

ARCHAEOLOGICAL EXCAVATIONS AT THE KING HILL SITE

(23BN1)

BUCHANAN COUNTY, MISSOURI

By

Michael E. Ruppert

Funded by National Science Foundation
Grant No. 33407

Presented at
30th Annual Plains Conference
November 2, 1972

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The 1966 tests revealed a deep stratified trash deposit which filled an old erosion ditch to a depth of nearly ten feet. The trash deposit has yielded a large collection of pottery, stone and bone tools, small European derived objects of copper, brass, iron, and glass, and quantities of floral and fauna remains. Preliminary analysis of these remains indicate cultural and temporal similarity to the inhabitants of the Fanning Site (Wedel 1959).

If Wedel is correct in his tentative suggestion that the Oneota remains at Fanning represent a historic Kansa occupation, it is probable that the King Hill site can also be assigned to the Kansa.

Several observations and problems arose from the 1966 excavation which prompted consideration of additional work at King Hill.

First, preservation of botanical remains from the site was excellent. The use of more efficient recovery techniques would offer information concerning subsistence and climate that would not otherwise be available.

Secondly, although preliminary analysis indicated that the cultural remains are fairly consistent throughout the deposit, there was some indication of stratification in that trade materials of European derivation were recovered in the upper levels, but were not present near the base. This could prove to offer a unique opportunity to study continuous Oneota occupation of a stratified site.

Thirdly, from analysis of the faunal remains of the 1966 excavations it was possible to make some tentative suggestions which could be tested by additional data.

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The 1966 tests revealed a deep stratified trash deposit which filled an old erosion ditch to a depth of nearly ten feet. The trash deposit has yielded a large collection of pottery, stone and bone tools, small European derived objects of copper, brass, iron, and glass, and quantities of floral and fauna remains. Preliminary analysis of these remains indicate cultural and temporal similarity to the inhabitants of the Fanning Site (Wedel 1959).

If Wedel is correct in his tentative suggestion that the Oneota remains at Fanning represent a historic Kansa occupation, it is probable that the King Hill site can also be assigned to the Kansa.

Several observations and problems arose from the 1966 excavation which prompted consideration of additional work at King Hill.

First, preservation of botanical remains from the site was excellent. The use of more efficient recovery techniques would offer information concerning subsistence and climate that would not otherwise be available.

Secondly, although preliminary analysis indicated that the cultural remains are fairly consistent throughout the deposit, there was some indication of stratification in that trade materials of European derivation were recovered in the upper levels, but were not present near the base. This could prove to offer a unique opportunity to study continuous Oneota occupation of a stratified site.

Thirdly, from analysis of the faunal remains of the 1966 excavations it was possible to make some tentative suggestions which could be tested by additional data.

It appears that the inhabitants of King Hill had a strong orientation toward seasonal use of woodland and woodland border communities judging from the preponderance of deer, raccoon, beaver, and turkey remains. Bison and other plains fauna are poorly represented the majority of bison elements being tools or tool fragments.

Furthermore, woodland fauna are consistently numerous throughout the deposit. On the other hand bison elements appear to have been deposited only in the middle levels. This information may suggest either fewer bison were available at the beginning and end of site occupation, or that bison bones selected for use as tools were needed in greatest numbers during the occupation recorded in the middle zones.

In the Spring of 1972, the National Science Foundation approved a grant (#GS-33407) entitled "An Analysis of an Oneota Subsistence System". Emphasis was placed upon the subsistence system because the necessary data was well preserved and available through employment of improved collecting techniques, with this data, testable constructs of the physical-environmental system within which the resident population functioned can be developed, and the hypotheses which arose from the 1966 excavations could be tested with no modification of the recovery system.

The project was designed with three major objectives in mind. (1) We wished to increase the qualitative nature of the overall artifact inventory. While quantities of pottery, bone and stone tools were recovered in 1966, small materials normally lost through one-quarter inch screen such as tool fragments, splinters of bone and antler, and fine chipping debitage were lost. Such data, combined with artifacts from the 1966 excavations, will allow far greater insight to village activities. (2) We wanted a larger and more complete sample of the cultigens and wild food remains used by the site occupants.

(3) Small faunal remains which are seasonally available and/or sensitive to slight climatic fluctuation were also desired.

All soil from 1972 excavations was forced through a one-sixteenth inch screen by means of hydraulic pressure from an outside tap located at a nearby house. A storm sewer located approximately fifty yards down a steep slope served as a convenient repository for water. One problem was that of soil loss. We could afford neither the time nor the money to bring in large quantities of earth for backfilling or to remove silt which had been deposited in unwanted places. It became obvious that most of the soil be retained at the site. This was accomplished by construction of a sump trench which served as a settling basin. Each morning this trench was excavated, the mud put in wheelbarrows and placed near the excavation units. Backfilling revealed 85 percent of the soil was retained by this effort.

Initially, a trench consisting of five 5 foot by 5 foot squares was dug in arbitrary six inch levels. The purpose here was to open the trench as quickly as possible in order to expose a working profile which would be used to define natural stratigraphic levels within the deposit. It was soon discovered that we had not hit the deepest portion of the deposit. A decision was made to expose the western wall of an old 1966 excavation unit directly north of our trench in which the deposit had reached a surface depth of eleven feet. Once this was accomplished two 5 foot by 5 foot squares were established to the west of this wall. A third square was established to the east of the original trench. These three squares were excavated in natural stratigraphic units. When possible these natural units were subdivided by six inch arbitrary levels. Again all materials were passed through one-sixteenth inch screen. Large soil samples were taken from each natural level and from the arbitrary divisions within these levels. These samples will be used for gastropod, pollen, and chemical analysis.

Four natural levels were discerned within the site. The first of these was labeled "Plow Zone"; this consisted of the upper-most natural level, usually about twelve inches thick, which had been disturbed as a result of horticultural activities. The second natural level was recently disturbed, as suggested by the presence of both pre-historic and recent historic debris, exhibited great variation in thickness. This level represents recent movements of earth, probably from road and house construction. The third level discerned was characteristically very thin, usually only three to four inches. This level is dark and seemed to be transitional to the undisturbed midden below, it probably represents an old A1 soil horizon. The fourth natural level consisted of the undisturbed midden deposit. The thickness of this deposit varied from one to six feet, the deeper portions filling what are believed to have been former erosional ditches. Recent historical debris

is almost completely absent from this level.

Processing of the materials from the 1972 excavations at King Hill is now being done in the Laboratory of Anthropology at the University of Nebraska-Lincoln. The materials are first passed through a one-quarter inch screen, everything greater than one-quarter inch is completely sorted. Everything less than one-quarter inch is immersed in water; all material that floats is retained separately. After the remaining material is dry, it is sorted for identifiable faunal remains, small artifacts and artifact fragments, and any botanical remains that may have escaped flotation.

In summation, the King Hill project has added to the body of Oneota data in both a quantitative and qualitative sense. The deep midden deposit offers an opportunity to study a stratified Oneota site. Through the use of faunal and floral elements, we should be better able to visualize the physical environment as a balanced system being systematically exploited by man. Further, the project has offered some insights into the adaptability of water screening techniques.

It is proposed that feedback from subsistence system analysis will function positively in construction of the physical environmental system which pertained at the time of the King Hill site occupation. The subsistence system cannot be derived logically without recourse to technological evidence. The tools, their implied function and patterns of wear, must be considered as part of a functioning whole, consistent with the hypothesized subsistence system. Combining material cultural data with that of subsistence patterning should yield information about the social and religious systems as well.

King Hill

APPLICATION TO THE NATIONAL SCIENCE FOUNDATION
for a
RESEARCH GRANT

in support of:

ANALYSIS OF AN ONEOTA SUBSISTENCE SYSTEM

Submitted by:

Dale R. Henning
Department of Anthropology
College of Arts and Sciences
University of Nebraska
Lincoln, Nebraska 68508

AN ANALYSIS OF AN ONEOTA SUBSISTENCE SYSTEM

1. INSTITUTIONAL SPONSOR

The Board of Regents, University of Nebraska-Lincoln

2. PRINCIPAL INVESTIGATOR

Dr. Dale R. Henning, Department of Anthropology
University of Nebraska, Lincoln, Nebraska 68508
(Telephone: 402-472-2411)

3. TITLE OF PROPOSED RESEARCH

Analysis of an Oneota Subsistence System

4. STARTING DATE

June 1, 1972

5. PROPOSED DURATION

One year (June 1, 1972 - May 31, 1973)

6. AMOUNT REQUESTED

\$ 13,190.

