SMITHSONIAN INSTITUTION
BUREAU OF AMERICAN ETHNOLOGY
BULLETIN 189

RIVER BASIN SURVEYS PAPERS

FRANK H. H. ROBERTS, JR., *Editor*

Inter-Agency Archeological Salvage Program

NUMBERS 33–38

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LETTER OF TRANSMITTAL

SMITHSONIAN INSTITUTION,
BUREAU OF AMERICAN ETHNOLOGY,
Washington, D.C., September 28, 1962.

SIR: I have the honor to transmit the accompanying manuscripts, entitled "The Paul Brave site (32SI4), Oahe Reservoir area, North Dakota," by W. Raymond Wood and Alan R. Woolworth; "The Demery site (39CO1), Oahe Reservoir area, South Dakota," by Alan R. Woolworth and W. Raymond Wood; "Archeological investigations at the Hosterman site (39PO7), Oahe Reservoir area, Potter County, South Dakota, 1956," by Carl F. Miller; "Archeological investigations at the Hickey Brothers site (39LM4), Big Bend Reservoir, Lyman County, South Dakota," by Warren W. Caldwell, Lee G. Madison, and Bernard Golden; "The Good Soldier site (39LM238), Big Bend Reservoir, Lyman County, South Dakota," by Robert W. Neuman; "Archeological investigations in the Toronto Reservoir area, Kansas," by James H. Howard, and to recommend that they be published as a bulletin of the Bureau of American Ethnology.

Very respectfully yours,

FRANK H. H. ROBERTS, Jr.,
Director.

DR. LEONARD CARMICHAEL,
Secretary, Smithsonian Institution.

EXPLANATION OF THE INTER-AGENCY ARCHEOLOGICAL SALVAGE PROGRAM

The Inter-Agency Archeological Salvage Program is a cooperative plan of the Smithsonian Institution; the National Park Service and the Bureau of Reclamation, Department of the Interior; and the Corps of Engineers, Department of the Army. It was formulated, through a series of interbureau agreements, for the purpose of recovering archeological and paleontological remains that would otherwise be lost as a result of the numerous projects for flood control, irrigation, hydroelectric power, and navigation improvements in the river basins of the United States. Various State and local agencies have assisted in the work. To carry out its part of the joint undertaking, the Smithsonian Institution organized the River Basin Surveys as a unit of the Bureau of American Ethnology. The National Park Service has served as liaison between the various agencies and has provided the Smithsonian Institution with all of the necessary information pertaining to the location of proposed dams and other construction and their priorities. It has also had responsibility for budgeting costs of the program, funds for which are provided in the annual appropriations of the Department of the Interior. The operations of the River Basin Surveys, Smithsonian Institution, have been supported by funds transferred to it from the National Park Service. Through agreements with the National Park Service, money has also been made available to State and local agencies to supplement their own resources and aid them in their contributions to the program.

The River Basin Surveys Papers, of which this is the ninth bulletin, are issued under the scientific editorship of Frank H. H. Roberts, Jr., director of the Bureau of American Ethnology.

PUBLISHER'S NOTE

A separate edition is published of each paper in the series entitled "River Basin Surveys Papers." Available copies of Papers 1–38 can be had upon request to the Publications Office, Smithsonian Institution, Washington, D.C., 20560.

River Basin Surveys Papers Published Previously

No. 1. Prehistory and the Missouri Valley Development Program: Summary Report on the Missouri River Basin Archeological Survey in 1948, by Waldo R. Wedel. Bull. 154, pp. xv–xviii, 1–59, pls. 1–12, fig. 1. 1953.

No. 2. Prehistory and the Missouri Valley Development Program: Summary Report on the Missouri River Basin Archeological Survey in 1949, by Waldo R. Wedel. Bull. 154, pp. 61–101, pls. 13–15. 1953.

No. 3. The Woodruff Ossuary, a prehistoric burial site in Phillips County, Kansas, by Marvin F. Kivett. Bull. 154, pp. 103–141, pls. 16–28, figs. 2–3. 1953.

No. 4. The Addicks Dam site:

I. An archeological survey of the Addicks Dam Basin, Southeast Texas, by Joe Ben Wheat. Bull. 154, pp. 143–252, pls. 29–47, figs. 4–23. 1953.

II. Indian skeletal remains from the Doering and Kobs sites, Addicks Reservoir, Texas, by Marshall T. Newman. Bull. 154, pp. 253–266, figs. 24–28. 1953.

No. 5. The Hodges site:

I. Two rock shelters near Tucumari, New Mexico, by Herbert W. Dick. Bull. 154, pp. 267–284, pls. 48–54, figs 29–30. 1953.

II. Geology of the Hodges site, Quay County, New Mexico, by Sheldon Judson. Bull. 154, pp. 285–302, figs. 31–35. 1953.

No. 6. The Rembert Mounds, Elbert County, Georgia, by Joseph R. Caldwell. Bull. 154, pp. 303–320, pls. 55–56, figs. 36–40. 1953.

No. 7. Archeological investigations in the Oahe Dam area, South Dakota, 1950–51, by Donald J. Lehmer. Bull. 158, 190 pp., 22 pls., 56 figs., 6 maps. 1954.

No. 8. Excavations in the McNary Reservoir Basin near Umatilla, Oregon, by Douglas Osborne. With appendixes by Marshall T. Newman, Arthur Woodward, W. J. Kroll, and B. H. McLeod. Bull. 166, 250 pp., 40 pls., 6 figs., 19 maps. 1957.

No. 9. Archeological investigations in the Heart Butte Reservior area, North Dakota, by Paul L. Cooper. Bull. 169, pp. 1–40, pls. 1–12, figs 1–2. 1958.

No. 10. Archeological investigations at the Tuttle Creek Dam, Kansas, by Robert B. Cumming, Jr. Bull. 169, pp. 41–78, pls. 13–24. 1958.

No. 11. The Spain site (39LM301), a winter village in Fort Randall Reservoir, South Dakota, by Carlyle S. Smith and Roger T. Grange, Jr. Bull. 169, pp. 79–128, pls. 25–36, figs 3–4. 1958.

No. 12. The Wilbanks site (9CK–5), Georgia, by William H. Sears. Bull. 169, pls. 37–45, figs 5–9. 1958.

No. 13. Historic sites in and around the Jim Woodruff Reservoir area, Florida-Georgia, by Mark F. Boyd. Bull. 169, pp. 195–314, pls. 46–55, figs. 10–11. 1958.

No. 14. Six sites near the Chattahoochee River in the Jim Woodruff Reservoir area, Florida, by Ripley P. Bullen. Bull. 169, pp. 315–357, pls. 56–73, figs. 12–13. 1958.

No. 15. Historic sites archeology on the Upper Missouri, by Merrill J. Mattes. Bull. 179. pp. 1–24.

No. 16. Historic sites archeology in the Fort Randall Reservoir, South Dakota, by John E. Mills. Bull. 176, pp. 25–48, pls. 1–9, figs. 1–2, map 1. 1960.

No. 17. The excavation and investigation of Fort Lookout Trading Post II (39LM57) in the Fort Randall Reservoir, South Dakota, by Carl F. Miller. Bull. 176, pp. 49–82, pls. 10–18, figs. 3–14, map 2. 1960.

No. 18. Fort Pierre II (39ST217), a historic trading post in the Oahe Dam area, South Dakota, by G. Hubert Smith. Bull. 176, pp. 83–158, pls. 19–30, maps 3–4. 1960.

No. 19. Archeological investigations at the site of Fort Stevenson (32ML1), Garrison Reservoir, North Dakota, by G. Hubert Smith. (Introduction by Robert L. Stephenson and an appendix by Carlyle S. Smith.) Bull. 176, pp. 159–238, pls. 31–54, figs. 15–20, maps 5–6. 1960.

No. 20. The archeology of a small trading post (32MN1) in the Garrison Reservoir (Kipp's Post), South Dakota, by Alan R. Woolworth and W. Raymond Wood. Bull. 176, pp. 239–305, pls. 55–65, figs. 21–25, map 7. 1960.

No. 21. Excavations at Texarkana Reservoir, Sulphur River, Texas, by Edward B. Jelks. Bull. 179, pp. xiii–78, pls. 1–17, figs. 1–9. 1961.

No. 22. Archeological investigations at the Coralville Reservoir, Iowa, by Warren W. Caldwell. Bull. 179, pp. 81–148, pls. 18–29, figs. 10–24. 1961.

No. 23. The McNary Reservoir: A study in plateau archeology, by Joel L. Shiner. Bull. 179, pp. 151–266, pls. 30–46, figs. 25–40, maps 1–7. 1961.

No. 24. The Sheep Island site and the Mid-Columbia Valley, by Douglas Osborne, Alan Bryan, and Robert H. Crabtree. Bull. 179, pp. 269–321, pls. 47–56, figs. 41–43. 1961.

No. 25. Archeology of the John H. Kerr Reservoir Basin, Roanoke River, Virginia-North Carolina, by Carl F. Miller. (Appendix by Lucile E. Hoyme and William M. Bass.) Bull. 182, 447 pp., pls. 1–110, figs. 1–65, maps, 1–8. 1962.

No. 26. Small sites on and about Fort Berthold Indian Reservation, Garrison Reservoir, North Dakota, by George Metcalf. Bull. 185, pp. 1–56, pls. 1–11, figs. 1–5, 1 map. 1962.

No. 27. Star Village: A fortified historic Arikara site in Mercer County, North Dakota, by George Metcalf. Bull. 185, pp. 57–122, pls. 12–17, figs. 6–16, 3 maps. 1962.

No. 28. The dance hall of the Santee Bottoms on the Fort Berthold Reservation, Garrison Reservoir, North Dakota, by Donald D. Hartle. Bull. 185, pp. 123–132, pl. 18, figs. 17–18. 1962.

No. 29. Crow-Flies-High (32MZ1), a historic Hidatsa village in the Garrison Reservoir area, North Dakota, by Carling Malouf. Bull. 185, pp. 133–166, pls. 19–26, figs. 19–25. 1962.

No. 30. The Stutsman Focus: An aboriginal culture complex in the Jamestown Reservoir area, North Dakota, by R. P. Wheeler. Bull. 185, pp. 167–233, pls. 27–36, figs. 26–38. 1962.

No. 31. Archeological manifestations in the Toole County section of the Tiber Reservoir Basin, Montana, by Carl F. Miller. Bull. 185, pp. 235–255, pls. 37–45, figs. 39–40, 1 map. 1962.

No. 32. Archeological salvage investigations in the Lovewell Reservoir area, Kansas, by Robert W. Neuman. Bull. 185, pp. 257–306, pls. 46–57, figs. 41–43. 1962.

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By W. RAYMOND WOOD and ALAN R. WOOLWORTH

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PREFACE

In 1947 an archeological field party, sponsored by the University of North Dakota and the State Historical Society of North Dakota, carried out excavations in the upper limits of the Oahe Reservoir, in North Dakota. Test excavations were made at the Paul Brave site (32SI4), also known as the Fort Yates site. The elevation of this prehistoric village is between 1,600 and 1,610 feet. The site will be flooded by the Oahe Reservoir when backwater reaches the maximum pool level of 1,620 feet. The work in 1947 was directed by Dr. Gordon W. Hewes, then with the University of North Dakota. The limited excavations in 1947 indicated the desirability of further and more intensive work at the site, and in 1955 the State Historical Society of North Dakota sponsored a second party for full-scale excavation.

Funds were made available for this archeological salvage work through a cooperative agreement with the National Park Service. Between July 6, 1955, and August 30, 1955, excavation was carried out under our supervision when we were both staff archeologists with the State Historical Society. The assistance of Oriol Pi-Sunyer, then a graduate student at Harvard, is gratefully acknowledged. The genial and competent crew members contributed further to the summer's accomplishments. These were Stephen W. Robinson and Robert P. Barr, of Grand Forks, N. Dak., and Russell B. Lawrence and Robert F. Gipp. of Fort Yates, N. Dak.

The overburden at the site necessitated the use of a bulldozer, which was rented from the Standing Rock Tribal Council, and operated by Jack McLaughlin of Shields, N. Dak. The use of this machine implemented the removal of the nearly 3 feet of sterile overburden from the house floors. The River Basin Surveys, Smithsonian Institution, provided the field party with cameras and other equipment necessary to document features found in the excavations. We took aerial photographs on a flight early in September 1955.

We wish to thank Robert L. Stephenson, Charles H. McNutt, and Warren Caldwell for constructive criticism of this report. Joseph P. E. Morrison identified the shell material from the site. Russell Reid, superintendent of the State Historical Society of North Dakota, assisted in the identification of the baked clay animal figurines from the site and aided the investigators in many other ways. Photographic plates were prepared with the assistance of Bernard Weinreich, Bis-

marck photographer. The maps and line drawings were prepared by Wood.

Permission to excavate on the Standing Rock Indian Reservation was generously granted by the Standing Rock Tribal Council. Members of the Paul Brave estate gave their permission to excavate site 32SI4. Superintendent J. W. Wellington extended every effort to make the summer comfortable and successful, and Tribal Chairman David Black Hoop aided the excavators in many ways. This assistance made the summer of 1955 a profitable and enjoyable one, and it is gratefully acknowledged.

The field notes, maps, and artifacts from the site were returned for study and preservation to the State Historical Society Museum in Bismarck, and they are on file in that institution. Some of the field records and collections made in 1947 are also in the collections at that museum, and the rest are at the University of North Dakota, in Grand Forks. All of the 1947 material at the Museum was reanalyzed and is incorporated in the present study.

W. Raymond Wood
Alan R. Woolworth

THE PAUL BRAVE SITE (32SI4), OAHE RESERVOIR AREA, NORTH DAKOTA[1]

By W. Raymond Wood and Alan R. Woolworth

INTRODUCTION

The purpose of this study is to present a detailed descriptive statement of the archeology of one of the early village sites in the northern part of the Middle Missouri area. The Middle Missouri area consists of the Missouri River Valley and the lower reaches of its tributaries between Bismarck, N. Dak., and southeastern South Dakota (see Lehmer, 1954, p. 140). The Paul Brave site is significant because it was occupied at the time when the first village or town dwellers were establishing themselves in the northern part of this area. The derivation of these early village people and the subsequent settlement patterns of the Northern Plains are topics of interest to the anthropologists and historians of the region.

Since 1906, when George F. Will and Herbert J. Spinden reported work at the Double Ditch (Bourgois) Mandan site, north of the city of Bismarck, N. Dak., archeological interest in the northern Middle Missouri area has increased. Some of the stages in the history of the area have been blocked in roughly, particularly by George F. Will and Thad. C. Hecker (1944). Details, however, are scant, and the present study provides a base from which a more adequate definition of the early village people may be made. The lack of any real fund of comparative data precludes any sweeping conclusions, although a few tentative generalizations are justified on the basis of excavations at the Paul Brave site.

Preliminary statements of the archeology of Paul Brave have appeared in several publications. The first reference to the site is in Will and Hecker (ibid., p. 89), where it is described as an unnamed "Archaic Mandan" site on tribal land north of the Paul Brave estate. Test excavations in 1947 resulted in two brief articles by the excavator, Gordon W. Hewes. The first of these (1949 a) describes the excavations in summary form, discusses some of the significant finds and tentatively places the site in time. A second article (1949 b) is

[1] Submitted September 1959; some revision April 1961.

a preliminary classification of the pottery from the excavations, with notes on extra-site distributions. In addition, there are references to Paul Brave in the report on the Thomas Riggs site, 39HU1 (Hurt, 1953). In Hurt's report Paul Brave is referred to as the "Fort Yates site." In the present study, site 32SI4 is designated as the Paul Brave site to avoid duplication in terms, since the term "Fort Yates" has been used in other contexts.

ARCHEOLOGY OF THE SITE

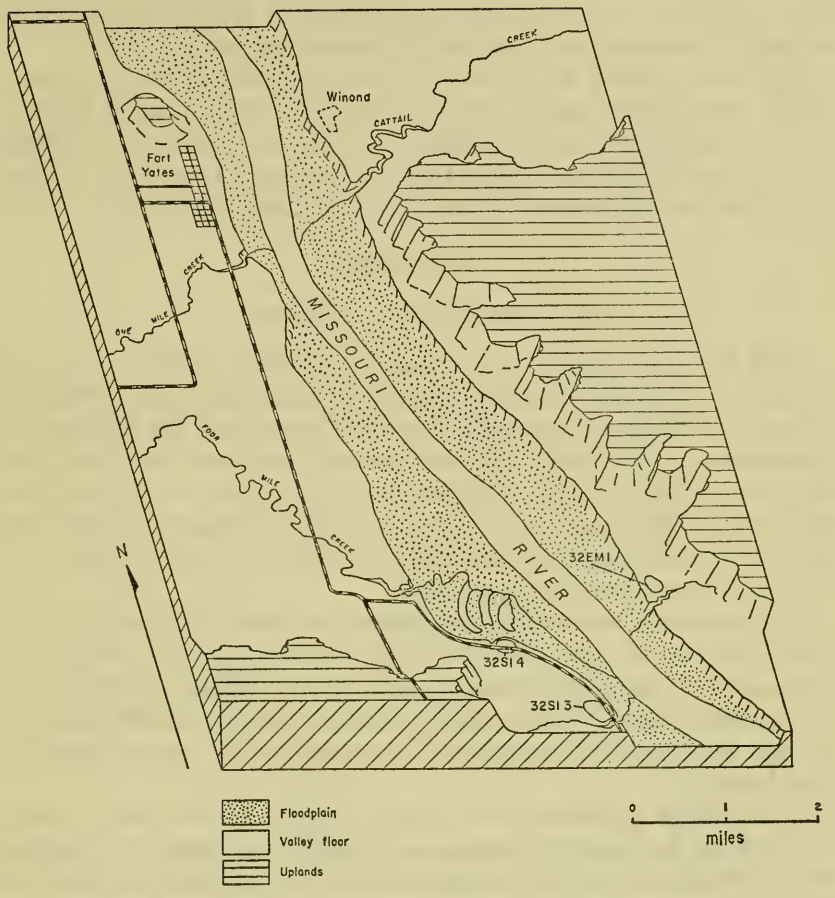
SITE DESCRIPTION

The Paul Brave site is located in the N½N½NE¼ of sec. 8, T. 129 N., R. 79 W., Sioux County, N. Dak. It is on the west bank of the Missouri River 6 miles downstream from the town of Fort Yates, and about 6 miles upstream from the North and South Dakota boundary. The site is on a rolling terrace that overlooks the Missouri River flood plain, this terrace averaging 20 feet above the flood plain. To the south, the land rises in a series of low hills that abut against the Missouri River bluffs, about one-half of a mile distant (map 1; also pl. 1, *a*). Fire Heart Butte, a high, flat-topped butte, is about 4 miles to the southeast.

At the time the site was investigated in 1955, it was found that at least 14 oval house depressions were distributed over an area of about 4 acres. These depressions were as much as 65 feet long and were 2 to 3 feet deep. They were filled with a lush vegetation that contrasted with the short, dry grass on higher points in the village area. The site is said to have been cultivated (Will and Hecker, 1944, p. 89), but activity does not seem to have obscured the surface indications of the larger subsurface features. The village may have been larger originally, because Will and Hecker (1944, p. 89) also noted house floors exposed in the terrace edge facing the river. This terrace was checked in 1955. A number of artifacts were recovered from the surface, but there was no indication of house floors. There is no evidence that the site was fortified, but it is partially isolated from the remainder of the terrace by a narrow swale south of the village (map 2; also pl. 1, *a*).

EXCAVATION METHODS

Preliminary testing determined that the houses were built in shallow pits. Three houses were chosen for excavation after the depth of the house floors and the house walls had been determined. These houses were evenly distributed over the site, and none of them had been tested previously. The entire site was mantled by a deposit of light-buff aeolian soil. This mantle was as much as 4 feet deep over some of the houses, but high points within the village were buried



MAP 1.—Paul Brave site and environs.

only about a foot. A bulldozer was used to strip this overburden from the three houses down to house fill, which was excavated by conventional hand methods. House fill was a dark, mottled, and relatively soft mixed earth that contrasted with the lightly colored sandy native soil. The depth of the bulldozer cut was regulated to approximate the depth of the former village occupational level.

Three other bulldozer cuts were made in the eastern part of the site to expose cache pits and other features, and to check for deeper occupational levels. No evidence was observed that indicated any occupation prior to that represented by the houses. House floors were carefully exposed, and all postholes, fireplaces, pits, and other features were cored. The structures were mapped radially by use of a plane table, open-sight alidade, and steel chain after excavation. Photographs were taken of the excavated houses, features, significant finds, and progress of the work. Several aerial photographs were taken to

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show the work accomplished and the general environmental setting of the village after the regular field season had ended.

The work done at Paul Brave in 1955 included the testing of seven areas. These tests, or excavation units, are herein termed X units, and are designated as X1 through X7. The excavations of Gordon W. Hewes in 1947 are hatched on the site map (map 2). Eighty-eight features, designated F10 to F97, were recorded (table 1).

FEATURES

EXCAVATION UNIT 1 (HOUSE 1)

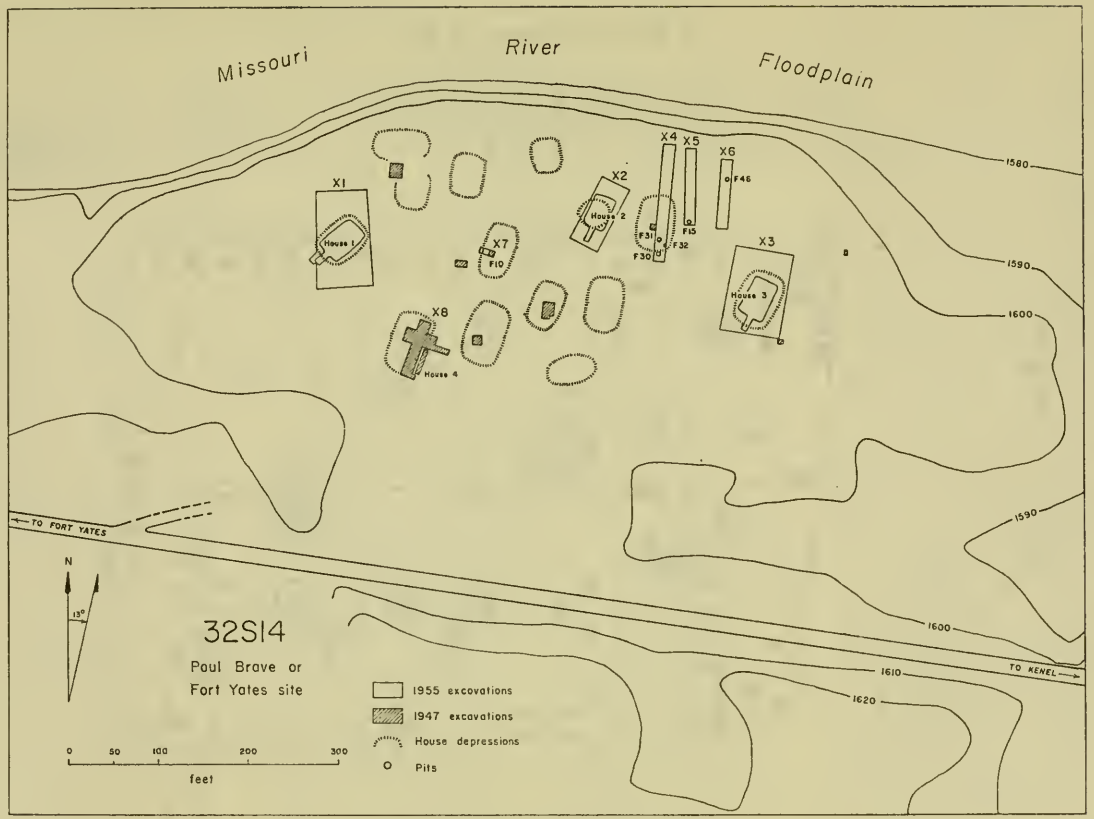
This long-rectangular house was in the western part of the site (map 3). It had a maximum length of 45.5 feet, and was 32.5 feet wide at the end near the entrance and 31 feet wide at the end opposite the entrance. The long axis was oriented northeast and southwest, with the entrance in the southwest end of the house facing away from the river. The floor was 3.6 feet below the present ground level. The house was originally built in a pit 2 feet deep. The house walls and floor were of unfaced native soil.

