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SMITHSONIAN INSTITUTION  
Bureau of American Ethnology  
Bulletin 173

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Anthropological Papers, No. 58

AN INTRODUCTION TO PLAINS APACHE  
ARCHEOLOGY—THE DISMAL RIVER ASPECT

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## PREFACE

Much of the data presented in this paper was obtained by agencies cooperating in the Missouri River Basin archeological salvage program. The main body of information comes from site 25HN37, in the Harlan County Reservoir, south-central Nebraska, and from sites 25HO7, 25HO21, and 25HO24 in the potential Mullen Reservoir area in Hooker County, north-central Nebraska. The River Basin Surveys conducted its initial reconnaissance in these areas in 1946 and 1947, respectively. Excavations at 25HN37 were carried out by the University of Nebraska, Laboratory of Anthropology, under the direction of John L. Champe. Excavation at the Mullen Reservoir sites was conducted by the Nebraska State Historical Society Museum, briefly under A. T. Hill and subsequently under the direction of Marvin F. Kivett.

Data obtained from the potential Platte Reservoir area in Wyoming and the Angostura Reservoir area in South Dakota by initial survey parties of the River Basin Surveys have also been considered.

In the summer of 1949 the University of Nebraska, Laboratory of Anthropology, sponsored a reconnaissance, carried out by J. H. and D. A. Gunnerson, to augment data bearing on the geographical distribution of the Dismal River Aspect. The results of that survey have been included here.

A number of institutions made previously collected material available for study. The following should receive special thanks: the University of Nebraska, Laboratory of Anthropology; the Nebraska State Historical Society Museum; Smithsonian Institution, Missouri River Basin Survey; the University of Denver; the University of Colorado Museum; the Robert S. Peabody Foundation Museum at Phillips Andover Academy; and the University of Utah.

Most of the material presented here was included in a thesis submitted in partial fulfillment of the requirements for the master of arts degree at the University of Nebraska. Research leading to the thesis was supervised by John L. Champe. His guidance in the field and laboratory and his advice and encouragement during the preparation of the manuscript are largely responsible for whatever contribution this paper may represent. Marvin F. Kivett has been most generous with time and information; particularly, he read the manuscript in thesis form and offered valuable suggestions for revision. I

am indebted to George Metcalf for the stimulation provided by numerous discussions of the problems involved.

Harry E. Weakly's dendrochronological analysis of the charcoal from 25HN37, resulting in the establishment of a date for the site, was a contribution of major importance. Anna O. Shepard kindly provided technical advice on pottery analysis and examined some of the pottery personally. Much of the faunal material from Hooker County sites was identified by Theodore White. Weldon Frankforter identified faunal material from 25HN37 and some of the bone artifacts from Hooker County. Other individuals who have assisted in various ways include Frank H. H. Roberts, Jr., Waldo R. Wedel, Jesse D. Jennings, E. Mott Davis, Arnold Withers, Herbert Dick, Paul Cooper, and Robert Cumming.

Among the local people throughout the Dismal River area whose assistance and hospitality are warmly remembered are Robert D. Stephenson, Carl Humphrey, Howard Dodd, R. W. Haines, H. H. McConnell, and Robert Halsey.

Dolores Gunnerson assisted in all stages of the endeavor from the reconnaissance of the Dismal River area through preparation of the final manuscript.

J. H. G.

# AN INTRODUCTION TO PLAINS APACHE ARCHEOLOGY—THE DISMAL RIVER ASPECT

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By JAMES H. GUNNERSON

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## INTRODUCTION

The Dismal River Aspect is an archeological complex occurring in western Nebraska, western Kansas, eastern Colorado, and southeastern Wyoming. The complex, which received its name from the discovery sites on the Dismal River in north-central Nebraska, has been dated at circa 1700 and is now generally attributed to Plains Apache. Dismal River material culture is simple and indicates that the subsistence pattern emphasized hunting, but that agriculture was practiced. The sites are semipermanent villages or temporary camps apparently chosen with little concern for defensibility. The complex might be described as an abbreviated version of some of the better known and more "typical" Plains complexes, with several distinctive additions, but it could probably be even better characterized as having an alien base with an overlay of Central Plains traits. There is evidence linking the Dismal River people to the Southwest, but thus far their relationship to the Plains seems closer.

## REVIEW OF PREVIOUS WORK

Components of the Dismal River Aspect were first identified by A. T. Hill, W. D. Strong, and W. R. Wedel through reconnaissance in western Nebraska in the early 1930's. Strong reported the discovery sites on the Dismal River (Strong, 1932, pp. 152-155; 1935, pp. 212-217). Wedel (1935, pp. 180-182) described the brief investigations at 25FT9 in southwestern Nebraska. He has also presented a preliminary report of the excavations at 14SC1 in west-central Kansas (Wedel, 1940 a, pp. 83-86).

At Signal Butte, Strong (1935, pp. 225-239) found Dismal River pottery occurring in the most recent occupation level along with Upper Republican pottery. At Ash Hollow Cave it was possible to distinguish the Dismal River and Upper Republican manifestations stratigraphically, and Dismal River was found to be the more recent of the two (Champe, 1946, pp. 19, 46, 62, 111).



The collections made by E. B. Renaud during his surface reconnaissance of eastern Colorado in the early 1930's contain Dismal River pottery. However, Renaud did not relate his finds specifically to complexes being described in Nebraska, and his terminology is such that one cannot always determine when he is referring to Dismal River pottery in his reports (Renaud, 1931, 1932, 1933, 1935). There are indications in certain of his reports that he may also have collected Dismal River pottery from northeastern New Mexico (Renaud, 1937, 1946).

The chronological position of the Dismal River Aspect in the culture sequence established for the Central Great Plains has been discussed by Wedel (1940 b, p. 323; 1947, pp. 151-152; 1949 b, p. 329). Datable southwestern sherds and pottery pipes, as well as Great Bend sherds, were found with Dismal River material at the Scott County Pueblo site in west-central Kansas. This trade material suggests a date of circa 1700 for the Dismal River Aspect, supporting the more exact dendrochronological datings obtained by Harry E. Weakly for the sites in Nebraska (Hill and Metcalf, 1942, p. 205; Weakly, 1946, pp. 105-110).

The first detailed Dismal River site report was that of excavations by the Nebraska State Historical Society at the Lovitt Site, 25CH1, in southwestern Nebraska (Hill and Metcalf, 1942). This work set up an artifact inventory for the Dismal River Aspect and demonstrated the existence of one focus, the Stinking Water Focus, to which 25CH1, 25DN1, and 25FT9 were assigned. Champe (1949), in the preliminary report of the archeology of White Cat Village, presented important new evidence on Dismal River houses and assigned the site to the Stinking Water Focus.

Recently, Metcalf (1949) has suggested three pottery types for the Aspect; Lovitt Plain, Lovitt Simple Stamped, and Lovitt Mica Tempered. Smith (1949) was able to secure an identification of micaceous sherds (Lovitt Mica Tempered) occurring with Dismal River sand-tempered ware at the Scott County, Kansas, Pueblo Site. These sherds were classified by Tichy as "late Rio Grande micaceous culinary ware."

The relationship of the Dismal River Aspect to other archeological complexes has been considered by various archeologists. Keur (1941, p. 74) has suggested that Dismal River might be ancestral Navaho, but its chronological position precludes such a relationship. Huscher and Huscher (1943) have intimated that stone enclosures in Colorado may have some connection with Dismal River, but they have reached no definite conclusions in the matter.



Speculations concerning the identity of the Dismal River people have appeared in print since 1935 (Strong, 1935, pp. 212-217; Wedel, 1935, p. 181), with more recent works favoring some Apache tribes as the most probable candidates (Hill and Metcalf, 1942, pp. 164-165, 212-213; Wedel, 1940 b, p. 323; 1947, pp. 151-152). Champe (1949, p. 292), in his preliminary report of White Cat Village, supplemented the scanty ethnohistorical data with new cartographic evidence and presented a systematic discussion of the problem, together with a tentative identification of the Dismal River people "with the Cuarte-lejo and Paloma Apache and other Lipanan peoples of Apacheria of 1700." In the opinion of Wedel the new evidence presented by Champe "virtually clinches" the identity of the Dismal River people (Wedel, 1949 b, p. 329). Secoy (1951) criticized Champe's method but arrived at essentially the same conclusions.

This report presents new archeological data, much of which was obtained in connection with the Missouri River Basin Survey archeological salvage program, and utilizes both published and unpublished data toward a comprehensive description of the Dismal River Aspect.

#### ENVIRONMENTAL SETTING

The Dismal River people inhabited three somewhat varied portions of the Central Plains area,<sup>1</sup> the High Plains, the Sandhills, and the Colorado Piedmont (fig 13). The High Plains form a broad, monotonously flat belt from 100 to 200 miles wide. They reach from Texas almost to the Black Hills of South Dakota and include the western parts of Nebraska and Kansas as well as eastern Colorado. In this "short-grass country" west of the hundredth meridian, the yearly rainfall averages less than 15 inches. Trees, mainly willow and cottonwood, were restricted for the most part to stream valleys, as were such edible wild fruits as chokecherries, plums, and elderberries (?). The uplands were covered with short grass of several varieties, and yucca, cactus, and sagebrush were to be found. With normal rainfall the grass could support an abundance of game, including bison, antelope, mule deer, prairie dogs, coyotes, and prairie chickens. Only the stream valleys were suited to primitive agriculture, however, and even there the success of crops was closely related to the amount of rainfall.

To the northeast, in Nebraska, the High Plains merge with the sparsely grassed dunes of the Sandhills, where the Loup, Calamus, and Dismal Rivers have cut deep valleys. Again, trees are confined to narrow strips along the watercourses. Small lakes and marshes formed by sand-blocked streams are common.

<sup>1</sup> Wedel's discussions of the Plains as the environmental setting for aboriginal existence render summary descriptions of the area necessarily repetitious (Wedel, 1940 b, 1941, 1953).

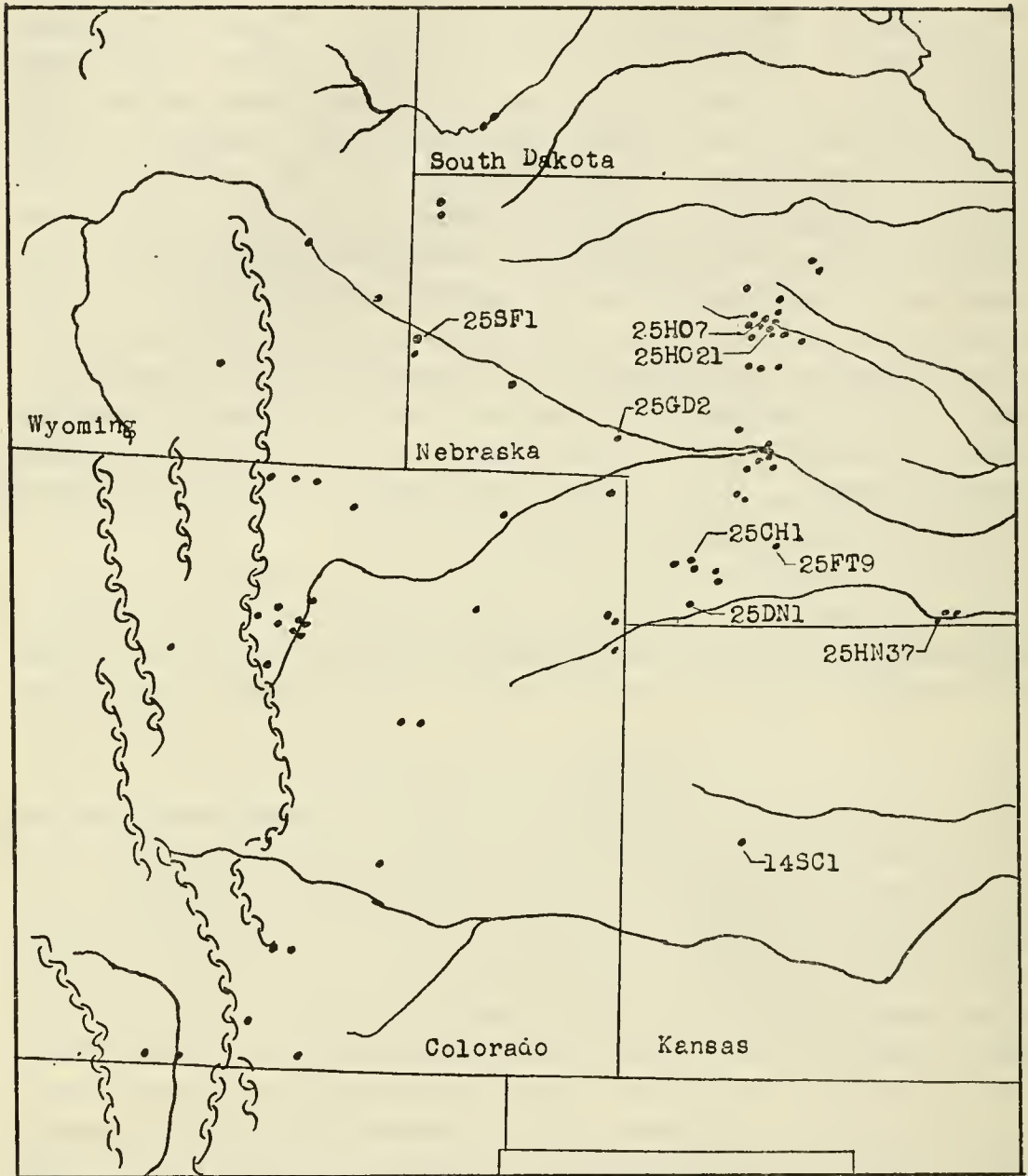


FIGURE 13.—Dismal River sites.

Erosion of the western edge of the High Plains loess mantle has resulted in the rugged zone known as the Colorado Piedmont. Near the foot of the Rocky Mountains it is better watered and supports more vegetation than either the High Plains proper or the Sandhills. The rivers of the Plains flow east, providing east-west travel routes. Their tributaries, though often small, would have assured north- and south-bound travelers a source of water between the major streams.

In general, the area to which the Dismal River people were restricted, by choice or by other factors, favored a subsistence economy based on hunting, but it did not preclude agriculture on a limited scale, and there is evidence to indicate that the Dismal River people took advantage of horticulture opportunities.

DESCRIPTION OF DISMAL RIVER SITES  
EXCAVATIONS IN HARLAN COUNTY RESERVOIR

## SITE 25HN37

## INTRODUCTION

Site 25HN37 (White Cat Village) is located at the eastern edge of the region inhabited by the Dismal River people. It is in an area more favorable to a hunting-farming economy than any other in which Dismal River sites have yet been found. The preliminary survey of 25HN37 was made in the summer of 1946 by a party representing the Missouri River Basin Survey of the Smithsonian Institution. Members of the party, Marvin F. Kivett and J. M. Shippee, were able to locate the fireplaces of three houses, as well as several concentrations of refuse, by means of small test excavations.

In 1948, a summer field school conducted by the Laboratory of Anthropology, University of Nebraska, under the direction of John L. Champe, made more extensive excavations at the site. A preliminary report of this work has been published (Champe, 1949). In 1949, the Laboratory's second summer field school continued excavations at the site. Part of the additional information obtained in 1949 was reported briefly at the Seventh Plains Conference for Archeology (Gunnerson and Gunnerson, MS.). Further work has been done at the site subsequent to 1949 but the results were not available for inclusion.

## ENVIRONMENTAL SETTING

Harlan County (Moran, Covell, and Abashkin, 1930) is part of a broad, loess-mantled plain which slopes gently eastward and which has been modified by the valleys of the Republican River, Sappa Creek, and Prairie Dog Creek, whose intermittent tributaries have cut it into a series of divides, seldom over a mile wide. Several terraces occur along the larger streams, including Prairie Dog Creek. The native deciduous trees, chiefly willow, ash, elm, boxelder, hackberry, and cottonwood, are confined to the watercourses.

The climate of Harlan County is characterized by wide seasonal variations, with rather long and cold winters. The springs are usually cool with considerable precipitation. The fall season is long with moderate temperatures and only occasional rainy periods. The average growing season is 151 days, between May 4th and October 2d. The mean annual rainfall is about 20 inches, 80 percent of which occurs between April 1st and October 1st. Precipitation in July and August, however, is frequently rather low, and this factor, together with strong, hot winds which accelerate evaporation, sometimes causes short droughts. Crop failures, however, are rare.



Much of the bottom land in the county is Hall Silt Loam, a fertile soil with high powers of moisture retention, which has produced large yields of corn under modern cultivation methods. The land was covered with an abundant growth of prairie grass before 1870, the year when the first white settlers arrived. Such grass, along with water and a broken terrain, would have assured the presence of game.

Site 25HN37 is located about 6 miles southeast of Alma, Nebr., in Harlan County, just south and southwest of the center of sec. 24, T. 1 N., R. 18 W. The village extends approximately 1,000 feet along a terrace which forms the north bank of Prairie Dog Creek at that point, and surface material is fairly abundant over an area 250 feet wide. The village itself is nearly level, with a slight rise to the north. On the south there is an abrupt drop to the creek 30 feet below. On the west and southwest, the terrace slopes gradually down to bottom land which is flooded occasionally by the Prairie Dog. This stream follows a meandering course, but is swift flowing and contains water throughout the year. It is spring fed and has a shale bottom in places. About 3 miles below the site it empties into the Republican River. The country around 25HN37 is rough, for drainage has resulted in the carving of steep-sided canyons, leaving only tongues of the original plain.

The people living at 25HN37, then, enjoyed the advantages of a level, well-drained site close to water, timber, and land tillable by primitive methods, surrounded by country which offered prospects of good hunting in all directions.

Completion of the Harlan County Dam in 1951 and the subsequent impounding of water has profoundly altered the environs of 25HN37. One branch of the reservoir, reaching up the Prairie Dog well beyond the site, covers the bottom lands at normal pool, and at maximum pool the village itself will be submerged.

#### HOUSES

A comparison of the first six house patterns excavated at White Cat Village indicates that structures with five main posts were most common. Five of the six houses were represented by five postholes, nearly evenly spaced around a fireplace. The other house (House II), had six postholes, symmetrically spaced. The six house patterns had an average radius of 6.8 feet considering the fireplace as the center and the circle of post molds as the circumference. All were nearly the same size, ranging from 5.9 to 7.5 feet in radius.

There were several smaller postholes scattered around most of the house areas, but they formed no particular pattern. In the case of four houses, however, there was a pair of posts opposite the east side of the pentagon and about twice as far from the fireplace as the main



FIGURE 14.—Ground plan of House I, 25HN37.

*Posthole data*

Posthole.....	A	B	C	D	E	M	N
Depth (feet).....	1.4	1.5	0.9	1.0	1.1	1.1	0.9
Diameter (feet).....	.7	.8	.7	.7	.7	.4	.4

postholes. These pairs of postholes were spaced on an average of 5.3 feet apart. The position of these paired posts in relation to the houses suggests that they represent part of an entrance structure.

*House I.*—House I (fig. 14 and pl. 3, a) at White Cat Village was represented by five main postholes arranged symmetrically around a fireplace, with two additional postholes to the east which probably represent part of an entrance. The main postholes formed a circle about 15 feet in diameter. House I and House II overlapped (fig. 15) so that the fireplaces were some 6 feet apart. The floors of the two lodges could not be distinguished, hence no stratigraphy could be established. The artifacts from these two houses are listed together in table 1.

*House II.*—House II (fig. 16 and pl. 2) is represented by six postholes arranged symmetrically around a fireplace, but no evidence of possible entrance postholes was observed. Five of the six postholes were easily located at the floor level, but the arrangement suggested the presence of a sixth posthole near the fireplace of House I. This sixth post was found but only after cutting through part of the floor at the edge of the hearth of the House I fireplace. Posthole A (fig. 16) was interpreted as representing an auxiliary post set beside posthole

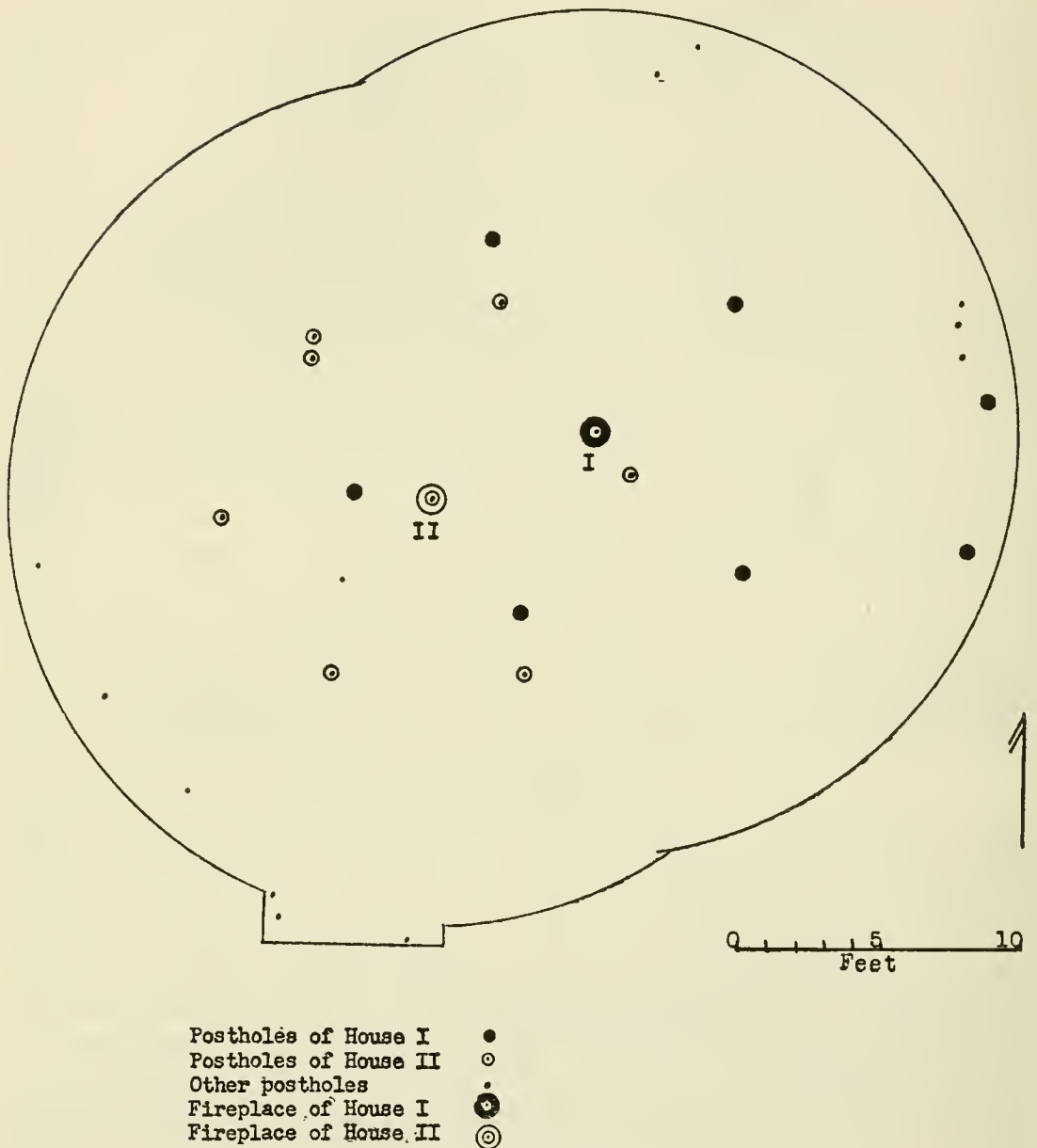


FIGURE 15.—Ground plan of excavation 2, 25HN37.

A', perhaps to strengthen a weak portion of the structure. The main postholes formed a circle about 14 feet in diameter.

The only clue to the relative age of Houses I and II was the obliteration of one of the postholes of House II near the fireplace of House I. It would appear that activity around the fireplace (of House I) probably obliterated the posthole of the earlier house (House II). The floors were just beneath the lowest level of cultivation, which makes it seem unlikely that the houses had been much more than 8 inches deep. In some places the floors had been furrowed by the plow. A small trash-filled pit was found within the area excavated for Houses I and II. It does not seem to represent an integral part of either of the houses and will be discussed as a separate feature.



FIGURE 16.—Ground plan of House II, 25HN37.

Posthole data

Posthole.....	A	A'	B	C	D	E	F
Depth (feet).....	1.0	1.5	1.4	1.5	1.5	1.0	1.4
Diameter (feet).....	.8	.8	.7	.8	.7	.7	.7

TABLE 1.—Artifacts from Houses I and II

Description	Number	Comment
Pottery:		
Rim.....	4	
Body.....	270	
Stone, worked:		
Scrapers.....	17	
Points.....	2	
Drills.....	1	
Other.....	27	
Stone, unworked.....	57	
Bone, worked:		
Scapulae.....	3	Probably all hoe fragments.
Awls.....	2	
Shaft wrenches.....	2	
Other.....	1	
Bone, unworked.....	79	Including teeth.
Shell, unworked.....	4	
Vegetal material.....	2	Fragments of black walnut ( <i>Jugla nigra</i> ) shell.

*House III.*—House III (fig. 17 and pl. 3, b) was represented by five postholes arranged symmetrically around a fireplace and by two additional postholes to the east interpreted as possible entrance posts. The main postholes formed a circle about 12 feet in diameter. An area 15 feet in radius was cleared around the fireplace in a search for additional evidence of the house. Seven additional postholes were observed, but none of them appeared to represent part of the main house structure. One shallow trash-filled pit was encountered





FIGURE 17.—Ground plan of House III, 25HN37.

*Posthole data*

Posthole.....	A	B	C	D	E	N	O
Depth (feet).....	0.5	0.8	0.9	1.0	0.6	Not recorded	
Diameter (feet).....	.5	.4	.4	.7	.6	0.5	0.5

in clearing this house, but since it was considered to be intrusive, it will be discussed in the section on pits.

Part of the floor had been removed by cultivation, which may account in part for the shallowness of the postholes. It was not possible to determine whether this house had been shallower than the others or whether more erosion had taken place. Artifacts (table 2) were common on the house floor, but none were of special importance.

TABLE 2.—*Artifacts from House III*

Description	Number	Description	Number
Pottery:		Stone, unworked.....	16
Rim.....	2	Bone, worked:	
Body.....	30	Bead.....	1
Stone, worked:		Bone, unworked.....	138
Scrapers.....	26		
Points.....	2		
Other.....	32		

*House IV.*—House IV (fig. 18 and pl. 4, a) was represented by five postholes arranged symmetrically around a fireplace, and by two additional postholes probably representing an entrance. The main postholes formed a circle about 12 feet in diameter. Two other postholes were found within a radius of 15 feet around the fireplace, but they did not appear to represent part of the main structure. A large burned area about 4 by 5 feet was found northeast of the





FIGURE 18.—Ground plan of House IV, 25HN37.

Posthole data

Posthole.....	A	B	C	D	E	M	N
Depth (feet).....	1.3	1.2	1.2	1.3	0.8	Not recorded	
Diameter (feet).....	.8	.8	.7	.7	.7	0.5	0.5

fireplace at about floor level. The significance of this area is unknown. The artifacts from this house are listed in table 3.

TABLE 3.—Artifacts from House IV

Description	Number	Comments
Pottery:		
Body.....	15	Dismal River.
Stone, worked:		
Scrapers.....	8	
Points.....	2	
Drills.....	1	
Other.....	23	
Bone, unworked.....	9	
Shell, unworked.....	1	

House V.—House V (fig. 19 and pl. 4, b) was represented by five postholes symmetrically arranged around a fireplace, and two additional postholes that probably represent an entrance. The main postholes formed a circle about 14 feet in diameter. An excavation approximately 19 feet in diameter was made around the fireplace and was extended an additional 7 feet to the east in order to locate the entrance postholes. The house was unusual in that no extra postholes and no artifacts were found within the area excavated.



FIGURE 19.—Ground plan of House V, 25HN37.

<i>Posthole data</i>							
Posthole.....	A	B	C	D	E	F	G
Depth (feet).....	0.9	1.0	1.1	1.0	1.0	0.8	0.6
Diameter (feet).....	.9	.8	.8	.8	.7	.5	.5

*House VI.*—House VI (fig. 20 and pl. 5) had been burned and consequently it provided much information concerning house structure which was not available from the other houses. Again, in this house there were five main postholes arranged symmetrically around a fireplace. No evidence of entrance postholes could be found, however. The main postholes formed a circle about 14 feet in diameter. Seven additional postholes were found within or very near House VI. All but one of these were small and none of them seemed to represent a part of the structure.

Just outside of the circle of main postholes was a band of earth burned red and orange and containing a great deal of charcoal. This band, although not burned to a solid color, could be followed about three-fourths of the way around the house. The gap was at the east. Part of the burned earth and charcoal had been removed by cultivation, but much of the charcoal had not been disturbed and the orientation of the fallen poles could be determined. The charcoal appeared to be both on top of and surrounded by the burned earth.

The outer edge of the burned band was especially sharp to the southwest and the inner edge tended everywhere to thin out gradually. Within the circle of main postholes, charcoal and burned earth were

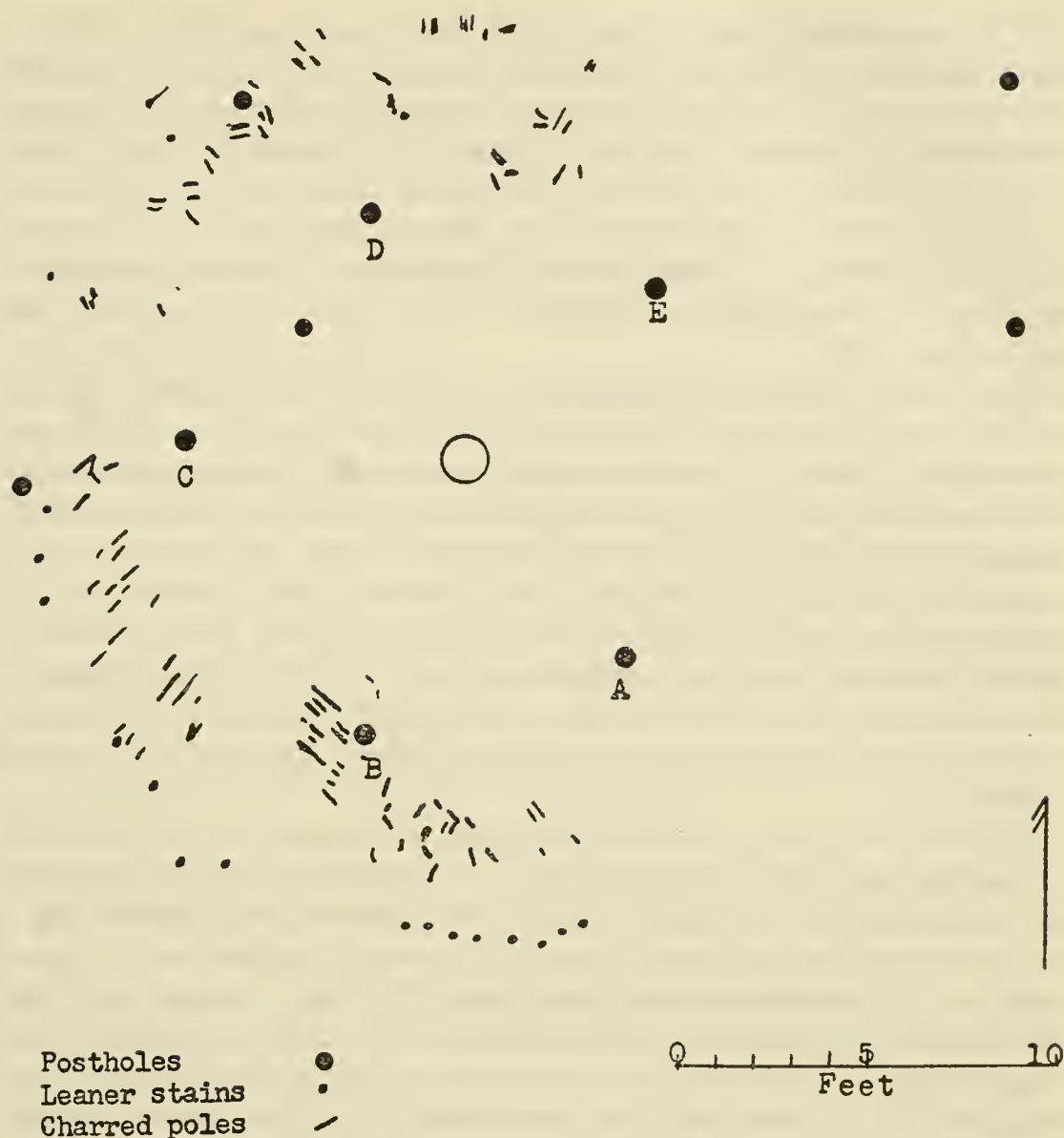


FIGURE 20.—Ground plan of House VI, 25HN37.

*Posthole data*

Posthole.....	A	B	C	D	E
Depth (feet).....	1.3	1.5	1.2	1.5	1.4
Diameter (feet).....	.7	.8	.6	.9	.9

relatively scarce, but much of the floor was covered with a sooty black stain.

On the south side and about a foot beyond the burned area was an arc of eight small round stains rather evenly spaced. These stains, which were interpreted as the impressions of the butts of leaner poles, were brown and black, with charcoal or decayed wood present in four of the eight. Nine other similar stains were found at intervals along the west side of the house. These 17 stains approximate an arc about 25 feet in diameter and concentric with the circle formed by the main postholes.

The interpretation of the stains as the remains of leaner poles is substantiated by the orientation of the pieces of charcoal, many of which lay nearly radially from the center of the house. The sticks in one group, however, lay nearly parallel to one another but almost at right angles to the radius of the house circle (pl. 6, *a*). A few of these pieces lay over posthole B. Since nearly all of the charred poles lay outside of the circle of main postholes, it seems more logical to interpret these remains as part of the wall structure rather than part of the roof.

The charred poles mentioned above which were not lying radially, were in line with some of the small round stains at the south edge of the lodge. Between these poles and stains were some other smaller pieces of charcoal, also lying approximately in line. If it could be assumed that these all represent the same leaners, the leaners would have been at least 9 feet long, the distance from the ends of the charred poles to the stains with which they were in line. The horizontal distance from the leaner stains to the circle of main posts is about  $4\frac{1}{2}$  feet, hence the center posts would have been 7 to 8 feet high if the leaners had terminated at stringers joining the tops of the main posts.

The fireplace of this house was not recognized until the main postholes were found, after which it was easily located in the center of the pentagon. It first appeared as a black circle containing a piece of iron, burned bone, hematite, charcoal, burned earth, stone, and ash, all of which suggested a trash-filled pit. Later, when this area was cross sectioned, it was found to be a basin-shaped fireplace containing some refuse and covered with a black sooty material which suggested that the fire had been smothered. The black sooty material contained a considerable amount of hard, shiny, porous substance, some of which appeared fibrous in nature.

A small sample of this material was heated in an open crucible over a gas flame. At first a very strong stench like that of burning animal matter was given off. Continued heating resulted in the material's changing from black to gray and eventually to buff.

The iron object in the fireplace proved to be a trade ax (pl. 37) which had been forcibly driven into the fireplace (pl. 6, *b*). The ax was embedded in the west edge of the fireplace in such a position that the handle would have been pointing east and upward at about 45 degrees, indicating that whoever struck it into the fireplace would have been standing on the east side.

Speculation has led to at least two possible explanations for this unusual occurrence. It has been suggested that the ax had been intentionally placed in the fire in order to burn out an old handle prior to inserting a new one. In such a case, it might well have been driven



deep into the ground to protect the blade from excess heat. If this explanation were correct, it seems unlikely that the ax would have been abandoned even if the house had burned down before it could be removed from the fire. The scarcity of trade material at this site and at other Dismal River sites suggests that such an ax would have been an object of considerable value.

Another possible explanation for the presence of the ax is that it was left by an enemy who may have fired the house and struck his ax into the fireplace as a sort of coup.

Two additional metal objects were found in House VI. A copper jingle (pl. 38, *c*) was found in the loose dirt in the house while the floor was being leveled. There is little doubt that the jingle came from the floor of the house, but the exact provenience is not known. The other metal object (pl. 38, *d*) was a piece of sheet brass, about 1.5 cm. wide and 3.4 cm. long. It had been doubled along its short axis but it had not been completely flattened together. It was found below the cultivated soil about 7 feet southeast of the fireplace.

A few other artifacts from House VI deserve special mention. A flint projectile point, type NBa (fig. 21), was found among some charred poles about 11 feet north of the fireplace. This point had been blackened by fire but was not spalled from excessive heat. Part of a red sandstone metate (pl. 23, *d*) was found at the top of posthole A. A second fragment of this metate was picked up on the surface. A concentration of large flecks of hematite was found in an area which they had stained bright red and which was surrounded by a very black stain. The red stain covered an area about 1 by 1½ feet and was located about a foot south of the fireplace. The artifacts from House VI are listed in table 4.

