## Preliminary Report on the Crania from the Island Field Site, Kent County, Delaware

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## Abstract

The report deals with a study of the skeletal population from the Island Field Site, carried out jointly by the two writers during the summer of 1969. It includes demographic data on 95 burials of the late Middle Woodland group that inhabited the Delmarva Peninsula about A.D. 900 according to typological artifact dating. Sixteen of the crania, those of 8 males and 8 females, were reconstructed and measured. The report deals with a brief description of this material, pointing out the relationships of this population to that of other sites in the middle Atlantic States area.

The Island Field Site (7K-F-17) is located near the mouth of the meandering Murderkill, at South Bowers, Delaware, on a sandy knoll only a few hundred yards from Delaware Bay. On a typological basis the Island Field Site has been given the relative date of about A.D. 900. The culture represented at this site is obviously of the Middle Woodland. However, its placement into one of the subdivisions of this broad period presented some difficulties. For that reason the site has been assigned to the Webb Phase—a newly established phase of the Middle Woodland complex defined at the Island Field Site.

Skeletal material was first encountered at the site in the 1930's when, during the construction of a nearby road, the knoll was used for fill. At that time the material was sealed in kegs and reburied in the surrounding marsh by the workmen. As yet, that material has not been relocated. It was not until 1953 that the archaeological importance of the site was recognized by an amateur archaeologist, Frank Austin, who with the aid of the Sussex Society of Archaeology, recovered from a shell pit artifacts characteristic of the Late Woodland Period. Since 1966 there has been intensive excavation carried on at Island Field by the Delaware Archaeological Board under the direction of Mr. Ronald A. Thomas, State Archaeologist. Nearly 90 burials have been uncovered at the site with no fewer than 7 burial types present, although the majority of the burials are either flexed or semi-flexed. Extended burials, two types of cremation, in situ and redeposited, disarticulated and skull burials, and both single and mass burials are found at Island Field.

Many of the graves contain grave offerings. Such materials as bone and antler have been used to produce awls, needles, and harpoons while stone artifacts have been encountered as in the case of waste flint, arrowheads, knives, stone pipes, celts, and pendants. Both clay and steatite pipes have been recovered along with clear quartz pebbles, mica, a conch shell cup, shell beads, two shark teeth, and a bowl made from a human skull.

Whereas many of these artifacts are not uncommon to the region, there is an interesting array of foreign materials, whose styles and composition indicate contact between the Island Field Site and such areas as New England, the Midwest and the Southeast.

At the time the data were collected, the skeletal population from this site consisted of 27 adult males, 24 adult females, 11 infants (age 3 or below), 10 children, 12 known but thus far unexcavated individuals, and 5 adults of undetermined sex. The poor condition of the material combined with the desire of the Delaware Archaeological Board to keep the material *in situ* for a possible future museum, allowed only the best skulls to be reconstructed. This resulted in the measurement, and observation of 16 adult crania—8 males and 8 females. From the analysis of the 8 adult male crania it has been determined that the population is primarily Lenid with the exception of one individual which has been classified as Ilinid.

Generally, the Island Field population displays a large degree of muscularity, is quite dolichocephalic or long-headed, with an average cranial index of 71.39. The average length-height index is 73.35, placing the group within the ortho-cranial index class. In no instance was there a case of platybasia; and the position of basion is high. Face size is medium with a tendency toward being large. The average total facial index is 91.12, or leptoprosopic in character.

The superior facial index is 76.96, or mesene. The orbits are rhomboid in 62.5% of the individuals and oblong in the remaining 37.5%. Their inclination tends to be small. The overall orbital index is 77.43, or mesoconch. The nasal bones are medium in size and the root is medium to high. Nasal bridge height is also high in % of the individuals observed. The nasal index is 49.14, or mesorrhine in classification. The height of the palate is from high to very high while the average maxillo-alveolar index is 141.41, or mesuranic in character. The average mandibular index is 86.42. However, the size of the mandible is from medium to large, each displaying a frequency of 50%. Chin projection is usually neutral.