OTHER AGENCIES TO WHICH PROPOSAL IS BEING SUBMITTED:

None

Respectfully submitted,


Dale R. Henning
Principal Investigator


Warren W. Caldwell
Chairman
Department of Anthropology

Francis L. Schmehl
Research Administrator
University of Nebraska-Lincoln

December 15, 1971

7. ABSTRACT

Support is requested for archaeological investigation of the Kings Hill site (23BN1), an Oneota village. A proposal is submitted as the result of intensive laboratory analyses of data collected from Kings Hill in 1966. The proposed project is designed to supplement the available information through the collection and analysis of complete faunal and floral samples, soils analyses and the use of specialized photographic techniques. With the addition of such complimentary data, it will be possible to develop a logical outline of the subsistence strategies employed by Oneota peoples on a portion of the lower Missouri River mainstem at a fairly precise point in time.

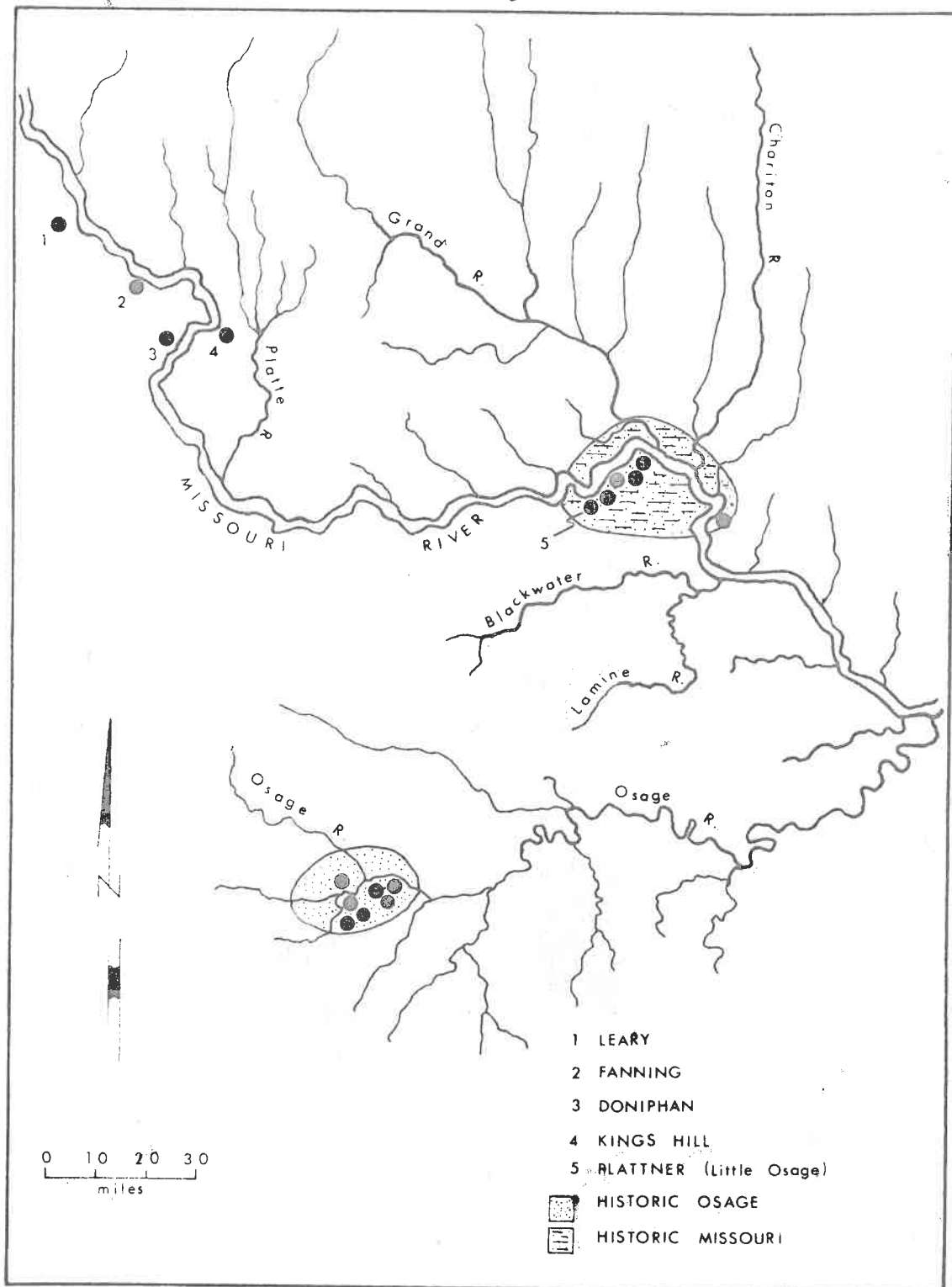
8. BACKGROUND

Oneota culture is important to those interested in the prehistory, ethnohistory and/or history of the Prairie Peninsula. Sites attributed to Oneota peoples are found scattered over the Peninsula; many can be directly related to the historic Winnebago, Ioway, Missouri, Oto, Osage, Kansa, and perhaps, Omaha Indians. Not all Oneota sites can be attributed to historically-identified groups. Radiocarbon assays indicate that Oneota culture was well developed in the Prairie Peninsula by the 10th century A.D. (Henning 1970:168-171). Oneota is a 'ceramic culture' in the mind and eye of most archaeologists; the characteristic shell-tempered jars, often adorned with opposing handles and casually-applied line motifs on the upper body, are easily recognized. Oneota sites are found in ecotone situations where floodplain forest, upland forest and prairie join. The site materials are usually heterogeneous in nature suggesting a discontinuous site use.

Oneota sites are large; occupation evidence may be scattered over a hundred acres or more. A typical site surface consists of refuse scattered about with occasional concentrations of ash and organic-rich soil suggestive of trash heaps or refuse pits. Pits are the most commonly-encountered features; trash heaps are rare. Houses have been recorded by Bluhm and Fenner (1961), Bluhm and Liss (1961) and McKusick (1971); generally, they are long with rounded ends. Some groups set aside cemetery areas. Village features are often scattered and, even when large/pits are encountered, the data yield may be very low. Many sites include more than one com- ✓

ponent; often pits are superimposed and the materials mixed. Obtaining a good and useful sample from most Oneota sites is a matter of luck combined with persistence. In this respect the Kings Hill site is unique; the site remnant consists of a deep deposit of village refuse which is precisely located and is known to contain a vast amount of village refuse in good condition. An indication of the density of materials from this portion of Kings Hill can be offered through comparison with the Guthrey site, located in Saline County, Missouri (Map 1). Methods of recovery were similar; a distinct effort to obtain maximal data per area excavated was made at Guthrey. At Guthrey, 850 square feet of the site was tested, yielding a total of 2,866 potsherds; at Kings Hill, each ten foot square (100 square feet, surface) has yielded between 3,100 and 5,500 potsherds coupled with comparably large numbers of tools and detritus.

The Kings Hill site is located in St. Joseph, Missouri, on a high bluff overlooking the Missouri River bottomland (Map 1). Prehistoric remains on or around this high promontory had been recognized in the past (Shippee 1967), but the site was believed totally destroyed until the spring of 1966 when a portion of it was discovered by Mr. R. B. Aker of Parkville, Missouri. This portion of the site was located in a privately-owned garden; its immediate fate was in serious question. Fortunately, the garden, part of a property for sale, was rented by the St. Joseph Public Museum in order to protect it from vandals. A cooperative agreement between the St. Joseph Public Museum, the St. Joseph Archaeological



MAP I. LOCATIONS OF SITES DISCUSSED

Society and the University of Missouri's Summer Session in Archaeology permitted limited exploration of the site during the following summer. The University's portion of the venture, directed by Henning, was carried out over a ten day period in July of 1966. Members of the St. Joseph Archaeological Society participated in the excavations as a training program; the methods employed were followed in their ensuing investigations, which continued into the Fall. In sum, twelve ten-foot squares and two narrow exploratory trenches were excavated. All materials were passed through 1/4" screen and soil samples were taken.

These tests revealed a deeply stratified trash deposit which filled an old erosion ditch to a maximum depth of nearly ten feet. The trash deposit has yielded a large collection of pottery, stone and bone tools, small European-derived objects of copper, brass, iron and glass, and floral and faunal remains. Much of this collection has been subjected to laboratory analysis; a few conclusions from analyses of various classes of remains can be offered.

