar.

There were no apparent post-cranial pathologies.

BURIAL 25

Sex: Female.

Age: Young adult (21-35 years).

Stature: Undetermined.

Condition: The cranium was complete and reasonably well preserved.

The post-cranial skeleton was less well preserved and included the major long bones, badly eroded; all vertebrae, eroded in the cervical region and more severely so in the remainder; major fragments of the clavicles, scapulae, innomates, and sacrum; about half the ribs, in fragmented condition; and a few fragmentary hand and foot bones.

Morphology: There was a moderate degree of lambdoid cradleboard deformation with an angle to the left side. There was a prominent sagittal crest and slightly developed temporal lines and nuchal crest. The development of the mastoid processes was medium and the digastric grooves were deeply incised. The styloid processes were moderate. There were strong mylohyoid ridges, medium genial tubercles, and slight to moderate gonial eversion. Alveolar prognathism was average. The auditory meati were oval. The nasal bones were hourglass-shaped and had a concave-convex profile. The nasal aperture had a sharp inferior margin. The only inter-sutural variations were bilateral asterionic bones. The supra-orbital foramina were notched. The left infra-orbital region had double foramina, the right side a single

foramen. The mandibular and mental foramina were single. Most molar cusp patterns were obliterated by attrition. However, the maxillary right first molar had a 4 cusp pattern and the mandibular left second molar a 5Y pattern.

The left femur had a marked third trochanter and both femora showed moderate degrees of linea aspera development and shaft bowing. Pathology: Of the 22 teeth recovered, nine had a total of ten carious lesions. At least nine of the ten missing teeth had been lost prior to death, with advanced resorption (nearly total in the mandible) of the alveoli. Abscessing and attrition were pronounced.

In the vertebral column, there were pronounced osteophytes on the centrum of the fifth lumbar, less severe osteophytosis in the other lumbar and lower thoracics, and little or no osteophyte formation in the remaining vertebrae. There was slight anterior lipping of the sacro-iliac joints.

BURIAL 26

Sex: Male.

Age: Middle-aged (36-55 years).

Stature: 1516 mm. (based on femoral length with 14 mm. subtracted to correct for age in excess of 30 years).

Condition: The cranium was in fair condition. Much of the facial and most of the basilar regions were missing, as was the posterior border of the right mandibular ramus.

All the major long bones were recovered, their condition varying from good to poor. All the vertebrae were present and in fair to poor condition. There were major fragments of the clavicles, scapulae, innominates, and sacrum. There were also a few eroded fragments of

rib and hand and foot bones.

Morphology: There was extreme lambdoidal cradleboard deformation, with an asymmetrical angle to the right. The sagittal crest and temporal lines were medium in expression, the nuchal crest pronounced. The mastoid processes were prominent, with shallowly incised digastric grooves. The left styloid process was pronounced (right side not observed). The mylohyoid ridges and genial tubercles were well developed. Gonial eversion was medium (on the left side) and there was a moderate degree of alveolar prognathism. The left auditory meatus was oval (right side missing). The nasal bones formed an hourglass shape and were concave-convex in profile. The nasal aperture had a rounded inferior margin. There were sagittal and bilateral lambdoid wormian bones. The supra-orbital foramina were notched. The left infra-orbital foramen was single (right side missing), as were the mandibular and mental foramina. There was a single parietal foramen, opening through the sagittal suture.

Both olecranon septa were intact. Ischial tuberosity eversion was medium. In the femora, there were medium degrees of third trochanter expression, linea aspera development, torsion, and shaft bowing.

Pathology: Dental attrition and abscessing were extreme, with approximately half the teeth lost prior to death and near-total resorption of these alveoli. Three of the remaining teeth contained carious lesions and three of the teeth consisted of little more than remnants of the roots.

There was extreme osteophyte development on the centra of the lower four cervical, lumbar, and first sacral vertebrae. Osteophytes were slight in the upper thoracic vertebrae and the lower thoracics

were too fragmentary and eroded for observation. Both tibial tuberosities had spiny osteophytic proliferations. Osteitis was in evidence in the right elbow; the trochlea and medial epicondyle contained smooth, nodular osteophytes; the olecranon process was enlarged but not osteophytic; and there was osteophytic lipping surrounding the radio-ulnar joint. There was slight to moderate anterior lipping of the sacro-iliac joint, more pronounced on the right side than on the left.

BURIAL 27

Sex: Undetermined.

Age: Infant (0-3 years).

Stature: Undetermined.

Condition: The cranium consisted of large fragments of the frontal, right parietal, and occipital; the tympano-mastoid regions, the zygomatics, mandible fragments, a few incompletely erupted deciduous teeth, and numerous small fragments of the cranial vault.

There were fragments of the leg bone diaphyses and a very few small vertebral and rib fragments.

Morphology: No significant observations were possible.

Pathology: There was moderate to severe spongy hyperostosis (see Plate 9) involving the occipital and left parietal (right parietal and orbits were missing).

There were no apparent pathologies in the very meager post-cranial remains.

BURIAL 28

Sex: Undetermined.

Age: Older child (7-12 years).

Stature: Undetermined.

Condition: The only cranial remains consisted of the right tympano-mastoid region, twelve intact permanent teeth, and numerous broken fragments of permanent and deciduous teeth.

The post-cranial skeleton was equally poorly preserved and consisted only of shaft fragments of the femora and tibiae, a fragment of the right scapula, and a few rib fragments.

Morphology: The mandibular first molars displayed 5Y cusp patterns, the second molars 4+ patterns.

Pathology: Three of the four mandibular molars contained a total of five carious lesions.

BURIAL 29

Sex: Undetermined.

Age: Infant (0-3 years).

Stature: Undetermined.

Condition: There were a few small cranial fragments.

Morphology: No observations.

Pathology: No observations.

BURIAL 30

Sex: Male.

Age: Advanced (56+ years).

Stature: 1510 mm. (based on femoral length with 17 mm. subtracted to correct for age in excess of 30 years).

Condition: The skull was in fair to poor condition, with most of the right side badly fragmented and lacking the basilar region. The mandible lacked almost the entire right half.

The major long bones were present but in poor condition, with the exception of the well preserved right tibia and fibula. All the vertebrae were present and in fair to poor condition. There were major fragments of the clavicles, scapulae, innominates, and sacrum. About half the ribs and hand and foot bones were recovered. These were in fragmentary and eroded condition.

Morphology: Lambdoid cradleboard deformation was symmetrical and pronounced. The sagittal and nuchal crests were moderate in expression and the temporal lines were markedly developed. There were medium mastoid processes, deep digastric grooves, and moderately developed styloid processes. Mylohyoid ridge (left side only) and genial tubercle development were moderate. Gonial eversion (left side only) was medium and there was a moderate degree of alveolar prognathism. The auditory meati were oval. The nasal bones were hourglass-shaped and had a concave-convex profile. The inferior margin of the nasal aperture was rounded. There were bilateral lambdoid wormian bones. The supra-orbital foramina were notched. Observations of other foramina were restricted to the left side and included single occurrences of the infra-orbital, mandibular, and mental foramina.

The olecranon septum of the right humerus was intact (left side missing). Ischial tuberosity eversion (right side only) was moderate. The femora displayed moderate degrees of third trochanter and linea aspera development, minimal shaft bowing, and medium torsion.

Pathology: Alveolar resorption, abscessing, and dental attrition were extreme. Of the four remaining teeth, one contained a large carious lesion.

There was moderately pronounced lipping of the centra of the

fifth lumbar and first sacral vertebrae, with incipient fusion. Osteophytes were slight or absent in the remaining vertebrae (observations were sharply limited, however, due to the fragmentary condition of most of the vertebrae). There was a moderate degree of lipping of the anterior margins of the sacro-iliac joints. Pronounced lipping around the circumference of the articular surfaces of the right knee (see Plate 10) appear to have been the result of inflammation of traumatic origin.

BURIAL 31

Sex: Female.

Age: Advanced (56+ years).

Stature: 1462 mm. (based on femoral length with 17 mm. subtracted to correct for age in excess of 30 years).

Condition: The cranium was in excellent condition, intact except for the distal borders of the nasal bones.

The post-cranial skeleton was also well preserved and intact except for the right fibula from which the proximal end was missing.

Morphology: Symmetrical cradleboard deformation in the lambdoid region was pronounced. There was a slight sagittal crest and moderate expressions of the nuchal crest and temporal lines. The mastoid processes were slight, with shallow digastric grooves. There were moderately developed styloid processes. The mylohyoid ridges were prominent. Genial tubercle development was medium. There was a slight degree of gonial eversion. Alveolar prognathism was displayed to a moderate degree. The auditory meati were oval in form and unusually large. The nasal bones were triangular in shape and concave-convex in profile. The inferior margin of the nasal aperture was

rounded. Inter-sutural bones included sagittal and bilateral lambdoid occurrences, bilateral asterionic bones, and an epipteric bone on the right side. Of particular interest were the large wormian bones dividing the parietals (see Plate 11). The supra-orbital foramina were notched. In addition to the normal infra-orbital foramina, there were bilaterally-occurring, single, notched, accessory foramina on the lower margins of the orbits. The mandibular and mental foramina were single. There was a single parietal foramen on the left side.

Both olecranon septa were intact. Ischial tuberosity eversion was moderate. The scapulae possessed markedly developed teres processes. The femora displayed pronounced third trochanters, medium linea aspera development, and moderate degrees of shaft bowing and torsion. There were distinct anterior squatting facets in the distal tibiae.

Pathology: There was a large benign osteoma on the left frontal (see Plate 12), and a much smaller osteoma on the left parietal near bregma. All the maxillary and all but five of the mandibular teeth had been lost prior to death. Alveolar resorption was complete. Two of the remaining teeth contained large carious lesions.

There was pronounced osteophyte formation on the centra of the lower three cervical and all the lumbar vertebrae, with apophyseal involvement of the lumbar and first sacral vertebrae. Osteophytes were slight or absent in the remaining vertebrae, with the exception of the odontoid-atlas articulation which displayed marked osteophytic lipping. The sacro-iliac joints displayed moderate circumferential lipping and there were also pronounced osteophytes on the iliac tuberosities and sacral alae, suggestive of incipient

lateral fusion. There were pronounced degenerative changes with osteophytic lipping around the pubic symphysis, probably the result of repeated parturition. There were small, spicular osteophytes on the superior-anterior margins of the patellae.

BURIAL 32

Sex: Female.

Age: Middle-aged (36-55 years).

Stature: Undetermined.

Condition: The skull was in good condition, missing only the basilar and nasal regions.

The post-cranial skeleton was less well preserved. There were eroded fragments of all the major long bones; all the vertebrae, very badly fragmented; major portions of the clavicles, scapulae, innomines, and sacrum; and fragments of about half the ribs and hand and foot bones.

Morphology: Cradleboard deformation of the lambdoid region was extreme, with an asymmetrical angle to the left side. There was a prominent sagittal crest. The nuchal crest and temporal lines were medium in expression. The mastoid processes, notched, were moderately developed, with deep digastric grooves. There was a slightly developed styloid process on the left and a moderately developed process on the right side. The mylohyoid ridges were prominent. The genial tubercles were minimally expressed. Gonial eversion was slight, and there was a medium degree of alveolar prognathism. The auditory meati were oval. The nasal aperture had a rounded inferior margin. There were bilateral lambdoid wormian and asterionic bones, and an epipteric bone on the left side. The supra-orbital foramina were notched. The

infra-orbital, mandibular, and mental foramina were single, and there were bilateral parietal foramina. There was a small enamel pearl on the distal surface of the maxillary left third molar.

There were small perforations in both olecranon septa. Ischial tuberosity eversion (left side only) was moderate. The femora displayed moderate degrees of third trochanter and linea aspera development, shaft bowing, and torsion.

Pathology: Ante mortem tooth loss with alveolar resorption was fairly extreme, principally involving the posterior mandibular alveoli. Eight teeth contained a total of 14 carious lesions and the total of 24 teeth displayed extreme attrition.

There was moderate osteophytic development on the centra of the lumbar and first sacral vertebrae. Osteophytes were slight or absent in the cervicals and the thoracics were too fragmentary for accurate assessment. A large Schmorl's node was present between the fourth and fifth lumbar vertebrae (see Plate 13). The sacro-iliac joints displayed moderate anterior lipping.

BURIAL 33

Sex: Male.

Age: Undetermined (adult).

Stature: Undetermined.

Condition: There were no cranial remains and the very meager post-cranial skeleton was represented by a fragment of the right femur, a badly eroded axis vertebra, fragmentary innominates and sacrum, and a very few small fragments of rib and hand and foot bones.

Morphology: The right femur had a moderate third trochanter and linea aspera and a medium degree of shaft bowing.

Pathology: The only pathological condition noted in these extremely meager remains was a slight anterior lipping of the auricular surface in the right innominate.

BURIAL 34

Sex: Male.

Age: Older child (7-12 years).

Stature: Undetermined.

Condition: The cranium was in poor condition, comprised only of the major portion of the cranial vault, together with numerous small fragments and 17 loose teeth.

The post-cranial skeleton included badly eroded leg bones; two cervical vertebrae; fragments of the left clavicle, both innominates and sacrum; and a few small fragments of rib and hand and foot bones.

Morphology: There was extreme symmetrical lambdoid deformation of the cranium. There was a slight nuchal crest. The left mastoid was slightly developed, with a shallow digastric groove. The left auditory meatus was oval in form. There were sagittal and bilateral lambdoid wormian bones. The supra-orbital foramina were notched. The maxillary incisors were markedly shovelled. The maxillary first molars had 4- cusp patterns. The mandibular first molars and left second molar all had 5Y cusp patterns.

Ischial tuberosity eversion was moderate. The femora lacked third trochanters, and showed moderate linea aspera development and shaft bowing.

Pathology: The maxillary right first molar contained four small occlusal caries.

There were no apparent post-cranial pathologies.

BURIAL 35

Sex: Undetermined.

Age: Infant (0-3 years).

Stature: Undetermined.

Condition: The cranial remains included a largely intact frontal, small fragments of both parietals, and three unerupted permanent molar crowns.

There was no post-cranial skeleton.

Morphology: There were no significant observations.

Pathology: The orbits and parietals displayed moderate to severe spongy hyperostotic lesions.

BURIAL 36

Sex: Male.

Age: Adolescent (13-17 years).

Stature: Undetermined.

Condition: The cranium was in fair condition, missing the upper facial, the left basilar, and much of the left temporal regions. The mandible lacked only the left condyle.

All major long bones were present, though badly fragmented and eroded. All the vertebrae were recovered in fair condition. There were major portions of the clavicles, scapulae, innomates, and sacrum. Most of the ribs were present but badly broken. About half the hand and foot bones were included, but these were eroded and fragmentary.

Morphology: There was pronounced symmetrical, lambdoid, cradleboard deformation. There was no sagittal crest, a slight nuchal crest, and, on the right side, moderately expressed temporal lines. There was

medium mastoid development and deep digastric grooving. The styloid processes were minimal. The mylohyoid ridges were moderately developed, the genial tubercles were prominent, and gonial eversion was medium. There was extreme alveolar prognathism. The auditory meati were oval. The inferior margin of the nasal aperture was rounded. There were sagittal and bilateral lambdoid wormian bones. The right supra-orbital foramen was notched (left side missing). The infra-orbital, mandibular, and mental foramina were all single. There were bilateral parietal foramina. In the maxilla, the first molars had a 4 cusp pattern, the second molars and right third molar all displayed a 4- cusp arrangement. The mandibular first and second molars molars all had a 5Y cusp pattern.

In the incomplete sacrum, the first segment resembles in form a last lumbar. If so, it would be a sixth lumbar, the arch of which is divided in the mid-line. Ischial tuberosity eversion (left side only) was medium. The right scapula had a moderately developed teres process. The femora lacked third trochanters and showed medium degrees of linea aspera development, shaft bowing, and torsion.

Pathology: Of the total of 19 teeth present, seven of these contained a total of 17 carious lesions, mostly small.

There were no apparent post-cranial pathologies.

BURIAL 37

Sex: Undetermined.

Age: Infant (0-3 years).

Stature: Undetermined.

Condition: The cranial remains consisted of small fragments of the cranial vault and a single deciduous molar.

The only post-cranial remains recovered consisted of a single long

bone shaft, probably ulnar.

Morphology: There were no significant observations.

Pathology: The parietal fragments displayed moderate hyperostotic pitting. It was impossible to determine the extent or exact degree of severity.

BURIAL 38

Sex: Female.

Age: Advanced (56+ years).

Stature: Undetermined.

Condition: The cranial vault was largely intact but the facial region was totally destroyed. The mandible lacked the left condyloid process and the right ramus.

The post-cranial remains included the major long bones, in fair to poor condition; all the vertebrae, most of which were very poorly preserved; an intact left clavicle and scapulae; major fragments of the right clavicle and scapula, the innominales, and the sacrum; about half the ribs, mostly in fragments; and few fragmentary hand and foot bones.

Morphology: Lambdoidal cradleboard deformation was pronounced, with an asymmetrical angle to the right side. The sagittal and nuchal crests were slight. Mastoid development was medium and the digastric grooves were deep. The styloid processes were moderately developed. The mylohyoid ridges were prominent. Genial tubercle development and gonial eversion (left side only) were medium. The auditory meati were oval. There were bilateral lambdoid wormian bones. The left supra-orbital foramen was notched. The left mandibular and both mental foramina were single occurrences. There were bilateral parietal

foramina. The maxillary left third molar had a 4 cusp pattern.

The olecranon septum of the left humerus (right side missing) was intact.

Pathology: There were eight loose maxillary teeth recovered and no maxillary alveoli. In the mandible, all but the left second premolar had been lost prior to death, and there was near-total resorption of the alveoli. Five of the teeth contained carious lesions.

There were slight osteophytes on the centra of the cervical vertebrae, while the thoracics and lumbar were apparently not affected.

NA11053

BURIAL 1

Sex: Female.

Age: Middle-aged (36-55 years).

Stature: 1486 mm. (based on femoral length with 5 mm. subtracted to correct for age in excess of 30 years).

Condition: The cranium was poorly preserved. The only parts recovered were the alveolar maxilla and a nearly intact mandible.

The post-cranial remains were better represented, including all the major long bones, in fair to good condition; five cervical, eight thoracic, and five lumbar vertebrae; an intact sternum; intact clavicle, scapulae, and innominates; the sacrum, in fair condition; all the ribs, most of which were intact; and a well preserved set of foot bones, though the hand bones were entirely absent.

Morphology: The mylohyoid ridges were prominent. The genial tubercles were very slight. There was a slight degree of gonial eversion. The mandibular and mental foramina were single in occurrence.

Both olecranon septa were intact. Ischial tuberosity eversion was medium. The scapulae had moderately well developed teres processes. Third trochanter and linea aspera development, shaft bowing, and torsion were all displayed to moderate degrees in the femora.

Pathology: Dental abscessing and attrition were extreme. Several teeth were lost prior to death and these alveoli were almost completely resorbed. The majority of the maxillary teeth were worn through the pulp chambers, with little more than root remnants remaining.