The purpose of this summer's field work with the skeletal material from the Island Field Site was to remove the skulls of 16 of the skeletons of adults-8 male and 8 female-reconstruct, measure, and photograph them in order to determine whether this population could possibly be identified as ancestral to the Delaware tribe, which inhabited New Jersey and northern Delaware in historic times. If this were the case it would place the Delawares in the East about 500 years before the date suggested in the Walam Olum, the migration record of the Delaware and related Algonquin-speaking tribes. If, on the other hand, the affiliation of this population could be shown to be with the skeletal material from the historic Townsend site dated ca. 1400-1500, the Island Field population could be identified as Nanticoke, whose ancestors inhabited the Delmarva Peninsula since Archaic times—a circumstance that would confirm the Delaware migration account. The morphological data seem to substantiate the latter. The metric, indicial, and morphological description of the crania is given in Tables 1 through 3 for comparative purposes.

Table 1. Cranial measurements—means for 8 males.

Cranial Wault  Cranial module  Mean thickness of left parietal  Glabello-occipital length  Maximum breadth  Minimum frontal  Frontal chord  Basion bregma height  Porion-apex height  Cranial base length  Face  Total facial height  Upper facial breadth  MFB  Internal biorbital breadth  Biorbital breadth  Biorbital breadth  Biorbital breadth  Nasal structure  Nasal breadth  Nasal breadth  Nasal height  Dacryal chord  Dacryal subtense  Minimum nasal breadth  Subtense nasal brea	Measurement Abbr	eviation Average
Mean thickness of left parietal Glabello-occipital length Maximum breadth Maximum breadth Minimum frontal Frontal chord FC Basion bregma height Porion-apex height Basion-porion height Cranial base length  Face  Total facial height Upper facial height Upper facial height Total facial breadth Total facial breadth MFB Internal biorbital breadth Subtense biorbital breadth Bos biorbital breadth Maxillo-alveolar breadth Subtense bridge Borbit Left orbital height Subtense borb Borbit Left orbital breadth Subtense asal breadth Subtense borb Borbit Left orbital breadth Subtense asal breadth Subtense asal breadth Subtense asal breadth Subtense asal breadth Subtense height Subtense borb Borbit Left orbital breadth Subtense height Subtense Dos Minimum nasal bridge Borbit Left orbital height LoH Left orbital height LoH Left orbital breadth (d) LoBD Dental arch and profile Maxillo-alveolar length Maxillo-alveolar length Facial length (pr) Facial length (pr) Facial length (alv. pt.) FLA Angles Facial profile angle Midfacial profile angle Midfacial profile angle Ape Gonial angle Ge Mandible Length of mandible Length of mandible Bicondylar breadth Height of mandibular symphysis SH	nial Vault	
Mean thickness of left parietal Glabello-occipital length Maximum breadth Maximum breadth Minimum frontal Frontal chord FC Basion bregma height Porion-apex height Basion-porion height Cranial base length  Face  Total facial height Upper facial height Upper facial height Total facial breadth Total facial breadth MFB Internal biorbital breadth Subtense biorbital breadth Bos biorbital breadth Maxillo-alveolar breadth Subtense bridge Borbit Left orbital height Subtense borb Borbit Left orbital breadth Subtense asal breadth Subtense borb Borbit Left orbital breadth Subtense asal breadth Subtense asal breadth Subtense asal breadth Subtense asal breadth Subtense height Subtense borb Borbit Left orbital breadth Subtense height Subtense Dos Minimum nasal bridge Borbit Left orbital height LoH Left orbital height LoH Left orbital breadth (d) LoBD Dental arch and profile Maxillo-alveolar length Maxillo-alveolar length Facial length (pr) Facial length (pr) Facial length (alv. pt.) FLA Angles Facial profile angle Midfacial profile angle Midfacial profile angle Ape Gonial angle Ge Mandible Length of mandible Length of mandible Bicondylar breadth Height of mandibular symphysis SH	Cranial module CM	140.5
