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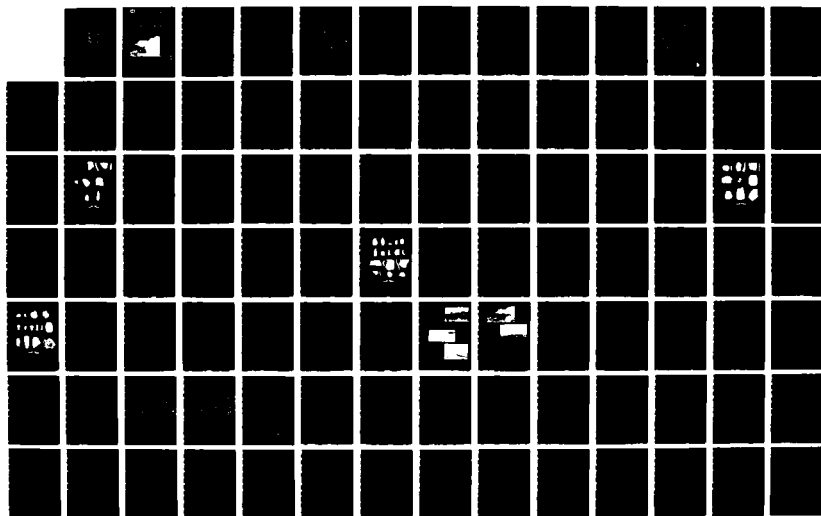
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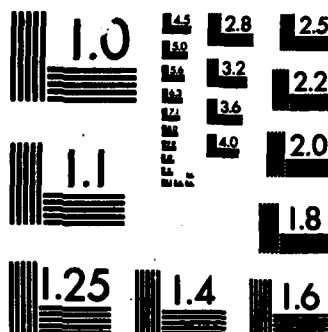
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US Army Corps
of Engineers
Kansas City District

Perry Lake, Delaware River, Kansas

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Archeology Department
Kansas State Historical Society

AD-A147 651

Cultural Resources Sample Survey of Shoreline Areas



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September 1982

By Thomas A. Witty, Jr.

DACW41-79-M-8095

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bore two components, Grasshopper Falls phase and a Middle Ceramic manifestation with Middle Mississippian elements, probably Nebraska phase. Two sites were not identified culturally. None of the sites demonstrated potential to meet the criteria for eligibility to the National Register of Historic places.

The significant result of the survey was the location of sites on valley slopes and high terraces above the flood plain in sections of the valley where sites had not been found on the flood plain in previous surveys.

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CULTURAL RESOURCES

SAMPLE SURVEY OF SHORELINE AREAS

PERRY LAKE, DELAWARE RIVER, KANSAS

by

**Thomas A. Witty, Jr.
Archeology Department
KANSAS STATE HISTORICAL SOCIETY**



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Prepared for:

**U.S. Army Engineer District, Kansas City
Purchase Order No. DACW41-79-M-8095**

September 1982

ABSTRACT

A sample archeological survey of the Perry lake project was carried out by the Kansas State Historical Society for the Corps of Engineers, Kansas City District during July and August of 1979. Testing of selected sites was completed in November of 1979. The areas studied were some 20 miles of shoreline in four segments adjacent to Sunset Ridge, Paradise Point and the Perry State Park public use areas. The vertical extent of the survey was from 889-900 ft m.s.l. at the edge of the multipurpose pool level.

Ten previously unrecorded sites were identified and four known sites were revisited. Eleven sites were single component habitations identifiable as belonging to the Grasshopper Falls phase of the Plains Woodland. The twelfth site bore two components, Grasshopper Falls phase and a Middle Ceramic manifestation with Middle Mississippian elements, probably Nebraska phase. The two remaining sites were not identified culturally. All of the sites were extensively eroded by water action. On the basis of the evidence none of the sites demonstrated potential to meet the criteria for eligibility to the National Register of Historic places.

The significant result of the survey was the identification of site locations on the valley slopes and high terraces above the flood plain in sections of the valley where sites were not found on the flood plain.

TABLE OF CONTENTS

Abstract	11
Introduction	1
The Perry Lake Setting	3
Environment	3
Archeology and Cultural History	5
Prehistoric Cultural Interpretations	6
Historic Period	9
1979 Sample Shoreline Survey	11
Research Design	11
Survey Methodology	13
Survey Findings	14
Identified Archeological Sites	16
14JF358	16
14JF359	18
14JF360	18
14JF361	22
14JF362	28
14JF363	35
14JF364	37
14JF365	40
14JF366	42
14JF367	50

Previously Recorded Sites Revisited	51
14JF34	52
14JF37	52
14JF320	52
14JF453	53
Survey Summary and Conclusions	56
Resource Management Considerations	59
References Cited	65
Glossary	70
Appendix A Scope of Work	83
Appendix B Personnel Information	90

ILLUSTRATIONS

Figures

1. Perry Lake and related areas in eastern Kansas. 2
2. Kansas cultural sequence. 7

PLATES

Plates

1. Selected artifacts from 14JF360 and 14JF361 20
2. Selected artifacts from 14JF362 31
3. Selected artifacts from 14JF364, 14JF365 and
14JF366 39

4. Selected artifacts from 14JF366	47
5. General site views 14JF358, 14JF359 and 14JF361 . .	54
6. General site views 14JF364, 14JF366 and 14JF367 . .	55

TABLES

Table

1. Recommendations for new sites on previously recorded sites revisited during the sample Perry Lake shoreline survey	61
---	----

MAPS

Map

1. Archeological resources base map, Perry Lake, Kansas with 1979 sample shoreline survey area . . .	63
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INTRODUCTION

In March of 1979, the Kansas State Historical Society accepted Purchase Order No. DACW41-79-M-0895 from the U.S. Army Engineer District, Kansas City to carry out an archeological survey of approximately 20 miles of shoreline in selected locations at Perry lake. This work was to be performed as called for in the National Historic Preservation Act of 1966 (PL 89-665) and is authorized for funding under Public Law 86-523 as amended by Public Law 93-291). Completion of this investigation will provide documentation evidencing compliance with Executive Order 11593 "Protection Enhancement of a Cultural Environment" dated 13 May 1971, Section 2(a).

Specifically, the work was to be an intensive archeological survey of specified shoreline areas in the general vicinity of the Paradise Point and Sunset Ridge public use areas and the Perry State Park between elevations 889 ft m.s.l. and 900 m.s.l. (Figure 1). The work was to be conducted scientifically as based on research design stated in 33 CFR 305.18 with the field and laboratory methods in accordance with proposed 36 CFR 66.

The writer acted as project director and principal investigator in supervising the survey and actively participating in the testing of selected sites. Milton Reichart served as the survey archeologist and conducted the actual inventory survey activities and initial site recordings. Because of delays in state personnel hiring procedures, the fieldwork was not begun until July 18, 1979 with the survey portion being completed one month later on August 18th. Testing of three selected sites was accomplished in November of 1979. High water and later fluctuations in the overall pool level of the Perry lake were a problem and ultimately dictated a second inspection of one portion of the designated survey area to gain the result presented in the following pages.

All of the resulting records have been triplicated and the photographs, slides and specimens catalogued and will be curated at the Archeology Department of the Kansas State Historical Society.

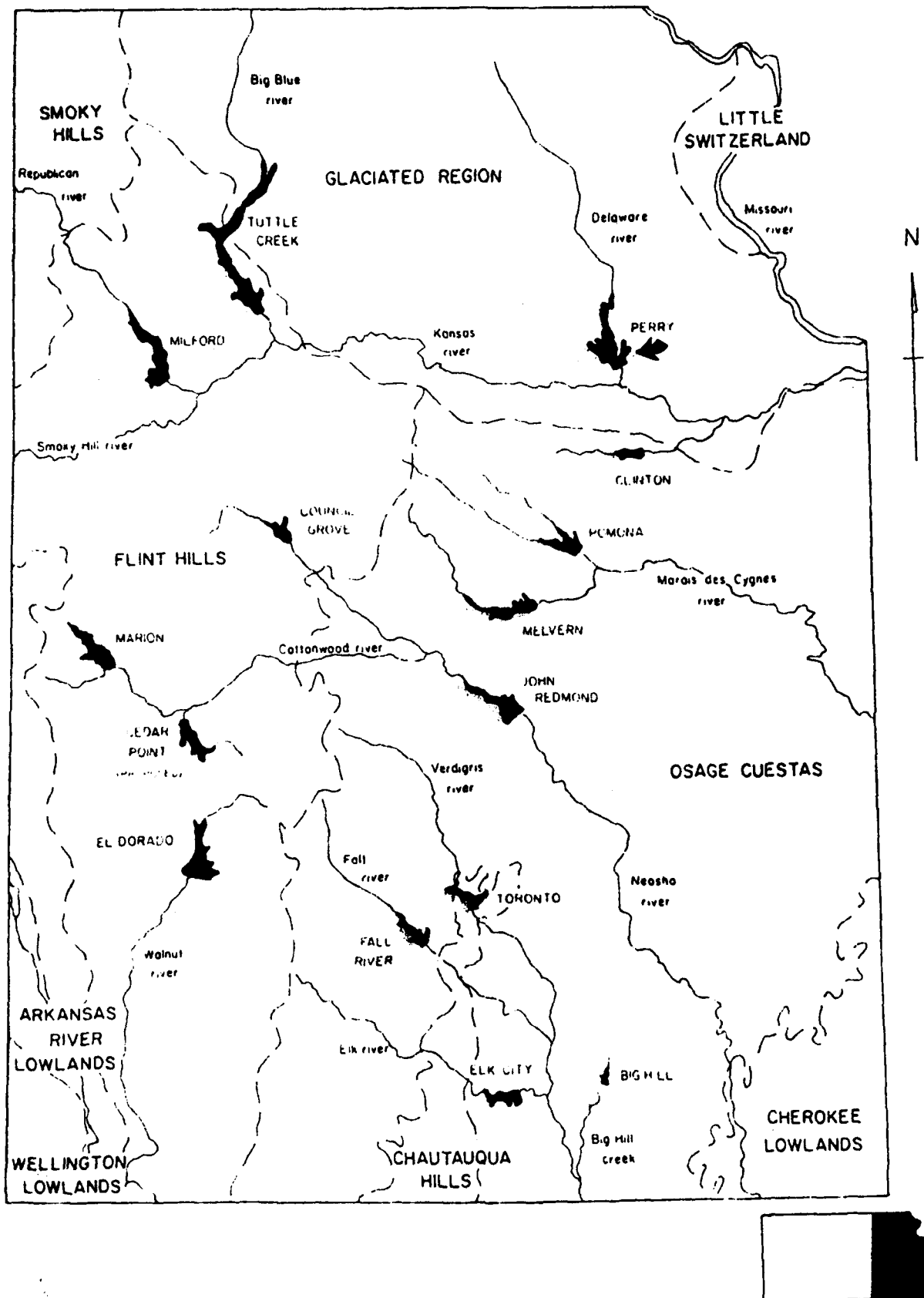


FIGURE 1 Perry Lake and related areas in eastern Kansas

THE PERRY LAKE SETTING

The Perry lake was constructed, beginning in 1964, on the Delaware river approximately 2 miles northwest of Perry in Jefferson county, Kansas in the northeast portion of the state. Construction was authorized by the Flood Control Act of 1954 (PL 83-780) as a unit of the Missouri River Comprehensive Plan for flood protection of the Kansas river and tributaries. Under provisions of the Water Supply Act of 1968, the State of Kansas requested 150,000 acre feet of storage to be included in the project for future water supply and other multipurpose uses. Under the authority of Section 4 of the Flood Control Act of 1944, recreational development became another aspect of the lake's operation. The multipurpose pool, 891.5 ft m.s.l. covers some 12,200 acres and extends upstream approximately 24 miles. Flood control pool, 920.6 ft m.s.l. covers an area of some 25,342 feet. The flood pool as well as adjacent project lands occupy some 27,000 acres above the multipurpose pool. Actual multipurpose regulation of the project began in January, 1969 (U.S. Army Engineer District, Kansas City, Missouri 1975).

ENVIRONMENT

Physiographically, Perry lake is on the southern edge of the Dissected Till Plains section of the Central Lowlands (Schoewe 1949). That location within the Dissected Till Plains results in the presence of glacial till in many parts of the project area. Thus, there are present rock forms, e.g., quartzites, etc. within this particular area of the state that are of natural distribution rather than cultural. Other materials from which soil was derived would be the sedimentary outcropping rocks of limestone, sandstone, shale and the presence of loess. Principal soil series occurring are Burchard, Summit, Sogn, and Grundy. These soils are moderately deep, dark loams over a moderately friable, silty or clayey subsoils. The soils have a slight to medium acidity. Notable is the fact, when devoid of cover, the surface soils are subject to sheet and gully erosion (U.S. Army Engineer District, Kansas City, Missouri 1975).

Geologically, the region is of Pennsylvanian age with deposits of limestone, shale and sandstones gently dipping to the west upon which differential weathering has produced bench escarpments in the region. Continuous deposit

of loess overlies some of the residual bedrock soil with the drainage divides mantled with up to 40 feet of the glacial drift.

The regional topography consists of rolling uplands, eroded valleys and meandering streams. Within the lake proper, the lower area of the valley is relatively narrow and deeply incised, bordered by steep and irregular hills. In the upper reaches of the lake, the slopes are gentler, sometimes wooded and cultivated.

The Delaware river, upon which the lake has been constructed, has its headwaters in Nemaha county, some 10 miles south of the Nebraska-Kansas border. The river flows slightly southeast across the corners of Brown and Atchison county and then turns south and continues through Jefferson county to its confluence with the Kansas river 1.5 miles south of Perry. Tributary streams entering the Delaware within the limits of the lake area are Slough, Brush, Walnut, Coal, Cedar, Duck, French and Rock creeks.

The hills bordering the valley are often too rough for cultivation and are used for grazing of livestock. In contrast the valley floor, prior to the construction of the lake, was intensively cultivated. There is abundant timber along the valley slopes and in the narrow borders of the converging streams. The chief varieties of trees are oak, walnut, hickory, ash, hackberry, elm, maple, cottonwood, and more recently, some cedar (Witty 1964).

The natural vegetation area around the Perry lake is within the Tall grass prairies with the major division being the Bluestem prairie (Kuchler 1974). However, since widespread Euro-American settlement, much of the prairie lands have been converted to crop land or "tame" pasture land (U.S. Army Engineer District, Kansas City, Missouri 1975). Predominant native grasses which still survive in the area include Big and Little bluestem, Indiangrass, Switchgrass, Prairie dropseed, and various forbs and deep rooted legumes. The more recent grasses to be found in the area include Brome grass, Fescue, Orchard grass and other cool season grasses.

The climate, as recorded for modern times, would reflect a typical continental situation with warm summers and

moderately cold winters. The average summer temperature would be 75 degrees, although temperatures of above 100 degrees Fahrenheit have been recorded in months between May and September. The mean winter temperature is 34 degrees Fahrenheit. The average growing season is about 170 days and the annual rainfall for the region is about 34 inches. Most precipitation occurs during late spring and summer with the winters relatively dry.

Faunal varieties prior to the historic Euro-American settlement were relatively abundant in the area. Large mammals consisted of elk, white-tailed and mule deer, bison, black bear, cougar, wild cat, and timber wolf. Smaller forms would include the gray and red fox, raccoon, opossum, the gray, fox, and flying squirrel, beaver, otter, muskrat, and cottontail rabbit. Birds represented would be wild turkey, prairie chicken, ruffed grouse, and quail, with passenger pigeon and Caroline parakeet also present. The larger streams would have yielded abundant edible fish and shellfish (Wedel 1959).

ARCHEOLOGY AND CULTURAL HISTORY

The Perry lake region has received extensive and ongoing formal and informal cultural resources inventory work. Initially, this was in the form of appraisal surveys, testing and investigative excavations by the Kansas State Historical Society and the Museum of Anthropology, University of Kansas in cooperation with the National Park Service. These formal investigations by the institutions were preceded and later supplemented by the activities of Milton Reichart initially working as an amateur, but who since, through his own energies and participation in training programs offered by the Kansas State Historical Society, has developed technical skills and a professional viewpoint for the identification and study of materials and cultural complexes.

The most recently conducted study was a preliminary management plan of the cultural resources for Perry lake by the Iroquois Research Institute (1977), which constituted essentially a review and compilation of the earlier work supplemented by some field checks to provide, up to that time, a complete inventory listing. The Iroquois report provides a thorough review of the archeological work within the project area (1977:9-14).

The survey activities began in 1962 when the writer carried out the original appraisal of the archeological resources for the then proposed project (Witty 1964). This survey was supplemented in 1965 by a student volunteer survey, which was later continued during a season of excavation by the Museum of Anthropology, University of Kansas. The graduate student completing the survey work was Jack Schock under the overall supervision of Dr. Carlyle S. Smith (Jones 1968). Subsequent survey has been carried out by Milton Reichart on a voluntary basis. Beginning in 1968, Reichart began filling out forms and gathering materials which were sent to the Kansas State Historical Society for verification and recording. Records inventory continues to this date. Prior to the survey reported in this document, 157 sites have been identified within the project limits.

Intensive investigative excavations were first done on the project in 1965 under contract with the National Park Service. At the request of Carlyle Smith of Kansas University, the Kansas State Historical Society worked within the project area north of Ozawie, and the Museum of Anthropology, University of Kansas worked on those in the southern part (Nickel 1973; Jones 1968). A second period of excavations took place in 1968 when James O. Marshall, Society archeologist, worked on sites in the Valley Falls area (Reynolds 1978). In 1965, Dr. William Bass, a physical anthropologist from the University of Kansas, directed a crew in the specific investigation of two burial mounds located on the bluff which would form the western end of the Perry dam (Bass, McWilliams and Jones 1967).

Prehistoric Cultural Interpretations

The archeological resources of the Perry lake area have received enough study to identify, within the valley, a tentative cultural sequence as well as gather data to define and present certain specific manifestations. The earliest component in the valley is represented by the finds of two Plainview points on gravel bars. The first was reported to the writer in 1964 as being in the Half Mound vicinity and the second was collected by Reichart for the Society and was found south of Valley Falls (Reichart 1972). Neither specimen exhibited the extensive polish such as would be present if the piece had been in the sand and gravel for some time. Thus, the wide spacing, over eight miles, of two

KANSAS CULTURAL SEQUENCE

ARCHAEOLOGICAL PERIOD	TIME ESTIMATE	PHYSIOGRAPHIC PROVINCES						SUBSISTENCE PATTERN
		Dissected Till Plains	Osage Country	Flat Mills Uplands	Arkansas River Lowlands	Dissected High Plains	High Plains	
HISTORIC	A.D. 1870	IMMIGRANT TRIBES KANSAS	IMMIGRANT TRIBES OSAGE KANSAS	IMMIGRANT TRIBES OSAGE KANSAS	WICHITA COMANCHE CHEYENNE KIOWA KIOWA-APACHE	CHEYENNE SIOUX COMANCHE PAWNEE	COMANCHE CHEYENNE ARAPACHO KIOWA KIOWA-APACHE SIOUX PAWNEE	EURO-AMERICAN SETTLEMENT HORSE NOMADS HUNTING BISON SOME HORTICULTURE
	A.D. 1800	KANSAS ONEOTA	OSAGE WICHITA NEOSHO	OSAGE KANSAS NEOSHO GREAT BEND ASPECT	KIOWA KIOWA-APACHE COMANCHE WICHITA GREAT BEND ASPECT	KANSAS PAWNEE WHITE ROCK ASPECT GREAT BEND ASPECT	PAWNEE COMANCHE CUARTELEJO APACHE DUSMAL RIVER ASPECT	HUNTING, HORTICULTURE, AND GATHERING
MIDDLE CERAMIC village farmer	A.D. 1800	NEBRASKA PHASE CLINTON PHASE STEED-KISKER PHASE POMONA VARIANT	CLINTON PHASE POMONA VARIANT	SMOKY HILL ASPECT POMONA VARIANT	PRATT COMPLEX BLUFF CREEK COMPLEX	SOLOMON RIVER PHASE OF THE UPPER REPUBLICAN SMOKY HILL ASPECT	PRATT COMPLEX UPPER REPUBLICAN	HUNTING, HORTICULTURE AND GATHERING
	A.D. 1800	VALLEY VARIANT GRASSHOPPER FALLS PHASE KANSAS CITY HOPWELL	GREENWOOD PHASE GRASSHOPPER FALLS PHASE CUERTA PHASE	SCHULTZ PHASE BUTLER PHASE GREENWOOD PHASE	KEITH VARIANT KANSAS CITY HOPWELL	KEITH VARIANT	KEITH VARIANT	HUNTING AND GATHERING WITH INCIPIENT HORTICULTURE
ARCHAIC	ca. A.D. ca. B.C.	NEBO HILL PHASE	NEBO HILL PHASE EL DORADO PHASE MARKERS CREEK PHASE	WALNUT PHASE EL DORADO PHASE CHELSEA PHASE MARKERS CREEK PHASE	UNIDENTIFIED ARCHAIC CULTURAL MANIFESTATIONS			HUNTING AND GATHERING
	8,000 B.C. 9,000 B.C.	OCCASIONAL DISCOVERIES OF PALEO-INDIAN PROJECTILE POINTS THROUGHOUT KANSAS						TWELVE MILE CREEK
PALEO-INDIAN	20,000 B.C.							