There was slight osteophyte development in the lower thoracic vertebrae, becoming moderately developed in the lumbar. The sacroiliac joints displayed moderate circumferential lipping.

NA11057

BURIAL 1

Sex: Male.

Age: Adolescent (13-17 years).

Stature: Undetermined.

Condition: The cranium was in fair to poor condition. Missing were most of the upper facial region, virtually the entire basilar region, and most of the left side of the cranial vault. The mandible was nearly complete, but broken in several places.

All the major long bones were present, except for the left tibia and fibula, and in fair to good condition. Most of the thoracic and lumbar vertebrae were recovered, but their condition varied from fair to poor. There were major portions of the scapulae, innomates, and sacrum, as well as a few fragmentary ribs and hand and foot bones.

Morphology: There was a slight degree of symmetrical lambdoid deformation, probably attributable to cradleboarding. There was a medium

sagittal crest. The nuchal crest and temporal lines were slightly expressed. The mastoid process (right side only) was medium in development, while both digastric grooves were deeply incised. The mylohyoid ridges were very slightly developed and gonial eversion was moderate. There was pronounced alveolar prognathism. The auditory meati were oval. The inferior margin of the nasal aperture was sharply defined. There were bilateral lambdoid wormian bones and an asterionic bone on the right side (left side not observed). The right supra-orbital foramen was unnotched and the right infra-orbital foramen was single (left sides not observed). The mandibular and mental foramina were single occurrences and there was a single parietal foramen on the right side. The maxillary incisors showed extreme shovelling. The maxillary first molars had 4 cusp patterns, while the second molars and right third molar displayed 4- cusp patterns. In the mandible, the first and second molars had 6Y cusp patterns and the left third molar showed a 5Y pattern.

In the femora, linea aspera development was minimal and shaft bowing moderate.

Pathology: Dental attrition was moderate, and seven of the 29 teeth present contained a total of nine carious lesions.

There were no apparent post-cranial pathologies.

BURIAL 2

Sex: Male.

Age: Older child (7-12 years).

Stature: Undetermined.

Condition: The cranial remains were comprised solely of five loose teeth.

The only post cranial remains were several small long bone fragments, fragmentary and eroded innominates, a few vertebral fragments, and a few intact phalanges.

Morphology: There were no significant observations.

Pathology: There were no apparent pathologies.

BURIAL 3

Sex: Female.

Age: Adolescent (13-17 years).

Stature: Undetermined.

Condition: The cranium was in poor condition. The calotte was more or less intact, the mandible was intact, and the remainder was very badly fragmented.

All the major long bones, in varying states of preservation, were recovered, with the exception of the right fibula. All the vertebrae were present and in poor condition. There were also major fragments of the clavicles, innominates, and sacrum, as well as a few fragmentary ribs and hand and foot bones.

Morphology: There was no sagittal crest and temporal line expression was slight. The mastoid processes were only slightly developed. The mylohyoid ridges were medium and the genial tubercles were minimally developed. There was no gonial eversion. Alveolar prognathism was displayed to a moderate degree. The auditory meati were oval. The inferior margin of the nasal aperture was sharp. There were bilateral lambdoid wormian bones. The right supra-orbital foramen (left side missing) was unnotched. The mandibular and mental foramina were single.

The maxillary incisors showed extreme shovelling. The maxillary first molars had a 4 cusp pattern and the second and third molars all had 3+ patterns. In the mandible, the first and second molars had 5Y cusp arrangements.

There were no significant post-cranial observations.

Pathology: There was slight to moderate spongy pitting in the orbits and parietals. Dental attrition was moderate. Of 31 teeth present, sixteen were carious for a total of eighteen lesions.

There were no apparent post-cranial pathologies.

BURIAL 4

Sex: Undetermined.

Age: Older child (7-12 years).

Stature: Undetermined.

Condition: The cranium was poorly preserved and was comprised of large fragments of the frontal, parietals, the left supra-orbital region, three unerupted permanent teeth, and numerous small fragments.

There were recovered numerous fragments of all the major long bones, as well as a badly eroded right innominate and a few very small fragments of vertebrae, ribs, and hand and foot bones.

Morphology: There were no significant observations.

Pathology: There was slight to moderate spongy pitting in the left orbit (right side missing), with no evidence of pitting in the parietals.

There were no apparent post-cranial pathologies.

BURIAL 5

Sex: Female.

Age: Middle-aged (36-55 years).

Stature: Undetermined.

Condition: The cranium was in poor condition. Most of the facial and basilar regions were missing and the cranial vault was badly fragmented. The mandible, badly eroded, lacked condyloid processes.

All the long bones except the right ulna and the radius were recovered, but these were in poor condition. Vertebrae recovered included cervicals 1, 2, 4, 5, and 7, in good condition; the thoracics, in fair to poor condition; and the poorly preserved lumbar. There were also fragments of the right clavicle, both scapulae, the innominate, and about half the ribs and hand and foot bones.

Morphology: The mastoid processes were medium in development, notched, and with deep digastric grooves. The mylohyoid ridges were prominent, the genial tubercles were medium, and gonial eversion was absent. The auditory meati were oval. The left supra-orbital foramen was notched. The mandibular and mental foramina were single.

The scapulae had moderately developed teres processes. The femora had pronounced lineae asperae and displayed moderate shaft bowing.

Pathology: The only alveoli present were mandibular, in which nine anterior teeth were contained. Attrition, abscessing, and alveolar resorption were advanced. Two of the teeth bore a total of three carious lesions.

There was moderate osteophytic lipping of the lumbar centra and relatively slight involvement of the lower thoracic centra. There was moderate lipping of the left elbow (right side missing).

BURIAL 6

Sex: Female.

Age: Young adult (21-35 years).

Stature: Undetermined.

Condition: The cranium was poorly preserved. The upper facial and basilar regions were missing and the cranial vault was badly fragmented. The anterior portion of the mandible was also badly broken.

All the major long bones were present, except the right ulna, and most of these were in poor condition. With the exception of the seventh cervical, all the vertebrae were present and in fair condition. There were major fragments of the sternum, clavicles, scapulae, innomines, and sacrum. About half the ribs were present in fragmented condition and there were a few fragmentary hand and foot bones.

Morphology: There was a moderate degree of symmetrical lambdoid deformation in the cranium. There was moderate expression of the temporal lines and nuchal crest. The mastoid processes were moderately developed, with deep digastric grooves. The mylohyoid ridges were pronounced, gonial eversion was medium, and there was a moderate degree of alveolar prognathism. The auditory meati were oval. The inferior margin of the nasal aperture was sharp-edged. The only suture available for examination was the lambdoid, which contained bilateral wormian bones. The supra-orbital foramina were notched. The right infra-orbital and both mandibular and mental foramina were single. The maxillary incisors displayed marked shovelling.

Both olecranon septa were intact. Ischial tuberosity eversion was medium. The right scapula (left side not observed) had a well developed teres process. The left femur possessed a moderately developed third trochanter and linea aspera development, shaft bowing,

and torsion were displayed to a moderate degree in both femora.

Pathology: Dental attrition and alveolar resorption were moderate in both the maxillary and mandibular dentition. There were several mandibular abscesses, with ante mortem loss of the mandibular second molars and advanced decay of the third molars. Of 25 teeth present, at least five were carious, with a total of eight lesions.

There was slight osteophytic lipping of all the vertebral centra, including the first sacral. There was pronounced anterior lipping of the sacro-iliac joints, with incipient fusion on the left side. There was a large crescent-shaped piece removed from the central margin of the right iliac blade, with evidence of a slight degree of repair (see Plate 14).

BURIAL 7

Sex: Female.

Age: Advanced (56+ years).

Stature: 1438 mm. (based on femoral length with 17 mm. subtracted to correct for age in excess of 30 years).

Condition: The cranium was poorly preserved. Most of the upper facial region was missing, as was the entire basilar region and much of the right side of the cranial vault. The mandible was in fair condition, lacking only the right condyle.

All the major long bones were present, their condition varying from good to poor. All the vertebrae were recovered, the lumbar in fair condition, and the remainder poorly preserved. The innominate and left clavicle were in good condition. The right clavicle, both scapulae, and the sacrum were in poor condition. All the ribs, the right hand, and both feet were recovered, in good to fair condition.

Morphology: Symmetrical lambdoid deformation of the cranium was pronounced. The sagittal and nuchal crests and the temporal lines (left side only) were medium in development. The left mastoid was moderately developed, with a deep digastric groove. The left styloid process was prominent. The mylohyoid ridges were pronounced and the genial tubercles were moderate. Gonial eversion was absent on the left, slight on the right side. The left auditor meatus was oval. The inferior margin of the nasal aperture was rounded. There were sagittal and bilateral lambdoid wormian bones. The supra-orbital foramina were notched. The left infra-orbital foramen and both mandibular and mental foramina were single. There were bilateral parietal foramina.

Both olecranon septa were intact. Ischial tuberosity eversion was moderate. The left scapula had a pronounced teres process. The femora had pronounced third trochanters and moderately developed lineae asperae. Femoral torsion and shaft bowing were moderate. There were distinct anterior squatting facets in the distal tibiae.

Pathology: There was slight pitting of the orbits, but no apparent post-orbital involvement. The left temporo-mandibular joint (right side missing) showed degenerative osteoarthritic changes. All but four extremely worn teeth had been lost prior to death, with near-total resorption of the alveol.

There was moderate osteophytic lipping of the thoracic and lumbar centra, apophyseal joints, and rib facets. The centra of two vertebrae in the T5-9 region were fused. There was slight to moderate lipping of all long bone joints, and pronounced lipping, with incipient fusion, of the sacroiliac joints. There was pronounced degenerative change in the articular facets of L5-S1, characterized by extreme pitting and lipping also seen in several rib-head articulations. There was slight erosion of the femoral heads and moderate osteophytic lipping of the acetabula.

BURIAL 8

Sex: Undetermined.

Age: Infant (0-3 years).

Stature: Undetermined.

Condition: These remains included only a few poorly preserved cranial and long bone fragments, which were left in the field. No photograph was taken and the age estimate is that of the archaeologist.

BURIAL 9

Sex: Male.

Age: Undetermined (adult, probably young).

Stature: 1595 mm.

Condition: There were no cranial remains.

The post-cranial skeleton included the left leg bones, in fair to poor condition. Fragmentary hand and foot bones were also present.

Morphology: The femur displayed moderate degrees of third trochanter and linea aspera development, torsion, and shaft bowing.

Pathology: There were no apparent pathologies.

NA11058

BURIAL 1

Sex: Female.

Age: Middle-aged (36-55 years).

Stature: Undetermined.

Condition: The cranium was in fair condition, lacking the nasal region, parts of the orbits, the palate, and the condylar region. The mandible was missing.

The major long bones were all present, and in fair to poor condition with the exception of the well preserved right arm bones.

Vertebrae recovered included the atlas, the lower thoracics, and the lumbar, in fair to poor condition. There were major portions of the right clavicle, the scapulae, the innominates, and the sacrum. All the ribs and foot bones were present, in varying degrees of preservation.

Morphology: There was no cranial deformation. There was a prominent sagittal crest and moderately developed temporal lines and nuchal crest. The mastoid processes were moderate, with deep digastric grooves. The styloid processes were well developed. Alveolar prognathism was moderately apparent. The auditory meati were round. The nasal bones were hourglass-shaped and concave-convex in profile. The coronal and sagittal sutures were thoroughly obliterated, but there were bilateral lambdoid wormian bones, a unipartite os Inca (see Plate 15), and bilateral occurrences of both epipteric and asterionic bones. The left supra-orbital foramina were single. There were bilateral parietal foramina.

Ischial tuberosity eversion was moderate. The right scapula had a moderately developed teres process. The femora displayed moderate degrees of linea aspera and third trochanter development, shaft bowing, and torsion.

Pathology: Porous degenerative changes in the mandibular fossae, especially in evidence on the left side, indicated temporo-mandibular joint arthritis. Except for five well-worn teeth, the maxillary dentition had been lost well in advance of death, with near-total resorption of the alveoli. Two of the remaining teeth each had carious lesions.

There were moderately pronounced osteophytes on the centra and apophyseal joints of the lower thoracic, lumbar, and first sacral

vertebrae (other vertebrae missing). There was anterior kyphosis in the eleventh and twelfth thoracic centra (see Plate 16c). Spondylosis was observed in the fifth lumbar (see Plate 16b), and there was a Schmorl's node present at T12-L1 (see Plate 16a). There was slight to moderate osteophytic lipping of all long bone joints present, moderate anterior lipping of the sacro-iliac joints, and moderate lipping of the acetabular rims.

BURIAL 2

Sex: Undetermined.

Age: Middle-aged (36-55 years).

Stature: Undetermined.

Condition: The cranium was in poor condition, lacking the facial and basilar regions entirely. The mandible was intact except for the condyles and there were eleven loose maxillary teeth.

Fragments of the major long bone shafts were present. A poorly preserved atlas and a few small fragments of other vertebrae were recovered. The innominates and sacrum were poorly preserved. There were also a few fragmentary hand and foot bones.

Morphology: There was slight symmetrical lambdoid deformation of the cranium. The sagittal crest and temporal lines were moderately developed. The mastoid processes were small. The mylohyoid ridges were prominent, the genial tubercles were medium, and there was a moderate degree of gonial eversion. Alveolar prognathism was moderate. The auditory meati were round. The sutures of the cranial vault were thoroughly obliterated. The supra-orbital foramina were notched. The mental and mandibular foramina were single in occurrence, and

there were bilateral parietal foramina. Third trochanter and linea aspera development were moderate in the femora and there was a medium degree of shaft bowing.

Pathology: There was a small, healed traumatic lesion in the mid-sagittal area about 10 mm. above lambda. Dental attrition was extreme and, at least in the mandible, abscessing and resorption of the alveoli were advanced, with all but four teeth lost prior to death. Two of the maxillary teeth contained carious lesions.

There were no apparent post-cranial pathologies.

NA11070

BURIAL 1

Sex: Female.

Age: Middle-aged (36-55 years).

Stature: Undetermined.

Condition: The only cranial remains recovered were the left tympanomastoid region, the right alveolar portion of the maxilla, and a badly eroded mandible.

Major fragments of all the major long bones were present. Fragments of all the vertebrae were recovered, except for the lower five cervicals and upper two thoracics. There were significant portions of the clavicles, innominates, and sacrum, as well as fragments of most of the ribs and a few fragmentary foot bones.

Morphology: The left mastoid process was moderately developed, with a shallow digastric groove. The mylohyoid ridges were strongly developed, the genial tubercles were moderate, and gonial eversion was absent. The left auditory meatus was oval. The right mental and both mandibular foramina were single.

The right femur possessed a medium third trochanter and both femora displayed moderate degrees of linea aspera development, torsion, and shaft bowing.

Pathology: Dental attrition and abscessing were advanced and alveolar resorption was pronounced in the maxilla, less so in the mandible. The two maxillary teeth present were both worn through the pulp cavity, with little more than root remnants remaining, and two of the mandibular teeth contained a total of three carious lesions.

There was slight osteophytic lipping of the centra of the thoracic and lumbar vertebrae present, moderate lipping of the sacral promontory, and a moderate degree of anterior lipping of the sacro-iliac joints.

BURIAL 2

Sex: Female.

Age: Advanced (56+ years).

Stature: Undetermined.

Condition: The cranium was very poorly preserved and consisted only of small fragments except for the mandible which lacked only the left ramus and right condyle.

Fragments of all the major long bones were recovered. The atlas, lumbar, and a few thoracic vertebrae, all in poor condition, were present. There were major pieces of the sternum, right clavicle, both scapulae, the innominates, and the sacrum. There were also many rib and a few hand and foot bone fragments.

Morphology: The mylohyoid ridges were prominent, the genial tubercles were medium, and gonial eversion (right side only) was moderate. The right auditory meatus was round. The inferior margin of the nasal

aperture was sharp. The supra-orbital foramina were notched. The right mandibular and both mental foramina were single in occurrence.

The left femur displayed a strongly developed third trochanter.

Pathology: There was slight to moderate pitting of the superior margins of the orbits. All maxillary teeth had been lost prior to death and there was virtually total resorption of the alveoli. Eight teeth, mostly anterior, remained in the mandible and these were badly worn. One of the teeth had a carious lesion on the occlusal surface.

There was extreme osteophyte formation on the centra (see Plate 17a) and apophyseal joints of the lumbar (the thoracic centra were missing) and moderately severe osteophytosis of the odontoid articulation on the atlas (see Plate 17b). There was moderate to severe osteophytic lipping of the sacral promontory and the anterior margins of the sacro-iliac joints.

NA11095

BURIAL 1

Sex: Undetermined.

Age: Infant (0-3 years).

Stature: Undetermined.

Condition: The remains consisted of a few cranial and long bone fragments only, with no possible morphological observations and no apparent pathological features.

NA11125

BURIAL 1

Sex: Male.

Age: Young adult (21-35 years).

Stature: 1598 mm. (based on femoral length).

Condition: The cranium was complete and in excellent condition.

All post-cranial bones were present, except the atlas vertebra, and in excellent condition.

Morphology: Symmetrical lambdoid cradleboard deformation was pronounced. The sagittal and nuchal crests and the temporal lines were medium in expression. The mastoid processes were moderately developed, with deep digastric grooves. The styloid processes were moderately developed. The mylohyoid ridges and genial tubercles were medium in development. Gonial eversion was pronounced. There was a moderate degree of alveolar prognathism. The auditory meati were round. The nasal bones were hourglass-shaped and concave-convex in profile. The nasal aperture had a rounded lower margin. There were sagittal and bilateral lambdoid wormian bones and bilateral asterionic bones. The right supra-orbital foramen was notched, the left was a normal foramen. The left infra-orbital foramen was single and a double foramen occurred on the right side. The mandibular and mental foramina were single. There was a single parietal foramen on the right side. In the mandible, the first molars displayed a 5Y cusp pattern, the left third molar a 4Y pattern, and the right third molar a 4+ cusp arrangement. The maxillary incisors showed pronounced shovelling.

Both olecranon septa were intact. Ischial tuberosity eversion was medium. The scapulae possessed strongly developed teres processes. Third trochanters were medium and linea aspera development strong in the femora and torsion and shaft bowing were moderate.

Pathology: There was slight hyperostotic pitting of the orbits and parietals. Dental attrition was moderate and, although the mandible was free of abscessing, there were large abscesses above the maxillary

second molars. There was a moderate degree of alveolar resorption. Of 26 teeth present, three contained a total of seven carious lesions, and the maxillary first molars were represented only by remnants of the roots.

There was moderate osteophytic lipping of the centra at T12-L1 and slight anterior lipping of the superior margins of the centra of L3 & 4. The first lumbar centrum had begun to kyphose anteriorly. There were fairly large, spicular osteophytes on the superior margin of the left acetabulum and a moderate degree of osteophytic lipping of the anterior margins of the sacro-iliac joints. There was a pronounced, nodular osteophytic growth on the medial margin of the left patella.

BURIAL 2

Sex: Female.

