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## The Rock Creek Ossuary, Iowa (13PM65)

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Physical and cultural remains salvaged from the Rock Creek Ossuary (13PM65) by the Northwest Iowa Archaeological Society are described in detail. The site is interpreted as the place of reburial of at least 27 individuals who died over an unspecified

period of time. Afflictions including two projectile point injuries are discussed along with an interesting effigy pendant made of catlinite. Mill Creek and/or Great Oasis cultural affiliation is suggested on the basis of cordmarked pottery, numerous *Anculosa* shell beads and the close proximity of late prehistoric habitation sites.

INDEX DESCRIPTORS: Iowa Archaeology; Physical Anthropology.

Salvage operations were conducted by the Northwest Iowa Archaeological Society during June and July of 1972 at the Rock Creek Ossuary after it was learned that the site had been vandalized and was in danger of destruction. The site consisted of a concentration of fragmentary human remains on a hilltop overlooking Rock Creek in Sioux Township, Plymouth County, Iowa (Figure 1).

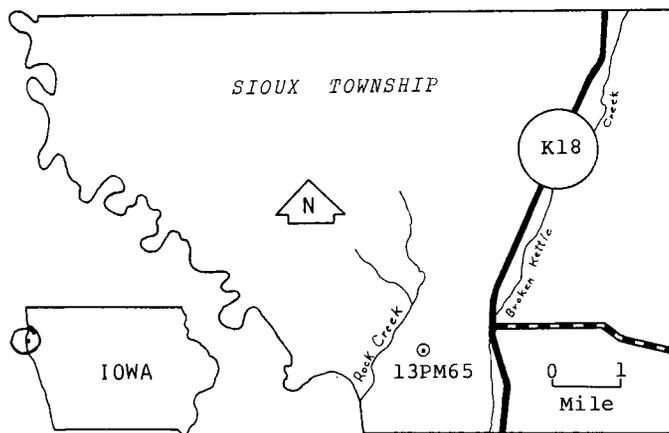


Figure 1. Map of Sioux Township, Plymouth County, Iowa, showing location of the Rock Creek Ossuary (13PM65). Redrawn after Iowa Highway Commission May (1966).

Previous looting was evidenced by a rounded depression measuring approximately five feet in diameter and nearly two feet deep (Figure 2). Elsewhere on the hilltop, a shovel had apparently been used to turn over the sod in a few places. It appeared that many of the bones uncovered were left at the scene, as several hundred fragments were found on the surrounding slopes.

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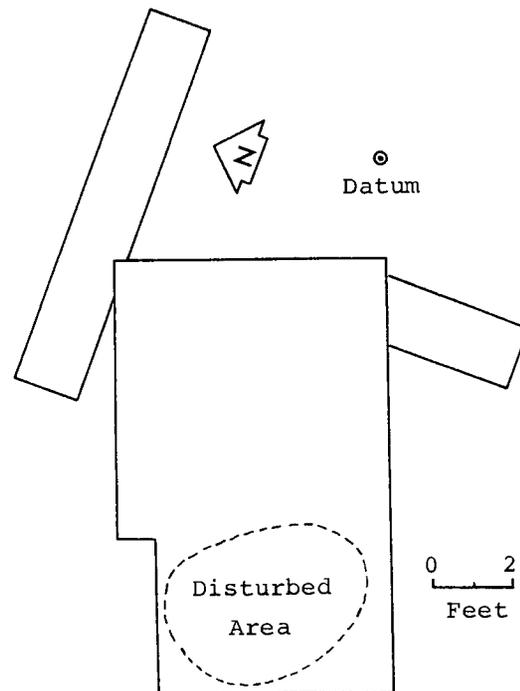


Figure 2. Plan of excavations at the Rock Creek Ossuary (13PM65).

### EXCAVATIONS

Initial work at the site consisted of screening backdirt from the disturbed area and straightening the walls of the original pit. It was found that bones *in situ* were quite fragmentary and in no discernible order. Subsequently, a datum point was established and the excavation extended to the northeast. Due to the fragmentary nature of the bones and the random character of the deposit, the excavation was not carried out by means of arbitrary levels; rather the position of larger fragments and artifacts was established by triangulation and the depth recorded. The bone deposit extended to a maximum depth of 24 inches where the soil changed

from mottled brown to sterile tan. All material from the excavation was sifted through a quarter-inch mesh screen.