The entrance was marked by three postholes on either side of a small bench that projected into the house floor. This bench was composed of undisturbed native soil. The entrance postholes were 1.0 to 2.3 feet deep. Three other postholes southwest of the house but in line with the entrance suggest that this passage was originally 14 feet long.

Three large postholes were in the midline of the floor. One of these, in the end opposite the entrance, was 3.1 feet deep. It was lined with stones, and the hole inclined toward the entrance at a 13-degree angle. Another post near the rear wall was 1.6 feet deep and also inclined toward the entrance. Midway between the end post and the entrance was a post 3.0 feet deep. Another post, not located along the midline of the floor, leaned toward the end post. It may have served as a brace.

There were 20 postholes along each of the long walls of the house, from 0.9 to 2.1 feet deep, averaging 1.5 feet deep. There were no posts in the house ends. On either side of the midline of the floor, there was an intermediate row of posts. In each row were five posts, spaced 8 to 10 feet apart (posts I to X, map 3).

The fireplace, F19, was centered on the midline of the house, offset toward the entrance. It was circular and basin shaped, and contained ash, mixed earth, and a burned floor. Another basin-shaped pit, F81, may also have been a fireplace, owing to the fact that its floor was burned, but there was little depth to the burning. Perhaps it was used sparingly or for only a brief time as a fireplace.



MAP 2.—Site map, showing excavations.

MAP 3.—House 1 ,excavation 1.

A number of large stones were along the edge of this pit. At the rear of the house was an area of burned earth (F94), which appeared to be a surface hearth. A small, basin-shaped fireplace (F71) contained white ash, and the underlying soil was burned.

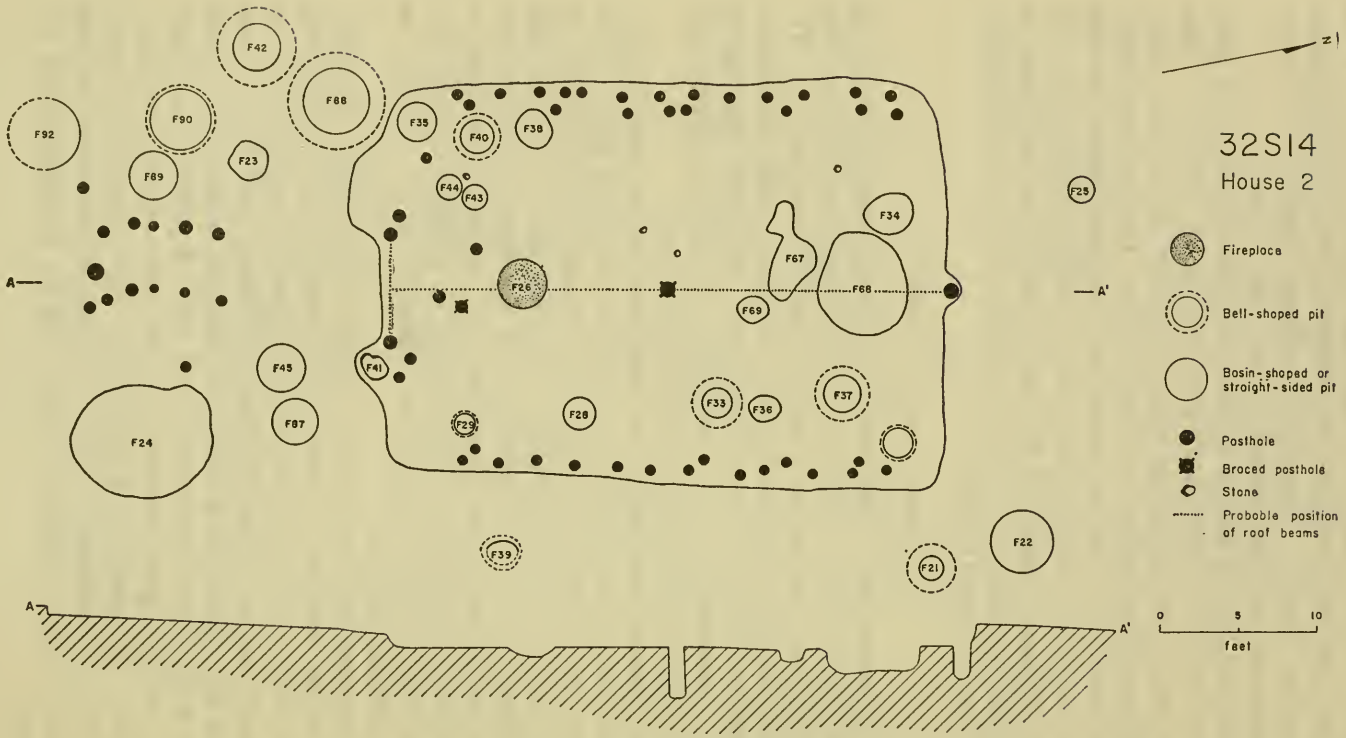
Fourteen bell-shaped pits of various sizes were in the house floor. They tended to be in a line with the intermediate rows of posts. These pits were small, averaging less than 2 feet in depth. Six basin-shaped pits contained mixed earth and refuse. One of these (F82), may have been dug after the house was abandoned, since the wall postholes observed in the pit floor were not visible within the pit fill. A layer of charcoal blanketed the floor of the house, and many of the postholes contained the charred remains of posts. Apparently the house was destroyed by fire.

EXCAVATION UNIT 2 (HOUSE 2)

This long-rectangular house was in the north-central part of the site (map 4; pl. 1, *b*). It had a maximum length of 37.5 feet, was 24.0 feet wide near the entrance, and 26.0 feet wide at the rear. The long axis of the house was nearly north and south, with the entrance in the south end facing away from the river. The house floor lay 2.8 feet below the surface, and the house was built in a pit 1.4 feet deep. The house floor and walls were of unfaced native soil.

The entrance was marked by four postholes, two on each side of a small bench of native soil that projected into the house floor. These postholes were 1.1 to 2.4 feet deep. An entrance was indicated by 11 postholes that outlined a passage 18 feet long and 4 to 5 feet wide. The postholes began at a point about 10 feet from the house wall. Despite a careful search, no postholes could be located between the house wall and that point. A hole 1 foot in diameter and 0.8 of a foot deep was in the midline of the entrance, but it probably was not a part of that feature.

Two large postholes were in the midline of the house. The posthole in the rear wall was 0.9 foot in diameter and 2.1 feet deep and was filled with white ash. Midway between the end posthole and the entrance was a posthole 0.9 foot in diameter and 3.2 feet deep containing the remains of a cedar post that was braced with stones. The long walls of the house were lined with 12 postholes each and, although auxiliary posts occurred, the two rows were mirror images of each other in spacing and placement. These postholes were 0.8 to 2.4 feet deep, averaging 1.5 feet. All house posts observed were cedar, and all were vertical. There were no postholes along the end walls.



MAP 4.—House 2, excavation 2.

The fireplace (F26) was offset toward the entrance, and was centered on the midline of the house. It was filled with compact white ash and mixed earth and was lined with burned earth. East of the entrance, in a shallow recess in the house wall, a large unmodified stone slab was on the house floor. The material is a conglomerate, and similar stone occurs along the river bluffs south of the site. Five bell-shaped pits and several basin-shaped pits filled with mixed earth and refuse were in the house floor. An irregularly shaped pit (F67) was near the rear wall of the house. A thin layer of charcoal and burned earth marked the floor level, and the tops of most of the posts were charred, a condition indicating that the house was leveled by fire.

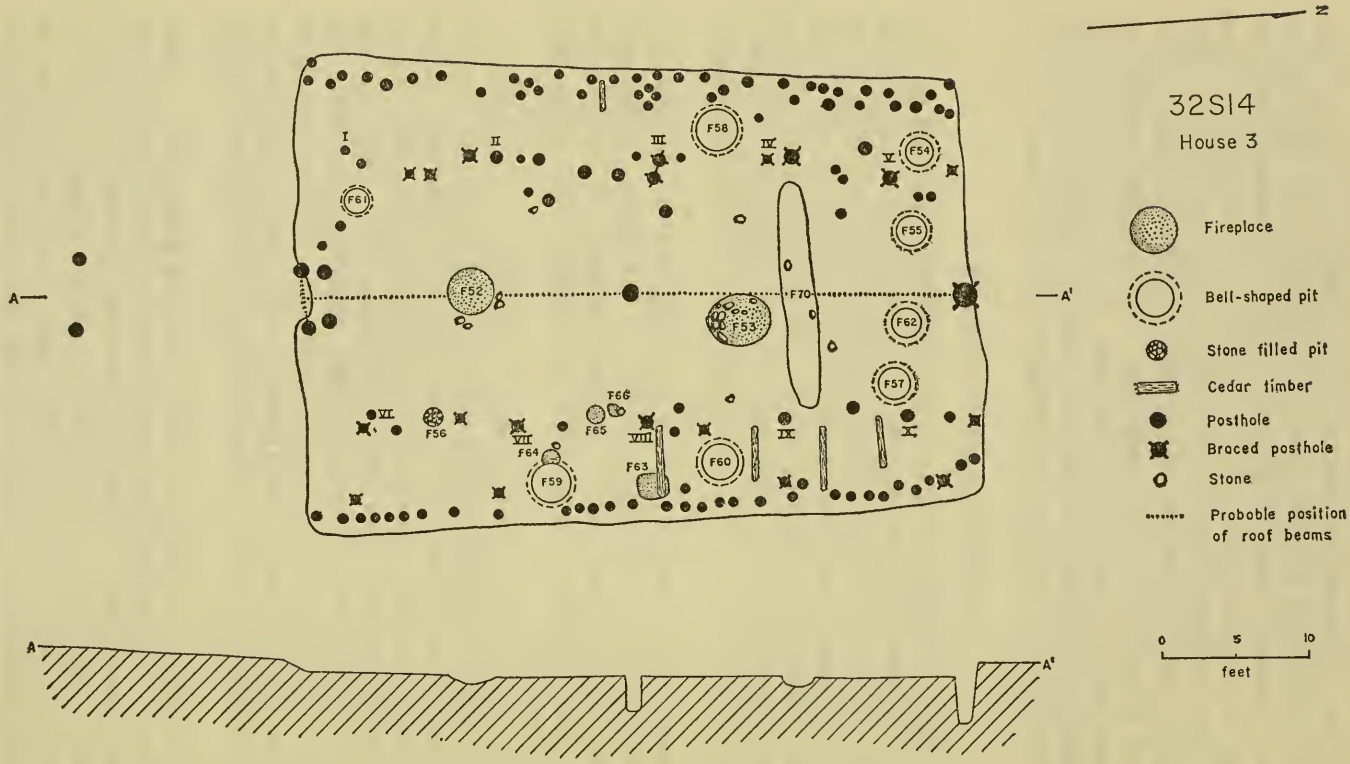
EXCAVATION UNIT 3 (HOUSE 3)

This long-rectangular house was in the eastern part of the site (map 5). It was 46.0 feet long, 32.5 feet wide at the end near the entrance, and 29.0 feet wide at the back end. The long axis of the house was oriented north and south, and the entrance was in the south end, facing away from the river. The house floor was 2.8 feet below the present surface. The structure was originally built in a pit more than 1 foot deep. The floor and walls were of unfaced native soil.

The entrance was marked by four postholes, two on each side of a small bench of native soil that projected into the house. These postholes were 0.9 to 1.3 feet deep. Two postholes south of the house but in line with the entrance suggest that the passage was 15 feet long and 4 to 5 feet wide.

There were two large postholes along the midline of the house. A posthole 3.0 feet deep and 1.6 feet wide in the rear wall contained a vertical cedar post 0.9 foot in diameter that was braced with stones. In the house center, midway between the entrance and the end posthole, was a posthole 0.9 foot wide and 1.9 feet deep. Secondary supports were provided by two rows of postholes located between the house midline and the walls. They consisted of two rows of five posts each, spaced from 8 to 10 feet apart (posts I to X, map 5). Several of them were lined with stones. There were no postholes along the end walls.

The fireplace was centered on the midline of the house, offset toward the entrance. It contained compact white ash, mixed earth, and was lined with burned earth. Three miniature pottery vessels were found embedded in the ash. Two of these vessels are illustrated (pl. 6, *f–g*). An oval, basin-shaped pit (F53) and a small rectangular pit (F63) had lightly fired floors and may also have served as fireplaces. Three smaller fireplaces (F64, F65, and F66) contained ash, and were lined with burned earth.



MAP 5.—House 3, excavation 3.

A unique feature near the rear wall of the house was a long straight trench with rounded ends and a shallow U-shaped cross section. Its long axis was perpendicular to the long axis of the structure. The feature (F70) contained a few bone fragments and two stones (pl. 2, *a*). There were a few bison skull fragments near the rear wall in the house, but there was no other evidence of a household shrine.

Eight bell-shaped floor pits were along the house walls. Basin-shaped pits, present in the other dwellings, were lacking in this structure. Five charred timbers on the house floor, at right angles to the house walls, were probably fallen wall posts (pl. 2, *b*). They were cedar timbers ranging in length up to 4.8 feet. The inner ends of the timbers were about 5 feet from the line of wall posts, suggesting that the wall was at least 5 feet high. The timbers averaged about 0.3 foot in diameter, although they may originally have been larger. The evidence indicates that this house, as well as the other two excavated houses, was destroyed by fire.

EXCAVATION UNIT 4

Unit 4 was in the northeastern part of the site, east of House 2. It was a trench oriented north and south, 130 feet long and 14 feet wide, attaining a maximum depth of 5 feet. Near the south end of the unit was a house depression (F12) the floor of which was 4.2 feet below the present surface. Three pits were exposed near the south end of the house. F32 was profiled; this bell-shaped pit could not be associated with the house. F31 was a small bell-shaped pit in the floor of the house, and F30 was a pit of indeterminate form on the south edge of the house.

EXCAVATION UNIT 5

Unit 5 was east of House 2 and northwest of House 3. It was a trench oriented north and south, 85 feet long and 14 feet wide, with a maximum depth of 5 feet. A bell-shaped pit (F15) was in the south end of the unit.

EXCAVATION UNIT 6

Unit 6 was east of House 2 and northwest of House 3. It was a trench oriented north and south, 75 feet long and 14 feet wide, attaining a maximum depth of 5 feet. A bell-shaped pit (F46) was in the north end of the unit.

EXCAVATION UNIT 7

Unit 7 was a test pit approximately in the center of the village area, 5.6 feet north and south and 17 feet east and west. It is an extension of a test pit excavated by Hewes in 1947. The 1947 excavation was a 5-foot square. In 1955 this unit was extended to the west and revealed

a house wall. The wall was of unfaced native soil, sloping up from the floor at an angle of 20 degrees to the former village level. The house pit was 1.8 feet deep, and at the wall the overburden was 2 feet deep. Four postholes along the wall contained the remains of cedar posts or soft mixed earth. The holes varied in diameter from 0.5 to 0.8 foot, and were 1.3 to 2.4 feet deep. No other features of interest were noted on the trench floor.

EXCAVATION UNIT 8 (HOUSE 4)

Unit 8 revealed the floor of a long-rectangular house. The structure was excavated in 1947, and the following description was paraphrased from Hewes' original report (1949 a, pp. 22–23).

The largest and deepest house depression at the site was cross-trenched, and the greater part of the floor was ultimately cleared. The floor lay at a depth of about 4 feet below the present surface. The upper foot of the overburden was sterile, including only recent deposits of humus, but the remaining fill included sherds, bone and flint tools, and animal bone. The structure was approximately rectangular, 65 feet long and 35 feet wide, with four rows of postholes. (The floor plan of the house is apparently similar to that of House 1 and House 3.) Three fireplaces, devoid of refuse, were on the floor. The only other significant features were three large piles of bison bone, chiefly cranial parts and horn cores, intermingled with rough stone. Near the floor center, about 50 inches below the surface of the house depression, were two large broken pottery vessels resting mouth down on the floor. These two vessels were illustrated in Hewes' original report (1949 b, pl. 5, lower right, *t-u*). The house fill above the floor contained such refuse as bone, sherds, and tools, but the floor was free of such detritus. Hewes was inclined to interpret this feature as a ceremonial structure, rather than a household dwelling unit. In size, at least, the house stands apart from the smaller structures excavated in 1955, and Hewes' interpretation is convincing.

HUMAN BURIALS

There is a low rise of ground south of the site, and this rise is intercepted along its north edge by a road (map 2). In 1956, George Haiser reported to the excavators that, prior to World War II, several human burials were gouged from the south bank of the road by road-cutting operations. It is possible that this rise of ground may have served as a cemetery for the village, since there were no human remains in the site. The burial positions and the disposition of the remains from the road cut are not known.

Other evidence of activity in the low rises south of the site was encountered. Survey parties in 1955 found circular shell disk beads

on a hill about 1,000 yards south of the site. These objects might be grave offerings brought to the surface by animal activity, and they are similar to beads from the excavated houses and features. Unfortunately the brief field season did not permit further exploration of the area south of the site.

TABLE 1.—*Description of features*

Feature No.	X No.	Depth	Length and width	Identification
		Feet	*Feet*	
10	7	1.8	No data	Rectangular house.
11	2	1.4	Length, 37.5 N-S width, 24.0-26.0 E-W.	Rectangular house (house 2).
12	4	-------	Floor 4.2 below surface	Rectangular house.
13	1	2.0	Length, 45.5 N-S width, 31.0-32.5 E-W.	Rectangular house (house 1).
14	3	1.0	Length, 46.0 N-S width, 39.0-32.5 E-W.	Rectangular house (house 3).
15	5	3.8	Orifice diam., 4.0; diam., 6.0	Bell-shaped pit, floor slightly fired.
16	1	1.4	Orifice diam., 1.8; diam., 2.2	Bell-shaped pit in House 1.
17	1	.6	Diameter 1.3 E-W 1.1 N-S	Basin-shaped pit in House 1.
18	1	1.0	Orifice diam., 0.9; diam., 1.5	Bell-shaped pit in House 1.
19	1	.6	Diameter, 5.0	Primary fireplace in House 1.
20	1	1.0	Diameter, 5.2 N-S, 6.8 E-W	Basin-shaped pit north of House 1.
21	2	2.6	Orifice diam., 2.4; diam., 3.2	Bell-shaped pit northeast of House 2.
22	2	.3	Diameter, 4.0	Basin-shaped pit northeast of House 2.
23	2	1.4	Diameter, 4.4	Basin-shaped pit south of House 2.
24	2	1.7	Diameter, 9.2 N-S, 7.5 E-W	Irregularly shaped pit south of House 2.
25	2	.6	Diameter, 1.8	Basin-shaped pit north of House 2.
26	2	.8	Diameter, 3.0	Primary fireplace in House 2.
27	2	1.1	Orifice diam., 1.8; diam., 2.2	Bell-shaped pit in House 2.
28	2	.4	Diameter, 2.0	Basin-shaped pit in House 2.
29	2	1.2	Orifice diam., 1.4; diam., 1.6	Bell-shaped pit in House 2.
30	4	-------	Indeterminate	Pit of indeterminate form.
31	4	2.0	Orifice diam., 2.6; diam., 3.2	Bell-shaped pit in F12.
32	4	3.9	Orifice diam., 2.0; diam., 5.6	Bell-shaped pit.
33	2	2.0	Orifice diam., 1.8; diam., 3.3	Bell-shaped pit in House 2.
34	2	2.7	Diameter, 3.1 N-S, 2.5 E-W	Straight-sided pit with round bottom in House 2.
35	2	2.1	Diameter, 3.3	Straight-sided pit with flat bottom in House 2.
36	2	1.8	Diameter, 2.0 N-S, 1.8 E-W	Straight-sided pit with flat bottom in House 2.
37	2	2.6	Orifice diam., 2.5; diam., 3.5	Bell-shaped pit in House 2.
38	2	1.6	Orifice diam., 2.5; diam., 2.8	Bell-shaped pit in House 2.
39	2	2.0	Orifice diam., ca. 1.2; diam., 2.2	Bell-shaped pit east of House 2.
40	2	1.0	Orifice diam., 2.1; diam., 2.6	Bell-shaped pit in House 2.
41	2	1.4	Length 1.7; width 1.2; thickness 0.2	Flat conglomerate stone on floor of House 2.
42	2	2.7	Orifice diam. 3.0; diam., 5.0	Bell-shaped pit southwest of House 2.
43	2	.4	Diameter, 1.6	Basin-shaped pit in House 2.
44	2	.4	Diameter, 1.6	Basin-shaped pit in House 2.
45	2	1.2	Diameter, 3.0	Basin-shaped pit southeast of House 2.
46	6	2.6	Orifice diam., 4.5; diam. 6.5	Bell-shaped pit.
47	3	-------	Length, 4.8; thickness, 0.3	Charred cedar post in House 3.
48	3	-------	Length, 3.4; thickness, 0.3	Charred cedar post in House 3.
49	3	-------	Length, 4.1; thickness, 0.3	Charred cedar post in House 3.
50	3	-------	Length, 3.4; thickness, 0.3	Charred cedar post in House 3.
51	3	-------	Length, 1.5; thickness, 0.2	Charred cedar post in House 3.
52	3	.6	Diameter, 3.0	Primary fireplace in House 3.
53	3	.6	Diameter, 4.0 N-S, 3.4 E-W	Basin-shaped pit containing stones; bottom slightly fired.
54	3	1.7	Orifice diam., 2.0; diam., 2.6	Bell-shaped pit in House 3.
55	3	1.5	Orifice diam., 2.0; diam., 2.6	Bell-shaped pit in House 3.
56	3	1.0	Diameter, 1.3	Straight-sided pit with rounded bottom in House 3, filled with fragments of sandstone.
57	3	2.1	Orifice diam., 2.2; diam., 2.8	Bell-shaped pit in House 3.
58	3	2.0	Orifice diam., 2.7; diam., 3.0	Bell-shaped pit in House 3.
59	3	2.6	Orifice diam., 3.0; diam., 3.4	Bell-shaped pit in House 3.
60	3	2.5	Orifice diam., 2.5; diam., 3.0	Bell-shaped pit in House 3.
61	3	2.0	Orifice diam., 1.6; diam., 2.0	Bell-shaped pit in House 3.
62	3	1.8	Orifice diam., 1.8; diam., 2.4	Bell-shaped pit in House 3.
63	3	.5	Diameter, 1.9 N-S; 1.7 E-W	Basin-shaped pit, rectangular in outline, with slight firing on bottom.
64	3	.3	Diameter, 1.0 N-S; 0.6 E-W	Basin-shaped fireplace containing ash, charcoal, burned earth.
65	3	.4	Diameter, 1.0	Basin-shaped fireplace containing ash, charcoal, burned earth.