1960 LANS

FIGURE 2

pieces suggest that more than one Paleo-Indian site is or was associated with the valley. The Archaic too is primarily represented by individual artifact finds such as the early Archaic Beaver Lake specimen (Reichart 1973). The late Archaic is represented by a Graham Cave point identified by Reichart and designated as site 14JF414. These also were the finds of projectile points at suggested earlier components for several Plains Woodland sites. However, in some cases this late Archaic identification is difficult because of the similarity of some point types in the late Archaic and the Early Ceramic being differentiated taxonomically primarily by the presence or absence of ceramics.

The Middle Woodland, Kansas City Hopewell phase is represented within the Perry lake area by finds of individual artifacts, primarily ceramics, but to date a specific component suitable for systematic study has not been found.

By far, the most abundant cultural manifestation found in the valley is that which has been identified as the Grasshopper Falls phase of the Plains Woodland (Reynolds 1979). The Grasshopper Falls phase has been identified in northeastern Kansas represented by over 150 components along the Delaware river and Soldier creek. Eight excavated sites yielded 12 house sites marked by postmolds and fired clay grass and pole impressed daub. The structures were oval in floor plan and ranged in size from 115-853 square foot. Associated with these structures were external limestone hearths and shallow trash filled basins. Artifacts include a newly defined pottery ware (Grasshopper Falls ware), small to medium sized and small stemmed projectile points, large bifaces, scrapers, drills, ground stone celts, grinding stone slabs, mullers, hammerstones, and sandstone abraders. The inferred subsistence pattern is hunting and gathering and the settlement pattern consists of small isolated clusters of nuclear households or individual family households occupying terraces adjacent to secondary drainages. A radiocarbon date of A.D. 760 $\pm$ 90 from 14JF331 suggests the temporal placement of the phase between A.D. 500 and A.D. 1000.

The next major cultural unit is the Middle Ceramic, represented in the lake area by the Pomona focus (Witty 1967). The identified and investigated sites occurred primarily on the Walnut creek arm of the lake's flood pool area north of Valley Falls (Nickel 1973). The Pomona focus was defined on the basis of survey and excavation investigations

at sites which lie primarily to the east of the Flint Hills region within the Dissected Till Plains and southward into the Osage Plains. These sites are located on the lower Kansas drainage, the Marais des Cygnes, (Upper Osage river), and the Verdigris and the Neosho drainages of the Arkansas river system. Investigated sites have yielded both villages and apparent extended communities, made up probably of a variety of house forms, of which a more common dwelling structure is oval in shape with walls either wholly or partially daub covered. Pottery vessel forms are small to medium sized plain jars with indurated clay or weathered shale inclusions with some crushed and burned bone tempering. Shared traits, such as house form and ceramic characteristics along with the regional location, give cause to consider the Pomona components as representing an indigenous population evolving and/or adapting to diffused influences into a Middle Ceramic complex. Radiocarbon determinations indicate a temporal span of circa A.D. 1000 to A.D. 1600. Specific dates from two of the excavated Pomona sites in the Perry lake area were for 14JF331, a date of A.D. 760 $\pm$ 90 and the two dates from 14JF303 were A.D. 1600 $\pm$ 80 and A.D. 1400 $\pm$ 110.

The well known Central Plains phase (Hurt 1953:54) or Central Plains tradition (Lehmer 1954:143) is represented at two sites. At 14JF329 a buried component yielded collared, sand tempered, cord-roughened sherds and at 14JF426, a globular, cord-roughened vessel with incised collar was collected for the Society by Reichart. This complex is, of course, better known to the west as the Smoky Hill aspect and to the northeast as the Nebraska phase. The obvious absence of Central Plains phase sites from northeast Kansas is part of the evidence for the contemporaneity of Pomona with the earth lodge dwelling peoples.

Historic Period

The historic period for the Perry lake area probably began around 1724 with the journey of Etienne Veniard de Bourgmond into central Kansas with a group of Kansa and Missouri Indians to make contact with the Padouca. His route probably passed north and west of the Perry lake area (Socolofsky and Self 1972; Reichart 1976). Later in 1819, Dr. Thomas Say and his party, members of the Long expedition, camped near present Valley Falls on the Delaware river (Socolofsky and Self 1972). Say had been detached from the main party to visit the Kansa, who at that time were located at the mouth of the Blue river near the present site of the city of Manhattan.

In 1828 the Delaware Indians signed a treaty with the United States government, which placed them on a reservation in northeast Kansas. A portion to that original reservation included what is now the Perry lake area. In 1867, they were removed to the Indian territory and incorporated with the Cherokee nation (Hodge 1912). With the removal of the Delaware and the opening of the state for settlement, the aboriginal habitation within the locale of the Perry lake was ended.

1979 SAMPLE SHORELINE SURVEY

RESEARCH DESIGN

Information and findings by individuals as well as agencies working within this portion of the Delaware river valley have identified a large number of sites, of which many have yielded and/or still bear the potential to yield significant archeological information at both the local and regional levels. The initial surveys were primarily concentrated within the limits of the flood pool with the exception of the investigations of the burial mounds at the west end of the dam axis (Bass 1967). Since the completion of the project and inundation of the lake area, no specific federally funded surveys have taken place, with the exception of the limited site visitation carried out by Iroquois Research Institute (1977) personnel in their preparation of the preliminary management plan. The survey information that has been compiled since that time has been essentially on a volunteer basis by Milton Reichart, operating as a designated representative of the Kansas State Historical Society. The Society has a permit from the Kansas City District as a member of the Kansas Antiquities Commission to conduct inventory surveys of state-leased land of Kansas City District properties.

The survey reported in this paper concerns a sample survey of selected shoreline areas within the project. Recommendations for the area selected were made from those broadly outlined in the 1977 Perry lake preliminary cultural resources management plan (Iroquois Research Institute 1977). The methodology portion of the Scope of Work (Appendix A) for this project, identified four segments of shoreline totaling approximately 20 miles in length and specifically identified as being between 889 ft m.s.l. and 900 ft m.s.l. These areas were:

- a) North from Highway 92 to approximately one mile beyond the north edge of Paradise Point public use area on the eastern side of the lake
- b) North from Highway 92 to the northern boundary of Sunset Ridge public use area on the western side of the lake
- c) Perry State Park, (Jefferson Point)

- d) From the old Indian reservation boundary to approximately one-half mile beyond the Rock creek concession on the western side of the lake

Thus, the survey area consisted of four relatively narrow strips of land adjacent to public use areas within an 11 ft vertical elevation range extending from 2.1 ft below the multipurpose pool level (a condition which was difficult to fulfill during part of the survey), to an elevation of 8.5 ft above the multipurpose pool level. Horizontally, this represented a band of only a few meters wide on the steeper slopes to as much as over 200 meters in more gently sloping areas such as the mouth at French creek.

The research potential/design for this investigation addressed scientific and managerial aspects of the region as well as the specific project. Basic is an inventory survey of prescribed sections of the shoreline of the Perry lake to identify any previously unidentified sites. As much evidence as possible, considering the level of the survey, of cultural affiliation, age, function and state of preservation was to be sought, recovered and/or recorded. New finds will add to the overall data base and aid in confirming earlier studies as well as provide new insights for further studies.

Of particular importance is that the study dealt with a shoreline within a valley. A specific topographic setting is being sampled, e.g., the lower valley slopes with high older terraces or eroded slope toes adjacent to but above the valley floor or flood plain. This is particularly important as much of that area was covered by substantial timber growth during the original appraisal survey. Such conditions are now changed by the project and the denuding of vegetation by wave action. The original survey noted the absence of sites in what is usually the most commonly recorded location, on the valley floor, in much of the lower portion of the project. The present study would focus on the sides of the valley for alternative site locations. The presence or absence of sites from that setting will be of predictive value for future surveys in the project as well as other studies in the region. Also of particular management value, the kinds and degree of impacts which the project operation has had on identified sites can be documented.

Particular attention was planned for the possibility of undisturbed subsurface evidence or material still present. The use of soil coring tools was planned and if evidence was found then small test pits would be dug to sample any surviving cultural levels.

On the basis of the findings from the inventory and testing, recommendations were to be made for each site concerning future levels of investigations, mitigation and management. As the sites identified during this study are under Federal control the criteria used are those established for eligibility for nomination to the National Register of Historic Places. For archeological sites whose surviving evidence is primarily in ruins and subsurface, the appropriate criteria is "...that which have yielded, or may be likely to yield information important to prehistory or history".

The key word in that phrase is "important" which is in itself relative to all else that is known. Thus, the recommendations made by this writer will be those relative to past and anticipated important information based upon his training, experience and services.

SURVEY METHODOLOGY

The conventional pedestrian survey was the primary means of site identification. The pattern might be called a sinuous transect, and considering the narrowness of the band, when possible, all the exposed ground surfaces were examined. In areas where the surface was obscured by vegetation, an Oakfield soil sampling tool was used. This instrument, as equipped for the survey, extracts a soil core approximately 2 cm in diameter and 25 cm long. Repeated probing could go to a depth of approximately 1 m. The extracted soil core could be examined for evidence of soil composition, disturbance and natural as well as cultural evidence of the subsurface conditions.

When evidence of cultural origin was discovered during the survey, all of the exposed artifact materials were recovered along with the sample of such other material, e.g., bone, shell, discarded lithic material, etc. The site areas were photographed as were notable specimens, complexes of cultural materials or such other features as might be determined. Field records were made to record artifact distributions, site delineation, etc. Site information was used to prepare and designate the site within the authorized trinomial Smithsonian

system and the 300 series number block used by the Society. Such information is to be transposed to computer forms for use in the state-wide system with locations plotted on master county map sets at the Society.

All of the recovered specimens were processed in a conventional manner through the Society laboratory. Such process included washing of the more durable specimens and dry brush cleaning of the more fragile materials. Where necessary, simple restoration took place which, with the specific sample, consisted of gluing together broken pieces of the same item. Normal catalogue procedure at the Society consists of writing on each piece the site number with a code number which serves as an index to a catalogue sheet containing the provenience information. Normally, if the specimen is large enough, basic provenience information is written on the individual specimen. Minimally, this would consist of "surface" for surface items or if collected in specific site areas, from excavations or features that information will also be written on the specimens. Specimens too small to write on are put in a labeled vial. Small specimens of the same material and with 'like' provenience, are often catalogued by lot with the same number. Specimens are then boxed by site in containers labeled with the stamp provided by the Kansas City District indicating government ownership. Such boxes are then placed in the regular storage area for such collections maintained by the Archeology Department of the Society.

SURVEY FINDINGS

The inventory portion of the survey began on July 18, 1979 and was completed one month later on August 18th. At the beginning of the survey, the lake level was a foot or more above conservation level. By the end of the survey, the level was down to approximately 890.5 ft. Thus, the specified minimum elevation for the survey of 889 ft could not be realized during the time allotted for the work to be completed.

The entire 20 miles of shoreline were inspected at least once and the part of the west shore, beginning from approximately one half mile north of Ozawkie continuing northward to the middle of the French creek arm, was inspected twice. As nothing was seen in that section during the initial survey, the second survey was conducted when the lake level was approximately 0.5 ft below conservation pool level as

a control. The results of the second inspection were also negative. All of the located sites were visited at least twice with the exception of 14JF364.

An important factor in the survey was that the greater portion was north of the K-92 highway bridge which crosses the lake from east to west. The approaches to that bridge considerably constrict the width of the lake at this point. Thus, it appears that this causes the upper portion of the lake to serve as a settling basin for silt, and as the floodwaters spread out, the current and wind drive the driftwood to the shores and inlets. These concentrations of driftwood made a significant difference to the survey in the northern part of the lake in contrast to that of the southern where such debris was absent and the shoreline is washed bare.

The lowest elevation for the driftwood deposits approximated the conservation level to a few feet above it. A second deposit of drift was noted at about 10 ft higher marking the last major high water period of two or more years before. This line of driftwood approximated the 900 ft elevation and, therefore, served as a handy marker for the upper limits of the survey zones. On the steeper hills, this is about the level below which many of the trees and shrubs have been killed or injured by water action. The upper edge of this line of drift marks the beginning of a wreath of poison ivy with which the upper zone of the lake is garlanded. A third line of driftwood, much of it decayed now, marks the maximum water level reached in 1973 about 3 ft below maximum flood pool level of 920.6 ft.

The slightly higher water at the beginning of the survey caused some difficult conditions, both from the standpoint of walking along the lake and in that it covered the normally bare ground at the water's edge. The extremely cool weather and abundant rainfall of the spring and summer enabled grass and weeds to thrive on the eroded shoreline between the conservation pool and the middle line of driftwood. Ordinarily, hot dry weather and the eroded conditions of the strip of lake shore allow only a few sparsely scattered clumps of stunted weeds to grow. That year, the weeds did very well and all but obscured the ground. During the summer, the procedure of lowering the level of the lake to below the conservation level finally drew the level down to 890.5 ft. As the survey continued, the conditions did improve because the cleared space between the lowest drift line and the water's edge became exposed.

At the mouth of small draws fluvial deposits developed terraces. Often there were places where evidence of cultural activity was found (14JF360, 14JF361 and 14JF362). It was also noted that glacial deposits of red clay terraces at the base of the hill were also favorite spots for habitations (14JF366). For this reason, the terraces from either side of small draws and the observed location of reddish glacial terrace deposits were given specific attention.

One of the more obvious evidences for cultural activity along the lake side were fragments of burned limestone. However, these were of modern as well as aboriginal origin. Contemporary campers, picnickers and fishermen constructed their hearths of this native material as did the aboriginal users of the valley. However, in general, the modern limestone is of larger pieces and normally not burned at the intensity of that of the older features. There was also abundant native chert in the area which sometimes became burned or otherwise oxidized, probably in a natural setting before the lake construction. However, in general, these naturally occurring flakes were either originally tan or altered to pinkish tan from the more recent burning. It was generally observed that when those were the only colors present, a more recent origin was indicated.

The sites previously recorded, that lie within the zone of the sample survey, were sought out and exposed specimens collected and photographs taken.

Site 14JF367 was one identified from archival information rather than actual on-site evidence. This was the location of an "Indian village" indicated on the 1856 Government Land Office survey plats. Field inspection could neither refute or substantiate the written record. Therefore, the number was awarded on the basis of a document report rather than discovered field evidence.

Identified Archeological Sites

14JF358

The site was identified on the basis of a limited amount of lithic debris exposed along the shoreline in the southeastern portion of the Paradise Point public use area (Plate 5, A). That location, prior to the existence of the lake, would have been on the left or eastern side of the river valley on

the lower, more gently sloping, portion of the valley edge. Site elevation is at approximately 895 ft and at a distance of approximately three quarters of a mile from the modern channel of the Delaware river and one quarter of a mile north of an unnamed tributary which appeared to have flowed into the river in that general vicinity. The soils in the vicinity of the site area were of the Pawnee clay loam, 3%-7% slope and severely eroded (U.S. Department of Agriculture, Soil Conservation Service 1977).

Evidence for the site consisted of a more or less even scatter of waste chert flakes extending for some 65 m along the edge of the eroded point. Burned limestone was present in the area, but was interpreted by the surveyor as being from recent public use activities along the lake shore. Eighteen chert flakes were recovered as a sample for this site. After laboratory processing, the analysis determined four of these to be of natural origin, primarily on the basis of the amount of patination observable on the surface of the pieces. The other 14 pieces represented secondary and tertiary chips ranging in size from 11 mm to 32 mm in length, 10-25 mm in width and 1.5-10 mm in thickness. In color, the pieces represent shades of pink, pale red, pale brown and light gray. Several tests with the Oakfield coring tool above the lake eroded area failed to identify any evidence of a subsurface cultural level.

The site lies adjacent to a proposed 25 unit picnic area within the public use area (Department of the Army, Kansas City District, Corps of Engineers 1975: Plate 9). The surveyor noted that because of the limited amount of material noted, the site was probably originally not extensive or of long term occupancy. The thin nature of the soil, apparent years of cultivation and its current setting, caused the writer to conclude that the site has no potential for providing additional significant information and that no more archeological studies be recommended for this site.

The original site type identification and cultural function of the site is undetermined. The physical location is midway up on the valley slopes, not close to any observable past or present water source and represented by a very small amount of cultural debris. The writer will not speculate on the site's function other than to say that there was at one time at least a small amount of flintknapping which had taken place at that location.

14JF359

This is a site located some 600 m southeast of 14JF358 in a similar topographic setting. Evidence consisting of a small amount of chert debris was found on a low eroded valley slope toe on the left or east side of the Delaware river valley adjacent to a small unnamed tributary (Plate 5, B). The site, at an approximate elevation of 890 ft to above 900 ft, is in Pawnee clay loam, 1%-3% slope. Reichart first noted some evidence of chert flakes out on the lower edge of the slope toe following the high water of 1973. At the time of the 1979 survey, that area was overgrown with sweet clover and brush up to 2 m tall.

The limited evidence which was recovered during this survey was found in the upper area of the site which was cultivated and planted with corn. Thus, the visual conditions were extremely poor for the collection of exposed evidence. Five chert chips represent the collected sample. These appear to all be small, perhaps secondary or tertiary pieces ranging in length from 13 mm to 29 mm. In colors, these pieces primarily are pale red, light gray and pale brown. Reichart recorded that the field in which the site lies has been cultivated for some time.

Considering that the presence of the site has been known for some seven years and still no diagnostic or really extensive undiagnostic material has been recovered, this site is concluded to have little potential for additional scientific information and is not recommended for additional archeological investigations or preservation considerations.

14JF360

14JF360 is a small site identified on the right or south side of the inlet formed by the confluence of the French creek valley with that of the Delaware. A limited amount of artifact material was found on the lower edge of the valley slope above the old channel of French creek just east of a ravine which runs from the uplands into the French creek valley from the south. Site elevation would be approximately 894 ft. The general soil type is Vinland rock outcrop complex with a 20%-40% slope (United States Department of Agriculture, Soil Conservation Service 1977). The soil type is described as being shallow and intermingled with deeper soils and rock outcrops. At the time of the survey, the character of the soil was recorded as being sandy clay with small sandstone and

limonite inclusions. Being close to the water's edge, the site was seriously eroded. The water level, at the time of the original find, was above conservation pool level. However, it was revisited when the water had receded to 890.99 ft. No additional material was found at the second visit.

Physical evidence for the site's presence consisted of four grit tempered, cord-roughened pottery sherds; a projectile point, a resharpened projectile point or drill; a few chert flakes, two pieces of burned limestone and glass sherds. Other burned limestone fragments were reported to be in the area and these had the characteristics of pieces having some antiquity as opposed to the more modern burned limestone which is so often found in association with the picnic fires of more recent campers.

The four pottery sherds represent one and possibly two different vessels. From the general curve, they look to be body sherds from a large straight sided vessel. Tempering materials are angular pieces of quartz, feldspars, biotite, and some weathered limonite concretions. The variety of minerals suggest crushed, weathered granite as the primary tempering source with the limonite possibly being included in the clays. All of the sherds are weathered, but the larger piece bears traces of cord roughening. In coloration, the sherds look to be laminated with the exterior half being a very pale brown (10YR 7/4). The exterior half of the sherds are dark gray (5YR 4/1), sherd thickness ranges from 7-9 mm. On the basis of the overall general characteristics, the sherds are interpreted as being of the Grasshopper Falls phase ware (Reynolds 1979: 70-71).

Chipped stone artifacts consist of two specimens. The first is a small projectile point having a broad triangular blade, narrow expanding stem with concave base, sharp barbs and serrated blade edges (Plate 1, A). In type it resembles those identified as Scallorn (Bell 1960:84). The piece is chipped from a lustrous, pink colored (5YR 7/3), banded chert. The specimen lacks the extreme tip, one barb end and a corner of the stem. In size its original estimated length is 36 mm, the width across the barbs 15 mm, the thickness 4.5 mm and a stem length 7 mm. The second chipped stone artifact has been reworked from a large point which appeared to have had squared or barbed shoulders, and retains a short, broad, parallel sided stem with straight base (Plate 1, B).