When the site was revisited during July a pattern of test trenches was excavated on a N-S E-W axis around the excavation unit (Figure 2). These trenches indicated that the ossuary was localized and it became apparent that most of the bones had been recovered. This view was substantiated by a thorough probing of the hilltop, which produced negative results.

HUMAN SKELETAL MATERIAL

The total of 10,037 bones, bone fragments and loose teeth recovered represented numerous individuals ranging from infancy to old age. Analysis of this material was undertaken in an effort to determine the number and age of individuals and to record as many pathologies, anomalies and injuries as could be observed. Table 1 enumerates all bones and bone fragments recovered. Tables 2 and 3 provide a more detailed analysis of paired bones indicating the number and relative ages of individuals in the population by element.

The best estimates of population size came from the analysis of the mandibular fragments and the left innominates. Twenty-three mandibles (with chin and genial tubercles) were counted, as follows: 3 infants, 10 young children, 10 adults. Nineteen individuals were tabulated on the basis of the left ilium, as follows: 1 infant, 7 young children, 11

TABLE 1. BONES AND BONE FRAGMENTS FROM 13PM65

Skull	
Cranial Fragments	1562
Mandibular Fragments	82
Vertebral Column	
Cervical Vertebrae	29
Thoracic Vertebrae	51
Lumbar Vertebrae	53
Sacral Fragments	14
Miscellaneous Vertebral Fragments	1258
Rib Fragments	1954
Sternum	
Manubria/Bodies	7
Fragments	17
Shoulder Girdle	
Clavicles	25
Scapulae	108
Upper Limbs	
Humeri	75
Radii	28
Ulnae	28
Innominate	
Ilium	28
Ischia	19
Pubes	7
Miscellaneous Fragments	280
Lower Limbs	
Femora	55
Tibiae	67
Fibulae	27
Patellae	20
Extremities	581
Unidentified Fragments	164
Unidentified Shaft Fragments	459
Unidentifiable Fragments and Splinters	2858
TOTAL	9856

TABLE 2. ANALYSIS OF PAIRED BONES FROM 13PM65 TO SHOW NUMBERS OF MATURE INDIVIDUALS

Element	Right		Left		Fragments
	Proximal	Distal	Proximal	Distal	
Shoulder Girdle					
Clavicles	1	5	3	5	5
Scapulae	11	-	6	-	86
Upper Limbs					
Humeri	2	6	3	3	33
Radii	-	1	2	2	9
Ulnae	5	1	6	3	7
Innominate					
Ilium		8		13	
Ischia		4		8	
Pubes		-		3	
Misc.					280
Lower Limbs					
Femora	2	1	-	1	25
Tibiae	1	1	3	4	39
Fibulae	1	1	1	1	22
Patellae		1		4	

TABLE 3. ANALYSIS OF PAIRED BONES FROM 13PM65 TO SHOW NUMBERS OF IMMATURE INDIVIDUALS

Element	Right		Left		Fragments
	Proximal	Distal	Proximal	Distal	
Shoulder Girdle					
Clavicles	1	1	-	2	-
Scapulae	-	-	5	-	-
Upper Limbs					
Humeri	3	6	3	5	11
Radii	1	3	2	3	5
Ulnae	5	1	-	-	-
Innominate					
Ilium		1		6	
Ischia		3		4	
Pubes		-		4	
Lower Limbs					
Femora	5	7	9	4	-
Tibiae	3	11	3	2	-
Fibulae	-	-	-	-	1
Patellae		-		1	-

adults. The innominate analysis indicated the presence of one adult above the count based on the mandible. Three older children (8-15 years of age) were recognized on the basis of the analysis of maxillary fragments. Taken together, therefore, the minimum population estimate for the ossuary has been set at 27 individuals.

Particular attention was given the mandibular and maxillary fragments bearing teeth. Tables 4-6 describe this material and provide data regarding tooth loss, tooth wear and dental pathologies. Table 7 shows the results of the analysis of 181 detached teeth. Together these tables serve to indicate that such dental disorders as caries, calculus deposits and tooth loss were rather common within the population. Several teeth were observed to have hypercementosis, but many may represent a single individual.

SKELETAL PATHOLOGIES AND ANOMALIES

One atlas shows some fusion of the odontoid process of the axis. A moderate amount of arthritis was found on one

cervical and two lumbar vertebrae. A slight amount of lip-ping was observed on five additional lumbar elements. Nine thoracics show a moderate degree of asymmetry to the right side along with a slight degree of arthritis.