Age: Adolescent (13-17 years).

Stature: Undetermined.

Condition: The cranium was fairly complete but largely disarticulated. The basilar region was missing entirely. The mandible was complete except for the condyles.

The right arm and all the left bones were recovered in fair condition. Most of the vertebrae were present, in varying degrees of preservation. There were major pieces of the sternum, right clavicle and scapula, both innominates, and the sacrum. Most of the ribs were present, though badly broken, and there were a few hand and foot bones. Morphology: There was a slight sagittal crest and moderately developed temporal lines. The mastoid processes were slight, with shallow digastric grooves. The mylohyoid ridges and genial tubercles were moderately developed. Gonial eversion was medium. There was an

average degree of alveolar prognathism. The auditory meati were oval. The nasal bones were hourglass-shaped and concave-convex in profile. The inferior margin of the nasal aperture was sharply defined. There were wormian bones in the lambdoid suture on the right side (left side missing). The supra-orbital foramina were notched. The infra-orbital, mandibular, and mental foramina were single. There were bilateral parietal foramina. In the maxillary dentition, the central incisors displayed moderate, the lateral incisors marked, shovelling. The first maxillary molars displayed 4 cusp patterns, the second molars 4- patterns. In the mandible, the first molars had a 5Y configuration, the second molars 4+ cusp patterns.

The olecranon septum in the right humerus was perforated (left humerus missing). The femora showed no third trochanters and minimal linea aspera development. Femoral torsion and shaft bowing were average.

Pathology: There was a slight spongy pitting in the orbits. The parietals were not noticeably affected. The teeth were not severely worn and neither abscessing nor resorption were in evidence in the alveoli. There was a total of nine small carious lesions affecting five of the 30 teeth present.

There were no apparent post-cranial pathologies.

BURIAL 3

Sex: Male.

Age: Young adult (21-35 years).

Stature: 1638 mm. (based on femoral length).

Condition: The mandible, excellently preserved, was the only part of the cranium recovered.

All the major long bones were present and in fair to good condition. There were a few vertebrae, in varying degrees of preservation. The left clavicle and scapula were intact. The right clavicle and scapula, as well as the innominates and sacrum, were less well preserved. There were also a few fragments of rib, and hand and foot bones.

Morphology: The development of the mylohyoid ridges and genial tubercles was average and gonial eversion was moderate. The right mental and both mandibular foramina were single. There were two mental foramina on the left side.

Neither olecranon septum was perforated. The left scapula had a medium teres process. Third trochanters were absent and linea aspera development was moderate in the femora, and torsion and shaft bowing were medium. The first segment of the incomplete sacrum closely resembles in form a fused L6, as seen elsewhere in the series.

Pathology: The posterior mandibular teeth showed only slight wear but the dentine was exposed in the incisors and canines. The mandibular third molars were impacted at about a 45° angle. The first and second molars contained a total of seven carious lesions, most severely affecting the first molars.

There were no apparent post-cranial pathologies.

BURIAL 4

Sex: Male.

Age: Middle-aged (36-55 years).

Stature: 1569 mm. (based on femoral length with 14 mm. subtracted to correct for age in excess of 30 years).

Condition: The cranium was in good condition. The cranial vault was intact and the facial bones were present but disarticulated. The

mandible was complete except for the right condyle.

The post-cranial skeleton was complete and in good condition.

Morphology: Symmetrical lambdoid deformation was medium. The sagittal and nuchal crests and temporal lines were moderately developed. The mastoid processes were prominent, with deep digastric grooves. The styloid processes showed medium development. The mylohyoid ridges and genial tubercles were moderate. Gonial eversion was slight. There was a medium degree of alveolar prognathism. The auditory meati were oval in form. The nasal bones were hourglass-shaped and concave-convex in profile. The inferior margin of the nasal aperture was sharp. There were bilateral lambdoid wormian and asterionic bones. The supra-orbital foramina were notched. The infra-orbital, mandibular, and mental foramina were all single in occurrence. There was a single parietal foramen on the right side. The mandibular left third molar had a 5+ cusp pattern.

The olecranon septa were both perforated. Ischial tuberosity eversion was medium. Each of the scapulae had a moderately developed teres process. Third trochanter and linea aspera development were both pronounced in the femora, while torsion and shaft bowing were average.

Pathology: There was a slight degree of pitting in the orbits and in the parietals and occipital adjacent to lambda. Most of the teeth had been lost prior to death, with partial to total resorption of the alveoli. Abscessing and dental attrition were extreme. Only a single large carious lesion was observed but three of the teeth were represented only by remnants of the roots. The right mandibular third molar was impacted at about a 90° angle and the tooth was rotated inward so that the root projected slightly through the buccal surface of the ramus. There was evidence of severe osteoarthritis, which was possibly

ankylosing spondylitis, affecting all the vertebrae and costo-vertebral joints, the sacro-iliac joints, and the medial clavicles. Cervical rib projections were noted on C7. Apophyseal and central osteophytes were pronounced, especially in the cervicals and lumbar (see Plate 18). The fifth lumbar was sacralized and there was complete fusion of the sacro-iliacs (see Plates 19 & 20). There was spondylolysis of the fifth lumbar and a complete sacral hiatus (see Plate 20). There was slight to moderate osteophytic lipping of most of the diarthrodial joints, including the feet but not the hands. There were at least two ribs with healed fractures, and the proximal shaft of the right tibia also displayed a healed fracture (see Plate 21).

BURIAL 5

Sex: Male.

Age: Young adult (21-35 years).

Stature: 1556 mm. (based on femoral length).

Condition: The cranium was in fair condition, missing only the major part of the frontal with adjacent parts of the parietals. The mandible was intact.

Major long bones recovered included the humeri, right radius and ulna, left femur, the tibiae, and the left fibula, in fair to good condition. About half the vertebrae were included, in fair to good condition. All the ribs were recovered intact, as were the clavicles. There were major portions of the sternum, scapulae, and right innominate, and a few fragmentary hand and foot bones.

Morphology: There was a moderate degree of lambdoid cradleboard deformation, with an asymmetrical angle to the left side. There was

a moderately developed nuchal crest. The mastoid processes were prominent, notched, and had shallow digastric grooves. The styloid processes were strongly developed. Development of the mylohyoid ridges and genial tubercles was moderate. There was medium gonial eversion and a medium degree of alveolar prognathism. The auditory meati were oval. The nasal bones formed an hourglass configuration and were concave-convex in profile. The inferior margin of the nasal aperture was sharp. There were sagittal and bilateral lambdoid wormian bones, as well as bilateral asterionic bones. The right supra-orbital foramen was notched. The left infra-orbital region contained double foramina, and there was a single foramen on the right side. The mandibular and mental foramina were single. The right lateral maxillary incisor displayed marked shovelling (the other maxillary incisors were missing). In the maxillary dentition, the first molars had 4 cusp configurations, the second molars 4-patterns, and the third molars 3+ cusp arrangements. All six mandibular molars showed 5Y cusp patterns.

The left olecranon septum (right side missing) was perforated. Ischial tuberosity eversion was average (right side only). The left femur displayed moderate degrees of third trochanter and linea aspera development, torsion, and shaft bowing.

Pathology: There was a moderate degree of dental attrition and numerous carious lesions, mostly small. Of the 27 teeth present, nine contained a total of 19 lesions. There was no ante mortem tooth loss, no abscessing, and no evidence of alveolar resorption.

The second and third cervical vertebrae were fused. There was a slight lipping of the anterior margin of the auricular surface of

the right ilium.

BURIAL 6a

Sex: Undetermined.

Age: Infant (0-3 years).

Stature: Undetermined.

Condition: The cranium was complete and in excellent preservation.

The post-cranial skeleton was also well preserved and lacked only a few of the epiphyses.

Morphology: Lambdoid cradleboard deformation was extreme, with an asymmetrical angle to the left. There was a slight sagittal crest and the nuchal crest and temporal lines were moderately expressed. The mastoid processes were slight, with deep digastric grooves. There were slight styloid processes. The mylohyoid ridges and genial tubercles were medium, there was slight gonial eversion, and alveolar prognathism was slight. The auditory meati were oval. The nasal bones were hourglass-shaped and had a concave-convex profile. The nasal aperture had a rounded inferior margin. There were lambdoid wormian bones on the right side, a unipartite os Inca, bilateral asterionic bones, and an epipterice bone on the left side. The supra-orbital foramina were notched; the infra-orbital, mandibular, and mental foramina were all single; and there was a single parietal foramen on the right side.

There were no significant post-cranial observations.

Pathology: There was slight hyperostotic pitting of the orbits and very slight pitting in the parietals and Inca bone adjacent to lambda. Attrition of the deciduous teeth was moderate and abscessing had already begun to a limited degree. Of the six deciduous molars

present, five contained a total of nine carious lesions, and there were numerous lesions in the first permanent molars as well.

There were no apparent post-cranial pathologies.

BURIAL 6b

Sex: Undetermined.

Age: Adolescent (13-17 years).

Stature: Undetermined.

Condition: There were no cranial remains and the post-cranial skeleton was represented only by fragments of the left humerus, the left scapula, and a single left rib.

Morphology: The olecranon septum of the left humerus contained a large perforation.

Pathology: No pathological features were observed.

BURIAL 6c

Sex: Undetermined.

Age: Approximately newborn infant.

Stature: Undetermined.

Condition: The cranium was represented only by the zygomatics, the precondylar region, and a single maxillary, deciduous, right central incisor.

The post-cranial remains included the right radius, the left femur and tibia, five ribs, the left clavicle, and the left ilium, all lacking epiphyses.

Morphology: There were no significant observations.

Pathology: No pathological features were apparent.

BURIAL 7

Sex: Male.

Age: Pre-adult (18-20 years).

Stature: 1536 mm. (based on femoral length).

Condition: The cranium was complete and in excellent preservation.

The post-cranial skeleton was also complete and excellently preserved.

Morphology: Symmetrical lambdoid cradleboard deformation was in evidence to a pronounced extent. The sagittal crest and temporal lines were moderate in expression and there was a slight nuchal crest. The mastoid processes were prominent, with deep digastric grooves. The styloid processes were strongly developed. The mylohyoid ridges and genial tubercles were developed to a moderate extent. Gonial eversion was pronounced. There was a moderate degree of alveolar prognathism. The auditory meati were round. The nasal bones formed the characteristic hourglass configuration and were concave-convex in profile. The nasal aperture had a rounded inferior margin. There were wormian bones in the lambdoid suture on the right side and bilateral asterionic bones. The supra-orbital foramina were notched. The infra-orbital, mandibular, and mental foramina were all single in occurrence, and there were bilateral parietal foramina. The maxillary incisors displayed pronounced shovelling. The maxillary third molars had 3 cusp patterns and the mandibular third molars 4+ cusp patterns.

Both olecranon septa were intact. Ischial tuberosity eversion was medium. The scapulae possessed strongly developed teres processes. The femora lacked third trochanters and displayed medium

degrees of linea aspera development, torsion, and shaft bowing.

Pathology: There was moderate but extensive spongy hyperostosis in the parietals and occipital surrounding lambda. The orbits showed no involvement but there was an unusual porous appearance extending across the supra-orbital region between the temporal lines. The nose had apparently been broken. The inferior ends of the nasals had healed with an abrupt downward angle and the inter-nasal suture was canted irregularly to the right side. Dental attrition and abscessing were moderate and there was moderate alveolar resorption in the maxilla. Twenty-seven teeth were present and ten of the posterior teeth contained a total of 18 carious lesions. The right mandibular third molar showed angular impaction.

The only post-cranial pathology noted was a slight anterior osteophytic lipping of the sacro-iliac joints.

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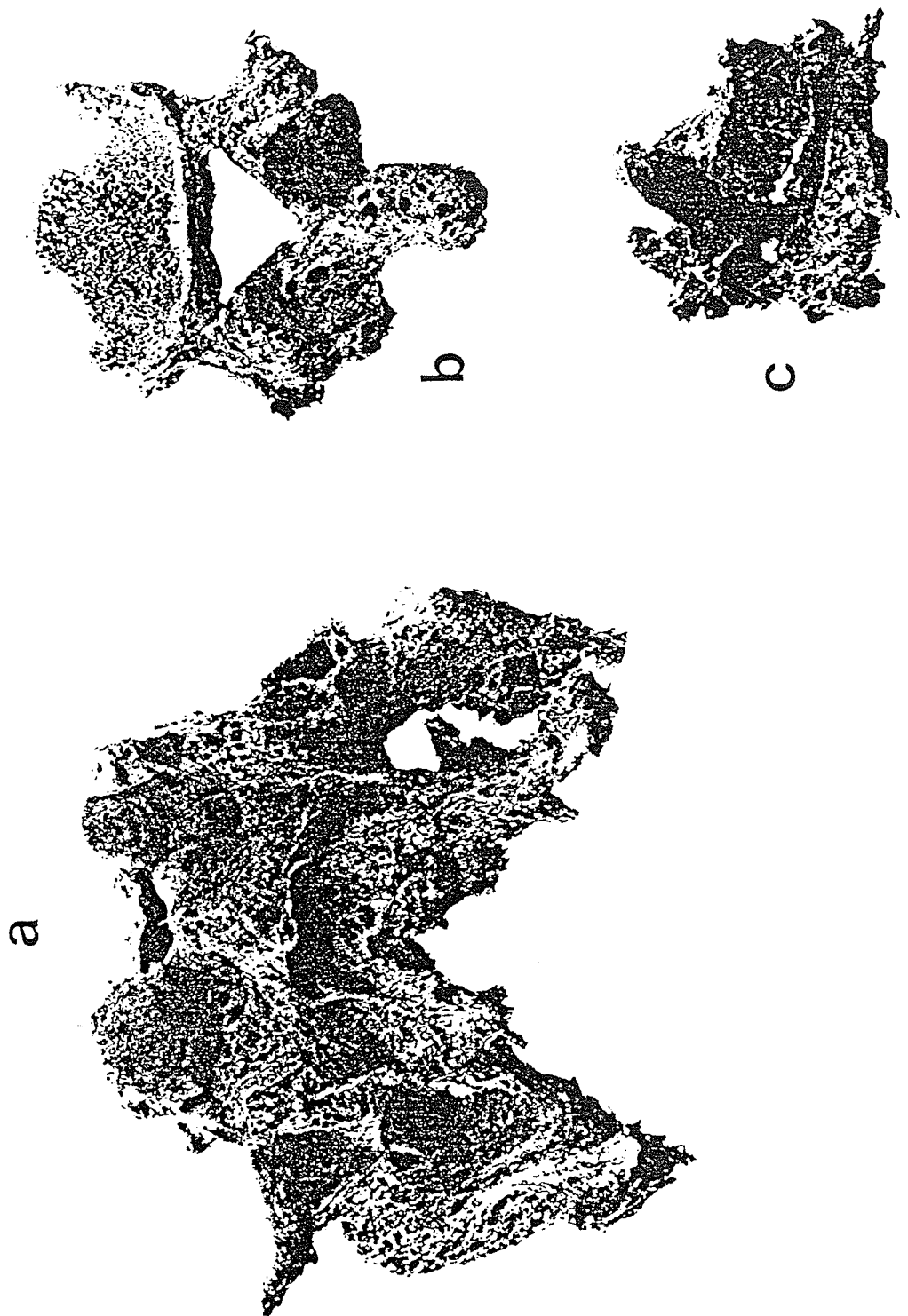
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APPENDIX

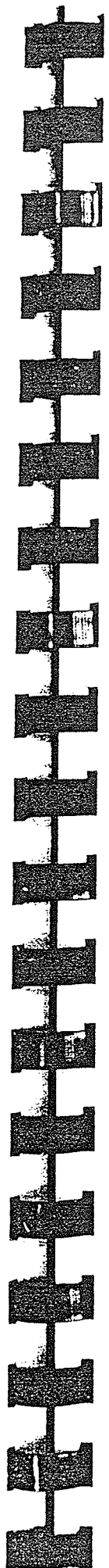
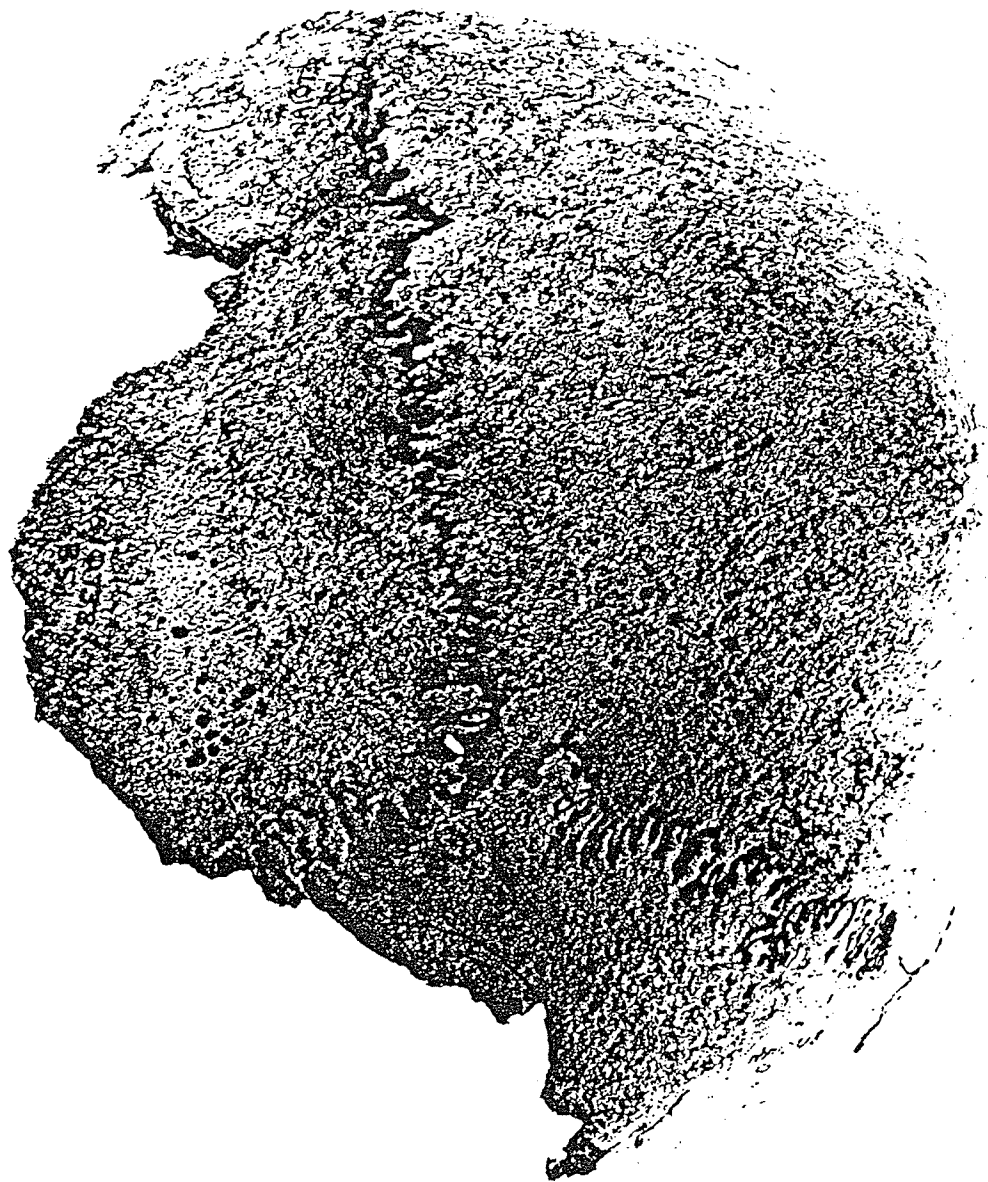
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21. Burial 4, NA11125. Healed fracture in the proximal shaft of the right tibia.	140