TABLE 1.—*Description of features*—Continued

Feature No.	X No.	Depth	Length and width	Identification
		Feet	*Feet*	
66	3	0.2	Diameter, 0.9	Basin-shaped fireplace containing ash, charcoal, burned earth.
67	2	1.1	Length, 7.2 E–W; width, 3.0 N–S	Irregularly shaped pit in House 2.
68	2	1.8	Diameter, 5.6 N–S; 6.5 E–W	Oval, basin-shaped pit in House 2.
69	2	.4	Diameter, 2.0 N–S; 1.6 E–W	Basin-shaped pit in House 2.
70	3	1.0	Length, 15.4 E–W; width, 2.0	Long straight trench in House 3.
71	1	.3	Diameter, 1.2	Basin-shaped fireplace, with ash, burned earth; House 1.
72	1	.8	Orifice diam., 1.5; diam., 1.7	Bell-shaped pit in House 1.
73	1	2.3	Orifice diam., 2.8; diam., 3.2	Bell-shaped pit in House 1.
74	1	1.3	Orifice diam., 1.2; diam., 1.8	Bell-shaped pit in House 1.
75	1	2.1	Diameter, 2.5 N–S; 3.0 E–W	Basin-shaped pit with posthole in bottom; House 1.
76	1	1.4	Orifice diam., 1.8; diam., 2.1	Bell-shaped pit in House 1.
77	1	1.2	Orifice diam., 1.8; diam., 2.0	Bell-shaped pit in House 1.
78	1	1.7	Orifice diam., 1.8; diam., 2.0	Bell-shaped pit in House 1.
79	1	1.8	Orifice diam., 2.0; diam., 2.4	Bell-shaped pit in House 1.
80	1	1.3	Orifice diam., 2.4; diam., 2.6	Bell-shaped pit in House 1.
81	1	1.3	Diameter, 4.1 N–S; 4.9 E–W	Basin-shaped pit containing stones on pit wall; floor is slightly fired; House 1.
82	1	.7	Diameter, 5.0	Basin-shaped pit with postholes in bottom; House 1.
83	1	1.0	Diameter, 2.0	Basin-shaped pit in House 1.
84	1	1.6	Diameter, 1.8	Straight-sided pit with round bottom in House 1.
85	1	2.2	Orifice diam., 2.6; diam., 3.0	Bell-shaped pit in House 1.
86	1	1.4	Orifice diam., 2.0; diam., 2.4	Bell-shaped pit in House 1.
87	2	1.0	Diameter, 3.0	Basin-shaped pit southeast of House 2.
88	2	2.2	Orifice diam., 4.3; diam., 6.2	Bell-shaped pit southwest of House 2.
89	2	.8	Diameter, 2.8	Basin-shaped pit southwest of House 2.
90	2	2.0	Orifice diam., 3.2; diam., 4.0	Bell-shaped pit southwest of House 2.
91	1	2.3	Orifice diam., 4.2; diam., 6.0	Bell-shaped pit north of House 1.
92	2	2.0	Diameter, 4.5	Basin-shaped pit south of House 2.
93	1	1.0	Orifice diam., 1.0; diam., 1.2	Bell-shaped pit in House 1.
94	1	.2	Diameter, 2.3 N–S; 3.3 E–W	Shallow depression, floor of burned earth; House 1.
95	1	.8	Diameter, 1.2	Basin-shaped pit in House 1.
96	1	.4	Diameter, 1.4	Basin-shaped pit in House 1.
97	1	1.1	Orifice diam., 1.8; diam., 2.2.	Bell-shaped pit in House 2.

ARTIFACTS

POTTERY TYPES

Several pottery types from the Paul Brave site are described below. These types differ in certain respects from types previously described by Gordon W. Hewes for some of the same pottery (1949 b, pp. 61–67). This study utilizes the pottery types defined at the Thomas Riggs site (Kleinsasser, 1953), but adds certain types that were lacking at Thomas Riggs. This reclassification was deemed necessary for several reasons. Pottery wares and types have been defined for a number of complexes in the Middle Missouri area since Hewes initially defined his types from the Paul Brave site. These classifications seem to have adopted rim form as the primary sorting criterion. Types or subtypes have been established within each ware for vessels or sherds bearing different decorative techniques. It is difficult to compare Hewes' types with those established by other workers, since Hewes did not use rim form as the primary criterion in his classifica-

tion of Paul Brave pottery. The classification below uses the concepts of types and wares defined by Lehmer (1954, p. 41), which are in current use in the Middle Missouri area. Wares are defined as groups of types which share a majority of basic characteristics including paste, vessel shape, surface finish, and rim form. Types included within a ware are groups of vessels or rim sherds decorated or modified in a consistent manner.

The paste, surface finish, and form of the pottery from Paul Brave are described below to apply to all ceramics from the site.

PASTE:

Method of manufacture: Probably lump modeled with paddle and anvil.

Temper: The material is uniformly decomposed or calcined granite. The amount and size of tempering varies with the size of the vessel. In the smaller vessels and in miniatures, temper is small and sparse, while in larger vessels it is coarser and more abundant. Particles of quartz, mica, and feldspar are visible in sherd cross sections; particles are 0.5 to 3.0 mm. in diameter.

Texture: The surfaces are medium fine to coarse, with the quality of the paste decreasing as vessel size increases. The majority of sherds are rough on the exterior because of irregular smoothing, and many are crackled on the interior. The core is compact to contorted, with evenly distributed temper.

Hardness: 3.0 to 3.5, the majority 3.0 (calcite).

Color: Buff, through light and dark grays to black, with the majority a dark gray.

Source clay: A plastic clay, light gray in color, was used to make the pottery. It is free of sand but contains silt.

SURFACE FINISH: Vessel interiors and the upper parts of the vessel exteriors are usually horizontally smoothed. Shoulders were malleated vertically with a grooved paddle, but more frequently the resulting grooves were smoothed over. Rim sherds may be vertically stamped, but ordinarily are smoothed. Only three rims are horizontally stamped. The bases of the vessels are impressed in a random fashion. Some vessels are lightly polished, and their surfaces reflect some light (pl. 6, *e*, *h*).

FORM:

Lip: Rounded, pointed, or flat, depending upon the presence and type of decoration.

Rim: Two rim forms occur. The Riggs Ware includes those types with vertical, straight to outflaring rims. The Fort Yates Ware includes those types with S-shaped rims.

Neck: Ordinarily constricted, except on vessels with straight, vertical rims.

Shoulder: Rounded and steeply sloping.

Body: All vessels appear to be globular, with round bases and wide mouths. In the restorable vessels, vessel height is about equal to maximum diameter.

Appendages: Loop handles predominate, with strap handles present but rare. Handles are welded to the lip and riveted to the shoulder. Vertical, triangular tabs are common on the lip. Usually these elements have a central incision.

WARES AND COMPONENT TYPES:

Riggs Ware:

Component types:

Riggs Plain Rim
Riggs Cross-Hatched Rim
Riggs Incised Rim
Riggs Pinched Rim

Fort Yates Ware:

Component types:

Fort Yates Cord Impressed Rim
Fort Yates Cross-Hatched Rim

Unclassified:

Example A
Example B
Example C
Example D

RIGGS WARE

Riggs Plain Rim

(Pl. 3, *b*, *d–h*; pl. 6, *e*)

SAMPLE: 619 rim sherds, representing about 381 vessels, and one restored vessel.

DECORATION:

Lip: On 237 sherds there are oblique or vertical tool impressions on the lip or on the outer edge of the lip. Circular and oval punctates and tool-impressed crosshatched lines, as well as fingernail impressions, occur on some lips (pl. 3, *e–g*). Three rims bear oblique cord-impressed lines, and seven rims have closely spaced castellations (pl. 3, *d*). The remaining rims have plain lips (pl. 3, *h*).

Rim: Plain, with some horizontal smoothing over grooved paddle impressions. A few rims have horizontal paddle impressions unmodified by smoothing. A single decorated rim is included in this type (fig. 1, *c*).

Shoulder: Sherds of 13 vessels are incised with various designs, most of which are rectilinear. Four design motifs are present:

(1) Incised chevrons of three or four lines alternate with a triangular "bear foot" element (fig. 1, *a-b*). The restored vessel bears this design, executed by a stab-and-drag technique (pl. 6, *e*).

(2) Incised "drooping corn stalks" or oblique incisions are superimposed over horizontally incised lines (fig. 1, *f-g*).

(3) Panels of opposed diagonals occur (fig. 2, *b-c*).

(4) Sherds from two vessels have incised, concentric circles on the upper shoulder (fig. 2, *d*).

FORM:

Lip: Round, pointed, or flat, depending upon the presence and type of decoration. Thickness, 4 to 10 mm., averaging 6 mm.

Rim: Straight and vertical to somewhat outflared. Heights are 10 to 70 mm., averaging about 35 mm.; thickness, 5 to 12 mm., averaging 7 mm.

Size: The projected orifices of 12 rim sherds indicate diameters between 120 and 346 mm.:

120	240	308
140	243	320
156	264	334
228	286	346

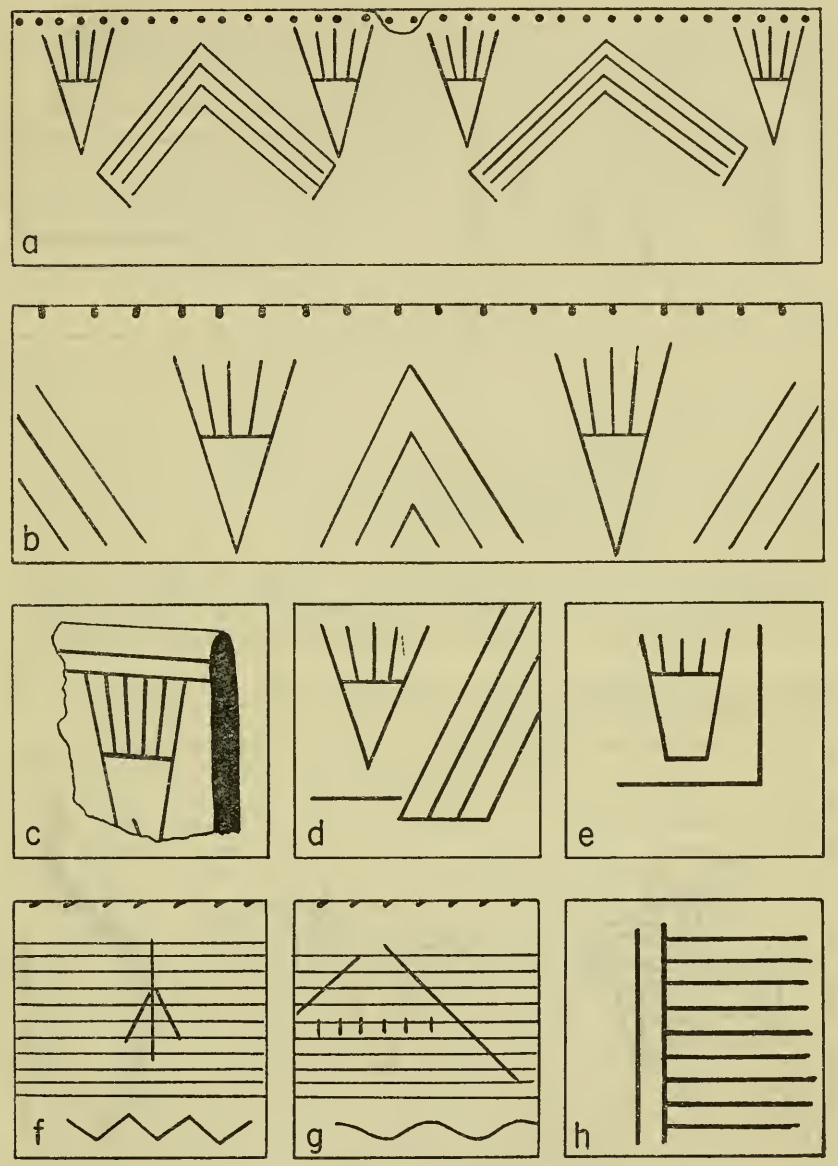


FIGURE 1.—Pottery design elements.

Appendages: Sherds from seven vessels have loop handles extending from the lip to the upper shoulder. One of them has a vertical, triangular tab with an apical incision. There are two loop handles and two incised tabs on the restored vessel (pl. 6, *e*). Twenty-three vertical tabs, roughly triangular, are of various sizes. Three of them are apically incised. Three horizontally projecting lugs occur on vessel lips.

Reconstructed vessel: A globular vessel with two loop handles and two incised tabs has a shoulder design made with the stab-and-drag technique

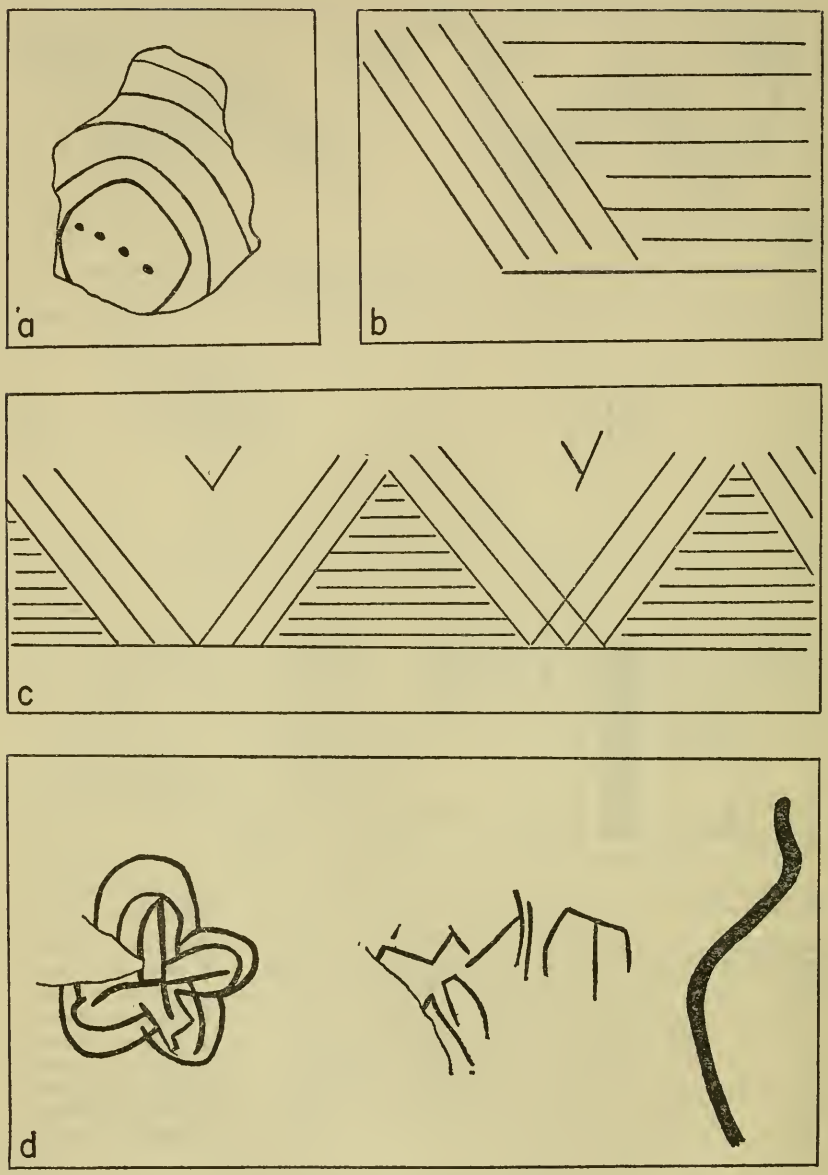


FIGURE 2.—Pottery design elements.

(pl. 6, *e*). When filled to the neck it contains about three-quarters of a pint of water. It has the following dimensions:

	Mm.
Height (excluding appendages)	75
Maximum diameter (at shoulder)	103
Orifice diameter (inner lip)	85
Lip thickness	7
Rim height	8
Thickness of base	2

Miscellaneous: One straight rim sherd with a plain, flat lip has a cylindrical hole 15 mm. from the lip (pl. 3, *b*). The hole was punched from the exterior while the clay was still moist, and the raised edges on the interior smoothed down. The edges of the hole are not worn.

PREVIOUS ILLUSTRATIONS AND DESCRIPTIONS: Sherds of this type are described by Hewes as "Type 9" and as "Type 11" from Paul Brave, and illustrated by several sherds (1949 b, pp. 64–67; pl. 5, lower right, *t–u;* pl. 6, left, *i;* pl. 6, right, *m, o, r*). The present type includes those sherds described by Hewes as "Fort Yates Plain."

Riggs Cross-Hatched Rim

(Pl. 4, *a–b, f*)

SAMPLE: 54 rim sherds, representing 43 vessels.

DECORATION:

Lip: Oblique tool impressions occur on six sherds, and crosshatched tool impressions appear on two sherds. Rims from one vessel are indented along the lip with oval punctates; the remaining lips are plain.

Rim: The rim is filled with crosshatched lines between the lip and the neck. On 11 sherds there is a horizontally incised line encircling the rim below the lip.

Shoulder: The four decorated shoulders have horizontally incised lines. Two of them have a "drooping corn stalk" and one of them has an incised triangle over the horizontal lines (pl. 4, *f*).

FORM:

Lip: Predominantly flat, with some round lips. Thickness, 7 to 9 mm.

Rim: Straight to somewhat outflared. Height is between 30 and 43 mm.: thickness, 6 to 8 mm.

Neck: The rim joins the shoulder in a smooth curve.

Shoulder: Rounded and steeply sloping.

Size: The orifices of two vessels, projected from large rim sherds, were 130 and 190 mm. in diameter.

Appendages: Small triangular tabs are on the lips of four sherds. The crest of each tab is incised. Sherds of one vessel with an incised tab has, in addition, two plain vertical tabs.

PREVIOUS ILLUSTRATIONS AND DESCRIPTIONS: Sherds of this type are included in the pottery described by Hewes as "Type 9, Fort Yates Fine Incised," and one sherd is illustrated (1949 b, pp. 64–65, pl. 6, right, *n*).

COMMENTS: The type originally defined by Hewes as "Fort Yates Fine Incised" includes rims that were straight and flaring as well as S-shaped rims. The straight or flaring rims bearing crosshatched designs are herein described as "Riggs Cross-Hatched Rim," and the S-shaped rims with the same decoration are herein classed as "Fort Yates Cross-Hatched Rim."

Riggs Incised Rim

(Pl. 3, *c*)

SAMPLE: 6 rim sherds, representing 6 vessels.

DECORATION:

Lip: One sherd is obliquely tool impressed. The remaining lips are plain.

Rim: Four to seven horizontally incised lines occur, with oblique lines interrupting the horizontals (pl. 3, *c*).

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FORM:

Lip: Round to somewhat flat. Thickness, 4 to 6 mm.

Rim: Straight to somewhat outflared. Height, 28 to 32 mm.; thickness, 6 to 8 mm.

Riggs Pinched Rim

(Pl. 3, *i*)

SAMPLE: 26 rim sherds, representing 22 vessels.

DECORATION: Vessels are plain except for the finger pinching.

FORM:

Lip: May be round, flat, or pointed. The lips are wavy, a condition induced by pressing the moist clay with the thumb and forefinger offset, one inside and one outside the vessel. The resulting undulation of the lip, when observed from above, is similar to that of Stanley Wavy Rim (Lehmer, 1954: 43–44; pl. 12).

Rim: Straight to somewhat outflared. Height, 12 to 52 mm.; thickness, 5 to 7 mm.

Neck: Some constriction on outflaring rims.

Appendages: One loop handle, originating in the mid-rim, is attached to the upper shoulder. The handle projects straight out from the rim, and defines a right angle before it joins the shoulder.

PREVIOUS ILLUSTRATIONS AND DESCRIPTIONS: A sherd of this type is illustrated in Will and Hecker (1944, pl. 13, the left sherd in the fifth row from the top) as "Archaic Mandan."

FORT YATES WARE

Fort Yates Cord Impressed Rim

(Pls. 3, *a*; 5, *c–j*)

SAMPLE: 136 rim sherds, representing 106 vessels.

DECORATION:

Lip: None.

Rim: Three to six evenly spaced, horizontally applied cord-impressed lines encircle the vessel rims. The diameter of the cord used varies from 2 to 3 mm., with the majority 2 mm. in diameter. Sixty-six sherds have triangular elements. On 7 sherds, the apex of the triangle is angular; on 25 sherds the apex is rounded, forming a curvilinear design. The triangles are formed by either two or three lines. A sherd from one vessel (pl. 5, *h*) has six horizontal lines of cord-wrapped stick impressions, and two oblique lines. One sherd has a red stain, probably ocher, on both the interior and exterior (pl. 5, *e*).

FORM:

Lip: Predominantly flat, but may be round. Thickness, 6 to 8 mm.

Rim: Outflaring, with a recurving lip, resulting in an S-shaped rim. Height, 26 to 42 mm.; thickness, 7 to 12 mm.

Neck: Constricted, with the rim joining the shoulder in a smooth curve.

Shoulder: Rounded and steeply sloping.

Size: The orifices of three vessels, projected from large rim sherds, were 130, 176, and 260 mm. in diameter.

Appendages: A small, triangular tab is present on one rim (pl. 5, *f*). A single sherd appears to be part of a small strap handle with two vertical cord-impressed lines (pl. 3, *a*).

PREVIOUS ILLUSTRATIONS AND DESCRIPTIONS: Sherds of this type were originally defined by Hewes as "Type 10, Fort Yates Cord Impressed," and two sherds are illustrated (1949 b, pp. 65–66, pl. 5, lower right, *v*, pl. 6, right, *q*).

COMMENTS: The present type description largely duplicates the original type description by Hewes. Pottery of this type is similar to the type "Aldren Cord Impressed" at the Thomas Riggs site (Kleinsasser, 1953, p. 27; fig. 29, *1–3*, *6*). The sherds designated as "Fort Yates Cord Impressed" from the Thomas Riggs site (Kleinsasser, 1953, p. 27; fig. 29, *P/16*, *4–5*), however, do not fit the type description of Hewes and should be renamed (Wheeler, 1954, p. 8; 1955, p. 398).

Fort Yates Cross-Hatched Rim

(Pls. 4, *c–e*; 6, *h*)

SAMPLE: 30 rim sherds, representing 15 vessels, and one restored vessel.

DECORATION:

Lip: None.

Rim: Between the lip and the neck the rims are incised with crosshatched lines. A horizontal incised line encircles the rim below the lip on sherds from several vessels (pl. 4, *e*). On six rims there are punctates spaced 10 mm. apart on the rim below the crosshatched lines.

Shoulder: The shoulders of two sherds are horizontally incised.

FORM:

Lip: Predominantly flat, with some round; thickness, 6 to 8 mm.

Rim: Outflaring, with a recurving lip, resulting in an S-shaped rim. Height, 21 to 41 mm.; thickness, 6 to 10 mm.

Neck: Constricted, with the rim joining the shoulder in a smooth curve.

Shoulder: Rounded and steeply sloping on large sherds. Some smaller sherds suggest a shoulder more nearly flat.

Size: A partially restored vessel, 90 mm. high, has a maximum diameter of about 130 mm. When filled to the neck it contains 1 pint of water (pl. 6, *h*). The orifice of one vessel, projected from a large rim, was 168 mm. in diameter.

Appendages: Scars on two rims indicate the presence of tabs on the lip. One sherd retains a tab with an apical incision.

PREVIOUS ILLUSTRATIONS AND DESCRIPTION: Several sherds of this type are included in the pottery described by Hewes as "Type 9, Fort Yates Fine Incised," and one sherd is illustrated (1949 b, pp. 64–65, pl. 6, left, *k*).

COMMENTS: See the statements under the type "Riggs Cross-Hatched Rim" above.

UNCLASSIFIED WARES

Example A

(Pl. 5, *a*)

SAMPLE: 16 rim sherds, representing 12 vessels.

DECORATION:

Lip: Oblique tool impressions occur on two rims.

Rim: One of the rims with a decorated lip is crosshatched. Another rim has two horizontally applied cord-impressed lines on the interior lip, oblique cord impressions on the outer lip, and five horizontal cord-impressed lines on the exterior mid-rim. The remaining rims are plain.

FORM:

Lip: Round. Thickness, 3 to 5 mm.

Rim: Outflaring, with a protruding ridge centered on the rim exterior and channeled on the rim interior. Height, 37 to 55 mm.; thickness, 5 to 9 mm.

Neck: Constricted, with the rim joining the shoulder in a smooth curve.

Appendages: Three rims have small, vertical, plain tabs.

PREVIOUS ILLUSTRATIONS AND DESCRIPTIONS: Several sherds of this example were described by Hewes as "Type 6," and one rim is illustrated (Hewes, 1949 b: pp. 62–63; pl. 6, left, *h*).

Example B

(Pl. 5, *b*)

SAMPLE: 1 rim sherd.

DECORATION:

Lip: Oblique indentations.

FORM:

Lip: Round, with a thickness of 6 mm.

Rim: Inflaring near the lip.

Appendages: The scar of a triangular, horizontal lug is on the outer rim 12 mm. below the lip.

COMMENTS: This rim form is known only from Paul Brave.

Example C

(Pl. 5, *c*)

SAMPLE: 1 rim sherd.

DECORATION:

Rim: Oval indentations occur on the lower rim.

FORM:

Lip: Round, with a thickness of 6 mm.

Rim: S-shaped, with a height of 27 mm.

Neck: Constricted.

COMMENTS: This rim form, and the particular design involved, is known only from Paul Brave.

Example D

(Pl. 5, *d*)

SAMPLE: 3 rim sherds from 2 vessels.

DECORATION: None.

FORM:

Lip: Round, with a thickness of 6 to 7 mm.

Rim: S-shaped, with heights 25 to 30 mm., and 8 to 9 mm. thick.

Neck: Constricted, with the shoulder joining the rim in a smooth curve.