Small septal apertures (supra-condyloid foramina) were found on the humerus of one adult and one child. Two additional humeri representing different individuals were tabulated with medium to large apertures.

TABLE 4. DESCRIPTION OF FRAGMENTARY ADULT MANDIBLES

Mandible Number	Teeth Present	Ante-Mortem Tooth Loss	Post-Mortem Tooth Loss	Remarks
1	1st, 2nd left premolar, 1st left molar	2nd left molar	all others	mandible nearly complete; moderate tooth wear
2	2nd right premolar	1st left molar	all others	mandible nearly complete; moderate tooth wear
3	none	1st, 2nd, 3rd right molars	all others	left portion of mandible missing from 1st premolar back
4	1st left molar, 3rd left molar (unerupted)	none	all others	right portion of mandible missing from canine back; individual less than 21 years of age
5	left canine, 1st left premolar	2nd left premolar, 1st, 2nd left molars	all others	right portion of mandible missing; slight calculus; moderate wear
6	1st, 2nd, 3rd left molars	none	all others	right portion of mandible missing; slight calculus; moderate wear
7	1st, 2nd right premolars	1st, 2nd, 3rd right molars	all others	left portion of mandible missing from right canine back; moderate calculus; advanced wear; periodontal disease
8	none	1st, 2nd right molars	all others	left portion of mandible missing
9	none	all others	left, right canine	right portion of mandible missing from canine back; individual of advanced age

TABLE 5. DESCRIPTION OF FRAGMENTARY IMMATURE MANDIBLES

Mandible Number	Estimated Age	Teeth Present	Post-Mortem Tooth Loss	Remarks
10	3-4 yrs	deciduous: 1st, 2nd left molars, 1st right molar; permanent: 1st left molar (unerupted)	all others	right portion of mandible missing from 2nd deciduous molar back; left ramus missing
11	3-4 yrs.	deciduous: 1st, 2nd right molars; permanent: 1st right molar (unerupted)	all others	left portion of mandible missing from canine back; left ramus missing
12	3-4 yrs.	permanent: lateral left incisor (unerupted), 1st left molar (unerupted)	all others	right portion of mandible missing from medial incisor back; left ramus missing
13	18+ mos.	deciduous: 2nd left molar (unerupted)	all others	right portion of mandible missing; left ramus missing
14	3-4 yrs.	deciduous: 2nd left molar	all others	right portion of mandible missing; left ramus missing
15	18+ mos.	deciduous: 1st right molar, 2nd right molar (unerupted)	all others	right portion of mandible present from 1st molar back; right ramus missing
16	6 yrs.	permanent: 1st left molar, 2nd left molar (unerupted)	all others	left portion of mandible present from 2nd deciduous molar socket back
17	6-18 mos.	deciduous: left lateral incisor (unerupted)	all others	left portion of mandible missing from medial incisor socket to 2nd deciduous incisor socket

TABLE 6. DESCRIPTION OF MAXILLARY FRAGMENTS

Maxilla Number	Estimated Age	Teeth Present	Post-Mortem Tooth Loss	Remarks
1	adult	1st, 2nd left premolars, 1st left molar	all others	left maxillary fragment from medial incisor through 1st molar; slight calculus; advanced wear; neck cavity on 1st premolar
2	12-15 yrs.	1st, 2nd left molars, 3rd left molar (unerupted)	all others	right portion of maxilla missing; slight calculus
3	8 yrs.	deciduous: 1st, 2nd right molars; permanent: lateral incisor (unerupted) 2nd premolar (unerupted), 1st molar	all others	left portion of maxilla missing; lateral incisor erupting in roof of mouth behind deciduous incisor sockets
4	3-4 yrs.	deciduous: 1st, 2nd right molars; permanent: medial incisor (unerupted), 1st right molar (unerupted)	all others	left portion of maxilla missing
5	12 yrs.	1st right molar, 2nd right molar (newly erupted)	all others	right maxillary fragment from 1st permanent molar back
6	4 yrs.	deciduous: 1st left molar; permanent: medial incisor (unerupted), premolar (unerupted)	all others	left maxillary fragment from medial incisor to 2nd deciduous molar socket
7	4-6 yrs.	deciduous: 1st left molar	all others	left maxillary fragment from lateral incisor to 2nd deciduous molar
8-9	two small maxillary fragments with unerupted permanent medial incisors			