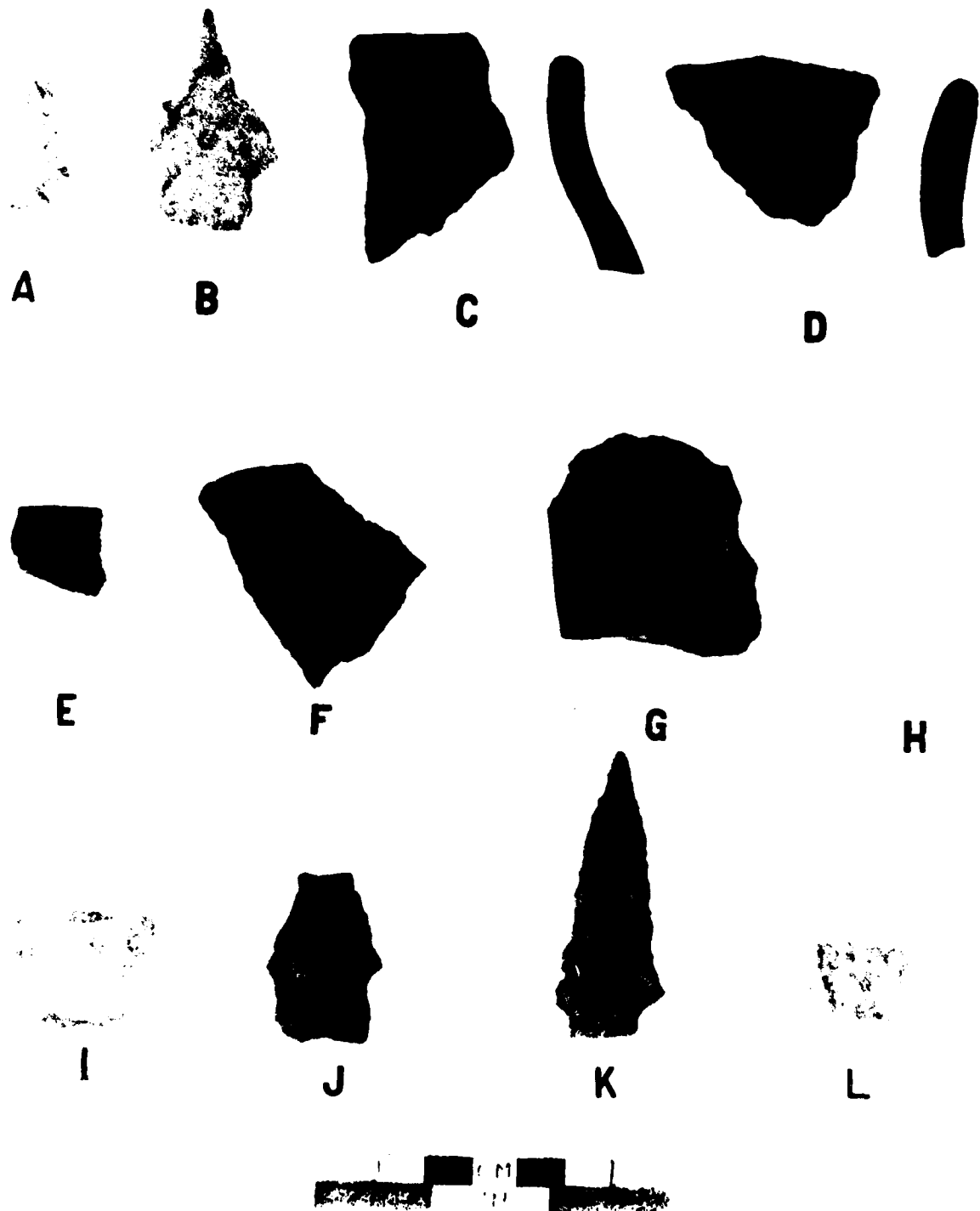


PLATE 1 Selected artifacts: A and B from 14JF360; C-L from 14JF361.

Basal thinning is pronounced and some grinding is present along the edges of the stem. The point looks to have been broken, with perhaps up to the distal half of the piece missing. Reworking in the form of beveling from opposite pieces has narrowed the blade area to a thick beveled point narrower than the original shoulders. The specimen has been chipped from a pale brown colored chert with a color close to 10YR 7/3. In size the piece is 48 mm long, 28 mm wide across the shoulder area, 8 mm thick, stem length, 13 mm and a stem width of 20 mm.

Fourteen chert chips were collected. Of that number, ten appeared to be of cultural origin and were of secondary and tertiary classes. The colors of these pieces are pale pink, pale brown, light gray, weak red, and yellowish brown.

The two glass sherds are from the base and side of a large bottle. Small air bubbles in the glass suggests that it is an older bottle, but the overall characteristics do not indicate any significant antiquity. Glass color is a pale aquamarine. Glass surfaces are still bright and lack erosional frosting that would be present if the sherds had been in the lake gravels for some time.

The area of the site is small. The material recovered there indicates at least short term habitations. This was indicated by the burned limestone representing hearths, domestic implements such as the sherds, as well as handicrafts and subsistence activities suggested by the points, reworked knives and chert chips. Cultural affiliation can readily be indicated by the sherds and the small stemmed point as being the Grasshopper Falls phase of the Plains Woodland. Observations made of the soil matrix, topography location, and the absence of any other material would indicate that there is little potential for surviving subsurface materials and/or information for this site. Therefore, no additional archeological investigations or specific preservation measures are recommended for this site on the basis of this survey.

The two glass sherds would represent more recent historical activity in the area, but such pieces are not uncommonly found along the edge of the lake shore. Little or no potential is seen represented by the two bottle fragments.

14JF361

This site is at the lower edge of the valley slope adjacent to the right or west bank of the Duck creek channel approximately one quarter mile north of its confluence with the Delaware river (Plate 5, C). The location is on the south edge of a ravine which extends to the west from the valley floor up to the upland remnant. This location is now on the shoreline of the Sunset Ridge area, east-southeast of the bathhouse. The valley slope is timbered with brush and a variety of grasses and other vegetation. Site elevation ranges from approximately 890-895 ft. At the time of its discovery, artifacts and other cultural debris were exposed on a narrow beach or bench 4-5 m wide (E-W) above the 893 ft water level. Generally this bench had as its surface, the top of a limestone outcropping with silt and soil as well as gravels present in the cracks and shallow basins on the rock surface. A tree stump at the water's edge still retained culturally mixed soil and sandstone fragments in its roots. To the west, a cultural zone some 4 m long (N-S) was exposed in a cut bank at the base of the hill side which sloped upward some 100 ft to the top of the ridge. This eroded edge was approximately 1 m high. The cultural zone contained mixed soil and burned limestone fragments. Material collected from the surface of the eroded beach consisted of grit tempered, cord-roughened pottery sherds, chipped stone projectile points, bifaces, scrapers, chert flakes, large stone artifacts such as mullers and hammerstones, etc. An extensive driftwood deposit as well as poison ivy vegetation initially obscured the site area.

Because of the obvious cultural horizon exposed in the cut bank and apparently extending back into the hill slope, this site received investigative test excavations. These tests were supplemented by the use of the Oakfield soil sampling tool in the immediate site area and adjacent slopes on the sides and above the site.

Four specific locations were selected for testing. The first, excavation unit 1, was determined by opportunity, as the mix soil was still held in the roots of the tree stump at the edge of the stone outcropping. This was excavated by Reichart on his first visit to the site. Essentially, this was a soil zone some 19 mm thick and less than a meter wide. Recovered from the fill were a potsherd and two chert flakes. On the contact between the soil and limestone ledge were tabular fragments of sandstone.

The remaining excavation units were 1 m square in horizontal dimensions and designated X2, X3 and X4. Excavation unit 2 and X3 were dug at the edge of the cut bank to test the nature of the exposed level there. Excavation unit 4 was up on the surface of the hill slope to check horizontal extent. These excavations were primarily dug with trowels in 15 cm horizontal levels. On the day of the test, the lake level, as reported by the State Water Resources Board, was 892.66 ft.

Within the first 15 cm level, the fill consisted of numerous small burned and unburned limestone and sandstone fragments, small wood charcoal pieces, a few rounded weathered pieces of burned earth bearing random grass impressions, several small bone sections, two chert flakes, two small sherds, and one charred walnut hull. At the bottom of the level was exposed a complex of limestone and sandstone fragments, later identified as Feature 20. Work in the 15-30 cm level found the soil to be more compact and more buff in color, particularly along the southwest edge. General fill was about the same as in the upper level with a few pieces of weathered mussel shell being found along with several sherds.

Feature 20, exposed in X2, appeared to represent two stone complexes. The lower stones were burned representing a cultural origin, while those in the upper fill were unburned and looked to be later and of natural placement. Grit-tempered potsherds were found in the lower area of the feature.

The 30-45 cm level in X2, found the cultural material to cease at approximately 32 cm on the west side of the excavation. The soil became more compact and numerous fragments of limonite, sandstone and limestone were in the fill. Noticeably absent was evidence of charcoal and burned earth. The upper zone, as compared with the Munsell soil color chart to a depth of 32 cm, was a dark grayish brown (10YR 5/2), (Munsell 1954). The lower zone, graded to a grayish brown (10YR 5/2) by the 45 cm level.

Excavation unit 3 was 2.5 m southwest of X2 at what was observed to be the southern extent of the exposed mixed soil in the cut bank. Because of the hill slope, the ground surface at the southwest corner of X3 was 42 cm above the southwest corner of X2. Within the 0-15 cm level, as measured from the southwest corner of the unit, only about the western one-third of the square was high enough to be

included. The upper soil zone was the dark grayish brown (10YR 4/2). The soil in the level contained fossiliferous limestone fragments ranging from small pieces up to 4 cm in diameter. Some hematite and wood charcoal was observed. No artifacts or other observed cultural material were found in this level. The 15-30 cm level, which made up about one-third of the western part of the square, found the soil becoming more silty with the amount of wood charcoal pieces increasing. Because of the absence of cultural material, excavation in the overall square area was discontinued and a trench was opened on the south side of the square to a depth of 75 cm. The overall soil content remained approximately the same with the soils becoming lighter in color and more compact in nature. Soil color in this lower zone changed to a brown (10YR 4/3). The test in X3 would seem to indicate that the main cultural zone does not extend this far to the south and east.

Excavation unit 4 was begun 2 m west of X2 upon the small gently sloping hill toe. It was begun in order to test both the horizontal and vertical extent of the cultural level to the west and uphill. Actual excavation in this unit was in the southwest corner where an area dug 50 x 50 cm and 20 cm deep was removed. The upper profile revealed the same dark grayish brown (10YR 4/2) that was observed in the upper limits of X2. This was at a depth of 11 cm, and beneath that turned into the grayish brown soil. Near the bottom of this contact was the thick, grit tempered, cord-roughened potsherd. Also at the level were numerous fragments of unburned sandstone.

The test with the Oakfield coring tool found that the dark grayish humus zone was relatively uniform on the hill slope, becoming somewhat thinner uphill. Notable, was the occurrence of limonite, small pieces of burned or otherwise oxidized sandstone, and wood charcoal pieces also in more or less uniform presence in the soils along the slope. This suggests a natural as well as cultural origin of the burning. Generally speaking, the overall upper zone was a very dark gray (10YR 3/1), while that on the lower slope, closest to the cut bank cultural exposure, was dark grayish brown (10YR 4/2).

On the basis of the test excavations and the coring tool sampling, it would appear that the remaining subsurface site area would be generally in the lower hill slope extending back from the maximum easternmost point, probably not much more than 10 m along the northern edge of the ravine to the north.

Recovered Material:

The catalogue for this site recorded 297 entries. These are primarily small individual pieces. Most of the specimens were found exposed on the surface of the site area. Surface material for most of the site was found scattered on the top of the rock outcrop or in sandy gravel adjacent to it. A number of pieces were found in the cracks of this outcropping. The collection includes ceramic artifacts, including pottery sherds and fired earth, chipped stone, including a biface and uniface artifact sections, chert chips, burned and unburned limestone and sandstone fragments, animal bone sections and mussel shell fragments.

Ceramics: Culturally created or shaped objects of fired clay consists of sections of broken pottery vessels and small irregular lumps of fired clay bearing random grass impressions. The pottery sherds numbered some 70 pieces of which all but three came from the surface. Two of the excavated pieces came from X2 and the third from X4. The relative uniformity of characteristics including paste, surface treatment and implied vessel form identified these as being of similar ware and type, readily identifiable as Grasshopper Falls wares (Reynolds 1979:70). The overall paste is medium to coarse in texture, usually well compacted, with a tendency to crumble along the edges. Tempering material is grit made up of angular and occasionally rounded pieces of quartz, feldspars, hornblende and mica. Surface treatment is predominately a vertically oriented cord-roughening with some grass brushing apparent on a few individual pieces. Some of the sample has the surface treatment obliterated by erosion. Overall sherd thickness ranges from 6 to 17 mm, although the bulk of the sample ranges around 10 mm.

Five rim sections are included in the sample, all from the site's surface. Three are thin, appearing to be from medium sized to small jars (Plate 1, C and D). One bears fingernail impressions oriented vertically along the front edge of the lip (Plate 1, E). Lip form is generally rounded. The decorated rim sherd bears the brushed decoration.

One body sherd bears a simple two line incising suggesting a simple decoration (Plate 1, F). It is made up of one long line extending up the face of the sherd at a slight angle. Diverging from approximately the center of it, is another simple line extending up in a diagonal to the other side giving a simple "Y" form.

Vessel form as suggested by the sherd sample would be predominately large, straight sided, wide mouthed jars with some small to medium sized examples possibly represented. The orifice would be slightly constricted giving a steeply sloping shoulder and the base would be conoidal. The single excavated sherd from X4 looks to be from near the base of such a vessel.

Nine small lumpy pieces of fired clay were recovered, two from the surface, six from X2 and one from X3. At least a portion of the exterior for these pieces is buff colored with the other faces being blackish gray suggesting reduction firing. Most of the pieces look to be somewhat weathered, but do bear some indication of random grass and possible pole impression in some cases. These pieces can be interpreted as fired clay daub.

Lithics: Recovered lithic materials make up approximately two-thirds of the recovered sample from the site. For the most part, this represents chert tools and tool sections as well as waste and reject material from chipped stone artifact manufacture. Included also are chert spalls of natural origin. Some examples of ground stone implements were also found.

The bulk of the chert varieties looked to have a local origin. The tan to gray colored material is quite similar to that of unmodified spalls found in gravel deposits along the valley edges. This material debitage is from the Pennsylvanian formation. Two artifact sections were of a denser banded material like the Florence chert of the Permian to the west. Some pieces, chips as well as artifacts are of pinkish hues similar to that of heat treated chert samples. With the exception of nine small chips from X2, all of the recovered chert specimens were from the surface.

Core nuclei and block tools: One small, 60 mm maximum dimension, roughly lozenge shaped core nuclei was found (Plate 1, G). The single example of a block tool was a heavily patinated stream pebble, bifacially worked along three sides.

Chips: Chert chips, apparently rejectage from the manufacture of stone tools, represent decortication as well as secondary and primary chips. Overall color and texture is the same as that represented in the finished artifact classifications. One chip in this group is of a greenish granular igneous material, probably diorite.

Unifacially worked tools: Three specimens made from relatively thin chips, 8-11 mm thick, were recovered. One intact piece bears the steeply chipped, squared off distal end and is classifiable as an endscraper (Plate 1, H). The second piece, a broken section, is also roughly ovate and steeply chipped around its lateral sides. It may have been intended to be an endscraper, but broken in manufacture. The third piece is an irregular flake with worn, small flake scars around one edge suggesting utilization of the flake tool.

Bifacially worked tools: Eight specimens in this category, none complete, may be classed as projectile points or small to medium sized cutting tools. The projectile points represent two stemmed types. Two are relatively short broad points having parallel sided, straight bases and squared shoulders (Plate 1, I and J). Estimated dimensions would be 40 and 60 mm long, 30 and 40 mm wide across the shoulders with stem lengths of 20 mm. The second type, represented by one piece lacking a stem (Plate 1, K) and the stem from another specimen (Plate 1, L) represent Langtry or Gary types (Bell 1958:28, 38).

Ground stone implements: Three mullers, shaped from modified quartzite cobbles, were recovered from the surface of the site. These ranged in size from 95 to 110 mm long, 75 to 78 mm wide and 45 to 48 mm thick. Two of the specimens have one flat, ground face with the opposite face beveled to each side to suggest use in a rocking motion. A pecked, shallow cup like area is present on both faces of the third specimen which is flat on both faces.

Faunal Remains: Small bone sections representing mammal, bird and turtle were recovered. Twelve pieces came from X2. The single identifiable specimen was the upper incisor from a Plains pocket gopher. The other pieces looked to be long bone sections, most of which had been extensively modified by rodent chewing. It would appear to represent medium sized and small mammals such as deer and possibly a *Canidae*. From the surface of the site, came a few more long bone sections, possibly deer, a very thin piece suggesting a large bird long bone and some sections of turtle shell. Molluscs were represented by weathered shell pieces, three from the site surface and two from X2.

Summary and Conclusions:

Site 14JF361, on the basis of the observed location and collected materials, is interpreted as being a habitation site affiliated with the Grasshopper Falls phase of the Plains Woodland. The site's location is on the valley edge on a raised bench or slope toe above the flood plain. At the time of the original survey, this slope was covered in thick timber and brush. Subsequent flooding of the valley by Perry lake brought about extensive erosion of the bench edge, exposing materials indicating the site's presence. The presence of the grass impressed fired clay daub would indicate that there was a structure, possibly a dwelling, once at that location. The artifact inventory with mullers and apparently butchered pieces of animal bone would indicate that food processing activities took place there. The presence of pottery sherds from broken vessels also would indicate domestic activity. The examination of the site and the testing indicated that there is still some of the cultural fill from the living level present in the hill side. However, this is thin and probably is less than 20 or 30 square meters in extent. The investigator would conclude that most of the soils containing materials and features remaining from the site's existence have already been washed away. While there may still remain artifacts and the potential for some subsurface features to be present, it is the investigator's opinion that its actual scientific potential would be low and therefore no specific preservation measures are recommended for this site at this time. The cultural complex that is represented is found and has been investigated at a number of sites in the reservoir, therefore, any new artifact data it might provide would probably be limited. Its relative importance would be its position on the valley slope, a site situation not recognized earlier.

14JF362

A site identified on the northeast edge of the long prominent Sunset Ridge area. It was some 450 m north of 14JF361 and at approximately the 890 ft elevation. Prior to the flooding of the Delaware river valley, this location would have been a small bench like terrace at the base of the ridge slope approximately 20 ft above the flood plain and some 250 ft west of the right bank of Duck creek at a point near the confluence of the creek flood plain with that of the major river valley.

When found, the site was apparent as a scatter of surface debris along the narrow western edge of the now beach like terrace top. The location is at the mouth of a long rock lined gully or small ravine which extends from near the ridge top down to the lake edge. Immediately west of the site area, the gully forks, forming an inverted Y-like pattern. Thus, the surviving terrace area is in the form of a triangle with the tip to the west and the long base to the east on the water side. Above the conservation pool level, there was an extensive concentration of driftwood. However, when the site was first found, the water level was at 890.99. This exposed an area of open ground.

The soils are those of the Vinland rock outcrop complex, 20%-40% slopes. This steep unit is associated with side slopes on uplands. It consists of shallow soils intermingled with deeper soils and rock outcrop. The outcrops are predominately limestone and sandstone with flaggy and stoney limestone fragments occurring on the surface generally near the downslope from the bedrock-outcrop (U.S. Department of Agriculture, Soil Conservation Service 1977).

Reichart had determined from the distribution of exposed material during the survey that most of this site had probably been east of the present shoreline and hence already eroded away. However, to test the possibility of the level extending back into the gently rising valley slope, the writer ordered two tests to be dug. On the day of the testing, the water level was at 892.66 about 1.5 ft higher than during the original site inventory. Thus, the low-lying area to the east where most of the artifacts had been found, was inundated. These tests were 1 m square and designated excavation unit 1 and excavation unit 2.

Excavation unit 1 was toward the south side of the bench area at the point where the worst eroded area met the soil of the slope. There was also some burned rock exposed at this location. The ground level at the southwest corner of the excavation was 53 cm above the water level of the lake. The square was excavated to a maximum depth of 45 cm as measured from the uphill side. In the 15-30 cm level below ground surface, Feature 14, a loose complex of fired limestone cobbles and fragments, was exposed. In the complex was found one grit tempered, cord-roughened potsherd, one small weathered section of a turtle plastron and a mussel shell section. The 30-45 cm level below this complex found the soil to be changing in texture becoming more compact with limonite and hematite

fragments and chunks becoming more abundant. More cultural material was recovered below the 30 cm level.

Excavation unit 2 was begun 8.5 m north of X1 at the edge of the hill slope and eroded beach area at approximately the same level from which the eroded material would have been redeposited. The first level, 0-15 cm yielded one grit tempered, cord-roughened potsherd in its upper limits. The second level contained no cultural material.

The overall matrix of X1 and X2 was a very dark grayish brown (10YR 3/2) clay loam. Within the matrix were numerous chunks and fragments of limonite and hematite as well as small limestone pieces. Wood charcoal was also present in moderate amounts. The "mix" characteristics of this site as well as 14JF361 indicated that the charcoal, limonite and hematite are naturally occurring in the soil throughout this slope. Therefore, charcoal as an indicator was not specifically culturally significant. The ground surface at the southwest corner of X2 was 45 cm above the water level. While both tests did yield some cultural material, the small complex in X1 looked to be of mixed association, i.e., intensive burned rocks were immediately adjacent to unburned rocks.

On the basis of the tests, it would appear that the original hypothesis was correct. Almost all of the site had been eroded away by wave action. Thus, the site bears no additional potential for scientific data or materials in an undisturbed context. No additional formal archeological work is recommended for this time other than possible revisit for exposed artifact collection.