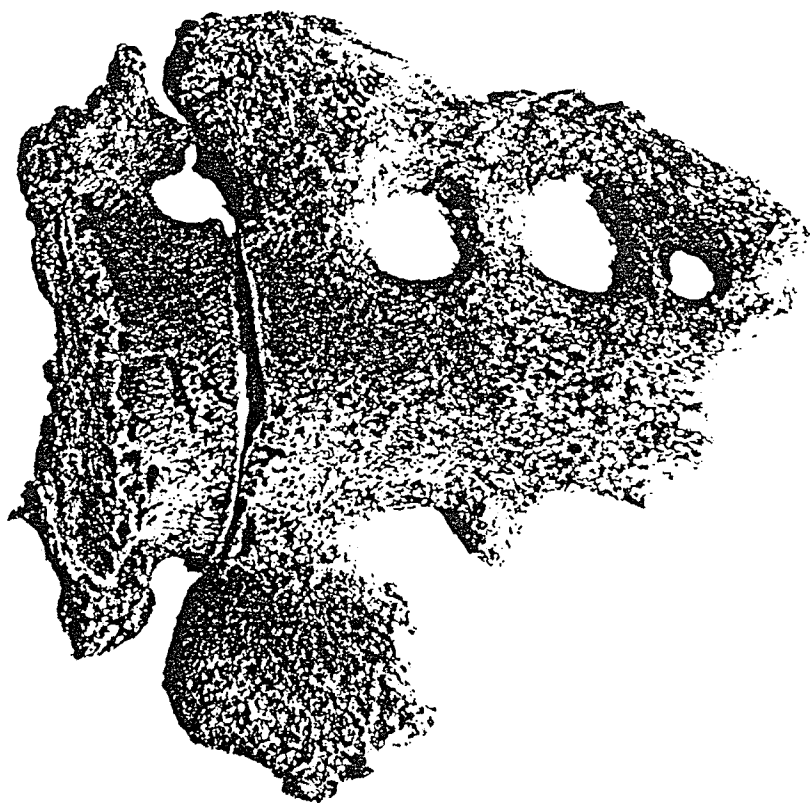


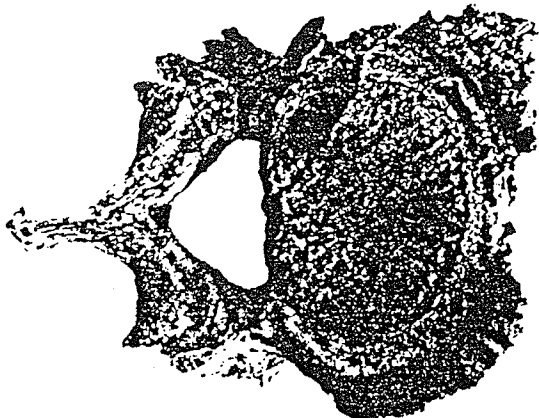
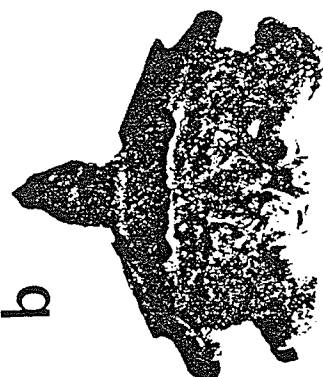
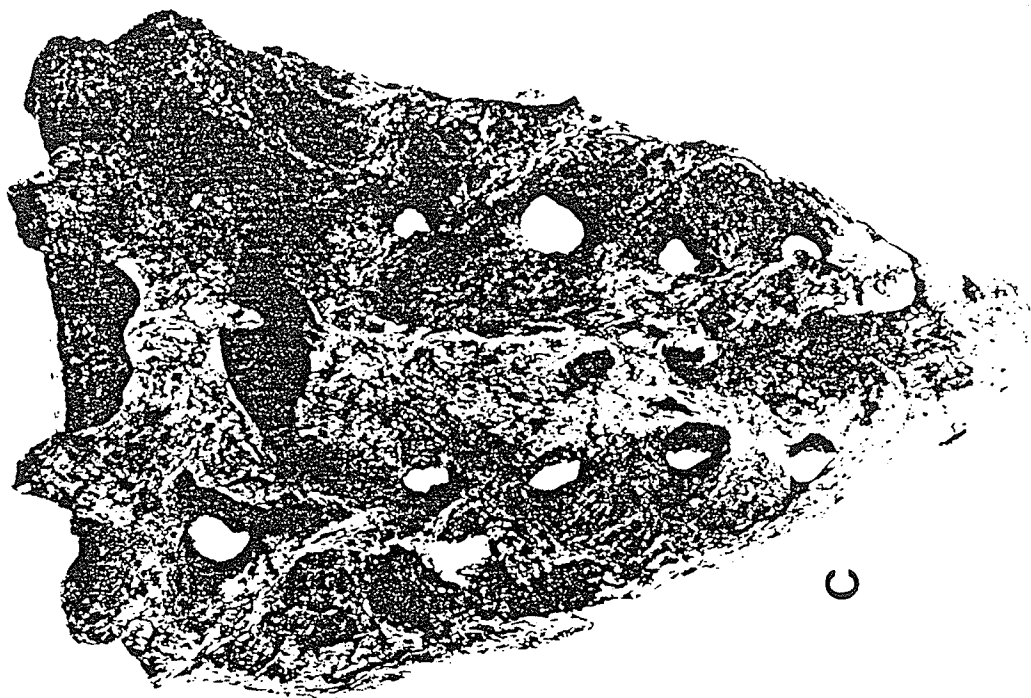


b

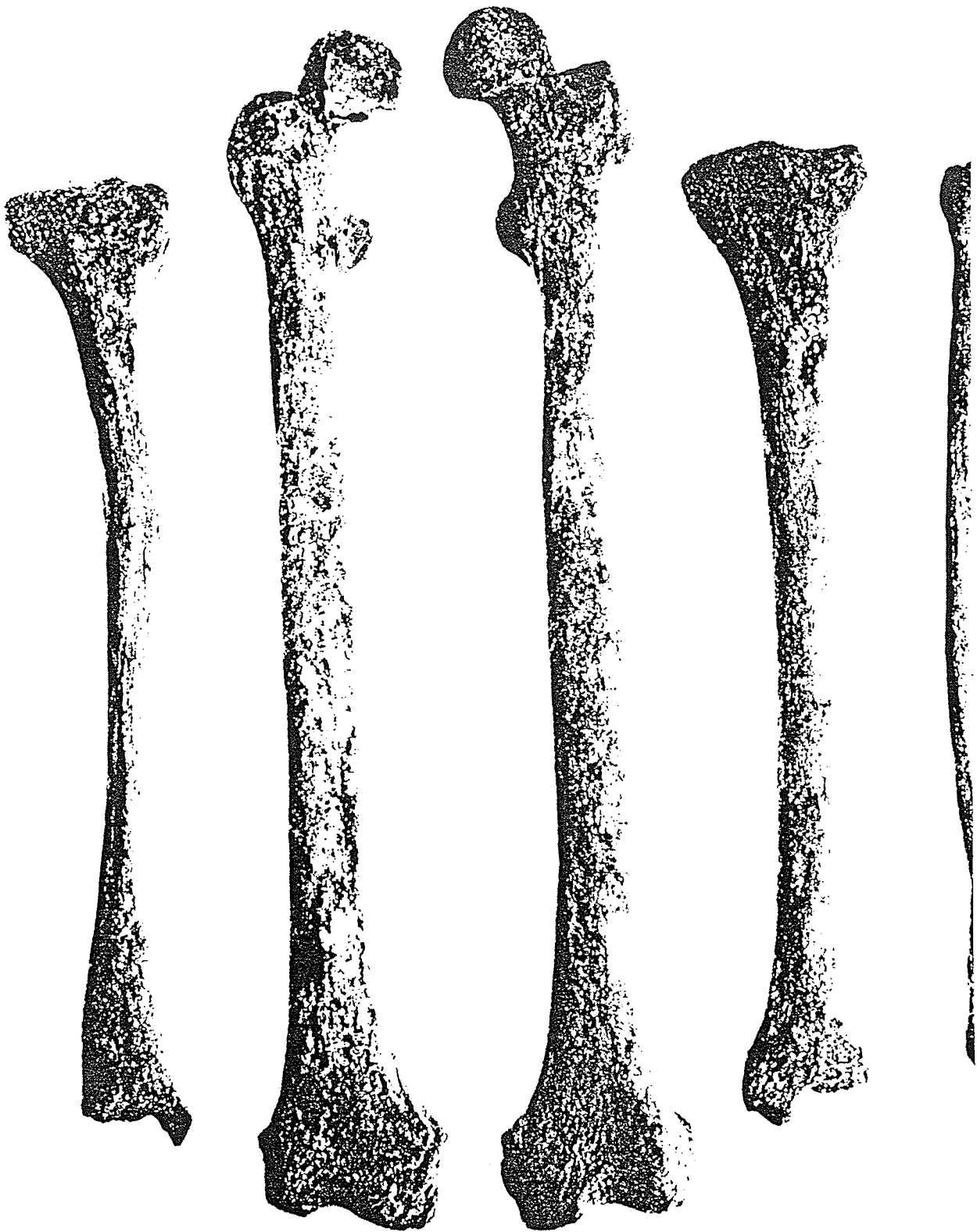


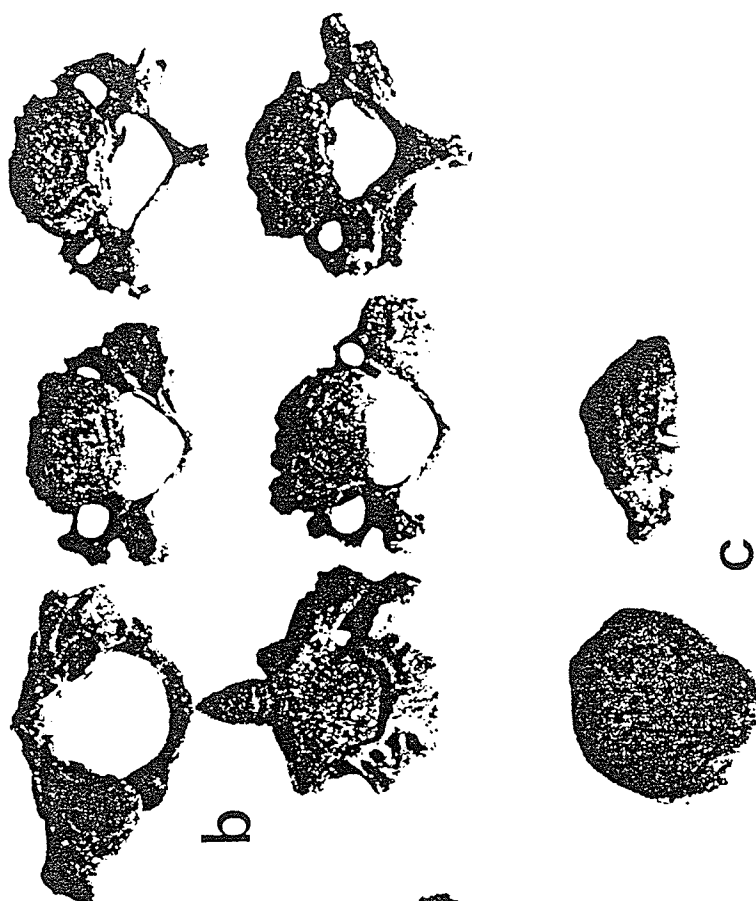
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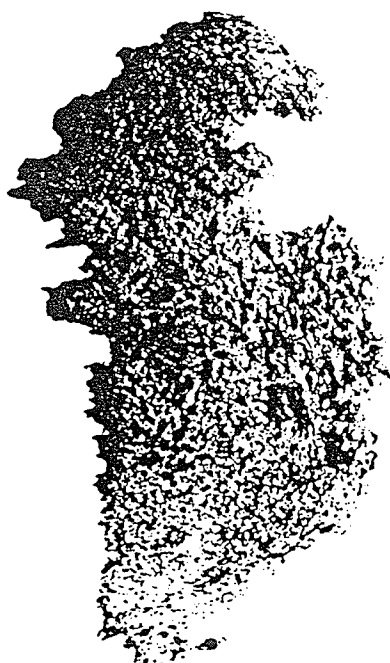
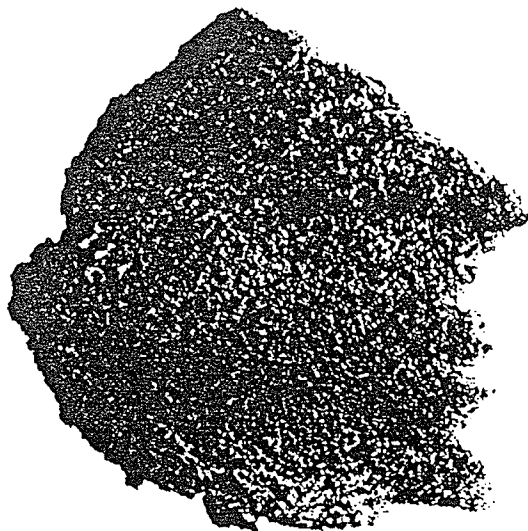