Shoulder: Rounded.

COMMENTS: These rims are similar in form to those of Fort Yates Ware, and may be a plain variant of that ware.

MINIATURE VESSELS

Three minature vessels were in the hard ash of the primary fireplace in House 3. Evidently they had been subjected to an intense secondary firing, for the pots were soft and crumbly. They were treated with a mixture of acetone and ambroid. This treatment gave

the vessels a light-reflecting quality that they lacked before. Two of them are complete, and both have the following dimensions: height, 68 mm.; maximum diameter, 87 mm.; orifice at inner lip, 75 mm.; neck diameter, 74 mm. The size of the incomplete specimen would be much the same. The surfaces are irregularly smoothed, and the shoulders are steeply sloping. Two of them have outflaring rims (pl. 6, *f*) and the other has a constricted neck and a nearly vertical rim (pl. 6, *g*). Each of the pots contains slightly more than a quarter of a pint of water when filled to the neck.

A vessel fragment indicating an orifice of 56 mm., with an outflaring rim 8 mm. high, has a steeply sloping and irregularly smoothed shoulder. Another fragmentary miniature is decorated with incised lines (fig. 2, *d*). This vessel has an estimated orifice diameter of 80 mm., with an outflaring rim 11 mm. high. The surface is irregularly smoothed. Fragments of two other vessels have outflaring rims. One of them shows the scar of a handle that was welded to the lip and riveted to the upper shoulder. Bowls may be indicated by three small sherds, two of which have indented lips.

BODY SHERDS

The majority of sherds from the site are simple-stamped or smoothed. Some 514 sherds are classed as simple-stamped and bear the characteristic grooves resulting from the malleating of the moist clay with a grooved paddle. The 845 smooth sherds are irregularly smoothed, and only a few of them might be classed as polished. The polished sherds have a low light-reflecting surface. Many of the smoothed sherds show irregularities which suggest that the surface was originally simple-stamped.

The 54 decorated body sherds are incised or trailed on the shoulder, which is usually smooth but which may reveal partially obliterated traces of vertical simple-stamps. The decoration may consist of either fine line incising or deep trailing, sometimes in combination with punctates. The width of the lines varies from 0.5 to 6.0 mm., and cross sections are either V-shaped or U-shaped. One of the more common designs consists of alternating "bear tracks" and chevrons (fig. 1, *a-b*, *d*). In only one instance do the "tracks" have more than five "digits" (fig. 1, *c*). A design termed the "drooping corn stalk" is incised on shoulders that are covered with horizontally incised lines and a wavy or zigzag lower border. Oblique incised lines and punctates also occur on the same background (fig. 1, *f–g*). Other fragmentary designs consist of oblique, vertical, and horizontal lines in several combinations (fig. 1, *h*; fig. 2, *b-c*). Broad-trailed concentric circles occur on the shoulder of one large rim sherd, and on one body sherd.

One of these has four punctates in the center (fig. 2, *a*). Two separate designs that are not duplicated in the collections are incised on the shoulder of a small vessel (fig. 2, *d*).

Nineteen body sherds differ from the majority of sherds at the site in being cord-roughened. These sherds are from vessels that were first malleated with a paddle wrapped with cord, then partially smoothed (pl. 6, *c*). Some of the sherds are from the shoulder area, with the roughening extending to the neck. On these sherds the roughening is vertical. The twist of the cord is clearly distinguishable on three sherds. The twist on two sherds may be duplicated by holding two cords in the left hand and turning the ends to the right with the right hand; on the other sherd the cords were turned to the left with the right hand. The diameter of the cords ranged from 1.0 to 2.0 mm. The number of vessels bearing cord-roughened surfaces may have been greater than the 19 sherds would indicate, but the smoothing and obliteration of the cord marks render the original treatment indistinguishable. The paste of the sherds is the same as that of the Riggs Ware and the Fort Yates Ware and it is likely that they are from vessels of these wares. However, none of them are assignable to specific types.

Two sherds are check-stamped. Their exteriors are covered with small, depressed squares bordered by low, partially smoothed ridges (pl. 6, *d*). The stamps are 3 to 5 mm. on a side.

Biconical perforations in four body sherds may have served as holes for lacing cracked vessels together. Six loop handles and one strap handle are detached from the vessel rim and cannot be assigned to types. The strap handle is oval and the loop handles circular in cross section. They are all smooth and plain. The handles extend from the lip to the upper shoulder.

MISCELLANEOUS OBJECTS OF BAKED CLAY

Animal effigies

(5 specimens)

One of the specimens (fig. 6, *a*) represents a prairie chicken, or pinnated grouse (*Tymfanuchers americanus*). The general conformation of the body and the structure of the tail conform to this species, although there are some superficial structural similarities to the turkey. The turkey was not native to this region in early historic times. The head is lacking. The length is 35 mm. and the height 28 mm.

A specimen 32 mm. long has a circular body with two front legs (fig. 6, *b*). The hind part of the body rests on a tail. The modeling is too generalized to permit identification, but it may be a beaver or badger.

A third specimen may represent the head of a canid. In the illustration (fig. 6, *c*) the object is so oriented that it appears to have two long pointed ears and a sharp nose. These characteristics mark the swift or red fox, both of which were native to the locality in historic times.

An incomplete specimen suggests a round-bodied, but unidentifiable, animal. There are two short, stubby forelegs but the hind limbs are lacking. It is apparently a heavy-bodied animal (fig. 6, *d*).

The final specimen is an effigy handle from a vessel lip. The profile of the head (fig. 6, *e*), which extends 15 mm. from the lip, suggests that of a bear.

Bead

(1 specimen)

A perforated baked clay bead is oval in longitudinal section and pentagonal in cross section. It is 20 mm. long, with a maximum diameter of 18 mm. One intact end is concave. The hole appears to have been made by inserting a grass stem that burned away during the firing (fig. 6, *f*).

Shaped item

(1 specimen)

An irregular, bowllike object, probably modeled around the finger of a child, has a fingernail impression in the base of a shallow cavity. The base is flat, with a protrusion resulting from a downward pressure of the finger. The maximum diameter is at the midpoint. Height is 12 mm., and the diameter is 19 mm.

WORK IN STONE

Projectile points

(75 specimens)

Seventy-five artifacts are classed as projectile points, in that they are small, thin, bifacially worked, approximately symmetrical, and well made. Materials used for the points are: Knife River flint (chalcedony), 42; gray, brown, and black cherts, 28; white chalcedony, 4; and agate, 1. The 55 complete points are classed in 5 categories based on outline and other characteristics. The terms applied to the five projectile-point categories are descriptive (see Davis, 1956, pp. 64–69), but reference is also made to the point outline taxonomy published by Strong (1935, pp. 88–89).

Plain lanceolate, convex base (*Strong NAb1*).—A single specimen from the site has convex blade edges and a convex base. It measures 28×15×3 mm., and has a weight of 1.5 gm. (fig. 3, *a*). It is unnotched and is evenly and bifacially flaked.

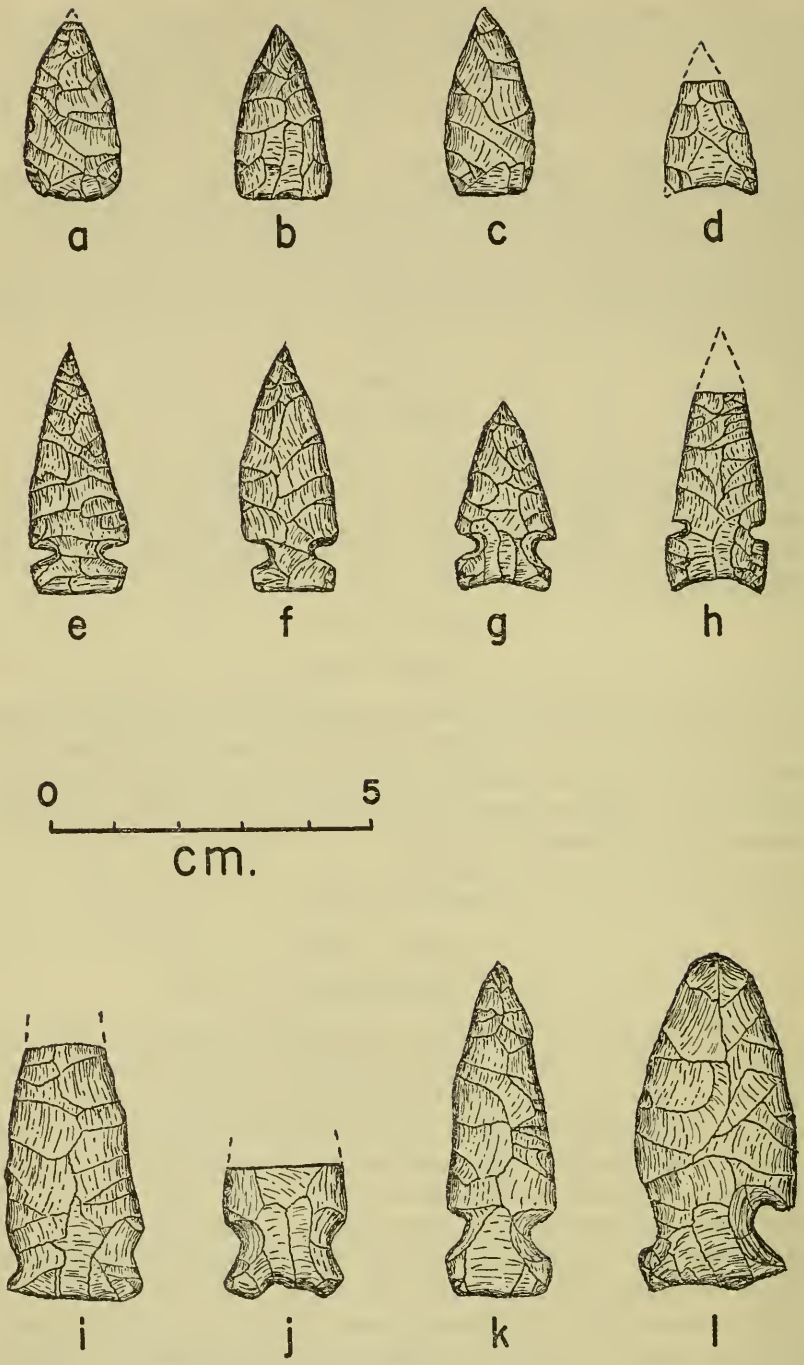

FIGURE 3.—Projectile points.

Plain lanceolate, straight base (*Strong NBa*).—The 18 examples in this category have gently convex edges and a straight base (fig. 3, *b–c*). This category is unnotched, with even bifacial flaking.

Length: Mean 27.8 mm., range 23 to 42 mm.
Width: Mean 15.6 mm., range 11 to 20 mm.
Thickness: Mean 3.8 mm., range 2 to 5 mm.
Weight: Mean 1.5 gm., range 0.9 to 3.0 gm.

Plain triangular, concave base (*Strong NBb*).—The two points in this category have gently convex edges and a concave base. The tips of both specimens are missing (fig. 3, *d*). The category is unnotched, and is evenly bifacially flaked. Dimensions (estimated when broken) are: 21×15×3 mm. and 24×12×2 mm. The former point weighs 1.1 gm., and the latter, 1.0 gm.

Plain lanceolate, straight base (*Strong NBa1*).—This is the largest single category, including 22 specimens. They have gently convex edges, a straight base, and two side notches (fig. 3, *e–f*). They are evenly bifacially flaked, and the blade edges usually have fine secondary flakes removed. Points are tapering and sharp.

Length: Mean 30.2, range 19 to 56 mm.
Width: Mean 14.1, range 11 to 21 mm.
Thickness: Mean 3.8, range 2 to 7 mm.
Weight: Mean 1.8 gm., range 0.6 to 6.4 gm.

Plain lanceolate, concave base (*Strong NBb1*).—The 12 specimens in this category have straight to gently concave edges, a convex base, and two side notches (fig. 3, *g–h*, *i–l*). They are evenly bifacially flaked but the flaking is less delicate on larger examples. Points are sharp and tapering to blunt.

Length: Mean 33.4 mm., range 21 to 60 mm.
Width: Mean 15.6 mm., range 12 to 24 mm.
Thickness: Mean 4.4 mm., range 3 to 10 mm.
Weight: Mean 1.8 gm., range 0.8 to 2.0 gm.

End Scrapers
(149 specimens)

The majority of these scrapers are made from Knife River flint. Other stone includes a gray chert, petrified wood, and agate. The outlines tend to be triangular to rectangular, although many are irregular. The working edges are steeply chipped on the end opposite the bulb of percussion, and the concave undersides are unmodified. Three groups are distinguished.

Group 1 (*78 specimens*).—Cross sections are triangular to shallowly U-shaped, with flaking over the entire upper surface, and usually with retouching along the sides. Lengths range from 20 to 58 mm., and

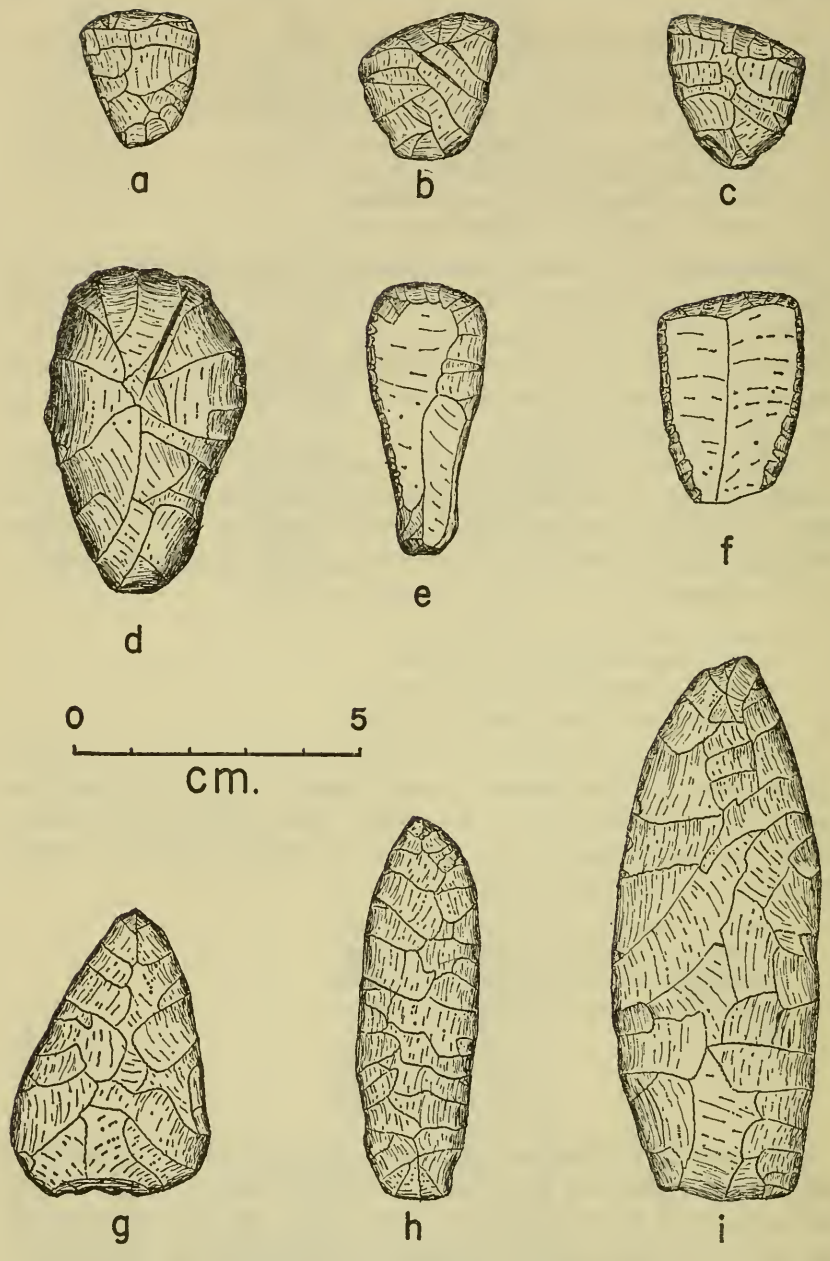

FIGURE 4.—End scrapers and knives.

widths from 15 to 28 mm. The working edge is rounded to straight in 43 specimens (fig. 4, *a*). In 19 specimens, it is skewed with respect to the long axis, sloping from the lower left up to upper right (fig. 4, *b*). In 16 specimens, the blade slopes down from upper left to lower right (fig. 4, *c*).

Group 2 (*70 specimens*).—Cross sections are triangular, shallowly U-shaped, or irregular, since many of the specimens are made from irregularly shaped flakes. There is little flaking on the upper surface and there is some retouching on the edges. Lengths range from 21 to 51 mm., and widths from 16 to 27 mm. In 47 specimens, the working edge is rounded to straight (fig. 4, *e*). In 19 specimens, it slopes from the lower left up to the upper right (fig. 4, *f*); in 4 specimens, the blade slopes down from the upper left to lower right.

Group 3 (*1 specimen*).—One large scraper, triangular in cross section, has a convex, flaked upper surface and an unmodified concave under surface. Larger than any scrapers in the preceding two groups, this implement measures 56×34×22 mm. (fig. 4, *d*).

Drills

(6 specimens)

Two slender shafts of Knife River flint and one of reddish-brown chert are 44 mm. long, with expanding bases. A fourth specimen is a base, with the drill shaft absent. They are bifacially flaked, with lenticular to diamond-shaped cross sections (fig. 5, *a*). One specimen consists of a narrow shaft of Knife River flint, 55 mm. long, with a round base. Near the tip it is bifacially flaked, but at the base only one side is worked. A final example is represented by a unifacially flaked drill shaft tip.

Broad Knives

(21 specimens)

All knives are bifacially flaked and are lenticular in transverse section and longitudinal section. Flaking is random, and the blade edges are retouched. The form outline used here follows that devised by Strong (1935, pp. 88–89).

Group 1, NAb1 (*1 specimen*).—The base is round, sides are convex, and the tip is blunt. Material is a gray chert; it measures 38×26×10 mm.

Group 2, NAb2 (*4 specimens*).—Bases are straight, sides are convex, and the tips are pointed but not sharp. Materials include gray chert and Knife River flint. Lengths range from 40 to 94 mm., widths from 23 to 35 mm., and thicknesses from 5 to 6 mm. (fig. 4, *i*).

Group 3, NAb2 (*2 specimens*).—These knives are similar to the Group 2 specimens but they are asymmetrical. The base is straight, but one side is nearly at right angles to the base, while the other side is at about 45 degrees to the base. The sides are gently convex, and the tips are blunt (fig. 4, *g*). Materials are gray and black chert. Lengths are 32 and 50 mm., widths 24 and 34 mm., and thickness 8 and 9 mm., respectively.

Group 4, NE (1 specimen).—Oval in outline, this specimen of Knife River flint is 44 mm. long, 28 mm. wide, and 12 mm. thick. The ends and sides are convex.

Group 5, base fragments (6 specimens).—These five specimens are convex base fragments from knives that had gently convex to straight sides. Materials include gray chert, Knife River flint, and petrified wood. These fragments are from knives that were originally more than 62 mm. long.

Group 6, blade tips (7 specimens).—These tips are from knives which had pointed but not sharp tips, and had convex sides. Lengths are in excess of 121 mm., and widths are from 22 to 35 mm. Materials are Knife River flint, gray chert, and Bijou Hills quartzite.

Narrow knives
(5 specimens)

Long slender knives, bifacially flaked, are made from Knife River flint. Two complete specimens are NAb2 in outline and one is NAa. Two are tips. The sides are gently convex and nearly parallel. Lengths are 66, 72, and 83 mm.; widths, 21, 14, and 18 mm.; thickness, 5, 5, and 6 mm., respectively (fig. 4, *h*).

Choppers
(34 specimens)

Group 1 (12 specimens).—These tools are oval to nearly circular, and are bifacially flaked, with large flake scars on both faces and retouching on the edges. Battering is evident on some of the ends. The material includes gray chert, quartzite, and quartz. They range in length from 70 to 172 mm.; in width, from 41 to 99 mm.; in thickness, from 18 to 28 mm.

Group 2 (10 specimens).—Roughly rectangular blocks of quartzite are bifacially flaked along one edge. The faces of the implements are unmodified. There is some use retouching along the blade edge, and the blades extend the length of the tool. Lengths are 90 to 205 mm.; widths, 50 to 90 mm.

Group 3 (12 specimens).—Irregular spalls of stone, including granite, quartzite, and gray chert have bifacially flaked edges along one edge of the stone and show some retouching. The specimens attain a maximum diameter of 130 mm.

Flake knives
(135 specimens)

Flakes of Knife River flint, petrified wood, gray chert or quartzite are classed as flake knives when they have a prepared edge on one or more edges.

Unmodified flakes

(203 specimens)

A sample of stone was saved from each excavated feature. Many of the pieces retained were unused, but some showed minute flaking along one or more edges, indicating that they had been used as cutting tools. Materials included Knife River flint, petrified wood, gray chert, agatized wood, quartzite, and quartz.

Grooved mauls

(5 specimens)

Each of three granite cobbles, from 87 to 107 mm. long, has a groove pecked around the small diameter of the stone. On two examples the groove encircles the stone; on a third, the groove encircles three-quarters of the stone. Two fragments of much larger mauls are not large enough to permit an estimation of the original extent of the groove. The mauls consist of oval cobbles shaped only by the addition of the pecked groove. Both ends are battered by use, but the stone is not otherwise modified.

Hammerstones

(49 specimens)

Cobbles and pebbles of granite, siltstone, quartz, and fine-grained sandstone are classed as hammerstones when one or more edges are battered.

Group 1 (*45 specimens*).—These hammers are made from oval stones. They are either battered on one or both ends or battered over the circumference of the stone. Lengths range from 39 to 221 mm.

Group 2 (*4 specimens*).—In a second group of hammerstones each is nearly circular in outline and has a rectangular cross section. The faces of this group are ground smooth and flat, and they are battered on all edges. One specimen has a small depression pecked into one face. Diameters are from 85 to 110 mm.

Ground stone spheres

(5 specimens)

Four of these objects are made of a buff siltstone and one is of a reddish-brown concretionary sandstone. The entire surface of the sandstone sphere and of one of the siltstone spheres is smoothed. The remaining specimens are partially smoothed and ground, and may be unfinished pieces. Diameters average 70 mm.

Shaft smoothers

(6 specimens)

These abraders consist of shaped blocks of a coarse, buff sandstone with either rounded or squared ends, convex sides, a flat grooved surface, and a flat or convex undersurface. The grooves are straight and are either V-shaped or U-shaped. One complete abrader is 161 mm. long. Another specimen, 64 mm. long, has a second grove on the undersurface. The illustration (fig. 5, *f*) depicts a fragment with a squared end.

Grooved abraders

(18 specimens)

These objects are composed of a buff or rust-colored, coarse-grained sandstone. There is considerable variation in size, ranging from specimens no more than 75 mm. in diameter to those 175 mm. in diameter. There is no consistent form; the pieces were not altered in form except for the V-shaped or U-shaped grooves worn into their surfaces. The grooves are of various lengths, depending upon the available surface. The grooves are commonly convex in longitudinal section.

Faceted abraders

(59 specimens)

Fifty-two pieces of scoria and seven pieces of sandstone, none of which exceeds 105 mm. in diameter, have been used as abraders. These objects consist of irregular pieces of stone that are faceted from rubbing or grinding. In some instances the entire stone is smoothed, and some such stones have a superficial resemblance in size and form to the bone abraders made from the cancellous tissue of bison humeri. Many of the stones also bear small, shallow V-shaped or U-shaped grooves.

Beads

(4 specimens)

A tubular piece of concretionary sandstone, 40 mm. long and 11 mm. wide, has a natural hole along its long axis. The ends of the hole are smoothed (fig. 5, *b*).

Two circular disks of scoria are biconically pierced. One of them is 8 mm. (fig. 5, *e*) and the other 12 mm. in diameter (fig. 5, *d*). The latter bead is not complete, since the perforation is not finished.

A scoria bead 16 mm. long and 15 mm. wide is split down the long axis, showing that the perforation was drilled from both ends. One end is ground flat (fig. 5, *c*).