TABLE 4.—*Artifacts from House VI*

Description	Number	Comment
Pottery:		
Rim.....	1	One sherd found in a posthole.
Body.....	3	
Stone, worked:		
Points.....	2	
Scrapers.....	7	
Other.....	9	
Stone, unworked.....	2	Plus many hematite specks.
Bone, worked.....	2	
Bone, unworked.....	10	Plus many small burned fragments.
Metal objects:		
Iron ax.....	1	
Copper jingle.....	1	
Sheet brass.....	1	

*Discussion of houses.*—A house-post pattern consisting of five main postholes arranged nearly symmetrically around a fireplace was established for five of the six houses excavated at White Cat Village (table 5). The remaining house had six main postholes. All posts had been

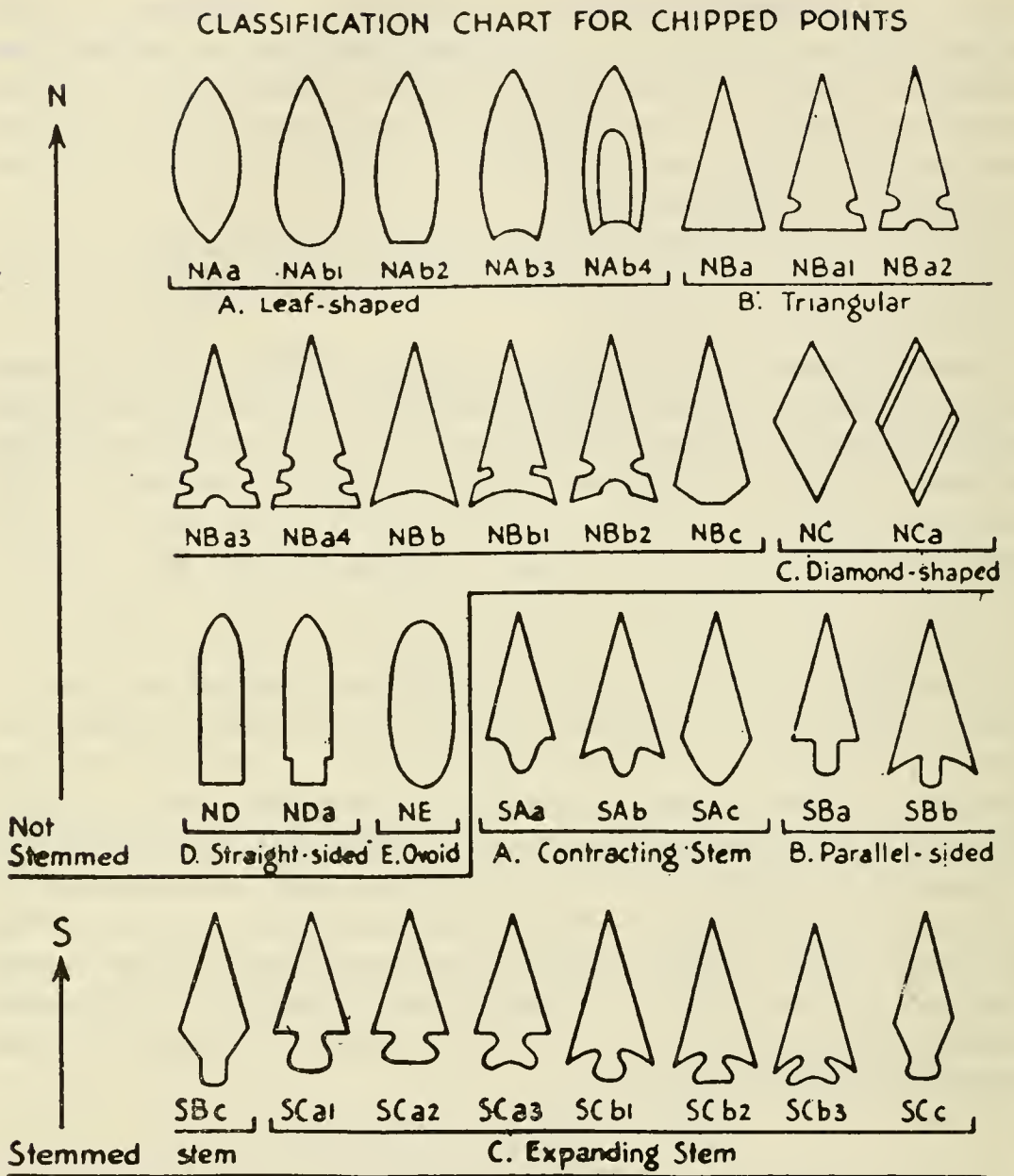


FIGURE 21.—Classification chart for chipped points (Strong, 1935, p. 89).

set vertically. Four of the houses with five main posts had two additional postholes located about twice as far from the center as were the main postholes, and opposite the easternmost side of the main post pattern. These additional postholes were interpreted as representing part of an entrance structure. Other postholes were found in all but one of the houses, but these posts showed no regularity in location and were not considered to represent parts of the main house structures.

The fireplaces were all basin-shaped areas of burned earth, usually containing gray ash. They were always at a level slightly higher than the floor level and always in the center of the lodges. None of the houses had prepared floors. The floors were considered to be at the

level where the postholes appeared; usually this was also the level at which most of the detritus and artifacts occurred. In all six houses the floor level was at or just below the level of deepest cultivation. The original depth of the houses can be estimated as from 0.8 to 1.0 foot below the surface, but this is only a guess, since the fields in which the houses were found have been under cultivation for many years.

The symmetry of the posthole patterns suggests that circles had been constructed upon which the postholes were dug. The posthole patterns were drawn to scale, and studied in the laboratory. The center of the house was determined by constructing the perpendicular bisectors of the sides and accepting the center of the area included within the intersections of these lines as the center of the circle upon which the postholes lay. In the case of each house a circle was drawn around this center so as to intersect as many postholes as possible. The centers of all of the postholes in Houses III, IV, and VI (figs. 17, 18, and 20) were found to lie within 0.3 foot of such a circle. The centers of all but one of the postholes in each of Houses I, II, and V (figs. 14, 16, and 19) were found to be within 0.2 foot of such a circle. The centers of the odd postholes were 1.4, 0.6, and 0.9 feet from the respective circles. These variations could represent adjustments to the length of available construction material. The difference between the longest and shortest sides formed by the main postholes is only 1.4 feet in House III but is as much as 3.4 feet in House IV. There is, of course, no simple way of constructing a regular pentagon. It is noteworthy that the pentagonal main post pattern was also found at House II at the Lovitt Site (Hill and Metcalf, 1942, pl. IV, 1; pl. X, 2). Further comparison of the Dismal River houses with other types of lodges will be made when the Dismal River Aspect is discussed in general.

TABLE 5.—Data on houses at White Cat Village (measurements are in feet)

	Data for House—					
	I	II	III	IV	V	VI
Number of main posts.....	5	6	5	5	5	5
Diameter of main post circle (approximate).....	15	14	12	12	14	14
Distance from center of house to center of fireplace.....	1.0	0	.6	.7	.8	.6
Greatest distance from center of house to main postholes.....	7.8	7.4	6.3	5.8	7.5	7.4
Least distance from center of house to main postholes.....	6.3	6.7	5.9	6.3	6.6	7.0
Average distance from center of house to entrance postholes.....	14.0	None	13.7	13.0	13.7	None
Greatest distance between adjacent center postholes.....	10.2	7.6	7.6	8.7	9.2	9.8
Least distance between adjacent main postholes.....	7.2	6.7	6.1	5.3	6.6	7.3
Distance between entrance postholes.....	5.4	None	5.3	4.4	6.5	None
Number of main postholes with bone "wedges".....	3	3	1	0	0	0
Diameter of fireplace (average).....	1.8	1.7	3.0	2.0	2.0	2.2



## ROASTING PITS

One so-called roasting pit was found at 25HN37. This pit originally appeared as a ring of burned earth 3.4 feet east-west by 3.7 feet north-south. The ring varied from about  $3\frac{1}{4}$  inches wide on the north side to less than  $\frac{1}{2}$  of an inch wide on the south. The fill within this ring included charcoal, bone, potsherds, and burned bone.

When this ring had been completely exposed, the south half of the pit was cleared out, leaving the shell of burned earth. The resulting profile was extended beyond the pit so as to present an entire cross section of the pit (pl. 7). The mouth of the pit was found 0.6 of a foot below the surface and the bottom of the pit was 2.1 feet below the mouth. The pit belled out to a maximum diameter of 4.3 feet east-west and 4.0 feet north-south.

The pit had been filled in layers. Immediately above the hard, burned floor was a thin layer of ash; above this was a layer of charcoal less than 1 inch thick. Just above the charcoal came a layer of mixed earth, rich in ash, and above that a layer of nearly clean yellow clay ranging from 4 inches in depth near the center to 11 inches near the walls. Above this was a softer layer, consisting almost entirely of charcoal and ranging from 2 inches thick near the wall to 4 inches thick near the center. The charcoal was very fine grained and resembled charred bark or grass. Above the layer of charcoal was another layer of nearly clean yellow clay ranging from 2 inches in depth near the center to 5 inches in depth near the wall. The top layer was rich in camp detritus and varied from 4 to 8 inches in thickness.

Artifacts occurred almost exclusively in the upper level of the pit, although an articulated bison metatarsus flesher (pl. 35, *a*) was found in the relatively clean layer just below the top level. The faunal

TABLE 6.—*Artifacts found in roasting pit*

Description	Number	Comment
Pottery:		
Rims.....	2	
Body.....	28	
Stone, worked:		
Points.....	2	
Scrapers.....	3	
Abraders.....	1	
Stone, unworked.....	13	
Bone, worked: Fleshers.....	2	One articulated.
Bone, unworked:		
Beaver.....	6	Six incisors and a ramus fragment.
Bison.....	22	
Deer.....	2	
Turtle shell.....	31	
Turtle bone.....	28	
Other.....	10	
Shell, unworked.....	4	
Antler, unworked: Deer.....	1	



remains found in the pit were both burned and unburned, whole and fragmentary. The presence of artifacts, together with other village detritus, seems to indicate secondary use as a refuse pit. The artifacts found in the roasting pit are listed in table 6.

#### OTHER PITS

Perhaps the most striking difference between White Cat Village and the Lovitt Site is the lack of the trash-filled pits at the former which are so common at the latter. Two refuse pits were found at White Cat Village by the Smithsonian survey party in 1946 (Kivett, MS., 1946). The larger pit was basin shaped, somewhat oval, and measured 7 feet by 5.5 feet by 26 inches deep. The pit contained fragmentary animal bones, rim and body sherds, projectile points, a chipped-flint drill, bone beads (?), bone awls, a flint knife, a beaver mandible, a stone pipe-bowl fragment, end scrapers, mussel shells, cut antler tips, and a scapula hoe fragment. Above this detritus was a layer of ash 3 inches thick, 12 inches below the surface.

The second basin was 42 by 38 inches, and 17 inches deep. It contained animal bones, body sherds, an end scraper, flint chips, a cut antler tip, and black soil mixed with charcoal and some ash. Both of these pits are comparable to the pits at the Lovitt Site.

The University of Nebraska field school located a small trash-filled pit at the southwest edge of House II. The pit was 36.5 inches by 32 inches by 6 inches deep, and occurred 8 inches below the surface. This pit, which was basin shaped, contained charcoal, 20 fragments of unworked bison bone (including 5 skull fragments and 6 fragments of teeth), 2 beaver bone fragments, a bone awl made of a bison ulna fragment, and a Dismal River pottery body sherd.

In the northwest part of House III, another concentration of refuse was noted. This area was about 6.9 feet by 2.6 feet, but quite thin. Since the material lay just above the floor level of the house, which was from 7 to 10 inches below the surface, it may represent refuse dumped into the house after it had been abandoned. No outline of a pit was observed, and, for that reason, it seems incorrect to designate this area as a trash-filled pit. The area did, however, contain a substantial amount of faunal remains, 93 specimens in all, including specimens identified as coyote, bison, deer, beaver, turtle, and mussel. The bone found was both burned and unburned; only one item, a coyote metapodial bone bead, showed human workmanship. The area also yielded 12 pieces of stone, either unworked or only slightly modified, except for a fragment of a sandstone abrader. Pottery recovered from the area included 37 body sherds and 6 rim sherds, all Dismal River.

Other smaller concentrations of camp refuse were found about the area, especially near the creek bank. However, this more frequent occurrence along the scarp may be due, at least in part, to the fact that most of the testing was done in this area because it was not under cultivation. These concentrations were shallow, with no definite outline, and appear to be areas where camp detritus was dumped. The depth at which such detritus was found varied from just below the surface to about 15 inches below the surface and may represent the old village level. Most of the material, however, was in the upper 8 to 10 inches. Since the field has been cultivated for at least 30 years, with consequent erosion, the relative depth of the material here does not seem significant.

## POTTERY

Pottery is the most diagnostic artifact of the Dismal River complex, and for that reason it is important to note that the pottery from 25HN37 is almost identical with the pottery from the other sites comprising the Stinking Water Focus. The pottery recovered from 25HN37 by the University of Nebraska, Laboratory of Anthropology, is classified in table 7. The classification follows that previously established by Metcalf (1949, pp. 73-78), who has defined two pottery types, Lovitt Plain and Lovitt Simple Stamped, on the basis of surface treatment, and a third, Lovitt Mica Tempered, on the basis of the distinctive tempering material.

As Metcalf has pointed out, this classification is not entirely satisfactory since on some restored pots there are both plain and simple stamped areas. If such a pot were broken, sherds of both types would result. Also, there is evidence, especially on rim and shoulder areas, suggesting that simple stamping had been smoothed over.

TABLE 7.—Pottery found at 25HN37

Description	Number	Description	Number
Dismal River sherds:		Body sherds:	
Rim sherds:		Lovitt Simple Stamped.....	552
Lovitt Simple Stamped.....	20	Lovitt Plain.....	403
Lovitt Plain.....	50	Lovitt Mica Tempered.....	2
Undeterminable.....	6	Undeterminable.....	25
Total.....	76	Total.....	982
		Non-Dismal River sherds.....	5
		Unidentifiable.....	4
		Total.....	1,067

*Tempering.*—The tempering material in the pottery, when present, consisted almost entirely of fine sand, well smoothed by water action.



The size of the particles ranged upward to 1.0 or 1.5 mm. in diameter with occasional particles as large as 5 mm. in diameter. All the sherds contained a large quantity of much finer sand or grit. Under the microscope, there appeared to be just enough clay in the paste to hold this abundance of fine sand or grit together. Since texture, exclusive of larger sand particles, was so similar from sherd to sherd, it would appear that the fine grit or sand was not added to the paste but was rather in the clay chosen for the paste. In some cases no coarser sand had been added. However, 195 out of a sample of 224 sherds showed larger sand particles, the smallest of which were from 5 to 10 times as large in diameter as the largest of the small particles. The amount of tempering visible varied from about 2 to 25 particles per square centimeter on the cross section of a freshly broken sherd.

The surface of two sherds from 25HN37 presented a "spangled" appearance because of large amounts of mica included in the paste. The mica occurs in addition to the other tempering materials—fine sand in the paste and larger sand tempering. These sherds are classified as Lovitt Mica Tempered (Metcalf, 1949, pp. 77-78).

Four other sherds from the site contain sufficient finely divided mica to give the sherds a slightly metallic appearance. The surface of these sherds is not quite smooth but does not show simple stamping. The paste of the sherds, except for the finely divided mica, is well within the range of the rest of the pottery from the site. One of these sherds was examined by Anna O. Shepard who states (letter dated May 5, 1950):

Not only are the mica flakes closely packed and parallel, they are also distorted which gives the paste an undulent structure. The peculiar surface appearance of this sherd may be due to exposure of mica flakes which would not absorb carbon as readily as the paste.

*Texture.*—Of the 224 sherds examined under a microscope, 29 contained only the very fine sand or grit which probably occurred naturally in the clay. In these sherds, the fineness of the grit was not quite as uniform as it was in the others, but the size of the particles was decidedly smaller than particles of sand believed to have been deliberately added.

The very sandy, granular texture of this pottery probably accounts for its breaking into such small fragments, but the sherds do not crumble as might be expected. The breaks are, for the most part, along straight lines and perpendicular to the surface. There is no tendency for the sherds to split and practically no tendency for the surface to scale off. In general, the paste is fine textured, compact, and well worked.

*Hardness.*—A random sample of 132 sherds was tested for hardness, with the following results:

- Harder than 1 but softer than 2 (selenite), 5 sherds.
- Harder than 2 but softer than 3 (calcite), 74 sherds.
- Harder than 3 but softer than 4 (fluorite), 45 sherds.
- Harder than 4 but softer than 5 (apatite), 8 sherds.

The average hardness of the sherds tested was about 3.

*Density.*—The density of 26 of the larger sherds from 25HN37 was determined by weighing them first in air and then suspended in water. The following formula was used:

$$\text{Density} = \frac{\text{dry weight in air}}{(\text{dry weight in air} - \text{weight in water}) \div (\text{density of water})}$$

The dry weight of these sherds varied from 6.36 to 39.42 grams. The average density was 1.95 grams per cubic centimeter, and the range was from 1.71 to 2.19 grams per cubic centimeter. The median density was 1.97 grams per cubic centimeter. Two-thirds of the sherds have densities between 1.85 and 2.05 grams per cubic centimeter.

*Porosity.*—Twenty of the sherds which were checked for density were also checked for porosity. Sherds which had not been mended were selected for this particular test to eliminate any error caused by the closing of pores by glue. The sherds adsorbed and absorbed an average of 0.12 gram of water per cubic centimeter of sherd. The range was from 0.04 to 0.19 gram of water per cubic centimeter of sherd. The median was between 0.12 and 0.13 gram of water per cubic centimeter of sherd. The average porosity was about 0.12 gram per cubic centimeter as determined from the dry weight, wet weight, and weight suspended in water.

The following formula was used:

$$\text{Porosity} = \frac{\text{wet weight in air} - \text{dry weight in air}}{(\text{dry weight in air} - \text{weight in water}) \div (\text{density of water})}$$

*Color.*—The color of the sherds varies from buff through gray to black. The majority are dark gray. Frequently a thick, very dark sooty deposit is found on excavated sherds and occasionally on sherds found on the surface. Usually sherds are the same color all the way through, but sherds with a dark surface and a buff core or buff sherds with a dark core are not uncommon. Sherds also occur in which the two surfaces are of different colors. When dark sherds were refired in an oxidizing atmosphere in a small electric furnace, they assumed a buff to bright orange color. Since the sherds are predominantly gray to black, the buff color may represent refiring rather than a different method of manufacture. The dark sherds were probably fired in a reducing atmosphere.

*Surface treatment.*—The surface treatment of pottery from 25HN37 is in general of two types. About four-tenths of the sherds have



smooth surfaces and about six-tenths show parallel ridges ranging in height from barely perceptible to about 1 mm. This treatment has been designated by such terms as simple stamping, grooved paddling, or thong-wrapped paddling.

The ridges tend to be placed vertically on the vessels but occasionally even converge or cross. Adjacent ridges may almost touch or be more than a centimeter apart. The width of ridges is, for the most part, about 0.2 or 0.3 cm. The exact width is not easily determined because the ridges do not always have sharp edges. Also, even single ridges are frequently not of uniform width. Generally the spaces between the ridges are a little wider than the ridges.

Under a microscope the only difference between the appearance of the surface on the ridges and in the grooves is that the ridges show a little more polish. Both of these surfaces are comparable to the surface of most smooth sherds. There are a few smooth sherds, however, which have an almost waxy appearance and "feel." In general, the surfaces vary from smooth, almost polished, to perceptibly rough to touch. There has been some speculation as to whether or not all the pottery was once simple stamped and some of it smoothed later before the pot dried.

Only rarely can evidence, such as fine scratches, be found on the exterior which might indicate the method used to smooth the pottery. Occasionally more or less horizontal striations are found on the inside of the pot. These appear to be scratches made by an anvil or other tool, or possibly by foreign particles adhering to such a tool.

The surfaces, especially the outer, appear to have a much finer texture than does the paste in general. It is not possible to identify a slip on any of the sherds, so it has been suggested that fine clay particles may have been floated to the surface by means of rubbing or patting with a smooth object. Such floating would have been slight, for even on the smoothed sherds the very fine sand of the paste is still evident although it does appear much less gritty than a freshly broken edge.

*Decoration.*—There is very little surface decoration on the pottery found. One sherd exhibited a narrow line which appears to have been trailed in before the pot was dry. A few sherds show what appears to be black paint on a buff surface. This is found more frequently on the inside of sherds, usually on sherds without simple stamping and with a black core. The small size of the sherds makes it impossible to identify design elements. The "painted" sherds frequently have an almost shiny or burnished surface. Many of the plain sherds, both smooth and simple stamped, have this burnished quality in varying degrees. It becomes more noticeable when the sherds are cleaned

with a dry brush after most of the dirt has been removed by washing.

*Rim form.*—There were 76 rim sherds collected from 25HN37. Over half of these have lips which are rounded to slightly flattened with occasional evidence of slight thickening. Smaller numbers of rims were either gradually thinned toward the lip or had a beveled lip. The lips of still other rims were flared in, flared out, or flared both



FIGURE 22.—Lip forms of Dismal River pottery.

in and out (fig. 22). The flaring seems to have resulted from pressure on the lip while the paste was still soft.

The five cases of lip decoration occurred on flared lips and consisted of elongated incised punctates placed tangentially and diagonally on the lip, single chevrons pointing tangentially on the lip, and broad, smooth depressions impressed in the lip (fig. 23).

*Vessel shape.*—There were no restorable pots and very few large rim sherds found at 25HN37, so no definite statement can be made as to vessel shape. On the basis of the three largest rim sections, the rims appear to have been simple. They vary from almost vertical to somewhat flaring (fig. 24). Four rim sherds were large enough to indicate that the rims joined the body of the vessel in a smooth curve. Four rims, representing at least three vessels, ranged in height from 3.7 to 4.0 cm. The diameters of the orifices of two vessels were estimated to be about 14 cm. and 22 cm.

*Thickness.*—The thickness of 50 rim sherds, measured in such a way as to avoid any thickening or thinning of the lip, averaged 0.6 cm. The thickness of 70 plain body sherds selected at random averaged 0.65 cm. whereas a group of 80 simple stamped body sherds similarly selected averaged 0.61 cm. Considered as a group of 150 sherds, they averaged 0.63 cm. in thickness.

*Pipes.*—Two, or possibly three fragments of pottery appear to be from pipes. They are too fragmentary to be identified as to type. The paste is untempered and not unlike that of the vessel sherds.

*Comments on pottery.*—The Smithsonian party found a flake of mica about 1.5 by 0.5 cm. in size in an irregular pit at 25HN37. This find is of special interest since there is a question as to whether the rare mica-tempered Dismal River sherds represent trade ware from the Southwest or are of local manufacture. The presence of mica indicates that the Dismal River people knew of this mineral and secured it for some purpose, perhaps for the manufacture of pottery.

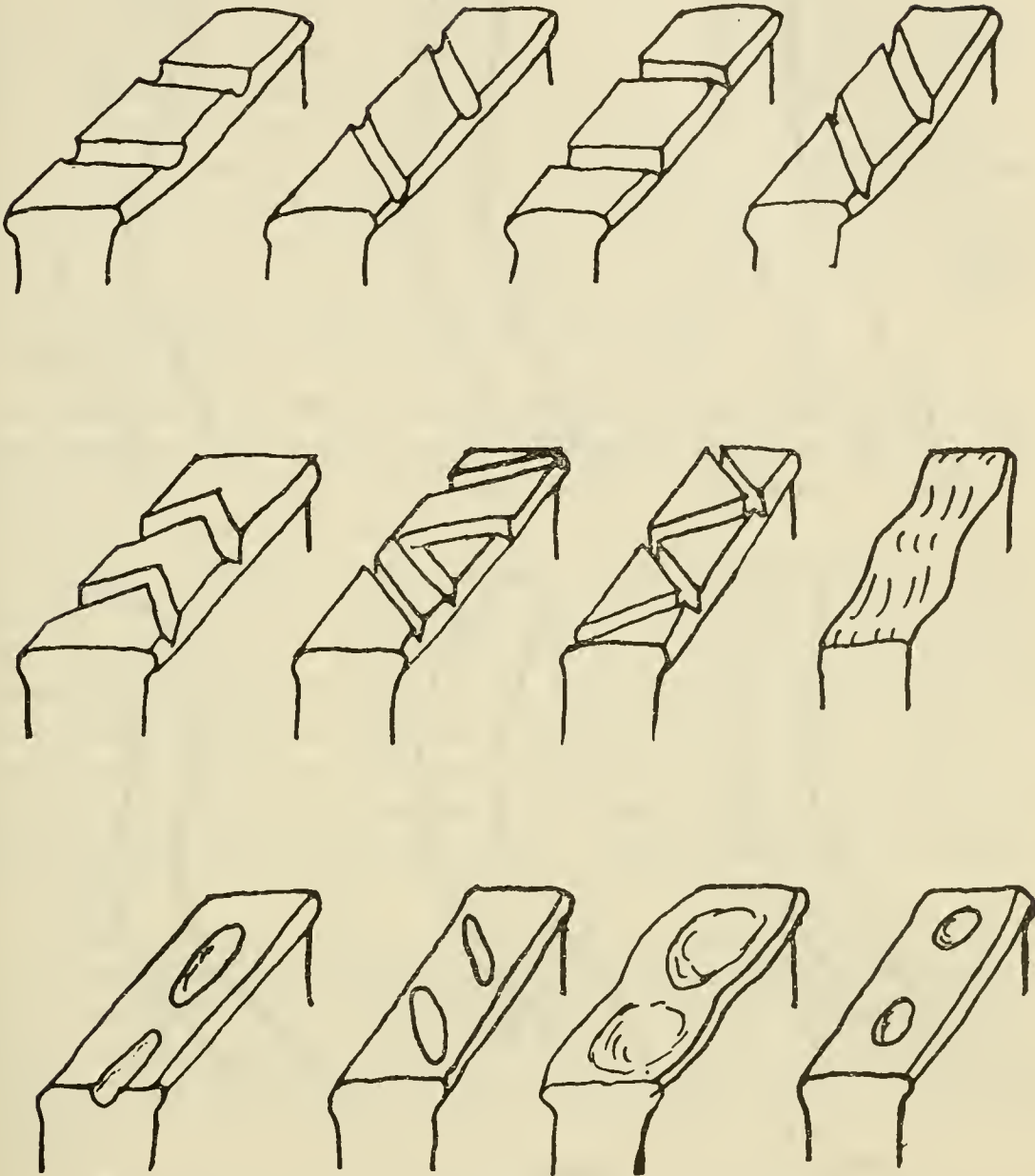


FIGURE 23.—Lip decoration of Dismal River pottery.

In general, the pottery from White Cat Village can be described as a buff to gray or black ware with a very gritty, fine-textured, compact paste, tempered with fine sand if at all. It tends to break perpendicularly to the surface along straight lines into very small pieces. The surface is smooth or simple stamped and decoration, when it occurs, is limited to the lip area.

WORK IN STONE

An abundance of worked and unworked stone was found at White Cat Village, especially on the surface. By far the greater part of the stone was yellow or brown jasper which occurs in many places along the Republican River.



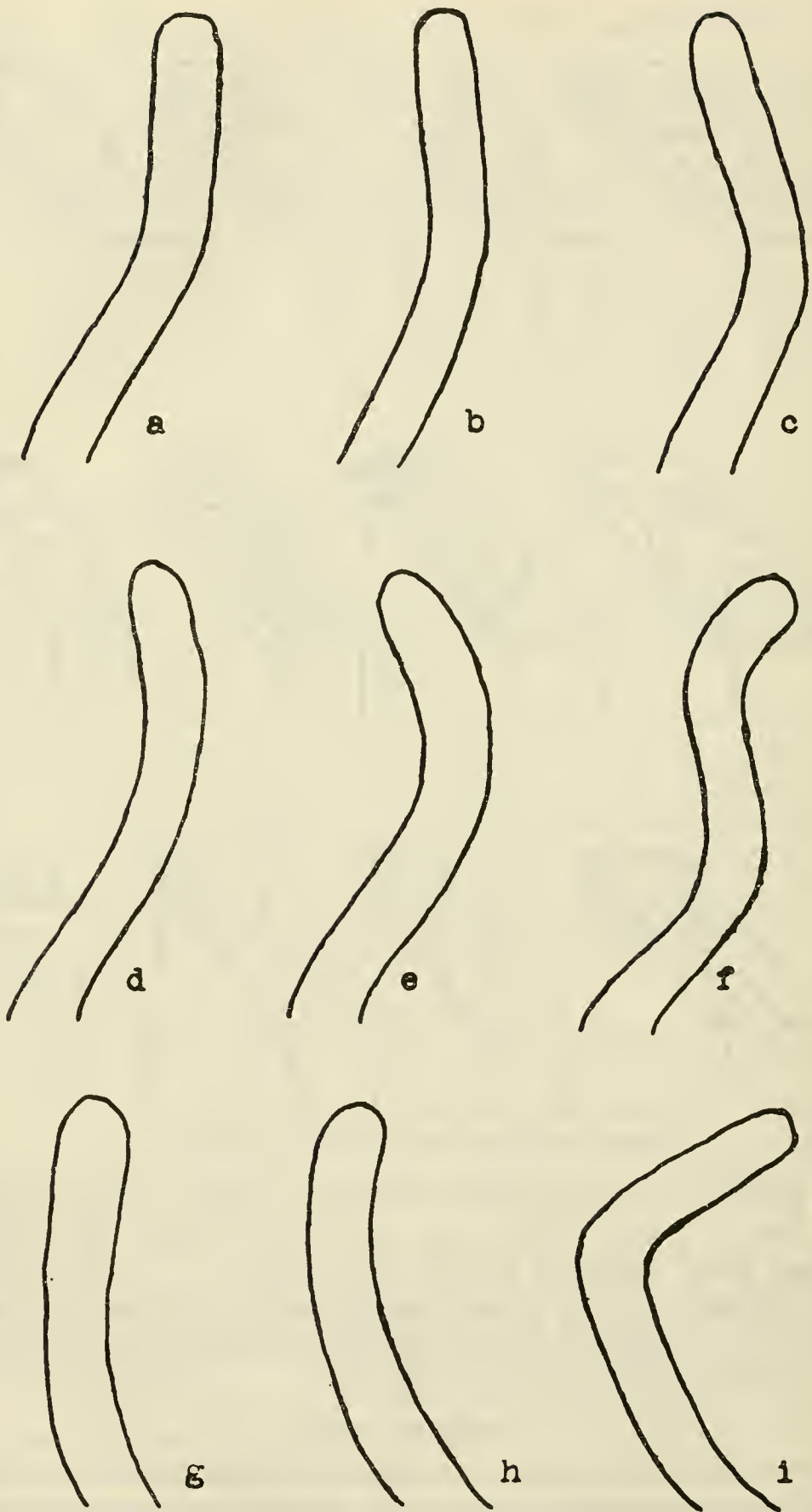


FIGURE 24.—Rim profiles of Dismal River pottery. (Inside of vessels to right.) *a-c*, Straight rims. *d-e*, Curved rims. *f*, Recurved rim. *g-i*, Bowl rims.



Flint or chert of light to dark gray was not uncommon, and a few pieces of white flint were also found. Much of the jasper and chert exhibits flaws and layers of limestone and other minerals, showing that the raw material had been secured from thin seams.

In addition to these materials, several other types of stone suitable for chipping were found. Two chips of obsidian, which is not native to the area, and a chipped piece of crystal quartz were found. One artifact, a projectile point, was made from a white, black, and yellow translucent material, probably chalcedony. One piece of mineralized wood fashioned into a side scraper was also found.

The workmanship on stone objects is characterized by a general crudeness which, on many artifacts, is sharply contrasted with a single, very finely chipped cutting edge. Projectile points in general were skillfully made. Thus it appears that the crudeness represented choice rather than lack of skill.

Pecked or polished stone was much less common than chipped stone. Two kinds of worked sandstone, very soft red Dakota sandstone and a somewhat harder, more firmly cemented, white or light-colored sandstone, were found. A few pieces of granitelike stone were collected but no artifacts of this material have been found. Small, irregularly shaped pieces of caliche, a fine, white, chalky material, were common. A few pieces of limonite and numerous bits of hematite were also found at the site. Only one fragment of catlinite was found.

*Projectile points.*—The projectile points from White Cat Village were made, for the most part, from the brown to yellow jasper which is found commonly in the Republican River Valley. A few specimens were made from flint varying in color from gray to nearly white, and one point was worked out of a chip of black, white, and yellow chalcedony.

TABLE 8.—*Projectile points found at 25HN37*

Type	Number	Type	Number
NAb2.....	1	SCb2.....	1
NAb3.....	1	Other.....	2
NBa.....	24	Unclassifiable fragments.....	35
NBa1.....	6		
NBb.....	18	Total.....	122
NBb1.....	34		

Most of the points from White Cat Village (table 8) are triangular in shape, and can be classified readily as: NBa, NBa1, NBb, and NBb1 (fig. 21). These points might be considered as representing only two types, since the points of types NBa and NBb represent a smooth series rather than two distinct groups (pl. 12). The same thing is true for those points of types NBa1 and NBb1 (pl. 12).

The complete points of types NBa1 and NBb1 vary in length from 1.7 to 2.7 cm. and in width from 1.0 to 1.5 cm. Only one of the broken points appears to have been appreciably larger. Except for this one, the points form a single continuous series although the larger points present a more slender appearance. The chipping was uniformly well done. The one large specimen mentioned above was represented by very little except the base and notches and is so little like the others that it seems intrusive in the Dismal River complex.

The complete points of types NBa and NBb vary in length from 1.9 to 2.8 cm. and in width from 1.1 to 1.6 cm. The smaller points, in general, seem to be relatively thicker and show less uniformly precise chipping than the points of types NBa1 and NBb1. Many of the smaller points are, however, made equally well. Seven points of type NBa fit poorly into the series with the rest of the triangular unnotched points. They are all broken but appear to have been larger than those forming the series. Many of these larger points appear to have been triangular flakes with neatly retouched edges and may have served as small knives rather than as projectile points. Some show only unilateral chipping except for the retouched edges.

One point of type NAb2 (pl. 12, *n*) is nearly complete. This specimen is 1.5 cm. long, 0.8 cm. wide, and shows very precise, uniform chipping. The NAb3 point is well made although incomplete (pl. 12, *p*). The part found is only 1.8 cm. long and about 0.9 cm. wide, but it may have been about 2.5 cm. long originally. Both points are considered aberrant.

The point of type SCb2 (pl. 12, *m*) is 2.6 cm. long and 1.6 cm. wide and delicately chipped from brown jasper. Two other points are discussed separately because they are not readily classifiable (pl. 12, *o*, *q*). One of them was somewhat leaf shaped with a flat base and notches. This point is 3.6 cm. long and 1.8 cm. wide, with a pronounced twist. The other point is a stemmed and shouldered point with a flat base. The base is 3.5 cm. wide and 5.0 cm. long with probably 1.0 to 1.5 cm. of the point missing. These two crude points are aberrant.

*Drills.*—Drills of two types were found at White Cat Village. The more common is the so-called "cigar-shaped" drill, although expanded base drills were not rare. The midsection of a double-pointed drill with projections on either side of the center was found (pl. 14, *e*.)

Cigar-shaped drills (pl. 14, *f*, *g*) were made from prismatic flakes of jasper, generally triangular or ellipsoidal in cross section. One or both ends came to blunt points and many drills have a slight taper for the entire length. The maximum diameter of holes drilled with such tools would vary from about 0.9 cm. to about 2.4 cm.



The smaller drills tend to be more neatly chipped than the larger ones and some are much smoothed or dulled, probably from extensive use in hard or abrasive substances. Most of the drills are represented by sections only. However, two complete drills which showed evidence of much use are 5.5 and 5.1 cm. long by 1.0 cm. and 1.1 cm. in maximum diameter respectively. These drills are somewhat smaller, at least in diameter, than the average for all drills from the village.

The expanded-base drills (pl. 14, *a-d*) are represented by 1 complete and 14 broken specimens. The shafts of these drills were smaller than those of the cigar-shaped drills. The maximum diameter of 13 expanded-base drills was between 0.6 and 0.8 cm.; the other two were about 1.0 cm. in diameter. The shafts were approximately rhomboidal in cross section and tapered gradually to a reasonably sharp point.

The expanded base, or the portion that would be grasped, was sometimes left unfinished, but some shaping was done in most instances. In a few cases, the base had been finished to a smooth knob. The expanded-base drills do not show the dulling noted on some of the cigar-shaped drills. Two other larger crude tools (pl. 14, *h, i*) also appear to have been used for drills.

*Knives.*—Well-made knives are rare at 25HN37. As mentioned before, a few triangular points were of a size better suited for use as knives than for use as projectile points. On these points the chipping was delicate and evenly executed from one or both surfaces.