1) The pottery, bone and stone tools have been analyzed and compared with other Oneota remains. The closest comparison to date is to materials recovered by Wedel (1959: 131-171) from the Fanning site, located across the Missouri River approximately 20 miles due west of Kings Hill. Wedel (1959:171) states "with some reservations that the Kansa Indians were probably responsible for the Fanning site." There are distinct similarities in ceramics, stone implements, bone tools and European trade goods recovered, suggesting

that the occupants of Fanning and Kings Hill were sharing very similar technological traditions and were trading for essentially the same classes of objects at approximately the same time. 2) Floral remains were recovered in quantity despite the use of 1/4" mesh screens. All floral remains were sent to Dr. Hugh Cutler and Mr. Leonard Blake of the Missouri Botanical Gardens, St. Louis, for identification. Their report (Cutler and Blake, n.d.) offers invaluable data from which a number of suggestions can be made. Corn was the principal item among the charred remains; 189 cobs and cob fragments were recovered. The majority of cobs are identified as northern flint; popcorn and dent corn are identified as well. The northern flint is an indigenous variety and the popcorn probably represents a specialized regional survival. The dent corn may have been introduced into the American southwest in the late 1600's by Spaniards from Mexico returning after the Pueblo Rebellion, then ultimately offered to the occupants of Kings Hill. Other cultigens include carbonized beans (Phaseolus vulgaris) from most levels, squash or pumpkin seeds (Cucurbita pepo) from several levels, a few watermelon seeds, a carbonized peach stone similar to those of Spanish peaches from the Southwest, and a few fragments of rinds of the bottle gourd (Lagenaria siceraria). Judging from floral evidence, the site occupants were maintaining contact with the American southwest. Among the wild plant foods was an abundance of hazelnuts and black walnut shells. A lesser quantity of wild plum stones, some hickory nut shells and a few acorns and hackberry seeds were also recovered. A number of pawpaw seeds

were found; these are particularly interesting because pawpaws ripen in late September and early October; competition for them is keen among animals other than man and they cannot be transported without being bruised or spoiling.

✓ Laboratory analyses of floral remains suggest that available samples of smaller remains are distinctly related to the experience and perception of the field worker. The smaller seeds, stems and nut hulls were not seen and were sifted through the 1/4" screens in some squares; in others they were retained before the surrounding soil matrix was passed to the screen. Preservation is astounding; open sites rarely yield bottle gourd rinds.

Further investigation of the Kings Hill site could be justified on the basis of floral remains alone. Preservation is excellent and this class of remains can be obtained in statistically-significant numbers. The dent corn, the peach stone and, possibly, the watermelon seeds suggest that contact was maintained between the site occupants and groups to the west. The floral evidence offers evidence for intensive gardening coupled with the use of wild plant foods, particularly those which ripen in the fall. The finding of very few wild plum stones coupled with the absence of choke cherry pits and wild cherry pits, all of which should have been available in mid- to late summer, leads one to the tentative suggestion that the Kings Hill site was only lightly occupied during the summer months.

3) Faunal remains have been identified by Mr. Ruppert under the supervision of Mr. Carl R. Falk, Research Archae-

ologist, Midwest Archeological Center, Lincoln. In the two deepest squares, elements of White-tailed Deer (Odocoileus virginianus), Canids (Canis sp.), Raccoon (Procyon lotor), Black Bear (Ursus americanus), Bison (Bison bison), Beaver (Castor canadensis), Wapiti (Cervus canadensis), Pocket Gopher (Geomys bursarius), Woodchuck (Marmota monax), Squirrel (Sciurus sp.), Cottontail (Sylvilagus floridanus), Striped Skunk (Mephitis mephitis), Eastern Mole (Scalopus aquaticus), Badger (Taxidea taxus), Puma (Felis concolor), Muskrat (Ondatra zibethicus), Turkey (Meleagris gallopavo), Prairie Chicken (Tympanuchas cupido), Hawk (Buteo sp.), Golden Eagle (Aquila chrysaetos), Turkey Vulture (Cathartes aura), Canada Goose (Branta canadensis), Box Turtle (Terrapene sp.), Snapping Turtle (Chelydra serpentina), Soft Shell Turtle (Trionyx sp.), Gar (Lepisosteus sp.), and Buffalo (Ictiobus sp.) have been identified. Table 1 presents a tabulation of elements for select species. It is possible to make some tentative suggestions from the faunal data.

a) There was a strong orientation toward the seasonal use of woodland and woodland border communities by the site occupants judging from the preponderance of deer, raccoon, beaver and turkey remains. Bison and other plains fauna are poorly represented; the majority of bison elements are tools or tool fragments.

b) Woodland fauna are consistently numerous throughout the deposit. On the other hand, bison elements appear to have been deposited only in the middle levels. This information may suggest 1) that fewer bison were available at the

beginning and end of site occupation, or 2) that bison bones selected for use as tools were needed in greatest numbers during the occupation recorded in the middle zones.

c) The present sample is biased toward larger animals, those which bear elements caught by the 1/4" screens. Again, the samples of small elements are to be found in bags bearing the names of the more perceptive workers or in soil samples. Obviously, methods of maximal data recovery must be consistently applied to future excavations at this site.

IDENTIFICATION

Level	Deer	Canid	Raccoon	Beaver	Turkey	Bison
1	3(1)	2(1)	1(1)	--	1(1)	--
2	6(1)	1(1)	--	--	--	--
3	10(2)	1(1)	1(1)	--	--	--
4	15(2)	3(1)	1(1)	1(1)	--	--
5	29(4)	14(1)	--	3(1)	1(1)	3(2)
6	24(2)	14(2)	2(1)	2(1)	2(1)	1(1)
7	36(2)	25(3)	4(1)	1(1)	2(1)	6(4)
8	40(6)	17(2)	2(2)	3(2)	3(1)	9(2)
9	45(3)	25(1)	5(1)	4(1)	2(1)	6(3)
10	14(2)	13(1)	1(1)	--	3(1)	5(2)
11	18(2)	9(2)	1(1)	2(1)	--	3(2)
12	13(1)	9(3)	3(1)	2(2)	1(1)	1(1)
13	15(2)	17(2)	1(1)	2(1)	5(2)	--
14	22(3)	11(2)	4(1)	1(1)	1(1)	1(1)
15-19	12(2)	19(1)	1(1)	1(1)	5(1)	--
Total						
elements	302	180	27	22	26	37

Table 1. Tabulation of elements identified for selected species (selected on the basis of numbers of elements) by arbitrary six inch level, two ten-foot squares, Kings Hill site (23BN1). The minimum number of individuals represented in each six inch level is recorded in parentheses.

9. PROPOSED RESEARCH

The Kings Hill site has yielded data indicating complementary usage of two contrasting faunal and floral communities; the prairie and the woodland or woodland border. The site occupants appear to have exploited these communities seasonally, but our data is not sufficiently comprehensive to accurately determine subsistence patterns. To supplement this data, we should return to the site with the express purpose of maximizing the efficiency of our recovery procedures. With a small field excavation program, the natural zones of deposit can be defined. The contents of each zone will be used in the definition of the seasonal round of subsistence activities practiced by the site occupants.

The approach will be systemic in nature, with concentration upon the subsistence system because 1) the necessary data is well-preserved and available through employment of improved collecting techniques and 2) with this data, testable constructs of the physical environmental system within which the resident population functioned can be developed. Through the use of faunal and floral 'elements' we should be able to visualize the physical environment as a balanced system being systematically exploited by man. It is proposed that 'feedback' from subsistence system analysis will function positively in construction of the physical environmental system which pertained at the time of Kings Hill site occupation. The subsistence system cannot be derived logically without recourse to technological evidence. The tools, their implied function and patterns of wear, must be considered as

part of a functioning 'whole', consistent with the hypothesized subsistence system. Combining material cultural data with that of subsistence patterning should yield information about the social and religious systems as well.

Given support, the project is designed to:

- 1) Increase the qualitative nature of the overall artifact inventory. Pottery, bone and stone tools will be recovered in quantity. Small tools normally lost through 1/4" screen, tool fragments, splinters of bone and antler and fine chipping debitage will be recovered also. Such data, combined with available artifacts, will allow far greater insight to village activities.
- 2) Obtain a larger and more complete sample of cultigen and wild plant food remains used by the site occupants. Floral remains are good indicators of seasonal activities if consistently and thoroughly collected.
- 3) Obtain the remains of small fauna which are seasonally available and/or sensitive to slight climatic fluctuations. Fish scales (which can be used to determine season taken) will be recovered. Gastropods have been recovered in soil samples; large soil samples will be retained in order to abstract this class of climatically-sensitive fauna. It is expected that the numbers and varieties of small animals living in and around the site will be added to significantly.