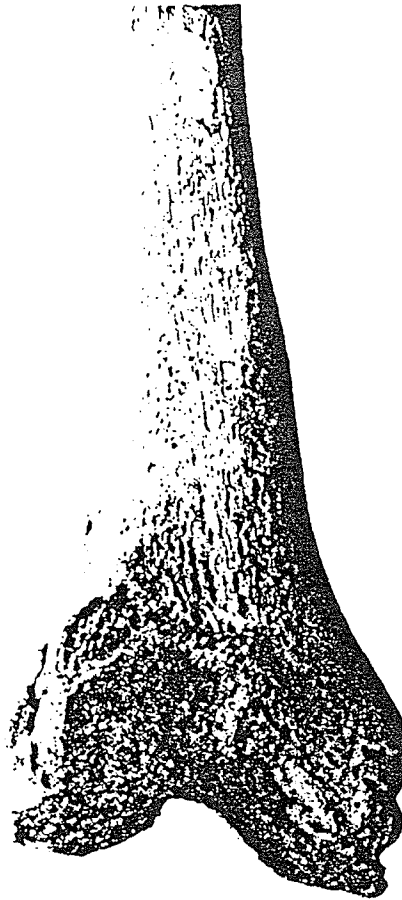


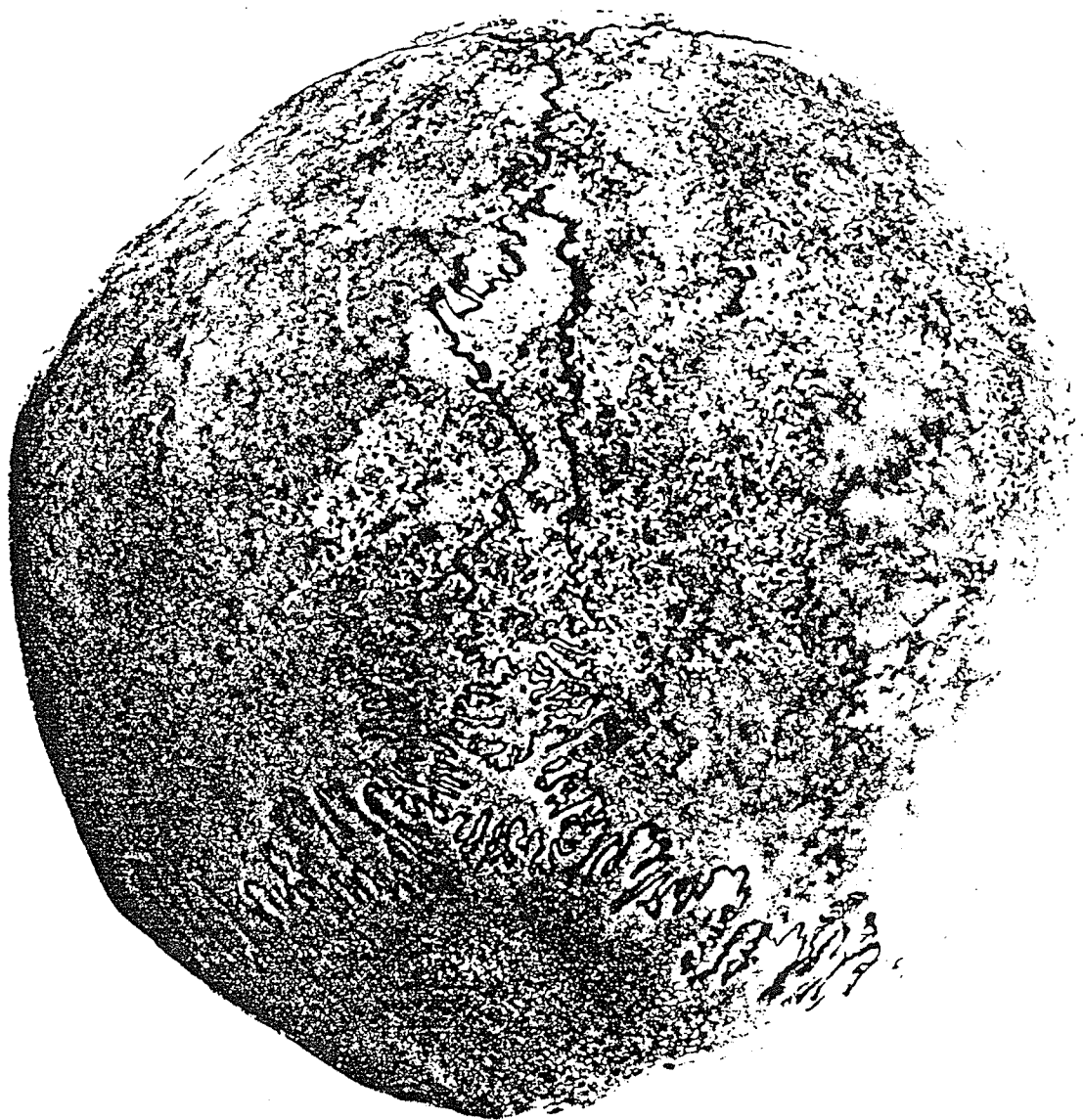




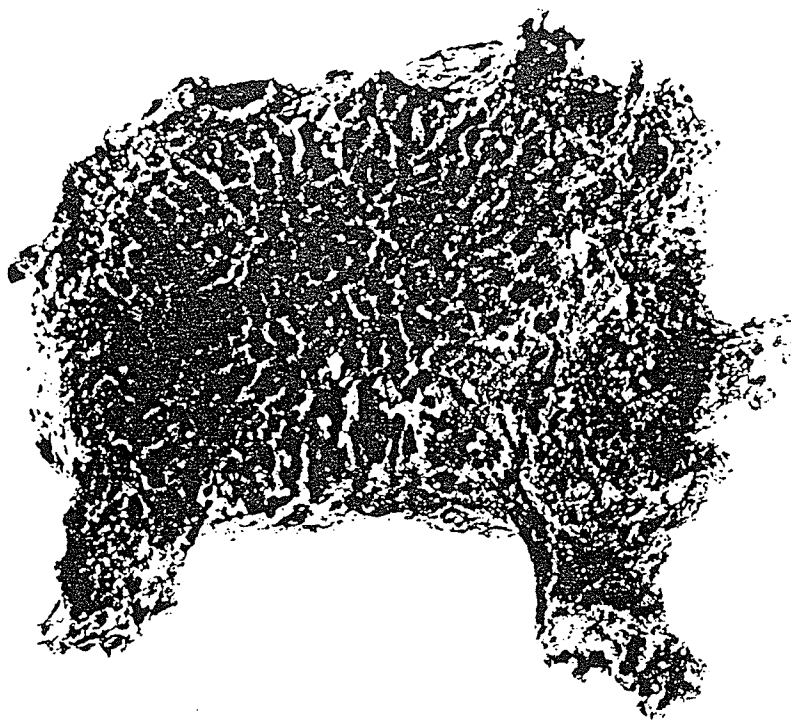


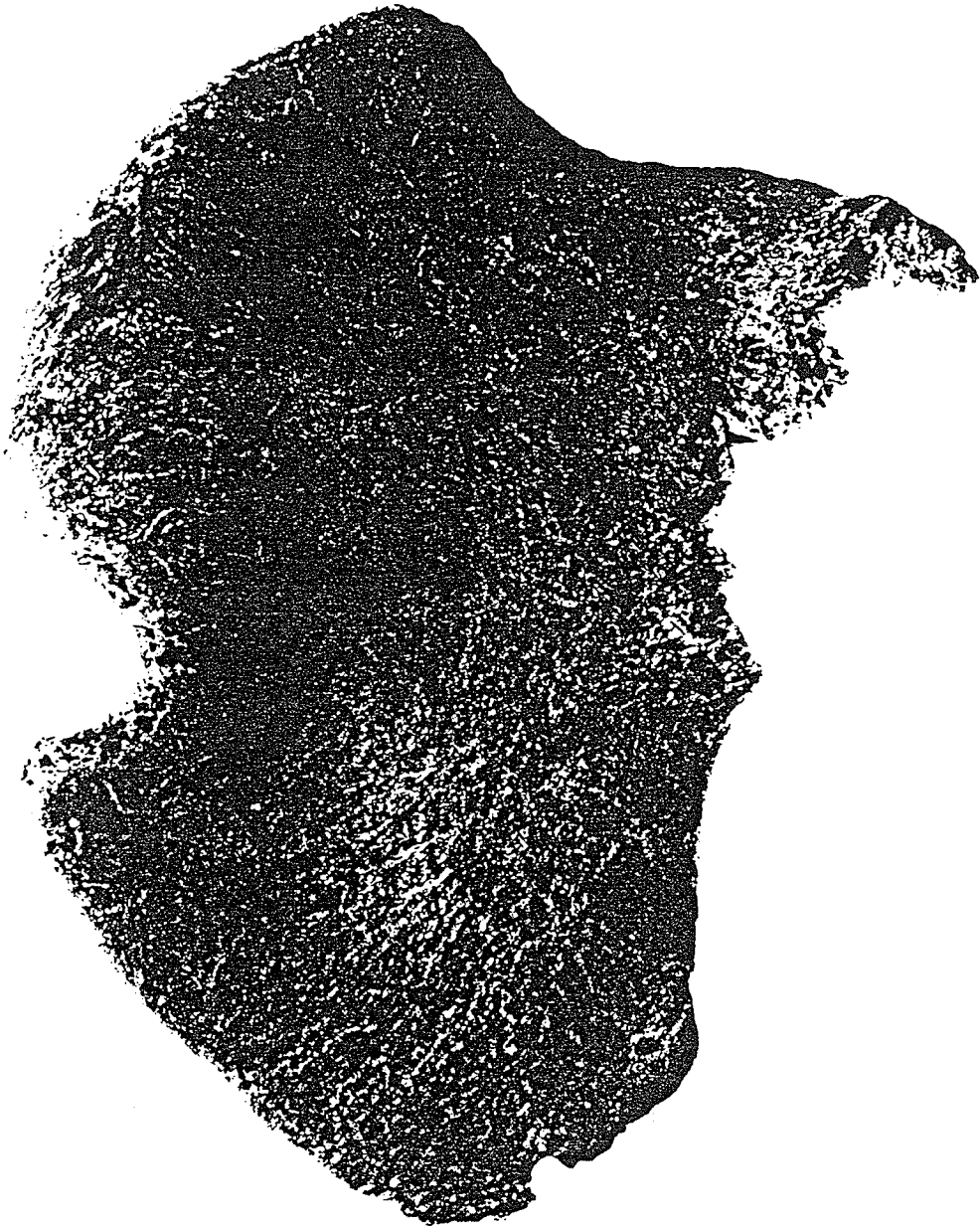


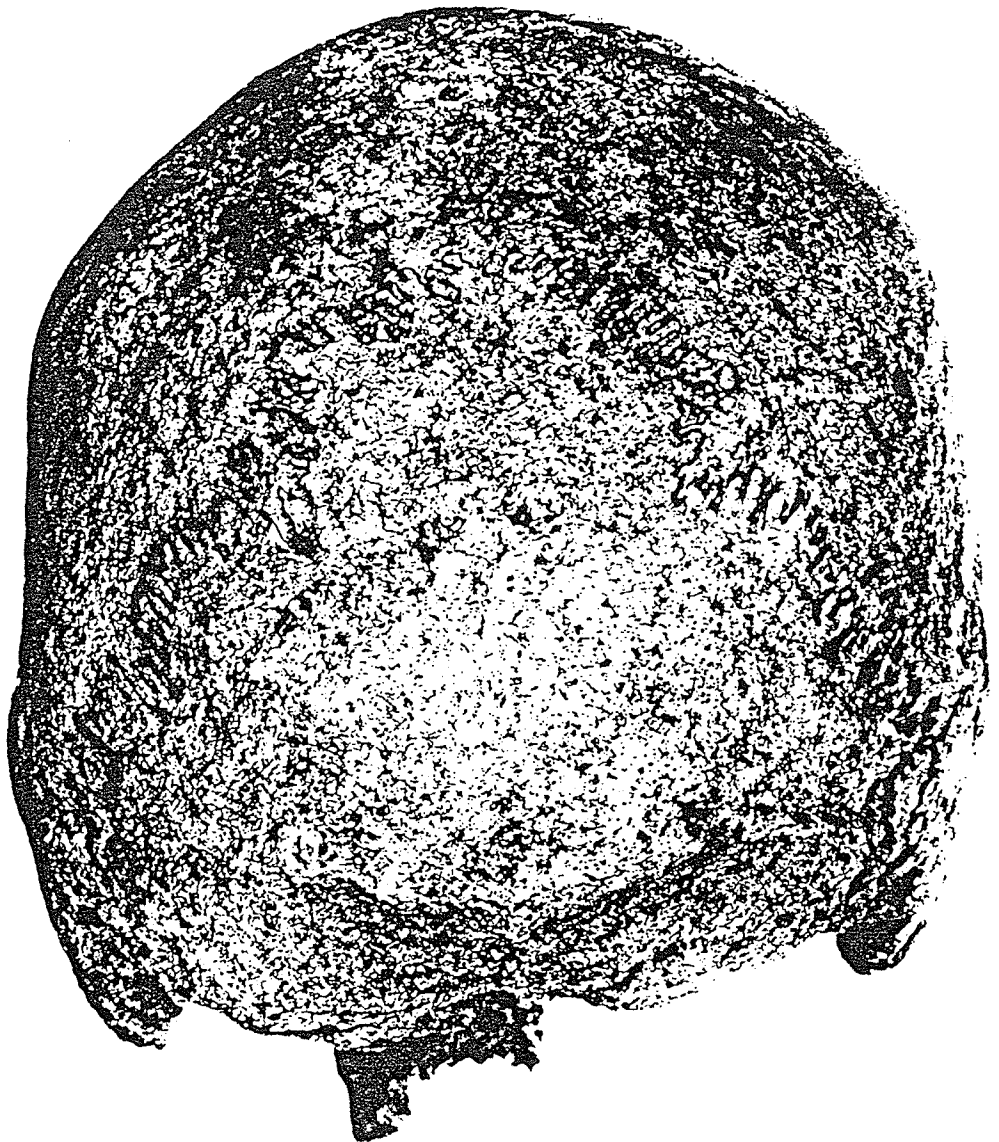










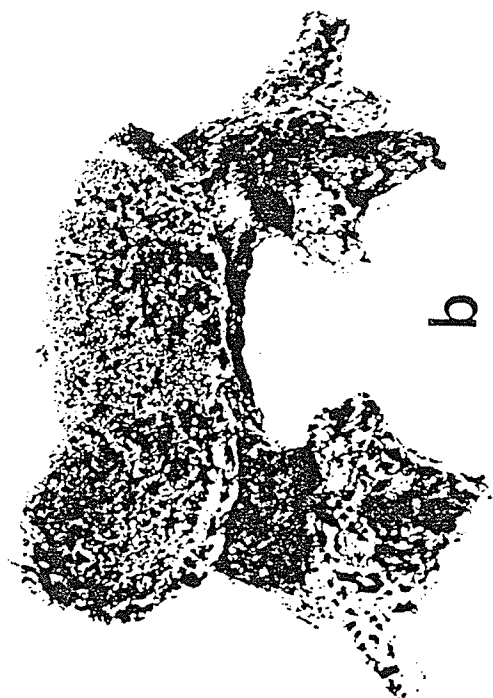




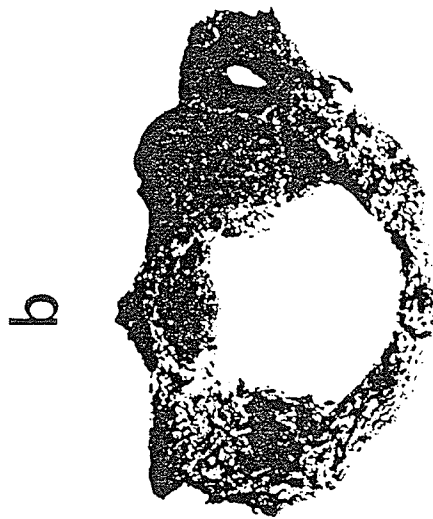
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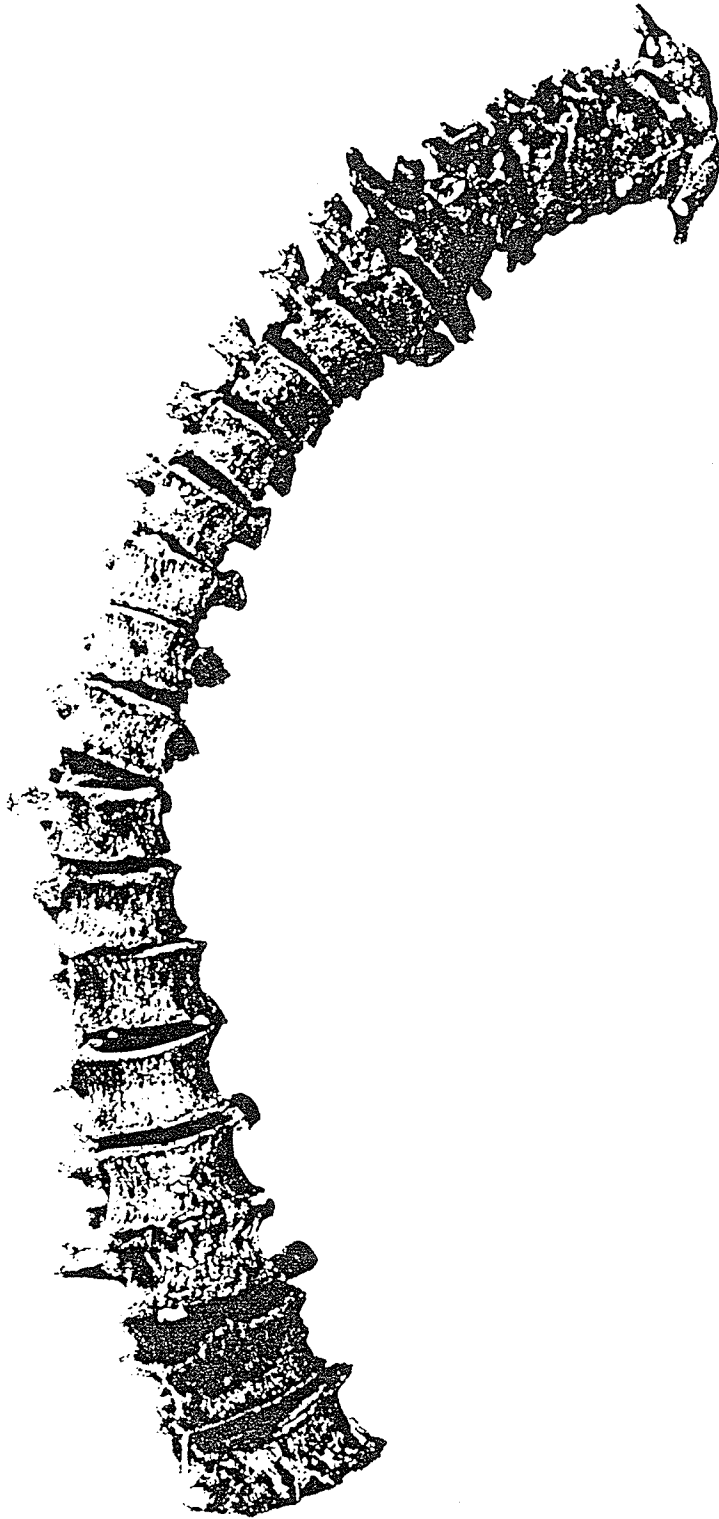


c

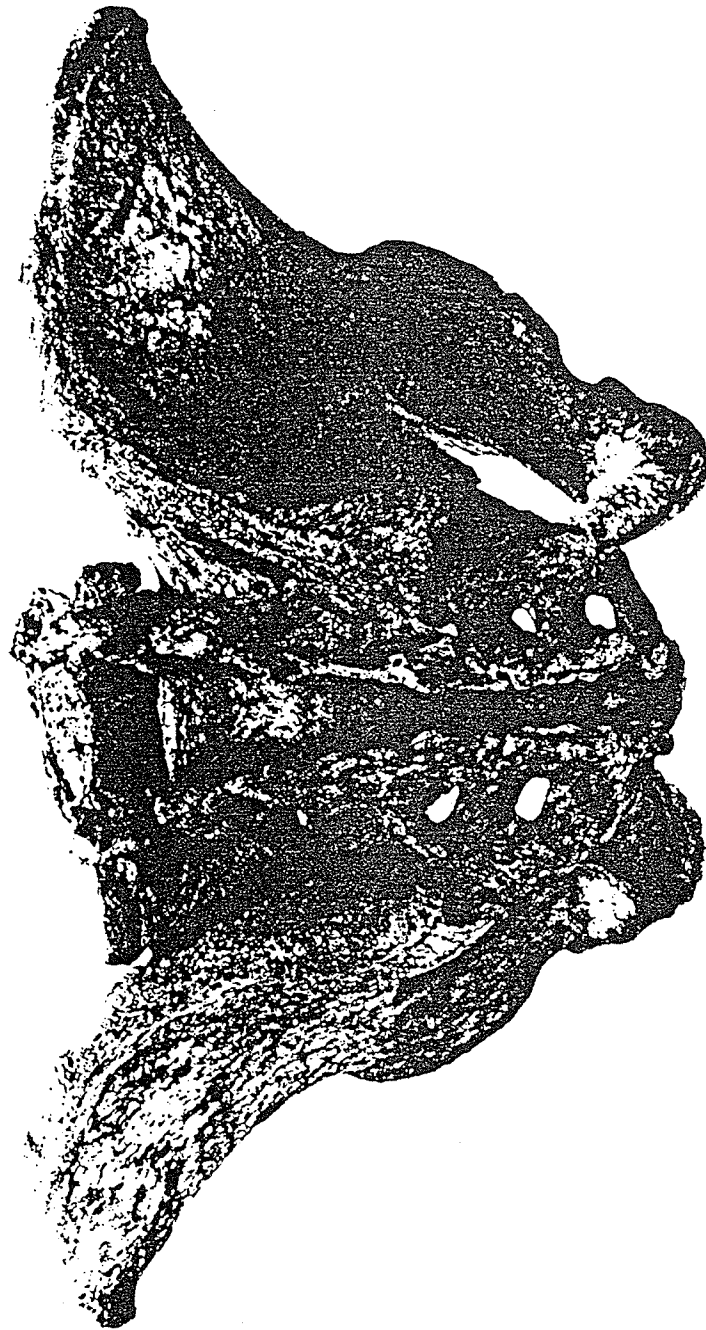


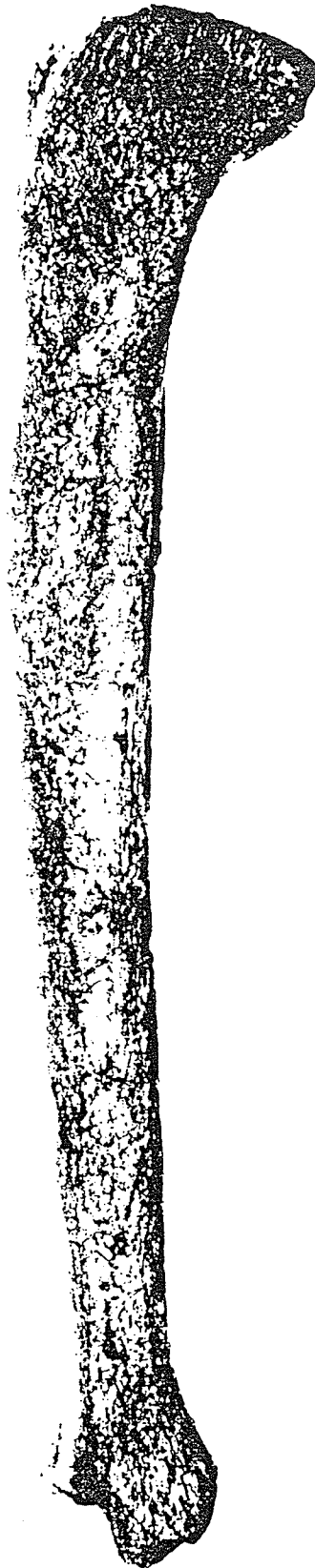
b











APPENDIX

OSTEOMETRIC TABLES

TABLE I-A. CRANIOMETRIC DATA, NA10738.