The only other examples of extremely fine chipping occur on the edges of random flakes which vary in length from 2 to 7 cm. and appear to have initially had sharp edges. The chipping is usually from one face only, but is not restricted to a single edge or to straight edges, occurring rather wherever an edge is relatively thin and tapered.

It is often difficult to decide which of these artifacts were deliberately chipped and which show only use retouch. In many cases the edge probably represents a combination of both. There appears to be an even gradation starting with these thin flakes with very fine chips removed by use from one face, through thicker and thicker flakes with more extensive chipping, until the artifacts are definitely scrapers.

Five knives from the site form a series varying from roughly oval to almond shaped. These were relatively thick and showed very little pressure retouching. The four complete specimens (pl. 16, *a-d*) were from 3.7 to 5.5 cm. in length, 1.6 to 3.8 cm. wide, and from 0.8 to 1.4 cm. thick.

Of the artifacts recovered, at least one and possibly another represent portions of knives with alternately beveled straight blades. The



chipping is well done but the sections of the artifacts are so small that little more can be determined about them.

The only well-chipped large blade found was represented by a small midsection. This knife showed uniform and well-executed percussion and pressure flaking. The edges were nearly straight, but not quite parallel. The width of the section varies from 3.8 to 4.0 cm.; it is 2.5 cm. long, and 0.8 cm. thick in the center. It is symmetrical in cross section.

One other knife is worth special mention (pl. 16, *d*). Although this was not finished all over, it does possess a fine edge showing a uniform curve. The blade has been formed by the skillful removal of large flakes from both sides by percussion. A few small flakes had been removed by pressure from one side only. It is somewhat oval in shape with one straight edge, and is about 0.5 cm. by 7.5 cm. and about 1.7 cm. thick. Except for the high quality of chipping it could be classed with the crude choppers since it has the same general shape.

*Choppers.*—At 25HN37, crude stone blades or choppers were common. Many of these were made from thin slabs of jasper from which the cortex had not been entirely removed. They appear to have been crudely roughed out by percussion chipping and only rarely given a well-shaped edge by pressure flaking.

One of the more common forms represented at this site is roughly rectangular to oval; chipped from both sides of one long edge and on one or both ends. The opposite edge is usually square. Six complete or nearly complete specimens (pl. 18) range from 8 to 18 cm. long, 4 to 6 cm. wide, and 1.2 to 2.0 cm. thick. In addition to the 4 nearly complete choppers of this form, 16 broken sections appeared to be portions of very similar artifacts.

A second type of chopper is much like the first except that all edges have been chipped (pl. 18). Only 2 complete choppers of this type were found, but 19 broken specimens were quite similar. This group apparently has about the same range in size as the first group described.

Five other complete or partial choppers showed unilateral chipping. Except for this, they are comparable to the others.

The use to which these choppers were put has not been determined. Most of them show much battering on one or more cutting edges. It would appear that many of them were used for hacking some hard material such as wood or bone.

*Scrapers.*—Scrapers were the most common artifacts found at 25HN37. They were strictly utilitarian as is most Dismal River stonework. Generally speaking, these artifacts do not show much more chipping than is necessary to form a working edge. The pieces of stone from which the scrapers were made usually have one some-

what smooth surface. In most cases this surface is the result of a single spalling or fracture. Frequently the only chipping is that on the scraping edge which meets the smooth surface at an angle of about 45 to 80 degrees. Occasionally, however, a scraper is found which has been given an overall shaping and which represents careful workmanship. End scrapers (pl. 19) are most common but side scrapers (pl. 21) are also present. A few artifacts have scraping edges on more than one margin.

Usually the chipped edge is relatively thick although there seems to be a smooth gradation into flakes retouched to produce a cutting edge or showing use retouching. Other scrapers have a conventional snub nose at the scraping end combined with a thin, finely retouched cutting edge along another margin.

Another variation is represented by scrapers with graverlike projections on the edges (pl. 22). These tangs vary in size from sharp points to semicircular projections 1.5 cm. in diameter.

One interesting feature of the scrapers in general is that many of them have received much hard use, to judge by the damage done to the scraping edge. What was originally the cutting edge is often completely broken back. The size of end scrapers varies greatly: in length from about 2 cm. to about 8 cm., in width from less than 2 cm. to about 5 cm., and in thickness from about 0.5 cm. to about 2.5 cm. Most of the end scrapers, however, were between one and two times as long as they were wide, and seldom if ever thicker than wide.

*Gravers.*—Six specimens of worked stone from 25HN37 had little particular form except for small sharp projections (pl. 11, *d-f*). These appear to be deliberately chipped, usually from only one surface. These artifacts have been classed as gravers. As mentioned above, a few scrapers from the site also appear to have graver points chipped at some convenient place.

*Abraders.*—Sandstone abraders, usually shaft polishers (pl. 23, *a-c*), were common at 25HN37. Most of them were made of very loosely cemented red Dakota sandstone. One specimen was made of white sandstone.

Twenty-nine sections of grooved abraders, as well as many smaller pieces which could be abrad-er fragments, were found. There were no complete abraders, but several were sufficiently complete to determine the approximate width and thickness. These abraders varied in size from 1.5 cm. thick by 3.0 cm. wide to 2.6 cm. thick by 5.0 cm. wide. The depth of the grooves varied from about 0.1 to about 0.4 cm. Two fragments, possibly of the same specimen, had grooves in two faces.

Two sections of shaft polishers, although they were not found together, are so much alike that they could represent a pair of abrad-



ers which had been used together. These sections have nearly identical outlines, and when they are placed with their smooth sides together the grooves are alined.

In addition to these deliberately shaped artifacts, unshaped pieces of sandstone have been found which show random grooves. These, also, probably served as abraders.

*Pipes.*—One small fragment of catlinite found at 25HN37 appears to be a fragment of a pipe. The outer surface was well smoothed and the inner surface very rough. The specimen was 0.3 cm. thick and indicates that the pipe would have been somewhat square with rounded corners. A red stone pipe is reported to have been found at the site by a neighboring farmer.

*Metates.*—Only one specimen was sufficiently complete to be identified as a metate (pl. 23, *d*). This was a slab of red Dakota sandstone about 24 cm. by 15 cm. by 4 cm. thick. One surface was very rough, but the other side was fairly smooth and slightly concave. The center of this surface was about 2 cm. lower than the edges. About half of the specimen was found in House VI at floor level in the top of posthole A. The other half, which fits perfectly, was found on the surface and shows two deep scratches which look as if they had been made by farm machinery.

*Caliche.*—A number of small irregular pieces of caliche were found (pl. 11, *g-i*) which vary in average diameter from 7 cm. to 1 cm. All the pieces appear to have been smoothed and somewhat rounded by rubbing on a flexible surface. It is possible that this material may have been used in the smoothing and whitening of hides or as a white pigment for paint.

*Hematite.*—Hematite occurred in all parts of the site in the form of small specks in the village level mixture. In House VI, relatively large amounts of hematite were found in the fireplace and an area just south of the fireplace showed a rich mixture of hematite in a very dark stain. Usually the hematite was finely divided, but one lump which had been extensively scraped was found in House VI. The lump was 1.8 by 1.5 by 1.3 cm. It seems probable that hematite had been used as red pigment for paint.

*Limonite.*—Several pieces of soft, fine-textured limonite were also found. This material was soft enough and colorful enough to have been used as pigment for paint. One lump was found in House VI in the area rich in hematite just south of the fireplace. One lump found on the surface had a pit in one side and also showed evidence of having been scraped in two other places.

#### WORK IN BONE

Worked bone was uncommon at 25HN37 whereas unworked bone was common and sometimes well preserved. Since the Smithsonian



party which surveyed the site secured nearly as much worked bone as the Laboratory of Anthropology, the material collected by both groups will be discussed in this paper. Bone artifacts from White Cat Village are listed in table 9.

TABLE 9.—*Bone artifacts from 25HN37*

Description	Number, Smithsonian Institution	Number, Laboratory of Anthropology
Tubular bone beads.....	3	3
Shaft wrenches.....		1
Metatarsus fleshers.....		2
Scapula digging tools.....	2	4
Fragments of worked scapulae.....		2
Eyed needle (?).....	1	
Awls.....	3	2
Possible awls.....	3	2

*Awls.*—One rather blunt awl (pl. 26, *e*) and the fine point of another awl were found by the Laboratory of Anthropology. There was also found what may be the butt end of an even larger awl. An unfinished splinter of bone, one end of which is sharp and shows some polish on the broken surface, is a possible awl. The one complete awl (pl. 26, *e*) was 8.0 cm. long with a maximum diameter of 0.8 cm.

The Smithsonian Institution survey group recovered several other types of bone awls. Three blunt awls or punches, triangular in cross section and made of the edge of ribs, were found in a trash-filled pit, Feature 1. They varied in length from 6.8 to 7.8 cm. Two of them had the butt end rounded; the third had the butt end broken. The awls were smoothed and polished all over. The points of the three show considerable use and some indication of battering. None of them show any evidence of having been especially sharp, and one in particular appears to have come to a blunt point. They would hardly serve as awls in their present condition even though the preservation is good. They may have been discarded because they had become dull.

The Smithsonian group also found three splinter awls in the trash-filled pit, Feature 1. The one of these awls which is complete is 9.1 cm. long. All three splinter awls are narrow, none of them being more than 0.7 cm. wide. All three are sharp and show little evidence of dulling although the points appear to have become well polished through use.

*Beads.*—Three tubular beads (pl. 26, *a, b*) made from canis metacarpus or metapodial sections were found by the Laboratory of Anthropology at 25HN37. These beads varied from 3.9 to 4.8 cm. in length and from 0.5 to 0.8 cm. in diameter. They were fairly well finished and the cut ends show some evidence of polishing.

There is no evidence of their having been decorated. Beads found by the Smithsonian party are very comparable in size and shape.

*Shaft wrench.*—The Laboratory of Anthropology also found a fragment of a bison rib shaft wrench (pl. 26, *c*). The specimen was broken at the hole, which appeared to have been tapered from both sides and worn smooth.

*Fleshers.*—Both fleshers from 25HN37 (pl. 35) were found in the roasting pit. The articulated specimen was found in the fill of the pit whereas the other was in the top. The articulated flesher was apparently never completed. The metatarsus had been broken and partially split but not polished. Some work had been done on what would have been the cutting edge, but it had never been finished. The flesher made from a single bone had been nicely finished and most of the rough edges smoothed. The cutting edge was sharp and showed no evidence of ever having had teeth or serrations. Both specimens were made of bison metatarsi.

*Scapula digging tools.*—Only one of the scapula digging tools was complete. This specimen was 28 cm. long and 13 cm. wide (pl. 36, *b*). The articular end and scapula spine had been cut and broken away. The preservation is poor but the edge does show use. Two smaller but better preserved pieces of what were probably scapulae show polishing from use. The spines have been removed from these also. The fourth digging tool was badly broken but it also showed polish from use and showed no evidence of either the articular end or the spine. All are identified as bison. Other fragments of scapulae showed use but were too small to classify.

The Smithsonian Institution party recovered two portions of scapulae from a trash-filled pit, Feature 1. Both specimens have been worked and were probably sections of digging tools. The edge of one in particular shows considerable polish, probably from use.

*Needle (?)*.—From the same pit, the Smithsonian party recovered a section of bone needle or band. The section, which is broken at both ends, is 6.5 cm. long, 0.5 cm. wide, and 0.2 cm. thick. The width and thickness is uniform over the entire length. This piece is curved, forming an arc about 0.5 cm. high with a span of 6.2 cm. It has been worked smooth and shows some polish on the outer surface, but shows no indication of either an eye or an encircling groove. The specimen resembles the eyed needle (?) from 25HO21.

#### WORK IN ANTLER

The Smithsonian Institution survey party found two antler tines in a trash-filled pit at 25HN37. Both appear to have been partially cut and then broken off. One of them has the tip broken off at an angle, possibly from use as a flaker or as some other tool. Both



show some polish near the tip which may be from use or may be natural. These two tines are 14.2 and 13.7 cm. long. A shorter piece of antler tine was also found by the same Smithsonian Institution party. This specimen is 6.7 cm. long; it has been partially cut and then broken off. The very tip appears to have been slightly flattened and somewhat polished, and has not been subsequently broken or battered.

#### WORK IN SHELL

No specimens of shell from 25HN37 definitely showed work. One specimen which was rectangular may have been shaped, but it was so decomposed that tool marks were not discernible.

#### EUROPEAN TRADE MATERIAL

European trade material was uncommon at 25HN37. Three pieces of metal were excavated from House VI; the exact provenience was known for two of them. Five pieces of metal found on the surface may represent either material possessed by the Dismal River people or material lost more recently. Two pieces of chipped stone, believed to be gun flints, were also found on the surface.

*Axes.*—The most significant metal object found was the iron ax (pl. 37) recovered from the fireplace of House VI. The details of the find are described in the discussion of House VI. The overall length of the ax is 16 cm. and its weight is 1 lb. 9 oz. The blade is 9.8 cm. long, 7 cm. wide at the cutting edge, and 3.6 cm. wide where it attaches to the eye. The blade is 2.2 cm. thick where it attaches to the eye and thins evenly to within about a centimeter of the cutting edge, from which point it thins more rapidly. The cutting edge of the blade is curved and the entire blade is set at a slight angle to the eye and, hence, to the handle.

The eye is not quite round and is tapered, being smaller toward the handle. It is 5.1 cm. by 3.2 cm. at one end and 4.4 cm. by 3.1 cm. at the other end. The longest diameters are in line with the blade. The eye is 4.2 cm. long at the side where the blade attaches and 4.6 cm. long at the other side. The thickness of the iron comprising the eye is about 0.7 cm.

The ax appears to have been made from a single piece of iron, doubled to form the eye and then welded together to form the blade. This would leave the blade laminated with a welded seam the full length of it.

The ax resembles closely those identified by Woodward (1946, pp. 6-7) as camp axes or belt axes. These, he believes, were evolved in the latter part of the 17th or the first part of the 18th century. The ax from White Cat Village is probably of French or English origin because these groups commonly traded such weapons to the Indians



whereas the Spanish rarely if ever did (Woodward, 1946, p. 33). The ax closely resembles one found at 25DK5, which is in the collection at the Laboratory of Anthropology, University of Nebraska.

*Jingles.*—A jingle (pl. 38, *c*) made of thin sheet brass was found in the loose dirt of House VI. The specimen appears to have been neatly made, although it was badly broken when found. The part remaining is 2.5 cm. long and seems to have been conical in shape with a greatest diameter of at least 0.8 cm. The diameter of the opening at the small end is about 0.1 cm. A few small fragments of red hematite were found in the jingle. The workmanship would suggest that the jingle was not of Indian manufacture. A piece of sheet copper (pl. 38, *d*) was found on the floor of House VI. The piece was 3.4 cm. long and from 1.5 to 2.0 cm. wide. It had been bent so as to form a nearly closed ring with diameters of 0.5 and 1.5 cm. The workmanship is crude and might represent an Indian's attempt to make a jingle from such raw material as a copper kettle. A smaller, somewhat conical piece of sheet brass (pl. 38, *e*) was found on the surface. The specimen is 1.2 cm. long with diameters of 0.8 and 0.3 cm. at the large end. A piece of sheet brass 2.8 by 2.3 cm. was also found on the surface. The piece is irregular in shape and has been roughly cut. It is of about the same thickness as the small brass cone found on the surface and the bent piece of sheet copper found in House VI, all of which are thicker than the brass jingle found in House VI.

Three irregularly shaped pieces of iron were found on the surface. Two of these are about the right thickness to have been cut from iron trade hoes. The third piece of iron resembles the point of a knife. It is, of course, impossible to establish whether or not these belonged to the occupants of the village or whether they were lost later.

*Gun flints.*—One gun flint and what is probably another were found on the surface of the site. The one specimen was rectangular, 2.5 by 2.2 by 0.7 cm. thick and made of a translucent gray flint (pl. 38, *a*). Three of the sides were beveled and the fourth side showed much battering. The two faces are parallel. There is no doubt that this is a gun flint. The other specimen (pl. 38, *b*) was of a light caramel-colored, slightly translucent flint. It was 2.7 by 2.6 by 0.7 cm. thick with three beveled sides, one of which was curved. The two faces are parallel and the three beveled sides resemble the working edge of an end scraper. Each of these three sides shows a little battering. It seems quite likely that this, too, is a gun flint, especially since no other specimens made of such flint were found at the site.

#### FAUNAL REMAINS

The faunal remains from the 1948 excavations have been identified by Weldon Frankfurter (Champe, 1949, p. 289) and found to represent

six kinds of animals (table 10) in addition to chicken and cow. These last two can be attributed to recent White occupancy, especially since they were found on the surface. A much smaller faunal collection was made in 1949, but these remains have not as yet been identified.

TABLE 10.—*Faunal remains from 25HN37, 1948*

Animal	Number	Identification
Bison.....	516	<i>Bison bison.</i>
Turtle shell and bone.....	151	
Shell.....	63	<i>Unionerus tetralasmus.</i>
Deer, white-tailed.....	57	<i>Odocoileus virginianus</i>
Beaver.....	39	<i>Castor canadensis.</i>
Dog or coyote.....	6	<i>Canis.</i>

One interesting observation concerning the faunal remains is that half of the beaver remains were either teeth (mostly incisors) or ramus fragments. The absence of horse bones is significant inasmuch as horse remains have thus far not been found at other Dismal River sites. The absence of fish bones is also of interest. However, since much of the bone was not especially well preserved, observations as to presence or absence in this case are not necessarily conclusive.

## VEGETAL REMAINS

Very few vegetal remains were recovered at 25HN37 except for wood charcoal. A fragment of a black walnut (*Julga nigra*) shell was excavated from the floor level of the overlapping houses, Houses I and II. Several small, charred seeds were found in the fireplace of House IV. The seeds are probably legume, possibly *Trifolium*.<sup>2</sup>

The wood charcoal, recovered chiefly from the houses and the roasting pit, has been identified as "from hardwoods, hackberry, ash, and probably some oak."<sup>3</sup>

## DENDROCHRONOLOGY

The charcoal from 25HN37 was examined by Harry E. Weakly, who made a chart showing the matching of the tree rings of these specimens with the master chart which he had constructed for the area near Broken Bow, Nebr. With regard to this chart, Weakly states:<sup>4</sup>

This gives a rather good agreement with an outside date near 1723. Since there were a few specimens which had rings which appeared to be at or very near the outside I do not believe the date will be too far off.

The date of 1723 is compatible with the rest of the information concerning the site and the aspect. The presence of a small amount of European trade material at the site would substantiate such a dating.

<sup>2</sup> Identified by Dr. John F. Davidson, Botany Department, University of Nebraska.

<sup>3</sup> Weakly, Harry E., letter dated November 18, 1949.

<sup>4</sup> Weakly, Harry E., letter to James H. Gunnerson, dated June 14, 1950.



## BURIALS

No burials that could be associated with Dismal River people have been found in the vicinity of 25HN37. The only human skeletal remains recovered from the site were two teeth found in the excavation containing Houses I and II, near the fireplace of House I.

## SUMMARY

Investigations at 25HN37 have revealed a village that must be considered small in comparison with contemporary Plains agricultural villages farther east, but probably a little larger or at least more compact than villages of agricultural groups who lived in the Dismal River area earlier. As an estimate, there were probably about 20 houses at the site, but the overlapping of at least two houses indicates that they were not all occupied at once. Further, the general paucity of village refuse suggests that there may have been repeated occupations of the site rather than a single prolonged occupation. Surface indications suggest, moreover, that houses tended to cluster at the two ends of the thousand-foot-long site with a possible gap in the middle.

The houses at 25HN37 had five vertical center posts arranged in a nearly regular pentagon and, in some cases, two posts indicating an entrance to the east. The fireplace was in the center of the lodge, whose living area was increased by the use of poles placed beyond and leaned against the central framework. The structure probably resembled a Plains earth lodge except that it was smaller, less deeply excavated, and may not have been earth covered.

One heavily fired roasting pit found at 25HN37, like those at 25DN1 and 14SC1, was presumably used for the preparation of food and later for the disposal of refuse. A few shallow trash-filled pits found at 25HN37 were neither as common nor as well defined as those at 25CH1 and 25DN1.

The pottery from 25HN37 is virtually identical with that found at 25CH1. It is buff to black in color, with a fine-textured, gritty, compact paste. Tempering, when present, consists of fine to medium-sized particles of sand. Rarely, mica is included. Decoration is uncommon and confined to the lips of vessels. Surfaces of sherds vary from smooth to sharply simple stamped. No restorable vessels were recovered from 25HN37.

Most of the stone artifacts from 25HN37 were made by chipping. End and side scrapers are the artifacts most commonly found. The projectile points from the site were well made and predominantly of types NBa, NBa1, NBb, and NBb1. Other chipped-stone artifacts were straight-shafted drills, expanded-base drills, knives, modified flakes, and crude choppers. Ground-stone artifacts consist chiefly of sandstone abraders. The chipped-stone artifacts from 25HN37, other



than projectile points and drills, are utilitarian, characterized by a general crudeness, with precisely chipped working edges occurring often on otherwise roughly shaped artifacts. Very little emphasis was placed on conserving stone. This might be explained by the presence of outcrops of brown jasper in the vicinity, furnishing readily available raw material.

Work in bone is much less common than work in stone at 25HN37. This can be attributed only in part to poor conditions for preservation, since some worked and unworked bone is well preserved. Bone artifacts found at the site consist of metapodial fleshers (not serrated), scapula digging tools, awls, and beads. Specimens of worked antler were rare and no specimens of shell had been worked.

Several items of probable European origin were found at 25HN37. The most significant of these was an iron ax, which had been driven into the fireplace of the burned house. The ax is probably of French or English origin. Copper and brass jingles were found both in excavations and on the surface. This trade material suggests a dating of about 1700.

Faunal remains were abundant at White Cat Village. Most of these remains were identified as bison, but beaver, turtle, canis, and deer were also found. The abundance of faunal remains and skin-dressing tools and the scanty evidence for the growing of crops indicate that the subsistence pattern of the Dismal River people, even in this location so favorable for farming, emphasized hunting over agriculture.

A date of 1723 has been established for the site on the basis of dendrochronological investigations by Harry E. Weakly. This indicates an occupation only slightly later than that at other Dismal River sites dated by the same method.

#### SITE 25HN44

Site 25HN44 is located about 2 miles southeast of Republican City, in Harlan County, Nebr. The site was originally investigated by the University of Nebraska, Laboratory of Anthropology, in the summer of 1948. At that time only the southern portion of the site was examined, and the artifacts recovered from the surface indicated that it was almost exclusively Upper Republican. In the spring of 1950, a small group from the University of Nebraska, Laboratory of Anthropology, revisited the site and found that the northern part of the site yielded Dismal River pottery. The few pieces of Dismal River pottery found during this later brief visit are all smooth but correspond very closely to pottery from White Cat Village.

This site is located on a fairly high terrace above what appears to be an old meander bed of the Republican River, and is about one-half

mile north of the present stream channel. There may, however, have been a spring or small stream in a small valley or draw just below the site.

## SANDHILLS SITES

### INTRODUCTION

The investigation of sites in the potential Mullen Reservoir area has greatly increased knowledge of the Dismal River Aspect in the area where it was first identified. A reconnaissance of this area, which is located in the valley of the Middle Loup River, just below Mullen in Hooker County, Nebr., was made in May 1947 by Marvin F. Kivett for the Smithsonian Institution's Missouri River Basin Survey. In the summer of 1949, Kivett returned to the area with a party from the Nebraska State Historical Society, a cooperating agency, to conduct salvage archeology. Five Dismal River sites within the potential reservoir were investigated. Three of these, 25HO21, 25HO7, and 25HO24, were tested intensively, while 25HO5 and 25HO9, less significant sites, received only surface reconnaissance.

Excavation at these sites probably represents the first controlled archeology conducted in the Sandhills region, where excavation has previously been considered impractical, and where most information has come from surface or "blowout" finds. Kivett has demonstrated that such features as postholes and pits can be found in this extremely sandy soil. Further, he has provided data on Sandhills manifestations of a group also represented by sites located in more ecologically favorable areas. Thus it becomes possible to discuss within the limits of the data the effect of changes in environment on the material culture of the Dismal River people.

### ENVIRONMENTAL SETTING

Hooker County is in the middle of the Sandhills which cover a large portion of west-central Nebraska. The terrain is gently rolling dune sand, stabilized for the most part by bunchgrass, but with active blowouts and a few drifting dunes. The county is traversed by the Middle Loup River, which flows through a narrow but fertile valley, and by its tributary, the Dismal River, with a still narrower valley. Older rivers have become choked with sand, forming small lakes and marshes. Trees are found only along the streams, where wild fruit also occurs. Primitive agriculture could have been practiced in some places along the Middle Loup. The area between the rivers has enough grass to support a limited number of animals and, although the area could not have supported large herds of bison, it is probable that there was always a fair amount of game available, since the clear streams and springs provided an excellent water supply



throughout the year. The region has an average of 140 frost-free days per year. The annual average rainfall is 20 inches, most of which falls from April through August (Rice, 1914).

#### SITE 25HO1

The sites on the Dismal River in Hooker County, Nebr., from which the Dismal River Aspect received its name, were investigated by A. T. Hill as early as 1920 and were later described by W. D. Strong (1932, pp. 152-155; 1935, pp. 212-217). The sites designated by Strong as D1, D2, and D3 have since been renumbered 25HO1, 25HO2, and 25HO3 respectively. In addition, the area at the forks of the Dismal River between the two branches, where Strong reports finding a little material, has been given the number 25HO4. The legal descriptions of these sites are on file at the Nebraska State Historical Society and the Laboratory of Anthropology at the University of Nebraska.

Site 25HO1 is located on the south bank of the Dismal River, 8 miles west of Seneca, Nebr. The pottery from this site (Strong, 1935, pp. 215-216) was described as thick, "hole tempered," and ridged on the outer surface. It was later identified as Woodland rather than a variant of Dismal River pottery. Since then, however, Dismal River pottery has been found at the east end of this site.

The Nebraska State Historical Society has a small surface collection from 25HO1. The sherds are all very small and somewhat sand blasted. Both Woodland and Dismal River sherds are represented. The Dismal River sherds are dark buff to gray-black and usually have smooth surfaces. One rim sherd has a smooth, rounded lip. Several kinds of stone were represented at the site, including quartzite, jasper, chalcedony, obsidian, flint, and river boulders. Very few stone artifacts are included in the collection.

#### SITE 25HO2

Site 25HO2 is located along the south bank of the Dismal River just below the forks. The level of the site is considerably above the level of the river, the ascent being steep. Carl Humphrey of Mullen found several porcelain beads at this site.

The Historical Society's collection from 25HO2 is small, consisting of a Dismal River sherd and a few small chips of jasper, chalcedony, quartz, and quartzite. The sherd has a smooth, buff surface with an almost waxy feel.

#### SITE 25HO3

Site 25HO3 is probably the largest of the three sites along the south side of the Dismal River. It is located about 4 miles southwest of



the forks of the Dismal River on the south bank of the south branch, or about 15 miles south of Mullen, in Hooker County, Nebr. The site is located on a high terrace overlooking the stream and is now dissected by large, deep gullies. In addition, the surface shows evidence of severe wind erosion, but when the site was visited in 1949, much of it had grassed over and only one large blowout at the east end of the site was still active.

The Historical Society's collection from 25HO3 consists of a few Dismal River sherds, numerous stone chips, and a sheet-iron jingle. The sherds are buff to gray black, small, and sand blasted. The paste is gritty and most of the sherds contain a moderate amount of fine to medium sand tempering. The surfaces are generally smooth; only a few show simple stamping. One sherd shows a few closely spaced, shallow punctates about 0.5 by 0.3 cm., apparently in rows. The jingle is 2.5 cm. long and 0.9 cm. in greatest diameter. Chips and pieces of jasper, chalcedony, quartzite, obsidian, schist(?), and other stone were common in the collection from the site but stone artifacts or even pieces showing work are relatively rare. These consist of a few fragments of projectile points and a piece of obsidian which appears to be a point of a drill.

Strong (1935, pp. 214-215) describes blackened, hard-packed areas from around which the soil had blown. These he interpreted as hearths. Also at this site he noted what may have been the remains of an earthen wall. Strong thought that this might represent the remains of the "breastworks" referred to in the Omaha legend which designated the forks of the Dismal as the place "where Padouca built breastworks" (Fletcher and LaFlesche, 1911, p. 91).

#### SITE 25HO5

Site 25HO5 is located on the south side of the Middle Loup River about 8 miles east of Mullen, in Hooker County, Nebr.

The Smithsonian Institution has a small collection obtained by the River Basin Surveys from 25HO5, including five very small dark-gray sand-tempered Dismal River sherds, several pieces of worked stone, end and side scrapers, fragments of projectile points, and modified pieces of stone, as well as several pieces of unworked stone and chips.

The Nebraska State Historical Society also has a small collection from the site. This consists of a small amount of worked and unworked stone and a few fragments of bone, along with one small split sherd. The sherd is buff with a smooth surface and could be Dismal River.

## SITE 25HO7

## INTRODUCTION

Site 25HO7, the Lowe Site, is located about 1½ miles north and a mile east of Mullen, in Hooker County, Nebr. The site was surveyed by Marvin F. Kivett in May 1947 for the Smithsonian Institution, River Basin Surveys. In the summer of 1949, Kivett, with a party from the Nebraska State Historical Society, made further tests at the site. The data obtained are on file at, and were made available by, the Nebraska State Historical Society.

A series of 10-foot squares was excavated along the terrace face, from which cultural material had eroded. The terrace was 10 to 12 feet above the alluvial plain along the river and about 150 to 175 feet south of the channel of the Middle Loup River. Just south of the site, the terrain slopes abruptly upward.

The cultural zone was dark, charcoal stained, and about 0.8 foot thick. It was overlaid with 2.2 feet of banded overburden which was chiefly sand or clay or a mixture of the two. A charcoal-stained humus layer 0.6 foot thick was found 0.6 foot below the surface of the ground.

No definite evidence of house structures was observed at this site. One fireplace was found but no associated postholes were located. The fireplace was 20 inches across, 8 to 10 inches thick, and consisted of from 2 to 5 inches of white ash overlying 3 to 4 inches of red sand with some charcoal fragments. The fireplace was considered by Kivett (MS., 1949) to be associated with two trash-filled pits.

A hearth area, located 75 feet east-northeast of the fireplace, consisted of very black sand well mixed with ash, charcoal, and limited amounts of burned earth. The area was 14 by 16 inches and 8 to 10 inches thick, and showed some evidence of having had a prepared basin; the walls, however, showed very little burning. The basin extended from 2 to 4 inches below the general village level.

Trash-filled pit No. 1 was 26 by 30 inches and extended 12 inches below the cultural zone. The fill consisted of charcoal-stained sand well mixed with white ash, broken pottery, animal bones, and stone. A gully had cut into the pit and some ash and bone had washed down the slope.

Trash-filled pit No. 2 was 36 by 30 inches and 12 inches deep, and contained charcoal-stained sand, a little white ash, worked and unworked bone, stone and pottery sherds.



## POTTERY

Site 25HO7 yielded 39 rim sherds sufficiently well preserved to indicate lip form. Twenty-one had undecorated lips. The lips varied from slightly thinned to considerably thickened and from flat to rounded (fig. 22). The thickening on some was confined to the portion immediately below the lip, whereas on one the rim was thickened for the upper 2.5 cm. Rounded lips are more common in this group than are flattened lips. A few lips were somewhat roughened but showed no decorative motif.

The decorated lips (fig. 23) are generally thickened and frequently flat. The most common decorative motif from this site (on seven sherds) consists of elongated punctates placed tangentially on the lip. The punctates vary in length from about 1 to 2 cm. and are relatively far apart, the space between being at least as long as the punctate. Two of these rims were unusual for Dismal River pottery in that holes had been drilled through the vessel 1.5 to 2.0 cm. from the lip. The holes were about 0.3 cm. in diameter and had been drilled after the vessel was fired, possibly to lace together a crack.

A variant of the punctate motif consists of somewhat shorter but still elongated punctates placed diagonally in the lip, and spaced considerably closer together. Three sherds of this style were found at 25HO7. Four sherds with closely spaced lines impressed diagonally across the lip were found at the site.

Two uncommon styles of lip decoration were found at this site. One sherd had incised lines placed diagonally across the lip. At one place, the angle was changed drastically, leaving a V-shaped design with lines approximately parallel to either side of the V and progressing away from the respective sides. Three sherds had diagonally incised lines in the lip, superimposed by nearly radially incised lines. The ends of these two sets of lines met at common points along the outside edge of the lip.

Both simple stamped and smooth rims were found at the site. A few showed horizontal striations, probably tool marks left from the shaping or smoothing of the rim.

The body sherds from the site are not especially distinctive. Surface treatment varies from sharp simple stamping through nearly obliterated simple stamping to smooth, somewhat polished sherds. A few of the sherds have a slick, almost waxy feel. The few thick, smooth, buff to gray sherds found are very similar to the Dismal River pottery from Ash Hollow Cave. The range in thickness at 25HO7 would appear to be the same as at 25HO21. No heavily micaceous sherds and only a few containing traces of mica were found at the site.



The pottery is fine textured and gritty. Tempering ranges from no additional tempering material to moderate amounts of fine sand with an occasional inclusion of a larger particle. The paste is compact and appears to have been well worked. It is less granular than that from White Cat Village and is almost identical to the pottery from 25HO21. The pottery is generally buff to dark gray or black with an occasional sherd that appears to have been reburned to a buff color. The sherds are usually the same color all the way through, but sherds with different-colored surfaces or with a core differing in color from the surfaces are not uncommon. Five buff sherds have one red surface which shows a little polish and appears to be the inner surface in each case. The paste, except for having the carbon oxidized out, is within the range of that of other pottery from the site. Several of the red sherds show simple stamping on the side opposite the red surface. A few sherds had just a suggestion of black paint on a lighter background, but no design could be determined and the color difference might have resulted from differential refiring.

One body sherd from the site showed some incised decoration (pl. 10, *d*). Approximately parallel lines had been incised from 0.2 to 0.4 cm. apart, and between some of the lines were single rows of very fine punctates irregularly spaced. Some of the lines were partially obliterated, probably from handling or working with the pot while it was still soft. The two surfaces of the sherd are gray whereas the core is buff. The paste appears identical with that of the other pottery from the site.

Several fragments of pottery pipes were found, including one which had been part of an elbow-shaped pipe. The bowl had been 0.3 cm. thick and probably less than 2 cm. in diameter. This particular fragment was from the portion of the bowl near the stem and included part of the curve where the bowl joined the horizontal part of the pipe. Another fragment appeared to be the point at the outside of the curve of an elbow pipe. The other pipe fragments are not identifiable as to type.

WORK IN STONE

There was only a moderate amount of worked stone from 25HO7. The points from the site were made of chalcedony, brown jasper, and gray flint and are listed by type in table 11.

TABLE 11.—*Projectile points found at 25HO7*

Type	Number	Type	Number
NBa.....	2	Undeterminable.....	1
NBal.....	1		
NBb.....	3	Total.....	7

Five knives, all showing chipping from both surfaces, were found at the site; four were made of chalcedony and one was made of brown jasper. One of the chalcedony knives was diamond shaped with two adjacent sides much longer than the other two. The brown jasper knife was somewhat leaf shaped although not symmetrical. A small fragment of what may have been a quartzite knife was also found. Several flakes showed some retouching and were probably also used for knives.

Only one large, crude chopper was found. It was made of quartzite, had been chipped from only one surface, and the edges showed some battering, probably from use. The most common stone artifacts from this site were end and side scrapers. As at other Dismal River sites, there is frequently a scraping edge chipped on an otherwise unworked piece of stone. Sharp edges of several scrapers have been used for cutting, as shown by use retouching.

Three pieces of light-colored sandstone which show use as abraders were also found at the site. All three appeared to have been portions of shaft smoothers. One bell-shaped hammer or grinding stone with a flat surface showing evidence of considerable use was found. Unworked stone, especially such as would be easily flaked, was relatively uncommon at this site. This, together with the general low quality of some of the material from which artifacts were made, suggests that stone was difficult to obtain.

#### WORK IN BONE

Worked bone was not abundant at 25HO7. Two scapula fragments, one showing considerable use, probably as a digging tool, were found. Two awls made of bone splinters were found. One was of the broad, flat type made from a split rib; the other was much narrower and showed no work except at the point. One complete and two partial awls or punches triangular in cross section were also found. The complete one was 6.2 cm. long. Two bone beads also were recovered from this site. One of them was 5 cm. long, 0.6 cm. in greatest diameter, and of almost uniform diameter for the full length. Both ends were smoothed. The other bead was broken but had been made from a relatively short bone with large articulations. A hole had been drilled through one articulation and into the hollow portion of the bone. The other end is broken. The minimum diameter of the portion left is 0.5 cm. and the maximum is 1.1 cm. An articular end of a bison long bone had been cut off but showed no other indication of having been worked.