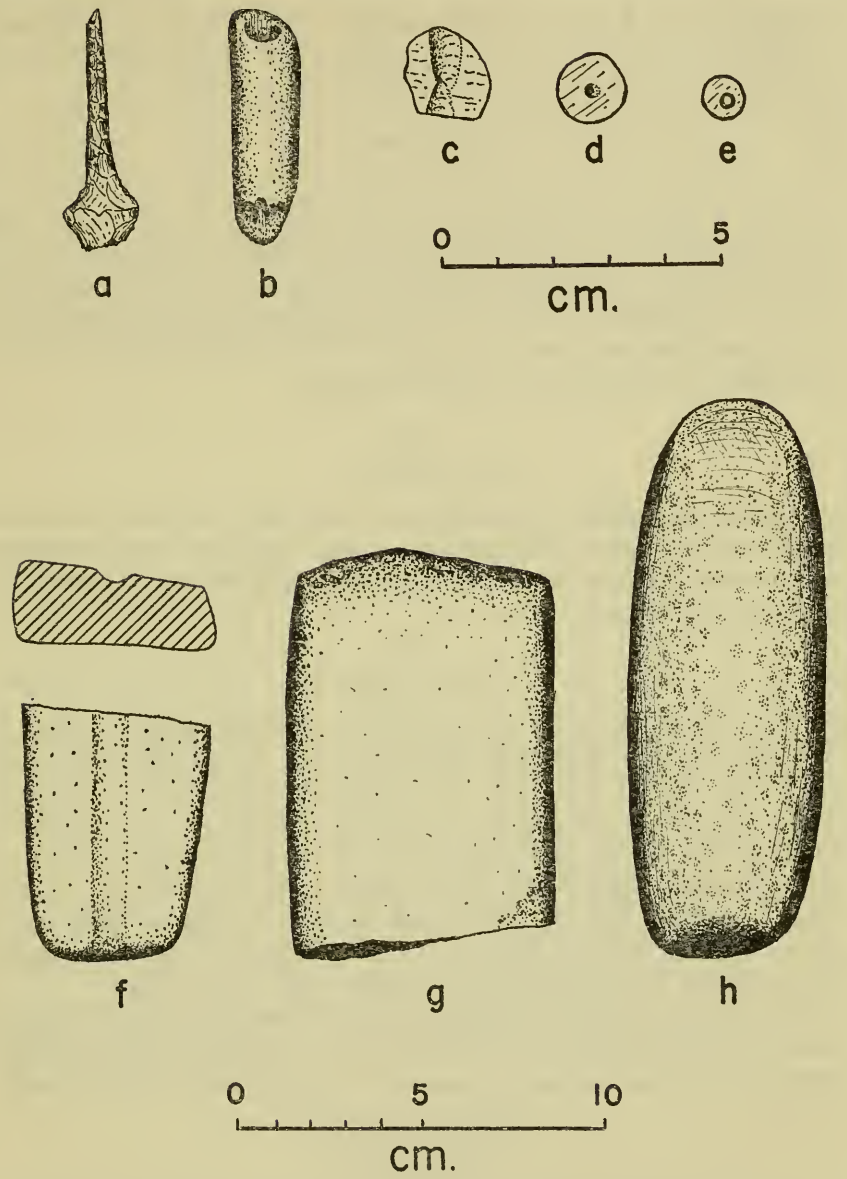

FIGURE 5.—Chipped and ground stone artifacts.

Mealing slab

(1 specimen)

A large rectangular block of fine-grained sandstone, 460 mm. in length, has one irregularly smoothed surface. Near one edge of this surface is a smoothed and polished depression. Near the edge of the

depression the stone is pebbled in such a manner that it may have resulted from pecking. The opposite surface of the slab is convex and irregular, and the high points have been ground down.

Mano

(1 specimen)

This object is made of an irregular granite stone measuring 120×103×36 mm. One smoothly convex surface is stained red, probably by ocher. The stone is pecked smooth and the high points are ground and polished. Fine striations occur along the long axis of the stone, and indicate that it was used with a back-and-forth motion. The sides are battered from use as a hammer.

Ax

(1 specimen)

A block of granite is polished and shaped so that the transverse section is rectangular with rounded edges (fig. 5, *g*). One end bears a fractured, wedge-shaped bit; the other end is broken. Dimensions are 110×72×32 mm.

Celts

(18 specimens)

There are six complete specimens of celts which range from 122 to 170 mm. in length; diameters are 47 to 60 mm. Transverse sections are oval to nearly circular; only one example is rectangular. The maximum width is at the midpoint on five specimens; on one, it is at the cutting edge. Polls are battered from use as hammers. The cutting edge is wedge shaped and blunt. Nearly the entire surface of the stone is pecked and smoothed, and on some specimens there is no trace of the original surface (fig. 5, *h*). Fragmentary celts suggest that they are from implements exceeding 170 mm. in length.

In addition to the 18 recognizable celts, there are 6 large blocks of diorite, all of which show some pecking on high points of the stone. Some of these are pecked in a manner which suggests unfinished celts.

Unmodified calcite

(10 pieces)

These pieces of calcite, none of which exceed 117 mm. in length, are unmodified. One of them, 75 mm. long, has a form spuriously like that of an arrowpoint.

Unmodified pebbles

(5 specimens)

These oval pebbles are 24 to 58 mm. long. They show no signs of use, and the surfaces suggest that they were steam rounded.

Pigments
(15 pieces)

Fourteen small, irregular fragments of chalk were probably bases for pigment. The colors of these pigments given below approximate those of Maerz and Paul (1930). Three of the chalks are nearly white (10 A 1), and 11 are yellow, approaching in tone Pinard Yellow (9 K 2). Powdered hematite from one feature is Java Brown (8 L 10). The white chalk is fairly soft, approximating in hardness the consistency of softer grades of schoolroom chalk. The yellow chalk is more compact, and is about the hardness of talc.

WORK IN BONE

Scapula hoes
(109 specimens)

The scapulae of adult bison were used in the manufacture of this implement, although some smaller and more delicate specimens may have been from young bison or from elk. The supra scapular border is beveled on the side that bears the scapular fossae, and these fossae are hacked away so that the surface is nearly level. The edges of the implements are roughened by chopping at a distance of 100 to 150 mm. from the cutting edge, probably to provide a surface for binding a handle to the tool. The cutting edge may be rounded or straight, largely depending on the amount of wear. The articular end is retained without modification (fig. 6, *g*).

Notches occur on the side of nine implements near the articulating end. The notches may occur on either side (fig. 6, *i*). One hoe has a hole 12 mm. in diameter in the blade 115 mm. from the articulating end (fig. 6, *h*). Two hoes have deep, U-shaped indentations in the blade (see Hurt, 1953, fig. 19, *4–5*). The edges of these indentations are smoothed, possibly from use as thong stretchers. The range in length of complete hoes is 250 to 410 mm., the shorter specimens showing much evidence of use.

Serrated fleshers
(2 specimens)

The one complete specimen, 310 mm. long, was made by cutting the shaft of a bison metatarsal diagonally to produce a chisel edge. The edge is serrated (fig. 7, *h*). The implement also includes several of the ankle bones, which were left in place to provide additional leverage. The shaft of the metatarsal is highly polished near the serrated end, but the rest of the metatarsal and the remaining bones have a natural finish, suggesting that the tool originally retained cartilage and hide over the ankle and heel bones. A fragment of a second serrated specimen was recovered.

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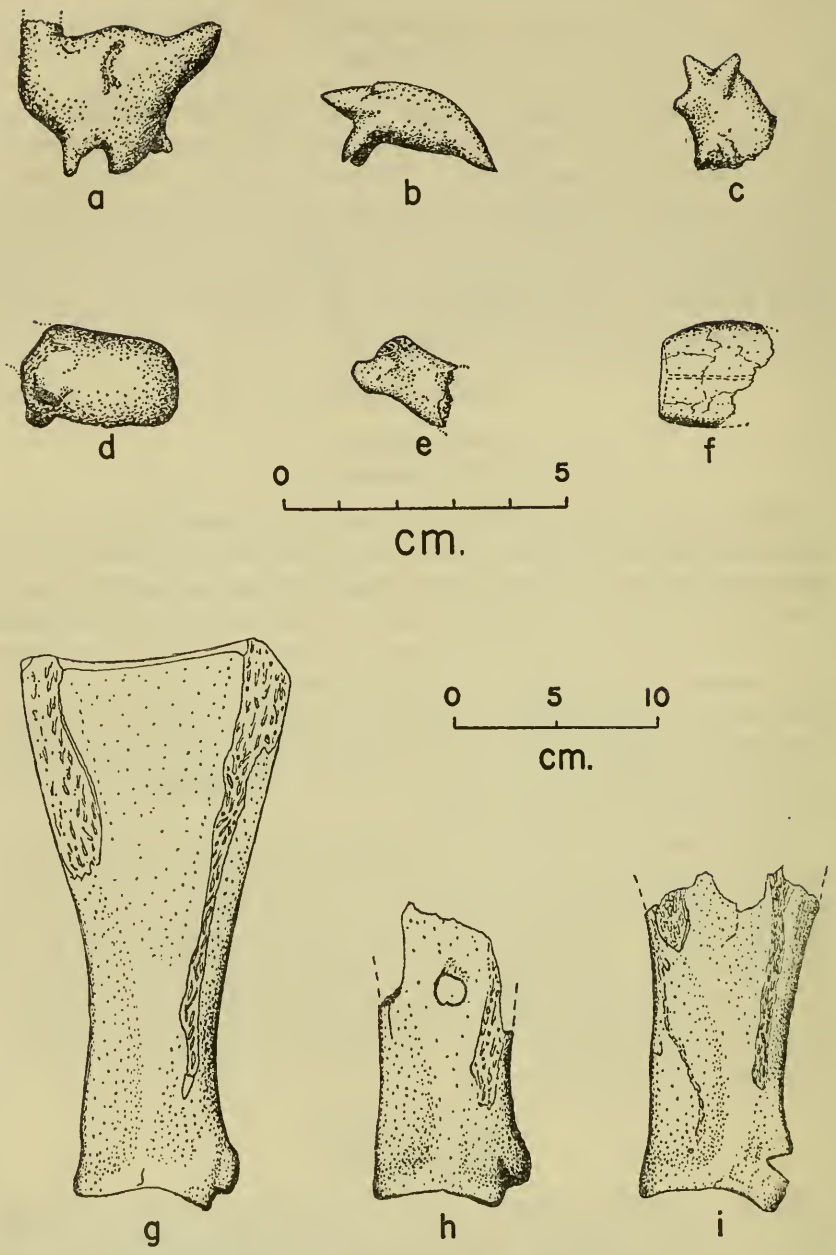

FIGURE 6.—Baked clay effigies and scapula hoes.

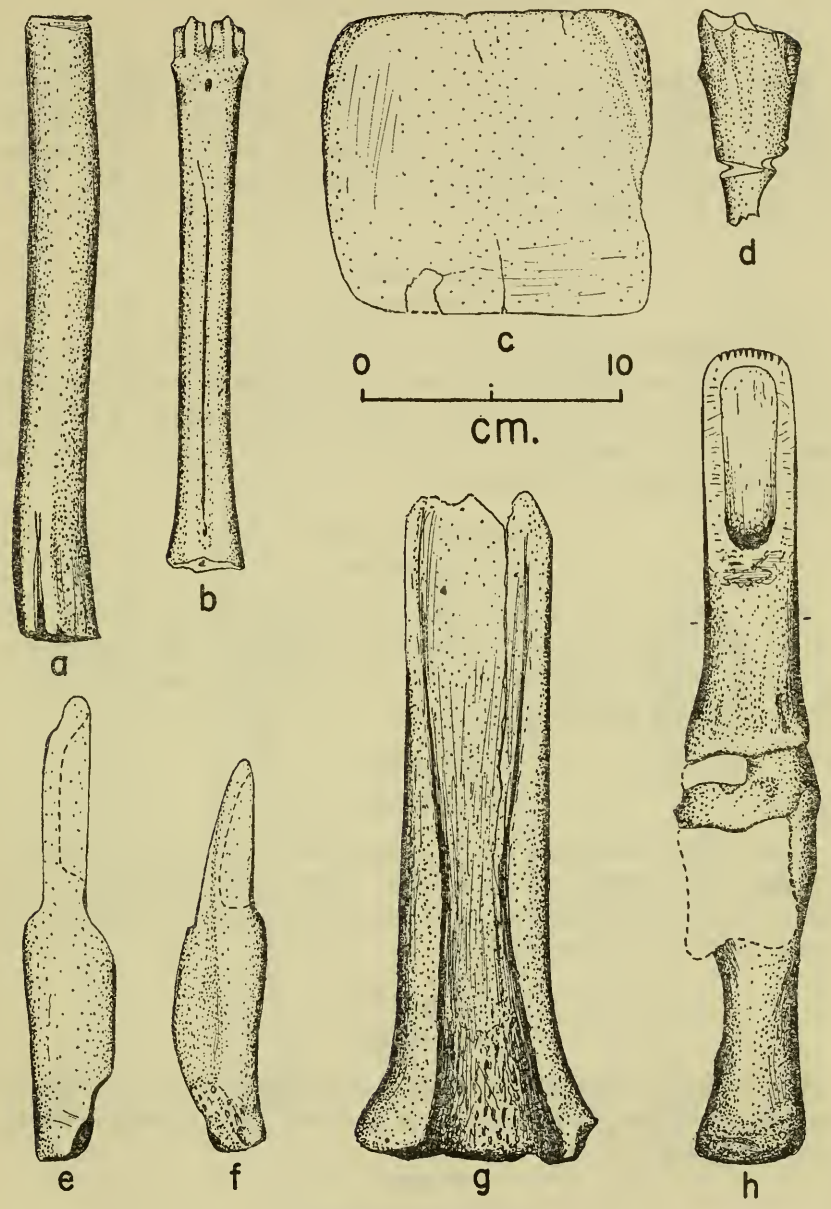

FIGURE 7.—worked bone.

Split metapodial scoops
(2 specimens)

These implements were made by longitudinally splitting a bison metapodial and sharpening the middle of the shaft to a cutting edge. Lengths are 140 and 250 mm. The articulating ends are cut away so that the center of the tool forms an open, U-shaped trough. It is likely that this trough provided a place for the handle (fig. 7, *g*).

Bone disks
(3 specimens)

These specimens are cut from the walls of large long bones, and their outlines are oval. Their edges are rough and show little smoothing (fig. 8, *a-c*). They are 5 mm. thick, with diameters of 12 to 21 mm. The cancellous bone is ground away and the surfaces are lightly polished. A stain, probably red ocher, occurs on one disk.

Long bone beads
(8 specimens)

Short sections of long bones of small mammals or birds were used for beads. The ends are transversely cut, and are imperfectly smoothed or left irregular. They are 14 to 29 mm. long and 5 to 9 mm. in diameter (fig. 8, *d-g*).

Fishhook
(1 specimen)

The compact outer layer of a bird long bone served as raw material for the hook, which is 27 mm. long. The point is unbarbed, and the attaching end is bulbous, with shallow grooves which served to attach the hook to a line (fig. 8, *h*).

Spatula tip
(1 specimen)

A thin piece of bone, 47 mm. long, is smoothed and highly polished. One end is broken, and the other is rounded. The edges are sharp and even (fig. 8, *i*).

Whistle
(1 specimen)

A section of the wing bone of a large bird is 110 mm. long. One end is transversely cut, polished, and smooth. On the other end is a V-shaped cut that served as the whistle opening. The instrument is highly polished, and the bone protuberances to which the quills were attached are reduced so that the surface is smooth (fig. 8, *j*).

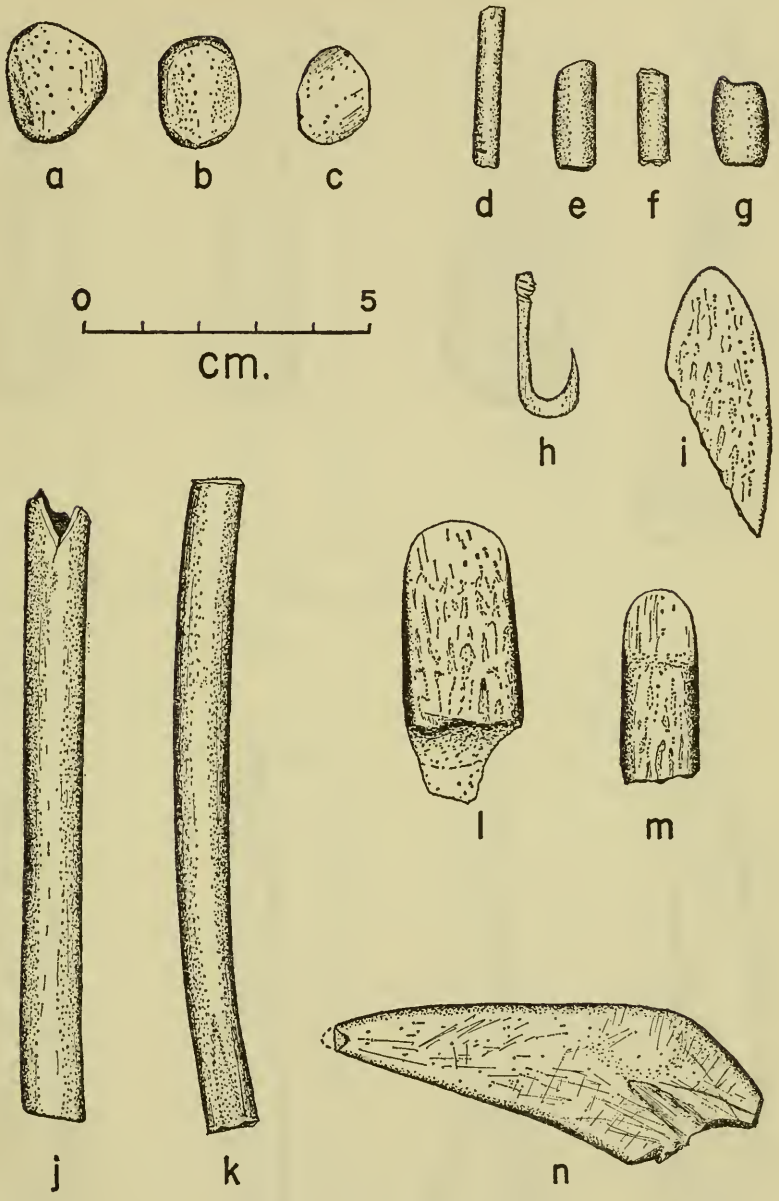

FIGURE 8.—Worked bone.

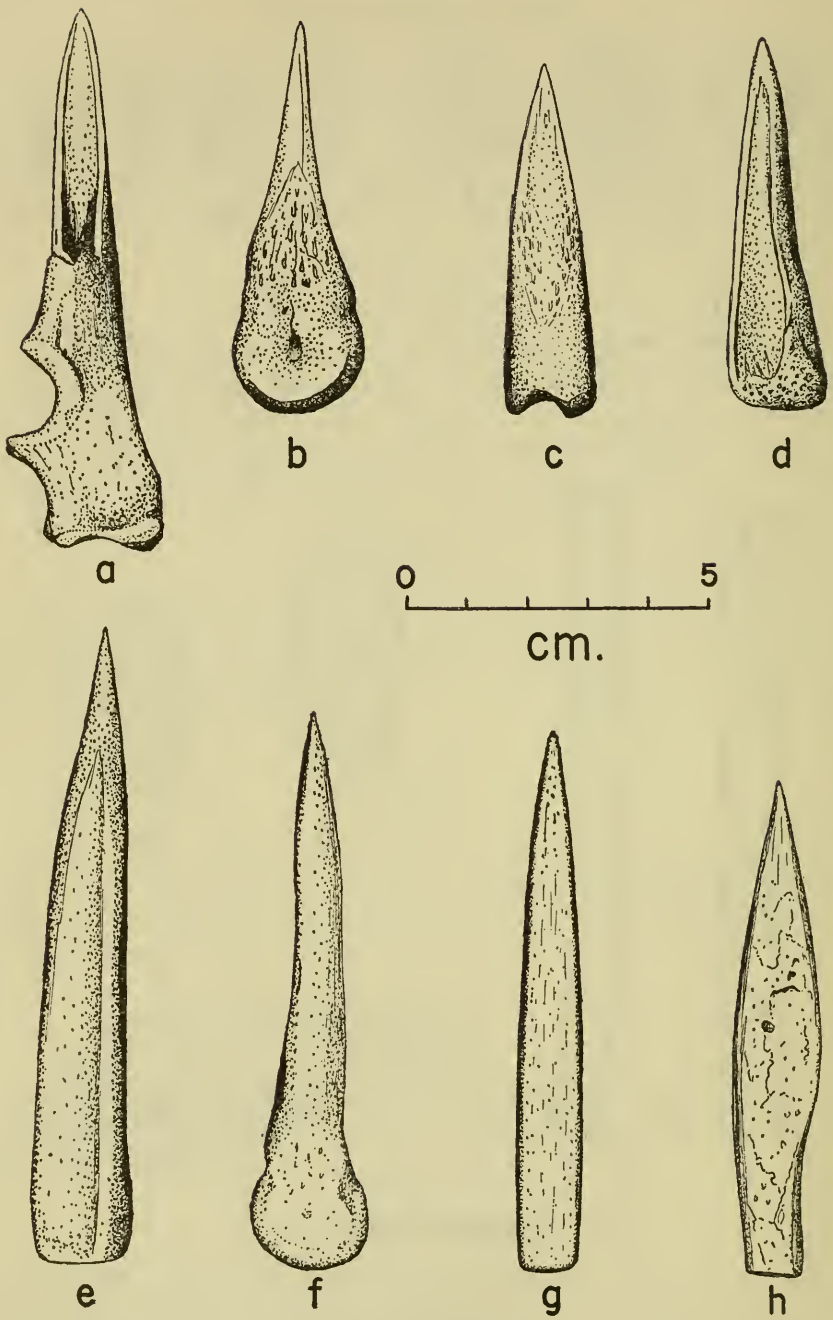

FIGURE 9.—Bone awls.

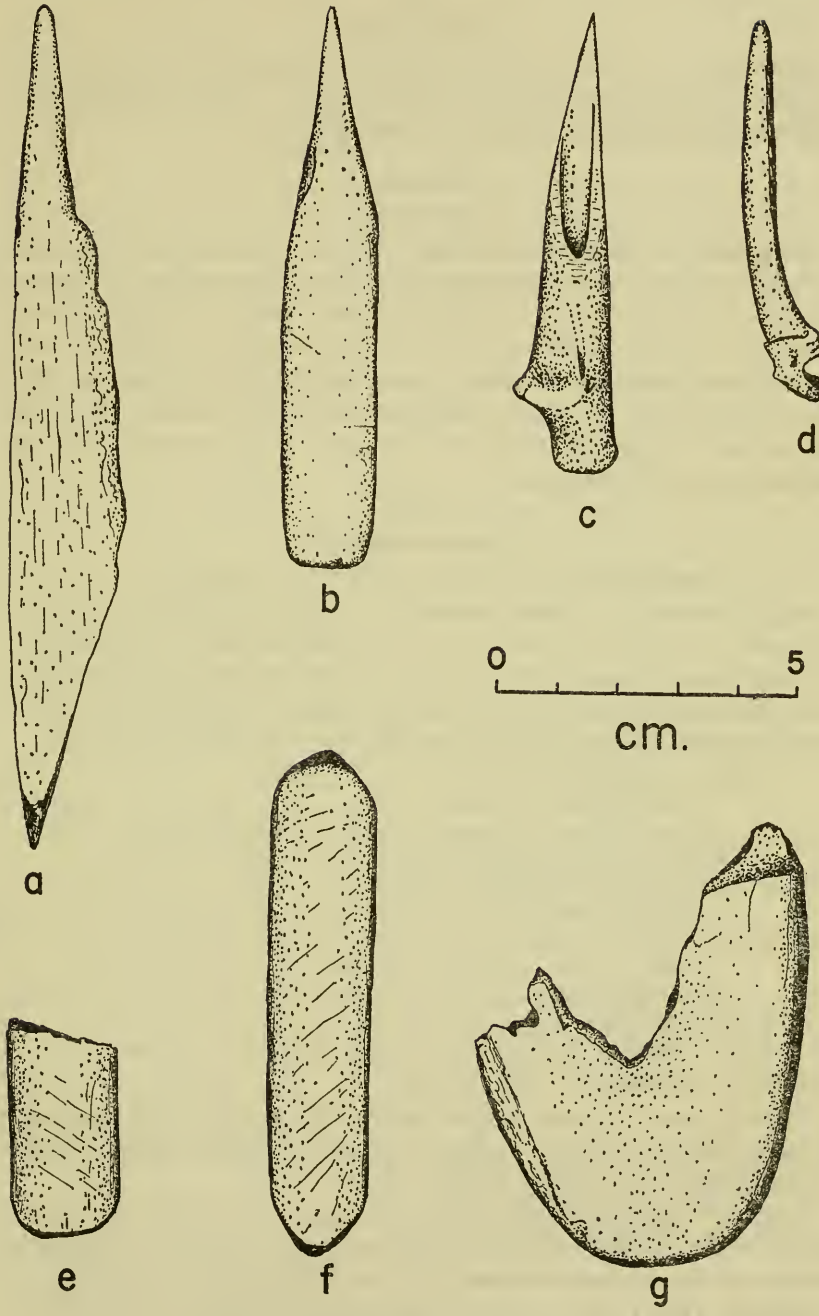

FIGURE 10.—Worked bone.