BURIAL NO.	1	2	3	6
*MEASUREMENTS:				
CRANIAL LENGTH	170	143	159	---
CRANIAL BREADTH	155	153	152	---
MINIMUM FRONTAL	101	85	97	---
BASION-BREGMA HEIGHT	139	---	131	---
AURICULAR HEIGHT	108	---	112	---
TOTAL FACIAL HEIGHT	114	91	---	---
UPPER FACIAL HEIGHT	68	54	---	---
BIZYGOMATIC BREADTH	136	---	---	---
NASAL HEIGHT	46	38	---	---
NASAL BREADTH	24	---	---	---
NASION-BASION LENGTH	100	---	91	---
BASION-PROSTHION LENGTH	99	---	---	---
L. ORBITAL HEIGHT	35	---	---	---
R. ORBITAL HEIGHT	---	31	---	---
L. ORBITAL BREADTH	38	---	---	---
R. ORBITAL BREADTH	---	31	---	---
PALATAL LENGTH	55	---	---	51
PALATAL BREADTH	39	---	---	44
FORAMEN MAGNUM LENGTH	---	---	---	---
FORAMEN MAGNUM BREADTH	27	---	---	---
FRONTAL ARC	116	112	111	---
PARIETAL ARC	112	107	114	---
OCCIPITAL ARC	---	---	116	---
BIPORIAL ARC	336	---	333	---
FRONTAL CHORD	101	97	98	---
PARIETAL CHORD	102	97	101	---
OCCIPITAL CHORD	---	---	94	---
SIMOTIC CHORD	10	---	---	---

BIDACRYONIC CHORD	25	18	---	---
BIASTERIONIC CHORD	115	---	110	---
MANDIBULAR LENGTH	103	---	100	---
BICONDYLAR BREADTH	116	---	114	---
BIGONIAL BREADTH	100	---	96	---
L. RAMUS HEIGHT	51	35	52	55
L. RAMUS MINIMUM BREADTH	34	26	32	32
SYMPHYSEAL HEIGHT	35	27	25	33
INTER-FORAMINAL BREADTH	42	37	44	46
CORONOID HEIGHT	56	42	56	56
BODY THICKNESS (M2)	16	---	16	16

INDICES:

CRANIAL	91.2	107.0	95.6	---
HEIGHT-LENGTH	81.8	---	82.4	---
HEIGHT-BREADTH	89.7	---	86.2	---
AURICULAR HEIGHT-LENGTH	63.5	---	70.4	---
FRONTO-PARIETAL	65.2	55.6	63.8	---
CRANIO-FACIAL	87.7	---	---	---
CRANIAL MODULE	154.7	---	147.3	---
MEAN ORBITAL	92.1	100.0	---	---
NASAL	52.2	---	---	---
UPPER FACIAL	50.0	---	---	---
ZYGO-GONIAL	73.5	---	---	---
FRONTO-GONIAL	99.0	---	99.0	---
ZYGO-FRONTAL	74.3	---	---	---
PALATAL	70.9	---	---	86.3
GNATHIC	99.0	---	---	---
RAMUS	66.7	74.3	61.5	58.2
MANDIBULAR	88.8	---	87.7	---

*ALL MEASUREMENTS IN MILLIMETERS. IT SHOULD BE NOTED THAT ALL MEASUREMENTS OF THE CRANIAL VAULT ARE SUBJECT TO DISTORTION AS A RESULT OF CRADLEBOARD DEFORMATION.

TABLE I-B. POST-CRANIAL METRIC DATA, NA10738.

	BURIAL NO. 1		2		3		6	
	L	R	L	R	L	R	L	R
*MEASUREMENTS:								
HUMERUS LENGTH	258	---	---	---	---	---	---	263
HUMERUS MAXIMUM HEAD DIAMETER	39	38	---	---	---	---	---	---
HUMERUS PROXIMAL END BREADTH	43	43	---	---	---	---	44	43
HUMERUS DISTAL END BREADTH	54	---	---	---	---	---	---	---
HUMERUS A-P MID-SHAFT DIA.	16	15	---	---	---	---	15	15
HUMERUS M-L MID-SHAFT DIA.	22	22	---	---	---	---	20	20
ULNA LENGTH	---	---	---	---	---	---	---	---
ULNA SHAFT LENGTH	196	---	---	---	---	---	---	---
ULNA TROCHLEAR NOTCH HEIGHT	20	---	---	---	---	---	---	---
ULNA DISTAL END BREADTH	---	---	---	---	---	---	---	---
RADIUS LENGTH	203	---	---	---	---	---	---	---
RADIUS MAXIMUM HEAD DIAMETER	---	---	---	---	---	---	---	---
RADIUS DISTAL END BREADTH	27	---	---	---	---	---	---	---
FEMUR LENGTH	367	366	---	---	376	378	---	---
FEMUR BICONDYLAR LENGTH	365	365	---	---	---	368	---	---
FEMUR TROCHANTERIC LENGTH	351	355	---	---	363	---	---	---
FEMUR A-P SUB-TROCH. DIA.	21	21	12	11	20	---	21	---
FEMUR M-L SUB-TROCH. DIA.	23	23	12	12	25	---	27	---
FEMUR A-P MID-SHAFT DIAMETER	24	24	12	12	25	---	---	---
FEMUR M-L MID-SHAFT DIAMETER	23	23	12	12	22	---	---	---
FEMUR MAXIMUM HEAD DIAMETER	38	38	---	---	39	39	37	---
FEMUR EPICONDYLAR BREADTH	69	69	---	---	---	---	---	71

TIBIA LENGTH	---	304	---	---	---	317	---	---
TIBIA PHYSIOLOGICAL LENGTH	---	299	---	---	---	303	---	---
TIBIA MAX. DIA. PROXIMAL END	---	---	---	---	---	---	---	---
TIBIA NUTR. FOR. A-P DIAMETER	---	31	17	15	31	31	32	32
TIBIA NUTR. FOR. M-L DIAMETER	---	20	12	11	17	---	19	19
FIBULA LENGTH	---	304	---	---	---	---	---	---
CLAVICLE LENGTH	137	---	---	---	---	---	---	---
INNOMINATE HEIGHT	178	---	---	---	---	---	---	181
INNOMINATE BREADTH	---	---	---	---	---	---	---	---
SACRAL HEIGHT	---	---	---	---	---	---	---	---
SACRAL BREADTH	---	---	---	---	---	---	---	---

INDICES:

RADIUS-HUMERUS	78.7	---	---	---	---	---	---	---
HUMERUS-FEMUR	70.3	---	---	---	---	---	---	---
HUMERUS HEAD	16.7	---	---	---	---	---	---	16.3
HUMERUS DISTAL END	20.9	---	---	---	---	---	---	---
PLATYMERIC	70.0	70.0	85.7	78.6	71.4	---	77.8	---
PILASTRIC	104.3	104.3	100.0	100.0	113.6	---	---	---
PLATYCNEMIC	---	83.3	---	---	---	86.1	---	---
TIBIA-FEMUR	---	83.3	---	---	---	86.1	---	---
ROBUSTICITY	12.8	12.8	---	---	12.5	---	---	---
MEAN INNOMINATE	---	---	---	---	---	---	---	---
SACRAL	---	---	---	---	---	---	---	---

*ALL MEASUREMENTS IN MILLIMETERS.

TABLE II-A. CRANIOMETRIC DATA, NA11047.

BURIAL NO.	2	3	4	7	9	10	11	12
*MEASUREMENTS:								
CRANIAL LENGTH	---	---	---	---	---	161	---	170
CRANIAL BREADTH	---	---	---	---	---	151	128	---
MINIMUM FRONTAL	88	100	98	---	---	91	---	---
BASION-BREGMA HEIGHT	---	---	---	---	---	143	---	---
AURICULAR HEIGHT	120	---	---	---	---	118	---	106
TOTAL FACIAL HEIGHT	111	---	---	---	---	115	---	---
UPPER FACIAL HEIGHT	68	65	61	---	---	70	---	55
BIZYGOMATIC BREADTH	---	---	---	---	---	137	---	---
NASAL HEIGHT	48	47	46	---	---	50	---	47
NASAL BREADTH	25	25	21	---	---	26	---	---
NASION-BASION LENGTH	---	---	---	---	---	101	---	---
BASION-PROSTHION LENGTH	---	---	---	---	---	90	---	---
L. ORBITAL HEIGHT	34	36	36	---	---	36	---	---
R. ORBITAL HEIGHT	34	38	36	---	---	36	---	---
L. ORBITAL BREADTH	36	38	36	---	---	37	---	---
R. ORBITAL BREADTH	37	38	36	---	---	38	---	38
PALATAL LENGTH	49	46	37	---	---	46	---	41
PALATAL BREADTH	36	36	27	---	---	37	---	---
FORAMEN MAGNUM LENGTH	---	---	---	---	---	36	---	---
FORAMEN MAGNUM BREADTH	---	---	---	---	---	28	---	---
FRONTAL ARC	128	122	113	---	---	116	---	---
PARIETAL ARC	---	---	113	---	---	112	---	104
OCCIPITAL ARC	---	99	---	---	---	107	---	---
BIPORIAL ARC	---	---	---	---	---	341	307	---

FRONTAL CHORD	108	108	97	---	---	102	---	---
PARIETAL CHORD	---	---	105	---	---	100	---	97
OCCIPITAL CHORD	---	82	---	---	---	91	---	---
SIMOTIC CHORD	8	12	11	---	---	11	---	---
BIDACRYCNIC CHORD	21	24	2	---	---	24	---	---
BIASTERIONIC CHORD	---	---	---	---	---	117	102	---
MANDIBULAR LENGTH	---	108	---	109	55	---	---	---
BICONDYLAR BREADTH	---	113	---	120	87	---	---	---
BIGONIAL BREADTH	105	95	---	101	70	92	---	---
L. RAMUS HEIGHT	44	46	43	47	26	58	---	50
L. RAMUS MINIMUM BREADTH	32	33	27	33	21	32	---	30
SYMPHYSEAL HEIGHT	30	33	26	36	21	33	---	26
INTER-FORAMINAL BREADTH	44	44	---	45	32	48	---	42
CORONOID HEIGHT	52	51	53	63	35	62	---	56
BODY THICKNESS (M2)	16	12	17	14	---	15	---	11

INDICES:

CRANIAL	---	---	---	---	---	93.8	---	---
HEIGHT-LENGTH	---	---	---	---	---	88.8	---	---
HEIGHT-BREADTH	---	---	---	---	---	94.7	---	---
AURICULAR HEIGHT-LENGTH	---	---	---	---	---	73.3	---	62.4
FRONTO-PARIETAL	---	---	---	---	---	60.3	---	---
CRANIO-FACIAL	---	---	---	---	---	90.7	---	---
CRANIAL MODULE	---	---	---	---	---	151.7	---	---
MEAN ORBITAL	93.2	97.4	100.0	---	---	94.7	---	102.6
NASAL	52.1	53.2	45.7	---	---	52.0	---	---
UPPER FACIAL	---	---	---	---	---	51.1	---	---
ZYGO-GONIAL	---	---	---	---	---	67.2	---	---
FRONTO-GONIAL	119.3	95.0	---	---	---	101.1	---	---
ZYGO-FRONTAL	---	---	---	---	---	66.4	---	---
PALATAL	73.5	78.3	73.0	---	---	80.4	---	---
GNATHIC	---	---	---	---	---	89.1	---	---
RAMUS	72.7	71.7	62.8	70.2	80.8	55.2	---	60.0
MANDIBULAR	---	95.6	---	90.8	63.2	---	---	---

TABLE II-A. CRANIOMETRIC DATA, NA11047 (CCNT'D).

BURIAL NO.	13	14	17	18	19	20	23	24
*MEASUREMENTS:								
CRANIAL LENGTH	---	---	164	---	165	164	---	---
CRANIAL BREADTH	---	---	155	---	146	146	---	---
MINIMUM FRONTAL	81	84	89	---	92	95	---	93
BASION-BREGMA HEIGHT	---	---	144	---	138	144	---	---
AURICULAR HEIGHT	---	---	120	---	111	119	---	---
TOTAL FACIAL HEIGHT	83	---	117	---	---	113	---	115
UPPER FACIAL HEIGHT	50	---	68	---	---	69	---	68
BIZYGOMATIC BREADTH	---	---	131	---	---	---	---	---
NASAL HEIGHT	37	---	46	---	---	51	---	49
NASAL BREADTH	20	---	23	---	---	24	---	26
NASION-BASION LENGTH	---	---	100	---	104	101	---	---
BASION-PROSTHION LENGTH	---	---	98	---	---	91	---	---
L. ORBITAL HEIGHT	30	---	35	37	37	36	---	---
R. ORBITAL HEIGHT	30	---	35	---	---	---	---	---
L. ORBITAL BREADTH	31	32	36	39	38	34	---	---
R. ORBITAL BREADTH	32	32	37	---	---	37	---	---
PALATAL LENGTH	34	---	51	---	---	44	---	46
PALATAL BREADTH	27	---	37	36	---	35	---	36
FORAMEN MAGNUM LENGTH	---	---	34	---	34	33	---	---
FORAMEN MAGNUM BREADTH	---	---	27	---	28	28	---	---
FRONTAL ARC	108	108	131	118	114	116	124	116
PARIETAL ARC	97	---	106	113	113	112	---	109
OCCIPITAL ARC	---	---	108	---	106	113	---	---
BIPORIAL ARC	---	---	347	---	328	343	---	---

FRONTAL CHORD	91	89	114	111	99	102	108	101
PARIETAL CHORD	87	---	95	102	103	100	---	100
OCCIPITAL CHORD	---	---	88	---	88	94	---	---
SIMOTIC CHORD	9	---	8	9	10	10	---	10
BIDACRYONIC CHORD	18	---	23	---	21	23	---	---
BIASTERIONIC CHORD	---	---	113	---	---	115	---	---
MANDIBULAR LENGTH	72	---	101	105	---	100	---	---
BICONDYLAR BREADTH	86	---	120	98	---	115	---	---
BIGONIAL BREADTH	70	---	91	90	---	95	---	---
L. RAMUS HEIGHT	30	27	55	44	48	53	---	56
L. RAMUS MINIMUM BREADTH	24	19	34	30	32	34	---	32
SYMPHYSEAL HEIGHT	23	20	34	31	28	36	---	30
INTER-FORAMINAL BREADTH	36	34	47	47	41	41	---	44
CORONOID HEIGHT	38	---	55	52	62	64	---	63
BODY THICKNESS (M2)	---	---	18	14	13	14	16	14

INDICES:

CRANIAL	---	---	94.5	---	88.5	89.0	---	---
HEIGHT-LENGTH	---	---	87.8	---	83.6	87.8	---	---
HEIGHT-BREADTH	---	---	92.9	---	94.5	98.6	---	---
AURICULAR HEIGHT-LENGTH	---	---	73.2	---	67.3	72.6	---	---
FRONTO-PARIETAL	---	---	57.4	---	63.0	65.1	---	---
CRANIO-FACIAL	---	---	84.5	---	---	---	---	---
CRANIAL MODULE	---	---	154.3	---	149.7	151.3	---	---
MEAN ORBITAL	95.3	---	95.9	94.9	97.4	105.9	---	---
NASAL	54.1	---	50.0	---	---	47.1	---	53.1
UPPER FACIAL	---	---	51.9	---	---	---	---	---
ZYGO-GONIAL	---	---	69.5	---	---	---	---	---
FRONTO-GONIAL	86.4	---	102.2	---	---	100.0	---	---
ZYGO-FRONTAL	---	---	67.9	---	---	---	---	---
PALATAL	79.4	---	72.5	---	---	79.5	---	78.3
GNATHIC	---	---	98.0	---	---	90.1	---	---
RAMUS	80.0	70.4	61.8	82.5	66.7	64.2	---	57.1
MANDIBULAR	83.7	---	84.2	107.1	---	87.0	---	---

TABLE II-A. CRANIOMETRIC DATA, NA11047 (CONT'D).

BURIAL NO.	25	26	30	31	32	34	36	38
*MEASUREMENTS:								
CRANIAL LENGTH	163	---	---	160	159	---	---	---
CRANIAL BREADTH	139	---	---	152	146	---	159	143
MINIMUM FRONTAL	92	97	---	93	86	---	---	---
BASION-BREGMA HEIGHT	141	---	---	135	---	---	144	---
AURICULAR HEIGHT	115	---	---	116	106	---	---	---
TOTAL FACIAL HEIGHT	106	---	---	---	108	---	---	---
UPPER FACIAL HEIGHT	68	68	60	69	67	---	---	---
BIZYGOMATIC BREADTH	---	---	---	123	134	---	---	---
NASAL HEIGHT	51	49	44	51	46	---	---	---
NASAL BREADTH	24	25	26	25	24	---	---	---
NASION-BASION LENGTH	99	---	---	94	---	---	---	---
BASION-PROSTHION LENGTH	94	---	---	87	---	---	---	---
L. ORBITAL HEIGHT	34	32	36	33	35	---	---	---
R. ORBITAL HEIGHT	34	---	---	33	35	---	---	---
L. ORBITAL BREADTH	36	38	36	38	37	---	---	---
R. ORBITAL BREADTH	38	---	---	37	---	---	---	---
PALATAL LENGTH	48	49	44	44	---	---	45	---
PALATAL BREADTH	35	35	34	35	36	---	39	---
FORAMEN MAGNUM LENGTH	32	---	---	30	---	---	34	---
FORAMEN MAGNUM BREADTH	24	---	---	24	---	---	28	25
FRONTAL ARC	114	125	110	110	---	119	---	---
PARIETAL ARC	121	---	114	111	109	117	106	103
OCCIPITAL ARC	100	111	---	118	108	---	101	101
BIPORIAL ARC	323	---	---	344	326	---	---	325
FRONTAL CHORD	102	109	99	100	---	105	---	---
PARIETAL CHORD	107	---	102	97	99	109	96	91
OCCIPITAL CHORD	82	90	---	94	90	---	85	88
SIOTIC CHORD	9	9	10	11	---	---	---	---

BIDACRYCNIC CHORD	21	21	21	21	---	---	---	---
BIASTERIONIC CHORD	105	---	---	114	113	---	103	107
MANDIBULAR LENGTH	101	---	---	103	102	---	---	---
BICONDYLAR BREADTH	112	---	---	115	116	---	---	---
BIGONIAL BREADTH	92	---	---	87	97	---	93	---
L. RAMUS HEIGHT	49	57	---	44	52	---	45	---
L. RAMUS MINIMUM BREADTH	35	36	31	31	33	---	34	23
SYMPHYSEAL HEIGHT	30	33	26	36	37	---	36	26
INTER-FORAMINAL BREADTH	44	42	---	39	48	---	45	42
CORONOID HEIGHT	57	65	52	53	57	---	60	51
BODY THICKNESS (M2)	15	13	13	12	15	---	14	15

INDICES:

CRANIAL	85.3	---	---	95.0	91.8	---	---	---
HEIGHT-LENGTH	86.5	---	---	84.4	---	---	---	---
HEIGHT-BREADTH	101.4	---	---	88.8	---	---	90.6	---
AURICULAR HEIGHT-LENGTH	70.6	---	---	72.5	66.7	---	---	---
FRONTO-PARIETAL	66.2	---	---	61.2	58.9	---	---	---
CRANIO-FACIAL	---	---	---	80.9	91.8	---	---	---
CRANIAL MODULE	147.7	---	---	149.0	---	---	---	---
MEAN ORBITAL	92.0	84.2	100.0	88.0	94.6	---	---	---
NASAL	47.1	51.0	59.1	49.0	52.2	---	---	---
UPPER FACIAL	---	---	---	56.1	50.0	---	---	---
ZYGO-GONIAL	---	---	---	70.7	72.4	---	---	---
FRONTO-GONIAL	100.0	---	---	93.5	112.8	---	---	---
ZYGO-FRONTAL	---	---	---	75.6	64.2	---	---	---
PALATAL	72.9	71.4	77.3	79.5	---	---	86.7	---
GNATHIC	94.9	---	---	92.6	---	---	---	---
RAMUS	71.4	63.2	---	70.5	63.5	---	75.6	---
MANDIBULAR	90.2	---	---	89.6	88.0	---	---	---

*ALL MEASUREMENTS IN MILLIMETERS. IT SHOULD BE NOTED THAT ALL MEASUREMENTS OF THE CRANIAL VAULT ARE SUBJECT TO DISTORTION AS A RESULT OF CRADLEBOARD DEFORMATION.