## WORK IN SHELL

A piece of shell which seems to have been worked was found at the site. The specimen was 2.2 cm. long and 0.3 cm. thick. The cross section was square.

## TRADE MATERIAL

A small, unidentifiable piece of iron was also found at the site.

## SITE 25H09

Site 25H09 is located about 3 miles east and a little north of Mullen, in Hooker County, Nebr. The Historical Society has in its collections from this site several small, sand-blasted Dismal River sherds. They are generally dull buff to gray-black. The paste is gritty and usually contains little or no tempering. Tempering, when present, consists of small amounts of medium-sized sand. Smooth sherds seem to predominate over simple stamped sherds.

A few chips of jasper, chalcedony, and quartzite are included in the collection from this site.

The Smithsonian Institution Missouri Basin Project has a small collection from the site consisting of several small sherds, a little unworked stone, one type NBa1 projectile point, and what appears to be a fire-spalled rubbing or milling stone.

## SITE 25H021

## INTRODUCTION

The Humphrey Site, or, as it is sometimes called, the Matthews Site, is located on the south bank of the Middle Loup River about 5 miles east of Mullen, in Hooker County, Nebr. The site was located by a survey party of the Missouri Basin Project of the River Basin Surveys, Smithsonian Institution, in the spring of 1947. It had been known previously to local collectors. Marvin F. Kivett, who was in charge of the survey party which located the site, returned in the summer of 1949 under the auspices of the Nebraska State Historical Society. Kivett, under the direction of A. T. Hill,<sup>5</sup> with a small party, spent several days testing the edge of the site which had been badly gouged by graveling operations. The Nebraska State Historical Society has made the artifacts collected and the records of the excavation available for study. The site was visited by the author in the summer of 1949 but not until excavation had ceased.

The site is located on a terrace about 20 feet above the flood plain of the river and has only recently been cultivated. The village area

<sup>5</sup> This was the last site dug under the direction of the late A. T. Hill, former director of the Nebraska State Historical Society Museum.



extends away from the river up a slight smooth slope and is estimated by Kivett to be about 300 feet in diameter.

The occupation level is covered with 1 to 3 feet of sandy soil which was topped with a good stand of native grass at the time of excavation.

Excavation was confined to the edge of the terrace at the request of the landowner.

#### STRUCTURES

Postholes, fireplaces, and what appeared to be lodge floors were found at the Humphrey Site. However, the postholes failed to form a definite pattern around a fireplace. The floors were represented by heavily stained areas and concentrations of village detritus. One area was covered by a layer of clay 1 to 2 inches thick which may have been brought in to form a floor covering. Also, charred timbers and twigs found at floor level may have been part of structures. In at least one instance, a posthole was found to contain a vertical bison long bone section, presumably used to tighten a loose post. Some of the postholes contained rotted wood. The fireplaces appeared as black burned areas containing much carbon. The rings of red burned earth which indicate fireplaces in less sandy areas were not present at this site.

#### PITS

The most significant features of the site were pits with a dark fill usually containing village detritus and artifacts. The sizes of the pits are given in table 12. Some of the pits were found at village level, whereas others were not detected until the village level had been removed and the dark fill was observed against the light-colored soil below.

TABLE 12.—*Trash-filled pits from 25HO21*

Feature No.	Diameter E-W (Inches)	Diameter N-S (Inches)	Depth below village level (Inches)
2.....	72	87	20
3.....	60	42	18
5.....	42	38	12
7.....	72	48	24
8.....	40	36	14
10.....	30	33	12

Another pit found at the Humphrey Site was considered by Kivett to represent a roasting pit or basin. The pit was about 48 inches in diameter, 12 inches deep, and contained an abundance of white ash, charcoal, and burnt earth as well as some river pebbles.

An oval concentration of sandstone pebbles with one quartz pebble covered an area 12 by 14 inches and was from 4 to 6 inches thick. The stones show considerable burning and may represent a hearth

area. The stones were surrounded by charcoal-stained sand, but no ash was found.

## POTTERY

The pottery from 25HO21 corresponds closely with that from the Dismal River sites in southern Nebraska. The only differences are in the frequencies of various traits. Such differences seem too minor to justify the establishing of an additional focus, at least on the basis of pottery.

The paste of sherds from the site is fine textured and definitely gritty, but is slightly less granular and less gritty than that from White Cat Village. Gouging of the sherds with a steel probe leaves occasional white streaks as if some of the particles powdered under pressure, but does not divide the 25HO21 pottery into as discrete particles as it does the pottery from White Cat Village. The tempering in the pottery from the two sites is comparable. It varies from no tempering material in addition to the very fine grit in the paste to moderate amounts of fine sand with only occasional inclusions of particles 0.2 cm. or larger in diameter. Sherds containing mica in addition to sand are rare at this site.

Surfaces of sherds from 25HO21 vary from smooth and almost polished to deeply simple stamped. A few of the surfaces suggest simple stamping which has been almost obliterated by smoothing. Some of the pottery duplicates the relatively thick, smooth Dismal River pottery found at Ash Hollow Cave and in lesser amounts at a few other sites. This pottery is generally buff to gray with an occasional black sherd.

A sample of 100 body sherds from 25HO21 was selected at random and checked for hardness and thickness. The average thickness was 0.6 cm. with a range of from 0.3 to 1.1 cm.

The range of hardness of this same sample is given in table 13. The average hardness is about 4.5.

TABLE 13.—*Hardness of pottery sherds from 25HO21*

Hardness	Total number	Smooth	Simple stamped
2-3.....	7	7	0
3-4.....	21	9	12
4-5.....	34	19	15
5-6.....	36	14	22
6-7.....	2	1	1
Total.....	100	50	50

Simple stamped sherds tend to be harder than the smooth sherds. It is interesting to note that the softest sherds (hardness from 2-3)

were all smooth. The paste of these seven sherds does not appear to differ from that of the other pottery at this site.

The 100 sherds checked for hardness and thickness and texture were also checked for surface treatment and found to be equally divided between smooth and simple stamped. An additional 150 sherds examined were found to contain 72 smooth sherds, 73 simple stamped, and 5 indeterminate. This verified the equal representation of the two surface treatments observed in the first sample.

The rim sherds from 25HO21 present a variety of types of lip decoration (fig. 23). Twenty-five of the sherds had lines either incised or impressed diagonally across the lip. The distance between adjacent lines varied from 0.3 cm. to 0.9 cm. Seventeen of these sherds had a thickened and somewhat flattened lip. There was no evidence of thickening at the lip on the other eight sherds.

Three rim sherds had parallel lines incised or impressed radially across the lip. The lines were spaced about 0.4 cm. apart and were from 0.1 to 0.2 cm. wide.

Two of the rim sherds had chevrons incised in the lip so that they pointed counterclockwise around the rim. The lip on one of these sherds was 1.3 cm. wide with the arms of the chevrons from 1.2 to 1.4 cm. long and spaced at about 2.2 cm. intervals. The second sherd with the chevron design had only one chevron. The lip was slightly thickened and was about 0.6 cm. wide. The arms of the chevron, which pointed counterclockwise, were about 0.4 cm. long.

One rim sherd had a thickened lip, somewhat beveled to the outside. On the beveled portion of the sherd were deeply incised opposed diagonals. The sherd was buff in color and had vertical striations on the outside of the rim.

Six of the rim sherds had elongated punctates placed on the lip with the long axis of the punctate oriented tangentially on the lip. Five of these six sherds had a flattened lip, the other had a rounded lip.

Four other rim sherds had lips decorated with punctates. One of these had punctates very close together. The punctates were about 0.4 cm. in diameter and the lip was 0.7 cm. wide. Another sherd had elongated punctates in the lip with the long axis of the punctates oriented radially. The other sherds had evidence of punctates in the lip but were so small that it was impossible to determine the nature of the design.

One rim sherd had broad shallow depressions across a slightly thickened lip. These depressions appeared to have been made by pressing the lip while it was yet soft with a finger or thumb. There was no space between the impressions.



Three rim sherds had thickened lips with the surface of the lip irregularly roughened. One of these appeared to have rows of three small depressions diagonally across the lip.

The majority of the rim sherds had no decoration on the lip (fig. 22). Of these, 66 showed flattening of the lip with little or no thickening. The next most common variant was represented by 28 of the rims. These showed flattening of the lip with very definite thickening. Such thickening was toward the inside of the vessel, or the outside of the vessel, as well as toward both the inside and outside.

One interesting rim sherd had horizontal ridges around the outside of the rim. The ridges were 0.6 cm. apart with the top ridge about 1.0 cm. from the lip. Another rim sherd, about 1.5 cm. thick, had two grooves spaced 0.9 cm. apart encircling it. The sherd was broken just below the lower groove so the shoulder area was not present.

One lug or ear was found at 25HO21. The specimen was 2.0 cm. wide, 0.4 cm. thick, and had projected 1.8 cm. from the vessel. It has seven finely incised parallel lines on what was probably the top of the lug and two parallel incised lines extending from the under side of the lug down on the vessel.

One specimen may be part of a loop handle but is so fragmentary that absolute identification is impossible. The piece is 1.2 cm. wide, 1.8 cm. long, and 0.6 cm. thick. The paste of both the lug and the possible handle is highly comparable to the paste of the other pottery from the site.

The Historical Society has one miniature pot fragment from the site.

Another sherd closely resembles the smooth, thicker Dismal River pottery found at Ash Hollow Cave, except that it contains some mica along with sand tempering. This particular sherd appears to be from a flat-bottomed vessel with outward-sloping sides. The portion of this sherd representing the bottom is 1 cm. thick and the wall portion was 0.9 cm. thick.

The Smithsonian Institution has in its collection from 25HO21 two sherds which are of particular interest. One of them is a rim sherd (pl. 10, *c*) from what appears to be a constricted orifice bowl with a definite shoulder angle. The lip is smooth and rounded. The most spectacular feature of the sherd is the incised decoration. Nearly parallel lines 0.4 to 0.5 cm. apart start at the lip and run straight down to the shoulder angle where they are met by other nearly parallel lines at an angle of about 150°. The orifice appears to have been 10 to 12 cm. in diameter. The shoulder area is about 2 cm. wide. The sherd is 0.6 cm. thick. The paste is gritty and

quite compact, not unlike the paste of the rest of the pottery from the site. It contains a small amount of fine sand tempering. The outer surface of the sherd is black; the paste is a dark buff. The sherd shows a little tendency to split and to break along the incised line decoration.

A body sherd from the site has two nearly parallel, lightly incised lines about 0.9 cm. apart (pl. 10, *a*).

There are a few sherds from 25HO21 which show a suggestion of painting. One sherd shows dark parallel lines on a sherd with buff surfaces and paste. Although buff sherds are rare in Dismal River, the color in this case could be the result of refiring in an oxidizing atmosphere. Except for this and one other buff sherd with a dark core and a single poorly executed painted line, no design elements are observable. These sherds, which may be painted, might be southwestern sherds or show southwestern influence.

The paint on some of the sherds appears to have been either spattered or dribbled on. The painting, if it may be called that, occurs on both the inside and outside of the sherds and predominantly on smooth sherds but occasionally on simple stamped sherds. The painting always appears as dark, often definitely black, on a buff surface. One sherd has what may be an orange slip on the inside. The paste is buff, except for a very thin layer which is black, and shows some polish. Except for color, the paste is well within the range for the rest of the pottery from the site. Buff color is not of special significance when found in Dismal River pottery since the black pottery becomes buff when refired in an oxidizing atmosphere.

Only one aberrant sherd was noticed in an examination of the entire collection from the site. This sherd (H25HO21-1347) is very small but appears to be Upper Republican.

Several fragments of pottery representing about six pipes were found at 25HO21. A portion of the bowl of one pipe had been rectangular with rounded corners (pl. 11, *a*), and appears to have been about 2.5 cm. by 3.0 cm. The edge of the bowl was thickened to 0.5 to 0.7 cm. In the thinnest portion it was 0.2 cm. thick. The lip was flat and quite compact. It showed no tendency to crumble. A few of the fragments of other pipes had similar paste. The paste seems well within the range of that in the pottery from the site. About a centimeter below the lip, an overall checked design has been incised. Rows of parallel vertical lines have been incised over rows of parallel horizontal lines. The parallel lines vary from 0.3 to 0.5 cm. apart.

Another portion of a pipe bowl appears to have been from a platform pipe (pl. 11, *c*). The outside diameter of the bowl had been about 5 cm. and the inside diameter about 1.5 cm. This left a flat



lip about 1.8 cm. wide with closely spaced incised lines about 0.3 cm. long along the outer edge and radially oriented. The outside of the bowl became smaller below the lip and the inside of the bowl became larger. Two centimeters below the lip, the wall of the pipe was only 0.7 cm. thick.

Several fragments appeared to be portions of tubular or "cloudblower" pipes. One flattened mouthpiece (pl. 11, *b*), probably from such a pipe, was 2.9 cm. wide and 1.4 cm. thick. About 1 cm. from the end of the mouthpiece the specimen starts to taper. The hole through the mouthpiece was 0.5 cm. in diameter. One fragment found with the pipe may represent part of the bowl. If so, the bowl would have been about 0.5 cm. thick and perhaps 2 cm. in diameter.

A fragment of another pipe indicates a flattened mouthpiece about 3 cm. across and 1 cm. thick. The paste of these two "cloudblower" pipes is gritty and much less compact than is pottery from the site. The pipes show a greater tendency to crumble and split, suggesting that the paste was less well worked than that used in vessels.

A keel-shaped pottery fragment which probably represents part of an elbow-shaped pipe was found with some other fragments that could be from such a pipe. One of the fragments is so curved that it may have been part of the inside of the curve of the elbow. The paste in these fragments is very similar to the paste in the "cloudblower" pipe fragments. Several other pipe fragments are too fragmentary to indicate original shapes.

The Smithsonian Institution has in its collection from 25HO21 a small pellet of pottery clay. The specimen is round, 1.3 cm. in diameter and 0.4 cm. thick in the center and thinner toward the edges. There are small lines across the edges of the object that may represent intentional decoration or merely cracks formed by the flattening of a ball of clay. The paste appears to be black with a light-colored mineral deposit on the surface.

#### WORK IN STONE

Stone, especially unworked stone, was relatively rare at 25HO21, owing, perhaps, to the scarcity of workable stone in the area. By far the greatest amount of unworked stone consisted of moderately fine-textured white sandstone, many pieces of which appear to have been concretions.

A great variety of stone had been used. Chalcedony, quartzite, brown jasper, and Bad Lands chalcedony were common, in a wide range of colors. A few pieces of light-colored flint and red sandstone, and rare pieces of crystal quartz and agate were also worked. A few fragments of waterworn pebbles had been broken and worked, and a few pieces of granite and quartz show evidence of having been



pecked and polished. A fragment of obsidian and one of hematite were found.

A comparison of worked stone at 25HO21 with that from Dismal River sites in the southern part of Nebraska indicated limitations in both the size and number of stone artifacts at 25HO21, except in the case of sandstone abraders. The amount of unexploited workable stone recovered is also surprisingly small, although this might be due to the limited excavation and the lack of surface collections. The artifacts seem to show a little more care in chipping than those from White Cat Village. For example, there are fewer nondescript pieces of stone with fine working edges. The best workmanship at both sites is about equal; there tends to be less poor workmanship at 25HO21 than at White Cat Village. Further, the 25HO21 stonework is characterized by a lack of large, crude choppers, and by an abundance of scrapers.

All the types of stone represented by completed artifacts are represented by unworked stone or by the chips left from the manufacture of artifacts. This suggests that any trading in stone was in the form of raw material, rather than in the form of finished tools.

*Projectile points.*—The projectile points from 25HO21 are almost entirely triangular in outline. They have either straight or concave bases and may be either notched or unnotched. A tabulation of point types is given in table 14.

TABLE 14.—*Projectile points found at 25HO21*<sup>1</sup>

Type	Number	Type	Number
NAb2.....	1	SCal.....	1
NBa.....	11	Unclassifiable.....	15
NBa1.....	5		
NBb.....	14	Total.....	57
NBb1.....	10		

<sup>1</sup> For point shapes, see figure 21.

The quality of workmanship on the points varies, but, in general, the notched points show the higher quality of chipping.

*Drills.*—Only five drills could be definitely identified. Four of these items (pl. 15) had been of the expanded-base type, but none was complete. The maximum diameter of the shanks varied from 1.6 to 1.0 cm. The original lengths of the shanks could not be estimated.

Only one specimen (pl. 15, *g*) of the cigar-shaped type reported from other Dismal River sites was found at the Humphrey Site. This specimen shows much use, resulting in smoothing of the cutting edge. The specimen is broken; only 2.7 cm. of the point was found. The

drill, made of brown jasper, came to a rather blunt point and was 1.0 cm. in maximum diameter.

One specimen which may have been a drill (pl. 15, *f*) was about 5.0 cm. long with a rather blunt point. It was 0.8 cm. in diameter at the point and 2.3 cm. in diameter at the widest portion. This specimen shows some use but is far from being worn smooth. Another fragment which may have been used as a drill (pl. 15, *e*) has a shank about 2.3 cm. long and 1.4 cm. in diameter. It also shows some use. Two other possible drills (pl. 15, *h*, *i*) are chipped on only one face. Both are 2.8 cm. long and 1.4 cm. in greatest diameter. The points are rather blunt.

One very unusual drill-shaped object (pl. 15, *d*) has an overall length of 7.2 cm. Its outstanding features are two pairs of lateral projections, about 2.8 cm. apart. The maximum diameter at the projections is 1.6 cm., although the maximum diameter elsewhere is 0.9 cm. The material is light-brown silicified chalk which does not flake leaving sharp edges. This material is lighter and softer than jasper. In view of some of these properties, the specimen does not seem especially well suited for use as a drill.

*Knives.*—Of the 21 artifacts from 25HO21 considered to represent knives, only 6 (pl. 17, *a-f*) showed careful workmanship. Two, and possibly the other four which are broken, represent variations of the point type NAb2 (fig. 21). The two nearly complete blades were 4.7 by 2.8 cm. and 4.4 by 2.7 cm. At least two and possibly all four of the broken blades had been larger than the two complete ones. The materials from which these were made were: gray, brown, and red flint or jasper; brown quartzite; and Bad Lands chalcedony. The workmanship on these knives was careful as compared with that on the other knives from the site, but was far from delicate.

The most common type of knife (pl. 17, *g-i*) from the site consisted of a cutting edge chipped on a thin sheet of chalcedony and, in one instance, on a thin sheet of brown jasper. These 10 specimens show little or no chipping except at the cutting edge. The original patinated surfaces were preserved elsewhere.

The other knives show little in common except rough chipping from both surfaces. They seem to be random in shape and seldom show retouching. They are made from flint, jasper, and quartzite.

Sharp flakes and retouched flakes, some as long as 7.5 cm., were apparently used when there was a need for keener cutting edges than are found on the knives. It is frequently difficult to determine whether the chipping on a flake is deliberate or whether it represents use retouching. Usually the retouching on such flakes is from one surface



only. Such artifacts grade into side scrapers, and frequently end scrapers show evidence of any suitable edge having been used for cutting. The material again is jasper, flint, chalcedony, and quartzite. Flakes with modified edges are common as compared with other stone artifacts at this site.

*Choppers.*—The large, crude choppers typical of the Dismal River sites in southern Nebraska are, for the most part, lacking at 25HO21. This could be due to the lack of readily available stone. There are, however, a greater proportion of crude knives at this site than at White Cat Village. It could well be that the knives represent the substitution of smaller but somewhat better-made tools to serve the same purpose as choppers, whatever that might have been.

Only three specimens from 25HO21 are comparable to the large crude choppers mentioned above. The one complete specimen is of brown quartzite and is 7.5 by 5.5 cm. It shows rough chipping, probably by percussion alone, from both surfaces. In size, this specimen is comparable to the smaller specimens from White Cat Village. The two broken specimens from 25HO21 are of green quartzite and show percussion chipping on only one surface. One, in particular, shows much battering of the cutting edge.

The Smithsonian Institution has in its collection from 25HO21 one large crude chopper, in the tradition of those from White Cat Village. This specimen is of greenish quartzite and is 16 cm. long and 6.5 cm. wide. It has a cutting edge chipped along one long side from one surface only.

*Scrapers.*—Seventy artifacts which could be classified as end scrapers are made from a variety of materials including brown and gray flint, chalcedony, agate, and quartzite. The gray flint seems to be more frequently represented in scrapers than in other types of artifacts. Only one scraper of quartzite and none of Bad Lands chalcedony was found. The end scrapers range in size from about 2.5 to about 6 cm. in length and from about 2 to 3.5 cm. in width of scraping surface. Thickness varies from 0.5 to 1.7 cm.

End scrapers, for the most part, show overall chipping in contrast to the scraping edges chipped on random pieces of stone found so commonly at White Cat Village. Six of the scrapers had small projections or tangs resembling "graver" points (pl. 20, *a-f*). One unusual scraper (pl. 20, *h*) had two concave edges. Both of these edges, along with the scraping edge, seemed to show considerable use. This specimen also had five projections of different sizes which could have been used as "gravers."

A few of the end scrapers had other edges which might also have been used as scrapers or cutting tools. These edges vary from well-chipped scraping edges to mere evidence of use retouching. Only a few



of the scrapers showed excessive battering or dulling of the scraping edge.

The eight side scrapers from 25HO21 are less well made than are the end scrapers, and are frequently random pieces of stone which have been beveled on one or more edges from only one face. Less care seems to have been taken in producing an even, uniform edge than in the case of end scrapers, and the scraping edge is frequently thinner on the side scrapers than on the end scrapers. In the artifacts from 25HO21 there is a gradation from a very few well-made side scrapers through crude knives or small choppers on to flakes showing retouching or use-retouched edges. Occasionally there is a combination end and side scraper from this site.

*Other chipped-stone artifacts.*—One artifact found at 25HO21 appears to be a small "spoke shave." It has a finely chipped concave edge 1.3 cm. across. This could have been used for shaving down arrow shafts or for other similar work. In addition, it has three points which could have been used as gravers.

Three other artifacts (pl. 20, *g-i*) have points but do not seem to represent drills. Two of them have been chipped from only one surface. Since the point appears to have been deliberately formed, these may have been used as gravers. One which is chipped from both surfaces (pl. 20, *g*), however, could represent a poorly shaped point, knife, or drill.

*Abraders.*—Of the 29 abraders, all broken, found at 25HO21, 23 were of the shaft-polisher type (pl. 24, *a-f*), showing a groove across one face of the stone. The grooves are about 1 cm. in width and vary in depth from 0.1 to 0.5 cm. Only 2 of the 23 had grooves in more than one face. These had one groove in each of two opposite faces.

Six of the abraders had grooves of other widths. One of them had two grooves, 1.0 and 1.5 cm. wide, in one face. These grooves were 0.5 and 0.3 cm. deep respectively. There was also a narrow shallow groove in one end. Four of the abraders had from 1 to 15 narrow, shallow grooves (pl. 24). None was over 0.3 cm. wide and most did not continue across the entire surface. The abraders with the narrow grooves could have been used for such purposes as sharpening awls. One abrader had a shallow groove across one face 1.8 cm. in width. Four were of red Dakota sandstone, the rest were from white to buff Ogalalla (?) sandstone.

*Ground stone.*—Ten pieces of stone had been ground and pecked and then polished. About as many more may have been polished but are too fragmentary for certain identification. The materials polished are, in order of their frequency: quartz boulders, hard sandstone, and schistlike stone. The specimens large enough to identify appear to have been biscuit-shaped rubbing stones with one or both faces

showing use. The faces are either flat or convex. The one complete specimen (pl. 25, *b*) had one flat surface and one unworked surface. Its dimensions are 14 by 8.5 by 2.5 cm.

Two flat pieces of buff sandstone have one face well impregnated with a red substance resembling hematite. One piece of fine-grained hematite shows scraping which, from the direction of the scratches, would appear to have been done with a blade of some kind.

Only two specimens show any sign of battering, as would be expected if they had been used as hammerstones. One of these (pl. 25, *a*) shows use on both ends. This specimen is 9.6 cm. in length and 6.2 cm. in greatest diameter.

#### WORK IN BONE

Worked bone was abundant and well preserved at 25HO21. Complete and broken artifacts, as well as unfinished artifacts and scraps left from the process of manufacture, were found (table 15).

TABLE 15.—*Bone artifacts from 25HO21*

Artifacts	Number	Artifacts	Number
Scapula digging tools.....	14	Stemmed projectile point.....	1 <sup>1</sup>
Shaft wrenches.....	5	Socketed point.....	1 <sup>1</sup>
Flesher.....	1	Scraps from awls, etc.....	18
Ulna pick.....	1	Round bead.....	1
Perforated scapula hoe.....	1	Awl butts.....	21
Whistle.....	1	Splinter awls.....	11
Eyed needle.....	1	Flaker.....	1
Tubular beads.....	8	Armband.....	1
Flat awls.....	7	Rib beamers.....	4
Triangular awls.....	18	Spatulas.....	3

<sup>1</sup> Possibly another.

*Worked scapulae*.—Fourteen pieces of bison scapulae appear to be portions of digging tools (pl. 36, *a*, *c*). All these lacked the articular end, and several show that the articular end has been cut and then broken off. The scapula spine had been removed from all, and in each case the cutting edge is well polished. Some have a beveled cutting edge, but there is no consistency with regard to which way the edge is beveled, and it is not possible to determine whether the bevel was intentional or a result of use. There is no obvious indication that these tools were hafted.

The only scapula artifact retaining the articulation is shown in plate 34, *c*. Both the costal and dorsal margins of the glenoid cavity have been partially cut away and polished. A hole about 18 by 20 cm. has been drilled through the scapula about 11 cm. from the articulation. The spine has been removed. Unfortunately, little but the neck of the scapula remains, the rest having been broken off. Since none of the digging tools described above retain the articulation,



it seems unlikely that this specimen is a portion of such a tool. It more probably represents a hoe or adz type of tool. The cutting away of portions of the glenoid margin has produced a groove perpendicular to the flat portion of the scapula. It seems likely that this was done to facilitate the hafting of the tool, since a handle could be laid in this groove and bound to the scapula by means of thongs passed through the hole and tied to the handle on either side of the scapula. If green thongs were used, the handle would be very securely fastened when the thongs dried.

*Fleshers.*—The one bone flesher found (pl. 34, *a*) was not toothed and was not found articulated. It was made from a bison metatarsus by cutting or breaking it at an angle. The break was then partially smoothed and a cutting edge sharpened.

*Shaft wrenches.*—The four shaft wrenches found (pl. 30, *e*) were made from ribs. None of these were complete but were broken at the hole. The drilled holes were about a centimeter in diameter and either worn smooth or polished. The hole in one of the specimens appears to have been either drilled at an angle of about 45° or to have been very much elongated on one side. The hole in another went straight through. Another bone fragment has a hole about 0.6 cm. in diameter drilled through it. The specimen resembles a portion of a shaft wrench except for the smallness of the hole.

*Whistles.*—One bone artifact found at 25HO21 was probably a bird-bone whistle (pl. 32, *j*). The outside diameters of the bone are 1.1 and 1.5 cm. It has one hole, about 0.6 cm. in diameter, drilled into but not through the bone about 2 cm. from one end. There is no hole for the next 3 cm. but from there on, the side in which the holes would probably be, if there had been more, is broken away. The length of the portion remaining is 12 cm. but this does not represent the entire length of the specimen, since it is broken. There is a V incised in the end of the specimen near the hole. The sides of the V are 0.6 cm. long and the apex is at, and just cuts through, the end of the whistle.

*Bone projectile points.*—The two bone projectile points found at the site are of different types. The stemmed point (pl. 30, *b*) is rectangular in cross section with the sides slightly convex. The stem is round in cross section. The point appears to have been made from a section of long bone, since just a little of the cancellous inner portion of the bone is found on one side. The surfaces show fine diagonal scratches which appear to have resulted from shaping with sandstone abraders. The body of this point is 7.3 cm. long, 1.2 cm. wide, and 0.7 cm. thick at the largest portion. The stem is 2.2 cm. long and the diameter at the thickest portion varies from 0.6 to 0.7 cm.

The other bone projectile point found (pl. 30, *a*) is ellipsoidal in



cross section and socketed to receive the shaft. The specimen is 7.8 cm. long and the diameter varies from 1.0 to 1.4 cm. at the thickest portion. The socket, which tapers, is 1.6 cm. deep, about 0.6 cm. in greatest diameter. Three V-shaped notches have been cut about 0.7 cm. deep into the socket. Thus the exact base of the specimen is represented by three points, nearly equally spaced. The point shows scratches around it as if it had been shaped by being rotated on a piece of sandstone. Another conical piece of bone or antler about the same length and a little larger at greatest diameter may represent another similar projectile point, but its preservation is too poor for it to be positively identified as such.

Another artifact from the Humphrey Site may have also been a bone projectile point (pl. 30, *c*). In most respects, the specimen resembles the awls with a triangular cross section. It has, however, had a round stem worked on the butt end. The specimen is 11.6 cm. long and 1.3 cm. in greatest diameter. In cross section it is shaped like an isosceles triangle, with the two equal sides the longest. The stem (which is nearly round in cross section, about 2 cm. long, and tapering) shows considerable polish, but the point shows little. One side of the specimen shows the cancellous portion of the bone, which suggests that it was made from the edge of a rib. The artifact shows sufficient symmetry to have been intended for a projectile point.

*Beads.*—Tubular beads were the most common type found at 25HO21 (pl. 32, *a-g, i*). The workmanship on these varied greatly, the crudest being nothing more than sections cut from suitable bones, with little or no polishing of even the cut ends. The bead showing the most work (pl. 32, *f*) was slightly barrel shaped and the bone from which it was made had been greatly thinned and highly polished. This bead was 2.0 cm. long and varied in diameter from 1.0 to 1.2 cm. The thickness of the bone was nowhere over 0.2 cm. and in most places it was thinner at the ends, the bead was thinned to a sharp edge. The other tubular bone beads varied from 2 to 5 cm. in length and from 0.4 to 0.8 cm. in diameter. A few scratches were found on the beads but nothing resembling a design was present.

Another bead from the site (pl. 32, *h*) is unusual. It is oval in shape, 0.9 cm. by 0.7 cm., and is 0.3 cm. thick but deeply concave on one side and convex on the other. The concavity equals the thickness of the bead. A round hole through the bead is centrally located and is about 0.2 cm. in diameter. The entire bead is smooth and shows a high polish, even on the concave surface and in the hole. The material is very fine grained and white and has been identified as probably tooth. The workmanship is extremely good.

*Awls.*—Bone awls were common at 25HO21 and three types were

represented. The most common type is triangular to nearly round in cross section (pl. 27, *a-c*), and, for the most part, these appear to have been cut from the edge of ribs. The cancellous inner portion of the bone is visible on one side of the awl. These awls are pointed at one end and usually rounded at the other. Occasionally the points are dull and some examples are rather abruptly pointed.

The second type of awl is represented by pointed flat sections of split bones (pl. 28, *d-f*). These are usually sharply pointed, but show very little work except on the point. The shape and size vary, but they are several times as broad as they are thick. One side is cancellous in nature and seldom indicates any attempt at smoothing.

The third type of awl found at this site consists of random bone slivers which have been pointed at one end (pl. 28, *a-c*). The rough edges above the points may or may not be smoothed. Frequently the points of these awls are very sharp.

A series of specimens closely resembling the awls triangular in cross section were found (pl. 27, *d-f*). However, none of these possessed points. One end was worked smooth, usually rounded, and the other end was roughly broken. If it were not for the fact that many more of these specimens resembling awl butts were found than broken points of awls, it might be assumed that they were broken awls. Only 2 of the 21 specimens showed smoothing of the broken end. The name "punches" has been suggested for these specimens, but this does not seem appropriate since there is no evidence of battering on the end of the tool and the specimens are polished or at least smoothed everywhere but on the broken end.

*Scraps and blanks.*—The worked bone from the site included many items which appear to have been scraps left from the manufacture of awls. Two pieces (pl. 29, *e*) appear to be blanks for triangular awls. Both of these are the edge sections of split ribs which have been somewhat smoothed along the split edge and on one end. Such long sections were probably cut into proper lengths by scraping the bone thin at one point and then breaking it. Several specimens show the end left by such a cutting method (pl. 29, *b, d*). The rough end which was tapered from the thinning was then smoothed into the point (or butt) of the awl.

Several small portions are rectangular in cross section and appear to be scraps remaining from the manufacture of bone projectile points (pl. 29, *a, c*).

The Smithsonian Institution has in its collection from 25HO21 a section of bison scapula left from the manufacture of some bone implement, possibly a projectile point. The end from which the implement was severed has sufficient size to have furnished material for a projectile point of the rectangular cross-section type. At this



end the bone, exclusive of the cancellous portion, is 1.1 cm. thick and has been worked down to about 1.5 cm. in width. Since no other bone artifact was found which appeared to have been made from this section of a scapula, and since the square projectile point found is so completely worked as to have eradicated any evidence of its source, it is possible that this specimen may represent the scrap remaining after the removal of the section from which a point was made.

*Eyed needles* (?).—A well-made bone artifact, resembling a curved needle (pl. 33, *a*), was 10.4 cm. long, 0.5 cm. wide, and 0.2 cm. thick. One end is broken, but the other end had a neatly drilled hole about 0.2 cm. in diameter, the edge of which is 0.2 cm. from the end of the artifact. The specimen has been well shaped and smoothed but shows little polish. Kidder (1932, p. 239, fig. 200, *i*) illustrates a very similar artifact except that it does not necessarily appear to be curved. The caption refers to it as "Fragment of bone head-band?"

The curvature of the 25HO21 artifact is too great for it to have served such a purpose. The chord joining the two ends of this artifact is 8 cm. long. The distance from the midpoint of the chord to the artifact is 2.7 cm. There is no evidence of the specimen's having been used as a needle since there is no evidence of polish through use or of polish in the eye. In addition, there is no taper to the specimen.

A much shorter specimen may represent another similar artifact (pl. 33, *b*). It is 4.4 cm. long, 0.6 cm. wide, and 0.3 cm. thick. The specimen shows much less curvature than does any portion of the longer specimen. On the inside is a groove about 0.1 cm. from the end and less than 0.1 cm. wide. The groove is found only on this one side. The end nearest the groove is squared off and somewhat smoothed. The preservation of the bone is not too good, so it is difficult to determine whether or not the other end has been smoothed.

The Smithsonian Institution has in its collection from this site still another fragment of a similar artifact. This specimen is 6.1 cm. long, 0.8 cm. wide, and 0.3 cm. thick. A hole a little over 0.2 cm. in diameter is drilled through the specimen 0.7 cm. from one end. The other end is broken. The specimen shows slight curvature and is well finished, with square corners throughout.

*Armband* (?).—A perforated bone artifact in the Historical Society collection from 25HO21 (pl. 33, *c*) may represent a head or armband. Only one corner of this specimen remains. The specimen varies in thickness from 0.2 to 0.3 cm. and is 12 cm. long and 4.1 cm. wide. The hole, which is very near the corner, is 0.3 cm. in diameter and nearly round. The curvature is considerably less than that of the needlelike artifact. The chord distance between the two ends is 10.8 cm. The midpoint of the chord is 2.0 cm. from the artifact. The preservation of this artifact is not good so it is difficult



to determine the degree of polish which it may have had. The grain of the bone appears to run lengthwise of the artifact. Four scraps of bone appear to have been worked in a similar manner. These pieces, which are much better preserved than the armband, appear to have been left from the manufacture of other artifacts. All of them appear to have been thinned by scraping on both the inside and outside of the bone. Cutting was done by sawing or cutting nearly through the bone and then breaking. The thinning appears to have been followed by flattening the bone and eventually forming the bone by curving it in the direction opposite to that in which the bone was originally curved. The four fragments appear to have been cut off at different stages of manufacture.

*Bone spatulas* (?).—Three other flat, thinned pieces of bone were found (pl. 31, *a*, *b*). Two of these are spatula shaped with one rounded end. The smaller one, which shows the least thinning, is well impregnated with what appears to be red hematite. The other rounded spatula is thinned to almost a sharp edge which shows considerable polish. The third artifact in this group has a blunt point which shows shaping, smoothing, and some polish. Except for the point, which shows the definite work, the artifact is only superficially smoothed.

*Worked rib sections*.—Four rib sections from this site have been cut or broken and the ends polished (pl. 31, *c*, *d*). Only one has both ends present. It has a large sliver broken or cut out of the side. These specimens all show considerable use of one or both of the thin edges of the rib. In one specimen, the edge has been worn into the cancellous portion of the bone. All the specimens appear to represent relatively straight sections of ribs, probably bison. These could possibly be considered "beaming" tools.

*Ulna pick* (?).—One bison ulna shows considerable battering on the pointed end (pl. 34, *d*). The battering has apparently resulted from use, although not necessarily from use as a pick.