10. WORK TO BE UNDERTAKEN

The basic research design for continued archaeological investigation at the Kings Hill site has been developed through laboratory analyses and interpretations derived from the huge body of materials recovered in 1966. We wish to add to these data in a qualitative sense. Information from the 1966 excavations will be coupled with that derived from the program projected herein in preparation of a final report. The program is twofold in nature. 1) Field excavations will be undertaken to supplement information derived from the 1966 program. 2) One school year will be devoted to analysis and compilation of all data into a comprehensive final report.

A field program of six weeks duration is planned. These excavations will be established and coordinated by the principal investigator. Mr. Ruppert will act as field supervisor, directing a crew of five trained student laborers.

Initially, a trench will be dug by meter squares in arbitrary 6 inch levels; it will extend from the edge to the center of the old ravine. Materials from this trench will be passed through 1/4" screens; the intent here is to open the trench as rapidly as possible in order to expose a working profile. The working profile or 'face' will be used to define natural stratigraphic levels within the deposit. These levels should be visible; visual impressions will be verified or altered through ultraviolet photography and chemical and physical soils analyses. The natural levels exposed and verified will be excavated in one meter units, the thickness will be variable, of course. On-site flotation of a percentage

(10% by volume) of each natural zone will be done and the samples carefully dried and retained. Large soil samples will be collected for laboratory analyses, including tests for the presence and quality of pollen, soils chemical analysis, and sorting for gastropods. The remainder of each natural zone will be washed through 1/8" screen under water pressure and all materials remaining on the screen will be retained for analysis. When the excavation is completed, approximately half the old ravine will be cross-sectioned by a trench no less than two meters wide.

The program has been assured the full cooperation of the St. Joseph Museum, the St. Joseph Park Department (which controls the site) and the St. Joseph Archaeological Society. The site location precludes problems of water and electric power availability. The projected methods of excavation are feasible at low cost in terms of time and equipment.

The project will return to the Lincoln campus when the excavations are completed. Data collected will be sorted into working classes in the Laboratory of Anthropology, University of Nebraska. All faunal remains will be identified by Mr. Ruppert under Falk's supervision. This work will be done at the Midwest Archeological Center, where good comparative collections are housed. All cultigen remains will be submitted to Dr. Hugh Cutler and Mr. Leonard Blake, Missouri Botanical Gardens, for analysis and integration with data already identified. Wild seeds, nuts and fruit pits can be identified in our Laboratory of Anthropology and/or in the Midwest Archeological Center. We will tentatively identify the

charcoal fragments, then will send samples to the Forest Products Laboratory, Madison, Wisconsin, for verification. All gastropods and the soil samples taken specifically for abstraction of such microfauna will be sent to Dr. David A. Baerreis, Department of Anthropology, University of Wisconsin, for identification under his supervision. Soil samples will be analyzed for pollen content and further chemical-mineral content analyses will be undertaken at the University of Nebraska, Lincoln campus.

Analysis of artifact remains will be performed by the writer and by students under his direct supervision. All materials recovered in 1966 will be integrated with the new data. It is expected that a comprehensive monograph can be prepared for publication early in the summer of 1973.

Completion of this project is not regarded as the termination of investigations on the lower Missouri River mainstem. Rather, the final report will be used as a springboard from which future projects relating to subsistence patterning and prehistoric adaptations to the physical environment will be launched. It is hoped that techniques developed and tested through this project can be applied in similar studies of regional 'Nebraska' culture, Steed-Kisker and Hopewellian sites.

Selected References

The following list of references was used in presentation of project objectives and methodology.

- ANDERSON, PAUL
1965 The Reptiles of Missouri. University of Missouri Press. Columbia.
- BAERREIS, DAVID A. AND REID A. BRYSON
1965 Climatic Episodes and the Dating of the Mississippian Cultures. The Wisconsin Archeologist, Vol. 46, No. 4, pp. 203-220. Milwaukee.
- BENDER, MARGARET M., REID A. BRYSON AND DAVID A. BAERREIS
1966 University of Wisconsin Radiocarbon Dates. Radio-carbon Vol. 8, pp. 522-533. New Haven.
1967 University of Wisconsin Radiocarbon Dates, III. Radiocarbon Vol. 9, pp. 530-544. New Haven.
- BENNETT, JOHN W.
1945 Archaeological Explorations in Jo Daviess County, Illinois. University of Chicago Press. Chicago.
- BENNITT, RUDOLPH
1932 Check-list of the Birds of Missouri. The University of Missouri Studies Vol. VII, No. 3. Columbia.
- BERRY, J. BREWTON AND CARL H. CHAPMAN
1942 An Oneota Site in Missouri. American Antiquity Vol. 7, No. 3, pp. 290-305.
- BETANCOURT, PHIL P.
1965 A Description of Certain Engraved Artifacts from the Utz Oneota Site. Plains Anthropologist Vol. 10, No. 30, pp. 256-270.
- BLUHM, ELAINE A. AND ALLEN LISS
1961 The Anker Site. in Chicago Area Archaeology, Elaine A. Bluhm, Ed., Illinois Archaeological Survey, Inc., Bulletin No. 3, pp. 89-137. University of Illinois. Urbana.
- BRADBURY, JOHN
1819 Travels in the Interior of America; reprinted in Early Western Travels Vol. 5, R. G. Thwaites, Ed. A. H. Clark Company, Cleveland.
- BRANSON, E. B.
1944 The Geology of Missouri. The University of Missouri Studies Vol. XIX, No. 3. Columbia.

- BRAY, ROBERT T.
 1961 The Flynn Cemetery, an Orr Focus Oneota Burial Site in Allamakee County, Journal of the Iowa Archaeological Society Vol. 10, Pt. 1. Iowa City.
- 1963 Southern Cult Motifs from the Utz Oneota Site, Saline County, Missouri. The Missouri Archaeologist Vol. 25, pp. 1-40. Columbia.
- BROWN, JAMES A.
 1964 The Identification of a Prehistoric Bone Tool from the Midwest: The Deer-Jaw Sickle. American Antiquity Vol. 29, No. 3, pp. 381-386. Salt Lake City.
- BRYSON, REID A. AND DAVID A. BAERREIS
 1967 Introduction and Project Summary. in Climatic Change and the Mill Creek Culture of Iowa. D. A. Baerreis and R. A. Bryson, Eds. ARCHIVES OF ARCHAEOLOGY No. 29, pp. 1-61. Madison, Wisconsin.
- BRYSON, REID A. AND WAYNE M. WENDLAND
 1967 Tentative Climatic Patterns for some Late Glacial and Post-Glacial Episodes in Central North America. in Life, Land and Water, William J. Mayer-Oakes, Ed., pp. 271-298. University of Manitoba Press. Winnipeg.
- CHANG, K. C.
 1967 Rethinking Archaeology. Random House, New York.
- CHAPMAN, CARL H.
 1946 A Preliminary Survey of Missouri Archaeology, Part 1. Historic Indian Tribes, Missouri Archaeologist Vol. 10, Pt. 1. Columbia.
- 1952 Culture Sequence in the Lower Missouri Valley in Archeology of the Eastern United States, James B. Griffin, Ed., pp. 139-151. University of Chicago Press, Chicago.
- 1959 The Little Osage and Missouri Indian Village Sites ca. 1727-77 A.D. The Missouri Archaeologist Vol. 21, No. 1. Columbia.
- CHAPMAN, CARL H. AND ELEANOR F. CHAPMAN
 1964 Indians and Archaeology of Missouri. University of Missouri Press. Columbia.
- CLARKE, DAVID L.
 1968 Analytical Archaeology. Methuen and Company, Ltd. London.

CLELAND, CHARLES E.
1966 The Prehistoric Animal Ecology and Ethnozoology
of the Upper Great Lakes Region. Anthropological
Papers, Museum of Anthropology, University of Michi-
gan, No. 29. Ann Arbor.

CLIMATE AND MAN
1941 Yearbook of Agriculture, U.S. Department of Agri-
culture. U.S. Government Printing Office. Wash-
ington, D.C.

COLES, J. M.
1963 Environmental Studies and Archaeology. in Science
and Archaeology, D. Brothwell and E. Higgs, Eds.,
pp. 93-98. Basic Books.

CUTLER, HUGH C. AND LEONARD W. BLAKE
n.d. Untitled manuscript on floral remains recovered
from the Kings Hill site in 1966. On file, Mis-
souri Botanical Gardens, St. Louis.

DORSEY, J. O.
1886 Migrations of Siouan Tribes. The American Natura-
list Vol. 20, No. 3, pp. 211-222.