TABLE II-B. POST-CRANIAL METRIC DATA, NA11047.

[illegible]

TIBIA LENGTH	---	---	---	---	---	---	---	---
TIBIA PHYSIOLOGICAL LENGTH	---	---	---	---	---	---	---	---
TIBIA MAX. DIA. PROXIMAL END	---	---	---	---	---	---	---	---
TIBIA NUTR. FOR. A-P DIAMETER	29	29	31	31	33	33	23	23
TIBIA NUTR. FOR. M-L DIAMETER	18	18	18	---	18	18	19	18
FIBULA LENGTH	---	---	327	---	---	316	---	---
CLAVICLE LENGTH	---	---	---	---	---	---	---	---
INNOMINATE HEIGHT	---	---	---	---	---	---	---	---
INNOMINATE BREADTH	---	---	---	---	---	---	---	---
SACRAL HEIGHT	113	---	---	---	107	---	---	---
SACRAL BREADTH	---	---	---	---	116	---	---	---

INDICES:

RADIUS-HUMERUS	---	---	---	---	---	75.5	---	---
HUMERUS-FEMUR	---	---	---	---	---	73.9	---	---
HUMERUS HEAD	---	---	---	---	---	---	---	---
HUMERUS DISTAL END	---	---	---	---	---	18.9	---	---
PLATYMERIC	84.0	77.8	70.0	72.4	---	71.0	86.4	86.4
PILASTRIC	125.0	125.0	92.0	95.8	108.0	108.0	118.8	118.8
PLATYCNEMIC	62.1	62.1	58.1	---	54.5	54.5	82.6	78.3
TIBIA-FEMUR	---	---	---	---	---	---	---	---
ROBUSTICITY	11.3	11.5	---	---	---	13.4	---	---
MEAN INNOMINATE	---	---	---	---	---	---	---	---
SACRAL	---	---	---	---	---	108.4	---	---

TABLE II-B. POST-CRANIAL METRIC DATA, NA11047 (CONT'D).

BURIAL NO.	12		17		18		19	
	L	R	L	R	L	R	L	R
*MEASUREMENTS:								
HUMERUS LENGTH	282	---	275	279	292	---	278	---
HUMERUS MAXIMUM HEAD DIAMETER	---	---	37	---	38	38	39	---
HUMERUS PROXIMAL END BREADTH	---	---	42	---	42	---	---	---
HUMERUS DISTAL END BREADTH	53	---	53	---	51	---	56	---
HUMERUS A-P MID-SHAFT DIA.	15	15	13	13	14	15	15	15
HUMERUS M-L MID-SHAFT DIA.	20	20	21	21	19	20	19	19
ULNA LENGTH	---	233	---	---	---	---	---	---
ULNA SHAFT LENGTH	---	211	203	203	---	212	---	217
ULNA TROCHLEAR NOTCH HEIGHT	---	20	19	18	21	---	19	19
ULNA DISTAL END BREADTH	---	18	---	---	---	---	---	18
RADIUS LENGTH	215	---	---	---	---	---	---	---
RADIUS MAXIMUM HEAD DIAMETER	---	---	19	---	19	---	---	---
RADIUS DISTAL END BREADTH	26	26	---	---	---	---	---	28
FEMUR LENGTH	402	---	402	395	---	---	400	396
FEMUR BICONDYLAR LENGTH	---	---	400	389	396	396	397	391
FEMUR TROCHANTERIC LENGTH	---	---	386	377	---	---	374	---
FEMUR A-P SUB-TROCH. DIA.	21	21	19	19	21	21	21	20
FEMUR M-L SUB-TROCH. DIA.	33	33	28	30	30	31	29	29
FEMUR A-P MID-SHAFT DIAMETER	27	27	---	26	24	22	24	24
FEMUR M-L MID-SHAFT DIAMETER	26	26	---	25	23	23	23	23
FEMUR MAXIMUM HEAD DIAMETER	38	---	37	37	38	38	40	40
FEMUR EPICONDYLAR BREADTH	---	---	66	---	---	---	---	75

TIBIA LENGTH	---	---	327	325	325	324	331	330
TIBIA PHYSIOLOGICAL LENGTH	---	---	317	---	---	---	---	---
TIBIA MAX. DIA. PROXIMAL END	---	---	---	---	---	---	---	---
TIBIA NUTR. FOR. A-P DIAMETER	31	30	30	30	30	30	33	33
TIBIA NUTR. FOR. M-L DIAMETER	19	19	19	19	18	17	18	18
FIBULA LENGTH	---	322	315	---	---	---	---	322
CLAVICLE LENGTH	---	---	131	---	138	---	---	---
INNOMINATE HEIGHT	---	---	198	---	---	---	190	---
INNOMINATE BREADTH	---	147	144	---	---	---	142	---
SACRAL HEIGHT	---	---	104	---	---	---	105	---
SACRAL BREADTH	---	---	---	---	---	---	111	---

INDICES:

RADIUS-HUMERUS	76.2	---	---	---	---	---	---	---
HUMERUS-FEMUR	70.1	---	68.4	70.6	---	---	69.5	---
HUMERUS HEAD	---	---	15.3	---	14.4	---	---	---
HUMERUS DISTAL END	18.8	---	19.3	---	17.5	---	20.1	---
PLATYMERIC	63.6	63.6	67.9	63.3	70.0	67.7	72.4	69.0
PILASTRIC	103.8	103.8	---	104.0	104.3	95.7	104.3	104.3
PLATYCNEMIC	61.3	63.3	63.3	63.3	60.0	56.7	54.5	54.5
TIBIA-FEMUR	---	---	81.8	83.5	82.1	81.8	83.4	84.4
ROBUSTICITY	13.2	---	---	12.9	---	---	11.8	11.9
MEAN INNOMINATE	---	---	137.5	---	---	---	133.8	---
SACRAL	---	---	---	---	---	---	105.7	---

TABLE II-B. POST-CRANIAL METRIC DATA, NA11047 (CONT'D).

[illegible]

TIBIA LENGTH	352	354	---	---	---	---	327	324
TIBIA PHYSIOLOGICAL LENGTH	---	---	---	---	---	---	---	---
TIBIA MAX. DIA. PROXIMAL END	76	---	---	---	---	---	---	---
TIBIA NUTR. FOR. A-P DIAMETER	34	34	33	---	28	27	34	33
TIBIA NUTR. FOR. M-L DIAMETER	24	23	23	---	18	17	19	18
FIBULA LENGTH	---	---	---	---	---	---	322	---
CLAVICLE LENGTH	---	---	---	---	---	---	---	---
INNOMINATE HEIGHT	---	---	---	---	---	---	---	---
INNOMINATE BREADTH	---	---	---	---	---	---	---	---
SACRAL HEIGHT	---		94		---		---	
SACRAL BREADTH	---		---		---		---	

INDICES:

RADIUS-HUMERUS	---	---	---	---	---	---	78.6	---
HUMERUS-FEMUR	69.4	70.0	---	---	---	---	73.6	---
HUMERUS HEAD	16.7	---	---	---	---	---	---	---
HUMERUS DISTAL END	19.8	---	---	---	---	---	18.3	---
PLATYMERIC	79.3	82.1	71.0	74.2	75.0	67.9	75.9	67.7
PILASTRIC	113.0	113.0	100.0	100.0	109.1	104.5	117.4	113.0
PLATYCNEMIC	70.6	67.6	69.7	---	64.3	63.0	55.9	54.5
TIBIA-FEMUR	85.0	87.0	---	---	---	---	---	---
ROBUSTICITY	11.8	11.9	---	---	---	---	12.7	---
MEAN INNOMINATE	---		---		---		---	
SACRAL	---		---		---		---	

TABLE II-B. POST-CRANIAL METRIC DATA, NA11047 (CONT'D).

BURIAL NO.	31		32		36		38	
	L	R	L	R	L	R	L	R
*MEASUREMENTS:								
HUMERUS LENGTH	270	274	---	---	---	---	277	---
HUMERUS MAXIMUM HEAD DIAMETER	36	36	---	---	---	---	38	---
HUMERUS PROXIMAL END BREADTH	41	41	---	---	---	---	---	---
HUMERUS DISTAL END BREADTH	54	55	---	---	---	---	48	---
HUMERUS A-P MID-SHAFT DIA.	14	14	---	---	13	14	13	---
HUMERUS M-L MID-SHAFT DIA.	20	20	---	---	16	18	18	---
ULNA LENGTH	241	---	---	---	---	---	---	---
ULNA SHAFT LENGTH	220	220	---	---	---	---	---	---
ULNA TROCHLEAR NOTCH HEIGHT	20	19	19	---	---	---	19	---
ULNA DISTAL END BREADTH	20	---	---	---	---	---	---	---
RADIUS LENGTH	223	224	---	---	---	---	---	---
RADIUS MAXIMUM HEAD DIAMETER	18	18	---	---	---	---	---	---
RADIUS DISTAL END BREADTH	---	24	27	28	---	---	---	---
FEMUR LENGTH	389	388	---	---	---	---	---	---
FEMUR BICONDYLAR LENGTH	385	384	---	---	---	---	---	---
FEMUR TROCHANTERIC LENGTH	367	---	---	---	---	---	---	---
FEMUR A-P SUB-TROCH. DIA.	21	21	21	22	21	21	20	---
FEMUR M-L SUB-TROCH. DIA.	30	30	28	28	29	31	25	---
FEMUR A-P MID-SHAFT DIAMETER	24	25	23	23	24	23	21	21
FEMUR M-L MID-SHAFT DIAMETER	22	21	24	24	21	21	20	19
FEMUR MAXIMUM HEAD DIAMETER	37	37	---	---	---	---	---	---
FEMUR EPICONDYLAR BREADTH	68	70	---	---	---	---	---	---

TIBIA LENGTH	335	330	---	---	---	---	---	---
TIBIA PHYSIOLOGICAL LENGTH	---	---	---	---	---	---	---	---
TIBIA MAX. DIA. PROXIMAL END	---	66	---	---	---	---	---	---
TIBIA NUTR. FOR. A-P DIAMETER	32	32	28	29	29	29	27	25
TIBIA NUTR. FOR. M-L DIAMETER	21	19	17	17	21	21	16	17
FIBULA LENGTH	322	---	---	---	---	---	---	---
CLAVICLE LENGTH	135	130	---	---	---	---	---	---
INNOMINATE HEIGHT	186	185	---	---	---	---	---	---
INNOMINATE BREADTH	146	145	---	---	---	---	---	---
SACRAL HEIGHT		87	---	---	---	---	---	---
SACRAL BREADTH		108	---	---	---	---	---	---

INDICES:

RADIUS-HUMERUS	82.6	81.8	---	---	---	---	---	---
HUMERUS-FEMUR	69.4	70.6	---	---	---	---	---	---
HUMERUS HEAD	15.2	15.0	---	---	---	---	---	---
HUMERUS DISTAL END	20.0	20.1	---	---	---	---	---	---
PLATYMERIC	70.0	70.0	75.0	78.6	72.4	67.7	80.0	---
PILASTRIC	109.1	119.0	95.8	95.8	114.3	109.5	105.0	110.5
PLATYCNEMIC	65.6	59.4	60.7	58.6	72.4	72.4	59.3	68.0
TIBIA-FEMUR	87.7	85.9	---	---	---	---	---	---
ROBUSTICITY	11.8	11.9	---	---	---	---	---	---
MEAN INNOMINATE		127.5	---	---	---	---	---	---
SACRAL		124.1	---	---	---	---	---	---

 *ALL MEASUREMENTS IN MILLIMETERS.

TABLE III-A. CRANIOMETRIC DATA, NA11053.

BURIAL NO. 1

*MEASUREMENTS:

MANDIBULAR LENGTH	111
BIGONIAL BREADTH	95
L. RAMUS HEIGHT	59
L. RAMUS MINIMUM BREADTH	35
SYMPHYSEAL HEIGHT	33
INTER-FORAMINAL BREADTH	48
CORONOID HEIGHT	51
BODY THICKNESS (M2)	16

INDICES:

RAMUS	59.3
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*ALL MEASUREMENTS IN MILLIMETERS.

TABLE III-B. POST-CRANIAL METRIC DATA, NA11053.

	BURIAL NO. 1	
	L	R
*MEASUREMENTS:		
HUMERUS LENGTH	---	286
HUMERUS MAXIMUM HEAD DIAMETER	---	38
HUMERUS PROXIMAL END BREADTH	---	43
HUMERUS DISTAL END BREADTH	50	50
HUMERUS A-P MID-SHAFT DIA.	14	14
HUMERUS M-L MID-SHAFT DIA.	19	18
ULNA LENGTH	237	241
ULNA SHAFT LENGTH	208	213
ULNA TROCHLEAR NOTCH HEIGHT	22	23
ULNA DISTAL END BREADTH	18	18
RADIUS LENGTH	219	223
RADIUS MAXIMUM HEAD DIAMETER	19	19
RADIUS DISTAL END BREADTH	25	25
FEMUR LENGTH	393	---
FEMUR BICONDYLAR LENGTH	391	---
FEMUR TROCHANTERIC LENGTH	381	---
FEMUR A-P SUB-TROCH. DIA.	23	24
FEMUR M-L SUB-TROCH. DIA.	31	32
FEMUR A-P MID-SHAFT DIAMETER	27	27
FEMUR M-L MID-SHAFT DIAMETER	26	25
FEMUR MAXIMUM HEAD DIAMETER	39	39
FEMUR EPICONDYLAR BREADTH	69	---

TIBIA LENGTH	345	---
TIBIA PHYSIOLOGICAL LENGTH	337	---
TIBIA MAX. DIA. PROXIMAL END	66	---
TIBIA NUTR. FOR. A-P DIAMETER	30	---
TIBIA NUTR. FOR. M-L DIAMETER	19	---
FIBULA LENGTH	337	---
CLAVICLE LENGTH	---	133
INNOMINATE HEIGHT	193	193
INNOMINATE BREADTH	143	---

INDICES:

RADIUS-HUMERUS	---	78.0
HUMERUS HEAD	---	15.0
HUMERUS DISTAL END	---	17.5
PLATYMERIC	74.2	75.0
PILASTRIC	103.8	108.0
PLATYCNEMIC	63.3	---
TIBIA-FEMUR	88.2	---
ROBUSTICITY	13.5	---
MEAN INNOMINATE		135.0

 *ALL MEASUREMENTS IN MILLIMETERS.

TABLE IV-A. CRANIOMETRIC DATA, NA11057.

BURIAL NO.	1	3	6	7
*MEASUREMENTS:				
PALATAL LENGTH	---	---	---	41
PALATAL BREADTH	---	---	---	38
FRONTAL ARC	---	114	---	---
PARIETAL ARC	115	---	---	109
FRONTAL CHORD	---	96	---	---
PARIETAL CHORD	105	---	---	100
MANDIBULAR LENGTH	---	86	---	---
BICONDYLAR BREADTH	---	95	---	---
BIGONIAL BREADTH	---	79	---	93
L. RAMUS HEIGHT	---	41	49	37**
L. RAMUS MINIMUM BREADTH	31	28	32	29
SYMPHYSEAL HEIGHT	28	26	---	27
INTER-FORAMINAL BREADTH	---	43	---	45
CORONOID HEIGHT	55	47	57	50
BODY THICKNESS (M2)	16	15	16	14

INDICES:

PALATAL	---	---	---	92.7
RAMUS	---	68.3	65.3	78.4**
MANDIBULAR	---	90.5	---	---

*ALL MEASUREMENTS IN MILLIMETERS. IT SHOULD BE NOTED THAT ALL MEASUREMENTS OF THE CRANIAL VAULT ARE SUBJECT TO DISTORTION AS A RESULT OF CRADLEBOARD DEFORMATION.

**MEASUREMENT AFFECTED BY PATHOLOGICAL FEATURE.

TABLE IV-B. POST-CRANIAL METRIC DATA, NA11057.

[illegible]

TABLE IV-B. POST-CRANIAL METRIC DATA, NA11057 (CONT'D).