TABLE 7. DETACHED TEETH

ADULT TEETH	No.	Unerupted Crowns	Newly Erupted Crowns	Wear	Caries	Calculus	Hypercementosis
*Incisors							
Medial	12	2	1	moderate: 3; advanced: 1; extreme: 1 with loss of crown	1 small neck cavity	slight: 2	1
Lateral	28	1	1	moderate: 2; advanced: 11; extreme: 7	1 lateral neck cavity	slight: 7; moderate: 8	6
Canines	18	5	1	moderate: 1; advanced: 6; extreme: 1	—	slight: 2; moderate: 2	6
Premolars	23	4	—	moderate: 6; advanced: 3; extreme: 1	1 extremely large cavity destroying most of crown	slight: 8; moderate: 1	2
Molars	39	14	11	moderate: 4; advanced: 1; extreme: 2	1 large cavity destroying most of crown; 1 small neck cavity	slight: 6	3
Unidentified Crowns	12	5	—	—	—	—	—
Unidentified Roots	1	—	—	—	—	—	—
DECIDUOUS TEETH	No.	Unerupted Crowns	Newly Erupted Crowns	Wear	Caries	Calculus	Hypercementosis
*Incisors							
Medial	4	—	4	—	—	—	—
Lateral	2	—	—	—	1 large cavity on anterior surface; 1 large cavity on biting surface	—	—
Canines	9	—	2	—	—	—	—
Molars							
First	16	—	5	slight: 1	2 large cavities on biting surface	—	—
Second	17	—	3	slight: 2	—	—	—

\* All lateral and medial incisors display slight to moderate degrees of shoveling.

## INJURIES

Ante-mortem injuries include two projectile point wounds. One point was found imbedded in the right inferior side of the centrum of a thoracic vertebra. The second point was imbedded in the proximal end of the right clavicle in a superior position (Figure 3). The angles of both points indicate that the individuals were probably not in a standing position at the time the injuries were incurred. Neither element showed any evidence of healing, either superficially or in X-rays, indicating that death accompanied the injuries. On the basis of the relative sizes of the bones, it is possible that both belonged to the same individual. In this regard, both projectile points appear to be made of the same black chert and both are side-notched forms.

Injuries assumed to be post-mortem include one fragmentary right humerus with a deep groove or cut on the medial side of the head and two immature femora (distal epiphyses) with deep cuts on the articular surfaces. None of the above-mentioned cuts can be attributed to accidents during excavation. In addition, one shaft segment of a femur bears what appear to be hack marks and two cranial fragments have burned interiors.

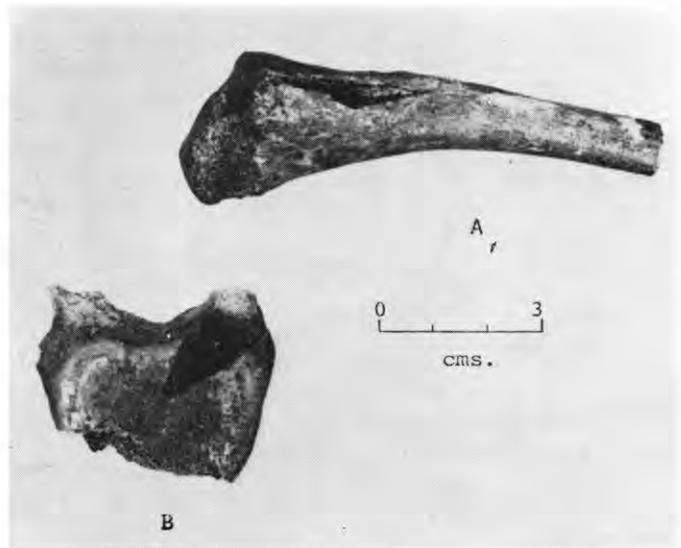


Figure 3. Projectile point injuries: a. right clavicle; b. thoracic vertebra.