1897 Siouan Sociology. 15th Annual Report of the Bureau
of American Ethnology. Washington, D.C.

FOLMER, HENRI
1939 French Expansion toward New Mexico in the 18th
Century. Unpublished M. A. Thesis, submitted
1939, University of Denver, Denver.

1942 Etienne Veniard DeBourgmond in the Missouri
Country. Missouri Historical Review Vol. 36,
pp. 279-298.

FORD, JAMES A. AND GORDON WILLEY
1941 ~~An Interpretation of the Prehistory of the Eastern
United States. American Anthropologist Vol. 43,
No. 3, pp. 325-363.~~

FOWKE, GERARD
1910 Antiquities of Central and Southeastern Missouri.
Bulletin 37, Bureau of American Ethnology.

GIBBON, GUY E.
1966 The Midway Site - an Intrasite Analysis. Unpublished
M.A. Thesis, University of Wisconsin. Madison.

GRIFFIN, JAMES B.
1937 The Archaeological Remains of the Chiwere Sioux.
American Antiquity Vol. 2, No. 3, pp. 180-181.

①

CUTLER, HUGH C. and LEONARD W. BLAKE

1973

Plants from Archeological Sites
East of the Rockies. Missouri
Botanical Garden, St. Louis,
Missouri.

②

GIBBON, GUY E.

1972

Cultural Dynamics and the
Development of the Oneota Life-
Way in Wisconsin. American
Antiquity Vol. 37, No. 2 pp. 166-
185.

- GRIFFIN, JAMES B.
1946 Cultural Change and Continuity in Eastern United States Archaeology. in Man in Northeastern North America, Frederick Johnson, Ed. Papers of the Robert S. Peabody Foundation for Archaeology, Vol. 3, pp. 37-95. Andover.
- 1960 A Hypothesis for the Prehistory of the Winnebago. in Culture in History Essays in Honor of Paul Radin, Stanley Diamond, Ed., pp. 809-965. Columbia University Press, New York.
- 1964 The Northeast Woodlands Area. In Prehistoric Man in the New World, Jesse D. Jennings and Edward Norbeck, Eds., pp. 223-258. The University of Chicago Press. Chicago.
- 1967 Eastern North American Archaeology: A Summary. Science Vol. 156, No. 3772, pp. 175-191.
- HALL, ROBERT L.
1962 The Archeology of Carcajou Point. 2 Vol. The University of Wisconsin Press. Madison.
- 1967 The Mississippian Heartland and its Plains Relationship. Plains Anthropologist Vol. 12, No. 36, pp. 175-183.
- HAMILTON, HENRY W.
1967 Tobacco Pipes of the Missouri Indians. Memoir 5, Missouri Archaeological Society. Columbia.
- HENNING, DALE R.
1961 Oneota Ceramics in Iowa. Journal of the Iowa Archaeological Society Vol. 11, No. 2. Iowa City.
- 1970 Development and Interrelationships of Oneota Culture in the Lower Missouri River Valley. The Missouri Archaeologist Vol. 32, whole volume. Columbia, Missouri.
- 1967 Mississippian Influences on the Eastern Plains Border: An Evaluation. Plains Anthropologist Vol. 12, No. 36, pp. 184-194. Lincoln.
- HILL, A. T. AND WALDO WEDEL
1936 Excavations at the Leary Indian Village and Burial Site, Richardson County, Nebraska. Nebraska History Magazine, Vol. 17, No. 1, pp. 2-73.
- HILL, A. T. AND PAUL COOPER
1938 The Archaeological Campaign of 1937. Nebraska History Magazine Vol. 18, pp. 243-353.

- HOUCK, L.
1909 The Spanish Regime in Missouri. R. R. Donnelley and Sons. Chicago.
- KEYES, CHARLES R.
1927 Prehistoric Man in Iowa. Palimpsest Vol. 8, No. 6, pp. 215-229. State Historical Society of Iowa. Iowa City.
- KROEBER, A. L.
1963 Cultural and Natural Areas of Native North America. Originally published 1939, Vol. 38, University of California Publications in American Archaeology and Ethnology. University of California Press, Berkeley and Los Angeles.
- KUCERA, CLAIR L.
1961 The Grasses of Missouri. University of Missouri Studies Vol. XXXV. Columbia.
- LEWIS, MERIWETHER
1805 A Statistical View of the Indian Nations Inhabiting the Territory of Louisiana, and the Countries Adjacent to its Northern and Western Boundaries. American States Papers Vol. IV, 1832. Washington.
- LEWIS, T. H.
1892 The "Old Fort" of Saline County, Missouri. The American Antiquarian Vol. 14, No. 3, pp. 159-166.
- LINCOLN, FREDERICK C.
1950 Migration of Birds, U.S. Department of the Interior, Fish and Wildlife Service Circular 16. Washington.
- MARTIN, ALEXANDER C., HERBERT S. ZIM AND ARNOLD L. NELSON
1951 American Wildlife and Plants. Dover Publications, Inc. New York.
- MCGEE, W. J.
1894 The Siouan Indians. Annual Report of the Bureau of American Ethnology No. 15, pp. 157-204.
- MCKERN, WILL C.
1939 The Midwestern Taxonomic Method as an Aid to Archaeological Study. American Antiquity Vol. 4, No. 4, pp. 301-313. Menasha.
- 1945 Preliminary Report on the Upper Mississippi Phase in Wisconsin. Bulletin of the Public Museum of the City of Milwaukee Vol. 16, No. 3, pp. 109-285. Milwaukee.
- MCKUSICK, MARSHALL
1971 Oneota Longhouses. Prehistoric Investigations Report No. 3, Office of the State Archaeologist of Iowa, Iowa City. pp. 86-94.

Explanation of Budget

1. Salaries and wages are divided into two units, on- and off-campus. Off-campus includes one graduate assistant for two summer months plus a crew of five to be hired for six weeks. On-campus salaries and wages include support for one graduate assistant for nine months plus hourly wages for students to assist in sorting, cataloguing, preparation of samples for mailing, photographic developing and printing and record-keeping. University regulations for indirect cost computation require differences in on- and off-campus rates; these are calculated under H.
2. Expendable supplies and equipment include items such as measuring tapes, plastic and paper sacks, film, paper supplies, hand tools, sifting screens, etc.
3. Travel requests include sufficient funds for rental of one University six-passenger carryall and mileage costs, mileage charges on another University vehicle and per diem expenses for the principal investigator. Travel expenses for site visits by Dr. Cutler, Mr. Blake and Mr. Falk are also included. These men will act as advisors to the field project, particularly pertaining to matters of data recovery.
4. Publication costs include production of final drawings, maps and photographs by University personnel.
5. Field operating costs include such items as rental of field quarters, utilities costs, rental of power equipment for backfilling and to cover possible damages to nearby private property.
6. Permanent equipment:
 - a) A 35 mm. single lens reflex camera with wide angle lens (28 mm.) is requested for photographing wall profiles. The wide angle lens is required to accommodate to the short distance between the walls of our projected trench. The camera will be used in making ultraviolet-lighted exposures as well as for color slides. The camera will be complimentary to others in the department so that lenses can be interchanged. One or two other University-owned cameras will be available to the project.
 - b) One portable typewriter is requested for use in maintaining field records (typed copies of field notes are made daily) and in making a field catalogue of data recovered. The machine will be retained for project use until the manuscript is completed.
 - c) A small electric calculator is requested for project

12. PERSONNEL

Principal Investigator:

Dr. Dale R. Henning, Associate Professor of Anthropology,
University of Nebraska-Lincoln

Born: Everret, Washington, June 22, 1931

SSN#: ~~485-32-6754~~

Education:

1953	B.A.	Luther College, Decorah, Iowa
1960	M.A.	University of Iowa
1969	Ph.D.	University of Wisconsin

Research and Teaching Experience:

1958-59	Research Associate in Archaeology	Univ. of Missouri
1959-62	Instructor in Anthropology, Director, Museum of Anthropology	Univ. of Missouri
1962-63	Teaching Assistant	Univ. of Wisconsin
1963-64	NSF Science Faculty Teaching Fellow	Univ. of Wisconsin
1964-65	Research Assistant (NSF project)	Univ. of Wisconsin
1965-68	Instructor in Anthropology, Director, American Archaeology (5)	Univ. of Missouri
1968-69	Instructor in Anthropology	Univ. of Nebraska
1969-71	Assistant Professor, Anthropology	Univ. of Nebraska
1971-	Associate Professor, Anthropology	Univ. of Nebraska

Field Work:

1956-58	Graduate field training, University of Iowa; excavations in northwest, southeast, southwest Iowa. Thesis research on Oneota ceramics in Iowa.
1958-59	Research Associate, field director National Park Service, University of Missouri projects in Table Rock Reservoir, Joanna Reservoir. (Reports accepted.)