Recovered Materials:

The catalogue for this site indicates 79 numbered entities including individual artifacts as well as small lotted material with the same provenience. This sample includes pottery rim and body sherds, fired clay lumps, chipped stone celts, irregular chert and flint chips, a ground stone celt, small animal bone sections, burned limestone fragments and limonite. The bulk of the material with the exception of two potsherds and some bone sections came from the eroded site surface.

Ceramics: Materials interpreted as being culturally created or modified include fired clay specimens consisting of sections of broken pottery vessels, and irregular lumps of fired clay. The pottery sherds number 64 body sherds and four rim sherds.

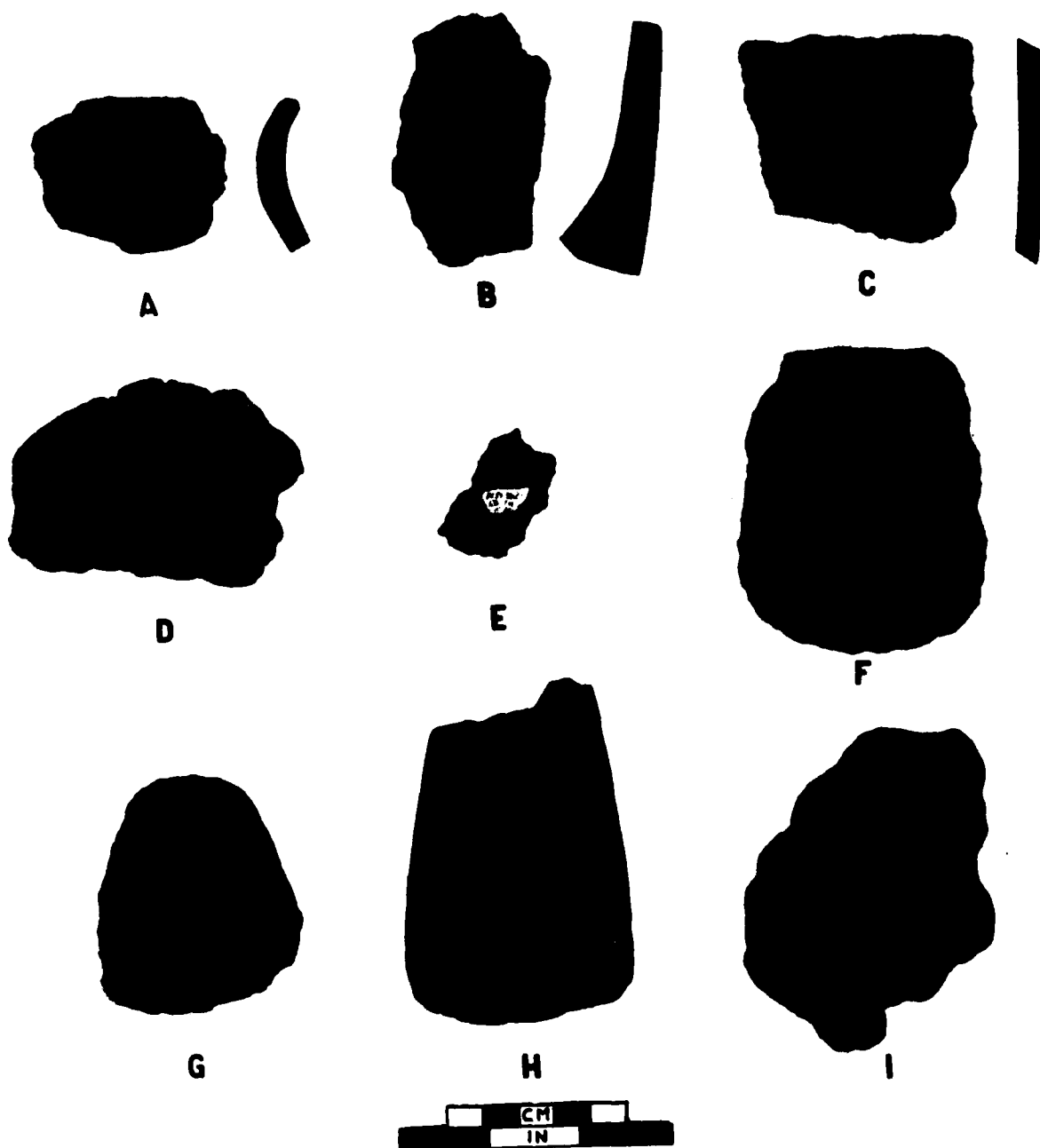


PLATE 2 Selected artifacts from 14JF362.

The relative uniformity of characteristics including paste, surface treatment and implied vessel form cause these to be identified as Grasshopper Falls phase wares (Reynolds 1979:70). In general the paste characteristics are medium to coarse in texture, usually well compacted but with a tendency to crumble along the edges of individual sherds. Tempering material is grit composed of angular pieces of quartz, feldspars, hornblende and mica. Some rounded quartz grains are also present. Considering the composition of the grit, it would appear that crushed weathered granite was the source of material. Exterior surface treatment is predominately cord-roughening oriented vertically down the side of the vessel. One sherd, probably from the neck of a vessel, bears impressions of grass brushing. Some of the sherds may have been partially smoothed in the cultural situation and others have been smoothed by erosion and weathering. The exteriors are predominately smooth with uneven areas and scratches resulting from compaction and scraping.

The three rim sherds are two with a low flared neck and rolled lip (Plate 2, A), and the third is a straight rim with a flat lip. The cord-roughening surface treatment on these specimens extends up to the edge of the lip. On the straight rim, the cord-roughening has been rolled along the top of the lip leaving cord impressions at a slight oblique angle to the exterior surfaces of the sherd. The two flared rims suggest a moderate shoulder. Rim height could be estimated for the larger of the flared rims to be slightly over 40 cm high. Rim thicknesses are around 7 mm. In thickness, the body sherds range from 6-11 mm with the majority being from 9-10 mm. One sherd which expands in thickness from 10-20 mm and markedly curved transversely appears to be from near the base of a conical shaped vessel (Plate 2, B). Thus the overall vessel shape suggested is typical of Grasshopper wares as both wide mouthed, straight sided jars and others with constricted orifices and slightly sloping shoulders and a conical base. Vessel manufacture, as indicated by the fracture line of the sherds, generally appears to be lump modeled; however, three large body sherds from the upper wall of the vessel have straight, horizontally oriented and beveled breaks suggesting coiling on the upper vessel (Plate 2, C). The three sherds are from at least two different vessels.

The single exception to the above sherd sample is a thinner piece lacking the grit temper. Inclusions are sparse and are made up of rounded quartz grains probably sand. Numerous cavities or cells are observable on the surface as well as the core of the specimen as if flakey or chunky material has been leached out. The sherd is weathered, but

surface treatment on the exterior was vertically oriented cord-roughening. The specimen bears characteristics of wares in eastern Kansas other than those associated with the Grasshopper Falls phase. The contemporary type would be the Greenwood (Calabrese 1967:60-61) of the Greenwood phase (Witty 1980:121-122), Early Ceramic or a later Pomona ware (Wilmeth 1970:25-33) of the Pomona focus (Witty 1967). Sherd thickness is 4-6 mm.

Fired clay specimens are represented by three pieces, two from Fl4 of X1 and one from the site surface. The first excavated specimen is a broken fist sized lump, 80 mm in maximum dimension, with a partially smoothed outer surface and an irregular inner surface bearing a long twig like impression (Plate 2, D). The second specimen is smaller, also broken with an outer face bearing grass impressions with some criss crossing. Both of these pieces are essentially orange to gray in color suggesting firing in an oxidized environment. The second specimen has the grass impressions that are characteristic of fired clay daub (Plate 2, E). The third recovered fired piece was from the surface of the site and is a small irregular chunk lacking any distinct impressions. It is both orange and gray black in color suggesting it is part of a fired lump with the exterior being oxidized.

Lithics: Sixteen specimens of chert, diorite and sandstone were recovered from the site. These represent chipped and ground stone celts, an abrader, core nuclei and chips. The chert varieties are made up primarily of the locally occurring tan material with singular examples of the dark gray Florence and a black colored flint specimen.

Core nuclei: Three small, 42-51 mm maximum dimension, irregular chert fragments bearing numerous striking platforms and flake scars were found. These were interpreted as pieces selected from which flakes were driven for reuse rather than modification of the core itself. Two pieces are the tan local chert and the third of the dark gray banded material. Two are from the surface and one from X1.

Chips: Eight chips were recovered, six of the local tan chert, one of dark gray colored flint and the last piece of diorite. For the most part, these could be classed as secondary chips. One chip was excavated from X2; the remainder were collected from the eroded site surface.

Bifacially worked chipped stone tools: Three roughly triangular shaped pieces classifiable as celts or choppers were recovered from the surface of the eroded site. Two are of the tan variety of chert (Plate 2, F), and the third is chipped from diorite (Plate 2, G). All retained heavily battered ridges along at least one face suggesting that the pieces may have been discarded before they were completely finished. In size, they range from 69-84 mm in length, 52-67 mm at the widest point across the bit and 20-40 mm in thickness.

Ground stone celt: One ground stone celt of diorite was recovered from the eroded site surface (Plate 2, H). This piece has the poll end broken off. In size the specimen measures 63 mm across the widest point at the bit, 22 mm thick and would have had a length of over 110 mm.

Abrader: One otherwise irregularly shaped block of sandstone was recovered which bore a wide groove, "U" shaped in cross section, extending in a somewhat curved pattern across one face of the stone (Plate 2, I). The groove measures 10 mm wide and 6 mm deep and resembles a groove on a shaft polisher. However, the slight curve to the groove suggests the rubbing of a short object in a slightly arc like motion. The piece came from the eroded surface of the site.

Miscellaneous stone specimens: Also included in the sample are some fragments of highly oxidized reddish pink limestone, limonite pieces, two rounded limonite pebbles, and a small battered fragment of yellow sandstone.

Faunal Remains: Three small bone sections, two from X1 and one from X2 were collected in the sample. The specimens appeared to be from the turtle shell plastron of a small species.

Summary and Conclusions:

Site 14JF362, on the basis of its location and the collected materials is interpreted by the writer as representing a habitation site affiliated with the Grasshopper Falls phase of the Plains Woodland. Removed and disturbed fired limestone fragments, pottery sherds from at least five different vessels and a minimal amount of fired clay daub like material suggests a habitation area and dwelling were once at that location. The lithic artifact inventory is limited, being composed of chipped and ground-

stone celts and one abrader. Conspicuous by their absence are points and other thin bifaces as well as the chips resulting from their manufacture.

Testing revealed that very little if any material remains in situ from the original occupation. Therefore, no specific preservation recommendations are made for this site nor any consideration of it for having potential to yield significant data remains.

14JF363

An eroded site area located on the lower slope of the right or south side of the Duck creek valley near its juncture with the larger valley of the Delaware river. At an elevation of 892 ft, the area lies on a terrace immediately adjacent to the creek channel. This location is at the north end of the Sunset Ridge public use area now developed for picnicking. An unpaved boat ramp borders the area of the artifact finds on the east. Material was on the slope of the terrace made up of Martin silty clay loam, 3%-8% slope (United States Department of Agriculture, Soil Conservation Service 1977). At the time of the survey, the terrace top was in a mowed grassy condition and with the slope washed, but with some low grass and weedy vegetation. The lake level was 890.99 ft.

Within an area a few meters in diameter, pottery sherds, some chipped stone tools, chert chips as well as burned and unburned sandstone and limestone fragments were noted. Testing with an Oakfield soil sampling tool detected a thin zone with slight color change, a few small flecks of charcoal and a few pieces of burned earth at a depth of 30-35 cm below the ground surface. This was interpreted as the remains of a thin cultural level.

Recovered Material:

The catalogued material from site 14JF363 numbered 37 entries. This material consisted of pottery sherds, small fragments of burned earth, one uniface specimen, two thin biface sections, chert chips and sandstone. The overall chert varieties represented were the usual tan to light gray pieces with one small dark red colored chip.

Ceramics: Specimens of fired clay having cultural origin consisted of pottery sherds and possibly some small daub fragments. The pottery sherds consisted of one rim, one neck and 20 body sherds. In overall paste characteristics, the pieces exhibited characteristics of the Grasshopper Falls phase types. Temper is medium in texture and usually well compacted. There is some indication of sherds splitting, the exterior parting from the interior. Tempering material is made of angular pieces of quartz, feldspars and mica suggesting a crushed granite origin. Exterior surface treatment is cord-roughened, probably oriented vertically on the vessel. Interiors are generally smoothed with the surface of abundantly tempered sherds having almost a sandpaper feel. The single rim piece appears to be from a section having a more or less straight neck. The lip is rounded and may have had some cord impressions as if the cord-wrapped stick were rolled around the lip surface. The single neck section suggests a slight shoulder. Rim and shoulder thickness is 9-10 mm. The body sherds as indicated by the curve all appear to be from a large vessel. Sherd thickness ranges from 8-13 mm.

Four small particles of fired clay were recovered. They are all eroded almost smooth, but the curvature of one suggests it may have had a pole impression. These pieces look to be fired daub.

Lithics: Six chert chips were recovered from the site surface. For the most part, these pieces appear to be secondary, bearing some patinated matrix, with two tertiary pieces showing all faces freshly chipped.

Unifacial tool: One thick unifacially worked tool of more or less oval outline with one steeply chipped end looks to be a possible endscraper. However, the presence of a large knob off one side of the dorsal or convex surface bears steep percussion scars suggesting the piece may not have been finished. In size the specimen is 47 mm long, 37.5 mm wide and 21 mm thick.

Bifacially worked tools: Two distal tip sections of thin triangular shaped points were recovered. One is from a small point and the other from a larger piece. Both are of light gray colored chert and have more or less straight lateral edges tapering to the tip.

Site 14JF363 can be identified on the basis of the ceramic specimens as being affiliated with the Grasshopper Falls phase. The artifact yield of ceramics, a scraper and points or knives with some indication of burned limestone and sandstone fragments would indicate that this was a habitation site. The small weathered pieces of fired clay, if correctly interpreted as daub fragments, would suggest the presence of a shelter or dwelling.

Summary and Conclusions:

Core testing indicated that there was a thin cultural level still existing, but it occupied an area of some 8 square meters. Considering the nature of the terrain, the washed terrace edge and the very minimal subsurface indication, the writer would conclude that this site has little potential to contain additional significant information. No specific preservation techniques are recommended for the site.

14JF364

14JF364 is a small site represented by a limited amount of material found on the top and edges of a narrow point of land. The point lies between two large ravines at the base of the valley slope on the left or east side of the Delaware river valley (Plate 6, A). The overall soil area is within the Vinland rock outcrop complex, 20%-40% slope. At the time of the survey, the top and upper edges of a small point still had some trees growing on it and fallen timber and driftwood littered the surface. The side slopes were essentially washed clean. The exposed soil was a pale brown, silty loam with some shale and limestone fragments included. The collected artifacts were at the edges and on the slopes of the point. Site elevation was estimated to be 895 ft. This general site area is some 120 m southeast of the site 14JF320 which was found during the original survey.

Recovered Material:

The catalogue for site 14JF364 contains 28 entries. The material consists of pottery sherds, chipped stone tools and tool fragments and chert chips.

Ceramics: Three eroded pottery sherds were recovered. These appeared to be body sherds from a broken pottery vessel. Characteristics of the paste suggests the Grasshopper Falls ware. The texture is medium and well compacted. Tempering consists of angular particles of quartz, feldspars, mica, etc. representing a crushed granite origin. Exterior surface treatment on the least weathered of the three sherds is cord-roughening. Interior surfaces were smoothed. Sherd thickness is 6-11 mm.

Lithics: Recovered stone material from the site consisted of chert chips and three bifacially worked specimens. The chert type represented was predominately the gray and maroon with two examples of the tan material.

Chips: Twenty-six small chips were recovered from the site surface. Most were of tertiary origin with some secondary examples still retaining some of the original limey matrix, also present.

Bifaces: Three specimens, a thin ovate biface, a stemmed point and the base from a stemmed point were recovered from the site. The plain ovate biface is roughly chipped from a gray Wreford chert (Plate 3, A). The proximal end of the specimen still retains the striking platform. It is assumed that the specimen is unfinished and could represent a preform. In size, the specimen is 57 mm long, 40 mm wide and 13 mm thick.

The point is a large corner notched expanding stemmed specimen (Plate 3, B). The blade is broad and triangular. Deep corner notches produced barbs. The base is broad, slightly expanding and the base, slightly convex. In overall form this point is similar to the Marcos point (Bell 1958:42). The chert from which the specimen is fashioned is a mottled pinkish gray color. In size the point is 59 mm long, 37 mm wide and 8 mm thick. The stem is 13 mm long and 25 mm wide.

The section of a point stem appears to be from a corner notched point of medium to large size with an expanding stem and concave base (Plate 3, C), to be a form suggestive of a Snyders type (Bell 1958:88). The chert from which the piece is made is a pale pinkish color suggesting heat treatment. However, it lacks the characteristic sheen often associated with pieces chipped after that process.

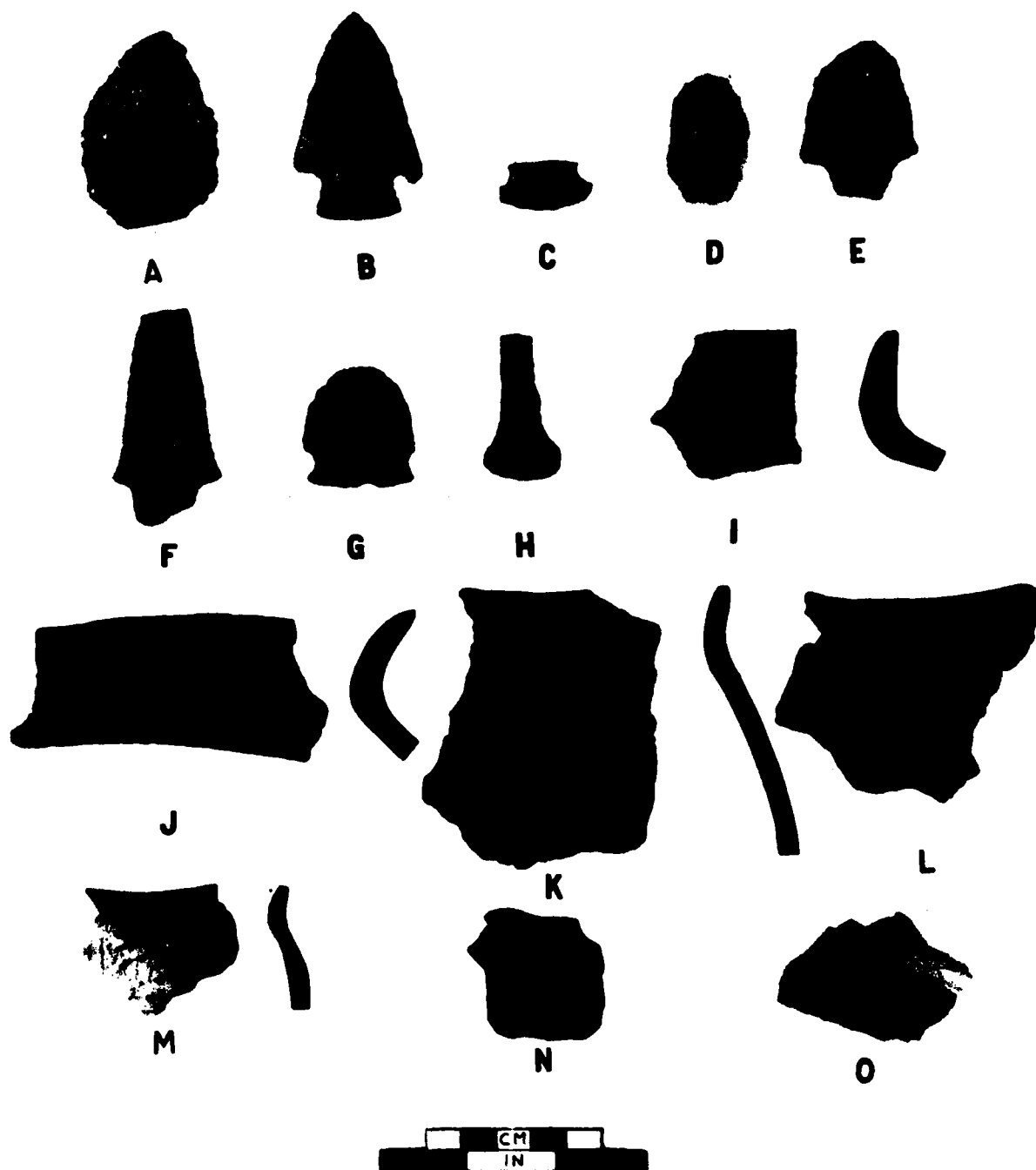


PLATE 3 Selected artifacts: 14JF364, A-C;
14JF365, D-I; and 14JF366, J-O.

Summary and Conclusions:

Site 14JF364, on the basis of the ceramics and recovered point types, can be affiliated with the Grasshopper Falls phase of the Plains Woodland. The presence of chert chips along with evidence of broken ceramic vessels indicates a habitation area. Because of extensive erosion to the point of land and the limited area from which material was found, less than 50 square meters, its potential to provide additional significant archeological information is quite limited. No particular preservation techniques or additional formal archeological investigations are recommended for this site.