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Minimum frontal Frontal chord FC Basion bregma height H Porion-apex height PAH Basion-porion height BPH Cranial base length LB  Face  Total facial height UFH Total facial height UFH Total facial height UFH Total facial breadth MFB Internal biorbital breadth BOB Biorbital breadth BOB Biorbital breadth BOB Ant. interorbital breadth NB Nasal structure Nasal breadth NB Nasal height NH Dacryal chord DC Dacryal subtense DS Minimum nasal breadth SNM Subtense nasal breadth SNM Subtense nasal breadth SNM Subtense nasal breadth SNM Subtense nasal breadth SNM Dreadth Of nasal bridge BNB Height of nasal bridge HNB  Orbit Left orbital breadth (d) LOBD  Dental arch and profile Maxillo-alveolar breadth MB Maxillo-alveolar breadth MB Maxillo-alveolar breadth MB Facial length (pr) FL Facial length (alv. pt.) FLA  Angles Facial profile angle MP Alveolar profile AP Alveolar profile AP Alveolar profile AP Alveolar profile AP Alveolar	Glabello-occipital length L	191.
Frontal chord Basion bregma height Porion-apex height Porion-apex height Basion-porion height Cranial base length  Face  Total facial height Upper	Maximum breadth B	136.
Basion bregma height Porion-apex height Porion-apex height Basion-porion height Basion-porion height Cranial base length LB  Face  Total facial height TFH Upper facial height UFH Total facial breadth TFB Midfacial breadth MFB Internal biorbital breadth BOB Biorbital breadth BOB Biorbital breadth BOB Ant. interorbital breadth NB Nasal structure  Nasal breadth NB Nasal height NH Dacryal chord DC Dacryal subtense DS Minimum nasal breadth SMN Breadth of nasal bridge BNB Height of nasal bridge HNB Orbit  Left orbital height LOH Left orbital breadth (d) LOBD  Dental arch and profile  Maxillo-alveolar breadth MB Maxillo-alveolar breadth MB Maxillo-alveolar breadth MB Maxillo-alveolar profile angle FP  Facial length (np') FL Facial length (np') FL Facial length (alv. pt.) FLA  Angles  Facial profile angle MP  Alveolar profile AP  Alveolar profile AP  Alveolar profile AP  Alveolar	Minimum frontal MF	93.
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Total facial breadth Midfacial profile angle Midfacial profile angle Midfacial profile angle Midfacial profile angle Midfacial breadth Midfacial breadth Midfacial profile angle Midfacial profi	Total facial height TFH	125.3
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Left orbital breadth (d)  Dental arch and profile  Maxillo-alveolar breadth Maxillo-alveolar length Maxillo-alveolar length Maxillo-alveolar length ML Facial length (pr) FL Facial length (alv. pt.)  Angles  Facial profile angle Midfacial profile angle Alveolar profile angle Gonial angle  Mandible  Length of mandible Length of mandible Bicondylar breadth BCB Height of mandibular symphysis  SH	_	
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Maxillo-alveolar breadth  Maxillo-alveolar length  Maxillo-alveolar length  Facial length (pr)  Facial length (alv. pt.)  FLA  Angles  Facial profile angle  Midfacial profile angle  Alveolar profile angle  Gonial angle  Length of mandible  Length of mandible  Bicondylar breadth  Bicb  Height of mandibular symphysis	al arch and profile	
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Facial length (alv. pt.)  FLA  Angles  Facial profile angle  Midfacial profile angle  Alveolar profile angle  Gonial angle  Length of mandible  Length of mandible  Bicondylar breadth  Height of mandibular symphysis  FLA  FP  AP  AP  AP  BCB  Height of mandibular symphysis	Maxillo-alveolar length ML	55.6
Facial profile angle Facial profile angle Midfacial profile angle Alveolar profile angle Gonial angle  Mandible  Length of mandible Bicondylar breadth BCB Height of mandibular symphysis  SH	Facial length (pr) FL	101.0
Facial profile angle Midfacial profile angle Alveolar profile angle Gonial angle  Length of mandible Bicondylar breadth Bich tof mandibular symphysis  FP MP MP AP GO G  LAP  BCB BCB BCB BCB BCB SH	Facial length (alv. pt.)	99.0
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Alveolar profile angle Gonial angle  Indible Length of mandible Bicondylar breadth Bich dight of mandibular symphysis  SH		88.5°
Gonial angle  Andible  Length of mandible  Bicondylar breadth  Height of mandibular symphysis  SH		69.8°
Length of mandible LM Bicondylar breadth BCB Height of mandibular symphysis SH		124.8°
Length of mandible LM Bicondylar breadth BCB Height of mandibular symphysis SH	dible	
Bicondylar breadth BCB Height of mandibular symphysis SH		100 =
Height of mandibular symphysis SH		108.7
	•	124.9
Biangular breadth BA		37.9 107.3
Minimum ramus length RL		34.9

Table 2. Cranial indices—means for 8 males.