*Flaker* (?).—A piece of antler tine (pl. 30, *d*) 8.5 cm. long was found at the site. The large end has been partly cut and then broken off. The specimen shows some indication of having been smoothed by scraping, and has been polished, probably by use. The tip has been broken off, perhaps by use of the specimen as a flaking tool for working flint, etc. This use, however, cannot be verified.

One piece of split long bone (pl. 34, *a*) has a working edge much like that on a flesher. The bone fragment shows little work except for the cutting edge, 3.8 cm. long, which is beveled toward what was the inside of the bone and shows considerable polish from use. The entire artifact is 16.5 cm. long. It was probably used as either a digging tool or a skinning tool.

*Faunal remains.*—The unworked bone from the Humphrey Site was identified by Theodore White, paleontologist with the Smithsonian Institution. The animals which he found represented are listed in table 16.

TABLE 16.—*Faunal remains from 25HO21*

Turtle (enys?)	Frog
Deer	Mink?
Antelope	Jackrabbit
Bird	Rabbit
Dog	Snapping turtle
Terrapin	Skunk
Badger	Eagle (?)
Elk	Bison
Beaver	

#### TRADE MATERIAL

One small fragment of iron was found associated with the cultural material at 25HO21. The specimen was too small and rusted to be further identified.

#### VEGETAL REMAINS

Three grains of charred corn were recovered from the occupation level at 25HO21. The occurrence of corn along with scapula digging tools strongly suggests that agriculture was practiced here. The use of wild plant food was attested by the presence of cherry pits at the site. The abundant charcoal from the site has not yet been analyzed to determine species of wood represented, nor have the possibilities of securing dendrochronological dates for the site been assessed.

#### SUMMARY AND CONCLUSIONS

A considerable amount of information was obtained from site 25HO21 considering the relatively small amount of testing done. The artifact inventory was surprisingly varied. Although neither house patterns nor bell-shaped roasting pits were found, the evidence obtained indicates that this site belongs to the Stinking Water Focus of the Dismal River Aspect. To be sure, there were minor differences in relative abundance of various artifacts. The differences in stone work such as an apparent substitution of smaller and better-made tools for larger, cruder tools could easily reflect differences in the amount of raw material available. The greater relative abundance of bone artifacts at 25HO21 could be due in part to better conditions for the preservation of bone.

Subsistence apparently was based primarily on hunting, small animals having been utilized along with the larger ones. The presence of charred corn and scapula digging tools would indicate the practice

of agriculture and provides the first good evidence of aboriginal agriculture in the Sandhills area. Wild plant foods were utilized, as evidenced by cherry pits. The relative abundance of skin-dressing tools and awls suggests extensive use of skins, which would be expected in a subsistence economy centered on hunting. The absence of both fish and horse bones from this site is of interest, since such bones are lacking at other Dismal River sites and in view of the suggested ethnohistoric identification of the Aspect with Athabascans, who traditionally used no fish and were late in obtaining horses.

Dating for this site is only speculative, but it was probably occupied about 1700. This date is suggested because of the presence of metal and because of the great similarity between the material from this site and that from sites dated by dendrochronology. There is charred wood from the site which might furnish dates if a tree-ring series is ever established for that area.

This site seems more worthy of further excavation than any of the other Dismal River sites in the area because it has not been damaged by blowouts and because it apparently is very prolific. The occurrence of postholes and fireplaces would suggest that further work might lead to the discovery of house patterns.

#### SITE 25HO24

#### INTRODUCTION

Site 25HO24 is located about 2 miles east of Mullen, in Hooker County, Nebr. The site, which is now slightly grassed over, has been badly scarred by blowouts in the past. It is located on the second terrace on the south bank of the Middle Loup River. Marvin F. Kivett, with a party from the Nebraska State Historical Society, tested the site in the summer of 1949. Previously, the site was known to local people, who had done a little digging. It is Kivett's opinion that most of the village level has been blown away.

Excavation at the site was confined primarily to the clearing of a badly burned, trash-filled pit. The pit contained charred wood and other material, burned bone, both worked and unworked, burned clay, burned stone, both worked and unworked, and pottery sherds. Much of the bone and stone was so damaged by the burning that it was not recoverable. An especially interesting feature of the pit was the many bone beads found in it. A few scattered postholes were found at the site but these failed to form pattern.

#### POTTERY

The pottery from site 25HO24 is highly comparable to that from site 25HO21. It appears to be about equally divided between simple



stamped and smooth. The thickness varies from 1.3 to 1.1 cm. and the color ranges from buff to gray and black. Tempering varies from none to moderate amounts of fine to medium-large sand. The paste is gritty, moderately compact, and fine textured. The sherds generally break squarely and seldom split.

The lips of the rim sherds from 25HO24 showed a few decorative techniques not found thus far at other Dismal River sites (fig. 22). One of these consisted of incised zigzag decoration in a thickened, flattened lip. Another sherd had broad punctates in the lip, apparently made with fingertip because the impression of the fingernail is evident. Another sherd had large diagonally impressed lines almost across the lip. The impressions are 0.3 cm. wide and lack about 0.2 cm. of extending across the outer margin of the sherd. These could have been intended as elongated punctates which did not extend across the lip. Two other sherds showed irregular roughening of somewhat thickened, flattened lips. One rim sherd had diagonally incised lines across the lip. Nine sherds had smooth lips varying from rounded to somewhat flattened and thickened.

One small fragment of a clay pipe was recovered from 25HO24.

#### WORK IN STONE

Much of the stone from 25HO24 came from a pit which had been heavily fired, resulting in the destruction of many artifacts. However, two fragments of projectile points were found at another part of the site. One of these, type NBb, was made of obsidian. The other was of chalcedony and was represented by the point only. Four end scrapers and a fragment of a side scraper were also found. Three specimens, two of which were badly fire spalled, appeared to be large, crude choppers. The largest of these was 16 by 9 cm. One arrow-shaft polisher and another piece of fine sandstone with many fine grooves were found also. A few chipped pieces of stone showed worked edges but no particular shape.

#### WORK IN BONE

Much of the bone from 25HO24 came from the heavily burned pit and was consequently badly damaged. Thirty-nine bone beads or sections of bone beads plus several smaller fragments were found in this pit. A few of these may represent sections of the same bead. In general, the beads show little work except for the cutting off at both ends. There is little difference in diameter in a single bead. Although it is not always possible to determine whether a bead is complete or broken, nine beads appearing complete varied from 4.3

cm. to 5.8 cm. in length. The largest diameter is 0.9 cm. None of the beads showed any decoration. The same burned pit yielded sections of what appeared to have been two flat bone needles (?) or headbands (?) such as were found at 25HO21. None of the fragments showed any indication of eyes. Three fragments were rectangular in cross section, 0.6 cm. wide and 0.4 cm. thick. The other 11 fragments were also rectangular in cross section and were about 0.9 cm. wide and 0.4 cm. thick.

A flat splinter bone awl was excavated from the site. This specimen is 7.2 cm. long and 1.5 cm. wide at maximum width.

A large amount of rotten wood was found at the site, especially in postholes.

Several pieces of black, porous, charred or coked material found in the burned pit closely resemble some of the material found in the fireplace of House VI at the White Cat Village although the material from 25HO24 may be more porous.

#### SITE 25HO30

The Nebraska State Historical Society has a surface collection from site 25HO30, which is located 8 miles southwest of Mullen, in Hooker County, Nebr. Most of the pottery from the site is Dismal River but some is similar to the pottery found at Glen Elder, Kans.

#### SITE 25HO31

Site 25HO31 is located about 13 miles southeast of Mullen, in Hooker County, Nebr. The Historical Society's collection from the site contains what appears to be Dismal River pottery but with coarser sand tempering than is usually found. A little pottery from the site appears to be Glen Elder.

#### SITE 25HO32

Site 25HO32 is located 15 miles southwest of Mullen, Nebr. The Historical Society's collection from this site contains coarsely tempered pottery similar to that found at 25HO31. This probably represents a variation of Dismal River pottery.

#### SITE 25HY4

The Nebraska State Historical Society has Dismal River pottery from one site in Hayes County, Nebr. This, the Horn Site, 25HY4, is located about 3 miles northwest of Palisade, Nebr. One rim sherd has a smooth, rounded lip. Some of the sherds show a little mica. Two chips of obsidian were also found.

## SITE 25C25

Site 25C25 is a blowout about 30 miles north and west of Mullen, Nebr. The Nebraska State Historical Society has a small collection from this site. The pottery resembles, for the most part, material found at various sites in Nebraska and Kansas which has been designated as "Glen Elder" after a site in Kansas. There are a few sherds, however, which look very much like Dismal River and which, because of their paste, do not fit into the other series.

## SITE 25C27

The Nebraska State Historical Society has a large amount of pottery from site 25C27, all of which appears to be Dismal River, although some of it is sand blasted, making identification difficult. The tempering in some of the sherds is a little coarser than is usually found in Dismal River pottery although several sites in the same general area have yielded pottery similarly tempered. A few of the sherds (pl. 9, *b*) have a surface treatment or decoration not yet reported from other Dismal River sites. These sherds have what appears to be rows of square to rhomboid punctates covering the entire sherd. The punctates are not especially distinct or regularly spaced and some sherds appear to have received some smoothing after the decoration was applied. The treatment somewhat resembles a form of check stamping but the surfaces are so eroded from sand blasting that a precise description is impossible.

The stone in the collection from this site is not especially distinctive although a few pieces of obsidian are present.

## SITE 25C28

The Nebraska State Historical Society's collection from site 25C28 contains very little material, but the pottery appears to be a mixture of Dismal River sherds and Glen Elder sherds. This site is near the North Loup River, about 12 miles northwest of Brownlee.

## SITE 25C29

Site 25C29 is located near the North Loup River, 9 miles northwest of Brownlee, in Cherry County, Nebr. The Historical Society has in its collection from this site small sand-blasted sherds which look very much like Dismal River. Some of the sherds appear to have been refired.

## SITE 25TM1

Site 25TM1 is located about 5 miles west of Thedford, in Thomas County, Nebr. It consists of an extensive blowout at the north edge of the high table along the south side of the Middle Loup River.



The Nebraska State Historical Society has a small surface collection from site 25TM1. The pottery is primarily Upper Republican with a few small Dismal River sherds. The collection also includes an expanded base drill, a point of type NBb1, two fragments of points of type NBb, the point of another, and numerous stone chips.

#### SITES IN LINCOLN COUNTY, NEBRASKA

Harry E. Weakly supplied the Laboratory of Anthropology of the University of Nebraska with small surface collections from, and the legal descriptions of, sites in Lincoln County, Nebr. Eight of these sites had yielded Dismal River pottery. In the summer of 1949 a survey party from the Laboratory of Anthropology attempted to relocate these sites. Unfortunately several of the sites had been destroyed by construction work or had grassed over since the drought years when the sites were first reported.

#### SITE 25LN2

Site 25LN2 is located about 8 miles south and west of North Platte, Nebr. The collection sent in by Weakly contained an abundance of Dismal River pottery. It ranged in thickness from 0.2 to 0.8 cm. The paste was compact and gritty, containing little or no sand tempering. The sherds are both simple stamped and smooth, some with a suggestion of polish.

The most interesting feature of the sherds from this site is the use of finely incised line decoration. Three rim sherds, all from the same vessel, were unusual for Dismal River. The rim (pl. 10, *f*) was definitely recurved and met the shoulder area of the vessel at a nearly right angle. The rim area, which was about 4 cm. high, was decorated with areas of opposed diagonal lines. The lines were spaced about 0.2 cm. apart. The shoulder area was similarly decorated but the lines were slightly farther apart. The lip was decorated with diagonal, elongated punctates. The paste of these sherds had all the characteristics of Dismal River pottery. It was black, compact, gritty, and contained a little very fine sand. In addition, none of the pottery from the site could be identified as anything except Dismal River. The other rims from the site were smooth and either flattened or rounded. A few sherds, either body sherds or rim sherds from which the lip had been broken, showed fine parallel trailed lines.

Three projectile points from the site were included in the collection. Two points of types NBa and NBa1 were made from quartzite. The third, type NBb1, was made of brown jasper.

The site has been destroyed by the construction of a canal.

## SITE 25LN3

Site 25LN3 is located about a mile northwest of Somerset, Nebr., on a ridge about 30 feet high rising out of a pleasant valley about 2 miles above the headwaters of Medicine Creek. The rich little valley, only a mile or so wide at this point, offers a pleasing contrast to the rolling, sandy area surrounding it. Just to the southeast of the site is a lagoon which still holds water for part of the year.

Weakly's collection from the site contained 31 Dismal River sherds plus many very tiny sherds too small to catalog separately. One sherd was of special interest (pl. 9, *c*). It was decorated with an area of elongated punctates or tool marks. These were about 0.5 cm. long and 0.3 cm. wide, and were closely spaced in rows. They were so arranged that a punctate was opposite a space in the next row giving the impression of rows and diagonal check rows. The punctates were not evident from the inside. The paste of the sherd was dark brown and well within the range of Dismal River pottery.

The Laboratory of Anthropology survey party relocated the site and found worked and unworked stone and a few bone fragments but no pottery. Robert R. Halsey, nephew of Douglas McDermot who farms and owns the site, has a collection of material from the site including Dismal River and Upper Republican pottery, worked stone, and a clay trade pipe, as well as two extra stems from such a pipe.

## SITE 25LN4

Site 25LN4 is located about 6 miles south of North Platte, Nebr. The collection sent in by Weakly from this site contains both Dismal River pottery and cord-roughened pottery, probably Upper Republican. Both types are well represented. The site is on an erosion remnant almost completely cut off by deep gullies from the main portion of a high, level tableland. It is easily accessible only by means of one rather narrow neck of land, and commands an excellent view of the valley. There is, however, no apparent source of water in the vicinity unless there has been a spring nearby. The Laboratory of Anthropology 1949 survey found some worked stone but no pottery at this site.

## SITE 25LN5

Site 25LN5 is located north of North Platte, Nebr., about one-half mile north of the North Platte River. The area slopes quite gently up from the river and is on a low terrace but well within the river valley. The site has been destroyed by the building of a large highway and the development of a suburban district. Three types of pottery are included in the collection sent to the Laboratory of Anthropology by Weakly. Heavy cord-roughened sherds comprised



the bulk of the pottery, but the collection included a number of sherds resembling Glen Elder pottery. A few sherds which were definitely out of the range of this pottery are identifiable as Dismal River.

## SITE 25LN6

Site 25LN6 is located just south of the South Platte River, opposite North Platte, Nebr. The legal description would place the site on a very low terrace, not much above flood level. Weakly sent four Dismal River sherds, two of which fit, to the Laboratory of Anthropology from this site. The sherds are dark gray, about 0.5 cm. thick, and appear to have a very hard, compact, fine-textured paste. The outer surfaces are smooth but slightly irregular. One lip is rounded in one place and is slightly flattened and thickened at another. The sherds are within the range of Dismal River pottery and closely resemble some of the pottery examined from sites in Colorado. It seems likely that the sherds are from a single vessel.

## SITE 25LN7

Site 25LN7, or the Kelso Site, is located on Birdwood Creek, about 16 miles north and west of Hershey, Nebr. Weakly gave the Laboratory four sherds from this site. Two of these appear to be Dismal River and two appear to be Upper Republican. In addition, the 1949 survey party found more Dismal River sherds at the site. The landowner, Mr. Kelso, gave the party another sherd from the site which contained enough mica to give the surface a spangled appearance. He also gave them a large white porcelain (?) bead, one of several which he had found on the site. The survey party found several pieces of worked and unworked stone, including a chip of obsidian; also a small blue glass trade bead. Both Mr. Weakly and Mr. Kelso reported boulder-lined fireplaces at the site. The survey party did not find the fireplaces, but they did find burned rocks and fragments which appeared to be from such fireplaces. Several depressions which Kelso thought might represent houses were tested but with negative results.

## SITE 25LN9

Site 25LN9 is located about 2 miles north of Dickens, Nebr. The site as reported by Weakly was located in a blown-out field, but the 1949 survey party from the Laboratory of Anthropology could not relocate the site. One sherd from the site is badly sand blasted and partly refired but is still within the range of Dismal River pottery. The other seven sherds from the site appear to have been painted and are probably of southwestern origin. The paint appears to have been red and black on sherds with orange-buff surfaces and a gray



core. The sherds are small and sand<sup>blasted</sup>. The painted areas appear to have withstood the sand blasting better than the unpainted areas.

#### SITE 25LN10

Site 25LN10 is located about 3 miles south from North Platte, Nebr., on a high point commanding a view of much of the Platte Valley and is known locally as Lookout Point. The collection from the site contains a predominance of Upper Republican pottery with a few pieces of Dismal River. The Dismal River pottery is both simple stamped and smooth to almost polished. The sherds are generally dark on the inside and buff on the outside. One fragment of what appears to be a pottery pipe was also found. The site has been partially destroyed by construction work.

### SITES IN SOUTHWESTERN NEBRASKA

#### SITE 25CH1

##### INTRODUCTION

The first Dismal River village site to be extensively excavated was the Lovitt Site, 25CH1, which is located 12 miles north of Wauneta, Nebr., in Chase County. This site was partially excavated in 1939 by the Nebraska State Historical Society with W. P. A. labor. The report of this excavation along with a summary of the Dismal River Aspect, as it was known at that time, has been the principal source of published information concerning the Dismal River Aspect (Hill and Metcalf, 1942). In the course of excavation about 3,000 square yards of the area were uncovered. The site was excavated in 10-foot squares, for the most part.

The village, which covers about 75 acres of low terrace along the east side of Stinking Water Creek, is nearly surrounded by the walls of the valley, which would protect it to a considerable degree both from observation and the full effects of the wind.

##### STRUCTURES

Only two house structures were found at the Lovitt Site. House I had 32 postholes forming portions of three circles around the fireplace (Hill and Metcalf, 1942, pl. X, 1; pp. 169-170). All these poles were located within a circle about 20 feet in diameter. None of these posts appeared to have been over 5 inches in diameter. Dismal River pottery, stone and bone artifacts, and a few pieces of metal were found on the floor of House I which was about 10 inches below the surface.

House II was represented by five postholes arranged in a circle about 11 feet in diameter around a fireplace (Hill and Metcalf, 1942,

pl. IV, 1; pl. X, 2; pp. 170-171). The postholes averaged 3½ inches in diameter and varied from 17 to 28 inches in depth. The house was in a portion of the site which had been badly eroded, and the fireplace was only 3 inches below the surface. A few scattered post molds were found in the immediate area, but they did not show any direct connection with the structure.

A third possible structure was represented by three parallel rows of post molds (Hill and Metcalf, 1942, pl. IV, 2; pl. X, 3; pp. 171-172). Two of the rows consisted of three post molds and the third of two. However, a disturbed area could have eliminated a ninth post mold which would have completed an approximate square. This pattern was interpreted as possibly representing a sunshade or summer shelter.

The most common structural features at the site were irregularly shaped shallow pits. Frequently the pits consisted of several smaller connected pits. The pits varied from 12 to 51 inches in depth and from 1 to 15 feet in diameter. In general the fill in the pits was darker than the surrounding area and contained ash, charcoal, bone, artifacts, and general camp detritus. None of these pits showed evidence of intensive firing although a few had lenses of charred plant material which appeared to have been burned in the pits. The use of the pits is problematical. They appeared to be entirely unsuited for storage or cache pits. They may have been borrow pits from which dirt had been removed for some structural purpose, or they may have been dug strictly for the disposal of refuse. Midden areas, as they are commonly thought of, were not found at the Lovitt Site, nor were heavily burned roasting pits, such as occur at some other Dismal River sites.

#### POTTERY

The Nebraska State Historical Society has in its collection four restored vessels from 25CH1, and the Laboratory of Anthropology has one restored vessel (pl. 8). The vessels are globular to somewhat elongated, with slightly pointed bases. The necks are somewhat constricted, and the straight or slightly curved rims are either vertical or slightly flaring. The vessels are small to medium in size, ranging from about 10 to 23 cm. high and from about 12 to 23 cm. in greatest diameter.

A detailed description of the pottery from 25CH1, the Lovitt Site, is available (Hill and Metcalf, 1942, pp. 179-185), so will be summarized only briefly. A reexamination of the pottery from this site yielded very little additional information.

The pottery varies in color from buff to gray and black. Fractures are usually in straight lines and are clean. Tempering material, when it occurs, is sand or occasionally mica. About 70 percent of the sherds



have a smooth surface, and the others have a simple stamped surface. Most of the sherds are harder than 3 but softer than 4.

Decoration is usually confined to the lip of the vessel and occurs on 62 of the 425 rim sherds. Lip decoration consists of incised, impressed, or punched designs (fig. 23). A few sherds had incised decoration such as horizontal parallel lines, areas of horizontal lines alternating with areas of diagonal lines, or incised triangles. One mica-tempered sherd has a row of three nodes about 0.8 cm. in diameter and 1.4 to 1.8 cm. apart applied on the surface.

Rim forms found at the Lovitt Site are flared, vertical, reverse curved, and bowls (fig. 24). No handles or lugs were found, but one rim sherd has a vertically placed ear.

Fragments of two miniature vessels are included in the material from the site.

One variant pottery type from 25CH1 not previously reported appears to have been coiled (pl. 9, *a*). Two sections, probably from the same vessel, have horizontal rounded ridges or corrugations spaced about 1 cm. apart. The ridges show a little polish but the grooves are rough. The vessel appears to have been globular with a somewhat constricted neck. No rim sections are present, but the neck has been smoothed and joins the body in a smooth curve. The sherds show a definite tendency to break along the grooves. The paste is comparable to that of other pottery from the site. It is gritty and compact and contains a moderate amount of fine sand tempering. The hardness is between 5 and 6.

A few sherds of Woodland pottery were also found at the site.

Pottery pipes are reported from the site. These are mostly tubular in shape, although part of at least one elbow pipe was found. They are made of the same paste as the vessels, but are much more frequently decorated. Decoration usually consists of incised lines, although punctates are also used (Hill and Metcalf, 1942, pp. 179-185; pl. VII, 1).

#### WORK IN STONE

Roughly chipped tools are typical of the worked stone at 25CH1, but some of the artifacts showed fine chipping. End scrapers were most common among the stone artifacts, but side scrapers were also numerous. The projectile points from the site are predominantly of types NBa, NBa1, NBb, NBb1, but a few other types were found.

Objects classed as knives varied from retouched flakes to well-made diamond-shaped knives with the four edges alternately beveled. Several artifacts classified as celts are apparently comparable to some of the objects classified as choppers from White Cat Village.

The drills from 25CH1 were predominantly of two types; the expanded-base type and the straight or cigar-shaped drills. In addition,



a few specimens from the site are like the latter except for one, two, or three projections near the center of the specimen.

Arrow-shaft polishers and other sandstone abraders were the most common artifacts of ground stone found at the site. Metates of compact sandstone, pecking stones, and one broken grooved maul also were found. Two types of stone pipes are reported: an elbow-shaped pipe of limestone, and tubular or "clowblower" pipes of steatite. One fragment of catlinite (?), presumably from a pipe, was found. A turquoise bead and another ground-stone object classified as a pendant were also found. Pieces of hematite, yellow ocher, and mica also occurred at the site, but none of these had been fashioned into any particular form. The mica was presumably used as the source of tempering in some of the pottery and the other two minerals are considered sources of pigment (Hill and Metcalf, 1942, pp. 188-195; pl. VII, 2; pl. VIII).

#### WORK IN BONE AND ANTLER

Worked bone was common at 25CH1. The most common bone artifacts were scapula hoes or spades, either with or without the articular surface. Knives were also found which were made from sections of scapulae. Three types of awls were found: flat awls, splinter awls, and awls round to triangular in cross section. Some specimens called punches were very much like the latter type except that the point was very blunt. These could have been used for flakers.

Tubular bone beads, one with finely incised straight-line decorations, were found at the site.

Fleshers made from the metapodials of elk or buffalo were also found. The cutting edges were both smooth and toothed. Several hemispherical sections of bone with cancellous portions exposed were interpreted as hide tanners. A small cancellous section of bone well impregnated with red pigment was thought to be a "paint brush."

Several stemmed bone and antler projectile points were found. A portion of a broken bone shaft wrench was also recovered.

Two pieces of antler tines were found which had a notch cut out near the point. These are thought to represent hafts for end scrapers. Several bison or elk ulnae were found which had apparently been used as picks. Other pieces of bone had apparently been worked, and some pieces of worked shell, probably ornaments, were found (Hill and Metcalf, 1942, pp. 195-202; pl. IX).

#### TRADE MATERIAL

Several pieces of metal were found at the site. These included iron and copper jingles, a tubular rolled copper bead, a brass object which may have been a projectile point, four iron awls, and several

amorphous metal pieces (Hill and Metcalf, 1942, pp. 202-203; pl. VI, A, C, D, E, F, G).

#### FAUNAL REMAINS

The bones recovered from the site were predominantly bison, but elk, deer, and antelope bones were numerous. Other remains included beaver, turtle, and canis. Skulls and foot bones of the latter were not uncommon in pits. It is interesting to note that fish and horse bones were not identified from the site (Hill and Metcalf, 1942, p. 204).

#### VEGETAL REMAINS

Charred corn, corncobs, and cornhusks were found in several pits. Pits of wild plums, hackberries, and perhaps chokecherries were also found (Hill and Metcalf, 1942, pp. 204-205).

#### DENDROCHRONOLOGY

A dendrochronological study by H. E. Weakly resulted in the establishing of an outside date of 1706 on samples of charcoal from 25CH1 (Hill and Metcalf, 1942, p. 205).

#### BURIALS

A search was made for burials in the area around 25CH1, but none were found (Hill and Metcalf, 1942, p. 205).

#### SITE 25CH7

The Nebraska State Historical Society has small collections containing Dismal River pottery from several sites in Chase County, Nebr., other than the Lovitt Site.

Dismal River pottery was found at the McCallum-Hofer Site, 25CH7, about 9 miles north of Wauneta, Nebr. Much of the pottery from this site is buff colored and relatively thick and resembles the Dismal River pottery from Ash Hollow Cave. One rim sherd is thin and has a rounded, diagonally incised lip. There is only one mica-tempered sherd in the collection; the others show little or no tempering. Nearly all the sherds are smooth, only a few being simple stamped. One chip of obsidian was found at the site.

#### SITE 25CH8

The Skelton Site, 25CH8, yielded Dismal River pottery much like that from the Lovitt Site. Triangular, side-notched points and a chip of obsidian were found at this site. The site is located about 6 miles north of Wauneta, Nebr., near the forks of the Stinking Water Creek.

## SITE 25CH14

The Baker Site, 25CH14, yielded both smooth and simple stamped Dismal River pottery. One rim sherd has a thinned lip incised with a fine chevron design. One smooth sherd has what may have been parallel trailed-line decoration. The site is located 6 miles north of Enders, Nebr., on the south bank of the south branch of the Stinking Water Creek.

SITE 25DN1<sup>7</sup>

## INTRODUCTION

The Nichols Site, 25DN1, is located on the north and east side of Muddy Creek, 7½ miles north of Max, in Dundy County, Nebr. This site is on a gently sloping terrace which in places drops abruptly to the creek and in other places is separated from the creek by lower terraces. Immediately surrounding the site, the terrain is very rough.

The site was tested by the Nebraska State Historical Society in the spring of 1939. Their excavations consisted of a north-south trench 150 feet long crossed at the north end by an east-west trench 250 feet long. The trenches were 20 feet wide and were laid out in 10-foot squares.

No houses were found. However, 14 pits were reported. Most of the pits were quite shallow and irregular in shape, varying considerably in size. Most of these pits contained small amounts of camp detritus such as bone fragments, pottery sherds, worked stone and bone, burned vegetal material, and in one case a fragment of rusted iron.

## ROASTING PITS

Two of the pits were bell-shaped roasting pits and have been reported previously (Hill and Metcalf, 1942, pp. 177-178).

The bottom of one pit was 57 inches below the surface of the ground. It had a maximum diameter of 62 inches at a point 10 inches above the floor. The diameter of the neck where it could first be determined, about 9 inches below the surface, was 46 inches. The other pit was 36 inches deep, with the greatest diameter of 60 inches at a point 8 inches above the floor. The diameter of the neck where it was first detected was 30 inches.

The bottoms of both pits were covered with a layer of charcoal and ashes several inches thick. On top of this layer was a layer of limestone 8 to 10 inches thick, badly decomposed from heat. On top of the limestone was a thin layer of charred corncobs and cornhusks and in one pit a charred ear of corn in the husk. The fill above this consisted of burned and clean dirt and then trash.

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<sup>7</sup> Report based primarily on field notes of P. Newell on file at the Nebraska State Historical Society



## POTTERY

The pottery from 25DN1 is comparable with, if not identical with, that from 25CH1 and 25HN37. The color was from black to dark gray with an occasional buff sherd. The paste is fine textured, quite compact, and gritty, with from moderate amounts of fine sand tempering to no tempering in addition to the fine grit in the paste. The surface varies from deeply simple stamped to smooth and somewhat burnished in appearance. Frequently the simple stamping appears to have been partially or almost completely smoothed off.

Only three decorated lips are included in the 15 rim sherds from the site. One lip is decorated with diagonally impressed lines, another with elongated punctates placed tangentially in the lip, and the third has incised chevrons pointing around the lip. The smooth lips are both rounded and flattened and vary from thinned to considerably thickened. In general, the thickened lips tend to be flattened while the thin lips tend to be rounded. The rims are both smooth and simple stamped.

One fragment of a pottery pipe probably represents a cloudblower type. The pipe was decorated with parallel incised lines from 0.2 cm. to 0.3 cm. apart. The lines appear to have encircled the pipe and are to be seen on the outer surface of the entire fragment which is from 0.3 to 0.6 cm. thick. The hole through the pipe has been at least a centimeter in diameter. The paste is very similar to that found in the pottery from the site.

The Laboratory of Anthropology has in its collection from the surface of the site one sherd which contains a large amount of gold-colored mica in the paste. The outer surface of this sherd is black and deeply simple stamped. The inner surface is smooth and dull orange. The mica is far more noticeable on the inside. The paste of the micaceous sherd appears to be well within the range of that found in the rest of the pottery from the site with the exception of the addition of the mica.

Surface decoration on pottery from the Nichols Site is not common. A few buff to gray sherds have dark areas suggestive of paint. The Nebraska State Historical Society has one sherd with a single narrow trailed line. The Laboratory of Anthropology has one sherd with three parallel, narrow trailed lines (pl. 10, *b*) and another with a single twisted cord-impressed line (pl. 10, *e*) from the surface of the site. Painted sherds, probably of southwestern origin, have been found by a group including the present writer, and are said to have been found on the site by local collectors (Hill and Metcalf, 1942, p. 194).

There are no restored pots from this site. One sherd, however, suggests a somewhat globular-shaped vessel with a flaring rim. The rim is about 2.5 cm. high and the vessel appears to have been about

13 cm. in maximum diameter. The neck shows considerable constriction. The walls of the vessel are about 0.4 cm. thick. The lip is smooth and somewhat rounded. The surface shows horizontal marks but no simple stamping. The marks probably resulted from smoothing the vessel.

WORK IN STONE

Worked stone was relatively common at 25DN1. The greater portion of the chipped stone from the site was yellow to brown jasper with only an occasional piece of gray flint, chalcedony, and quartzite. The majority of the chipped-stone artifacts were scrapers. There are 54 end scrapers in the Nebraska State Historical Society's collection from the site. Many of these show use on other edges as side scrapers or knives.

Side scrapers are fully as common, but it is more difficult to delimit this type of artifact. There is an even gradation starting with crude choppers, chipped from only one surface, through side scrapers, flakes with retouched edges, and flakes with use-retouched edges. Frequently more than one edge shows flaking. The workmanship varies from rather crude percussion chipping with little or no pressure retouching to very fine, well-controlled pressure chipping. There is no consistency in the shape of these artifacts. The edges appear to have been chipped on pieces of stone with almost any shape.

The scrapers, especially the end scrapers, show much less battering or extreme dulling of the scraping edge than did those from White Cat Village.

Only five points were found at 25DN1 by the Nebraska State Historical Society. Four of these were made of brown jasper and one was made of chalcedony. The University of Nebraska, Laboratory of Anthropology, has an additional 15 points from the surface of the site. These points are made from brown to yellow jasper except for three points made from chalcedony, obsidian, and white flint. The projectile-point types found at this site are listed in table 17.

TABLE 17.—*Projectile points found at 25DN1*

Type	Historical Society	University of Nebraska	Total
	<i>Number</i>	<i>Number</i>	<i>Number</i>
NBa.....	1	4	5
NBa1.....	1	2	3
NBb.....	2	5	7
NBb1.....	0	1	1
Indeterminable.....	1	3	4
Total.....	5	15	20

Five drills were also found at the site by the Nebraska State Historical Society. Three of these were expanded-base drills. The one which was perfect had a point 1.8 cm. long and 0.6 cm. in greatest diameter. A cigar-shaped drill showing much use was also found. The portion remaining is 6.9 cm. long and 1.4 cm. in greatest diameter. Another drill appeared to have been a small cigar-shaped drill 0.9 cm. in greatest diameter, which had had a smaller point chipped in it. The smaller portion was 1.0 cm. long and 0.5 cm. in greatest diameter.

Large, crudely chipped choppers were much less common and were smaller at the Nichols Site than at White Cat Village. However, the specimens found showed chipping from both two surfaces and one surface.

Some of the scrapers had points with convex surfaces that could have been used for gravers. One specimen had a concave notch 0.9 cm. wide chipped from one side as though it had been intended for a "spoke shave." The concave edge was smooth except for one small projection which divided it into two smaller concave edges. The piece had a large convex edge so chipped as to form slightly more than a semicircle, the diameter of which was 1.9 cm. One irregularly shaped piece of jasper had a finely chipped, graver-sharp point.

Only three specimens from the site appear to be portions of well-chipped knives. All these are so fragmentary that their original shape is not determinable.

Seven fragments of sandstone abraders are included in the Historical Society collection from the site. They are made from both white and brown sandstone. At least one had been of the shaft-polisher type. Three other pieces of ground stone came from the site, but all are too fragmentary to identify. Some of them could have been from milling stones or metates. One small rounded piece of white sandy chalk came from the site.

#### WORK IN BONE

Worked bone was rare at the Nichols Site. Five pieces of scapulae were found which showed use, probably as digging tools. Awls were the next most common bone artifacts. One complete awl and a portion of another were of the flat, broad, split-rib type. These had been well made and showed much use. Another awl or punch triangular in cross section was also found. This specimen tapered less abruptly to a point than do many artifacts of this type. Two bone beads were found at the site. One was 6.5 cm. long and varied in maximum diameter from 0.8 to 1.1 cm. One end showed part of the expanding section near the articulation. The other was nearly cylindrical. It was 4.5 cm. long and 0.8 cm. in maximum diameter.



An eyed bone needle or band also recovered from the site is 0.9 cm. wide and 0.2 cm. thick. The portion of the specimen remaining is broken in four pieces which altogether measure about 11.5 cm. in length. The end appeared to be an old break. There is slight variation in width along the length of the specimen, but there is no evidence of its having tapered. The eye is 0.2 cm. in diameter and 0.5 cm. from the end which has been somewhat smoothed and rounded. Three fragments of antler may have been worked or cut, but no definite shape is observable.

#### TRADE MATERIAL

One small fragment of iron is included in the Historical Society collection from the site. The piece is irregular in shape, about 2 cm. across and 0.3 cm. thick.

#### DENDROCHRONOLOGY

Dendrochronological examination of the charcoal from the Nichols Site made it possible to establish an outside date of 1709 (Hill and Metcalf, 1942, p. 205). This date was arrived at on the basis of a master chart established at North Platte, Nebr.; because of the distance between the two localities, Mr. Weakly, who made the study, states: "I do not consider the above dating as entirely reliable and conclusive."

The assignment of the Nichols Site to the Stinking Water Focus of the Dismal River Aspect has been previously suggested (Hill and Metcalf, 1942, p. 221). Such an assignment seems entirely justified on the basis of the present examination of the material recovered. It seems highly desirable that additional work be done at this site, especially since painted southwestern sherds have been found there.

#### SITE 25FR15

The easternmost Dismal River site yet discovered is in Franklin County, just west of the mouth of Cottonwood Creek and about a mile west of Bloomington, Nebr. The site was located originally by a local collector and was revisited by a survey party from the University of Nebraska, Laboratory of Anthropology, in the summer of 1949. The site is on a high terrace overlooking the Republican River to the south and Cottonwood Creek to the east. The pottery recovered consisted of both Dismal River and Upper Republican sherds in about equal amounts. Stone was abundant at the site, but pottery was scarce. There were no stone artifacts especially diagnostic of Dismal River, but there was nothing in the general appearance of the stonework which would distinguish it from Dismal River material.

## SITE 25FT9

One of the first Dismal River sites to be mentioned in print was the Dick Site (Wedel, 1935, pp. 180-182), 25FT9, then known as Medicine Creek 5. Resemblances between the pottery from this site and sherds from some previously known but unreported sites on the Dismal River, on the Stinking Water near Wauneta, and at Signal Butte were discussed at that time.