## ARTIFACTS

1. Catlinite effigy pendant (Figure 4a). Measurements in mm.: 45.5 x 15 x 4.5. Found in center of excavation unit 22 inches below surface. Biconical perforation 2 mm. from edge.
2. Catlinite disc fragment (Figure 4b). Biconical perforation 1.5 mm. from edge. Estimated diameter 37 mm., thickness 3 mm.
3. Two cordmarked bodysherds. One shoulder portion (Figure 4c) roughly resembles Great Oasis forms known in the Rock Creek region. Sand temper.
4. Perforated deer phalanx (Figure 4d). Proximal end removed.
5. Projectile point midsection. Tan chalcedony.
6. Expanding flake. Tan chalcedony with cortex present.
7. Cut and shaped bird bone tube. Fragmentary. Length 39.5 mm. Diameter 9.5 mm.
8. Worked shell rectangle. Possibly a pendant with perforated end missing. Manufactured from clam shell. Measurements: 16 x 7 x 1 mm.
9. Small lump of orange daub.
10. Two side notched projectile points (Figure 3 a-b). Point in thoracic vertebra found near center of excavation unit 16 inches below surface. Clavicle with point was discovered during the laboratory sorting process. Measurements not available.
11. Eleven *Anculosa praerosa* shell beads. Ten bear one ground facet; one has two ground facets.
12. One *Campeloma decisum* shell bead. Perforation for suspension produced by grinding outer whorl.

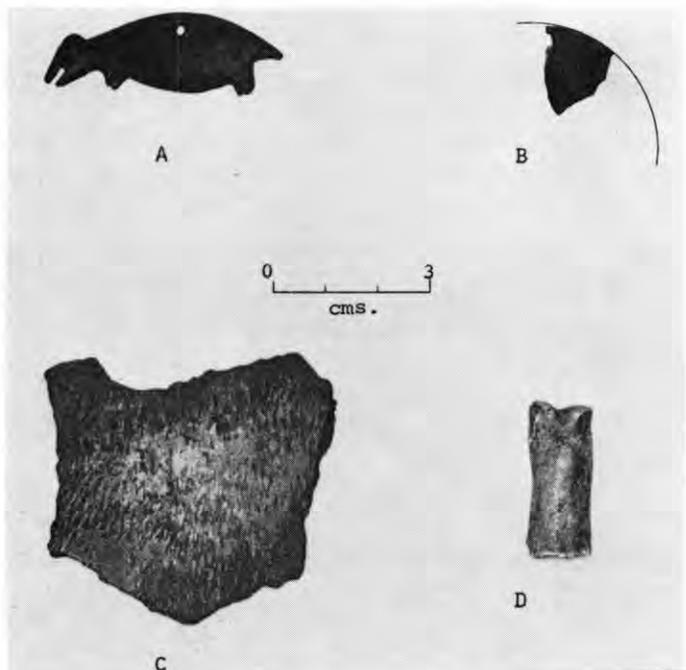


Figure 4. Artifacts from 13PM65: a. catlinite effigy pendant; b. catlinite disc fragment; c. cordmarked bodysherd; d. perforated deer phalanx.

## DISCUSSION OF ARTIFACTS

The catlinite effigy pendant recovered is quite similar to

a fragmentary specimen (back one-half) found on the surface of the Kimball site (13PM4). The Kimball effigy is not as well made and the material is a dark red slate, but the shape and method of decoration nearly duplicated the Rock

Creek specimen (see Anderson 1973:3 for illustrations). Since the Kimball site is a Mill Creek component it is reasonable to suggest Mill Creek affiliation for individuals at the Rock Creek Ossuary. However, it should be noted that Mill Creek and Great Oasis share many tool types and decorative motifs on ceramics so it is not possible to exclude the latter from consideration. Such artifacts as cord roughened ceramics, perforated deer phalanges, side notched projectile points and *Anculosa* shell beads were known to both groups.

The *Anculosa* beads (*Anculosa praerosa*[Say]) are of interest as items of trade. They are perforated for suspension by grinding a facet in the last whorl adjacent to the aperture. Many are so heavily ground that precise identification to the species level is impossible. Nevertheless, it seems likely that they do represent a single group from the same source. The very considerable amount of variation in the assemblage deserves some explanation.

It should be recalled that these are exotic species for Iowa. Except for their presence in the Blue and Wabash Rivers of Indiana, their present distribution centers on a stretch of the Ohio River from Cincinnati to Golconda, Illinois, and a series of southern tributaries to the Ohio in Tennessee and Alabama. The detailed distribution may be found in Goodrich (1929:1-17). Since these shells were clearly brought to western Iowa from a very considerable distance, it is logical to assume they were highly valued. It is possible that when the shells became broken or wore through the perforation, the facet was reground with the result that the beads gradually became smaller. In this continuing process of reuse, more and more of the total surface may have been ground. The consequences of this grinding process may be seen when the size range of the shells is tabulated (Table 8).