Indices	Abbreviation	Average
Cranial Vault		
Cranial	$\mathbf{B}/\mathbf{L}$	71.39
Length-height	$\mathbf{H}/\mathbf{L}$	73.35
Breadth-height	H/B	102.76
Mean height	H/(L+B/2)	85.48
Length-auricular	PAH/L	61.79
Flatness of cranial base	BPH/H	18.56
Trans. Fronto-parietal	MF/B	68.24
Frontal	MF/M'F	80.78
Face		
Total facial	TFH/TFB	91.12
Upper facial	UFH/TFB	53.77
Midfacial	UFH/MFB	76.96
Trans. cranio-facial	TFB/B	100.82
Zvgo-frontal	MF/TFB	70.62
Fronto-mandibular	BA/MF	114.32
Zvgo-mandibular	BA/TFB	77.51
Facial flatness	SIOB/IOB	21.45
Ant. interorbital	AIB/BOB	19.27
Nasal		
Nasal	NB/NH	49.19
Nasal root height	DS/DC	62.28
Nasal bone height	SMN/MN	55.98
Nasal bridge height	HNB/BNB	41.76
Orbit		
Left orbital (mf)	LOH/LOB	77.43
Left orbital (d)	LOH/LOBD	82.31
Dental Arch		
Maxillo-alveolar	MB/ML	114.41
Mandible		
Mandibular	LM/BCB	86.42

Table 3. Morphological observations—percentages and frequencies.

	sm*	m	1	vl		
Muscularity	0 (0)	0 (0)	87 (7)	13 (1)		
	lt	m	h			
Weight	0 (0)	71 (5)	29 (2)			
	sm	m	1			
Face size	0 (0)	62 (5)	38 (3)			
D ! 1 1	med	div	con	tor		
Brow ridge shape	0 (0) tr	100 (8) sm	0 (0)	0 (0) 1		
Brow ridge size	0 (0)	12 (1)	m 25 (2)	50 (4)	vl 13 (1)	
DIOW TRUE SIZE	sm	m m	1	vl	13 (1)	
Glabella	12 (1)	38 (3)	38 (3)	12 (1)		
	vlo	lo	m	hi	vhi	
Frontal height	0 (0)	13 (1)	75 (6)	12 (1)	0 (0)	
_	n	bul	sl	m	p	vp
Frontal slope	0 (0)	0 (0)	13 (1)	87 (7)	0 (0)	0 (0)
	sm	m	1			
Post-orb. constr.	75 (6)	25 (2)	0 (0)			
	sm	m	1			
Frontal eminences	75 (6)	25 (2)	0 (0)			
	n	sm	m	1		
Med. front. crest	75 (6)	25 (2)	0 (0)	0 (0)		
	n	sm	m	1	vl	
Sagittal elev.	37 (3)	50 (4)	37 (1)	0 (0)	0 (0)	
	sm	sm	m	l		
Parietal eminences	0 (0)	100 (8)	0 (0)			
m	fl or (a)	m	1	0. (0.		
Temp. fullness	25 (2)	38 (3)	37 (3)	0 (0)		
Mastoids, size	sm	m	l 95 (9)	vl		
Mastords, size	0 (0) n	50 (4) sm	25 (2) m	25 (2)		
Occip. curve	0 (0)	0 (0)	25 (2)	p 62 (5)	vp 13 (1)	
occip. curve	hi	m	20 (2) l	02 (0)	13 (1)	
Occip. position	87 (7)	13 (1)	0 (0)			
overpr position	bun	na	m	wi		
Occip. breadth	13 (1)	87 (7)	0 (0)	0 (0)		
•	n	sm	m	p		
Lamb. flattening	0 (0)	13 (1)	50 (4)	37 (3)		
	sm	m	1	vl		
Elev. occ. condyles	0 (0)	14 (1)	57 (4)	29 (2)		
	lo	m	hi	vhi		
Basion	0 (0)	71 (5)	15 (1)	14 (1)		
	n	s	m	1		
Platybasia	100 (8)	0 (0)	0 (0)	0 (0)		
	vsm	sm	m	l		
Styloids	25 (2)	50 (4)	13 (1)	12 (1)		
_	sm	m	1			
Lacerate foramen	17 (1)	17 (1)	66 (4)			
C1 - 11 d	sm	m	1			
Glenoid fossa	0 (0)	25 (2)	75 (6)			
Post-glen. process	sm	m 75 (C)	] 95 (9)			
1 050-gien. process	0 (0) th	75 (6) m	25 (2)	,,+le		
Tympanic plate	87 (7)	m 13 (1)	tk 0 (0)	vtk 0 (0)		
- , panie plate	87 (1) S	15 (1) m	1	0 (0)		
Petrous depr.	0 (0)	50 (4)	50 (4)			
	obl	rhm	sq (4)	ell	rd	
	001	1 11111	ьų	en	ru	