14JF365

A site which was located on the lake shore on the right or south side of the Rock creek valley approximately one mile from its juncture with the larger river flood plain. This location southeast of the south approach to the Rock creek arm bridge is actually the upper edge of a terrace beginning at the base of the valley slope and extending out onto the Rock creek flood plain. Site elevation was estimated to be around 892 ft. Soils are of the Vinland rock outcrop complex, 20%-40% slope. Along the water's edge the soil color was a pale brown silty loam resulting from a highly weathered shale (U.S. Department of Agriculture, Soil Conservation Service 1977). Erosion along this lower edge of the valley appeared to be extensive. The site was only marked by a few artifacts, chert chips and one animal tooth found in an area 28 m long. No burned limestone or sandstone was observed other than that of the modern lake users. Reichart's field notes suggested that the main portion of the site may extend out onto the terrace indicated by contours on the Ozawie, Kansas U.S.G.S. quadrangle map. That surface is now below the multipurpose pool level of the lake. No cultural horizon was noted above the lake level. The site location is on the edge of the Perry State Park.

Recovered Material:

Recovered from the bare and washed lake shore were pottery sherds, one crude uniface section, five biface specimens, one drill, a core nuclei, chert chips and one animal molar.

Ceramics: Two weathered and eroded potsherds were recovered. In the case of most of the above sites, the overall characteristics for these sherds suggests they were of the Grasshopper

Falls ware. Characteristics of paste are: medium texture, coarse temper of crushed granite; exterior surface treatment, cord-roughening; and interiors smoothed. Sherd thickness was 8 mm.

Lithics: Finished pieces, sections and discarded material from manufactured chipped stone artifacts were made from apparently locally obtainable cherts. Colors range from light gray, tan to maroon. One core nuclei, 77 mm in maximum dimension, bore numerous flake scars from percussion chipping. One secondary and five small tertiary chips were also recovered.

Unifaces: A single crude piece bearing flake scars along the edge of one face was not modified enough to suggest the knapper's intention. One edge still bears the original cobble's weathered face.

Bifaces: Three more or less complete stemmed specimens, one ovate piece and a distal tip represent projectile point or knife forms. The single ovate form is convex at both distal and proximal ends and may represent a preform (Plate 3, B). In size this piece is 38 mm long, 24 mm wide and 10 mm thick. Two of the points (Plate 3, E and F) appear to be of the same original type, probably Langtry (Bell 1958:38). The pieces have contracting stems, prominent shoulders and long triangular blades. Both specimens are missing the extreme distal and proximal portions. These measure 31 and 33 mm wide across the shoulder, 7 mm to 8 mm in thickness and would have had an overall length of some 60 mm to 80 mm.

One reworked point section has a short, broad expanding stem, corner notches with slightly squared shoulders, and a short, broad blade reworked to a convex distal end (Plate 3, G). In size it measures 35 mm long, 32 mm wide, 8 mm thick and has a stem length of 8 mm.

The fifth point or knife section is the distal end of a large specimen, triangular in shape with straight lateral edges which converge to a sharp point.

Drill: A bifacially worked T-shaped drill, lacking its distal end, was also recovered (Plate 3, H). This specimen is well made and under magnification the more distal lateral edges of the stem show evidence of wear. The specimen is 22 mm wide across the base and 9 cm wide across the drill stem. Thickness is 8 mm.

Summary and Conclusions:

Site 14JF365 on the basis of the recovered materials is identified as part of a habitation site of the Grasshopper Falls phase. At the time of the survey, the area was actually a find spot for a limited amount of artifacts and other debris. Visual inspection of the shoreline found it denuded of vegetation and extensively washed and eroded. It was concluded that no in situ material or features survived above the conservation pool level which would warrant preservation. On the basis of the findings, it would appear that the site, as identified by the survey, has no potential to provide significant archeological information.

14JF366

The site was found on the right or south side of the Rock creek valley, approximately one mile west of its merging with that of the Delaware river. At the base of the valley slope, at the upper edge of a narrow terrace shelf, was found artifacts consisting of pottery, chipped and ground stone, and some burned limestone fragments (Plate 6, B). One shallow area of mixed soil, suggesting a filled basin, was also identified during the initial survey. The material was found for approximately 28 m along the shoreline and also extending out into the water. This area is some 16 m west of the riprap on the west side of the south end of the bridge which crosses from the Perry State Park northward to the marina area.

At the time of the investigations, the lake level was 890.99 ft. Maximum elevation for the exposed surface material was 893 ft. Wave action had eroded into the base of the hill slope leaving a low cut bank approximately one meter high with an exposed beach like area ranging from 2.5 to 5 m wide. The exposed cultural material was located around the base of a small stump and extended to the north some 28 meters. The area of mixed soil and charcoal was also adjacent to the stump as was a section of a pottery vessel lying broken in situ among the roots. The artifacts, primarily pottery sherds, were mainly along the water's edge and extending out under water. Some sherds were recovered by wading out, and picking them up off the slope under the surface of the lake, one of the few actual instances of underwater archeology in Kansas. The soils at the base of the Vinland rock outcrop complex had a 20%-40% slope. The actual soils appeared to be from

weathered shale, exposed at the north end of the site area, as a pale brown silty clay loam. This lower slope between the cut edge of the slope and the waterline was washed clean of any vegetation. The pot section recovered from the area of the stump was designated as Feature 1.

The nature of the soil and the displaced occurrence of the artifacts and other site related materials made it apparent that at least what was visible was extensively eroded. The oval area with the mixed soil, charcoal and sherds was the single surviving element identified as part of the cultural horizon. In horizontal cross section as exposed, the mixed zone looked to be 2.5 m north to south and 1.3 m east to west. The feature contained darker gray soil with some charcoal, potsherds, and dark red colored earth around the edge. Cored with the Oakfield coring tool, it had a maximum depth of some 15 cm. The area was designated Feature 11 because it was obvious that the feature would soon be totally eroded away; the testing at this site was the coring of that feature. Coring consists of removing the mixed fill to culturally sterile and undisturbed soil in order to identify the original configuration of the depression. This was worked out with trowels and other small excavation tools to expose a shallow, broad, flat-floored basin. At the bottom of the fill, was carbonized wood in a pattern suggesting decayed branches or roots. Cultural material found at the time of the coring, were two potsherds and two small bone sections. Also noted in the fill were limonite and hematite staining--the red color noted in the horizontal cross section. When finished, the resulting basin was 1.8 m long, north to south, and 1.4 m wide, east to west. In depth it ranged from 15 m deep on the south end, to ground surface on the north. The contents and overall configuration for the basin suggests it may have had cultural origin such as the lower limits of a borrow pit.

Recovered Material:

The catalogue sheet numbers 176 entries for material collected from the surface of the site and the coring of F11. This material includes pottery sherds, fired clay daub, chipped stone tools, ground stone tools, a crockery sherd, chert, animal bone and chunks of grass impressed lime.

Ceramics: Culturally created fired clay material from the site consisted of pieces of broken pottery vessels, grass impressed daub and one historic crockery sherd. The pottery sherds could be readily sorted into two basic wares by observing the tempering and exterior surface treatments. Two components can be demonstrated by elements of form, decoration and presence of appendages.

The first grouping contains specimens which are typical for the bulk of sites identified during this particular survey as being Grasshopper Falls phase ware. The sherds are of medium texture and heavily tempered with quartz, feldspars, mica and other materials suggesting a crushed granite origin. Exterior surface treatment, visible on sherds which have not had extensive weathering, can be seen as cord-roughened, applied vertically on the body of the vessel. Interior treatment is generally smooth. The sample is made up of two rims and 25 body sherds all collected from the surface. The two rim sherds are from different vessels, both represent direct slightly flaring forms with a narrow rounded lip. In height they range from 25 mm to 33 mm. Neck thickness is 8 mm to 10 mm. On each the cord roughening has been smoothed over on the neck. The body sherds appear to be from a large vessel having a slightly constricted orifice with sloping shoulder. Body sherd thickness ranges from 5 mm to 9 mm with most being around 7 mm thick.

The second ware recovered from site 14JF366 is represented by at least 10 different pottery jars as identified by the rim forms. The overall sample is made up of 14 rim sherds, six shoulder/neck pieces and 47 body sherds. Three of those rim sections and seven body sherds were in the Feature 1 complex, (the shattered pot section found in situ). The paste characteristics for this group is one of medium texture, laminated, with the tempering material probably consisting of natural inclusions of shale, hematite, limonite, etc. Tiny particles of silica and sand suggests that the original clays were derived from weathered shale formations such as might be observed in the immediate vicinity of the site. Upon firing and/or later leaching and weathering, these flakes and chunks of shale and other minerals dissolved, oxidized or otherwise decomposed to leave a "cell temper". These cells had the form of slots and blocky or irregular shaped cavities in the paste. Several sherds were broken to expose a fresh core and some of the cavities could be seen to have a soft residue of limonite or lime. Small chunks of hematite were observable in the paste,

The slot like cavities suggested the possibility of shell being the temper, but no shell was observed even on freshly broken cross sections studied under a 15X to 30X stereoscope.

The exterior surfaces on all of the same were finished smooth, but were marked, however, by the numerous pits discussed above. Interior surfaces are also smooth with some horizontal striations noted, particularly around the inner side of the shoulder and lower neck.

Form as identified by the sherds indicated seven vessels with constricted orifices and direct outslipping or flared rims, low or medium in height, 8 mm to 25 mm, set onto broad, flat or gently sloping shoulders (Plate 3, I and J). Two smaller jars are represented with outflaring rims and steeply sloping shoulders (Plate 3, K). Both of these vessels have low rims, 10 mm high. Rim thickness ranges from 4 mm on the small vessels to 10 mm on the larger specimens.

Appendages are represented by two rim sections as strap handles. One specimen retaining its handle has a strap coming from the lip to the upper shoulder (Plate 3, L). The second specimen has the actual handle missing, but the attachment marks are from below the lip on the neck to the juncture of neck and shoulder. Strap width on the complete specimen is 55 mm at the top, tapering to 35 mm at the attachment. The broken specimen's attachment marks measure 20 mm wide top and bottom.

Decoration is apparent on three sherds: one rim, one strap handle and one body sherd, (probably shoulder). The rim is from one of the small jars and has short incising on the front edge of the lip and on the shoulder as vertical incising, spaced at 25 cm apart with diagonal incised lines between (Plate 3, M). The body sherd, judging by its thickness, appears to be from the shoulder of a piece with steeply obliqued, narrow trailed, parallel lines extending down from a horizontal border line around the upper shoulder (Plate 3, N). The third decorated specimen is the complete strap handle (Plate 3, L). At the base of the handle are two concentric, incised lines and what looks to be the remains of two broad trailed vertical lines on the shoulder of the vessel next to the handle.

Body sherd thickness for this second ware ranges from 3 mm to 12 mm. However, the bulk of the sample is from 4 mm to 6 mm in thickness.

The overall characteristics of this second ware, generally globular shaped vessels, broad, flat shoulders, strap handles, and perhaps most diagnostically, the incised decorated shoulders, suggest a cultural origin affiliated with or influenced by a Mississippian tradition. Such groups who existed specially adjacent to this area would be the Nebraska phase and Steed Kisker. However, elements for the temper at 14JF366 lack the sand or grit of the Nebraska phase or the shell of the Steed Kisker materials.

A third ware is suggested by one body sherd. Overall characteristics are quite similar to the second ware's description, except that the tempering material is composed of grit. Its marked curve, suggesting a globular vessel and smooth exterior suggests a Middle Ceramic classification, perhaps Nebraska phase.

The remaining vessel sherd is a cream ware of historic origin (Plate 3, 0). This is a highly fired earthen ware, salt glazed and looks to be a portion of a bowl form. The color of the specimen is a pale yellow. Dates for such a specimen would be ca. 1860-1870.

Thirty-three irregularly shaped pieces of fired clay bearing grass and pole impressions, were recovered from the shoreline and the inundated portion of the terrace. In size, the pieces range from 21 mm to 50 mm in maximum diameter and tend to be somewhat flattened in shape 5 mm to 23 mm in thickness. Most are fired to a black or grayish black in color with four of the pieces being from black to buff. Smaller fragments tend to have grass impressions, parallel to oblique, on one face (Plate 4, A and B). Two of the larger pieces have pole impressions on both faces and parallel or oblique relationship (Plate 4, C and D). These pieces are interpreted as representing clay plastering material or daub utilized for the construction of an aboriginal structure. The burning is assumed to be the result from the destruction of the framework by fire.

Lithics: Stone material collected from the shoreline zone consisted of chert chips, uniface scrapers, bifacial point and knife sections, a ground stone celt, sandstone shaft smoothers and abraders, and quartzite cobbles. Chert varieties represented were predominately of the dark gray, tannish gray, tan, pinkish and grayish white. One grayish piece appeared to have been heated, but the surface bears the pock marks typical of uncontrolled firing on a chip.

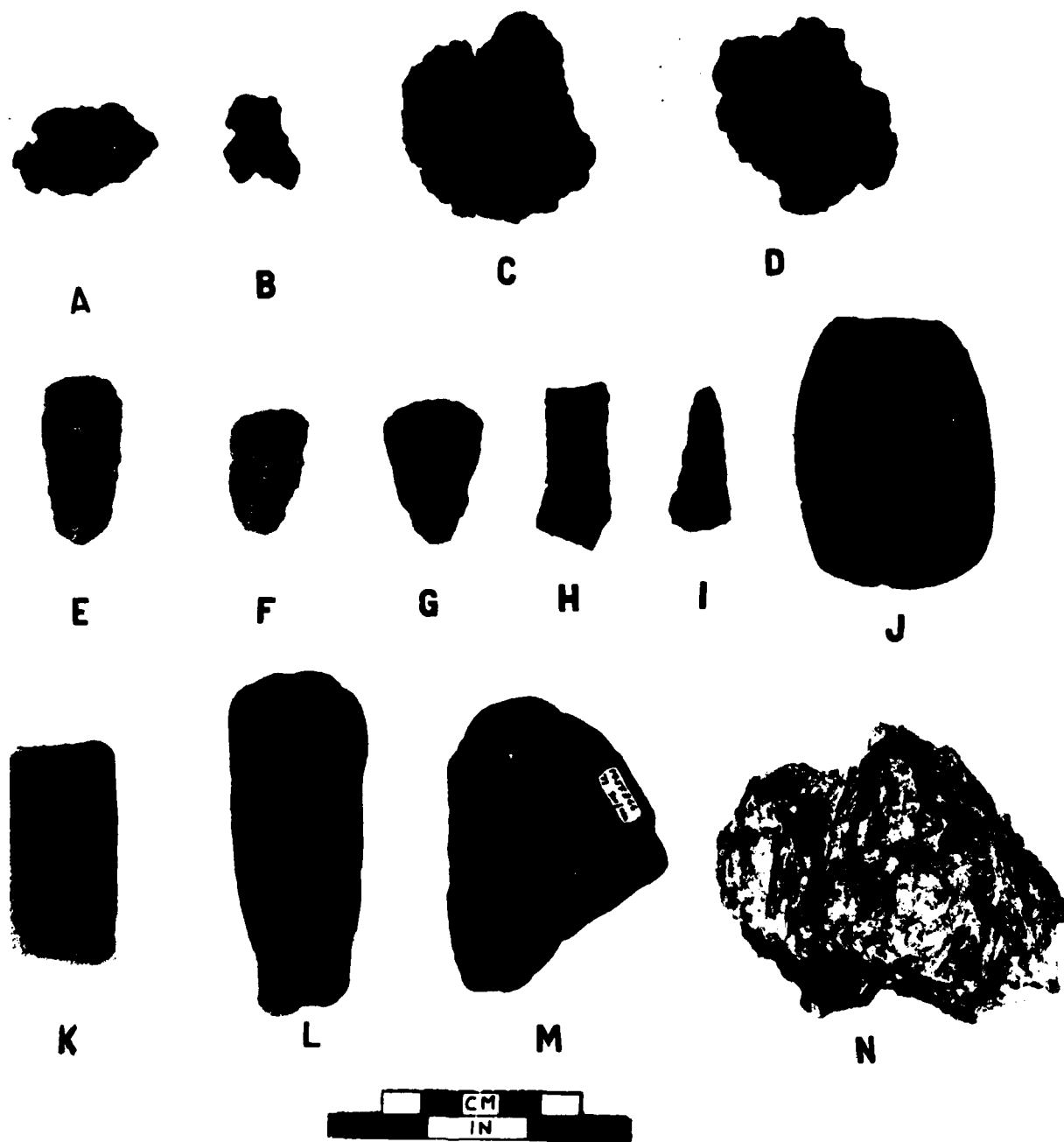


PLATE 4 Selected artifacts from 14JF366

Evidence for stone tool manufacture was limited to five chips. These were all of the tertiary variety. No cores or core nuclei were recovered.

Unifacial tool: Three endscrapers and one blade tool are in the sample (Plate 4, E-G). Two of the pieces have an irregular keel like form along the dorsal side, while the third has a flake removed to thin the dorsal face. In size the endscrapers are 32 mm to 44 mm in length, 22 mm to 25 mm wide near the distal end and 7 mm to 9 mm thick at the distal end. The thin, narrow flake blade tool shows retouching along each lateral edge of one face (Plate 4, H). The overall measurements, with one end missing, are 42 mm long, 16 mm wide and 5 mm thick.

Bifacially worked tools: Four specimens representing two or three projectile points and one large knife like piece were recovered. One relatively complete point may be described as an elongated triangular piece with slightly asymmetrical lateral edges (Plate 4, I). One edge is straight and tapering, the other is slightly concave to give the base a slightly flared appearance. The proximal base edge is slightly convex. In size the piece is 41 mm long, 9 mm wide at the base and 6 mm thick. Some wear polish is apparent along the lateral edges and on the tip of the specimen. The second point section is the distal portion of a narrow tapering point. The remaining pieces are a small section of the lateral edge of a medium sized point or small knife. The fourth specimen is the distal end of a thin knife blade having a maximum incomplete width of 27 mm and a thickness of 5 mm. None of these pieces are particularly diagnostic other than the smaller size range suggesting Ceramic period affiliation.

Ground stone: A small celt manufactured from a pecked and ground diorite cobble was recovered from the shoreline (Plate 4, J). This piece has the lateral faces of the bit well ground. The remainder of the piece has a roughly pecked and chipped surface. The poll is squared and appears to be an unfinished or broken surface. In size, the specimen is 68 mm long, 27 mm thick at the poll and 48 mm wide at the widest point near the midsection.

Three roughly loaf shaped fragments of sandstone were found bearing one or more grooves on each face. One of the pieces has a groove, "U"-shaped in cross section, with

straight edges suggesting use as a shaft smoother (Plate 4, K). The other pieces have "U"-shaped grooves which tend to be scooped into the rock rather than running the full length, as is formerly seen on shaft smoothers (Plate 4, L). These latter two pieces, if used as shaft smoothers, also served other abrading functions. The loaf shaped abraders have at least one broken end so that the range of measurement is 55 to 85 mm in length and 19 mm to 38 mm square in cross section. Three other pieces of sandstone have a more natural blocky fragment configuration (Plate 4, M), and have one or more grooves on the natural faces. The narrower grooves have a "V"-shaped cross section, while one piece has a very wide "U"-shaped groove 16 mm wide and 6 mm deep. The groove width on the shaft smoother section is 6 mm wide and 2 mm deep. "V"-shaped grooves tend to be as deep as they are wide, most around 4-5 mm.

Stone cobbles: Five quartzite cobbles were picked up from the site surface. These range from some 60 mm to 90 mm in maximum diameter. Most pieces bear some battering marks along the end suggesting use as hammerstones. Two of the pieces are blackened suggesting that they were heated or fired at one time.

Faunal Remains: Recovered bone material was burned and in small fragments. Overall thickness suggests it was from a medium to large mammal such as deer.

Grass Impressed Lime: Occurring on the hill slope and at the water's edge, were numerous flat pieces of limey like material bearing grass impressions (Plate 4, N). The material did not appear to be of aboriginal origin and suggested to the writer plaster or another lime mixture, which has been dumped out on the ground to dry. Its configuration was like daub, but the material would be foreign to aboriginal sites in this area. It is probably of more recent historic origin.

Summary and Conclusions:

Site 14JF366, on the basis of the recovered material and implied cultural association, is one of the more interesting ones within the lake area. The ceramics indicate a Grasshopper Falls component had been present, followed by one of a Middle Ceramic group bearing Middle Mississippian elements. Thus, Nebraska phase or even Steed Kisker is suggested. As the Middle Ceramic is primarily represented by the Pomona focus in the reservoir area, the identification of another Middle

Ceramic component is significant. Unfortunately, the obvious washed conditions of the shoreline and the exposure of the older terrace surface indicates that the cultural horizons have already been obliterated.