The Dick Site was examined in the summer of 1934 by a party from the Nebraska State Historical Society, but only a few hours were spent there. The site is located on the top of a long, narrow erosion remnant between Brush Creek and Medicine Creek at their confluence about 2 miles west of Curtis, Nebr.

The pottery from the Dick Site was described by Wedel (1935, p. 180) as follows:

Pottery was very dark gray to black in color. Paste was fine and black. Tempering consisted of very fine sand, sparingly used. Surfaces were well smoothed, the exterior being generally burnished and somewhat shiny. Perhaps a third of the sherds were lighter in color, and the exterior showed broad shallow tooling marks or basketry impressions. Rims were characteristically vertical and never collared. A collection of twenty-five rimsherds from this site, in the possession of John Adams, includes eighteen undecorated and seven decorated. The former, seen in profile, have a sharpish or flattened lip. Decorated rims usually have a slight thickening at the lip. Their treatment was usually with small diagonal incisions across the lip or else were repeated thumb impressions. Cord marked sherds were entirely absent.

Other artifacts found at the Dick Site and considered to be in association with the pottery were end scrapers and triangular or notched points. Unworked bison long bones were recovered and a bone awl was reported to have been found there previously. Five crudely made copper jingles were found in association with the pottery.

The only evidence of structures consisted of two fireplaces surrounded by a level rich in village detritus. No postholes were found. Hill and Metcalf (1942, pp. 208-209) report the occurrence of corn and bison scapulae hoes at 25FT9.

An examination of the site in 1949 failed to reveal any additional information. A few artifacts were found on the surface, but the condition of the soil was such that excavation was impossible in the limited time available.

## SITES IN WESTERN NEBRASKA

## SITE 25BN2

The University of Nebraska, Laboratory of Anthropology, has a few sherds from 25BN2, the Bull Canyon Site, which is located in

the northwestern part of Banner County, Nebr. About a third of these sherds, including four rims, are Dismal River. One of the rims has a rounded, smooth lip. The paste is gritty and heavily tempered with medium-sized sand. The outer surface is smooth except for horizontal striations, which may be tool marks. This sherd is about 0.5 cm. thick and buff to black in color.

Another rim sherd has a rounded, smooth lip, somewhat flared to the outside. The rim appears to have been curved. The paste is black and gritty and contains a small amount of medium-sized sand tempering. The sherd is about 0.7 cm. thick and is smooth on the inside as well as the outside.

The lip of a third rim sherd is decorated with large, deep, round impressions placed close together. At these punctates, the lip is considerably thickened toward both the inside and outside. The paste is black, gritty, and fine textured, but one very large sand particle is in evidence. The sherd is 0.5 cm. thick.

The other rim sherd has a smooth, rounded lip which is thinned in one place and slightly thickened at another. This rim appears to have been curved and flaring. The paste is compact and gritty with a fine uniform texture. There is no evidence of added tempering material. Both inner and outer surfaces show horizontal striations, which may be tool marks. The surface of the sherd is buff and black, smooth on the inside and slightly rough on the outside. The sherd closely resembles pottery similar to Dismal River from Colorado. The association of this sherd with good examples of Dismal River pottery at 25BN2 strengthens the identification of the Colorado pottery as a variant of Dismal River.

Two body sherds have a gritty paste and contain only a little sand tempering. One has a black paste and an almost polished outer surface.

The Bull Canyon Site may be stratified. Both Upper Republican and Woodland pottery are found with the Dismal River pottery. The occurrence of three components as well as the presence of variant Dismal River pottery suggests that further work at the Bull Canyon Site might be very profitable.

#### SITE 25GD2

Ash Hollow Cave, or site 25GD2, is located 3 miles southeast of Lewellen, in Garden County, Nebr. The site is a small rock shelter located high in the east wall of Ash Hollow, a steep-walled valley whose mouth opens into the valley of the North Platte River. The cave, which contained deep, stratified deposits of cultural material separated by sterile zones, was excavated by the Nebraska State



Historical Society in 1939. The archeology was reported by John L. Champe (1946).

The upper level (Lens A) at Ash Hollow Cave, yielded a preponderance of Dismal River pottery, while only three Dismal River sherds occurred in the next two lower levels. The Dismal River pottery from the site is from 0.5 to 1.0 cm. thick with smooth surfaces, some of which show polishing or burnishing and a few of which feel slightly waxy. Other sherds feel gritty to touch. The paste is usually dark, although the surface color is predominantly buff with some sherds gray black. The paste is compact and gritty, tempered with a moderate amount of fine to medium sand. The lips are smooth and rounded. Judging from the rims, it would appear that portions of only two vessels were recovered from the site. One of these had a slightly recurved rim about 3 cm. high. The other vessel appears to have been a bowl or a vessel with an extremely high recurved rim. Perhaps the most striking feature of the pottery is that all the sherds represent one of the less common variants of Dismal River pottery. This fact is not necessarily significant if only two vessels are represented.

The rest of the artifacts from Lens A are not out of place in a Dismal River component. The short tubular beads from Lens A (Champe, 1946, p. 47) which were previously unreported from Dismal River sites have since been duplicated from site 25HO21. The occurrence of gravers at 25HN37 and 25HO21 has also been established.

The charcoal from Lens A at Ash Hollow Cave was found to represent the years 1587-1684 (Champe, 1946, p. 47). The terminal date, found on three specimens from the lens, plus an additional 20 years allowed to take care of outer rings which were burned away, would give an approximate date of 1704 for the last occupation of this level.

#### SITE 25MO2

The Pumpkin Creek Site, 25MO2, is located about 5 miles southeast of Bridgeport, in Morrill County, Nebr. The Laboratory of Anthropology has a surface collection from this site made by the Nebraska State Archeological Survey. The location, which is on record in the files of the Laboratory of Anthropology, was visited by the 1949 survey party but no cultural material was found. The site which is on the west side of Pumpkin Creek, slopes gently up from the creek and then more steeply until the high tableland is reached. Much of the area, which is now in pasture, appears to have been badly blown out at one time and has since grassed over. It seems quite likely that the material was collected during drier years when the blowouts were active.

The pottery in the collection from 25MO2 is about equally divided between Dismal River and Upper Republican. The Dismal River pottery is from buff to black, generally with a black paste, moderately fine textured and compact. The paste, which is gritty, contains a moderate amount of fine to medium sand tempering. Some of the sherds seem to have a slightly greater tendency to crumble under pressure than does the pottery from White Cat Village. Other sherds are equally as compact and cohesive as those from White Cat Village. The surfaces are generally smooth; some are gritty to touch; some are slick, and almost waxy. The majority, however, are rough, which could be due in part to their having been sand blasted. A very few sherds suggest simple stamping which has been nearly obliterated by smoothing. Since none of the sherds show definite simple stamping, it seems likely that these marks may be due to some other cause. One rim sherd appears to have been slightly flaring, with a smooth, rounded, slightly thinned lip.

The projectile points from the site would fit well into a Dismal River artifact inventory. They are almost entirely of the types NBa, NBa1, NBb, and NBb1. The materials represented are brown jasper, quartzite of various colors, gray flint, chalcedony, and obsidian. Obsidian is relatively abundant at this site.

The rest of the stonework, with the exception of some nicely chipped knives and knife fragments, is well within the range of stonework from other Dismal River sites. It consists chiefly of scrapers, choppers, knives, and modified flakes. One drill from the site is cigar shaped, with one end chipped down to a finer point. The larger stone specimens are of quartzite and jasper.

#### SITE 25SF1

A preliminary report of the excavations at Signal Butte, 25SF1, in Scotts Bluff County, is presented by Strong (1935, pp. 224-239). He reports the finding of pottery identical with the thin gray-black pottery from the sites on the Dismal River, 25HO1 and 25HO2. This pottery occurred with Upper Republican pottery in the upper level of this stratified site.

The site is located on a small isolated erosion remnant about 16 miles south and west of Scottsbluff, Nebr. Half of the site was excavated by Strong for the Bureau of American Ethnology in 1932. The other half was left for further testing at a later date, but relic collectors have destroyed the greater part of the upper level of the site.



## SITE 25SX301

Several years ago Carl Spence, now deceased, sent small collections of pottery to the Laboratory of Anthropology from two sites near Crawford, Nebr. The exact location of the sites was not indicated, but they were named the Glenn Site and the Roundtop Site. The 1949 Laboratory of Anthropology survey party contacted several of Mr. Spence's associates in Crawford in hopes of learning the location of these two sites. Roy Viele recalled visiting a site about a mile west of Glenn, Nebr., with Mr. Spence, and supplied the party with the exact directions to get to the site.

The site, which has been given the number 25SX301, lies on a high terrace on the south side of the White River. The terrace drops off abruptly to the river in some places and overlooks a lower, narrow terrace at other points. The survey party found very little material at the site: a scraper, a few flint chips, and a small sherd which could easily be Dismal River. Mr. Spence had sent nine sherds, probably from this site, to the Laboratory of Anthropology. All these were black with a gritty, compact paste, lightly tempered with fine sand. The sherds were about 0.5 cm. thick and all quite small. One was a rim sherd with a smooth, slightly flattened lip. Both surfaces were smooth and in places appeared almost polished. Two other sherds were body sherds, smooth on the inside and decorated with rows of elongated punctates or tool marks on the outside (pl. 9, *f*). These marks were 0.3 to 0.4 cm. long and 0.2 to 0.3 cm. wide. Some of the sherds exhibited parallel rows of punctates which formed cross rows also. At least one sherd appeared to have the punctates arranged in a curved line.

## SITE 25SX00

Howard Dodd, another associate of Mr. Spence, remembered their finding pottery on the top of, and around the edges of, an isolated erosion remnant about one-half mile southeast of Roundtop, a distinctively shaped hill which is a well-known landmark about 16 miles north and west of Crawford, Nebr. The survey party, however, could not relocate the site. The pottery which Mr. Spence had sent in from near Roundtop is of at least three types. The majority is cord roughened, resembling Upper Republican in paste and Woodland in surface treatment. Three rim sherds from the site appear to be Dismal River. One of these is black with a gritty, compact paste containing a moderate amount of fine sand tempering. The rim was apparently straight or slightly flared, about 2.5 cm. high and 0.5 cm. thick. The surfaces were smooth except for slight horizontal striations, probably tool marks. The other sherd, apparently from a



miniature bowl, had a black, fine-textured, slightly laminated paste which was gritty and untempered. The sherd was 0.5 cm. thick with a smooth, rounded lip. Another small rim sherd was badly damaged but appeared to be from the same miniature vessel.

One thin, hard, orange sherd from the site is very much like some pottery from Glen Elder, Kans.

#### SITES IN NORTHEASTERN COLORADO

##### SITE COLO.D:4:2

From site Colo.D:4:2 the University of Denver has one sherd which looked like Dismal River pottery. The rest of the pottery was cord roughened. The site is a rock shelter in Larimer County, Colo., located near the Colorado-Wyoming line about 22 miles southwest of Tie Siding, Wyo.

##### SITE COLO.E:1:7

From site Colo.E:1:7 the University of Denver collection contains what appears to be good Dismal River pottery in texture, tempering, color, rim form, and thickness. There was, however, no indication of simple stamping. The rim sherds indicated a simple, slightly flaring rim, joining the body of the vessel in a smooth curve. The lips were rounded and smooth with a slight thickening which varied from 0.5 cm. to 0.9 cm. The surface of the rims, both inside and outside, was slightly rough but showed no signs of manipulation except for some horizontal toolmarks. Many of the sherds, both body and rim, had a thin buff deposit on the outer surface and broken edges. This layer fails to dissolve in either acid or water and seems to represent a deposit formed on the sherds while they were in the ground, which for some unknown reason failed to adhere to the inner surface. Other than for this coating, all the sherds are entirely black except for one in which the outer fourth of the sherd is buff, perhaps from refiring.

The sherds vary from 0.4 to 0.8 cm. in thickness. All are quite heavily tempered with sand. The paste has a very sandy or gritty texture when examined under a microscope.

Other pottery from the site closely resembled Dismal River pottery in all respects except that it showed neatly executed cord roughening. The paste when observed under a microscope contained very fine grit which could be indigenous in the clay from which the pottery was made. Although no cord-roughened pottery has ever been identified as Dismal River, the cord-roughened pottery from this site does resemble Dismal River pottery in many ways and has not been identified with any other known complex.

This site in Larimer County, Colo., about 17 miles north and west of Wellington, was visited by a party from the University of Nebraska in the summer of 1949 (Gunnerson and Gunnerson, MS., 1949). The site is located in a very rocky area just northwest of a small lake which appears to be fed by an intermittent stream. The area to the north and west of the lake is well above high-water level. The land then rises to a steep but symmetrical hill which is a readily noticeable feature of the landscape. The presence of a site in that area was corroborated by the landowner, but a surface reconnaissance failed to yield anything except numerous chips of flint, chalcedony, and quartzite. The soil is quite sandy and is for the most part grassed over. In drier years, more artifacts were probably exposed by wind blowing the sand away.

SITE COLO.E:2:1

The University of Denver had in its collection two sherds from site Colo.E:2:1. Both of these sherds fell within the range of Dismal River pottery. The site is located in the northern part of Weld County, Colo.

SITE COLO.E:7:1

The collection from the University of Denver's site, Colo.E:7:1, contained many sherds within the range of Dismal River pottery as known in Nebraska. Twelve Dismal River sherds from the site were borrowed for study; three of these were heavily mica tempered.

One rim sherd, which was mica tempered, showed definite simple stamping to within about a centimeter of the lip. The sherd appeared to be from a vessel which had either a slightly flaring rim curving smoothly into the body or an unusually high rim. The sherd was black with a thin buff mineral deposit on it. The paste is not especially compact and showed no tempering material except for much mica. The paste is, however, quite gritty and granular in nature. The simple stamping, which was nearly vertical, was not sharp, and the entire surface presented a rough appearance as though the paste was not fully plastic when the surface was manipulated. There is no evidence of the surface having been smoothed after manipulation. The inside of the sherd shows horizontal marks, probably from a tool used inside the vessel. The lip is thinned and smooth.

Two body sherds appear to have identical paste and surface treatment and could easily have been from the same vessel. One of these mica-tempered sherds has a slight angle as though it were the junction between the rim and the body. It shows diagonal simple stamping on the outside and horizontal lines on the inside.

The other rim sherd was black except for a thin mineral deposit. The rim was about 2.5 cm. high and straight. There was a slight but

definite angle where the rim met the body. The sherd was 0.8 cm. thick and lightly tempered with sand. The paste was gritty and showed a very slight tendency to be flaky, although generally it was granular in nature. The lip was smooth and rounded. The surfaces showed horizontal marks probably left by a smoothing tool. The inside showed a general roughness.

One body sherd was definitely simple stamped in the Lovitt tradition; two others may have been simple stamped and the ridges later nearly obliterated by smoothing. The body sherds, with the exception of the mica-tempered ones, are tempered with medium to fine sand with an occasional inclusion of a larger particle. The paste is gritty, much like that of the pottery from southern Nebraska. The sherds range in thickness from 0.4 to 0.8 cm. They are generally black with a few showing a buff outer surface. Some of them have a thin buff-colored mineral deposit.

Colo.E:7:1 site is located in Weld County, Colo., about a mile and a half south of Cornish. The area considered to represent the site was scouted by the University of Nebraska survey party. Chips of quartzite, chalcedony, flint, quartz, and obsidian were found, but no pottery and only one piece of worked stone. There is evidence of a large blowout, now grassed over, which could represent the source of the collection, for the site was recorded as a blowout site.

#### SITE COLO.E:14:11

The collections of the University of Denver contain pottery resembling Dismal River from another site in Weld County, Colo.E:14:11, located about 5 miles east of Fort Lupton. A reconnaissance of the site failed to disclose any evidence of occupation.

#### SITE COLO.F:15:1

The University of Denver collection contained only one sherd from the site Colo.F:15:1. This sherd appeared to be Dismal River. The site is located in Washington County, Colo., 10 miles north and west of Akron.

#### SITE COLO.G:4:GEN.

A collection at the University of Denver from Sedgwick County, Colo., Colo.G:4:gen., contained two sherds which could possibly be Dismal River, along with cord-roughened sherds.

#### SITE COLO.G:16:6

The University of Denver had only one sherd from site Colo.G:16:6, which is located in Yuma County, Colo., 2 miles south and west from



Wray on the south side of the Republican River. The sherd is well within the range of Dismal River pottery.

SITE COLO.G:16:8

Another collection at the University of Denver from about 10 miles north of Wray, Colo., in Wray County, contains one sherd within the range of Dismal River and one cord-roughened sherd.

SITE COLO.K:5:1

The University of Denver's collection from site Colo.K:5:1 contains many very small sherds with a few larger ones which appear to be well within the range of Dismal River. The one rim sherd has a smooth, rounded lip. The six sherds studied were mostly smooth with a black gritty paste. Four contained little or no additional tempering material and the other two were moderately tempered with coarse sand. The outer surfaces of all the sherds tended to be somewhat rough in comparison with sherds from Dismal River sites in southern Nebraska. One of these sherds appeared to have been simple stamped. The site is in Summit County, Colo., and is identified by the number 5SU2 in addition to its number in the quadrangle system.

SITE COLO.K:8:2

The University of Denver kindly lent a few sherds from site Colo.K:8:2, in Jefferson County, Colo., 4 miles south of Morrison. Three of these sherds, two of which were rims, had black paste and a rather small amount of sand tempering. The paste was micaceous and somewhat gritty. The surface was nearly smooth but was gritty to touch. The lips were rounded and smooth. One rim was 2.5 cm. high and straight or slightly flaring. This pottery from Colo.K:8:2 may well represent a variant of Lovitt Mica Tempered, differing primarily by the inclusion of some smooth sand. The other pottery from the site was cord roughened and very heavily tempered with sand and rough grit. Three sherds had a bright-red outer surface and a buff inner surface.

SITE COLO.M:9:6

A few sherds in the University of Denver's collection from site Colo.M:9:6 appear to be Dismal River. This site is in Elbert County, about 6 miles east of Buick, and is known locally as the "boneyard."

SITE COLO.M:10:2

One rim sherd in the University of Denver's collection from Colo.M:10:2 could be Dismal River. The site is in Elbert County, Colo., 13 miles north and west of Limon.

## SITE COLO.N:4:1

The collection from site Colo.N:4:1 contains two sherds which look very much like Dismal River. This site is in Yuma County, Colo., about 6 miles south of Laird and is described as being in loose sand, 3 miles from the north bank of the Arickaree River.

## SITE 17

The University of Colorado Museum was able to supply information on five sites in Colorado from which pottery resembling Dismal River had come. The collections from these sites had been made by a collector who had taken care to mark the specimens according to the site they came from and to determine the exact location of such sites. The specimens and sites retain this collector's numbers.

Site 17 yielded one small sherd which looked like Dismal River pottery but the surface was badly sand blasted making definite identification impossible. The sherd contained buff and black layers and was tempered with medium fine grit. This site is located in Larimer County, Colo.

## SITE 26

The pottery from site 26 resembles Dismal River pottery. In the collection were two buff sherds of medium thickness. They were grit tempered and contained a little mica. The surfaces of the sherds were smooth and appeared to have been slightly polished. One of the sherds had part of a handle which was about 1.3 cm. in diameter. White and blue glass beads had also been found at this site.

## SITE 38

Site 38 yielded thin brownish pottery which very closely resembles Dismal River. The tempering was grit with a trace of mica. The surface showed some indication that it may have been simple stamped and then smoothed to almost a polish. The site is in Larimer County, Colo.

## SITE 101

The pottery from site 101 was a dull-buff color and was well within the range of Dismal River pottery. It was tempered with fine grit and contained a little mica. The surface was smooth but not polished. The site is located in Boulder County, Colo.

## SITE 104

There was a Dismal River rim sherd in the collection from site 104. The sherd was smooth and black and tempered with grit together with a

little mica. The lip was smooth and rounded; the rim was slightly flaring. There were a few horizontal striations, probably tool marks, on the inside. The site is on the east side of a "hog back" just south of Mount Morrison.

#### LAFAYETTE SITE

H. H. McConnell, of Boulder, Colo., has pottery which resembles Dismal River pottery from three sites. One site about a mile east of Lafayette, Colo., yielded both Dismal River pottery and cord-roughened pottery, as well as a few sherds which may have had a southwestern origin. The Dismal River sherds are smooth and contain a little mica. One Dismal River rim sherd was decorated with incised diagonal lines. An attempt was made to relocate this site but without success.

#### BYERS SITE

Mr. McConnell also had Dismal River pottery from a site about 10 miles north of Byers, Colo. The surface of some of this pottery was smooth. The surface of the rest was slightly irregular but not simple stamped.

#### BOULDER SITE

A few sherds resembling Dismal River pottery had been found on a site about 9 miles east of Boulder. Most of the sherds from this site, however, were cord roughened. There was a trace of mica in both the cord-roughened and Dismal River sherds.

#### TILDEN SITE

R. W. Haynes of Fort Lupton, Colo., has Dismal River pottery from four sites in that vicinity. Pottery from the Tilden Site, about 4 miles north of Hudson, Colo., is well within the range of Dismal River pottery but tends to be relatively thick. The outer surfaces are smooth, although a few sherds may have been simple stamped and then smoothed over. The paste is generally black with fine grit tempering and traces of mica. The outer surfaces are buff to black in color and the inner surfaces are buff to gray. A little obsidian was also found at this site.

#### "B. AND M. SITE"

The "B. and M. Site," about 3 miles northeast of Hudson, Colo., also yielded Dismal River pottery. The color was black to gray and the sherds varied from medium thick to thick. They were grit tempered, some showing traces of mica. The surfaces are generally smooth and, on one sherd, somewhat polished. Some obsidian was found at this site.



## WELD SITE

A Dismal River rim sherd was found at a site northeast of Weld, Colo. The lip is slightly thickened to the inside. The surface of the sherd is buff and the core is black.

## WELD COUNTY GENERAL SITE

Mr. Haynes has Dismal River pottery from another site in Weld County, Colo. The sherds from this site are both smooth and simple stamped. The sherds are relatively thin (about 0.4 cm.) and lightly tempered with fine grit and an occasional piece of larger grit. All the sherds contain mica, some more than others. The sherds are for the most part black; a few are buff or buff on the outside and black on the inside.

## STERLING SITE

The Nebraska State Historical Society has a small collection of potsherds from a site in Logan County, Colo., about 6 miles northwest of Sterling. Two sherds from the collection are identifiable as Dismal River pottery. Most of the pottery from the site, however, is cord roughened, and may be some variant of Woodland.

## SITES IN SOUTHEASTERN COLORADO

## SITE COLO.S:12:5

A rim sherd in the University of Denver's collection from site Colo.S:12:5 closely resembles certain Dismal River sherds (pl. 9, *d*). This sherd appears to be from a vessel about 10 cm. in diameter at the neck with a flaring, somewhat curved rim. The sherd is 0.5 cm. thick, has a black gritty paste, and is tempered with moderately fine sand. The lip is smooth and round. Both surfaces are smooth and feel somewhat polished. The outer surface on the shoulder area is decorated with rows of elliptical punctates. The rows, which are not quite evenly spaced, appear to be horizontal and start about 1.8 cm. from the lip. The punctates are about 0.2 by 0.3 to 0.4 cm. in size. There is also a fine incised line parallel to and just below the lip on the outside of the vessel. The site is in Pueblo County, Colo. The exact location is on record at the University of Denver.

## SITE COLO.Y:12:GEN.

The University of Denver had some material from the area Colo.Y:12:gen. Two smooth black sherds from this area are well within the range of Dismal River pottery.

## SITE COLO.U:5:9

The University of Denver collection from Colo.U:5:9 contained a few sherds which could be Dismal River, together with coiled and painted southwestern pottery. Of the four pieces of pottery resembling Dismal River which were borrowed for study, three were badly sand blasted and the fourth was very small. All were black to dark gray and contained a moderate amount of sand tempering. The paste was gritty and very compact. The one sherd that was not sand blasted had a buff mineral deposit which obscured the surface color. A fresh break indicates that if any color other than black is present it is extremely thin. The outer surface is nearly smooth and somewhat polished. There are very slight parallel ridges which may represent simple stamping which has been smoothed out. The site is located in Cheyenne County, Colo., about 17 miles northwest of Eads.

## SITE COLO.Y:13:1

A study collection of pottery from site Colo.Y:13:1 was borrowed from the University of Denver. Both cord-roughened and smooth sherds are present, the two types showing considerable difference in paste and tempering as well as in surface treatment. The smooth pottery does not differ greatly from Dismal River pottery as found in Nebraska. The paste is black and sand tempered. It is not quite as gritty and is a little more cohesive than the Dismal River pottery from southern Nebraska. This could, of course, represent individual variation or variations in the material available. The hardness is between 4 and 6. One thinner sherd showing tool marks on both surfaces contains a moderate amount of finely divided mica. The site is close to the southern boundary of Colorado about at its center. The exact location is on file at the University of Denver.

## SITE COLO.Y:14:1

Another site in the same area, Colo.Y:14:1, yielded pottery resembling Dismal River as well as coiled and cord-roughened sherds. The outer surface of at least one coiled sherd appears to have been vitrified. Of the eight sherds borrowed for study from the University of Denver, two appear to be well within the range of Dismal River pottery. Two other sherds resemble Dismal River pottery. The paste of the two sherds most like Dismal River is somewhat more compact and less gritty than most Dismal River pottery as it is now known. The sherds contain moderate amounts of sand. Their surfaces are smooth and appear to have a slip or pseudoslip on one or both surfaces. The color ranges from buff through black, with variations on a single sherd. The two sherds resembling Dismal

River pottery less closely are cruder and rougher in appearance with very large sand particles for tempering. The paste is black and somewhat gritty. One of these sherds is a rim sherd with a smooth, rounded, slightly thinned lip. The rim appears to have been slightly flared. The outer surfaces show horizontal striations which may have resulted from shaping the vessel. This site is located in Costilla County, Colo., near Las Lauces and near the Rio Grande River.

## COLO.Z:5:7

The University of Denver has five sherds from site Colo.Z:5:7, one of which looks very much like mica-tempered Dismal River pottery. The site is in Huerfano County, Colo.

## COLO.Z:6:1

Some of the sherds from site Colo.Z:6:1 resemble Dismal River pottery. One is a highly micaceous rim sherd. The lip is rounded, slightly thickened, and smooth. The paste is gray in color and somewhat flaky from the large amounts of mica. The surfaces are slightly rough to touch. A smooth gray ware is also present in the collection. The paste of this is more compact and less gritty or granular than that found in most pottery definitely identified as Dismal River. The surface may be slightly rough to touch or smooth with a slight indication of polish. Red and buff painted pottery also came from the site.

## COLO.Z:14:2

The sherds that the University of Denver has from site Colo.Z:14:2 fall well within the established range for Dismal River pottery. The paste is black, moderately compact, and somewhat gritty or granular. It contains a moderate amount of fine sand tempering. One rim sherd has a rounded, slightly thinned lip and appears to have been curved and slightly flaring. Both surfaces are nearly smooth, although the inner surface is somewhat the rougher. One small body sherd is polished on both surfaces. On one surface there is a trace of burned black deposit similar to that found on many other Dismal River sherds. Another small body sherd has the outer surface decorated with oval punctates about 0.7 cm. long and 0.2 cm. wide. These appear to have been arranged in rows parallel to the long axis and in cross rows at not quite right angles. There is evidence of a little smoothing of the surface after the punctates were impressed. The other surface is smooth and shows some polish. Another body sherd shows a few striations on the outer surface but nothing which resembles simple stamping. The surfaces of this sherd are slightly rough to touch. This site is in Las Animas County, Colo.



## SITES IN SOUTHEASTERN WYOMING

## SITE 48PL11

The Smithsonian Institution has in its collection from site 48PL11 some pottery very suggestive of Dismal River. The site, located in Platte County, Wyo., near the Platte River, apparently is a multi-component site, and since all the pottery and most of the other material in the collection is from the surface, nothing can be said as to the association of pottery with other artifacts.

Four of the sherds are relatively thick, ranging from 6 to 12 cm., and are nearly smooth. The surface has a suggestion of polish. The paste is black, fine textured, gritty, and moderately tempered with small- to medium-sized sand. The sherds contain a little mica, which gives the surface a slightly spangled appearance. The surfaces of the sherds appear gray to buff. The lighter color is due in part, at least, to a thin mineral deposit which adheres to both the surfaces and the edges of the sherds. One rim sherd indicates a straight or slightly flared rim with a smooth, rounded, slightly thinned lip. The pottery is somewhat reminiscent of the thick, smooth pottery found in restricted amounts at most Dismal River sites and exclusively at Ash Hollow Cave. It is very similar to some of the pottery from the Bull Canyon Site in Banner County, Nebr.

Two smaller sherds from 48PL11 are much more like the majority of the Dismal River pottery. One of these sherds is smooth on the outside with a few very fine striations on the inside. It is black and about 0.5 cm. thick. The paste is very compact, gritty, and contains a little fine sand tempering. The other sherd is of about the same thickness but is buff in color. The paste is a little less compact, but is still gritty. It is quite heavily tempered with medium to coarse sand.

Even though all the pottery can be duplicated from other Dismal River sites, there is too little evidence to warrant the assignment of this site to the Dismal River Aspect. It seems likely that further investigation would justify such an assignment.

## SITE WYO.U:11:1

The University of Denver collections include Dismal River pottery from two sites in Wyoming. Site Wyo.U:11:1 contained one and what may be another Dismal River rim sherd. In addition to these sherds, much cord-roughened pottery came from the site. The site is in Goshen County, Wyo., about 15 miles north of Lingle.

## SITE WYO.AA:6:1

The other site in Albany County, Wyo., from which the University of Denver has secured Dismal River pottery is Wyo:AA:6:1. The

pottery from this site is relatively thick, measuring from 0.5 cm. to 1.2 cm. The color ranges from buff to black. The paste is gritty and moderately compact. Except for this grit, the only tempering material consists of occasional chunks of broken rock. One sherd had a somewhat polished appearance but the rest were rather rough to touch. The sherd with the polished appearance has the more compact paste. The pottery from this site is much like Dismal River pottery from Ash Hollow Cave, 25GD2, and the Lovitt Site, 25CH1.

#### SITES IN SOUTHWESTERN SOUTH DAKOTA

##### SITE 39FA45

The occurrence of Dismal River material in South Dakota is as yet unverified. The Smithsonian Institution has, however, recovered a few sherds from Fall River County, S. Dak., which are suggestive of and fall well within the range of Dismal River pottery. These sherds were recovered during the intensive testing of sites to be destroyed by the Angostura Reservoir. One sherd from site 39FA45 appears to be from the shoulder area of a Dismal River vessel.

##### SITE 39FA83

Site 39FA83 yielded three sherds within the range of Dismal River pottery. The paste of these sherds was fine textured, gritty, and contained fine sand tempering. One relatively thick sherd with a smooth surface appeared to be from a miniature vessel. The surface of another thinner sherd appeared slightly scaly.

#### SITE IN WESTERN KANSAS (14SC1)

Site 14SC1, or the Scott County, Kans., Pueblo Site is located 15 miles north of Scott City, Kans., in the valley of Beaver Creek on the west side of the stream. The seven-room pueblo, along with some surrounding features, was excavated in 1898 by Williston and Martin (1899, pp. 124-130; Martin, 1909) and was considered by them to represent the ruins of Quartejejo, referred to by early Spanish explorers.

Some of the pottery from this excavation in the collections at the University of Kansas has recently been identified by Tichy and indicates a late 17th century date for the site (Smith, 1949, p. 295). The sample of sherds includes Tewa and Pojoaque Polychrome, "Kapo" black ware, late red wares, and Rio Grande culinary wares. Some of the sherds from the site previously classified as Dismal River were identified by Tichy as "late Rio Grande micaceous culinary ware" (Smith, 1949, p. 295).



It is interesting to note that most of the artifacts illustrated by Martin (1909, pls. VII-IX) would not be out of place among artifacts from Dismal River sites, although presumably most, if not all, of the specimens were found within the pueblo.

In 1939, the Smithsonian Institution conducted further excavations at 14SC1. With regard to this work Wedel (1940 a, p. 83) states:

Traces of a seven-room pueblo ruin opened by Williston and Martin in 1898 were relocated. Middens yielded potsherds and artifacts of stone, bone, and horn, as well as rare objects of copper, iron, and glass. Charred maize, and squash or gourd rinds indicate horticulture, but quantities of animal bones suggest that subsistence was primarily by hunting. Contrary to expectations, Puebloan influences were almost negligible. Aside from the stone-walled ruin and nearby pre-white irrigation ditches there was a bare handful of sherds, some painted, and a few incised clay pipe fragments presumably attributable to late Southwestern stimulus. Numerous bell-shaped roasting pits and large irregular trash pits, as also the great bulk of artifacts recovered, show close relationship to sites of the protohistoric Dismal River culture of southwestern Nebraska. No houses of indigenous type were found.

Wedel (1947, p. 151) also reports that a pipe fragment identified as of late Rio Grande style was found associated with Dismal River material and is thought to date from the latter part of the 17th century to the early part of the 18th century. He also states (*ibid.*, p. 151) that—

A very few shell-tempered "Quiviran" sherds in the Scott County Site suggest a slight degree of direct intercourse and partial contemporaneity between Dismal River and Great Bend people . . .

The 1949 Laboratory of Anthropology survey party visited the Scott County Pueblo Site. It was covered with weeds but small pottery sherds, pieces of stone, and bone fragments were to be found in the loose dirt around animal burrows and in the ruts in a trail around the monument which marks the site of the pueblo excavated by Williston and Martin. The sherds found were all Dismal River, and closely resemble pottery from the sites in southern Nebraska. One sherd with a buff surface may have had black paint applied. A projectile point, type NBb, an end scraper, an expanded-base drill, and the point of another drill were also found.

## DISMAL RIVER RELATIONSHIPS

### PLAINS-DISMAL RIVER RELATIONSHIPS

The Dismal River Aspect has little time depth in the Plains. A 50-year period centered at about 1700 includes all the dated sites. Moreover, there are no known archeological complexes in the Plains which could be ancestral to Dismal River. Sterns Creek Woodland has been suggested as an ancestor (Martin, Quimby, and Collier, 1947, pp. 331-332) but there is no evidence to support such a speculation. Champe (1949, p. 291) has already refuted this suggestion.



The Dismal River area contains little evidence of other complexes contemporaneous with, or just preceding, the Dismal River Aspect. Much of the area had formerly been occupied by Upper Republican people, who utilized it much more intensively for agriculture. The Upper Republican occupation, however, was terminated just prior to a severe drought which may possibly be correlated with the great drought in the Southwest at the end of the 13th century.

The only sites which seem to date from after the Upper Republican but before the Dismal River occupation are those variously designated as "White Rock," or "Glen Elder" (Stephenson, 1954, p. 20). These sites are, for the most part, located along the eastern edge of the Dismal River area, although Wedel (1947) reports the occurrence of pottery similar to that from such sites from near Sundance, Wyo. Several sites in northern and northwestern Nebraska have Dismal River and "Glen Elder-White Rock" pottery occurring together on the surface. Contemporaneity of the two complexes in this area has been neither established nor disproved.

The "Glen Elder-White Rock" material is probably the older, and may represent a Siouan group that skirted the Pawnee territory in eastern Nebraska.

It is now generally agreed that the Dismal River people were Plains Apache. Thus far, however, it has not been possible to definitely identify any archeological site as a specific village described in early historical accounts, although it is likely that the Scott County, Kans., Pueblo Site was one of the rancherias of El Quartejejo. These rancherias were scattered; some were several days' journey from the large Quartejejo Apache settlement called Santo Domingo by the Spanish. Spanish sources state that the houses built by the original Taos refugees about the middle of the 1600's were found at Santo Domingo (D. A. Gunnerson, 1956, p. 355); therefore Santo Domingo was probably the original "El Quartejejo." But the Picuris who fled to the Plains in 1696 were, by 1706, scattered among several Quartejejo Apache rancherias. One of these, Sanasesli, was 40 leagues from Santo Domingo (Thomas, 1935, pp. 70-71). The Dismal River site in Scott County, Kans., is probably one of the Quartejejo rancherias at which Picuris Indians were living circa 1696-1706, rather than the original "El Quartejejo." This idea gains strength from the fact that pueblo sherds from the Scott County site "confirm a late seventeenth and early eighteenth century dating" (Wedel, 1949 b, p. 329).

The Dismal River Aspect shares enough traits with its Plains contemporaries so that it can be considered a Plains complex, even though—judging from its trait list—a poverty-stricken one. It might be said to have an alien base with a thick veneer of Plains traits, some of which were not wholeheartedly accepted. Many Plains-Dismal

River similarities seem to represent borrowing by the Dismal River latecomers. (Athabascans are known to be adept at this.) Of course, many of the traits shared by the Dismal River people and such protohistoric groups as the Lower Loup (Pawnee) (Wedel, 1938, pp. 6-9) and the Great Bend (Wichita) (Wedel, 1942, pp. 3-6) are by no means restricted to these groups nor to the protohistoric period.