Tubes

(3 specimens)

Sections of two bird long bones are transversely cut on both ends. Lengths are 113 and 120 mm. (fig. 8, *k*). A third specimen, 235 mm. long, is apparently a deer tibia (see fig. 7, *a*).

Chisels

(9 specimens)

Fragments of large long bones with one end beveled bifacially to form a narrow, sharp cutting edge may have served as chisels or gouges. The tips of two specimens are illustrated (fig. 8, *l-m*). Two of the complete tools are 140 and 152 mm. long. The butt end is rounded and polished, providing a convenient grasping surface. The cutting edge may be nearly straight or slightly convex. The cancellous bone is ground away so that surfaces are smooth, and the blades have a glossy polish.

Awls

(100 specimens)

The awls ordinarily are sharp and tapered, although some have relatively blunt tips. Each of the tools with tips sharp enough to have served as hide perforators is classed as an awl. The classification of these implements follows that of Kidder (1932), with modifications as demanded by the material at hand. The awls are divided into four groups, based on the material from which they are made:

1. Mammal long bones		62
a. Head of bone left intact	1	
b. Head of bone unworked except by original splitting	18	
c. Head of bone partially worked	12	
d. Head of bone wholly removed	17	
e. Splinter awls	14	
2. Mammal ribs		33
a. Split ribs	28	
b. Splinter awls	5	
3. Bird long bones		4
4. Fish spine		1

MAMMAL LONG BONES (62 SPECIMENS):

Head of bone left intact (1 specimen).—The single awl of this group is made from the ulna of a small mammal, possibly a canid. Length is 88 mm.; the tip is pointed but blunt (fig. 9, *a*).

Head of bone unworked except by original splitting (18 specimens).—The specimens in this group are made from the metapodial of deer, or from bones comparable in size and form. The metapodial illustrated (fig. 7, *b*) is 210 mm. long and the length of the awls indicates that only about half of the length of the bone was used. The metapodials were split by longitudinal sawing in the U-shaped trough on one side of the bone and by wedging apart the proximal end, using the resulting half, third, or quarter of the ends as butts.

Two awls made from the proximal end of the bone are 63 mm. long (fig. 9, *b*). A third specimen is from an immature animal and the epiphysis is detached. Length is 55 mm. (fig. 9, *c*).

Fifteen awls made from the distal end of the bone are 50 to 121 mm. long. The longer ones are thin and evenly tapered, but shorter specimens are stubby (fig. 9, *d*).

Head of bone partially worked (12 specimens).—One specimen from the distal end of a deer metapodial is 186 mm. long, with a long, tapering shaft. The butt is smooth and rounded, all articulating facets and rough projections having been reduced, leaving a smooth swelling grip.

Eleven awls are made from the proximal end of deer metapodials, which are split lengthwise. The ends are smoothed and rounded, with little of the original surface remaining. Length is 60 to 177 mm. (fig. 9, *f*).

Head of bone wholly removed (17 specimens).—These tools have rounded and smoothed butts and short, tapering points. Each awl is split from a long bone. Most specimens have a groove down one side (fig. 9, *e*), a remnant of the central cavity of the parent bone, but some are completely smooth, with no evidence of the original surface (fig. 9, *g*). Lengths are 63 to 125 mm.

Splinter awls (14 specimens).—Fragments of long bones, the shape of which fitted them for use as awls after sharpening one end, are classed as splinter awls. There is no regularity of shape, and only the tip is worked. Lengths are 55 to 97 mm. (fig. 9, *h*).

MAMMAL RIBS (33 SPECIMENS):

Split ribs (28 specimens).—These awls are split from a large mammal rib, probably bison, and most of the surface is dressed. The cancellous bone is removed or nearly obliterated. Sides are nearly parallel and butts are squared (fig. 10, *b*). The awls are homogeneous in form but vary from 61 to 181 mm. in length.

Splinter awls (5 specimens).—These specimens are fragments of split ribs that served as awls after one of the sharp ends was ground to a point. Form is not consistent. Presumably the original splinter was chosen for convenience rather than form.

BIRD LONG BONES (4 SPECIMENS):

Each of these specimens is made from a whole bone, with one end sharpened to a stubby point. Two awls, made from an ulna (fig. 10, *c*) and a femur, are 74 mm. long. Two awls are made from wing bones, the longest of which is 175 mm. long.

FISH SPINE (1 SPECIMEN):

The spine of a catfish is sharpened to a blunt tip on the end opposite the articulating surfaces. The sharp ridges along one edge are ground away so that the shaft is smooth (fig. 10, *d*). These spines are sometimes erroneously identified as fish mandibles.

made one peculiar error, for a high area that presumably was meant to represent the ball of the foot is immediately adjacent to the heel and a depression was carved out, for what should be the instep, between the toes and the raised area. The length of the object is 4.6 cm., width 2.0 cm., thickness (to the edge of the break) 0.9 cm.

A few pieces in the collection appear to have been intended to represent animal forms. One interesting specimen is made of serpentine in the form of a small fish (pl. 37, *a*, *b*, *a'*, *b'*). The eyes are formed by moderately deep circles cut with a hollow drill. Sawed lines at the edges of the mouth and around the gills give the object a more realistic appearance although actually it is highly stylized. It is drilled from end to end, that is, from mouth to tail, by means of two tubular drill holes which intersected just over 6 cm. from the mouth, or roughly two-thirds of the way back. These holes are about 1 cm. in diameter and have a very slight taper toward the base, presumably due to added wear during the drilling process at the upper part of each shaft. The holes almost fail to meet, having an overlap of about half a centimeter. Subsequently the object was sawed in half longitudinally. Whether this was done because the drill holes did not meet properly cannot be determined. The object is 9.1 cm. long and 4.7 cm. in maximum width. The original thickness prior to sawing was apparently a little under 2 cm.

A small piece of pale-green jade was made by cutting what must have been a fairly good-sized cylindrical bead in half longitudinally (pl. 37, *e*, *e'*). The remaining piece is slightly less than a half cylinder in cross section. The lower end was broken off and repolished. A few shallow saw marks outline slanting elliptical eyes, the line across the muzzle, and what seems to be an indication of nostrils at the lower broken end. The top two biconical perforations, one on the face side, provide means of suspension and are connected by a sawed groove. The general effect is that of an animal head, but it is impossible to try to guess the species represented. The present length of the object is 5.1 cm., the width is 1.8 cm., and the thickness 0.8 cm.

A small buff-colored pebble, probably of serpentine, was slightly modified into the form of an animal head, possibly that of a dog (pl. 49, *h*). Shallow drilled pits indicate the eyes. A transverse biconical perforation runs from side to side at the base of the ears and another perforation goes through the lower lip and into the saw cut that represents the mouth. The length is 5.4 cm.

A small carving representing a fairly realistic turtle, made, as I recall, of basalt or possibly diorite, and painted red, was found in the offering, but I did not find it with the collection in the Museo Nacional, and by some strange oversight no pictures of it seem to have been made in 1941.

Two small representative objects of materials found with burial materials in Mound 30 may be added to our list, although they do not properly belong with the cache. One of these was a small carving, possibly made from half of a subspherical bead, representing a monkey head (pl. 52, *a*, third row, middle). It has the characteristic wide crest on the head and protruding mouth parts. The eyes are small shallow drill pits. A transverse perforation runs through from side to side near the top of the head and two pairs of intersecting conical perforations connect sides and back just below the midpoint. The height of the object is 1.8 cm., the maximum width is 1.8 cm., and the thickness is 1.3 cm.

The second little jade pendant from Mound 30 represents a highly stylized cicada (pl. 52, *a*, third row, middle). It is of bright-green jade with light-green mottling. In outline it is nearly elliptical with slight notches at the sides of the head and the base of the wings. Shallow saw cuts suggest the thorax of the insect, and two very shallow drill pits near the upper rounded end, the eyes. A transverse biconical perforation pierces the object from side to side at about the level of the eyes. This little piece is well polished. Its length is 3.1 cm., the maximum width is 1.6 cm., and the thickness at the upper end is 1.0 cm.

A little pebble of light-green jade was very slightly modified into a form that vaguely suggests the head of a wood duck (pl. 49, *h*). A slight projection at one end was bisected with a saw cut to suggest the beak, and a few light cuts on the other end suggest the feathers. A transverse biconical perforation runs through from side to side. The length is 2.9 cm., the width 1.8 cm., and the thickness 1.2 cm.

PLAQUES

There are a number of objects among the materials from the cache whose use is not known but which suggest by their more or less flat form and laterally balanced perforations that they were intended for suspension, perhaps hanging from necklaces like some of the objects portrayed on the various stelae. These pieces are grouped here as "plaques."

The first of the plaques is a small trapezoidal object of very light translucent green jade with a faint mottling of light green and white (pl. 38, *a*, *a'*, and fig. 3). The two upper corners are decorated with highly simplified animal heads in profile, formed by a very few sawed lines and with circular depressions made by a hollow drill to represent the eyes. The sides and lower edge of the stone is marked off with a border formed by a lightly sawed line. The central portion between the heads is also decorated with an angular pattern of sawed lines.

band is 220 mm. long, and is bent into an arc with a diameter of 140 mm. (fig. 11, *a*). Both ends are drilled from both sides and pierced. The transverse section is oval near the ends and circular in the middle. The convex surface is highly polished, and the concave surface is rough.

A broken band 116 mm. long has a perforation drilled from both sides in a square end, and a groove in the concave surface that extends for 60 mm. from the hole. The broken end is rounded and polished, and it may have been reworked (fig. 11, *i*). Four broken bands, none of which exceeds 80 mm. in length, have perforations in one end that are gouged from both sides. Surfaces are smooth but are not polished (fig. 11, *g*). One example is scored on both edges (fig. 11, *h*.) A final fragment, a midsection, is 70 mm. long. A longitudinal groove is cut into the convex face.

Tines

(4 specimens)

The tips of these deer tines are lightly polished, with occasional longitudinal scratches near the tip. The proximal ends are irregular, and the fractures indicate that the tines were hacked from the body of the antler with some blunt tool. The lengths are 51 to 180 mm.

Miscellaneous shaped objects

(3 specimens)

A rectangular piece of antler, measuring 41×17×5 mm., is cut transversely on both ends. The object was split longitudinally from the antler. The convex surface is scored lightly and smoothed; the under surface is rough (fig. 11, *d*).

A second object measures 51×17×15 mm. One large end is sawed transversely through the compact outer layer, and snapped off. The object tapers to a squared, polished end. Its form is spuriously similar to that of a modern pipe mouthpiece (fig. 11, *e*). The convex upper surface is smoothed on the high points, and the flat under side is longitudinally scored with deep gouges.

Another item is broken, but originally exceeded 200 mm. in length. It consists of a straight shaft of antler 10 to 11 mm. in diameter. One end is squared, and the other end tapers to a broken tip. The sides of the object are scored, and five incised lines occur on either side. Four notches are cut into the sides of the shaft at the square end (fig. 11, *f*).

Perforated elk teeth

(2 specimens)

Highly polished canines of adult elk have holes drilled from both sides in the roots. The holes are polished from a suspending cord or

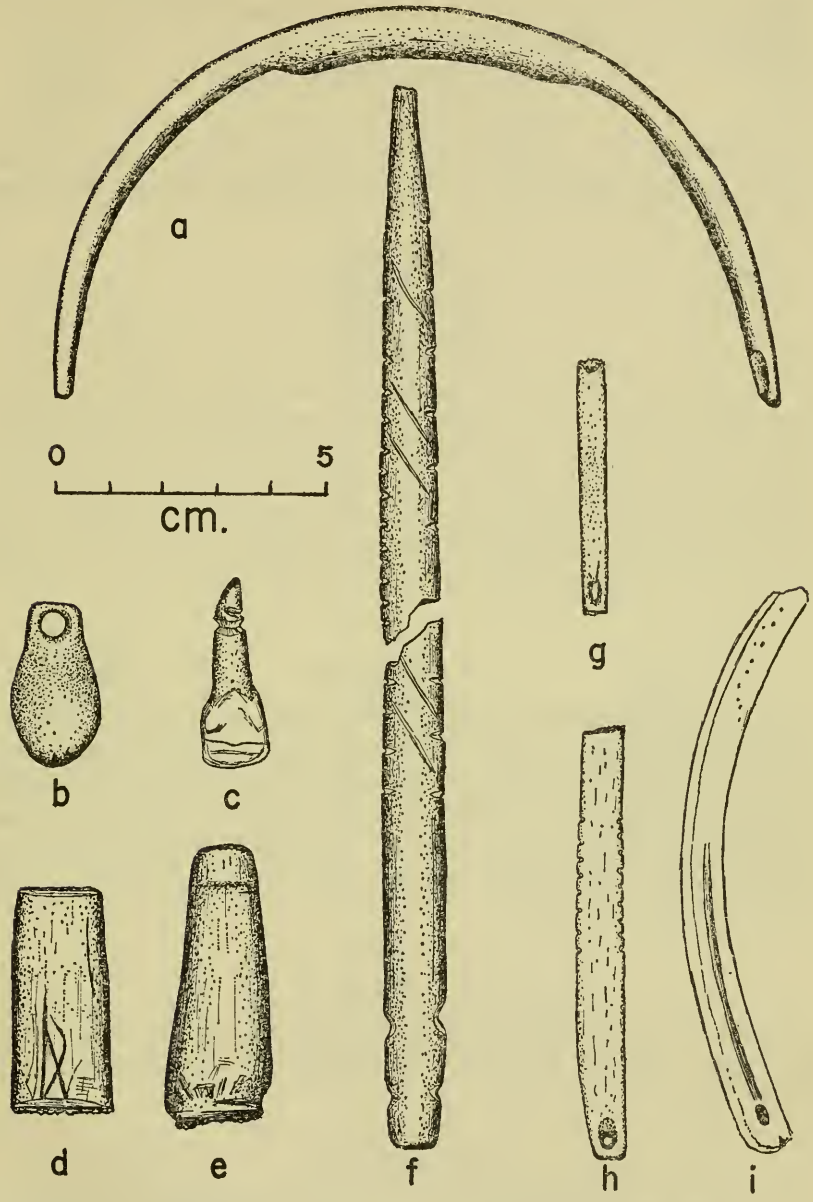

FIGURE 11.—Objects of antler and animal teeth.

thong. One of them (fig. 11, *b*) has three small incisions on one end. The other tooth is plain.

Grooved incisor

(1 specimen)

A shallow groove, and part of a second, encircles the root of a large incisor, probably bison. It is not polished, and may not have been used (fig. 11, *c*).

WORK IN SHELL

Disk beads

(10 specimens)

Eight circular disk beads are 2 to 4 mm. thick and 10 to 12 mm. in diameter (fig. 12, *a*). The circular perforations are ordinarily drilled from one side of the bead. One specimen (fig. 12, *b*) has a cylindrical hole that may have been drilled with a hollow reed. Two irregular specimens, larger than the finished beads described above, are 13 to 18 mm. in diameter. They are perforated, and the sides, although smooth, are not regular (fig. 12, *c–d*).

Disks

(10 specimens)

Two disks are smoothly finished. One of them is 33 mm. in diameter and 5 mm. thick, and the other is 11 mm. in diameter and 4 mm. thick. The edges are smooth and rounded (fig. 12, *k–l*). The eight remaining specimens are roughly circular pieces of shell 15 to 40 mm. in diameter. Edges are irregular or partially smoothed. These pieces may be rough-shaped blanks that were not brought to their final form (fig. 12, *m*, *n*).

Pendant

(1 specimen)

A fragment of the shell of a *Lasmigona complanata*, with part of the hinge, is broken through a perforation drilled through a thin part of the shell (fig. 12, *j*).

Fossils

(22 specimens)

Seven species of fossil shells were found that had been picked up elsewhere by the inhabitants and brought to the village. Five of the seven species are pierced or otherwise modified for suspension as beads or pendants.

Three of the *L. nebrascensis* shells are beads (fig. 12, *e*). The shell wall is pierced by a longitudinal cut that is smooth and rounded. A

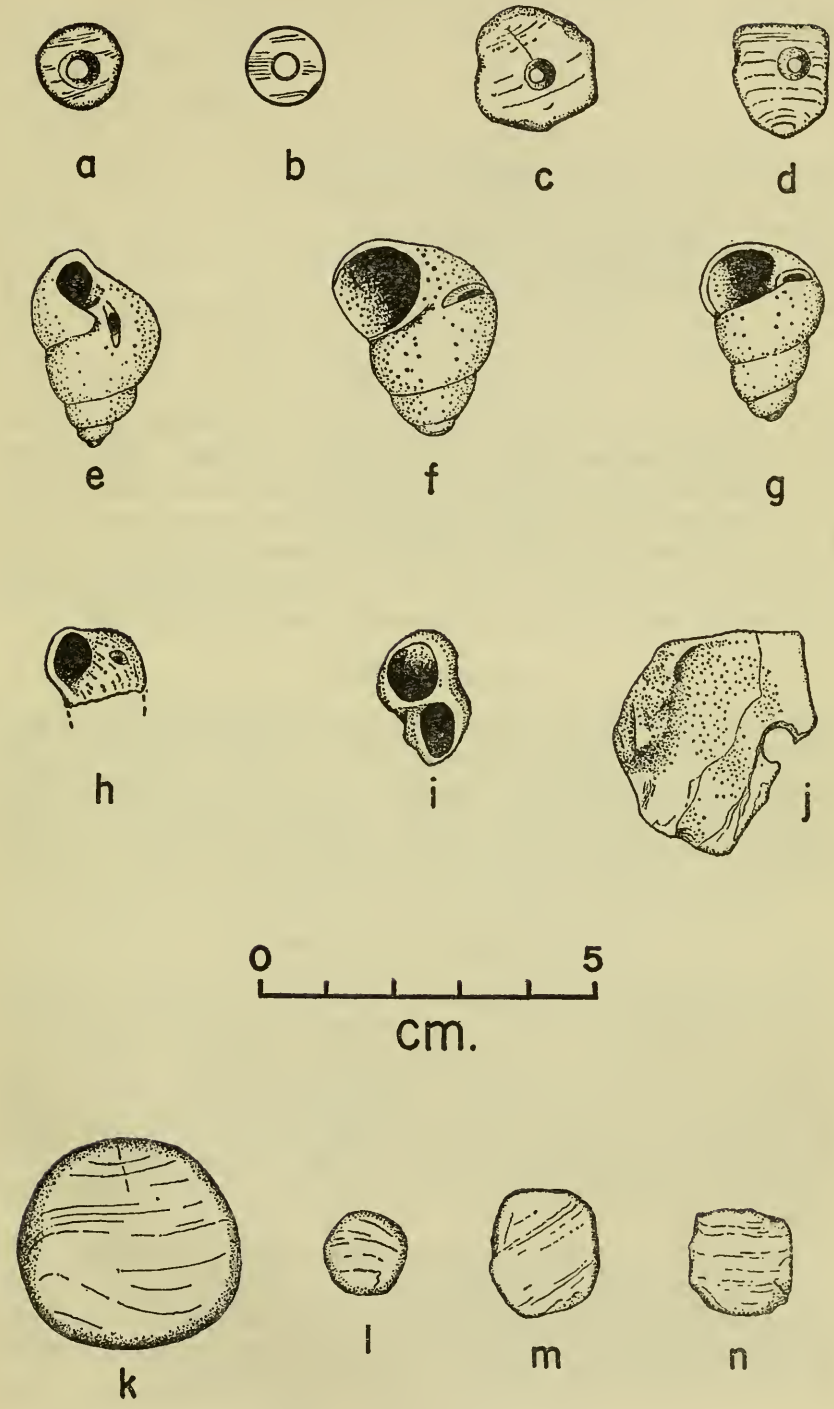

FIGURE 12.—Shell beads and disks

TABLE 2.—*Seven species of fossil shells examined*

Genus and species	Number of examples	Number modified
Lioplax nebrascensis (Meek and Hayden)	6	3
Viviparus retusus (Meek and Hayden)	2	2
Viviparus leidyi (Meek and Hayden)	1	1
"*Goniobasis*" *nebrascensis* (Meek and Hayden)	4	2
Oxytrema insculpta (Meek and Hayden)	5	2
Tancredia americana (Meek and Hayden)	3	0
Nucula planimarginata (Meek and Worthen)	1	0
Total	22	10

thong or cord that had passed through the hole probably accounted for the polished edges on these and the remaining beads. Both of the *V. retusus* shells (fig. 12, *f*), as well as the example of *V. leidyi* (fig. 12, *g*), are treated in a similar manner. Circular perforations are drilled in the walls of the two shells of "*Goniobasis*" (fig. 12, *h*), and the upper parts of the *O. insculpta* shells (fig. 12, *i*) formed beads after having been cut from the rest of the shell and smoothed.

VEGETAL REMAINS

Charred corncobs and a few seeds were found in Feature 15 and Feature 46. Identifiable remains consist of two charred corncob fragments (*Zea mays*), five charred corn kernels, and pieces of a fragmentary pumpkin or squash seed. Charcoal was present in large quantities in most of the pits, and several pounds of dry, compact material were saved for carbon-14 age determination.

UNMODIFIED BONE AND SHELL

All identifiable animal bones and mollusk shells were saved from the houses and features at the site and are listed in table 3. The mollusks were identified by Dr. J. P. E. Morrison of the U.S. National Museum; the bird bones by Mr. Loye Miller, University of California at Davis; the bison bone by Wood; and the remaining bones by Dr. J. Arnold Shotwell, Museum of Natural History, University of Oregon. The bison bone from Paul Brave was analyzed in a separate publication (Wood, 1962).

The pelecypods, or fresh water mollusks, were probably taken from the bed of Four Mile Creek (see map 1). It is unlikely that any of them were living in the Missouri River, since they are species which like clear, slow prairie streams. They live in mud or sandy mud in deep holes and are not particularly tolerant of alkali water.

TABLE 3.—*Species identified at Paul Brave*

Class	Genus and species	Number of individuals
Mollusks:		
Gastropods	(Several fossil species; see table 2)	22
Pelecypods	*Anodonta grandis plana* Lea	1
	Lasmigona complanata (Barnes)	11
	Lampsilis siliquoidea (Barnes)	33
	Lampsilis cardium Rafinesque	1
Chordates:		
Fish	Catfish, probably *Ictalurus*	[1] x
Reptiles	Turtle (unidentified)	1
Birds of prey	Golden eagle (*Aquila chrysaetos*)	1
	Marsh hawk (*Circus cyaneus*)	5
	Hawk (*Buteo* sp.)	6
Wading and swimming birds	Whistling swan (*Cygnus columbianus*)	1
	Crane (*Grus canadensis*)	3
	Goose (*Branta canadensis*)	3
	Ducks (size of teal and gadwall)	4
Other birds	Heath hen (*Tympanuchus cupido*)	4
	Crow (*Corvus brachyrhynchos*)	2
Carnivores	Dog, wolf, or coyote (*Canis* sp.)	7
	Gray fox (*Urocyon cinereorgentus*)	1
Artiodactyls	Bison (*Bison bison*)	53
	Deer or antelope (*Odocoileus* or *Antilocapra* sp.)	7
	Elk (*Cervus canadensis*)	3
Rodents	Rabbit (*Lepus* and *Sylvilagus* sp.)	6
	Ground squirrel (*Citellus* sp.)	3
	Beaver (*Castor canadensis*)	2
	Muskrat (*Ondatra zibethicus*)	1
	Skunk (*Mephitis hudsonica*)	1

[1] Present but not counted.