- 1959 Field director, National Park Service, University of Missouri in Pomme de Terre Reservoir. (Report accepted)
- 1960-62 Field director, three seasons National Park Service, University of Missouri Project in Joanna Reservoir. (Reports (3) accepted)
- 1963 Field Supervisor, Center for Climatic Research, Department of Anthropology, University of Wisconsin, Mill Creek Project. (Results published: Climatic Change and the Mill Creek Culture of Iowa., Baerreis and Bryson, Eds., Archives of Archaeology, No. 29, 673 pp.)
- 1964 Oneota Project field supervisor. NSF supported (NSF GS-433) Center for Climatic Research, Department of Anthropology, University of Wisconsin.
- 1965-68 Director, American Archaeology, Instructor in Anthropology, University of Missouri. Entailed overall direction of salvage and research program, permanent staff of nine, budget \$150,000-\$200,000. Research in Missouri, Iowa, Nebraska, Kansas, North and South Dakota.
- 1966 Instructor, Missouri Summer Training Session in Archaeology, Utz ~~Oneota~~ ^{and} King Hill sites. *Oneota*
- 1969 Principal Investigator, University of Nebraska Research Council Grant for Research in the Archaeology of Northwest Iowa. Also, Director, Summer Session in Field Archaeology, University of Nebraska.
- 1970-71 Director, University of Nebraska Traveling Summer Session in Archaeology.
- ~~1970-71~~ Teaching Laboratory techniques in archaeology, graduate and undergraduate, University of Nebraska.
- 1971 Director, University of Nebraska, University of Minnesota joint Summer Session in Archeology, Southwest Minnesota: Great Oasis and Oneota components.

1972 (over)
Research Interests:

Subsistence-settlement systems on the Lower Missouri River Valley and the environmental factors, both natural and cultural, which impinge upon those systems have been under investigation for a number of years. Concentrated research has been conducted along the plains-prairie ecotone, most recently in northwest Iowa and southwest Minnesota on sites dating from A.D. 800 into the historic period. Late Woodland, Mill Creek, Great Oasis and Oneota village sites have provided data for this research.

1972 Director, Field Training Session in Archaeology,
University of Nebraska (1st session)
Principal Investigator, NSF-supported
project, Kings Hill site (2nd session)
Principal Investigator, Midstate Archaeological
Survey, National Park Service supported.
(Both sessions) work performed by two
graduate students. Survey completed

SELECTED PUBLICATIONS:

- 1961 "Oneota Ceramics in Iowa," Journal of the Iowa Archaeological Society, Vol. 11, No. 2.
- 1961 "Archaeological Research in the Proposed Joanna Reservoir, Missouri," The Missouri Archaeologist, Vol. 23.
- 1965 "Re-articulated Burials from the Upper Iowa River Valley," Journal of the Iowa Archaeological Society, Vol. 13, with Martin Q. Peterson.
- 1967 "Mississippian Influences on the Eastern Plains Border: an Evaluation," The Plains Anthropologist, Vol. 12, No. 36, pp. 184-194.
- 1967 "Ceramics from the Mill Creek Sites," in Climatic Change and the Mill Creek Culture of Iowa. Archives of Archaeology, No. 29, pp. 332-502. University of Wisconsin Press, Madison.
- 1969 "A Local Sequence for Mill Creek Sites in the Little Sioux Valley," The Plains Anthropologist, Vol. 14, No. 46, with Robert B. Vis.
- 1970 "Oneota Culture in the Lower Missouri River Valley," The Missouri Archaeologist, Vol. 32, whole volume.
- 1971 "Great Oasis Culture Distributions" Prehistoric Investigations. Report No. 3, Office of the State Archaeologist of Iowa. The University of Iowa Department of Publications, Iowa City.

1971 (over)
PROFESSIONAL ORGANIZATIONS

American Association for the Advancement of Science

Sigma Xi

Society for American Archaeology

American Anthropological Association

Plains Conference for Anthropology (Chairman, 1972 meeting)

Numerous state and local archaeological societies

1969 - Editor, Journal of Iowa Archaeology

1972 Memoir Editor, Plains Anthropologist

present,

Board of Directors, Plains Anthropologist (1972-1975)

1971 "Origins of Mill Creek" Journal of the
Iowa Archeological Society, ~~Vol. 11, No. 2~~
Vol. 18, pp. 6-12.

Current Support and Pending Applications

National Park Service (in progress)

Archaeological Survey of the Proposed Perry Creek
Watershed Project (northwest Iowa)

\$2,500. ?

University of Nebraska (pending)

Frank H. Woods Fellowship in the Humanities
(for release time, 2nd semester, 1973-74)

End

VERTEBRATE FAUNAL REMAINS
THE KING HILL SITE, 23BN1, MISSOURI

	Number Elements	Min. No. of indiv'l	Av. lbs. of meat per indiv'l	Total lbs. of meat per specie	Per- cent
MAMMAL					
Order Marsupialia					
<u>Opposum</u> (<i>Didelphis</i> <i>marsupialis</i>)	9	1	8.5	8.5	.02
Order Insectivora					
* <u>Least Shrew</u> (<i>Cryptotis</i> <i>parva</i>)	1	1	---	---	---
* <u>Eastern Mole</u> (<i>Scalopus</i> <i>aquaticus</i>)	8	1	---	---	---
Order Chiroptera					
* <u>Silver-haired Bat</u> (<i>Lasionycteris</i> <i>noctivagans</i>)	1	1	---	---	---
Order Lagommorpha					
<u>Eastern Cottontail Rabbit</u> (<i>Syivilagus floridanus</i>)	11	2	1.75	3.5	t
Order Rodentia					
<u>Woodchuck</u> (<i>Marmota monas</i>)	6	2	5.6	11.2	.03
<u>Thirteen-lined Ground</u> <u>Squirrel</u> (<i>Citellus</i> cf. <i>tridecemlineatus</i>)	1	1	.35	.35	t
<u>Eastern Fox Squirrel</u> (<i>Sciurus niger</i>)	7	2	2	4	t
<u>Plains Pocket Gopher</u> (<i>Geomys bursarius</i>)	33	4	.7	2.8	t
<u>Beaver</u> (<i>Castor cana-</i> <i>densis</i>)	161	10	38.5	38.5	1.12
* <u>White-footed Mouse</u> (<i>Peromyscus</i> sp.)	37	14	---	---	---
<u>Eastern Wood Rat</u> (<i>Neotoma floridan</i>)	1	1	1	1	t
* <u>Prairie Meadow Mouse</u> (<i>Microtus ochrogaster</i>)	5	2	---	---	---
<u>Muskrat</u> (<i>Ondatra</i> <i>zibethicus</i>)	1	1	2	2	t
<u>Norway Rat</u> (<i>Rattus</i> <i>norvegicus</i>)	1	1	1	1	t
Order Carnivora					
<u>Dog/Wolf/Coyote</u> (<i>Canis</i> sp.)	600	26	10	260	.75
<u>Red Fox</u> (<i>Vulpes fulva</i>)	2	1	4	4	t

	Number Elements	Min. No. of indiv'l	Av. lbs. of meat per indiv'l	Total lbs. of meat per specie	Per- cent
<u>Black Bear</u> (Euarctos americanus)	185	5	210	1050	3.05
<u>Raccoon</u> (Procyon lotor)	173	25	17.5	437.5	1.27
<u>Badger</u> (Taxidea taxus)	1	1	12.5	12.5	.03
<u>Spotted Skunk</u> (Spilogale putorius)	15	3	4	12	.03
<u>Striped Skunk</u> (Mephitis mephitis)	29	8	4	32	.09
<u>Bobcat</u> (Lynx rufus)	5	1	70	70	.20
<u>Puma</u> (Felis concolor)	3	1	15	15	.04
Order Artiodactyla					
<u>Elk</u> (Gervus danadensis)	45	2	350	700	2.03
<u>White-tailed Deer</u> (Odocoileus virgin- ianus)	1795	38	100	3800	11.04
<u>Bison</u> (Bison bison)	257	42	650	27300	80.01
** <u>Cow</u> (Bos taurus)	8	1	---	---	---
** <u>Pig</u> (Sus scrofa)	4	1	---	---	---
Total Mammal	3405	200		34109.55	99.16