	BURIAL NO. 7		9	
	L	R	L	R
*MEASUREMENTS:				
HUMERUS LENGTH	261	---	---	---
HUMERUS MAXIMUM HEAD DIAMETER	---	---	---	---
HUMERUS PROXIMAL END BREADTH	---	---	---	---
HUMERUS DISTAL END BREADTH	51	---	---	---
HUMERUS A-P MID-SHAFT DIA.	14	14	---	---
HUMERUS M-L MID-SHAFT DIA.	18	18	---	---
ULNA LENGTH	---	213	---	---
ULNA SHAFT LENGTH	---	198	---	---
ULNA TROCHLEAR NOTCH HEIGHT	21	---	---	---
ULNA DISTAL END BREADTH	---	---	---	---
RADIUS LENGTH	---	206	---	---
RADIUS MAXIMUM HEAD DIAMETER	18	---	---	---
RADIUS DISTAL END BREADTH	---	26	---	---
FEMUR LENGTH	379	---	423	---
FEMUR BICONDYLAR LENGTH	373	---	418	---
FEMUR TROCHANTERIC LENGTH	364	---	---	---
FEMUR A-P SUB-TROCH. DIA.	20	20	22	---
FEMUR M-L SUB-TROCH. DIA.	30	31	30	---
FEMUR A-P MID-SHAFT DIAMETER	23	23	27	---
FEMUR M-L MID-SHAFT DIAMETER	23	24	23	---
FEMUR MAXIMUM HEAD DIAMETER	36	36	---	---
FEMUR EPICONDYLAR BREADTH	68	---	---	---

TIBIA LENGTH	---	---	---	---
TIBIA PHYSIOLOGICAL LENGTH	---	---	---	---
TIBIA MAX. DIA. PROXIMAL END	---	---	---	---
TIBIA NUTR. FOR. A-P DIAMETER	31	31	33	---
TIBIA NUTR. FOR. M-L DIAMETER	18	18	21	---
FIBULA LENGTH	306	303	---	---
CLAVICLE LENGTH	130	130	---	---
INNOMINATE HEIGHT	180	179	---	---
INNOMINATE BREADTH	---	136	---	---
SACRAL HEIGHT	---	---	---	---
SACRAL BREADTH	102	---	---	---

INDICES:

RADIUS-HUMERUS	---	---	---	---
HUMERUS-FEMUR	68.9	---	---	---
HUMERUS HEAD	---	---	---	---
HUMERUS DISTAL END	19.5	---	---	---
PLATYMERIC	66.7	64.5	73.3	---
PILASTRIC	100.0	95.8	117.4	---
PLATYCNEMIC	58.1	58.1	63.6	---
TIBIA-FEMUR	---	---	---	---
ROBUSTICITY	12.1	---	11.8	---
MEAN INNOMINATE	---	---	---	---
SACRAL	---	---	---	---

*ALL MEASUREMENTS IN MILLIMETERS.

TABLE V-A. CRANIOMETRIC DATA, NA11058.

BURIAL NO.	1	2
*MEASUREMENTS:		
CRANIAL LENGTH	185	---
CRANIAL BREADTH	135	---
MINIMUM FRONTAL	---	90
BASION-BREGMA HEIGHT	126	---
AURICULAR HEIGHT	117	---
UPPER FACIAL HEIGHT	74	---
NASION-BASION LENGTH	100	---
BASION-PROSTHION LENGTH	100	---
L. ORBITAL HEIGHT	36	---
L. ORBITAL BREADTH	44	---
FRONTAL ARC	116	126
PARIETAL ARC	118	126
FRONTAL CHORD	103	111
PARIETAL CHORD	105	108
SIMOTIC CHORD	11	---
BIDACRYONIC CHORD	25	---
BIASTERIONIC CHORD	111	---
BIGONIAL BREADTH	---	90
L. RAMUS MINIMUM BREADTH	---	35
SYMPHYSEAL HEIGHT	---	39
INTER-FORAMINAL BREADTH	---	45
CORONOID HEIGHT	---	62
BODY THICKNESS (M2)	---	15

INDICES:

CRANIAL	73.0	---
HEIGHT-LENGTH	68.1	---
HEIGHT-BREADTH	93.3	---
AURICULAR HEIGHT-LENGTH	63.2	---
CRANIAL MODULE	148.7	---
L. ORBITAL	81.8	---
FRONTO-GONIAL	---	100.0
GNATHIC	100.0	---

*ALL MEASUREMENTS IN MILLIMETERS. NOTE THAT THE CRANIUM OF BURIAL 1 IS NOT DEFORMED; HOWEVER, MEASUREMENTS OF THE CRANIAL VAULT OF BURIAL 2 ARE SUBJECT TO DISTORTION AS A RESULT OF CRADLEBOARD DEFORMATION.

TABLE V-B. POST-CRANIAL METRIC DATA, NA11058.

	BURIAL NO. 1		2	
	L	R	L	R
*MEASUREMENTS:				
HUMERUS LENGTH	---	292	---	---
HUMERUS MAXIMUM HEAD DIAMETER	---	41	---	---
HUMERUS PROXIMAL END BREADTH	---	47	---	---
HUMERUS DISTAL END BREADTH	---	61	---	---
HUMERUS A-P MID-SHAFT DIA.	14	16	15	15
HUMERUS M-L MID-SHAFT DIA.	22	23	22	22
ULNA LENGTH	---	247	---	---
ULNA SHAFT LENGTH	220	220	---	---
ULNA TROCHLEAR NOTCH HEIGHT	---	19	---	---
ULNA DISTAL END BREADTH	20	20	---	---
RADIUS LENGTH	---	227	---	---
RADIUS MAXIMUM HEAD DIAMETER	---	21	---	---
RADIUS DISTAL END BREADTH	30	---	---	---
FEMUR A-P SUB-TROCH. DIA.	23	23	25	25
FEMUR M-L SUB-TROCH. DIA.	34	34	32	32
FEMUR A-P MID-SHAFT DIAMETER	27	27	28	28
FEMUR M-L MID-SHAFT DIAMETER	26	26	25	25
FEMUR MAXIMUM HEAD DIAMETER	43	---	---	---
TIBIA NUTR. FOR. A-P DIAMETER	36	37	---	33
TIBIA NUTR. FOR. M-L DIAMETER	20	20	---	18
CLAVICLE LENGTH	---	137	---	---

INDICES:

RADIUS-HUMERUS	---	77.7	---	---
HUMERUS HEAD	---	16.1	---	---
HUMERUS DISTAL END	---	20.9	---	---
PLATYMERIC	67.6	67.6	78.1	78.1
PILASTRIC	103.8	103.8	112.0	112.0
PLATYCNEMIC	55.6	54.1	---	54.5

 *ALL MEASUREMENTS IN MILLIMETERS.

TABLE VI-A. CRANIOMETRIC DATA, NA11070.

BURIAL NO.	1	2
*MEASUREMENTS:		
PALATAL LENGTH	---	45
PALATAL BREADTH	---	42
BIGONIAL BREADTH	77	---
L. RAMUS MINIMUM BREADTH	---	34
SYMPHYSEAL HEIGHT	32	35
INTER-FORAMINAL BREADTH	---	46
CORONOID HEIGHT	57	54
BODY THICKNESS (M2)	17	16

INDICES:

PALATAL	---	93.3
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*ALL MEASUREMENTS IN MILLIMETERS.

TABLE VI-B. POST-CRANIAL METRIC DATA, NA11070.

	BURIAL NO.			
	L	R	L	R
*MEASUREMENTS:				
HUMERUS MAXIMUM HEAD DIAMETER	---	---	37	---
HUMERUS PROXIMAL END BREADTH	---	---	42	---
HUMERUS A-P MID-SHAFT DIA.	13	14	15	15
HUMERUS M-L MID-SHAFT DIA.	18	19	20	21
FEMUR A-P SUB-TROCH. DIA.	20	20	---	23
FEMUR M-L SUB-TROCH. DIA.	28	28	---	30
FEMUR A-P MID-SHAFT DIAMETER	23	23	---	---
FEMUR M-L MID-SHAFT DIAMETER	22	21	---	---
FEMUR MAXIMUM HEAD DIAMETER	---	---	40	40
TIBIA NUTR. FOR. A-P DIAMETER	31	---	---	---
TIBIA NUTR. FOR. M-L DIAMETER	18	---	---	---
INDICES:				
PLATYMERIC	71.4	71.4	---	76.7
PILASTRIC	104.5	109.5	---	---
PLATYCNEMIC	58.1	---	---	---

*ALL MEASUREMENTS IN MILLIMETERS.				

TABLE VII-A. CRANIOMETRIC DATA, NA11125.

BURIAL NO.	1	2	3	4	5	6A	7
*MEASUREMENTS:							
CRANIAL LENGTH	171	---	---	179	161	165	169
CRANIAL BREADTH	153	---	---	139	146	140	145
MINIMUM FRONTAL	102	81	---	92	---	95	92
BASION-BREGMA HEIGHT	147	---	---	136	---	129	136
AURICULAR HEIGHT	118	---	---	---	---	112	114
TOTAL FACIAL HEIGHT	115	---	---	---	125	94	119
UPPER FACIAL HEIGHT	68	62	---	69	77	58	72
BIZYGOMATIC BREADTH	138	---	---	139	145	107	138
NASAL HEIGHT	51	45	---	53	53	41	50
NASAL BREADTH	27	21	---	25	24	27	22
NASION-BASION LENGTH	102	---	---	104	100	89	98
BASION-PROSTHION LENGTH	92	---	---	---	98	81	92
L. ORBITAL HEIGHT	39	---	---	---	---	33	35
R. ORBITAL HEIGHT	38	---	---	---	36	34	35
L. ORBITAL BREADTH	38	---	---	---	39	35	38
R. ORBITAL BREADTH	38	---	---	---	40	34	38
PALATAL LENGTH	50	46	---	49	51	39	47
PALATAL BREADTH	40	33	---	37	41	29	37
FORAMEN MAGNUM LENGTH	33	---	---	36	32	37	33
FORAMEN MAGNUM BREADTH	28	---	---	28	25	27	28
FRONTAL ARC	131	106	---	121	---	114	121
PARIETAL ARC	101	114	---	124	---	105	110
OCCIPITAL ARC	127	---	---	111	99	124	111
BIPORIAL ARC	346	---	---	321	---	332	326
FRONTAL CHORD	112	96	---	108	---	96	105
PARIETAL CHORD	92	100	---	113	---	95	104
OCCIPITAL CHORD	102	---	---	89	85	96	86
SIMOTIC CHORD	13	8	---	8	10	10	8

BIDACRYONIC CHORD	27	---	---	---	19	20	19
BIASTERIONIC CHORD	115	---	---	109	104	97	108
MANDIBULAR LENGTH	100	---	106	107	105	80	93
BICONDYLAR BREADTH	120	---	114	124	123	91	117
BIGONIAL BREADTH	97	81	106	99	103	76	97
L. RAMUS HEIGHT	59	---	58	52	56	37	57
L. RAMUS MINIMUM BREADTH	33	30	33	33	36	28	34
SYMPHYSEAL HEIGHT	31	28	38	36	36	23	36
INTER-FORAMINAL BREADTH	44	40	50	48	51	40	44
CORONOID HEIGHT	62	51	65	61	73	46	65
BODY THICKNESS (M2)	15	15	20	13	18	14	16

INDICES:

CRANIAL	89.5	---	---	77.7	90.7	84.8	85.8
HEIGHT-LENGTH	86.0	---	---	76.0	---	78.2	80.5
HEIGHT-BREADTH	96.1	---	---	97.8	---	92.1	93.8
AURICULAR HEIGHT-LENGTH	69.0	---	---	---	---	67.9	67.5
FRONTO-PARIETAL	66.7	---	---	66.2	---	67.9	63.4
CRANIO-FACIAL	90.2	---	---	100.0	99.3	76.4	95.2
CRANIAL MODULE	157.0	---	---	151.3	---	144.7	150.0
MEAN ORBITAL	101.3	---	---	---	90.0	97.1	92.1
NASAL	52.9	46.7	---	47.2	45.3	65.9	44.0
UPPER FACIAL	49.3	---	---	49.6	53.1	54.2	52.2
ZYGO-GONIAL	70.3	---	---	71.2	71.0	71.0	70.3
FRONTO-GONIAL	95.1	100.0	---	107.6	---	80.0	105.4
ZYGO-FRONTAL	73.9	---	---	66.2	---	88.8	66.7
PALATAL	80.0	71.7	---	75.5	80.4	74.4	78.7
GNATHIC	90.2	---	---	---	98.0	91.0	93.9
RAMUS	55.9	---	56.9	63.5	64.3	75.7	59.6
MANDIBULAR	83.3	---	93.0	86.3	85.4	87.9	79.5

 *ALL MEASUREMENTS IN MILLIMETERS. IT SHOULD BE NOTED THAT ALL MEASUREMENTS OF THE CRANIAL VAULT ARE SUBJECT TO DISTORTION AS A RESULT OF CRADLEBOARD DEFORMATION.

TABLE VII-B. POST-CRANIAL METRIC DATA, NA11125.

BURIAL NO.	1		2		3		4	
	L	R	L	R	L	R	L	R
*MEASUREMENTS:								
HUMERUS LENGTH	296	300	---	---	314	312	304	300
HUMERUS MAXIMUM HEAD DIAMETER	41	41	---	---	43	43	41	41
HUMERUS PROXIMAL END BREADTH	47	48	---	---	48	48	46	47
HUMERUS DISTAL END BREADTH	59	59	---	---	---	59	58	58
HUMERUS A-P MID-SHAFT DIA.	16	16	---	12	17	17	15	15
HUMERUS M-L MID-SHAFT DIA.	20	20	---	17	20	22	19	20
ULNA LENGTH	257	257	---	---	---	263	251	250
ULNA SHAFT LENGTH	231	231	---	---	238	237	224	224
ULNA TROCHLEAR NOTCH HEIGHT	23	23	---	---	---	23	21	20
ULNA DISTAL END BREADTH	20	20	---	---	---	19	18	19
RADIUS LENGTH	241	241	---	---	---	---	237	235
RADIUS MAXIMUM HEAD DIAMETER	22	22	---	---	21	21	20	20
RADIUS DISTAL END BREADTH	30	31	---	---	---	30	29	29
FEMUR LENGTH	425	424	---	---	442	---	422	413
FEMUR BICONDYLAR LENGTH	422	421	---	---	437	---	421	411
FEMUR TROCHANTERIC LENGTH	401	401	---	---	419	---	403	397
FEMUR A-P SUB-TROCH. DIA.	25	25	18	18	26	26	23	24
FEMUR M-L SUB-TROCH. DIA.	28	29	25	25	31	32	30	32
FEMUR A-P MID-SHAFT DIAMETER	27	27	21	21	30	29	26	27
FEMUR M-L MID-SHAFT DIAMETER	25	25	18	18	25	24	27	27
FEMUR MAXIMUM HEAD DIAMETER	45	45	---	---	44	44	42	42
FEMUR EPICONDYLAR BREADTH	77	78	---	---	80	81	76	---

TIBIA LENGTH	364	365	---	---	---	374	356	355
TIBIA PHYSIOLOGICAL LENGTH	354	355	---	---	---	365	343	343
TIBIA MAX. DIA. PROXIMAL END	74	75	---	---	76	77	73	73
TIBIA NUTR. FOR. A-P DIAMETER	36	34	26	26	36	37	34	---
TIBIA NUTR. FOR. M-L DIAMETER	23	23	16	16	23	25	20	---
FIBULA LENGTH	346	346	---	---	---	366	347	347
CLAVICLE LENGTH	143	144	---	---	155	---	146	152
INNOMINATE HEIGHT	203	203	---	---	---	---	196	197
INNOMINATE BREADTH	---	152	---	---	152	---	148	151
SACRAL HEIGHT	105		---		---			92
SACRAL BREADTH	119		---		---			---

INDICES:

RADIUS-HUMERUS	81.4	80.3	---	---	---	---	78.0	78.3
HUMERUS-FEMUR	69.6	70.8	---	---	71.0	---	72.0	72.6
HUMERUS HEAD	15.9	16.0	---	---	15.3	15.4	15.1	15.7
HUMERUS DISTAL END	19.9	19.7	---	---	---	18.9	19.1	19.3
PLATYMERIC	89.3	86.2	72.0	72.0	83.9	81.3	76.7	75.0
PILASTRIC	108.0	108.0	116.7	116.7	120.0	120.8	96.3	100.0
PLATYCNEMIC	63.9	67.6	61.5	61.5	63.9	67.6	58.8	---
TIBIA-FEMUR	86.3	96.7	---	---	---	---	84.6	86.4
ROBUSTICITY	12.2	12.3	---	---	12.4	---	12.6	13.1
MEAN INNOMINATE	133.5		---		---		131.4	
SACPAL	113.3		---		---		139.9	

TABLE VII-B. POST-CRANIAL METRIC DATA, NA 11125 (CONT'D).

	BURIAL NO. 5		6 A		7	
	L	R	L	R	L	R
*MEASUREMENTS:						
HUMERUS LENGTH	297	299	---	---	283	281
HUMERUS MAXIMUM HEAD DIAMETER	40	40	---	---	42	42
HUMERUS PROXIMAL END BREADTH	45	45	---	---	44	45
HUMERUS DISTAL END BREADTH	54	---	---	---	58	57
HUMERUS A-P MID-SHAFT DIA.	15	15	10	10	15	15
HUMERUS M-L MID-SHAFT DIA.	22	22	13	13	19	19
ULNA LENGTH	---	---	---	---	237	239
ULNA SHAFT LENGTH	---	---	---	---	213	215
ULNA TROCHLEAR NOTCH HEIGHT	---	---	---	---	20	20
ULNA DISTAL END BREADTH	---	---	---	---	17	17
RADIUS LENGTH	---	226	---	---	223	225
RADIUS MAXIMUM HEAD DIAMETER	---	22	---	---	21	20
RADIUS DISTAL END BREADTH	---	---	---	---	29	29
FEMUR LENGTH	406	---	---	---	400	394
FEMUR BICONDYLAR LENGTH	404	---	---	---	396	389
FEMUR TROCHANTERIC LENGTH	381	---	---	---	384	377
FEMUR A-P SUB-TROCH. DIA.	21	---	14	14	23	23
FEMUR M-L SUB-TROCH. DIA.	30	---	20	21	29	29
FEMUR A-P MID-SHAFT DIAMETER	23	---	14	14	25	25
FEMUR M-L MID-SHAFT DIAMETER	25	---	13	13	23	23
FEMUR MAXIMUM HEAD DIAMETER	40	---	---	---	43	42
FEMUR EPICONDYLAR BREADTH	73	---	---	---	75	75

TIBIA LENGTH	341	343	---	---	341	340
TIBIA PHYSIOLOGICAL LENGTH	330	332	---	---	335	333
TIBIA MAX. DIA. PROXIMAL END	70	71	---	---	74	74
TIBIA NUTR. FOR. A-P DIAMETER	32	33	---	---	32	32
TIBIA NUTR. FOR. M-L DIAMETER	18	20	---	---	19	20
FIBULA LENGTH	331	---	---	---	339	336
CLAVICLE LENGTH	---	---	---	---	---	---
INNOMINATE HEIGHT	---	---	---	---	196	196
INNOMINATE BREADTH	---	---	---	---	138	137
SACRAL HEIGHT	---	---	---	---	103	
SACRAL BREADTH	---	---	---	---	110	

INDICES:

RADIUS-HUMERUS	---	75.6	---	---	78.8	80.1
HUMERUS-FEMUR	73.2	---	---	---	70.8	71.3
HUMERUS HEAD	15.2	15.1	---	---	15.5	16.0
HUMERUS DISTAL END	18.2	---	---	---	20.5	20.3
PLATYMERIC	70.0	---	70.0	66.7	79.3	79.0
PILASTRIC	92.0	---	107.7	107.7	108.7	108.7
PLATYCNEMIC	56.3	60.6	---	---	59.4	62.5
TIBIA-FEMUR	84.4	---	---	---	86.1	87.4
ROBUSTICITY	11.8	---	---	---	12.0	12.2
MEAN INNOMINATE	---	---	---	---	142.5	
SACRAL	---	---	---	---	106.8	

*ALL MEASUREMENTS IN MILLIMETERS.