The single example of *Campeloma decisum* (Say) represents a local variety of aquatic shell. It has been perforated for use as a bead in precisely the same manner as the *Anculosa* shells, for it bears an irregular perforation about 3 mm. in maximum dimension that has been ground on the last whorl near the aperture. Surely this is a local attempt to imitate the exotic beads, though the *Campeloma* shell is much thinner and lacks the interesting coloration of the *Anculosa* shells in fresh condition.

NON-ARTIFACTUAL MATERIAL

1. Three unmodified terrestrial gastropods: two *Succinea* sp.; one *Anguispira alternata* (Say). All were probably accidental inclusions and may have been in the soil prior to aboriginal construction of the ossuary.
2. Forty-seven small fragments of clam shell.
3. Nine small rodent bones, probably accidental inclusions.

TABLE 8. SIZE RANGE, *Anculosa praerosa* BEADS, 13PM65

<u>Maximum diameter</u>	<u>Maximum thickness</u>
8 mm.	5 mm.
9 mm.	5 mm.
10 mm.	6 mm.
11 mm.	4 mm.
14 mm.	9 mm.
14 mm.	9 mm.
15 mm.	11 mm.

INTERPRETATION

The fragmentary bones and rather complete admixture of elements indicate that the skeletal material was redeposited from another burial area in prehistoric times. Prior to reburial, bones could not have been on the surface for an extended period, as none other than those recently disturbed show any evidence of bleaching or erosion.

Aboriginal breakage of the remains may have been intentional, as only two long bones (immature) from the entire assemblage remained unbroken and only one additional long bone (an ulna) could be reconstructed. Certainly no care was taken to prevent breakage or disassociation of elements at the time of reburial.

At least one and possibly two individuals met with violent death. The angles at which the points entered indicate that the individuals were probably not in a standing position when shot.

The analysis of paired bones indicates that 45.4 per cent of the elements studied were immature. Similarly, 59 per cent of the 27 individuals in the cemetery population were found to be sub-adults. Together these figures indicate that mortality among the young was high—as is often the case under aboriginal living conditions.

In certain cases, differential treatment of the corpse appears to have been in effect at the time of death. Such things as the two burned skull fragments and cut bones tend to bear out this observation.

One of the earliest accounts of excavations in a Mill Creek culture midden, the Broken Kettle site in Plymouth County, also contains a report on an ossuary in the same region (Stafford 1906:101-2). The reference is to a burial area one-half mile east of the midden, though it is mentioned that the entire bluff in all directions contains burials. The ossuary comprised an area three feet square containing the disarticulated remains of six individuals. No grave goods were recovered except for a few beads found on the surface rather than in association with the bones. Ellison Orr (1963, Vol. XI:49-53) describes two additional ossuaries in this region. One consisted of an area eight feet square tightly packed with secondary burials in a layer six inches thick. Only a fragmentary celt was found with the bones. A second burial area contained three concentrations of bundle burials in a pit seven by ten feet at twenty-four inches below the surface. A bone fishhook and a chipped stone drill were found with the burials. More recent excavations by David Lilly and Roger Banks (1965) located a cemetery area only 1,400 feet east of the Broken Kettle midden. In a restricted area, twelve primary burials, both extended and flexed, were located near a mass secondary burial. The latter, in an area forty-eight by sixty inches, contained at least ten individuals, but this excavation was not carried either to the horizontal or vertical termination of the bone mass. *Anculosa* beads, shell disc beads, bone awls and scoria abradors are among the objects found with the burials and are attributed to Mill Creek manufacture.

Though the weight of evidence seems to suggest Mill Creek cultural affiliation, the common possession of many of the cultural traits by the Great Oasis culture requires that it be considered as an alternative possibility for some or all of the ossuaries. Further, there are a number of Late Prehistoric habitation sites in the vicinity that also must be considered. Since grave goods are scarce, there is clearly a need

for comparable detailed analyses of skeletal material to provide an alternative lead to cultural affiliation.

So far as the specific history of this site is concerned, little can be said of the events that took place prior to the establishment of the ossuary. It seems reasonable to assume that the site was the ultimate burial place for individuals who died over an unspecified period of time. It is not felt that the injuries noted are sufficient evidence to suggest that nearly an entire population was suddenly and violently exterminated.

#### ACKNOWLEDGMENTS

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