The most specific protohistoric Plains trait found in the Dismal River complex is that surface treatment of pottery which has been called simple stamping. (It involves the use of a grooved or thong-wrapped paddle.) This trait is most commonly found at sites in the eastern part of the Dismal River area, where these people were probably influenced by the people of the Lower Loup Focus and the Great Bend Aspect, who also employed the technique. However, some highly micaceous sherds reminiscent of Taos ware, but simple stamped, occurred in Colorado. The Dismal River people formed their pots by the paddle and anvil method, apparently without coiling. This links them to the Plains, as opposed to the Southwest. The paucity of handles suggests affinity with the Wichita (Wedel, 1949 a), although it could just as well reflect non-Plains (possibly Southwest) influence. Vessel shape is somewhat similar to that of the Wichita, but even more to Taos-Apache-Navaho wares.

In brief, Dismal River pottery seems to present a non-Plains pottery tradition modified by the incorporation of the Plains technique of surface treatment called simple stamping.

The Dismal River house is not the Plains earth lodge. Nowhere else in the Plains has a pattern involving five basic posts been found. In Dismal River houses the center posts form a ring with a diameter about half that of the house. This trait is characteristic of many Plains earth lodges, but it is by no means limited to the Plains. Nor are the central fireplace and the eastern entrance. It is possible that the Dismal River house represents a compromise between the Plains earth lodge and a type of dwelling known earlier to the Apache, such as the Navaho hogan (one style of which has a basic pattern of three main posts plus two entrance posts) (Mindeleff, 1898, pp. 489-493).

The Dismal River baking pit is alien to the Plains, and the typical Plains cache pit is not found at Dismal River sites. Sunshades have such wide distribution that they are of little value for comparative purposes. Other Dismal River artifacts could, for the most part, be lost in Plains assemblages. A few which are peculiar to Dismal River as compared with other Plains complexes are: end scrapers with tangs or graver points, "cigar-shaped" drills with lateral lugs, tubular pottery pipes, and much-polished bone punches. The great number of cutting, chopping, and scraping tools with a minimum of work except



on the use edge is also distinctively Dismal River. A notable absence from the Dismal River assemblage is the Catlinite pipe, a protohistoric and historic time marker in the eastern part of the Plains.

Dismal River shares with contemporary Plains groups such items as bison scapula hoes, bison metapodial fleshers, bone and antler projectile points, bone awls, tubular bone beads, bone arrow-shaft wrenches, cancellous bone paint brushes, bone paint (?) spatulas, small triangular flint projectile points, chipped end scrapers, side scrapers and knives, and grooved sandstone shaft polishers. Dismal River differs from other Plains complexes in the degree to which these various items are emphasized. In the Dismal River assemblage, for example, the common snub-nosed scraper outnumbers all other stone artifacts by a wide margin and bison scapula hoes are not common.

#### PECOS-DISMAL RIVER RELATIONSHIPS

Many of the artifacts from Pecos (Kidder, 1932) show a striking similarity to those of the Plains in general and to those of the Dismal River Aspect in particular. The types of bone artifacts, and even the variations, coincide to a large extent. The item most conspicuously lacking in the Pecos series is the scapula hoe or digging tool; only one dubious specimen was present.

Kidder describes 10 types of awls well represented at Pecos. They are classified as mammal leg bone, mammal rib, and bird bone, with subclassifications according to the portion of the bone used. The Dismal River inventory includes all these types except for awls with all or part of the articulation remaining, and those made from bird bones.

The Pecos collection contains a series of bone tools classified as "four-sided tools" (flakers (?), polishers (?), and rubbing (?) tools) which vary in shape, but somewhat resemble very blunt awls showing much wear and/or polishing. Many of these may be reused awls. Similar artifacts occur at Dismal River sites and have been called punches or flakers, or have been discussed as awls. Such tools are apparently not common in other complexes in the Southwest or in the Plains. They do, however, occur in the Promontory (Utah) complex.

Articulated metapodial fleshers, with and without serrations on the blade, occurred at Pecos in post-Columbian deposits. These artifacts are known from many Plains complexes including Dismal River, from the Promontory complex, and, in historic times, from much of the Plains and Midwest. Kidder recognized that these fleshers from Pecos were of Plains type. Similar tools or scrapers made of other bones also occur in both the Dismal River and Pecos complexes.



Cylindrical bone beads are common to Pecos and Dismal River. Spatulalike tools show more elaboration at Pecos as what Kidder terms spatula awls. Head (?) bands of bone or antler occur in both complexes, some types being common to both and others not. Miscellaneous ornaments of bone, antler, and bear claws occur in both. Flageolets and whistles are well represented at Pecos, but are much less common in Dismal River. Shaft wrenches and eyed needles occur in both complexes. Projectile points of bone and antler are represented by both socketed and stemmed types in both complexes. Another shared trait is the use of cancellous portions of large bones, which at Pecos are found in the later deposits.

A few items of bone represented at Pecos which have not yet been reported in Dismal River are spindle whorls, musical rasps, and objects identified as weaving and matting tools. The Pecos bonework shows more elaborate decoration, and there are more objects probably intended for ornaments than in Dismal River. Objects made of shell, especially beads and ornaments, are numerous at Pecos but rare in Dismal River.

The stone industry of Pecos is much like that of the Dismal River Aspect. The ground-stone industry, however, was better developed at Pecos. Also, the crude choppers common at Dismal River sites are not reported from Pecos.

Projectile points from Pecos represent a great variety of types, but the triangular points, with and without side notches, predominate as in Dismal River. The types of drills are nearly duplicated in the two assemblages. This is especially interesting since the plain-shafted or "cigar-shaped" drills and the same type of drill with lateral projections seem to be restricted in the Plains to Dismal River. The variety of knives, ranging from well-made leaf-shaped and alternately beveled diamond-shaped blades to incidental flakes showing use as cutting tools, is comparable in the two complexes. End scrapers and side scrapers are common in both complexes although there is no indication that any of the scrapers from Pecos are as crude as some from Dismal River, nor is there any indication that tanged scrapers were found at Pecos. Kidder noted a radical increase, beginning circa 1550, in the number of snub-nosed scrapers, side scrapers, and "two-edged" knives (alternately beveled) in the later deposits. This he interpreted as due to increased Plains influence. Among the aberrant flint forms from Pecos were rectangular objects similar to gun flints, which are reminiscent of one specimen from 25HN37.

Although ground-stone artifacts are much more common and varied at Pecos than at Dismal River sites, a few types are shared. The most common of these are sandstone abraders, especially arrow smoothers. Other types found in both complexes but more numerous

at Pecos include metates, grooved mauls, hammerstones, tubular and elbow pipes, pendants, and beads, especially turquoise.

A reexamination of Pecos pottery failed to reveal any sherds indisputably Dismal River. Some of the plain black-ware sherds could be confused with Dismal River pottery, but, on the other hand, these fit smoothly into the Pecos series. One sherd, however, is worthy of special mention. It is smooth, black, and decorated with rows of elliptical punctates. Such sherds (pl. 30, *e, f*) are rare, but do occur at widely scattered Dismal River sites, coming from as far north as Sioux County, Nebr. Another sherd of this type, found at Taos, had apparently eroded out of the adobe of the old ruined mission that was completed in 1726.

Tubular clay pipes shaped like specimens from Pecos, but much less ornate, are found at some Dismal River sites.

In considering the similarities between the artifacts of Pecos and those of the Dismal River Aspect, one must keep in mind the time factor. The dates for Dismal River sites have thus far clustered around 1700. Pecos was occupied for several centuries and many of its artifact types apparently persisted for much or all of this time. For other specimen types, the age is not known, especially where few examples are found. It is interesting to note, however, that Kidder attributes many of the Plains-like and least southwestern types to relatively late phases (post-Columbian and later) of the occupation. A fuller discussion of the probable significance of this increased influence from the Plains is given by D. A. Gunnerson (1956, p. 349). She suggests that the influx of Plains artifacts which began at Pecos about 1550 was a result of interaction between Pecos people and the Teya and Querecho. Moreover, she presents evidence which suggests that the Teya were the direct ancestors of the Lipanan Apache, including the now-extinct Cuartelejo Lipanans. It would appear, from her evidence, that Lipanans have been trading at Pecos, and sometimes living there, from circa 1525 to at least as late as 1752. Moreover, until the Comanche invasion forced the Lipanans out of most of "Apacheria," those Apache seem to have virtually monopolized the Pecos-Upper Rio Grande Pueblo trade. Most of the Plains material found at Pecos, then, is probably of Lipanan origin. How much of it is specifically traceable to Pecos interaction with Lipanans of the Dismal River Aspect can probably not be determined. During the winter of 1751-52, 300 men of the Cuartelejos, Palomas, and Carlanas were "in the environs of the Pueblo of Pecos with their families, living so sociably and neighborly as to indicate their general love for this province. Leaving their women and children in the Pueblo of Pecos, they are accustomed to go to the Plains to hunt buffalo for their support" (Velez, *in* Thomas, 1940, p. 124).



The area around Pecos and the Upper Rio Grande Pueblos should be thoroughly examined for evidence of Dismal River campsites. There is a possibility that the Dismal River people, when in the Southwest, may have lost their veneer of Plains traits so that their sites will be hard to identify. However, if objects found also at Pecos, and apparently of Southwestern origin, were carried far into the Plains, it is at least possible that Plains artifacts were carried to campsites around Pecos and Rio Grande Pueblos, especially Taos and Picuris.

It is possible that some of the small open sites near Taos described by Jeancon (1929) may represent the sites of Dismal River people or other Lipanans, but his description of the material is too sketchy for an identification to be based upon it.

#### PROMONTORY-DISMAL RIVER RELATIONSHIPS

A reconsideration (Gunnerson, J. H., 1956) of material collected from caves on Promontory Point, north-central Utah (Steward, 1937) suggested that Promontory-Dismal River relationships may be much closer than previously realized. A few Promontory-Dismal River similarities had been noted before (Hill and Metcalf, 1942, pp. 188, 197), and Steward (1937) called attention to Plains traits at Promontory Point. Significant traits shared by the two complexes include: toothed bison metapodial fleshers, tanged end scrapers, sandstone arrow-shaft smoothers, tubular steatite pipes, blunt bone "punches" or "flakers," triangular projectile points, tubular bone beads, several types of bone awls, and bone spatulas. Both complexes are characterized by an abundance of end scrapers, great variation in the quality of stonework, and heavy dependence upon bison. Some Dismal River pottery is identical with part of the pottery from Promontory Point. Many of these traits are not found in other complexes in the Promontory area. Most are common in the Plains, but some are restricted, in the Plains, to the Dismal River Aspect.

The similarities between the two complexes are sufficiently numerous and specific to suggest that the Promontory culture is closely related to the Dismal River Aspect. The chief problem in comparing the two complexes is that the Promontory material is from caves whereas the Dismal River material is from open sites. It is likely, however, that open Promontory sites providing evidence of structures could be found. The intervening area, especially southern Idaho and Wyoming, should be surveyed in an attempt to locate additional sites related to these complexes.



At present there is no accurate date for the Promontory culture. Its similarities to the Dismal River Aspect suggest that it is contemporaneous with that Plains complex. The presence at Promontory of the toothed bison metapodial flesher, a protohistoric time marker in the Plains, strengthens the probability that the Promontory culture existed circa 1700. It is possible that the Promontory people were Dismal River buffalo hunters who followed bison herds up the North Platte River and into the Great Basin, where bison survived in the Promontory area until early historic times.

## DESCRIPTION OF THE DISMAL RIVER ASPECT

### SUBSISTENCE

The Dismal River people had a subsistence economy based primarily on hunting and secondarily on agriculture. Bison appears to have been the chief animal hunted, although numerous deer and beaver bones are also found. Turtles and mussels were utilized, but there is no evidence of fish and very little of fowl. The only indication of domesticated animals is the occurrence of dog bones. The presence of the skull and paw bones of a dog in a pit at 25CH1 suggests that dogs were eaten. The absence of fish bones is interesting in the light of the Athabaskan taboo against the eating of fish and in view of the probable abundance of fish in the streams near the villages.

Evidence of agriculture is present but limited. Bison-scapula digging tools, which were probably used for cultivation of crops, have been found at several sites, and at 14SC1 there are irrigation ditches possibly attributable to the Dismal River occupation. More direct evidence of agriculture is present in the form of the charred remains of corn, and squash or gourd.

The Dismal River people apparently made use of wild plant foods. Remains of plums, chokecherries, hackberries, and black walnuts have been found.

### TECHNOLOGY

The evidence that these people worked skin is indirect, but abundant. A large proportion of the chipped-stone artifacts such as scrapers and knives were probably skin-working tools. The same is true of the metapodial fleshers and the numerous bone awls. Some hemispherical pieces of cancellous bone found at 25CH1 were classified as hide tanners with the idea that they were used to smooth hides. The smooth pieces of caliche from several of the sites may have been rubbed on the hides to whiten them.

Bone tools appear to have been important to these people. Bone from several animals, as well as antler and horn, has been worked. The most common method of cutting bone appears to have been

scraping or cutting partially into the piece and then breaking it. The scraps left from making awls and arrow points suggest that much of the shaping of these specimens was completed before the surplus bone was removed. The striations on some of the bone artifacts probably resulted from their having been shaped and smoothed by rubbing, in some cases with a rotary motion, against sandstone abraders. A few abraders have very narrow grooves which could have served to sharpen awls. Flint drills could have been used to drill bone.

A wide variety of stone was worked by the Dismal River people. The raw material chosen was usually that most readily available, although stone not native to the immediate area is often found at a site. The more common types of stone worked are: jasper, flint, chalcedony, quartzite, and sandstone. Other types of stone used, though not extensively, were: obsidian, schist, river boulders, quartz, turquoise, and, very rarely, catlinite. Pieces of caliche, hematite, and limonite show use but were apparently not fashioned into implements. The most common methods of working stone were by percussion and pressure flaking, although some grinding, pecking, and polishing was done. Antler tine and possibly bone flakers were used for pressure flaking and small stones showing use as hammer stones may have been used for the percussion flaking. In general, the quality of the stonework was poor, but the delicately chipped projectile points and drills demonstrate an ability to do good work. Well-chipped cutting edges or scraping edges occurred on tools otherwise shaped little or not at all.

The Dismal River people apparently chose clay with an abundance of very fine grit as the raw material for their pottery. They often added medium-sized sand as tempering and perhaps, occasionally, pulverized mica. The uniformly compact nature of the paste and the lack of lamination suggests that the paste was well worked. Shaping appears usually to have begun with lump modeling, followed by paddle and anvil shaping which in turn was sometimes followed by smoothing. The paddle used was probably either grooved or thong-wrapped, since it left ridges and depressions on the surface of the vessel. Firing was done in a reducing atmosphere at a temperature well under that necessary for vitrification but high enough to produce a reasonably durable ware.

Dismal River pottery is the artifact most diagnostic of the Dismal River Aspect. Single sherds from other complexes could be confused with Dismal River pottery, but there is little chance for confusion between series of Dismal River sherds and pottery from any other identified complex on the Central Plains. The most diagnostic traits of Dismal River pottery are its gray-black color, smooth or simple



stamped surface, gritty paste, tendency toward straight square breaks, small sherd size, tempering (usually fine to medium sand or occasionally mica) and scarcity of decoration, which, when present, is almost always confined to the lips and consists of punctates and incised or impressed lines.

Only five restorable vessels have been found. All of these were from 25CH1 and were of approximately the same shape. The vessels are globular to somewhat elongated with a constricted neck. The rims are straight or flaring and meet the body of the vessel in a smooth curve. The vessels are small to medium in size with the largest only 23.5 cm. in both height and maximum diameter. Individual sherds and sections of vessels suggest several other forms, including bowls, bowls with constricted necks or the "seed-bowl" type, vessels with flat shoulders and recurved rims, vessels with flat bottoms, and miniatures.

Pottery shows regional variation. The smooth, thicker pottery found at Ash Hollow cave in western Nebraska becomes the predominant type in Colorado where simple stamped pottery is rare. Furthermore, at some of the Colorado sites, pottery very similar to Dismal River pottery, but with coarse tempering, occurs associated with what is probably Dismal River ware. This occurrence of coarse- and fine-tempered Dismal River-like pottery is reminiscent of Promontory ware and may be related to it.

Even in the area where the Dismal River complex is better known, there are some interesting variations. At the Hooker County sites the percentage of decorated rims and variety of lip decorations is significantly greater than at White Cat Village or the Lovitt Site, although at these latter sites the number of sherds collected was much larger. A portion of a vessel with a flat bottom and flaring walls, suggestive of Shoshone influence but with a mica-tempered paste, was found in Hooker County.

The Lovitt Mica Tempered sherd types pose another problem, since some of these sherds have also been identified as Rio Grande micaceous culinary ware. The uncommonness of such sherds at Dismal River sites might support the idea that micaceous ware had been obtained by trade if it were not for the fact that some of these sherds are simple stamped. Unmistakable painted Southwestern sherds have been found at Dismal River sites in Kansas and southern Nebraska.

One other tantalizing ceramic trait is the occasional occurrence of Dismal River sherds with parallel rows of elliptical punctates. The distribution of this type is from Pecos and Taos to north-central Nebraska, but with seldom more than one sherd at a site. The significance of this trait is not understood since nowhere does there seem to be a site where this type is at all common.



Clay and occasionally stone pipes were made. Pipes were of two types. The more common were the tubular or "cloud blower" pipes resembling those from Pecos but generally far less elaborate. The others are elbow shaped.

#### TOOLS AND IMPLEMENTS

Tools used by the Dismal River people were limited in variety and, for the most part, were of types used by other Plains groups. Chipped-stone projectile points were small, triangular, and well made, with and without side notches. Some chipped knives were well made, but crude choppers and retouched flakes were far more common. Drills were of several types; some had expanded bases; others were cigar shaped, and some were cigar shaped with lateral lugs, a type restricted in the Plains to Dismal River. Gravers and "spokeshaves" were not numerous and not standardized as to form. Both end scrapers and side scrapers are extremely numerous and one type, end scrapers with graver points or tangs, is diagnostic of Dismal River. Some chipped-stone artifacts were well made, but most were crudely executed except for the working edge.

Ground- and pecked-stone tools are far less common than chipped tools on Dismal River sites. Sandstone abraders are common and were apparently used for smoothing arrow shafts and for miscellaneous grinding such as sharpening bone awls and shaping bone tools. Other stone tools include shallow metates, and hammerstones.

Bone and antler tools were also important in the Dismal River complex. Bison-scapula hoes, although not numerous, were used. Fleshers were made from bison metapodials. Awls were made from several different bones and were of several types. Socketed antler and stemmed-bone projectile points were used. One distinctive type of bone artifact resembles a blunt awl and has been referred to as a "punch" or "flaker." For the most part such artifacts are well polished. Antler-tine flakers also occur. Other bone artifacts include eyed needles, bison-rib shaft wrenches, cancellous bone "paint brushes," bone "spatulas," head (?) bands, beads, whistles, and ulna picks.

#### STRUCTURES

Information on house structures has been obtained primarily from two Dismal River sites, White Cat Village and the Lovitt Site. Since the most common house type at White Cat Village is also found at the Lovitt Site, it seems justifiable to consider the typical Dismal River lodge as semipermanent, about 25 feet in diameter, probably with a covering of grass or brush over a 5-post foundation plus leaners, and built either on the surface of the ground or in a shallow excavation. Apparently some care went into the construction of these lodges since

the central postholes are commonly arranged on an almost true circle. Judging from the size of the center posts, pains were taken to select relatively large posts of nearly the same size. The posts in turn were set deep enough in the ground to provide a substantial basis for a structure. Sometimes posts were wedged in their holes with bison long bones.

Dismal River houses do not appear to be closely related to other aboriginal Plains dwellings. It has been pointed out that Navajo hogans also have five posts. This similarity, however, is restricted to the number of posts since the three hogan foundation posts are slanted and the lodge is confined to the area within the five posts, whereas the postholes of the houses at White Cat Village were vertical and the diameter of the inner post circle represented only about half of the total diameter of the house.

The type of construction found in Wichita houses could probably be ruled out on the basis of the shallowness of leaner stains found in House VI at White Cat Village. The outer poles of Wichita houses were set sufficiently deep to permit their tips being bent and tied together.

The archeological evidence can probably be best interpreted in terms of a structure somewhat similar to the Plains earth lodge. The evidence suggests that five center posts about 9 feet high were set in a circle about 14 feet in diameter. Beams were then laid between the tops of adjacent posts. Two additional entrance posts may have been set about twice as far from the center as the main posts, and beams laid from these two posts to the central group.

Smaller poles were then pushed into the ground and leaned against the beams joining the central posts. The butts of these leaners were somewhat less than a foot apart, forming a circle with a diameter about twice that of the circle formed by the central posts. The leaners in turn were probably covered with grass or brush and possibly some dirt was banked around the lower portion. It seems likely that a roof would have been formed by laying poles across the top of the structure and then covering them with more brush or grass.

The smallness of the lodges would eliminate the necessity for an outer circle of posts joined by rafters to the inner circle and to the ground by leaners as in the case of the larger Plains earth lodges. The size of the houses did not seem to depend too much upon the size of the foundation. At 25CH1, the five center posts of House II averaged 0.3 foot in diameter and formed a circle about 11 feet in diameter. The smallest two of the six houses at 25HN37 were 12 feet in diameter with foundation postholes averaging 0.5 foot and 0.7 foot in diameter. The other four houses were 14 or 15 feet in diameter with postholes averaging 0.7 or 0.8 foot in diameter. These facts suggest that what-



ever the superstructure may have been, it could probably have been supported as well by small poles as by sturdy poles. Verification of the five-post pattern as typical of the Dismal River Aspect as a whole must await evidence of structures from other sites.

Two other variant structures are worthy of consideration. At the Lovitt Site one pattern of postholes suggested a rectangular sunshade supported by nine poles. At all Dismal River sites thus far excavated, there is a scattering of postholes with no apparent pattern. These could represent structures or racks of some sort.

A nine-room pueblo was found at 14SC1. It seems likely that this structure was built by refugee Pueblo people, but the possibility that it is of Dismal River authorship has not been completely ruled out.

Baking pits were found at three Dismal River sites. These pits are about 3 feet in both depth and diameter and were used for cooking green corn and perhaps other foods in large quantities. The pits, which often contain burned rocks, were heated by building a large fire in them; then the fire was removed and the food was placed in them. The pits would subsequently be filled with village refuse. Such pits are missing at Hooker County sites, where the ground is perhaps too sandy for such pits to have held their shape.

Refuse was also disposed of by filling shallow irregular pits scattered throughout the village. Whether these pits had other functions is not known. Midden areas also occur. The cache pits which are characteristic of most of the Plains agricultural complexes are missing at Dismal River sites. There is no direct evidence of large storage facilities.

#### ADORNMENT

No archeological evidence concerning the dress of the Dismal River people has been found, and very little indication of adornment. The latter is chiefly in the form of beads. The most common type of bead is made from tubular sections of bone with the length about five times the diameter. Such beads are often made of metapodials of dogs or coyotes and are usually from 3 to 5 cm. long.

Small turquoise beads have been found at several Dismal River sites. These undoubtedly represent commerce with other groups to the Southwest. Copper and iron conical jingles, commonly used by Plains and Southwestern Indians to decorate clothing and other equipment, are also found. Some of these appear to be of European manufacture while others were probably made by the Indians from such raw material as copper or brass kettles.

At least four pigments were available to the Dismal River people. Red hematite, yellow limonite, white caliche, and black charcoal have been found. Pieces of hematite and limonite show scraping, which suggests the production of powder. This was probably done to secure



pigment, but it is impossible to determine whether or not it was actually used in body decoration. Cancellous bone "paint brushes" and spatulalike bone objects impregnated with red pigment have been found also. These could have been used for the application of paint.

#### EXCHANGE

There is evidence that the Dismal River people engaged in trade, but not very extensively. They received such things as metal jingles, iron awls, and possibly axes and guns from European sources either directly or indirectly. There is also evidence of trade with other Indian groups. Both Great Bend and Southwestern sherds have been found in Dismal River villages in southern Nebraska and Kansas. The occurrence of obsidian at sites might represent another commodity traded for, apparently in unworked form, since chips are found more frequently than artifacts. Turquoise beads were probably obtained from the Southwest. The occurrence at sites in Hooker County of artifacts made from brown jasper of a type found along the Republican River could be explained either by trade between closely related groups or by journeys to obtain the material.

#### RELIGION AND MORTUARY CUSTOMS

The only inferences as to the religion of the Dismal River people are drawn from negative evidence. The lack of fish bones in their villages, even though they were on streams which contained fish, could indicate a taboo against eating fish. The lack of evidence concerning burials of these people, even after careful search, could indicate a fear of the dead resulting in an avoidance of graves. This, in turn, may have prevented the burial of bodies near one another and probably caused them to be buried far from the villages. Both of these speculations are compatible with the practices of the southern Athabascans.

#### SUMMARY AND CONCLUSIONS

Numerous sites in the Central High Plains have yielded the archeological remains of a people who subsisted primarily by hunting, but supplemented the natural food resources of the area by the practice of horticulture. Those of the sites which have been dated belong to a 50-year period circa 1700. The complex of archeological traits represented at these camps and villages has been termed the Dismal River Aspect. The sites in the eastern part of the area of distribution are more closely related to one another than to sites in the western part of the area and have been grouped in the Stinking Water Focus. The westernmost sites may, with additional work, be found to constitute a second focus.

The archeological evidence indicates that the Dismal River people possessed essentially the same hunting and skin-working tools used by other Plains groups of circa 1700. The scarcity of tools commonly identified with aboriginal Plains horticulture and the absence of typical Plains storage pits leave their habits of food raising and storage in doubt. On part of their pottery the Dismal River people used a method of surface treatment commonly employed by their neighbors to the east, the Pawnee and Wichita.

Traits showing contact with the Southwest, though few, are equally specific: Pueblo trade sherds, turquoise, and drills with lateral lugs. Dismal River artifacts show striking similarities to those of Pecos, the only eastern pueblo from which comparative data are available. More surprising, in view of the intervening area, are the similarities between Dismal River and the Promontory culture in Utah. These are close enough to suggest that the Promontory culture represents Dismal River hunters who followed bison herds into the Great Basin.

The Dismal River lodge, as interpreted from the post pattern, remains unique; it is not Plains, Southwest, nor Basin.

The identification of the Dismal River people as Plains Apache brings with it explanations for many of the problems presented by Dismal River archeology. First, it permits us to identify the Dismal River Aspect as a final phase of Apache domination of the High Plains. It explains the fact that both Plains and Southwestern influences are detectable in the Dismal River Complex, for, since circa 1525, the Plains Apache had been familiars of both Pueblo and Plains agricultural villages. It is generally agreed that the Athabascans in the Southwest originated in the north, and it seems probable that they came via the High Plains circa 1525. The next major problem concerning these Apache groups is the identification of their earlier manifestations.

## APPENDIX 1

### *Classification of the sites of the Dismal River Aspect*

Site	Definitely assigned to the Dismal River Aspect	Tentatively assigned to the Dismal River Aspect	Assigned to Stinking Water Focus	Possibly representing Second Focus
25BN2	×			×
25C24		×		
25C27	×			
25C28	×			
25C29	×			
25CH1	×		×	
25CH7	×			
25CH8	×			
25CH14	×			
25DN1	×		×	
25FR15	×			
25FT9	×		×	
25GD2	×			×
25HN37	×		×	
25HN44	×			
25HO1	×			
25HO2	×			
25HO3	×			
25HO5	×			
25HO7	×		×	
25HO9	×			
25HO21	×		×	
25HO24	×			
25HO30	×			
25HO31		×		
25HO32		×		
25HY4	×			
25LN2	×			
25LN3	×			
25LN4	×			
25LN5	×			
25LN6	×			×
25LN7	×			
25LN9		×		
25LN10	×			
25MO2	×			
25SF1	×			
25SX00	×			
25SX301		×		
25TM1	×			
COLO.D:4:2		×		
COLO.E:1:7	×			×
COLO.E:2:1	×			
COLO.E:7:1	×			
COLO.E.14:11		×		
COLO.F:15:1	×			
COLO.G:4:gen		×		
COLO.G:16:6	×			



*Classification of the sites of the Dismal River Aspect—Continued*

Site	Definitely assigned to the Dismal River Aspect	Tentatively assigned to the Dismal River Aspect	Assigned to Stinking Water Focus	Possibly representing Second Focus
COLO.G:16:8	×			
COLO.K:5:1	×			×
COLO.K:8:2		×		
COLO.M:9:6	×			
COLO.M:10:2		×		
COLO.N:4:1	×			
COLO.S:12:5		×		
COLO.U:6:9		×		×
COLO.Y:12:gen	×			×
COLO.Y:13:1	×			×
COLO.Y:14:1	×			×
COLO.Z:5:7		×		
COLO.Z:6:1		×		×
COLO.Z:14:1	×			×
17		×		
26		×		
38	×			
101	×			
104	×			
B. & M.	×			
Boulder		×		
Byers	×			×
Lafayette	×			
Sterling	×			
Tilden	×			
Weld	×			
Weld County gen	×			
48PL11		×		×
WYO.U:11:1	×			
WYO.AA:6:1	×			×
39FA45	×			
39FA83	×			
14SC1	×			

## APPENDIX 2

### SOURCES OF INFORMATION CONCERNING DISMAL RIVER SITES

Given below is a list of the sites mentioned in this paper which are either definitely or tentatively assigned to the Dismal River Aspect. The agency or agencies which have material and/or information concerning the site are also listed and are given in the approximate order of the amount of the material in their respective collections. The abbreviations for the agencies follow:

UNLA.....	University of Nebraska, Laboratory of Anthropology, Lincoln.
NSHS.....	Nebraska State Historical Society.
SIMRBS.....	Smithsonian Institution, Missouri River Basin Surveys, Lincoln, Nebr.
UD.....	University of Denver, Department of Anthropology, Denver.
UC.....	University of Colorado Museum, Boulder.
UK.....	University of Kansas Museum of Natural History, Lawrence.
HHM.....	Collection of H. H. McConnell, Boulder, Colo.
RWH.....	Collection of R. W. Haynes, Fort Lupton, Colo.
SI.....	Smithsonian Institution, Washington, D. C.

*Sites definitely or tentatively assigned to the Dismal River Aspect and the agency having information concerning them*

#### SITES IN NEBRASKA

Site	Other name of site	Agency
25BN2.....		UNLA.
25C25.....		NSHS.
25C27.....		NSHS.
25C28.....		NSHS.
25C29.....		NSHS.
25CH1.....	Lovitt Site.....	NSHS, UNLA.
25CH7.....	McCallum-Hofer Site.....	NSHS.
25CH8.....	Skelton Site.....	NSHS.
25CH14.....	Baker Site.....	NSHS.
25DN1.....	Nichols Site.....	NSHS, UNLA.
25FR15.....		UNLA.
25FT9.....	Dick Site.....	NSHS.
25GD2.....	Ash Hollow Cave.....	UNLA.
25HN37.....	White Cat Village.....	UNLA, SIMRBS.
25HN44.....		UNLA.
25HO1.....		NSHS.
25HO2.....		NSHS.
25HO3.....		NSHS.
25HO4.....		NSHS.
25HO5.....		NSHS, SIMRBS.
25HO7.....	Lowe Site.....	NSHS, SIMRBS.
25HO9.....		NSHS.
25HO21.....	Humphrey Site; Matthews Site.....	NSHS, SIMRBS.
25HO24.....		NSHS.

*Sites definitely or tentatively assigned to the Dismal River Aspect and the agency having information concerning them—Continued*

## SITES IN NEBRASKA—Continued

Site	Other name of site	Agency
25HO30		NSHS.
25HO31		NSHS.
25HO32		NSHS.
25HY4	Horn Site	NSHS.
25LN2		UNLA.
25LN3		UNLA.
25LN4		UNLA.
25LN5		UNLA.
25LN6		UNLA.
25LN7		UNLA.
25LN9		UNLA.
25LN10		UNLA.
25MO2		UNLA.
25SF1	Signal Butte	SI.
25SX00	Round Top Site	UNLA.
25SX301	Glenn Site	UNLA.
25TM1		NSHS.

## SITES IN COLORADO

COLO.D:4:2		UD.
COLO.E:1:7		UD.
COLO.E:2:1		UD.
COLO.E:7:1		UD.
COLO.E:14:11		UD.
COLO.F:15:1		UD.
COLO.G:4:gen		UD.
COLO.G:16:6		UD.
COLO.G:16:8		UD.
COLO.K:5:1	5SU2	UD.
COLO.K:8:2		UD.
COLO.M:9:6		UD.
COLO.M:10:2		UD.
COLO.N:4:1		UD.
COLO.S:12:5		UD.
COLO.U:5:9		UD.
COLO.Y:12:gen		UD.
COLO.Y:13:1		UD.
COLO.Y:14:1		UD.
COLO.Z:5:7		UD.
COLO.Z:6:1		UD.
COLO.Z:14:2		UD.
17		UC.
26		UC.
38		UC.
101		UC.
104		UC.
B. and M.		RWH.
Byers		HHM.
Boulder		HHM.
Lafayette		HHM.
Sterling		NSHS.
Tilden		RWH.
Weld		RWH.
Weld County gen.		RWH.



*Sites definitely or tentatively assigned to the Dismal River Aspect and the agency having information concerning them—Continued*

SITES IN WYOMING

Site	Other name of site	Agency
48PL11.....	.....	SIMRBS.
WYO.U:11:1.....	.....	UD.
WYO.AA:6:1.....	.....	UD.

SITES IN SOUTH DAKOTA

39FA45.....	.....	SIMRBS.
39FA83.....	.....	SIMRBS.

SITE IN KANSAS

14SC1.....	Scott County Pueblo Site.....	UK SI UNLA.
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## BIBLIOGRAPHY

CHAMPE, JOHN L.

1946. Ash Hollow Cave. Univ. Nebraska Stud., n. s., No. 1. Lincoln.

1949. White Cat Village. Amer. Antiq., vol. 14, No. 4, pp. 285-292.

FLETCHER, ALICE C., and LAFLESCHE, FRANCIS.

1911. The Omaha tribe. 27th Ann. Rep., Bur. Amer. Ethnol.

GUNNERSON, DOLORES A.

1956. The Southern Athabascans: Their arrival in the Southwest. El Palacio, vol. 63, pp. 346-365.

GUNNERSON, JAMES H.

1956. Plains-Promontory relationships. Amer. Antiq., vol. 22, pp. 69-72.

GUNNERSON, JAMES H., and GUNNERSON, DOLORES A.

MS. Further notes on the Dismal River Aspect. Paper presented at Seventh Plains Archeological Conference, Lincoln, Nebr., November 1949.

HILL, A. T., and METCALF, GEORGE.

1942. A site of the Dismal River Aspect in Chase County, Nebraska. Nebraska Hist. Mag., vol. 22, No. 2, pp. 158-226.

HUSCHER, BETTY H., and HUSCHER, HAROLD A.

1943. The hogan builders of Colorado. Southwestern Lore, vol. 9, No. 2. Gunnison, Colo.

JEANCON, J. A.

1929. Archeological investigations in the Taos Valley, New Mexico, during 1920. Smithsonian Misc. Coll., vol. 81, No. 12.

KEUR, DOROTHY L.

1941. Big Bead Mesa. Soc. Amer. Archeol., Mem. No. 1.

KIDDER, A. V.

1932. The artifacts of Pecos. Pap. Southwestern Expedition, No. 6, Robert S. Peabody Found. for Archeol., Phillips Academy, Andover, Mass.

KIVETT, MARVIN F.

MS. Field notes. (1946.) MS. on file at River Basin Surveys headquarters, Lincoln, Nebr.

MS. Field notes. (1949.) MS. on file at Nebraska State Historical Society, Lincoln, Nebr.

MARTIN, H. T.

1909. Further notes on the Pueblo ruins of Scott County. Kansas Univ. Sci. Bull., vol. 5, No. 2.

MARTIN, PAUL S., QUIMBY, GEORGE I., and COLLIER, DONALD.

1947. Indians before Columbus. Chicago.

METCALF, GEORGE.

1949. Three pottery types from the Dismal River Aspect. Proc. Fifth Plains Conf. for Archeol. Univ. Nebraska, Lab. Anthropol., Note Book No. 1, pp. 73-78. Lincoln.

MINDELEFF, COSMOS.

1898. Navaho houses. 17th Ann. Rep., Bur. Amer. Ethnol., pt. 2, pp. 469-517.

MORAN, W. J., COVELL, R., ABASHKIN, B. J.

1930. Soil survey of Harlan County, Nebraska. U. S. Dept. Agr., Bur. Chemistry and Soils [Soil Survey Rep.], ser. 1930, No. 12.

RENAUD, E. B.