TABLE 3. (Continued).

	sm*	m	1	vl	
Orbit shape	38 (3)	62 (5)	0 (0)	0 (0)	0 (0)
Orbit snape	n	sm	m	р	vp
Orbit inclin.	25 (2)	38 (3)	37 (3)	0 (0)	0 (0)
	n	sl	m	dp	0 (0)
Suborbit. fossa	0 (0)	63 (5)	37 (3)	0 (0)	
	sm	m	1	vl	
ygomatic size	25 (2)	63 (5)	12 (1)	0 (0)	
and State	sm	m	ì	. (.,	
ygo. lat. proj.	0 (0)	50 (4)	50 (4)		
	sm	m	1		
ygo, ant. proj.	0 (0)	87 (7)	13 (1)		
	lo	m	hi		
ygo, bone ht.	0 (0)	100 (8)	0 (0)		
	$\mathbf{sm}$	m	1		
ize of nasals	0 (0)	100 (8)	0 (0)		
- IIIIIIII	lo	m	hi	vhi	
Jasal root height	13 (1)	50 (4)	37 (3)	0 (0)	
	$\mathbf{sm}$	m	1	vl	
Jasal root breadth	37 (3)	38 (3)	25 (2)	0 (0)	
	lo	m	hi	vhi	
lasal bridge height	17 (1)	17 (1)	66 (4)	0 (0)	
	sm	m	1	, ,	
lasal bridge breadth	50 (3)	50 (3)	0 (0)		
	str	conc	ccv	cvx	
asal profile	0 (0)	0 (0)	100 (5)	0 (0)	
-	n	sm	m	$d\mathbf{p}$	
Jasion depr.	13 (1)	62 (5)	25 (2)	0 (0)	
	par	hyp	ell	sU	lU
alate shape	50 (4)	0 (0)	13 (1)	37 (3)	0 (0)
	lo	m	hi	vhi	
Palate height	0 (0)	0 (0)	38 (3)	62 (5)	
	n	sm	m	1	
nframax. notch	33 (2)	33 (2)	17 (1)	17 (1)	£
	sm	m	1	vl	
Iandib. size	0 (0)	50 (4)	50 (4)	0 (0)	
	nb	wb	int	med	
Chin form	25 (2)	75 (6)	0 (0)	0 (0)	
	neg	neu	sm	m	1
hin proj.	0 (0)	87 (7)	0 (0)	13 (1)	0 (0)
	n	sm	m	1	. ,
onial eversion	50 (4)	37 (3)	13 (1)	0 (0)	

<sup>\*</sup> Abbreviations: bul bulging, bun bun-shaped, ccv concavo-convex, con continuous, conc concave, cvx convex, div divided, dp deep, ell elliptical, fl flat, h heavy, hi high, hyp hyperbolic, int intermediate, l large, lo low, lt light, lU large U-shaped, m medium, med median, n none, na narrow, nb narrow-bilateral, neg negative, neu neutral, obl oblong, p pronounced, par parabolic, rd round, rhm rhombold, sl slight, sm small, sq square, str straight, sU small U-shaped, th thin, tk thick, tor torus, tr trace, vhi very high, vl very large, vlo very low, vp very pronounced, vsm very small, vtk very thick, wb wide-bilateral, wi wide.

## Literature Cited

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