The specimens recovered from the site, being portions of ceramic vessels, craft tools such as the arrowshaft smoother and abraders, ground stone celt, points, scrapers and bifaces as well as the fragments of grass impressed daub, indicate that at least the Middle Ceramic component was a habitation area probably with a constructed dwelling. The bottom of the excavated basin also would support this is the interpretation of a borrow area is accurate.

The chunks of lime with a single small crockery sherd would date an historic component or at least debris probably dating from the late 1800s.

As the cultural horizons have been washed from the terrace surface, the significance of this site rests in the collected artifacts and implied cultural association. That portion of the site above the approximate multipurpose pool level warrants no additional formal archeological work or specific preservational measures. The presence of in situ material below the multipurpose level is doubtful, but not specifically assessed because of the lake level. The site might be revisited at times of drawdown, perhaps below the 870 ft or 860 ft level to see if a silting or cutting action has taken place. In the case of the former, some portion of the site level or perhaps deeper features such as postholes or pits might still be present.

14JF367

This designation is actually the site of a site at the confluence of French creek and an unnamed tributary near the Sunset Ridge area. The location was identified on the early 1856 Kansas land plat surveys (Calhoun 1856) as the location of an "Indian village", (Plate 6, C). The field notes for the survey were consulted for additional identification (Adams 1856). Unfortunately, the comments related to the actual section lines and had no specific comments as to what prompted the map notations. Adams' notes related crossing a series of Indian trails which seemingly radiate out of Section 22, but without indication by him of their origin.

As the map location was on or adjacent to the 900 ft elevation, Reichart exhaustively searched the area for some indication of prehistoric or historic aboriginal activities and found no exposed evidence. Reichart related that the previous landowner had a bulldozer and apparently had extensively modified the surface of the area.

The cultural affiliation for the "Indian village" is at this time extremely problematical. This portion of the Perry lake project was once included in the Delaware reservation. A treaty with the Missouri group of Delaware Indians was made in 1829 allocating them lands in Kansas totaling some 924,160 acres (Weslanger 1972). The Reverend Isaac McCoy was involved in the early surveys of these Delaware lands. By 1835, most of the Delaware had moved into Kansas (Blackmar 1912). The Delaware were said to have built log cabins and established farmsteads with livestock as well as croplands. The reservation was extinguished in 1866 and in 1867. President Johnson merged the Delaware with the Cherokee in the Oklahoma Indian territory (Blackmar 1912:910). Thus if this "Indian village" was a Delaware habitation area, the artifact materials would, for the most part, be similar to the contemporary Euro-American settlements. However, such notations on the early land plats could refer to abandoned villages either of the historic or possibly prehistoric which the surveyors had noted.

As the survey was negative with regard to any evidence for a habitation in this location, a cultural affiliation is somewhat academic. Its designation during a survey with a site number, therefore, serves more to document the research than report positive field results. On the basis of the original field inspection, the site area does not warrant specific preservation or additional specific archeological work. Future surveys might recheck this area. Historic reviews of the Perry lake area might consider this identification in the hope that additional information might come to light from other sources not available to this writer.

PREVIOUSLY RECORDED SITES REVISITED

Four previously identified sites which lay within the sample survey area were revisited during this recent work. Exposed cultural material was recovered and any additional site situation observations were recorded to supplement the original survey forms.

14JF34

A site originally recorded by Kansas University Museum of Anthropology in 1965. It is reported as occupying about two acres atop a terrace between farm buildings and a small stock pond. The majority of the site area was noted to have been used as a cattle feedlot. Collected artifacts caused the original cultural interpretation to be "Ceramic, possibly both late Woodland and Central Plains phase". In 1974 Milton Reichart visited the site area and reported that it was now part of the Old Town public use area. Materials collected at that time included pottery sherds identifiable as Grasshopper Falls phase ware. The most recent survey found the west edge of the site to be severely eroded with a limited amount of cultural material exposed. A hafted scraper and some chert flakes were recovered during this visit. This site is being picked over by local collectors with the resulting loss of potentially significant specimens. The surviving potential for this site would be limited because of the erosion and picked over nature of the materials.

14JF37

A site originally recorded by the Kansas University Museum of Anthropology in 1965. At that time it was eroding out of a steep bank overlooking the Delaware river to the east. The site was tentatively identified at that time as "Woodland". When revisited on the present survey, the projectile point tip section, the corner base section of a biface, core and chert flakes were recovered. The eastern edge of the site is now being used as a boat launching location. Considering the original notation of a grit tempered pottery sherd, perhaps a Grasshopper Falls phase cultural affiliation could be assigned to this site. Reichart noted that the soil is very thin at this location without an accumulation of overburden. Artifacts appeared to be very shallow. The site has little or no surviving potential for information and no specific study or preservation activity is recommended.

14JF320

This was a site originally recorded by the writer in 1963 on the basis of reports from local collectors. The site was a low terrace or bench at the base of the valley

bluffs on the left side of the Delaware valley. Heavy vegetation at the time of the original survey obscured most of the area. Charles Bramel of Kansas City had shown the writer a large section of a Kansas City Hopewell vessel which he reportedly found at this location. Subsequent visits to the site recovered only minimal lithic materials. Revisit by Reichart during the recent survey resulted in the recovery of 14 sherds and a few chert flakes. The grit tempered, cord-roughened material identified a Grass-hopper Falls phase component at the site. The edges and slopes of the site area are eroded by wave action. Its potential for surviving evidence is undetermined. Testing should be carried out to determine the extent and content of any surviving portions of the site.

14JF453

A site reported to the Society by Milton Reichart in 1974. At that time, it was described as being on an upland slope overlooking the left side of Rock creek. Small corner notched projectile points, and grit tempered pottery sherds, at that time, suggested a Plains Woodland habitation. The recent survey found that the site extended to the east of the ridge a distance of some 47 m and was being subjected to erosion. Material collected from this revisit consisted of grit tempered pottery sherds, Scallorn point, projectile point bases and waste chert flakes. The extent of erosion would indicate little or no scientific potential remains for this site. No specific preservation or additional archeological activities are recommended for this site.

A. View of site 14JF358
looking to southeast.



B. View of site 14JF359
looking to south
southwest.

C. View of site 14JF361
during testing looking
to southwest with X2
in foreground, X3
beyond.





A. View to north of
site 14JF364.

B. View from Rock
creek bridge
looking northwest
down on the site
location of
14JF366.



C. Kansas land plat
survey map with
"Indian village"
indicated. Site
14JF347 was
designated on the
basis of this
notation.

SURVEY SUMMARY AND CONCLUSIONS

The sample shoreline survey concentrated upon three segments of the Perry lake project area adjacent to the Paradise Point, Sunset Ridge and Perry State Park public use areas. The respective shoreline distance was some 20 miles long and vertically limited primarily to the 889 ft to 900 ft contours above the mean sea level. Topographically, this was primarily the lower valley slopes or high terraces adjacent to the flood plain. Nine previously unrecorded site locations were identified on the basis of exposed cultural debris. A tenth site was identified from an early Kansas land plat map notation. Four previously recorded sites which lay in or adjacent to this area were revisited to update the data and sampling.

On the basis of the collected artifact materials, 11 of the total 14 sites were single components identifiable as the Grasshopper Falls phase of the Early Ceramic. The twelfth site was two components consisting of a Grasshopper Falls phase and a Middle Ceramic, Mississippian influenced group such as Nebraska phase or Steed Kisker. The remaining two sites did not yield enough material to make possible specific cultural identity other than prehistoric, aboriginal.

The soils as noted for the newly recorded sites were in three series. Sites 14JF358 and 14JF359 were found on ridge tops and side slopes. Site 14JF363 was in the Martin silty clay loam which is a soil on slopes or convex ridge tops above limestone outcrops. Remaining sites 14JF360, 14JF361, 14JF362, 14JF364, 14JF365, and 14JF366 were associated with Vinland rock outcrop complexes which is a shallow soil on moderate to steep soils of the upland.

The present topographic situation of the sites at the edge of the multipurpose pool has caused them to suffer extensively from wave action and general erosion. For most, this has so damaged or obliterated the sites, that their future potential to provide scientific information no longer exists. One site, 14JF366, was predominately eroded away, but testing revealed one small portion of the upper slope side still to be present. Two other sites, 14JF34 and 14JF320 are in such a land form condition that testing was recommended to delineate surviving horizontal and vertical extent.

Despite the negative findings with regard to physical scientific potential and need for additional study, the topographic situation of these sites does present some significant insights. The sample shoreline areas were adjacent to the main valley area of the Delaware river within the lake portion. During the early surveys of the reservoir, reports by collectors as well as findings of the first investigators, noted that very few sites were reported or located on the flood plain of the valley. Such occurrences were found to be common higher in the drainage in which is now the flood pool area of the lake. During the survey, it was assumed that either silting or perhaps erosional wash by flooding had obliterated the sites if any were on the flood plain. For this reason, the clustering of identified sites were on tributaries or the upper reaches of the Delaware valley. These high terraces or lower valley slope areas were predominately in timber at the time of the original survey, thus the exposures of material was not available either to the collectors or the original investigators.

The most recent survey specifically concentrated on those terraces after erosion had stripped away obscuring top soil and vegetation to expose the evidence. The situation of no site locations on the flood plains of major streams is not unique to the Delaware, and has been encountered in other river valleys, i.e., the Kansas river (Witty 1979). Thus when similar absences of sites on major flood plains were noted, intensive study should be made of the adjacent high terraces and lower valley slopes. Thus, stretches of river valley which may appear to have few sites may indeed have the surviving evidence located on the edges adjacent to the flood plain but out of the flood zone. Whether these are the only sites or merely the ones that have survived for our observation has yet to be determined, but certainly a pattern is in evidence here, at least for the Osage Plains.

The cultural affiliations also are very interesting, with the almost total inventory being affiliated with the Grasshopper Falls phase of the Early Ceramic. The discovery of the component at 14JF366 and its Mississippian influenced Middle Ceramic component, Nebraska phase or Steed Kisker, yields enough artifacts and suggestive habitation information for a specific occupation. Thus far, most of the Middle Ceramic finds have been of the Pomona focus or random artifacts from the upper portions of the project.

In conclusion, the survey did identify the presence of archeological sites in the shoreline zones of the multipurpose pool area and documents the severity of the erosion and thereby the vulnerability of such sites in that topographic situation.

RESOURCE MANAGEMENT CONSIDERATIONS

For the purpose of cultural resource management, two considerations may be discussed on the basis of the survey findings. These are the management recommendations for the new sites found as the result of the survey and what recommendations could be made for additional surveys of the project shoreline.

This sample survey identified ten new sites and revisited four others in specific reaches of the multipurpose level adjacent to the Paradise Point, Sunset Ridge and Perry State Park areas. Of the new sites, all had been severely damaged and/or obliterated by lake water, wave action and erosion caused by periodic inundation and denuding of the shore vegetation.

One new site, 14JF361, was found to have a small portion of the cultural horizon surviving. Intensive excavation of this portion of the site, probably the upslope edge of a habitation area, would probably yield some artifacts and data which might serve some specific research goals. However, the site does represent the Grasshopper Falls phase which is by far the most numerous manifestation in the lake area and of which more intact and thereby potentially more important sites are known. Therefore considering the incomplete nature of 14JF361, its potential to provide additional important information is limited.

Site 14JF366 represented two components, Grasshopper Falls phase habitation and in the scope of the project, a unique Middle Ceramic, Mississippian influenced component of Nebraska phase of Steed Kisker affiliation. The topography suggests that most of what was the site area lies beneath the multipurpose pool level on the surface of a now submerged terrace. A number of artifacts collected from the site were taken from underwater at the lake edge. While it would appear that this situation is more suggestive of one of erosion rather than silting or stabilized inundation, we have no data for a positive statement. Therefore, site 14JF366 should be revisited at the time of drawdown when the whole terrace top is accessible.

The four previously identified sites which were revisited in the survey area included two which were severely eroded, 14JF37 and 14JF453. Therefore, these sites warrant no additional archeological studies or preservational consideration. The

remaining two, 14JF34 and 14JF320, appear to have soil zones which may have a thin horizon with some limited potential to provide scientific information. It is recommended that those sites be tested to determine horizontal as well as vertical extent and to test the possibility of surviving subsurface features and/or materials. However, in considering the full range of known sites thus far within the Perry reservoir and considering the amount of work still needed, the testing of these two sites should have a relatively lower priority.

Table 1 tabulates the sites as to cultural affiliation, their potential to meet National Register criteria, and presents recommendations for action, e.g., the collecting of additional data, mitigation, preservation of the site in place, or to take no additional action. Essentially the recommendations are determined by the data available from the site to meet National Register criteria for evaluation. These criteria:

...are designed to guide the States and the Secretary of the Interior in evaluating potential entries...to the National Register are:

The quality of *significance* in American history, architecture, archeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- (A) that are associated with events that have made a significant contribution to the broad patterns of our history; or
- (B) that are associated with the lives of persons significant in our past; or
- (C) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- (D) that have yielded, or may be likely to yield, information important in pre-history or history. (U.S. Department of Interior, National Park Service 1971).

These criteria were applied to the evidence collected from each site in the designated survey area. Ten definitely were too eroded to ever meet the criteria. Three lacked specific positive or negative evidence for evaluation. Additional work in the form of testing and/or revisit, which is beyond the limits of this particular study, is needed to gain that evidence. The last site, 14JF361, is in a gray area as a portion still remains. But in the writer's opinion it is not of the degree of importance to warrant National Register evaluation. Intensive excavation at such incomplete sites usually gives incomplete results and wastes valuable resources which could be expanded at more complete and thereby more important sites.

TABLE 1

Recommendations for new sites or previously recorded sites revisited during the sample Perry lake shoreline survey.

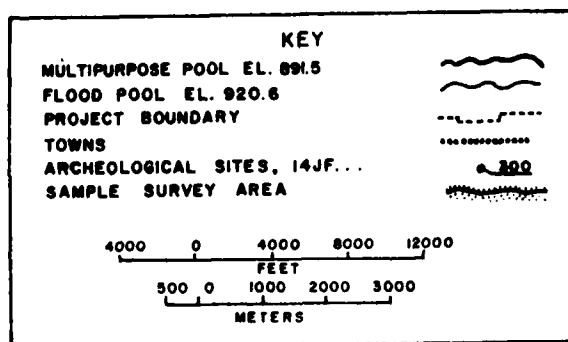
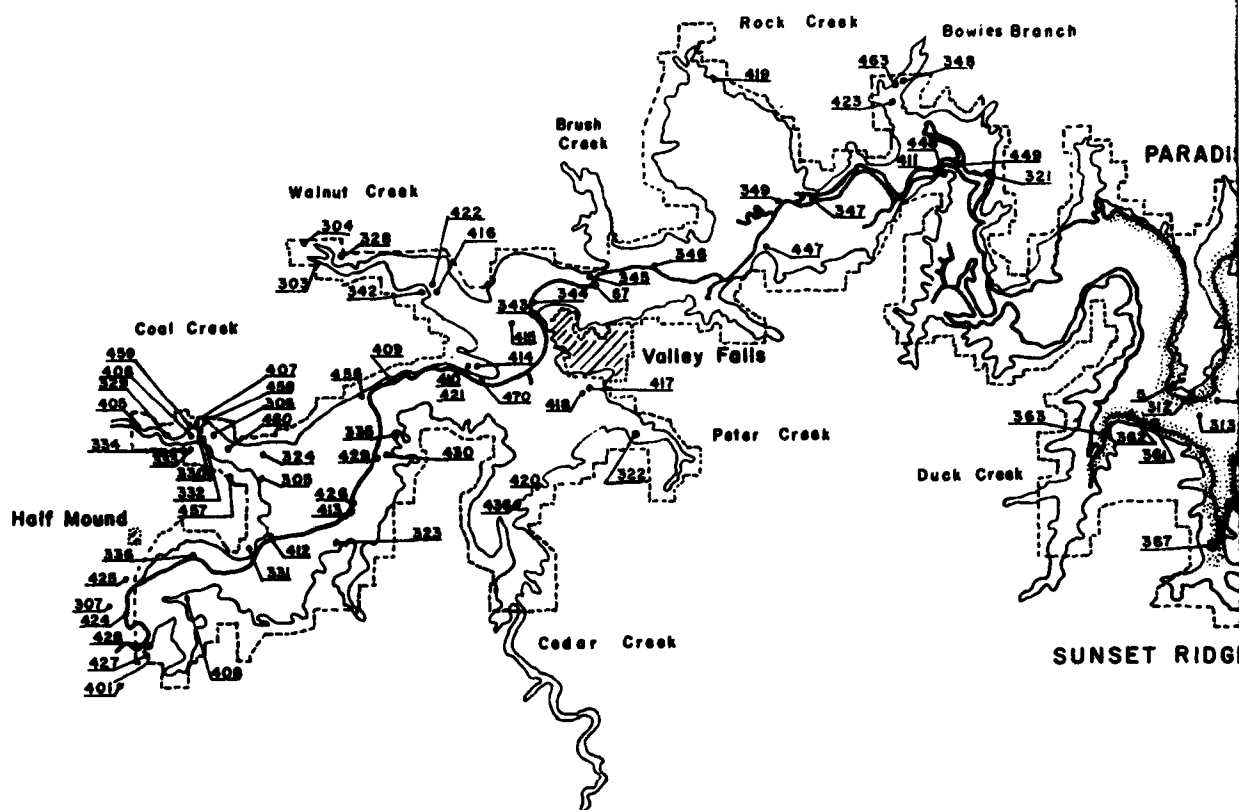
Site No.	Cultural Affiliation	Potential To Meet National Register Criteria	Recommended Action
14JF34	Grasshopper Falls phase	undetermined	testing
14JF37	" "	none	none
14JF320	" "	undetermined	testing
14JF358	undetermined	none	none
14JF359	" "	"	"
14JF360	Grasshopper Falls phase	"	"
14JF361	" "	limited	excavation might yield additional evidence
14JF362	" "	none	none
14JF363	" "	"	"
14JF364	" "	"	"
14JF365	" "	"	"
14JF366	Grasshopper Falls phase, Middle Ceramic	undetermined	revisit when water lower
14JF367	"Indian village"	none	none
14JF453	Grasshopper Falls phase	"	"

Survey findings applicable to future cultural resource management plans for the reservoir is the demonstration of the likelihood for sites to be present at or near the edge of the multipurpose level throughout the project area. Considering the "discovery" of sites in this particular topographic situation, i.e. lower valley slopes and high terraces, there is a likelihood of more sites to be present. Considering the amount of erosion that has taken place, if one of these is discovered in an intact state, it would be of singular importance to be studied for comparison to those sites higher in the drainage where the valley is broader and less deeply incised.

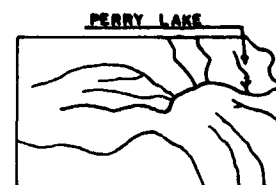
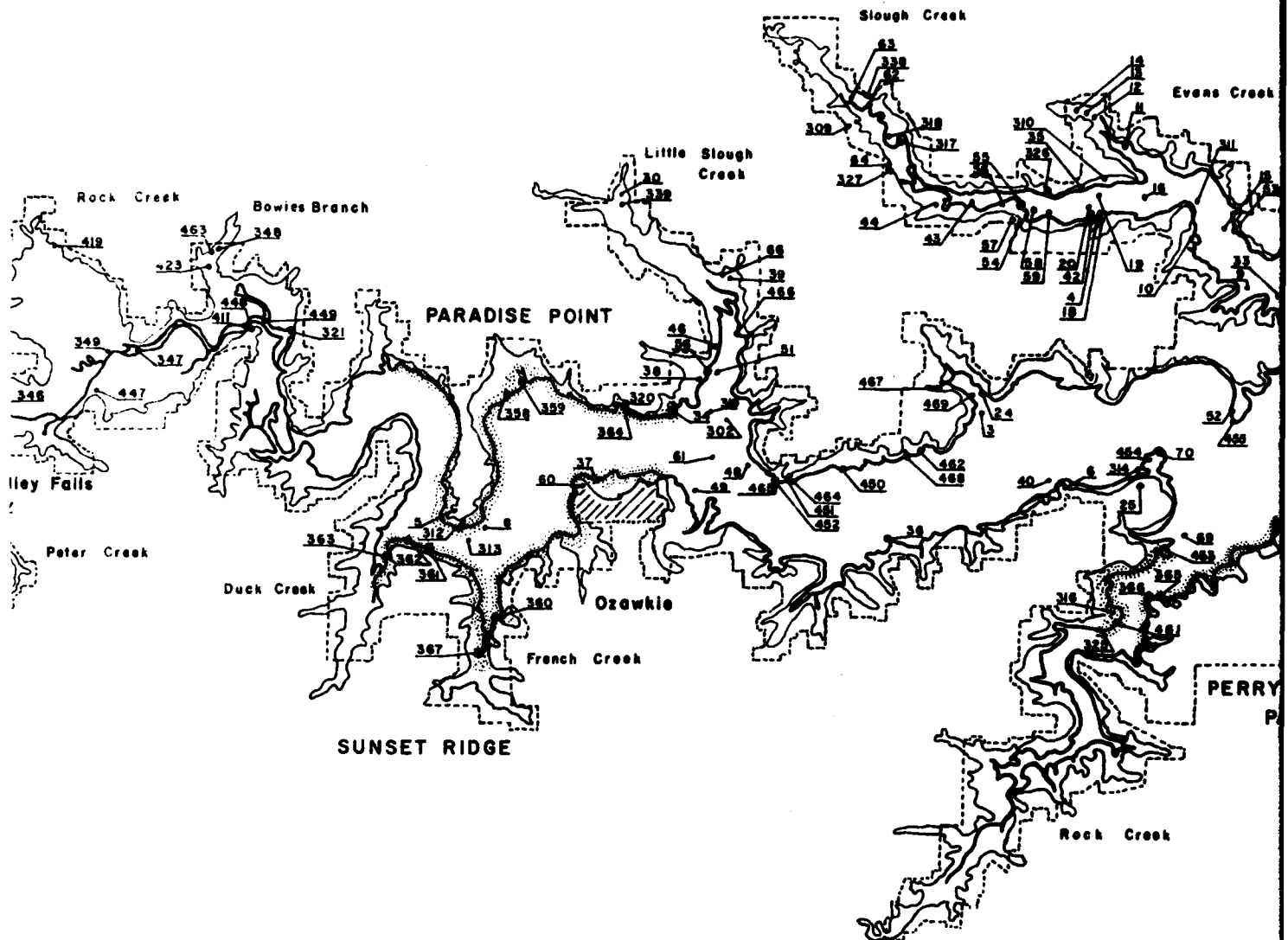
Of note is the extensive presence of the Grasshopper Falls phase cultural manifestation. This concentration of a single manifestation for the Early Ceramic or any other cultural group, while possibly the result of sampling, is unparalleled in these major river valley tributaries to the main stem of the Kansas river.