BIRD

Order Pelecanieormes					
<u>White Pelican</u> (Pelecanus Erhthyr- rhynchos)	1	1	10	10	.03
Order Anseriformes					
<u>Swan</u> (Olar sp.)	2	1	15	15	.04
<u>Canada Goose</u> (Branta canadensis)	4	2	5.5	11	.03
<u>Mallard</u> (Anas platy- rhynchos)	4	1	2	2	t
<u>Green-winged Teal</u> (Anas carolinensis)	2	1	.5	.5	t
<u>Redhead Duck</u> (Anthia valisineria)	2	1	1	1	t
Order Falconiformes					
<u>Turkey Vulture</u> (Cathartes aura)	6	2	5	10	.03
<u>Redtailed Hawk</u> (Buteo jamaicensis)	6	2	5	10	.03
<u>Hawk</u> (Spp.)	5	1	2	2	t
<u>Golden Eagle</u> (Aquila chrysaetos)	4	2	6	12	.03

	Number Elements	Min. No. of indiv'l	Av. lbs. of meat per indiv'l	Total lbs. of meat per specie	Per- cent
*Snake (Spp.)	<u>9</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>
Total Reptile	350	12		20.75	.05

FISH

Order Teleostei					
Long Nose Gar (Lepis- osteus osseus)	1	1	1	1	t
Short Nose Gar (Lepisosteus plato- stomus)	2	1	1	1	t
Gar (Lepisosteus sp.)	757	---	---	---	---
Goideye (Hiodon alosoides)	4	1	1	1	t
Northern Pike (Esox lucius)	4	1	1	1	t
Smallmouth Buffalo (Ictiobus bubalus)	2	---	---	---	---
Bigmouth Buffalo (Ictibus cyprinellus)	13	---	---	---	---
Buffalo (Ictiobus sp.)	61	5	7	35	.10
Sucker (Catostomidae sp.)	177	1	2	2	t
Black Bullhead (Ictalurus melas)	10	1	2	2	t
Channel Catfish (Ictalurus punctatus)	13	2	5	10	.03
Sunfish (Centrar- chidae spp.)	2	1	1.5	1.5	t
Total Fish	<u>1046</u>	<u>14</u>		<u>53.5</u>	<u>.15</u>

AMPHIBIAN

Order Salienta					
Toad (Bufo sp.)	12	1	---	---	---
Frog (Rana sp.)	7	1	---	---	---
Frog (Hylidae spp.)	<u>10</u>	<u>1</u>	<u>---</u>	<u>---</u>	<u>---</u>
Total Amphibian	<u>29</u>	<u>3</u>		<u>---</u>	<u>---</u>
Grand Total	6514	329		34410.3	100.01

* = Not considered a food source

** = Animals not utilized by prehistoric inhabitants

t = Trace

THE UNIVERSITY OF CALGARY
CALGARY 44, ALBERTA, CANADA



Dr. Warren W. Caldwell
Dept. of Anthropology
University of Nebraska
Burnett Hall 103
LINCOLN, Nebraska

68508



FACULTY OF ARTS AND SCIENCE / DEPARTMENT OF ARCHAEOLOGY

September 14, 1972

Dr. Warren W. Caldwell
Dept. of Anthropology
University of Nebraska
Burnett Hall 103
Lincoln, Nebraska 68508

Dear Dr. Caldwell:

A group of graduate students and myself are, as part of a seminar in Information Systems, undertaking a study of the various types of systems in use for recording archaeological field data.

I am therefore, writing to enquire if it would be possible for us to obtain a set of the various types of recording forms in use by yourself and/or your institution -- e.g. daily diaries, level, feature, burial and stratigraphic record forms. If any field manuals or check lists are available for these forms, I would appreciate these also.

Thank you in advance for any assistance you may be able to provide us with in this regard.

Yours sincerely,

B. O. K. Reeves, Ph.D
Assistant Professor

BOKR/nah

April 19, 1972

Dr. Hugh Cutler
Mr. Leonard Blake
Missouri Botanical Garden
2315 Tower Grove Blvd.
St. Louis, Missouri

Dear Hugh and Leonard:

Just a note to inform you that the NSF approved our project at Kings Hill. They cut our travel budget and one item of equipment, but I think we can manage all travel planned on. The excavation will begin shortly after the 4th of July; I expect that your site visit would best be made near the end of that month when a trench is opened up.

I will be certain to be there whenever you can make it. A weekend would be preferred.

Best,

Dale R. Henning

DRH/mlk
cc: Michael Ruppert

April 19, 1972

Mr. Craig Johnson
5333 - 28th Avenue, South
Minneapolis, Minnesota 55417

Dear Craig:

I have a job for you if you are still interested. We have an N.S.F. supported project at the Kings Hill site located in St. Joseph, Missouri. It should begin around the 6th of July and is scheduled for six weeks' field work. We can pay \$1.60/hr and will provide a roof over your head. Meals may be a problem for you. Some of those things have to be worked out. There is still a possibility for some form of employment earlier in the summer, but it is not beyond the consideration stages.

Let me know your feelings on this. It is a firm offer.

Sincerely,

Dale R. Henning
Associate Professor
of Anthropology

DRH/mlk
cc: Michael Ruppert

TRAVEL EXPENSE VOUCHER

THE UNIVERSITY OF NEBRASKA
LINCOLN, NEBRASKA

FOR UNIVERSITY USE ONLY

Voucher **110800**
No. _____

CLAIMANT MUST COMPLETE

Anthropology
UNIVERSITY DEPARTMENT NAME
PROG S/PR ACT S/ACT
87 127 002 01
ACCOUNT NUMBER

FOR THE MONTH OF AUGUST 19 72

Acctg 21508 12M
7-68T

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Claimant's Name

Building and Room Number

Campus

6063

TRAVEL AUTHORIZATION NUMBER

REASON FOR TRIP

ARCHAEOLOGICAL RESEARCH - KING HILL ST JES MOUNTAIN
List expenses by each day. Receipts are required for individual miscellaneous items of \$3.00 or more, all transportation expense, and all lodging expense. Itemize miscellaneous expenses if they amount to \$1.00 or more. Do not list purchases of supplies on this form—use requisition and regular invoice forms.

Day of Mo.	Rec. No.	Indicate Method of Travel in Proper Column by the Amount of Expense or N.C. No Charge	Plane, Train, or Bus Fare	BY AUTOMOBILE				Taxi Expense	Miscellaneous Expense	Room or Berth	Meals		TOTAL
				Miles	Use of Personal Car	University Owned Car Expense	With Other Party				No.	Amount	
1		From ST JES MOUNTAIN											
		To ARCHAEOLOGICAL RESEARCH	\$		\$	\$		\$			3	3.00	3.00
2		From									3	3.00	3.00
		To											
3	1	From							OK 1.88		3	3.00	3.88
		To											
4	2	From						OK 4.65			3	3.00	7.65
		To											
7	3	From						OK 2.33			3	3.00	5.33
		To											
8		From									3	3.00	3.00
		To											
9		From									3	3.00	3.00
		To											
10		From									3	3.00	3.00
		To											
11	4	From						OK 1.85			3	3.00	4.85
		To											
14		From									3	3.00	3.00
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15		From									3	3.00	3.00
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16		From									3	3.00	3.00
		To											
17		From									3	3.00	3.00
		To											
18		From									3	3.00	3.00
		To											
			\$		\$	\$		\$	\$	\$	12	42.00	

CLAIMANT'S CERTIFICATION

I certify that this amount and voucher is a true, correct and complete statement of my account of expenditures made for the University of Nebraska; that the charges therein made are the proper charges; that the items listed hereon are true and correct to the best of my knowledge and belief and that payment has not been made heretofore.

GRAND TOTAL

\$ 51.71

THIS COPY WILL BE
MAILED WITH THE STATE
WARRANT IN PAYMENT
OF THIS OBLIGATION.

Signature of Claimant (Sign All Copies)

TRAVEL EXPENSE VOUCHER

THE UNIVERSITY OF NEBRASKA
LINCOLN, NEBRASKA

FOR UNIVERSITY USE ONLY

Voucher

No.

108555

CLAIMANT MUST COMPLETE

Anthropology

UNIVERSITY DEPARTMENT NAME

PROG	S/PR	ACT	S/ACT
37	127	092	01

ACCOUNT NUMBER

6063

TRAVEL AUTHORIZATION NUMBER

FOR THE MONTH OF _____ 19__

Acctg 21508 12M
7-68T

P
A
Y
E
E

Claimant's Name

Building and Room Number

Campus

Michael EDWIN RUPPERT

203 STOUT HALL (UNIVERSITY CAMPUS)

UNIV OF NEBRASKA (C. O. CAMPUS) LINCOLN

Campus

REASON FOR TRIP

List expenses by each day. Receipts are required for individual miscellaneous items of \$3.00 or more, all transportation expense, and all lodging expense. Itemize miscellaneous expenses if they amount to \$1.00 or more. Do not list purchases of supplies on this form—use requisition and regular invoice forms.