DISCUSSION

STRUCTURES

The long rectangular houses at Paul Brave are not consistent in size, but they are similar in form. Lengths are 37.5 to 46.0 feet, and widths are 24 to 32.5 feet. The long walls of the houses are not parallel, and there is a variation in the end widths of 1.5 to 3.5 feet. This variation in width is present also at the Thomas Riggs site in houses 3 and 5 (Hurt, 1953, figs. 9, 11), and is reported in houses at the Huff site (32M011) according to Will and Hecker (1944, pp. 19–20).

Houses 5 and 6 at the Thomas Riggs site (Hurt, 1953, pp. 7–8, figs. 11, 12) are similar in floor plan to House 2 at Paul Brave. There is a large post in the end of these houses opposite the entrance, and a large post centered on the house midline. These posts probably supported a ridge pole along the house midline. Houses 1 and 3 at Paul Brave (and apparently House 4 as well) have two intermediate rows of posts between the house midline and the walls. This feature is lacking at Thomas Riggs, but there seems to be evidence for a similar structural pattern in the Over Focus Swanson site (39BR16) (Hurt, 1951, figs. 12–13, 16).

In each of the houses at Thomas Riggs, a low bench of undisturbed native earth projects into the house floor between the two posts that mark the entrance. These ramps also occur at Paul Brave, but here they are small, not exceeding a foot in length, and might more appropriately be termed "steps."

Details of the house superstructure are rare. In House 3, timbers along one wall indicate that the wall posts were at least 5 feet high. There was no evidence of leaners on the bench of earth outside the house wall. These facts, together with the presence of small branches and twigs along the house walls, suggest that the walls were interlaced with branches. Some form of a wattle-and-daub wall may be represented in this architectural form rather than the earth-covered lodge of later, historic tribes. Each of the houses had a line of center posts which apparently supported a ridge pole. In House 2, the roof may have been A-shaped or gabled, but in houses 1 and 3 the roof form is complicated by the presence of the intermediate row of posts.

Bell-shaped pits predominate in the houses, but basin-shaped pits are also frequent. The bell-shaped pits in the house floors are not particularly large, nor are they deep. A maximum depth of about 2 feet prevails. Exterior cache pits are larger; some of them are 6 feet in diameter and attain a depth of 5 feet below the present surface. Originally they were probably no more than 4 feet deep. The additional depth is due to the soil accumulation over the site since it was abandoned. All the pits contained refuse, and even the bell-shaped pits were used for rubbish disposal after their primary function as food storage pits was fulfilled.

A long shallow trench in House 3, F70, may have an analogy in F67 in House 2, although this latter pit is irregularly shaped. These pits are similar to features in houses at Thomas Riggs (Hurt, 1953, p. 8, figs. 7–8, 10, 12). The pits at Thomas Riggs contained very little refuse, and some of them were lined with wooden slabs. Although the pits at Paul Brave contained no wood, their refuse content was low. These pits are also similar in form to a pit in the midline of the long rectangular house at 32ME59, the site of "Grandmother's Lodge," although here the pit contained small stones (Woolworth, 1956, pl. 2).

ARTIFACT COMPLEX

The Thomas Riggs site, in central South Dakota, is the only adequately excavated site that compares closely with Paul Brave, although limited comparisons are possible with "Grandmother's Lodge." The pottery and other artifacts from Paul Brave refer to the "Archaic Mandan" period, the earliest known village culture on the Missouri River in present-day North Dakota. Comparisons with other sites are possible, but are rather restricted because of a lack of data. Excavation in long rectangular house sites has been restricted primarily to testing in North Dakota, and space does not permit a detailed comparison of the artifacts from Paul Brave with the numerous but limited samples from sites listed by Will and Hecker (1944, pp. 118–121) as "Archaic Mandan." An inspection of the various collections in the

State Historical Society of North Dakota Museum indicates that Paul Brave resembles these sites in most particulars.

The pottery from Paul Brave is remarkably uniform with respect to paste, surface finish, and form. Briefly, the pottery was probably made by means of lump modeling, with the use of a grooved paddle and an anvil. The use of a cord-wrapped paddle was less common. Decomposed or calcined granite was added as temper, and the pottery was fired to a hardness of 3.0 to 3.5, with a resulting color that ranged from light buff through black. The upper parts of most vessels were horizontally smoothed. Although some shoulders were vertically simple-stamped, the marks are usually obliterated. Incised decorations were applied to a smoothed shoulder area. Both decorated and undecorated rims were smoothed. The bases of the vessels were simple-stamped in a random fashion. A few vessels were polished. Vessels were globular, with rounded bases, and wide, apparently round mouths. Loop handles and a few strap handles were attached to rims. There are two rim forms. One of these is straight and vertical, with many rims outflaring. Vessels bearing such rims are herein termed the "Riggs Ware." The other rim form is S-shaped, and the vessels with this character are herein termed "Fort Yates Ware." The general characteristics of the Paul Brave pottery already enumerated apply for the most part to that from Thomas Riggs. Differences in the pottery from the two sites are found only when more detailed comparisons are made.

The rim sherd samples from both sites are nearly the same: 863 rims at Thomas Riggs, and 886 rims at Paul Brave. The body sherd sample from Thomas Riggs is more than six times that from Paul Brave. The smaller sample from Paul Brave probably resulted from our practice of retaining only those sherds the size of a half-dollar or larger. Despite these quantitative differences, the percentages of types of body treatment at both sites are remarkably close. There is little more than a 5 percent difference between the two major groups of body sherds from the two sites. Cord-roughened body sherds are rare at both sites. The paste of the cord-roughened sherds at Paul Brave is identical with that of other body sherds, a circumstance that suggests that the sherds are indigenous. The rare check-stamped sherds at Paul Brave are not paralleled at Thomas Riggs, whereas the painted pottery at Thomas Riggs is absent at Paul Brave.

The percentage of decorated shoulder sherds from both sites is nearly the same. The range of designs on Paul Brave pottery is limited (figs. 1, 2), and most of them occur on pottery at Thomas Riggs (Hurt, 1953, figs. 27–28, 30–31). The most popular patterns are composed of alternating elements of nested chevrons and triangular "animal tracks." Most of the designs are incised or trailed, but one ex-

ample (pl. 6, *e;* fig. 1, *b*) is composed of lines made by a stab-and-drag technique. The designs are almost exclusively composed of rectilinear elements. Curvilinear elements are present on only three vessels. The majority of shoulder designs are on the Riggs and Fort Yates Crosshatched rims; only 13 rims of Riggs Plain are decorated at Paul Brave.

Riggs Plain Rim comprises the bulk of the rims from both sites, averaging more than 85 percent of the total at Thomas Riggs[2] and nearly 70 percent at Paul Brave. Applique nodes are common on rims from both sites. On S-shaped rims, these nodes often serve as the apex for cord-impressed triangular elements (pl. 5, *f*). A unique example of applique work at Paul Brave is illustrated by Hewes (1949 b, pl. 6, right, *s*).

The S-shaped rims comprise a larger percentage of the total rims at Paul Brave than they do at Thomas Riggs, and there is more variation in the rim decorative elements. The presence at Thomas Riggs of the type Riggs Punctate, and an S-shaped rim with horizontally applied cord-impressed lines lacking triangular or curvilinear rainbow elements may be significant. Conversely, the lack of crosshatched rims at Thomas Riggs (except for a possible single trade sherd), the absence of Riggs Wavy Rim, and the lack of rims of Example A may have equal significance. These differences in the pottery from the two sites, however, do not appear to be as significant as the overall similarities. Some local specialization is expected (see table 4).

Site 32ME59, "Grandmother's Lodge," is a few miles downstream from the mouth of the Little Missouri River, in northwestern North Dakota. The pottery from this site may be classified as of types defined in this study. Example A is Fort Yates Cord Impressed Rim, and Example B is Riggs Plain Rim (Woolworth, 1956, pp. 90–91, pl. 5, *a–e*). Only in the presence of the grooved ax and the large chipped stone projectile point does the site differ from the inventory at Paul Brave.

The sample of 55 complete projectile points from Paul Brave is notably larger than the 18 from Thomas Riggs. There is no close correspondence in relative frequencies of projectile points, although most of the forms at one site occur also at the other. Most of the projectile points weigh 0.8 to 3.0 gm., are within the range of the small point tradition (Fenenga, 1953, p. 322), and may be interpreted as arrowpoints. Four points (fig. 3, *i–l*) that weigh more than 4.5 g. are in the range of the large point tradition and are probably knives or dart points.

The narrow knives from Paul Brave are similar to those from "Grandmother's Lodge" (Woolworth, 1956, pl. 6, *i–j*) and other sites

[2] The sherds of Riggs Straight Rim and Riggs Flared Rim from Thomas Riggs are herein classed together as Riggs Plain Rim.

TABLE 4.—*Pottery frequencies at Thomas Riggs and Paul Brave sites*

Pottery type	Thomas Riggs		Paul Brave	
	Number	*Percent*	*Number*	*Percent*
Riggs Plain [1]	749	86.8	619	69.9
Cross-Hatched	1	.2	54	6.1
Incised	32	3.7	6	.7
Pinched			26	2.9
Punctate	32	3.7		
Fort Yates Cord Impressed [2]	20	2.3	136	15.3
Fort Yates Cross-Hatched			30	3.4
Unnamed, cord impressed [3]	16	1.8		
Unclassified	3	.4		
Example A			10	1.1
Example B			1	.1
Example C			1	.1
Example D [4]	10	1.1	3	.3
	863	100.0	886	99.9
Twelve Mile Black on Gray	31	.33		
Smoothed	6,620	64.2	845	58.9
Simple-stamped	3,233	31.4	514	35.8
Cord-roughened	39	.4	19	1.3
Check-stamped			2	.1
Decorated	374	3.6	54	3.7
Unclassified	14	.1		
Total	10,311	100.03	1,434	99.8

[1] "Riggs Straight Rim" and "Riggs Flared Rim" from Thomas Riggs are grouped together here.
[2] At Thomas Riggs, these sherds are designated "Aldren Cord Impressed."
[3] At Thomas Riggs, these sherds are designated "Fort Yates Cord Impressed."
[4] Several rims of this example at Thomas Riggs are designated "Riggs Plain," but the small sample from either site does not seem to deserve type status.

along the Missouri River. The suggestion is made here that these knives were inserted into bone knife handles.

Siltstone spheres were found at Paul Brave, as well as one circular sandstone concretion. The latter object may have derived from the famed Cannonball formation, which outcrops some distance to the north at the Cannonball River. Specimens similar to the siltstone spheres are reported by Wedel from sites in the vicinity of the Grand River, in South Dakota (Wedel, 1955, pp. 113–114, pl. 58, *i–j*). A large block of sandstone was used as a mealing slab, and one mano, or handstone, may have been used on such a platform.

In many respects the objects of worked bone at Paul Brave parallel those at Thomas Riggs, although there are some differences. In some classes of artifacts, such as scapula hoes and awls, the number of specimens varies but the relative proportions remain much the same.

A point may be made concerning the serrated fleshing tools at Paul Brave. Tools of this nature occur in the Dodd and Phillips Ranch sites (39ST30 and 39ST14), in central South Dakota. Both of these sites contain trade goods (Lehmer, 1954, p. 110; figs. 33, *a–c*, and 49, *j–k*). They also occur in late Mandan sites (Will and Spinden, 1906, fig. 7 *a–d*). In the Central Plains, they are characteristic of early historic and historic complexes, and are rarely if ever found in prehistoric sites (Wedel, 1940, p. 316). Since Paul Brave lacks trade goods it seems that the usefulness of this tool as a late time marker is restricted to the Central Plains.

The three bone disks from Paul Brave are similar in size and form to incised disks in the collections of the State Historical Society of North Dakota from the Motsiff, Slant, and Double Ditch sites. The disks from these three sites are incised in much the same manner as the bone disks used in the Mandan woman's game of *Sha-we* (Libby, 1906, pp. 444–445). The specimens figured by Libby are cut from the walls of a heavy long bone and are carefully rounded. The identification of the bone as rib by Libby is erroneous.

A number of bone tools are classed as "pottery modeling tools," following the suggestion of Wheeler (1956, pp. 17–20). The bone tubes from the site may have been used as ornaments, but it is also possible that they were for medicinal use. In the collections of the State Historical Society are three bone tubes, two of which were collected by C. W. Hoffman on the Fort Berthold Reservation, N. Dak. They are said to have been used as emetics. These polished bird-bone tubes are 49 and 61 mm. long and 14 to 18 mm. in diameter. One of them has a hole in one side in the manner of a plume holder. A third bird-bone tube, collected by Frances Densmore prior to 1918 in northern Minnesota—probably among the Chippewa—is 64 mm. long and 12 mm. in diameter. This polished tube has two opposed holes in one end, and Densmore noted that it was swallowed "to be regurgitated."

The bone knife handles from Paul Brave are made from bison dorsal vertebrae spines, whereas most reported hafts are made from bison ribs. Specimens made of rib occur in many prehistoric and historic complexes in the Plains. They are known in Upper Republican (Kivett, 1949, p. 280; fig. 69, *b*), and in the Mitchell and Twelve Mile Creek sites of the Over Focus (Hurt, 1952). The use of these implements continued into historic times, occurring in Mandan sites (Strong, 1940, p. 365), in the Sheyenne-Cheyenne site (Strong, 1940, p. 375), and in Arikara sites in the vicinity of Mobridge (Wedel, 1955, pp. 122–123, plate 61, *f–h*). These specimens consist of a slotted rib with both ends cut square. The hafts from Paul Brave and from the Over Focus sites have a tonguelike projection on one end.

In addition to the bone knife handles are the bone knives (fig. 7, *c*), which were used by historic tribes as "squash knives." Most of these knives are rectangular in outline, but the form of one broken implement (fig. 8, *n*) suggests that it was part of a hook-bladed knife similar to examples from the Dodd site (Lehmer, 1954, p. 68, fig. 26, *m*).

Two perforated elk teeth from Paul Brave are identical with specimens found on costumes of historic Northern Plains Indians, as well as other groups to the west and south. The significance of these ornaments has been discussed in detail elsewhere (Wood, 1957, pp. 381–385), but it is relevant to state that they are prehistoric in the north-

ern Middle Missouri area, but are lacking until the time of White contact in the Central Plains.

Several antler bands from Paul Brave are made from thin strips of antler. The steps in the manufacture of these ornaments have been fully described by Steinbrueck (1906, p. 456–459). These objects are known from the Double Ditch site (Will and Spinden, 1906, p. 172, pl. 36, *w–z*), where they are also made from antler. Similar specimens are in the collections of the State Historical Society of North Dakota from Slant Village, 32MO26.

Work in shell is relatively rare, the more common articles being disk beads and unperforated disks. The pierced snail shells from Paul Brave are made from local fossils, but otherwise are similar to specimens from Thomas Riggs. Shell disk beads also are shared by both sites. Circular disk beads are in the collections of the State Historical Society of North Dakota from the Badwater and North Cannonball sites. Circular disks, some of them probably game pieces, occur at Slant Village, Havens, Stanton Ferry, Hensler, and Demery. Pierced fossil snail shells at Boley, Motsiff, and Badwater include species identified at Paul Brave.

It may be relevant to mention the grooved sandstone slabs found at Havens, Gaines Ranch, Upper Sanger, and Motsiff, that are in the Historical Society collections. These sandstone slabs have U-shaped grooves as much as 12 mm. wide, and the grooves are frequently so smooth that they might be classed as lightly polished. The width of the grooves approximates the diameter of most of the perforated shell disk beads in the Historical Society collections, and it is possible that they may have functioned to smooth down rough-shaped shell beads. Such may not always have been the case, however, since disk beads occur at Paul Brave and grooved abraders of this character were not recovered.

OTHER SITES

Between Stanton, N. Dak., and Kenel, S. Dak., Will and Hecker (1944, pp. 118–121) list nearly fifty "Archaic Mandan" sites. Collections are available for a few of the sites in the vicinity of Paul Brave. In general, these collections are small, but those from the Robert Zahn and Havens sites are large enough for limited comparisons with Paul Brave.

ROBERT ZAHN SITE (32SI3)

(MAP 1)

Site 32SI3, in the E½ SE¼ sec. 9, T. 129 N., R. 79 W., covers about 10 acres on a level terrace and the adjoining slope of a low hill on the banks of a small stream. It is crossed by a gravel highway and much of it has been plowed. Will and Hecker (1944, p. 89) report that

TABLE 5.—*Comparison of traits at Paul Brave and Thomas Riggs sites*

Traits	Paul Brave		Thomas Riggs	
I. Villages:				
Long-rectangular houses	×		×	
Houses arranged in streets	×		×	
Open village	×		×	
Exterior cache pits	×		×	
Central plaza			×	
II. Houses:				
Built in shallow pit	×		×	
Entrance to southwest	×		×	
Offset fireplace	×		×	
Center posts in house midline	×		×	
Intermediate rows of posts	×			
Closely spaced wall posts	×		×	
House ends open	×		×	
Trench in house rear	×		×	
Earth ramp at entrance	×		×	
House walls not parallel	×		×	
Braced posts	×		×	
Interior, bell-shaped pits	×		×	
III. Pottery (cf. table 4):				
Riggs Plain	×		×	
Riggs Cross-Hatched	×		×	
Riggs Incised	×		×	
Riggs Pinched	×			
Riggs Punctate			×	
Fort Yates Cord Impressed	×		×	
Fort Yates Cross-Hatched	×			
Unnamed, Cord Impressed			×	
Unclassified			×	
Example A	×			
Example B	×			
Example C	×			
Example D	×			
Twelve Mile Black on Gray			×	
Smoothed or plain	×		×	
Simple-stamped	×		×	
Cord-roughened	×		×	
Check-stamped	×			
Incised or trailed	×		×	
Unclassified			×	
IV. Miscellaneous objects of baked clay:				
Animal effigies		5		0
Bead		1		0
Shaped item		1		0
Pipes		0		2
V. Work in stone:				
Projectile points	55		18	
NAb1		1		0
NAb2		0		2
NBa		18		4
NBa1		22		7
NBb		2		3
NBb1		12		1
SCb1		0		1
Drills	6		10	
Expanding base		6		2
Straight-shafted		0		8
End scrapers	149		51	
Flaked on upper surface		79		24
Upper surface not flaked		70		27
Broad knives	21		×	
NAb1		1		×
NAb2		4		×
NAb2, asymmetrical		2		0
NE		1		×
Fragments		13		×
Narrow knives	5		0	
NAa		1		0
NAb2		2		0
Fragments		2		0
Choppers	34		×	
Flake knives	135		198	
Grooved mauls	5		5	
Full groove		2		2
Three-quarter groove		1		0
Sides grooved		0		2
Fragments		2		1
Axes	1		2	
Celts	18		21	
Manos, or handstones	1		19	
Mealing slabs or metates	1		8	
Hammerstones	49		14	

TABLE 5.—*Comparison of traits at Paul Brave and Thomas Riggs sites*—Con.

Traits	Paul Brave		Thomas Riggs	
V. Work in stone—Continued				
Stone spheres	5		0	
Shaft smoothers	6		6	
Grooved abraders	18		82	
Faceted abraders	59		2	
Beads	4		1	
VI. Work in bone:				
Scapula hoes	66		42	
Scapula hoes, notched glenoid	9		4	
Scapula hoe, perforated blade	1		0	
Scapula hoe fragments	31		53	
Scapula "thong stretchers"	2		5	
Serrated fleshers	2		0	
Split metapodial scoops	2		13	
Horn core and frontal scoops	0		2	
Awls, mammal long bone	62		43	
Head of bone intact		1		2
Head of bone split		18		20
Head of bone worked down		12		12
Head of bone removed		17		9
Splinter		14		0
Mammal rib awls	33		15	
Split and worked		28		15
Splinter		5		0
Bison scapula splinter awl	0		1	
Bird bone awls	4		4	
Fish spine awls	1		3	
Pottery modeling tools	64		6	
Knives	10		9	
Fishhooks	1		5	
Knife handles	3		0	
Punches	32		0	
Chisels	9		0	
Rubbing tools	13		0	
Whistle	1		0	
Slotted rib tip	1		0	
Beads	8		0	
Disks	3		0	
Spatula tip	1		0	
Needles	0		3	
Shaft wrenches	0		2	
Rib pendant	0		1	
Tubes	3		4	
Miscellaneous shaped objects	2		0	
VII. Work in antler and teeth:				
Bands	6		0	
Tines	4		7	
Sections from main shaft	0		9	
Miscellaneous shaped antler	3		0	
Perforated elk teeth	2		0	
Grooved bison incisor	1		0	
VIII. Work in shell:				
Disk beads	10		16	
Disks	10		1	
Pendants	1		3	
Fossil snail shell beads	10		0	
Recent snail shell beads	0		2	

house floors were once visible in the cut bank of the terrace and that the pottery was "Archaic Mandan." A test pit excavated south of the gravel road by the State Historical Society field party in 1955 recovered the artifacts described below from a shallow, irregular pit.

Three of the seven rim sherds are similar to the type herein described as Riggs Plain Rim; the lips of two sherds are indented. Two small rim sherds represent the type Fort Yates Cord Impressed. One rim, 30 mm. high, has a fillet on the mid-rim, the crest of which is 12 mm. below the lip. The rim profile resembles that of the type Riggs Punctate (Kleinsasser, 1953, p. 29, fig. 26, *2*), but the fillet lacks the punctates that are characteristic of this type. A final rim is unclassified. Seven of the 18 body sherds are simple-stamped, and 7 are smoothed.

Work in stone includes two pieces of plate or vein chalcedony with bifacially prepared edges, two faceted scoria abraders, two end scrapers, and the bases of two arrowpoints of form NBb1 made from Knife River flint and white chert. A bone awl made from a split long bone and an antler tine tip complete the list of specimens.

There are similarities to Paul Brave apparent even in this small sample. Five of the seven rims are classified as of types described from Paul Brave, and the remaining artifacts are similar to examples from that site. The two variant rims, however, indicate that the Robert Zahn site has elements that are lacking at Paul Brave. Further testing and perhaps extensive excavations should be carried out here, since the site will be inundated by the Oahe Reservoir. The site may aid in determining the range of variation in the "Archaic Mandan" complex.

HAVENS SITE (32EM1)

(MAP 1)

This site, in the SW¼ NE¼ sec. 3, T129N, R79W, is situated on a low, rolling terrace and covers about 15 acres. It is on the east bank of the Missouri River across from the Paul Brave site. About 40 widely spaced house depressions are visible. The surface is in native sod, with about 8 or 10 inches of soil accumulation over the former village level. No refuse middens are apparent, and there is only a thin layer of village refuse. There is no indication of a ditch, and the oval house depressions suggest that the dwellings are long-rectangular houses (Will and Hecker, 1944, p. 76).

A large number of artifacts from the site are in the collections of the State Historical Society. Notes are not available for this sample, but it is likely that they were derived from the surface or from limited testing by Will and Hecker. The majority of the rim sherds may be classified as of types described from Paul Brave:

Riggs Plain	134
Riggs Cross-Hatched	3
Riggs Incised	2
Riggs Pinched	10
Fort Yates Cord Impressed	11
Fort Yates Cross-Hatched	1
Unclassified	1
Total	162

Body sherds are classed as follows:

Simple-stamped	10
Smoothed	49
Cord-roughened	1
Incised or trailed	13
Total	73

Stonework includes several flake knives, a number of end scrapers, and an arrowpoint of form NAb2, measuring 33 × 15 × 3 mm., made from Knife River flint. Worked bone includes two long bone splinter awl fragments and part of a split rib pottery modeling tool. An irregular shell disk is 15 mm. in diameter and 5 mm. thick. A roughly circular piece of perforated shell, less than 1 mm. thick, averages 20 mm. in diameter.

This inventory is similar in most particulars to that of Paul Brave. Except for the single unclassified rim, all the sherds are of types occurring at Paul Brave, and the non-ceramic remains are also very similar. This similarity in content suggests that the sites are closely related and may be nearly contemporaneous. The site is not recommended for testing. It is believed that the material in the site would duplicate the sample recovered from the Paul Brave site, and at this time it would be more relevant to excavate sites which will be flooded by the Oahe Reservoir but which differ from adequately sampled villages.