The inventory, early investigation and subsequent definition of these Plains Woodland peoples and other significant cultural complexes is a direct result of the active archeological program in the major federal reservoirs of eastern Kansas. The next step is responsive management and relevant professional archeological judgment to make possible compatibility of project operations and the conservation of the cultural record of Kansas.

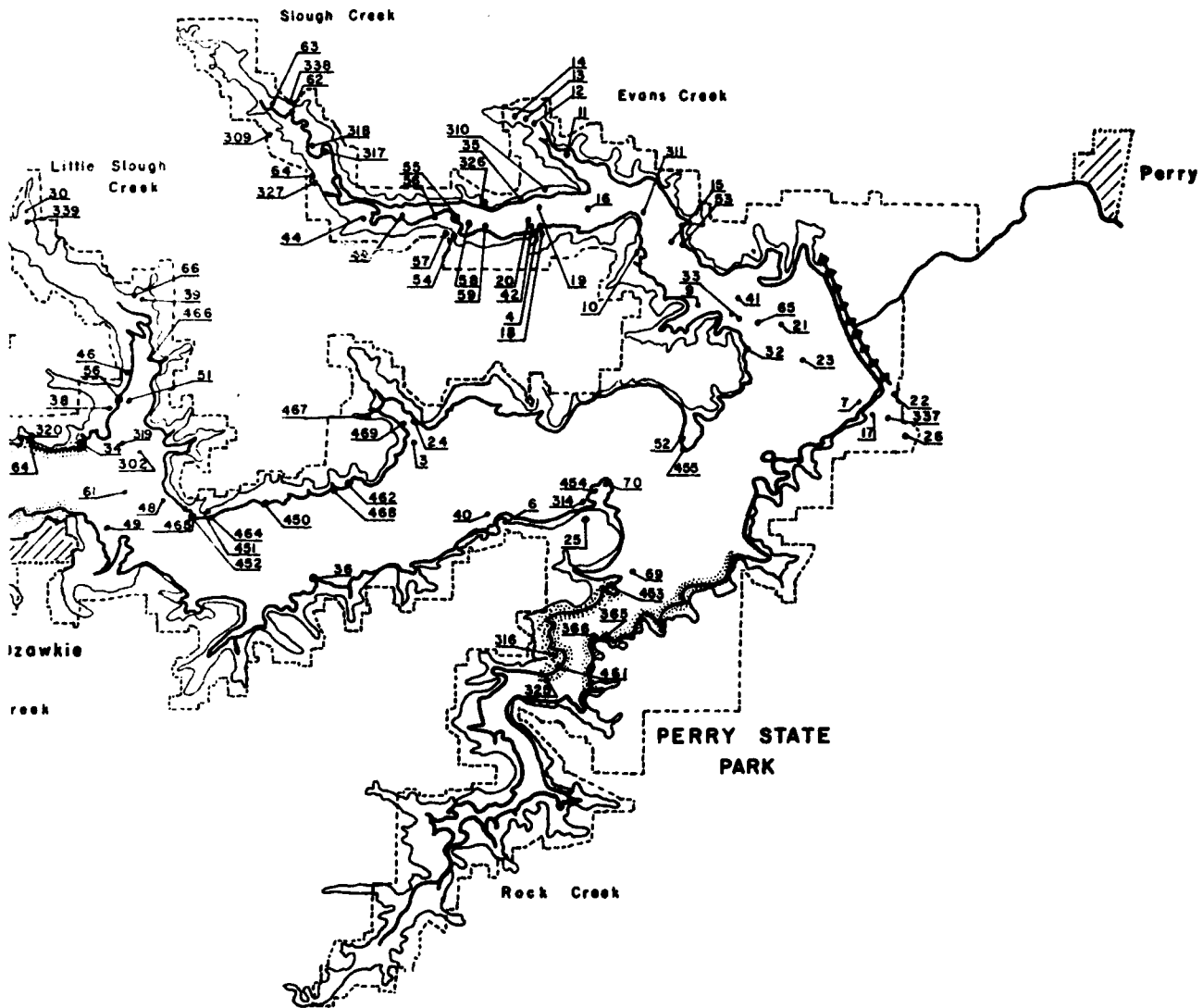
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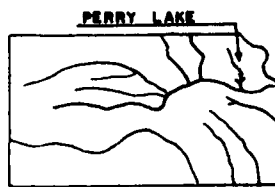
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KANSAS



MAP 1



KANSAS



DEPARTMENT OF THE ARMY
KANSAS CITY DISTRICT, CORPS OF ENGINEERS

ARCHEOLOGICAL RESOURCES

PERRY LAKE, KANSAS

SAMPLE SHORELINE SURVEY

ADAPTED FROM DACW41-77-M-0675

SCALE 1:49,000

AUGUST 1981

KANSAS STATE HISTORICAL SOCIETY

TW

DACW41-79-M-0895

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GLOSSARY

Aeolian Deposit	Pertaining to sediments deposited by wind action.
Alluvial Deposit	Consisting of, or formed by, sand or mud left by flowing water.
Anomalies, Magnetic	Irregularities in the earth's magnetic field caused by the presence of a ferrous object; magnetic anomalies are detected by an instrument called a magnetometer.
Anthropology	The science which describes the laws of human behavior by reference to the physical and cultural characteristics of man.
Archaic Tradition	A major large scale cultural continuum in the Eastern United States area, dating from approximately 8,000 to 1,000 B.C. This tradition had a subsistence economy of hunting small game, fishing, and food gathering; there is no evidence of agriculture or pottery use.
Archeology	The science or study of remains or early human cultures and the methodologies employed in locating those remains.
Archival Review	An investigation of repositories of documents, records, and published materials for relevant data.
Artifact	Any object or part of an object that was made or altered by man.
Bedrock	Rock that has undergone no major change through the effects of weathering and erosion at the surface of the earth; commonly overlain by surficial material.
Bifaced	Term describing an artifact that has been worked on both front and back.
Blade	A roughly parallel-sided, long, flat and thin lithic artifact, with a fairly sharp edge on one or both sides.

Campsite	An archeological site characterized by the presence of artifacts indicating temporary usage for a specialized function. An example would be a hunting or fishing camp.
Carbonaceous	Rich in, or composed of, the element carbon.
Chips	Small waste pieces that result when a stone is flaked or chipped into an implement.
Complex	A group of related traits or characteristics that combine to form a complete activity, process, or culture unit. Lithic complexes are identified by the presence of several key implements or tool types in association.
Component	An archeological site or level within a site that represents one manifestation of a geographically and chronologically limited culture unit.
Confluence	(Stream) The junction of one stream to another.
Contact Period	The time of Euro-American discovery and first meeting with aboriginal peoples.
Contact Period Records	Recorded information dating back to the time of first European contact with Native North Americans.
Contextual data	Data describing the physical and biological context in which artifacts are found, e.g., color of soil and species of fossil pollen in a soil layer from which an artifact is recovered.
Controlled Surface Collection	An archeological technique of collecting artifacts from the ground surface; the location of the artifacts is recorded as they are collected.

Criteria of Adverse Effect	Guidelines established by the Advisory Council on Historic Preservation to aid in determining whether a federal, federally assisted, or federally licensed undertaking will in any way be detrimental to a property included in, or eligible for inclusion in the National Register, 36 CFR 800.9.
Criteria of Effect	Guidelines established by the Advisory Council on Historic Preservation to aid in determining whether a federal, federally assisted, or federally licensed undertaking will cause any change in the quality of the historical, architectural, archeological, or cultural character of a property included in, or eligible for inclusion in the National Register, 36 CFR 800.8.
Culture	All that which is non-biological and socially transmitted in a society, including artistic, social, ideological, and religious patterns of behavior, and the techniques for adapting to the environment.
Cultural Resources	The physical manifestations of man's past; specifically, sites, buildings, structures, or objects of archeological or historical significance.
Debitage	Lithic debris produced in tool manufacture.
Dendrochronology	A method of determining dates from the examination and comparison of tree-growth rings.
Determination of Eligibility	Finding by the Secretary of the Interior or his designee that a district, site, building, structure, or object meets the National Register criteria.
Diagnostic Artifact	A sufficiently distinct artifact feature or type which can be placed into an existing cultural tradition.

District (Historic)	A geographically definable area, possessing a significant linkage or continuity of sites, buildings, structures, or objects which are united by past events or esthetically by plan or physical developments.
Earthworks	Constructions made of earth; in North America, these are associated with military field fortifications dating from the historic period and occasionally with prehistoric sites, such as mounds and house foundations.
Ecosystem	A natural, integrated, self-sustaining community of organisms interacting with each other and their total abiotic environment in a dynamic system independent of all external energy and material sources except the input of solar radiation.
Ecotone	A transitional community lying between two or more different community types, composed of a mixture of species and abiotic components characteristic of each, and often including some additional species.
Eolith	A stone having the appearance of being man-made, but which was created by natural agencies.
Ethnoarcheology	The use of ethnology and native informants to aid in the location and interpretation of archeological sites and materials.
Ethnography	The descriptive study of the cultures of living people.
Ethnohistory	The historical study of the numerous traditional human cultures. Ethnology commonly records all aspects of the culture of a particular society, including language, geographic location, economy, social customs, dress, mythology, religion, etc.
Ethnozoologist	Disciplinarian concerned with the study of man's relationship to, and use of, animals and animal products.

Excavation	The act of digging or removal of earth; the archeological method of recovering buried artifacts.
Ferrous Materials	Materials containing iron.
Flake	Any piece of stone removed purposefully from a larger stone.
Fluvial	Meaning river; used to denote a river as the agent shaping the earth or depositing sediment.
Geomorphology	The origin, development, and characteristics of the surface features of the earth.
Glacio-fluvial	Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice.
Grab Sampling	A data gathering strategy wherein the investigator collects and records the information which is most easily accessible.
History	The events, patterns, and processes of the human past, including those that have affected literate societies and those that have affected pre-literate groups whose history is sometimes referred to as prehistory; also used here as the period after Euro-American contact in North America.
Hearth	A location, which may be lined with clay or stones, used for a fire.
Horizon (Cultural)	A layer of soil of distinct characteristics containing evidence of cultural activity.
Horizon (Soil)	A layer of soil with distinct characteristics produced by soil forming processes.
Hydrology	The science that relates to the water of the earth.

Infrared Photography	The process of photographic recording of infrared radiation; infrared radiation is invisible to the human eye, but it can be recorded on black and white or color film which is sensitized to infrared radiation.
Interagency Archeological Services	A division of the Office of Archeology and Historic Preservation which is responsible for conducting a nationwide program for salvage of archeological remains, outside of National Park Service areas.
In Situ	Refers to <u>in place</u> conditions.
Kill Site	Archeological site indicated by the presence or association of faunal remains, butchering tools and weapons such as projectile points.
Lacustrine Deposit	Sediments deposited in a lake; commonly fine grained and in thin beds.
Leaching	The removal of materials in solution from the soil.
Literature Search	The location and study of available relevant recorded data.
Lithic Debris	The waste material produced in the manufacture of stone tools.
Magnetometer	An electronic instrument sensitive to variations or magnetic anomalies in the magnetic field; this instrument is useful for the detection of buried metallic objects.
Meander	(Stream) An abandoned meander, often filled in by deposition and vegetation, but still discernable (especially from the air). A predictor for archeological site location.
Midden	A term generally applied to prehistoric trash heaps; usually made up of shellfish remains.
Mitigation	The alleviation of harmful effects, especially those effects of construction or development on cultural resources.

**National Register
of Historic Places**

The Register was authorized under the 1935 Historic Sites Act and expanded under the 1966 Historic Preservation Act. It was designed to be an authoritative guide to be used by federal, state, and local governments, private groups, and citizens to identify the Nation's cultural resources of local, state, and national significance and to indicate what properties should be considered for protection from destruction or impairment. It is a division of the Office of Archeology and Historic Preservation, which has the responsibility for establishing criteria and determining the eligibility of properties for inclusion in the Register.

Object

A material thing of functional, esthetic, cultural, historical, or scientific value that may be by nature or design movable yet related to a specific setting or environment.

Overburden

Barron rock material, usually unconsolidated, overlying a deposit of useful materials, and which must be removed prior to extracting the useful material.

Paleo-Indians

The earlier inhabitants of the New World during and just after the last glacial advance (ca. 10,000 B.C.); they lived by hunting large animals, now extinct, such as the mammoth, with finely made stone weapons.

Paleolithic

Period characterized by man's use of stone tools. This period ended about 10,000 B.C.

**Paleomagnetic
Dating**

When certain rocks are formed from the molten state or other materials are heated to a high temperature, the earth's magnetism existing at the time of cooling remains fixed in intensity and orientation. Dating is possible because the earth's magnetic poles have migrated and continue to do so.

Paleontology

That branch of biology which treats fossil remains.

Pathology	The study of disease and corresponding structural changes.
Pedestrian Survey	A walking survey; an archeological field methodology in which investigators search for sites as they walk over the land.
Percussion Flaking	Shaping of a stone through removing flakes by blows struck with another stone or with a bone or piece of wood.
Petroglyph	Inscription or incision on a rock graphic in nature.
Photogrammetry	The art and technique of making surveys or maps from photographs.
Physiographic Region	Zones defined in reference to the large scale land forms in the area.
Pictograph	Painting or drawing on stone, graphic in nature.
Pleistocene	The glacial epoch extending from one and a half million years ago until about 10,000 years ago.
Plow Zone	The soil ordinarily moved in tillage; equivalent to surface soil.
Pollen Analysis	Analysis of fossil pollen from soils, sediments, and other deposits to determine the species of plants which existed at various times in the past. Pollen analysis is an important element in analogous environmental reconstructions.
Pot Hunter	Artifact collector who collects for selfish or economic gain, no interest in scientific documentation.
Predictive Model	A statement or set of statements which attempt to define the conditions surrounding the occurrence of a certain class of phenomena. For example, an archeologist might predict that prehistoric settlements would tend to occur at stream confluences.

Prehistory	The study of man in a time which precedes written events, based mainly on ethnological and archeological discoveries. The time period before European contact with native North America.
Preservation	The process of sustaining the form and extent of a structure essentially as it now exists. Preservation aims at halting further deterioration and providing structural stability but does not contemplate significant rebuilding.
Pressure Flaking	The process of removing chips or flakes from a piece of stone by pressure, rather than by direct blows.
Primary Sources	Material which has been preserved from the period of interest.
Projectile Point	Implement which probably served as the tip of darts, lances, spears, arrows, and other weapons.
Protohistory	That period in which non-literate North American cultures were affected by the Euro-Americans without direct contact. For instance, inland Indian tribes received trade goods and reports of the white cultures from other Indian tribes.
Provenience Data	Information about the location of artifacts.
Pueblo	An adobe or stone dwelling, or a village of such dwellings, found in Arizona and New Mexico, dating from since about 1,000 A.D.
Radiocarbon Dating	A method of dating carbon-bearing samples by means of analysis of the content of radioactive carbon or Carbon-14.
Random Sample	A set of individuals selected from a parent population in such a way that each individual in the population has an equal probability of being selected.

Reconstruction	The process of reproducing by new construction the exact form and detail of a vanished structure, or part thereof, as it appeared at a specific period of time. Reconstruction should be undertaken only when the property to be reconstructed is essential for understanding and interpreting the value of an historic district and sufficient documentation exists to ensure an exact reproduction of the original.
Rehabilitation	The process of returning a property to a state of utility, through repair or alteration, which makes possible an efficient contemporary use. In rehabilitation, those portions of the property which are important in illustrating historic, architectural, and cultural values are preserved or restored.
Research Design	The application of scientific method to the solution of a specific problem or problems. The research design commonly includes a statement of the problems and the strategy for obtaining an answer to them; hypotheses may be formulated and data is sought which would support or disprove them.
Resistivity Survey	A survey method based on the measurement of the electrical resistivity of soil. Irregularities in soil electrical resistivity may be caused by the presence of buried walls, floors, or ditches.
Restoration	The process of accurately recovering the form and details of a property as it appeared at the particular period of time by means of removal of later work and the replacement of missing original work.
Rockshelter	A site found in a cave or in an area protected by overhanging rock.
Secondary Sources	Materials written by individuals who studied original sources, defined, digested, and interpreted this information.

Sediment	Fragmented material that originates from weathering and erosion of rocks and is transported by, suspended in, or deposited by water or air, or is accumulated in beds by other natural agencies.
Seriation	Being divided into distinct layers or series.
Sherd	A pottery fragment (also shard).
Site	The location of a significant event, activity, building, structure, or archeological resource where the significance of the location and any archeological remains outweighs the significance of any existing structure.
Soil Profile	Succession of zones or horizons beginning at the surface that have been altered by normal soil-forming processes of which leaching and oxidation have been particularly important.
Stereo Pairs	Pairs of photographs of scenes taken from slightly different locations, used in conjunction with a stereoscope to provide three-dimensional images.
Stabilization	Preservation; the process of halting further deterioration and providing structural stability.
Stratified Sample	A data gathering strategy in which the population from which data is taken is first separated into homogeneous sub-populations, or strata, prior to the selection of sample sets by random or other means.
State Historic Preservation Officer (frequently abbreviated SHPO)	Formerly known as State Liaison Officer; the person appointed by the governor of a state to be responsible for administering the State Historic Preservation Program, including the National Register and Grants-in-Aid Programs within their jurisdictions.
Stratigraphy	Natural, often differing, deposits that have accumulated in one place over a period of time and now lie layered in the earth's surface, the oldest deposits being the deepest. Cultural materials are dated relative to each other by their position in the stratigraphic layers.

Structure	A work made up of interdependent and inter-related parts in a definite pattern of organization.
Survey	Gathering of background data on the historical and physical character of an area through field work and historical research.
Systematic Sample	A set of individuals selected from a parent population in such a way that some regularly recurring interval is used in the selection; e.g., every tenth unit may be chosen.
Terrace	A long, gently sloping, nearly plane surface bounded on one side by a steeper rising slope and on the other by a steeper descending slope, generally parallel to a stream course or a coastline; formed by stream or marine erosion or deposition. Archeological sites are often located on terraces.
Test Pit	A small excavation dug for the purpose of ascertaining the presence of buried material.
Thermoluminescent Dating	An archeological dating method primarily applied to ceramic samples; dates are obtained through the analysis or radioactive decay of trace elements present in the sample.
Trait	Any single element of a culture.
Transect	A linear survey unit, often followed by a pedestrian survey crew or an aerial reconnaissance.
UTM Grid	Universal Transverse Mercator Grid; a locational system based on the metric system of measurement.
Vegetation	The plants covering the surface of the earth or the act or process of vegetating. Vegetative types are key variables in a predictive model.

Vernacular
Architecture

Building types that are local, ethnic, or native to an area; it implies simple as opposed to high style, and is relatively plain and functional, as adapted to immediate needs.

Woodland Tradition

Native American culture which first appeared in the eastern United States around 1,000 B.C. Primary characteristics are the presence of pottery, ceramic figurines, mortuary mounds and earthworks, and agriculture.

Zooarcheologist

An archeologist who studies fossils and other faunal remains.