Day of Mo.	Rec. No.	Indicate Method of Travel in Proper Column by the Amount of Expense or N.C. No Charge	Plane, Train, or Bus Fare	BY AUTOMOBILE				Taxi Expense	Miscellaneous Expense	Room or Berth	Meals		TOTAL
				Miles	Use of Personal Car	University Owned Car Expense	With Other Party				No.	Amount	
10	1	From							\$	\$		\$	
		To							1.65		3	3.00	4.65
11	2	From											
		To							4.10		3	3.00	7.10
12	3	From											
		To							1.70		3	3.00	4.70
13		From											
		To									3	3.00	3.00
14		From											
		To									3	3.00	3.00
17		From											
		To									3	3.00	3.00
19	4	From							4.74		3	3.00	7.74
19	5	From							5.98		3	3.00	8.98
		To											
20		From											
		To									3	3.00	3.00
21		From											
		To									3	3.00	3.00
24		From											
		To									3	3.00	3.00
25		From											
		To									3	3.00	3.00
26		From											
		To									3	3.00	3.00
27		From											
		To									3	3.00	3.00
			\$	\$	\$	\$	\$	\$	18.17	\$	42	42.00	

CLAIMANT'S CERTIFICATION

I certify that this amount and voucher is a true, correct and complete statement of my account of expenditures made for the University of Nebraska; that the charges therein made are the proper charges; that the items listed hereon are true and correct to the best of my knowledge and belief and that payment has not been made heretofore.

GRAND TOTAL

\$ 60.17

THIS COPY WILL BE
MAILED WITH THE STATE
WARRANT IN PAYMENT
OF THIS OBLIGATION.

Signature of Claimant (Sign All Copies)

THE UNIVERSITY OF NEBRASKA
LINCOLN, NEBRASKA

Acctg 21508 12M
7-68T

PAYEE

Michael Cowin Ruppert
Claimant's Name
203 Stout Hall (Anthropology)
Building and Room Number
Univ. of North Carolina
Campus

Voucher **108554**
No. _____

Anthropology

PROG	S/PR	ACT	S/ACT
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[illegible]

87	127	092	01
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ACCOUNT NUMBER

6063

TRAVEL AUTHORIZATION NUMBER

List expenses by each day. Receipts are required for individual miscellaneous items of \$3.00 or more, all transportation expense, and all lodging expense. Itemize miscellaneous expenses if they amount to \$1.00 or more. Do not list purchases of supplies on this form—use requisition and regular invoice forms.

CLAIMANT'S CERTIFICATION

I certify that this amount and voucher is a true, correct and complete statement of my account of expenditures made for the University of Nebraska; that the charges therein made are the proper charges; that the items listed hereon are true and correct to the best of my knowledge and belief and that payment has not been made heretofore.

GRAND

TOTAL.....\$ 7.10

**THIS COPY WILL BE
MAILED WITH THE STATE
WARRANT IN PAYMENT
OF THIS OBLIGATION.**

Signature of Claimant (Sign All Copies)

2315 TOWER GROVE
BLVD

Mr. Leonard W. Blake
Missouri Botanical Gardens
St Louis, Missouri 63100

Dr. Henning has informed me that you have volunteered to work on the botanical remains from this seasons excavations at King Hill. As of yet I'm not certain when these materials will be available, but they should be ready by Plains Conference time (Nov. 2-4). Could you pick them up then? Do you plan on just working with the cultigens?

If not I could bring the materials down to St. Louis at your convenience.

Your trip up to St. Joe was greatly appreciated, and I wish to thank you again for the insights that you provided.

I'll be looking forward to seeing you again at the Plains Conference.



Saint Joseph Museum

11TH AND CHARLES STREET

ST. JOSEPH, MISSOURI 64501

November 15, 1972

Director: Richard A. Nolf
Assistant Director: Don L. Reynolds

Mr. Michael Ruppert
Department of Anthropology
Room 203, Stout Hall
University of Nebraska
Lincoln, Nebraska

Dear Mike:

We are enclosing a copy of the quarterly water bill for 23BN1. It has been paid and any reimbursement would be to the St. Joseph Museum. The service has been discontinued and the Water Company removed the meter. There should be yet another minimum service charge for a short time into the next quarter.

I trust everything is going along to good advantage with you and your work and that the unexamined material pile is getting smaller by the day. Incidentally when you get a progress map prepared, please send us a copy.

Also, Mike, I think I mentioned that we would like to have a piece written by you on your part and study of King's Hill 23BN1. Whatever you can come up with at your leisure that would be of popular interest and that would record the last dig in our Museum Graphic. We hope to get out another issue when time and especially funds permit.

Pat Holmes, a representative of the Missouri State Park Department, came to St. Joseph last week (unannounced and alone) and without ceremony presented the Mayor with a belated certificate designating 23BN1 as a national register site. I guess it was rather awkward in that the Mayor, not having been informed, seemed not to understand it. Probably too near election time and his interest was elsewhere. Anyway under the circumstances he was less than enthusiastic, so we understand, until it was explained to him locally again.

Pony Express Museum

Extension of the St. Joseph Museum

914 PENN STREET

ST. JOSEPH, MISSOURI



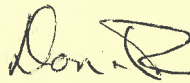
Mr. Michael Ruppert
November 15, 1972
Page 2

Our cave project petered out, or should I say, caved in. Mike Fisher and I checked it out anyway. John has the details.

Couldn't make it up to the meetings. Did catch the Missouri fall meeting at Columbia though.

Let us hear from you.

Sincerely,

A handwritten signature in dark ink, appearing to read "Don L. Reynolds". The signature is stylized with a large, looped "D" and a cursive "L".

Don L. Reynolds, Asst. Director
St. Joseph Museum
Pony Express Museum

DLR:js
Enc.

Now:

Enclosed are 4 copies of a paper I presented ~~at~~ at the Plains Conference ~~outlining~~ this summer's excavations. Also included are several photographs - all of which are self explanatory. I was wondering if this report would be adequate for the Museum Graphic - if you think you would need any additional photographs we've got plenty of negatives. Incidentally I enclosed extra copies of the report for Mike Foster or anyone else who maybe interested - if you need any more just drop me a line.

You may notice ~~that~~ that the "S" has been dropped from the site name in the report. ~~When I wrote the paper,~~ ~~at the time~~ At the time I was interested in academic accuracy, but this seems to have created more confusion than it has alleviated, therefore I think I'll stick with good old Kings Hill - you may wish to change this if you publish the paper.

Incidentally, ~~as you will notice~~ a general site map has been included, we are now

working on a map showing the relationships
of the 1966 and 1972 excavation units -
I'll send you a copy ^{as} soon as it's completed.

Give my regards to everyone. I do
hope to be down your way in the near
future, hopefully when Carl Falk speaks to
your group.

Sincerely,

1237 "C" Street, Apt. 6
Lincoln, Nebraska 68502

Dr. Warren Caldwell, Chairman
Department of Anthropology
Stout Hall
University of Nebraska
Lincoln, Nebraska

Dear Dr. Caldwell

I would like to offer my application for the position of teaching assistant. This application is made for the upcoming summer session(s). The following summarizes what I believe are my qualifications for the position and my current research plans.

During the past year I have received funds from the National Science Foundation to excavate and analyze materials from the Kings Hill site. Also during a portion of this time I have acted as laboratory assistant, a job which requires continual interaction with undergraduates.

Unfortunately the N.S.F. funds will terminate this May. My research plans include the completion of my masters thesis during the summer months. Any income during this period would greatly enhance my chances of graduating this December.

Thank you for your consideration of this application.

Sincerely

Michael E. Ruppert
Michael E. Ruppert

April 19, 1972

Mr. Don Reynolds
St. Joseph Public Museum
St. Joseph, Missouri

Dear Don:

Just a note to inform you that the NSF has approved our request for the Kings Hill project. I would like to bring in a large crew shortly after the 4th of July to start the project and then will leave it essentially in the hands of two graduate students.

Mr. Mike Ruppert and I will try to drive down there in the next few weeks, if schedules can be arranged. We are delighted to have this project funded.

Betty and I just adopted another baby boy. The tribe increases.

Sincerely,

Dale R. Henning
Associate Professor
of Anthropology

DRH/mlk
cc: Mike Ruppert