CONCLUSIONS

As early as 1919, George F. Will and Herbert J. Spinden recognized an archeological sequence within the Missouri River Valley in North Dakota that they regarded as a cultural sequence leading to the historic Mandan (Will, 1924, pp. 292, 342–344). Subsequent to 1924, Will made further studies, and by 1944 had formulated with Thad. C. Hecker the postulate that Mandan history was divisible into four major periods: the Archaic Mandan, Middle Mandan, Later Heart River, and Decadent periods (Will and Hecker, 1944). Paraphrasing their synthesis, it appears that the Archaic period was distinguished by small, unfortified villages of long-rectangular houses distributed along a large segment of the Missouri River. The advent of the Middle period seems to be chiefly marked by the appearance of progressively developing fortifications, and by the concentration of these villages into large fortified sites of long-rectangular houses near the mouth of the Heart River. The transition from the Middle period to the Later Heart River period is marked by three distinct changes. The long-rectangular dwellings of the Middle period are replaced by circular earth lodges, the villages consist of houses tightly arranged within the fortification ditches, and the population concentrated in an even smaller area in the immediate vicinity of the mouth of the Heart River. The Decadent period is associated with increasing contact with White traders after 1750. In addition to these details of settlement patterning and domestic architecture, there is a progressive development of pottery types, culminating in the varieties which are found in historic Mandan and Hidatsa sites at the mouth of

the Heart River (Will and Hecker, 1944, pp. 6–7, 10, 52–54, 117–118, passim).

In this formulation, they classed the Paul Brave site as "Archaic Mandan" (ibid., p. 89). The complex represented at Paul Brave is the earliest recognized village complex in the upper reaches of the Middle Missouri area, and to date it is represented at the following sites for which data are available:

Excavated:	Thomas Riggs, 39HU1 (Hurt, 1953)
	Grandmother's Lodge, 32ME59 (Woolworth, 1956)
	Paul Brave, 32SI4 (this study)
	Tony Glas, 32EM3 (Howard, 1962)
Tested:	Robert Zahn, 32SI3 (this study)
	Standing Soldier, 32SI8 (Scheans, MS.)
Surface collection:	Havens, 32EM1 (this study)

Most of these sites were termed "Archaic Mandan" by Will and Hecker. In a review of their work (Champe, 1948, pp. 261–262) it was pointed out that the utmost discretion is necessary in the application of terms such as "archaic" to relatively recent complexes. We fully endorse this sentiment, and submit that there is no reason to retain this loaded term. Another term for some of the same sites is the "Cannonball Focus" (Bowers, MS.), but the priority of naming and describing the material in usable form falls to Hurt in his description of the Thomas Riggs Focus (Hurt, 1953). Tables 4 and 5 in this study illustrate the degree of identity between the type site of this focus and Paul Brave, and Paul Brave is here identified as a component of that focus. It is urged that the designation of Paul Brave as a component of a "Fort Yates Focus" (ibid., p. 60), distinct from the Thomas Riggs Focus, be abandoned in view of their essential similarity.

Paul Brave is related to sites found throughout a considerable part of the Missouri River Valley in the Middle Missouri area. In 1951, the Missouri Basin Project of the Smithsonian Institution tested site 39LM55 in Lyman County, S. Dak., and in 1953 the University of Kansas made other tests in that same site. The site lies just a few miles north of the town of Chamberlain and just north of the mouth of the White River. Work at this site revealed tools and a long-rectangular house similar to those at the Thomas Riggs site (C. S. Smith, 1953, p. 198). Excavations at the site of Grandmother's Lodge (32ME59) (Woolworth, 1956) indicate that the Thomas Riggs Focus extends as far north and west along the Missouri River Valley as the mouth of the Little Missouri River in western North Dakota.

Site 39LM55 and Grandmother's Lodge are fully 300 airline miles apart; the river distance between them approaches 500 miles. Between these two extremes there are numerous small, isolated villages of the Thomas Riggs Focus. The near identity of the remains in these sites

along this immense tract of land is truly striking. If cultural similarity implies contemporaneity they cannot be widely separated in time. The hypothesis that the downriver sites are the older is appealing, and it has the virtue of the support of the Mandan migration traditions (Bowers, 1950, pp. 156–163) claiming a downstream origin for that group. The village sites of this complex are confined, so far as we are now aware, to the valley of the Missouri River. It is probable that surveys along major tributaries west of the Missouri would reveal hunting campsites of these villages.

Until such time as radiocarbon, tree ring, or other dating methods can be applied to material from Paul Brave, it is necessary to estimate its age on the basis of comparative data. The tree-ring studies carried out by Will (1946, 1948), in conjunction with the analysis of pottery traits, village patterns, and house forms (Will and Hecker, 1944) suggest a terminal date for the site. The lack of a fortifying ditch suggests the site is earlier in time than the Huff site, for which site the cutting dates of 11 timbers are A.D. 1458–1543 (Will, 1946, p. 16). A radiocarbon date of A.D. 1228± 200 has been released for the Thomas Riggs site by the Missouri Basin Chronology Program (Radiocarbon Laboratory, Michigan Memorial-Phoenix Project, University of Michigan, sample M–838). The similarity in the inventories of the Thomas Riggs and the Paul Brave sites implies approximate contemporaneity. Sites in North Dakota here regarded as components of the Thomas Riggs Focus have been variously estimated to date about A.D. 1250–1300 (Howard, 1962), A.D. 1350–1450 (Hewes, 1949 a, p. 23), and A.D. 1200–1300 (Will, 1946, p. 17). If the radiocarbon date for Thomas Riggs is accurate, and the postulated upstream movement valid, it is our impression that Paul Brave and adjacent sites date between about A.D. 1300 and 1400.

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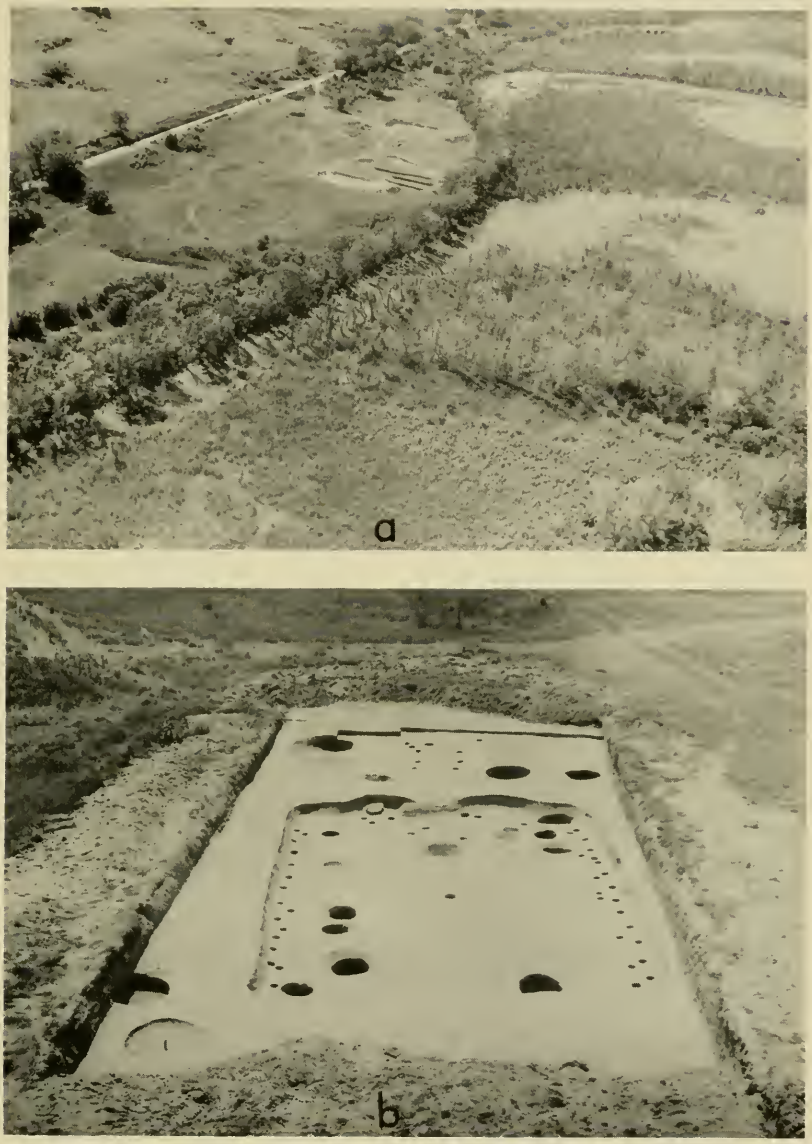
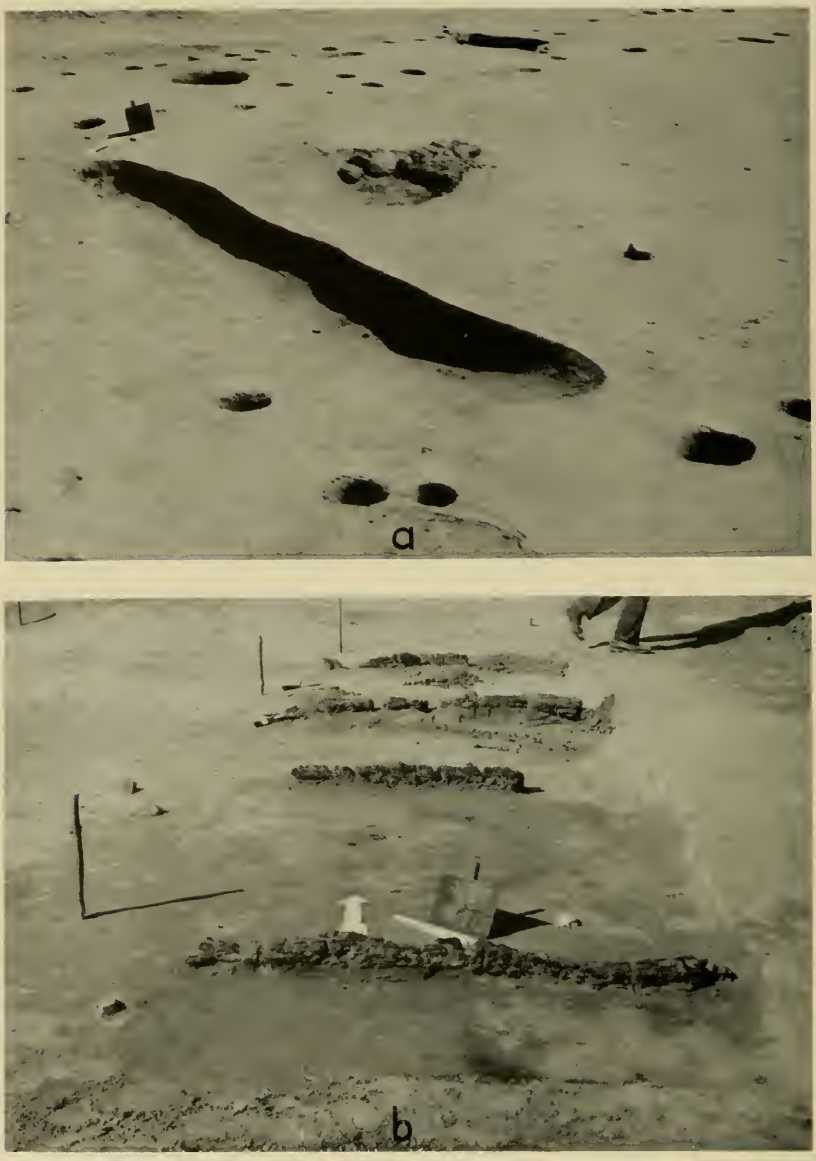
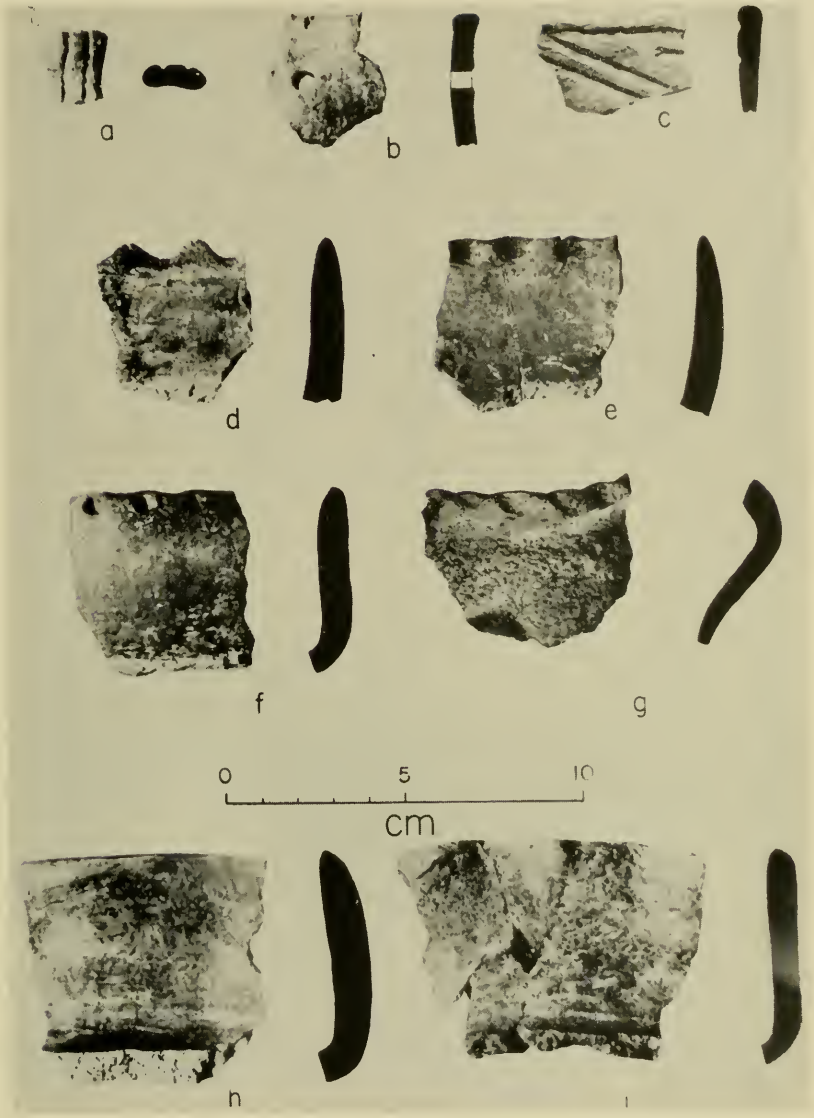
PLATES



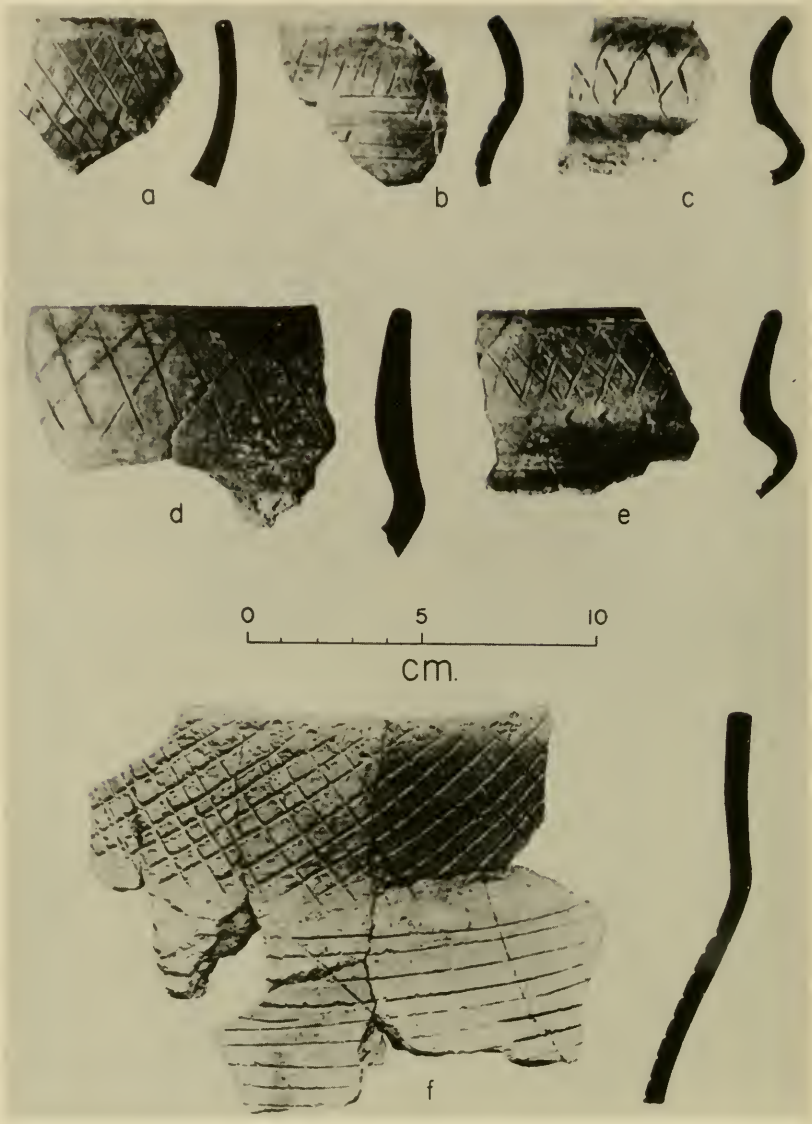
a, Aerial view of the Paul Brave site and environs. *b*, House 2.



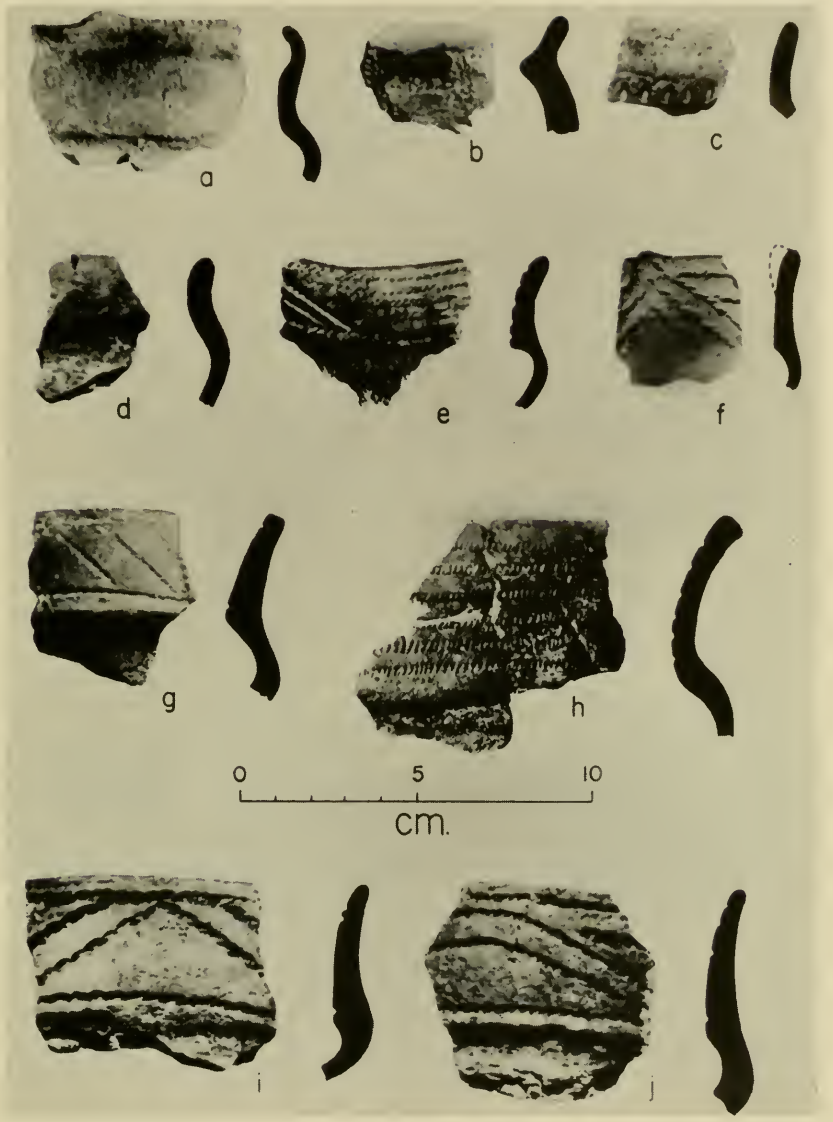
a, Feature 70 in House 3. *b*, Burned timbers in House 3.



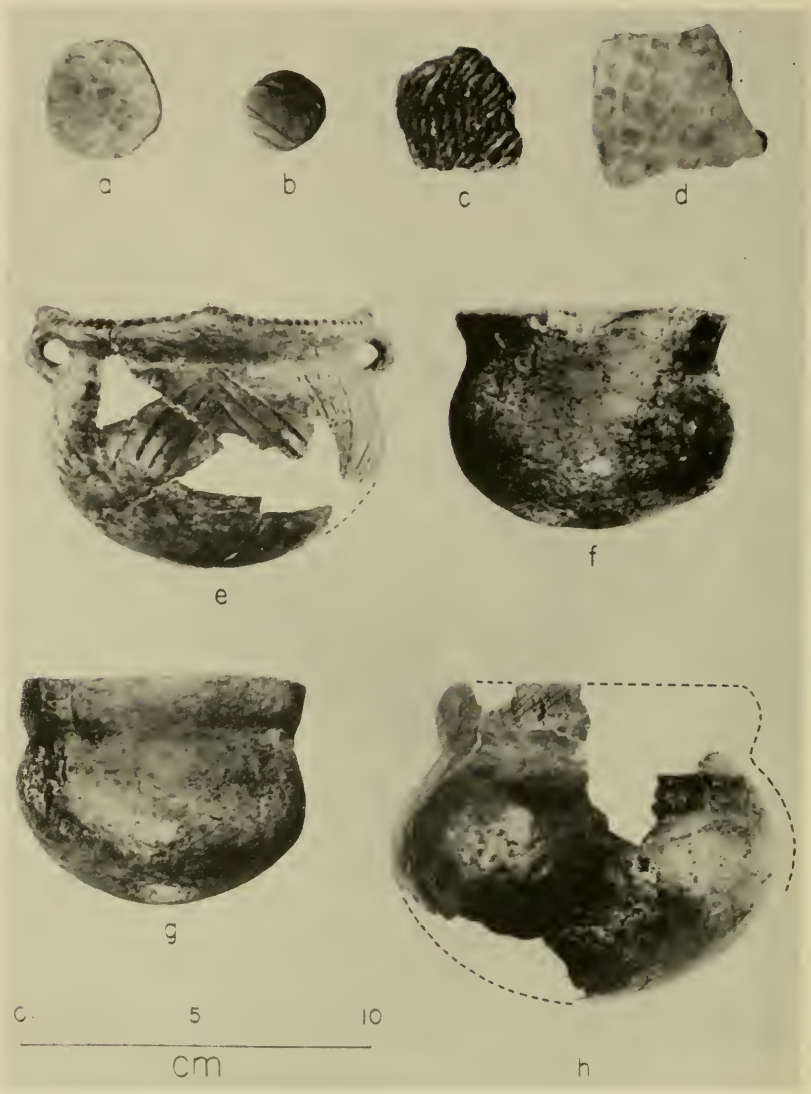
Pottery rim sherds. *a*, Fort Yates Cord Impressed strap handle; *b*, *d–h*, Riggs Plain Rim; *c*, Riggs Incised Rim; *i*, Riggs Pinched Rim.



Cross-hatched rim sherds. *a–b, f*, Riggs Cross-Hatched Rim; *c–e*, Fort Yates Cross-Hatched Rim.



Pottery examples A–D, and cord-impressed rim sherds. *a*, Example A; *b*, Example B; *c*, Example C; *d*, Example D; *e–j*, Fort Yates Cord-Impressed Rim.



Pottery disks, body sherds, and vessels. *a–b*, Pottery disks; *c*, cord-roughened body sherd; *d*, check-stamped body sherd; *e*, Riggs Plain Rim miniature vessel; *f–g*, plain miniature vessels; *h*, Fort Yates Cross-Hatched Rim vessel.