APPENDIX A

SCOPE OF WORK

Cultural Resources
Sample Survey of Shoreline Areas
Perry Lake
Delaware River, Kansas

1. INTRODUCTION

a. Perry Lake is a Corps of Engineers operating project located on the Delaware River in Jefferson County, Kansas. The project consists of 39,244 acres of Government-owned land of which 12,200 acres are permanently inundated by waters of the lake.

b. To date, the following cultural resources studies have been conducted at Perry Lake:

- 1965 Bass, W.M., McWilliams, D., and Jones, B.A.
"Archeological Investigations at Five Sites in Lyon, Jefferson, and Phillips Counties, Kansas".
- 1968 Jones, B.A.
"Archeological Investigations in the Perry Reservoir, Jefferson County, Kansas, 1965".
- 1976 Jones, B.A.
"Phase II Archeological Survey of Perry Lake Road Improvements 1 & 2, Jefferson County, Kansas".
- 1977 Iroquois Research Institute
"Preliminary Cultural Resources Management Plan for Perry Lake".
- 1978 Jones, B.A.
"Archeological Survey Road Improvement 3, Perry Lake, Kansas".

c. The work defined herein to be performed by the Contractor is called for in the National Historic Preservation Act of 1966 (PL 89-665) and is authorized for funding under Public Law 86-523 as amended by Public Law 93-291. Accomplishment of this work will provide documentation evidencing compliance with Executive Order 11593 "Protection and Enhancement of the Cultural Environment" dated 13 May 1971, Section 2(a).

2. SCOPE

This work encompasses archeological survey of approximately 20 miles of shoreline in selected locations at Perry Lake and identification of materials recovered. The Contractor and his staff shall conduct this study in a professional manner, using accepted methodology in accordance with the proposed 36CFR66 and 33CFR305. The Contractor shall be responsible for the preparation of a report of findings, fulfilling the requirements stated below.

3. STUDY APPROACH

a. Survey. The survey for archeological resources can be accomplished by scientific investigation based on research design as stated in 33CFR305.18 and approved by the Government. Recovery of data and cultural material shall be in accordance with the proposed 36CFR66. Proper curation of recovered materials, and documentation of data is vital.

b. Problem Orientations. A preliminary cultural resources management plan for the project area has identified sites that are most affected by project operations. Past work concentrated on survey of project lands. This study is to be oriented toward a survey of selected shoreline areas to locate and evaluate archeological sites within the Perry Lake project area.

Recommendations for a basic orientation for investigation of these sites have been broadly outlined in the 1977 Perry Lake Preliminary Cultural Resources Management Plan.

c. Methodology. Justification for the locations selected has been stated in the 1977 report. In order to investigate sites the Contractor shall, in accordance with the research design, use accepted and appropriate field and lab methods in accordance with the proposed 36CFR66 including but not limited to the following:

(1) Intensively survey the Perry Lake shoreline between elevations 889 m.s.l. and 900 m.s.l. This area is approximately 20 miles long and is located:

(a) North from highway 92 to approximately 1 mile beyond the northern edge of Paradise Point Public Use Area on the eastern side of the lake.

(b) North from highway 92 to the northern boundary of Sunset Ridge Public Use area on the western side of the lake.

(c) Perry State Park (Jefferson Point).

(d) From the old Indian Reservation boundary to approximately ½ mile beyond Rock Creek concession on the western side of the lake.

(2) No extensive excavation is required under this purchase order; however, limited testing for delineation of site boundaries will be necessary.

(3) Collect a sample of surface cultural materials at each site.

(4) Photograph phases of field work, using black and white film and also illustrate diagnostic features and artifacts by either black and white photography or line drawings.

(5) Record provenience of features, including maps and graphs, when applicable.

(6) Collect materials for absolute dating (e.g., radio-carbon) when appropriate.

(7) Process, catalog, and curate all recovered materials.

(8) Make identifications of cultural materials to answer the research design and to provide a base for future use by the archeological profession as data for research.

(9) Perform all measurements using the metric system.

4. SCHEDULE OF WORK

a. Coordination and Meetings. The Contractor shall pursue the study in a professional manner to meet the schedule specified. Prior to the initiation of actual field work, the Contractor shall submit a research design for review and approval as stated in Section 3a. He shall also coordinate all field schedules and activities with the appropriate cultural resources coordinator, State Historic Preservation Officer's representative (SHPO), and the project office.

During the course of the study, the Contractor shall review the progress of the work performed with representatives of the Corps of Engineers and the SHPO.

The Contractor shall attend one meeting at the Kansas City District Office to discuss the review of the draft of the report.

b. Report Content and Schedule.

(1) A report of findings shall be prepared by the Contractor and his staff. The main text of the report shall be written in a manner suitable for reading by persons not professionally trained as archeologists. Detailed presentation and discussion of data of interest to the archeological profession shall be included in a second part of the report or as appendices. The report is intended to be of use and interest to the general public as well as of value to the profession. Use of illustrations is encouraged.

(2) The report shall be authored by either the principal investigator or project director. If the project director is not the author, he shall review and edit the report prior to submission of the draft and final versions.

(3) Thirteen (13) copies of a complete draft of the report shall be submitted to the Contracting Officer for purposes of Governmental review within eight (8) months after receipt of notice to proceed. (If excessive inclement weather or other delays occur, this date may be extended to one mutually agreed upon between the Government and the Contractor.) In addition to standard review procedures, the Government may (at its discretion) send the draft report and Scope of Work to three qualified professionals not associated with a State or Federal Governmental agency for peer review of the merits and acceptability of the report. After a review period of approximately two (2) months, the Government will return the draft to the Contractor. The Contractor then shall complete necessary revisions and submit the final report, which shall be professionally edited, within sixty (60) calendar days after receipt of the reviewed draft. The Contractor

shall submit one set of originals and two copies of the final report of findings to the Government. The copies shall include all plates, maps, and graphics in place so that they may be used as patterns for assembling the final report. The Government will edit the final report and after approval, will reproduce this report and provide the Contractor ten (10) copies for personal use, plus two (2) copies for each major contributing author.

(4) The report shall include the following:

(a) Description of the study area;

(b) A discussion of each site investigated and identification of data mentioned above. A detailed description of sites and limited discussion of the recovered artifacts, presented both in support of the discussion in the text and also as valuable data for professional use of the report;

(c) A detailed description of the methods used in field and lab work;

(d) Recommendations which could be added to the preliminary cultural resources management plan for the operating project, and any suggestions for the archeological portion of the interpretive program;

(e) Illustrations, photos, maps, tables, and graphic representations of data appropriate to the text, such as illustrations of diagnostic artifacts;

(f) One map of the project indicating areas surveyed during this study. This map should also include all known sites. (Color overlay reproduction is available.) Maps for inclusion in the report must be presented in such a manner that exact site locations are not disclosed.

(g) A glossary of terms;

(h) Reference section with all sources referred to in text or used for report, personal communications, interviews, bibliography, etc.,

(i) Copies of all correspondence pertaining to review of the draft report. These are to include the comments of the State Historic Preservation Officer, Heritage Conservation and Recreation Service, and the peer reviews (if applicable) by professional archeologists requested by the Government, together with responses to each of the comments given. The Scope of Work is to be included in this section; and

(j) Listing of principal investigators and field and lab personnel with their qualifications as an appendix.

(5) The final originals and two copies of the report shall be typed single-spaced on one side of paper with the margins set for reproduction on both sides of 8 x 10½ inch paper. One of the copies shall be assembled in accordance with the attached style sheet. (To be added later.)

c. Other Information. Six copies of materials not suitable for publication in the report shall be submitted with the draft. These materials include feature maps, large amounts of specialized statistical analysis data, repetitious photographs, a complete listing of all materials recovered, and where records are maintained, and other documentation not of interest to most readers of the report. Averages, graphs, or summaries of statistical data are to be included in the publishable report. Large masses of specialized statistical data, such as certain artifact measurements, shall be stored on computer tapes or in microfilm so that it can be made readily available to interested persons. Publication of such bulk statistics in the report is not appropriate.

d. Materials Not for Release. Materials dealing with exact archeological site locations are considered confidential and are not to be published or released. Materials which shall accompany the report but which are not to be included in the report consists of:

(1) Six (6) copies of USGS and base maps indicating exact locations of all archeological resources and areas which were physically surveyed. These shall be provided to the Government and SHPO.

(2) Six (6) copies of survey forms for any newly recorded sites discovered incidental to this contract. These shall be provided (four (4) to the Government, and one each to the SHPO and the Kansas State Historical Society.)

e. Storage of Materials. Attached to the letter of transmittal for the final report shall be a listing of all cultural materials found during the field investigations and a Certificate of Authenticity for these materials. Collections shall be properly stored in containers clearly marked "Property of the U.S. Government, Kansas City District, Corps of Engineers." Retrieval of these materials by the U.S. Army Corps of Engineers for use by the Government is reserved. If the materials are to be removed from the curatorial facilities, this action must be approved in writing by the Contracting Officer.

5. FURTHER RESPONSIBILITIES OF THE CONTRACTOR AND GOVERNMENT

a. Contract Modifications.

(1) Because of the complex nature of the prehistoric and historic resources being surveyed, it is recognized that additional testing may be required. If in the opinion of the Contracting Officer such additional work is needed, the contract will be modified pursuant to the provision of Article 2, Changes, of the Contract.

(2) The work identified in this document shall be complete in itself. There will be no assurance from the Government that additional work will follow, nor should such work be anticipated.

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PERRY LAKE DELAWARE RIVER KANSAS CULTURAL RESOURCES
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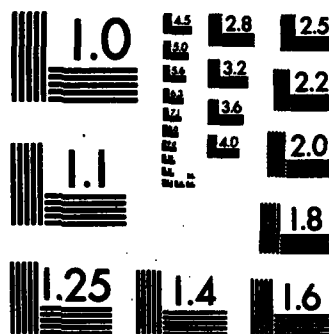
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b. Data Availability. The Government shall provide the Contractor with available background information, maps, remotely sensed data reports (if any), and correspondence as needed. In addition, the Government will provide support to the Contractor regarding suggestions on data sources, format of study outline and report, and review of study progress.

c. Right-of-Entry and Crop Damages. The Contractor shall have right-of-entry on all property owned by the Government. Compensation for damages to crops planted on Government property leased to various individuals shall be the responsibility of the Contractor.

d. Publication. It is expected that the Contractor and those in his employ, may during the term of the contract, present reports of the work to various professional societies and publications. Outlines or abstracts of those reports dealing with work sponsored by the Corps of Engineers shall be sent to the Kansas City District Office for review and approval prior to presentation or publication. Proper credit shall be given for Corps of Engineers' sponsored work, and the Corps of Engineers shall be furnished six (6) copies of each paper presented and/or published report.

e. Court Testimony. In the event of controversy or court challenge, the Contractor shall make available, as appropriate expert witnesses who performed work under contract who shall testify on behalf of the Government in support of the report findings. If a controversy or court challenge occurs and testimony of expert witnesses is required, an equitable adjustment shall be negotiated.

f. Safety Requirements. The Contractor shall provide a safe working environment for all persons in his employ as prescribed by EM385-1-1, "General Safety Requirements," a copy of which will be provided by the Government.

g. Evaluation for National Register. The Contractor shall evaluate newly found archeological sites to ascertain which sites warrant extensive testing and to determine their suitability for nomination to the National Register of Historic Places.

6. STAFF AND FACILITY REQUIREMENTS

a. Project Director and Archeologist. Minimum qualifications are set forth in the proposed 36CFR66, Appendix C, which is provided on page 5381 in the Federal Register, Vol. 42, No. 19 - January 28, 1977.

b. Consultants. Personnel hired or subcontracted for their special knowledge and expertise must carry academic and experiential qualifications in their own fields of competence.

c. Equipment and Facilities. The Contractor must also provide or demonstrate access to:

(1) Adequate permanent field and laboratory equipment necessary to conduct operations defined in the Scope of Work; and

(2) Adequate laboratory and office space and facilities for proper treatment, analysis, and storage of specimens and records likely to be obtained from the project.

APPENDIX B

PERSONNEL INFORMATION

Principal Investigator

Name: Thomas A. Witty, Jr.

Position: State Archeologist
Department Head
Archeology Department
Kansas State Historical Society

Education: B.A. in 1958 with majors in geology and anthropology, M.A. in 1962 with a major in anthropology from the University of Nebraska. Dissertation, *The Anoka Focus*, dealt with the identification of certain fifteenth and sixteenth century earth-lodge village sites in northern Nebraska and central South Dakota within a specific taxonomic unit.

Professional Experience:

1957-1958	Field experience began in 1957 at the Logan creek site under Marvin Kivett with the Nebraska State Historical Society. In 1958 as the field foreman for that same agency, worked on an historic Oto village site at Yutan, Nebraska, and later began archeological survey on the then proposed Interstate 80 highway route.
1959	Supervisor of the University of Nebraska field school digging at several sites in eastern Nebraska and central South Dakota.
1960-present	To Kansas and the newly created position of State Archeologist and head of the Archeology Department with the Kansas State Historical Society. The department was originally created to deal with reservoir salvage archeology in Kansas. The writer directly carried out and reported archeological appraisal surveys for the John Redmond, Council Grove, Elk City, Perry, Cheney, Marion and La Cygne reservoirs as well as the Upper Verdigris watershed. Supervised staff survey of the Big Hill, Grove and Onaga reservoirs. The writer directly supervised crews conducting archeological

1960-present
(Cont.)

salvage work in the Wilson, Milford, Council Grove, John Redmond, Perry and Big Hill reservoirs. The writer has overseen digs carried out by Society archeologists at Elk City, Grove, Cedar Point and Big Hill reservoirs, the Upper Verdigris watershed, etc. These major excavations made possible identifications of the Munkers Creek phase, Cuesta phase, Grasshopper Falls phase, Greenwood phase, Pomona focus and Bluff Creek complex.

Programs: Since 1971 the department has had a contract with the Kansas Department of Transportation to carry out all advance surveys, testing and when necessary, salvage and emergency investigations to recover material threatened by highway construction. In 1974, the Society began an agreement with the Soil Conservation Service in Kansas to do all of their preliminary surveys, testing and when necessary excavations of endangered archeological materials in watershed areas under their supervision. Also since 1974, a program was established through the Secondary Road Department of the Kansas Department of Transportation to carry out necessary survey activity in connection with the federally assisted secondary roads for the 105 counties in the state. The State Archeologist advises the State Historic Preservation Officer on matters of preservation and compliance with federal laws as guidelines.

Interpretive Projects: The inception and development of the Pawnee Indian Village Museum in Republic county. This was work at an 1820s historic Pawnee Village site owned by the state of Kansas. Three seasons of excavations were followed by the construction of the museum building over a fully excavated earthlodge floor with all of the debris, artifacts, etc., left in situ as a large permanent display. A second interpretive work was the reconstruction of the ruins of the small seven room pueblo in the Lake Scott State Park area. Historically identified as the site of El Cuartelejo, the original pueblo was built by fugitive Taos and/or Picuris Indians at the site of a large Plains Apache Rancheria. Overall supervision was given to the Fort Hays development and contract work for the National Park Service at Old Fort Scott. In 1980 the first step in an extensive interpretive program for Coronado and the Quivira village sites was begun with the purchase of the Tobias site by the state.

Public Service: Since 1961, the writer has been active with the state-wide amateur group, the Kansas Anthropological Association. Beginning in 1963, the writer supervised digs both at the chapter and the state organization level with these people. These included work at the Lewis site, a precontact Great Bend aspect village: Allison's Ranch and Fort Zarah, (ca. 1864-1867); Smoky Hill earthlodge sites near Salina and Minneapolis; and several Middle Woodland habitation sites near Larned, Alton, Valley Falls and Madison, Kansas; and investigations at the Tobias site, a major site of the village complex visited by Coronado in 1541. In 1975, the Kansas Archeology Training Program was instituted which resulted in certification for those amateurs demonstrating proficiency in the basic activities of Plains archeology, i.e., survey, excavation, laboratory and exhibits preparation.

Offices and Committees: Chairman of the Plains Anthropological Conference in 1965; a member of the Board of the *Plains Anthropologist* from 1969-1972; Secretary of the State Antiquity Commission; member of the Natural and Scientific Areas Advisory Board to the Kansas Park and Resource Authority; and Editor of the Kansas Anthropological Association Newsletter, 1961-1976; and the state representative for the Committee on Public Archeology of the Society of American Archeologists.

Teaching: Adjunct Professor at Washburn University since 1960 teaching courses in Introduction to Anthropology, Cultural Anthropology, North American Indian, Method and Theory in Kansas Archeology and a 30 program television series, *Kansas Archeology, the Land, Time and the People*.

Survey Archeologist

Name:	Milton Reichart
Position:	Survey Archeologist (Seasonal) Archeology Department Kansas State Historical Society

Archeological Experience:

Reichart was initially a self-trained amateur who served as the principal informant for the Society on the original archeological appraisal survey of the Perry lake project. He joined the state-wide amateur archeological group, the Kansas Anthropological Association in 1963. From that time to the present, he has participated in the annual or biannual dig supervised by Society

Archeological Experience: (Continued)

archeologists for the K.A.A. He has participated in controlled excavations of open campsites, habitation structures including earth lodges, burial mounds and historic sites. These represent a variety of archeological cultures including: Plains Woodland, Grasshopper Falls phase, Keith focus; Middle Ceramic, Smoky Hill aspect, Solomon Valley phase, Upper Republican; Late Ceramic, Great Bend aspect, Dismal River; and Historic, Allison's Ranch and Fort Zarah.

In 1975 the Society introduced the Kansas Archeology Training Program which was designed to train amateurs for certification at various aspects of field archeology. This training included seminars of 20 hours each and field work with instruction and observation of proficiency. The seminars which Reichart attended were Principles of Archeology, Archeological Site Survey, Kansas Prehistory, Cultural Reconstruction, Artifact Analysis, Basic Archeological Excavation, Mapping Techniques, Field and Laboratory Photography, Exhibit Preparation and Historic Archeology. As the result of the seminars and field experience, he has been certified in the categories of Reporting of Archeological Surveyor (properly reporting 15 sites), Contributing Archeological Surveyor (designed to complete an intensive survey of a defined area), Basic Archeological Crew Member (proficient at the crew member level), Certified Archeological Crew Member (proficient at skills of a field foreman), and Exhibits Preparation.

Since his initial involvement with the original Perry lake survey, Reichart has competently turned in site forms for some 80 previously unrecorded sites in Jefferson county, (mostly in the Perry lake area) and 22 sites in Atchison county. Originally all of the artifacts collected from sites in the Perry lake area were turned over to the Society and later Reichart donated all of his private collection along with subsequent material to the Society.

In 1977, Reichart served as the principal informant for the Iroquois Research Institute's field work resulting in the *Preliminary Management Plan of Cultural Resources, Perry Lake* for the Kansas City District. He is a life member of the Kansas Anthropological Association and the Kansas State Historical Society, a member of the Missouri Archeological Society, a subscriber to the Plains Anthropological Conference and a member of the American Museum of Natural History.

Publications

- 1967 Reflections upon Signal Butte. *Kansas Anthropological Association Newsletter*, 12(8), Topeka.
- 1972 A Plainview point type from the Delaware. *Kansas Anthropological Association Newsletter*, 18(3), Topeka.
- 1973 Gravel bar salvage archeology: a study made on the Delaware river of northeast Kansas. *Kansas Anthropological Association Newsletter*, 19(1, 2), Topeka.
- 1974 A Meserve point from northeast Kansas. *Kansas Anthropological Association Newsletter*, 19(7, 8), Topeka.
- 1975 Timber Canyon. *Kansas Anthropological Association Newsletter*, 21(1, 2), Topeka.
- 1976 The Archeological resources of Cedar creek: a site survey in Jefferson and Jackson counties of northeast Kansas. *Kansas Anthropological Association Newsletter*, 21(5, 6).
- 1978 On the trail of Bourgmound, a personal bicentennial project. *Kansas Anthropological Association Newsletter*, 23(4, 5), Topeka.
- 1979 Bourgmound's route to central Kansas: a reexamination. *Kansas History* 2:2.

Archeological Laboratory Supervisor

Name: Diane L. Good

Position: Archeological Laboratory Supervisor
 Archeology Department
 Kansas State Historical Society

Education:

B.A. cum laude in 1976 with a major in anthropology (departmental honors) and minor in German, M.A. in 1979 with major in anthropology from Wichita State University. Thesis topic: *The Role of Trance in Culture Adaptation*.

Professional Experience:

- 1974-1975 Administrative assistant at the Martin and Osa Johnson Safari Museum. Performed general office duties, public relations, conducted tours, catalogued photographs and artifacts, maintained financial and visitor records.
- 1975-1977 Work study assistant and graduate teaching assistant at the Museum of Man, Department of Anthropology, Wichita State University. Catalogued new collections and loaned materials, reorganized office and storage facilities, constructed exhibits, maintained records, trained docents, wrote press releases and conducted museum tours.
- 1980-present Archeological laboratory supervisor, Archeology Department, Kansas State Historical Society. The position is responsible for the operation and maintenance of the department's archeological laboratory supervising up to three laboratory technicians in the processing of material for study, display and curation. The Society is a central file for known sites in the state and the position is responsible for verification, plotting and other recording procedures for new sites located by Society archeologists or others. Good also teaches a 40-hour seminar in archeological laboratory techniques for the Kansas Archeology Training Program each summer. The position also has exhibit responsibilities.
- 1980-1981 Adjunct faculty, Washburn University of Topeka. Taught Cultural Anthropology (3 hour credit) at the undergraduate level, continuing education, for two semesters.