1931. Archeological survey of eastern Colorado. Denver.  
1932. Archeological survey of eastern Colorado, 2d Rep. Denver.  
1933. Archeological survey of eastern Colorado, 3d Rep. Denver.  
1935. The archeological survey of Colorado, 4th Rep., seasons 1933 and 1934. Univ. Denver, Dept. Anthrop., The Archeological Survey of the High Western Plains, 6th Rep. Denver.  
1937. Northeastern New Mexico. Univ. Denver, Dept. Anthrop., The Archeological Survey of the High Western Plains, 9th Rep. Denver.  
1942. Reconnaissance work in the upper Rio Grande Valley, Colorado and New Mexico. Univ. Denver, Dept. Anthrop., Archeol. Ser., 3d Pap., Denver.  
1946. Archeology of the upper Rio Grande Basin in southern Colorado and northern New Mexico. Univ. Denver, Dept. Anthrop., Archeol. Ser., 6th Pap. Denver.

RICE, T. D., and PARTY.

1914. Reconnaissance survey of western Nebraska. U. S. Dept. Agr. Field Operations of the Bureau of Soils, 1911. Pp. 1875-1889.

SECOY, FRANK R.

1951. The identity of the "Padouca"; an ethnohistorical analysis. Amer. Anthrop., vol. 53, No. 4, pt. 1, pp. 525-542.

SMITH, CARLYLE S.

1949. Archeological investigations in Ellsworth and Rice Counties, Kansas. Amer. Antiq., vol. 14, pt. 1, pp. 292-300.

STEPHENSON, ROBERT L.

1954. Taxonomy and chronology in the Central Plains-Middle Missouri River area. Plains Anthrop., pp. 15-22.

STEWART, JULLIAN H.

1937. Ancient caves of the Great Salt Lake region. Bur. Amer. Ethnol. Bull. 116.

STRONG, W. D.

1932. An archeological reconnaissance in the Missouri Valley. Explorations and Field-work of the Smithsonian Institution in 1931, pp. 151-158.  
1935. An introduction to Nebraska Archeology. Smithsonian Misc. Coll., vol. 93, No. 10.

THOMAS, ALFRED B.

1935. After Coronado, Spanish exploration northeast of New Mexico, 1696-1727. Documents from the Archives of Spain, Mexico and New Mexico. Norman, Okla.  
1940. The Plains Indians and New Mexico, 1751-1778. Albuquerque, N. Mex.

WEAKLY, HARRY E.

1946. A preliminary report on the Ash Hollow charcoal. In Champe, 1946, pp. 105-110.



## WEDEL, WALDO R.

1935. Contributions to the archeology of the Upper Republican Valley. *Nebraska Hist. Mag.*, vol. 15, No. 3, pp. 133-209.
1938. The direct-historical approach in Pawnee archeology. *Smithsonian Misc. Coll.*, vol. 97, No. 7.
- 1940 a. Archeological explorations in western Kansas. *Explorations and Field-work of the Smithsonian Institution in 1939*, pp. 83-86.
- 1940 b. Culture sequences in the central Great Plains. *Smithsonian Misc. Coll.*, vol. 100, pp. 291-352.
1941. Environment and native subsistence economies in the central Great Plains. *Smithsonian Misc. Coll.*, vol. 101, No. 3, pp. 1-29.
1942. Archeological remains in central Kansas and their possible bearing on the location of Quivera. *Smithsonian Misc. Coll.*, vol. 101, No. 7.
1947. Culture chronology in the central Great Plains. *Amer. Antiq.*, vol. 12, No. 3, pt. 1, pp. 148-156.
- 1949 a. Some Central Plains sherd types from Kansas. *Proc. Fifth Plains Conf. for Archeol. Univ. Nebraska, Lab. Anthrop., Note Book No. 1*, pp. 86-90. Lincoln.
- 1949 b. Some provisional correlations in Missouri Basin archeology. *Amer. Antiq.*, vol. 14, pp. 328-339.
1953. Some aspects of human ecology in the Central Plains. *Amer. Anthrop.*, vol. 55, pp. 499-514.

## WILLISTON, S. W., and MARTIN, H. T.

1899. Some Pueblo ruins in Scott County, Kansas. *Kansas Hist. Coll.*, vol. 6.

## WOODWARD, ARTHUR.

1946. The metal tomahawk. *Bull. Fort Ticonderoga Mus.*, vol. 7, No. 3, pp. 2-42.



View looking east across 25HN37. House IV is in the immediate foreground. Houses I, II, and III are in the middle of the picture. Houses V and VI were located just beyond the fence near the top of the picture. The trees at the right of the picture are along Prairie Dog Creek.





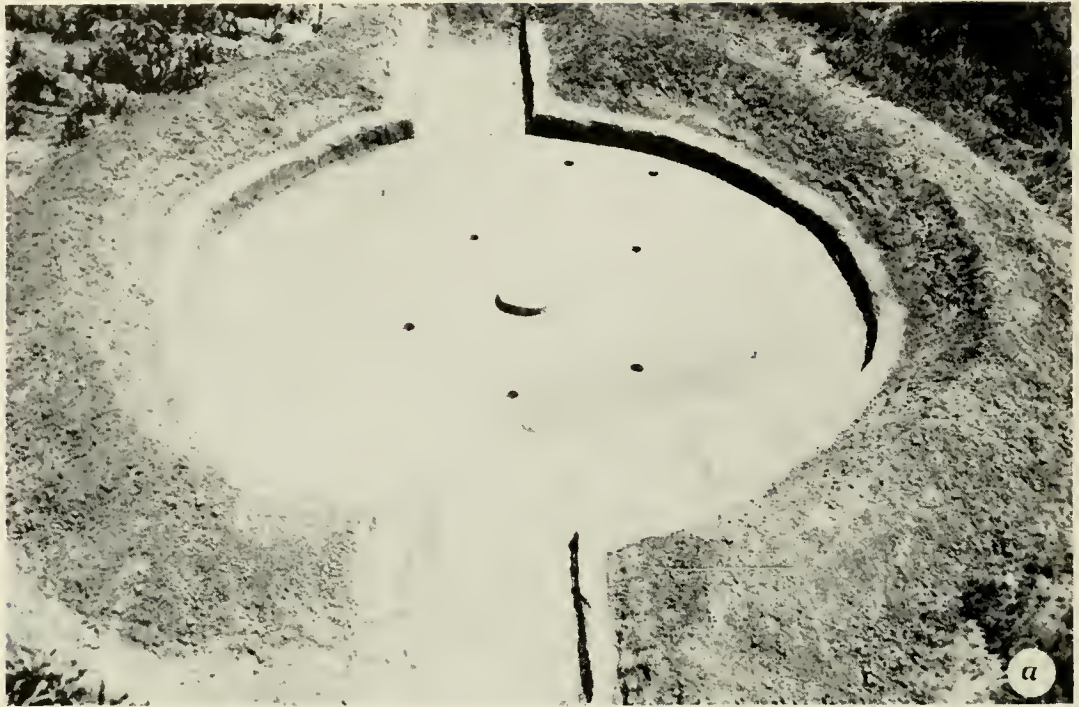
View across excavations for Houses I, II, and III, 25HN37. The five postholes in the foreground represent House II. The sixth posthole was later found near the fireplace of House I.





*a*, House I, 25HN37, with postholes reopened. Steel chaining pins indicate locations of other postholes in the excavation. *b*, House III, 25HN37, with postholes reopened. The extra postholes in the excavation are also evident.





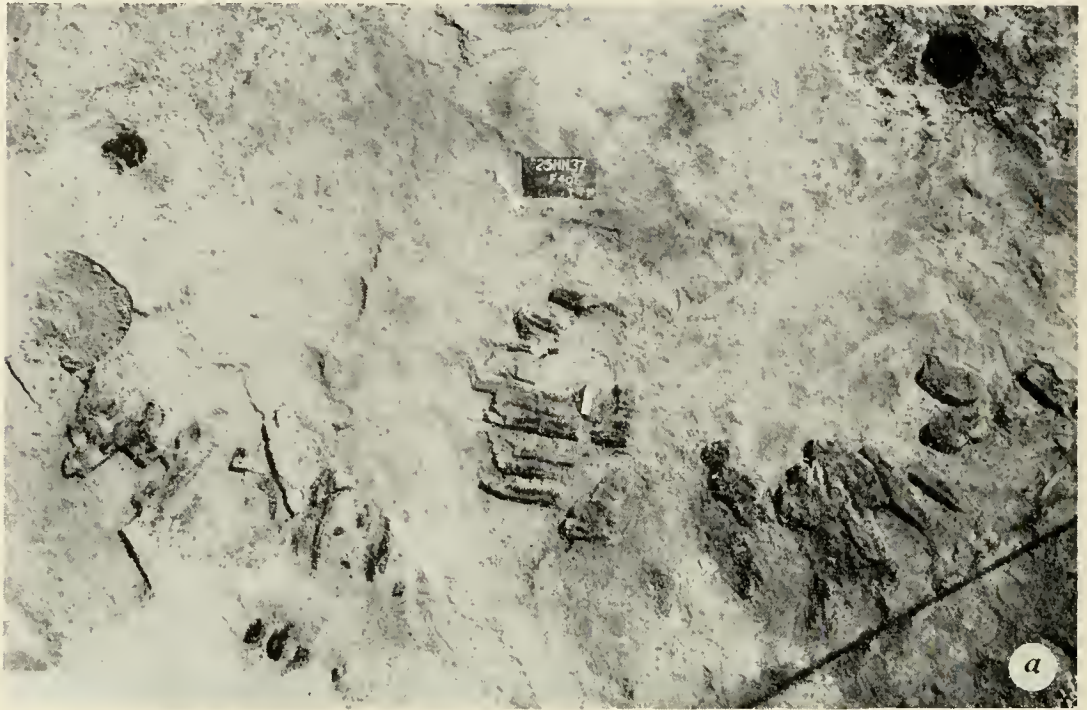
*a*, House IV, 25HN37, with postholes reopened. *b*, House V, 25HN37, with postholes cross sectioned.





*a*, House VI, 25HN37, with charred poles left on floor. *b*, House VI, 25HN37, after charred poles were removed.



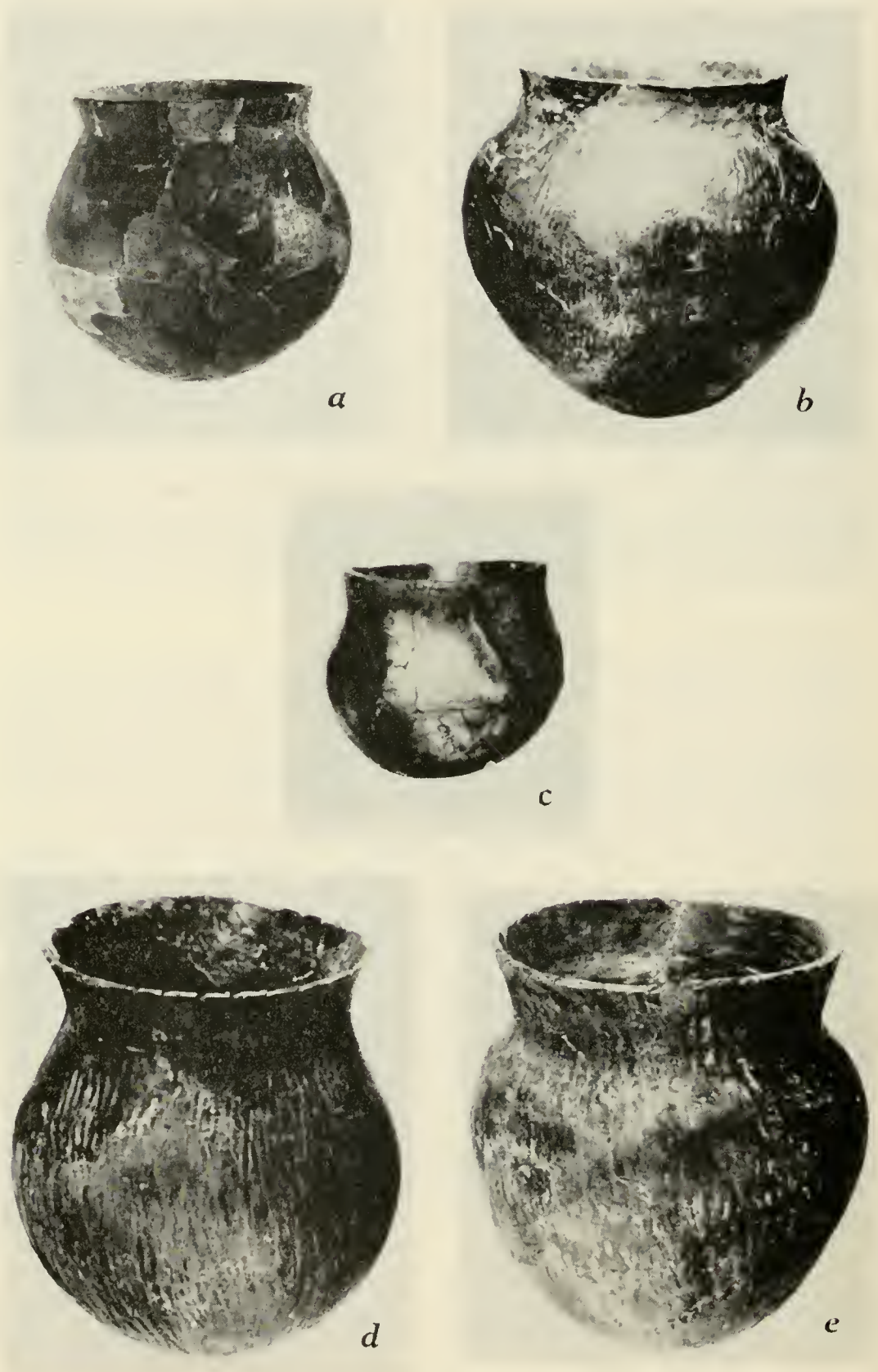


*a* Charred poles on floor of House VI, 25HN37. The arrow points north. *b*, Iron ax embedded in fireplace of House VI, 25HN37.



Cross-sectioned roasting pit at 25HN37.



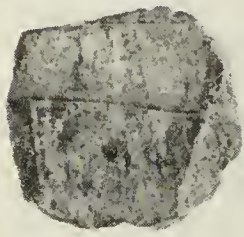
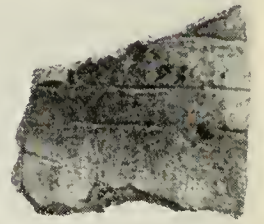
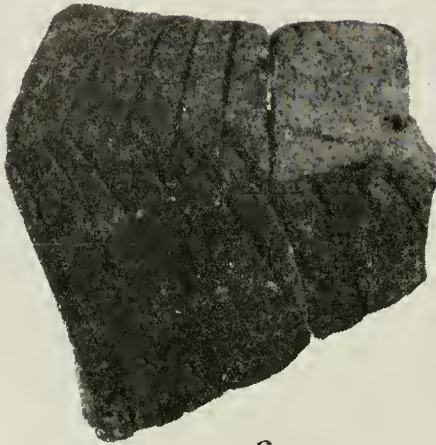
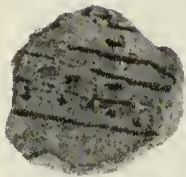
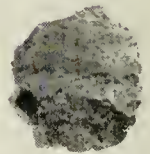
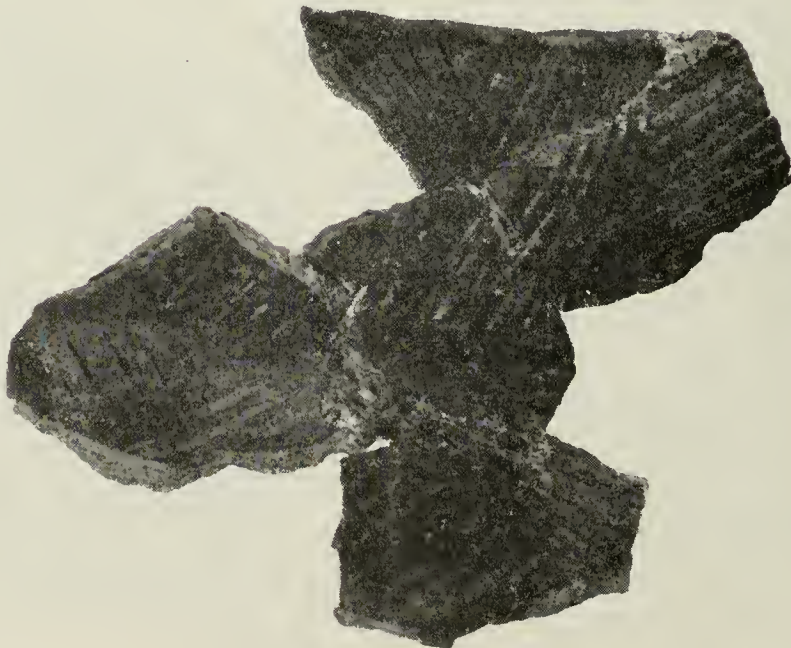


Restored pottery vessels from 25CH1. *a*, Height, 9 inches. *b*, Height, 10 inches. *c*, Height  $4\frac{1}{8}$  inches. *d*, Height,  $7\frac{1}{2}$  inches. *e*, Height,  $8\frac{3}{8}$  inches. (*a*, University of Nebraska Laboratory of Anthropology Collection; *b-e*, Nebraska State Historical Society Collection.)

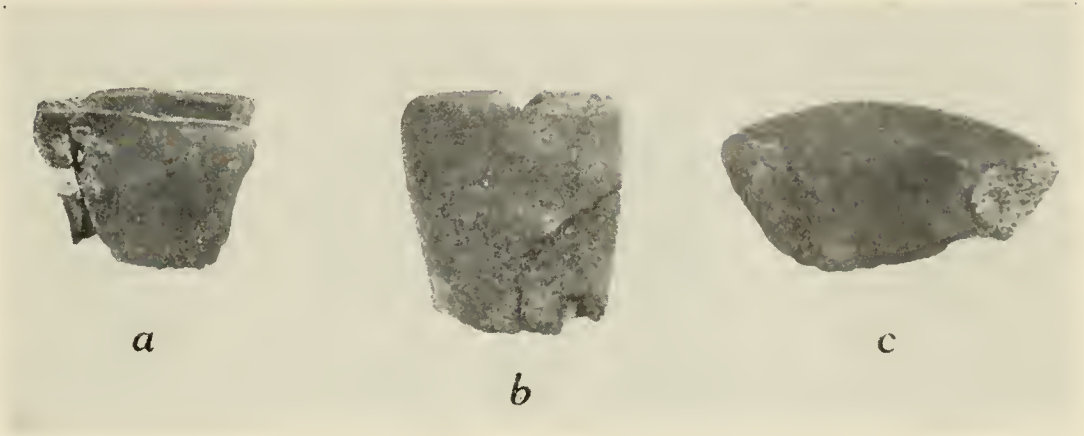




Unusual Dismal River pottery. *a*, Coiled pottery from 25CH1. *b*, From 25C27. *c*, *d*, Show surface decorated with punctates; *c*, from 25N3; *d*, from COLO:S:12:5. *e*, *f*, From 25SX301. (*b* is 3.7 cm. long.)

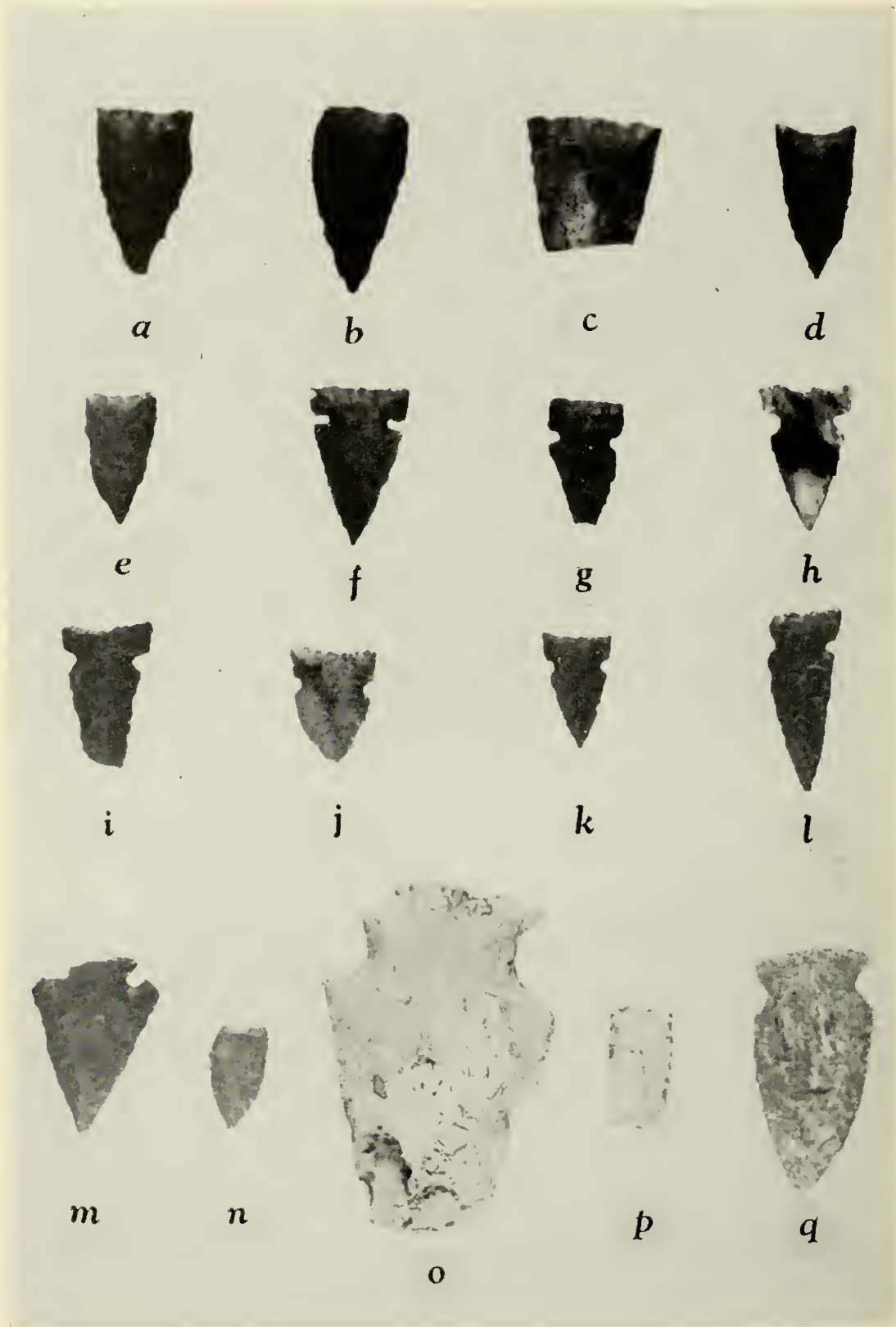
*a**b**c**d**e**f*

Decorated Dismal River pottery. Incised decoration on sherds *a-d* and *f*. *e*, Has a cord-impressed line. *a, c*, From 25HO21. *b, e*, From 25DN1. *d*, From 25HO7. *f*, From 25LN2. (*b* is 2.6 cm. long.)

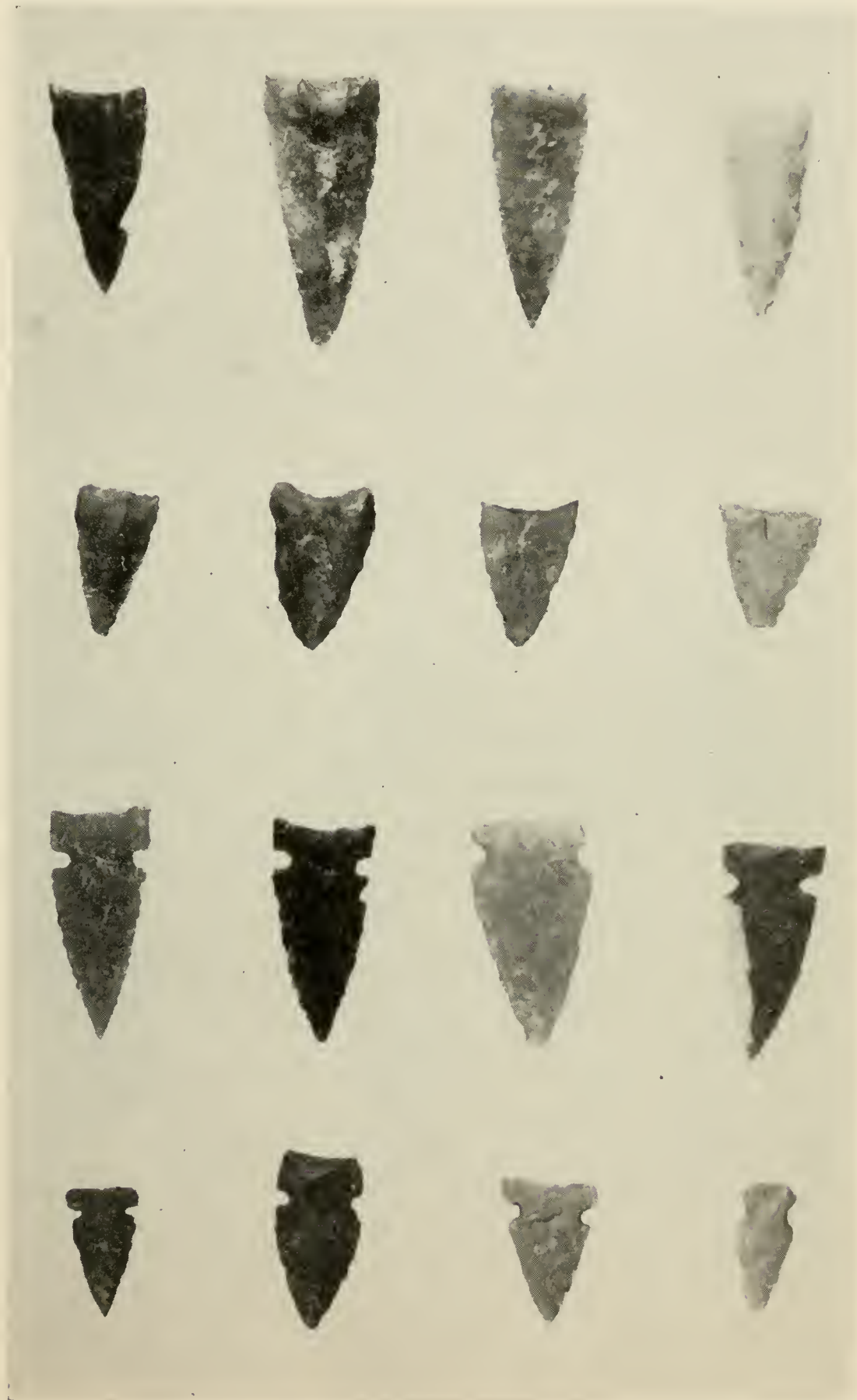


*a-c*, Pottery pipe fragments from 25HO21. *d-f*, Gravers from 25HN37. *g-i*, Smooth pieces of caliche from 25HN37. (*b* 3.1 cm. long; *f*, 3.3 cm. long; *g*, 3.4 cm. long.)

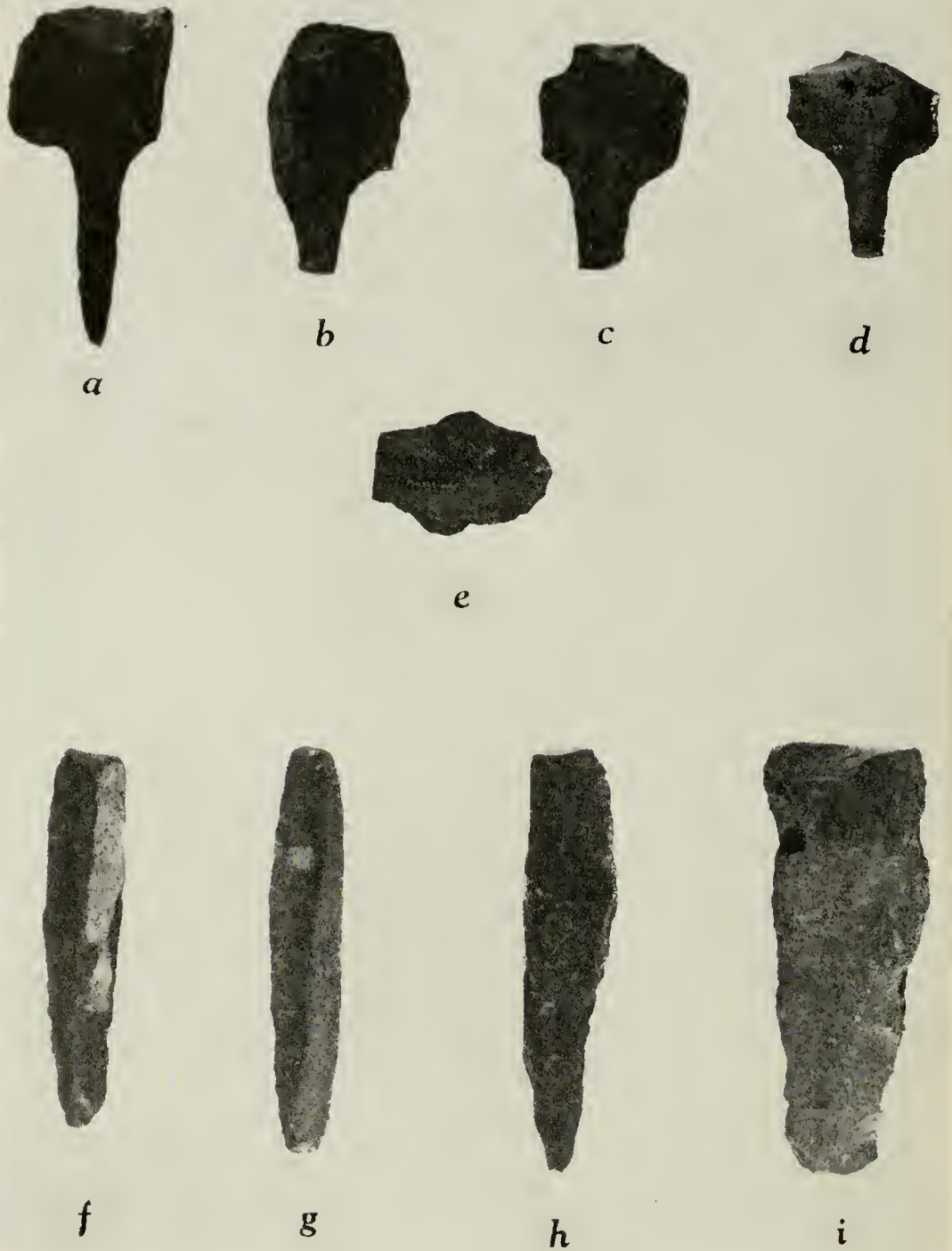




Projectile points from 25HN37. (*a* is 2.4 cm. long.)

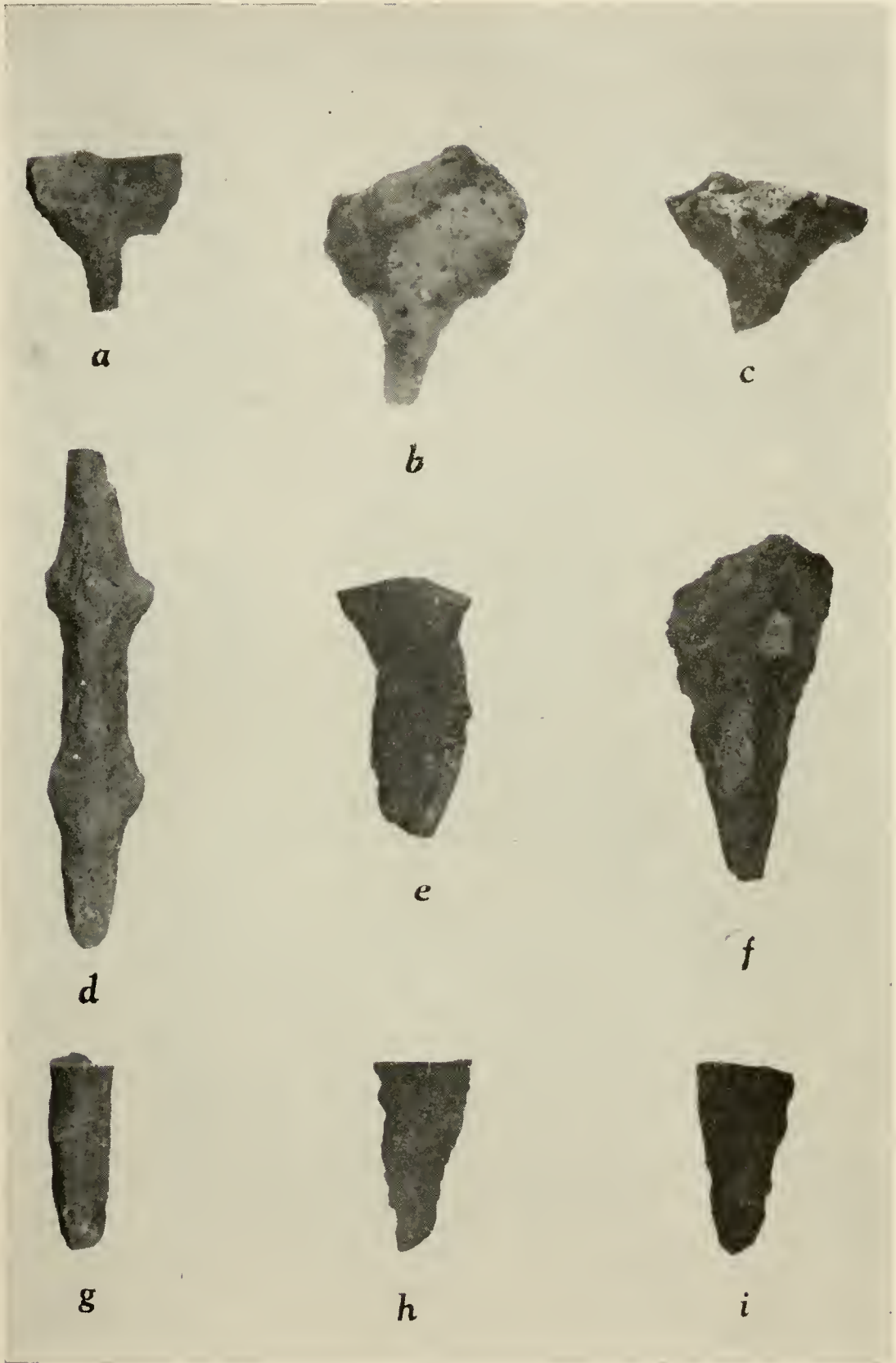


Projectile points from 25HO21. (Upper left is 2.7 cm. long.)



Drills from 25HN37. (*a* is 4.6 cm. long.)





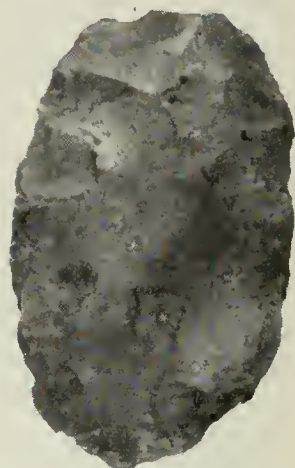
Drills from 25HO21. (Lower left is 2.9 cm. long.)



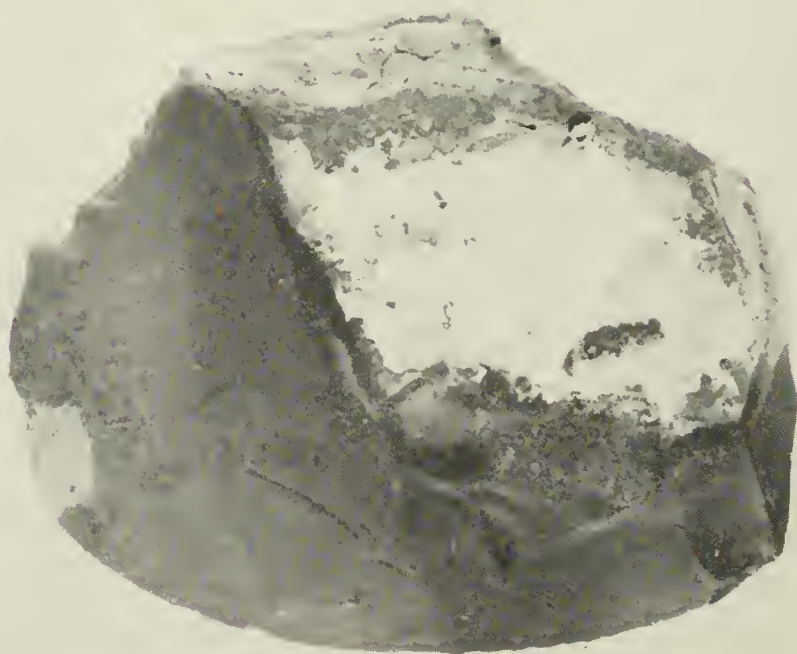
*a*



*b*

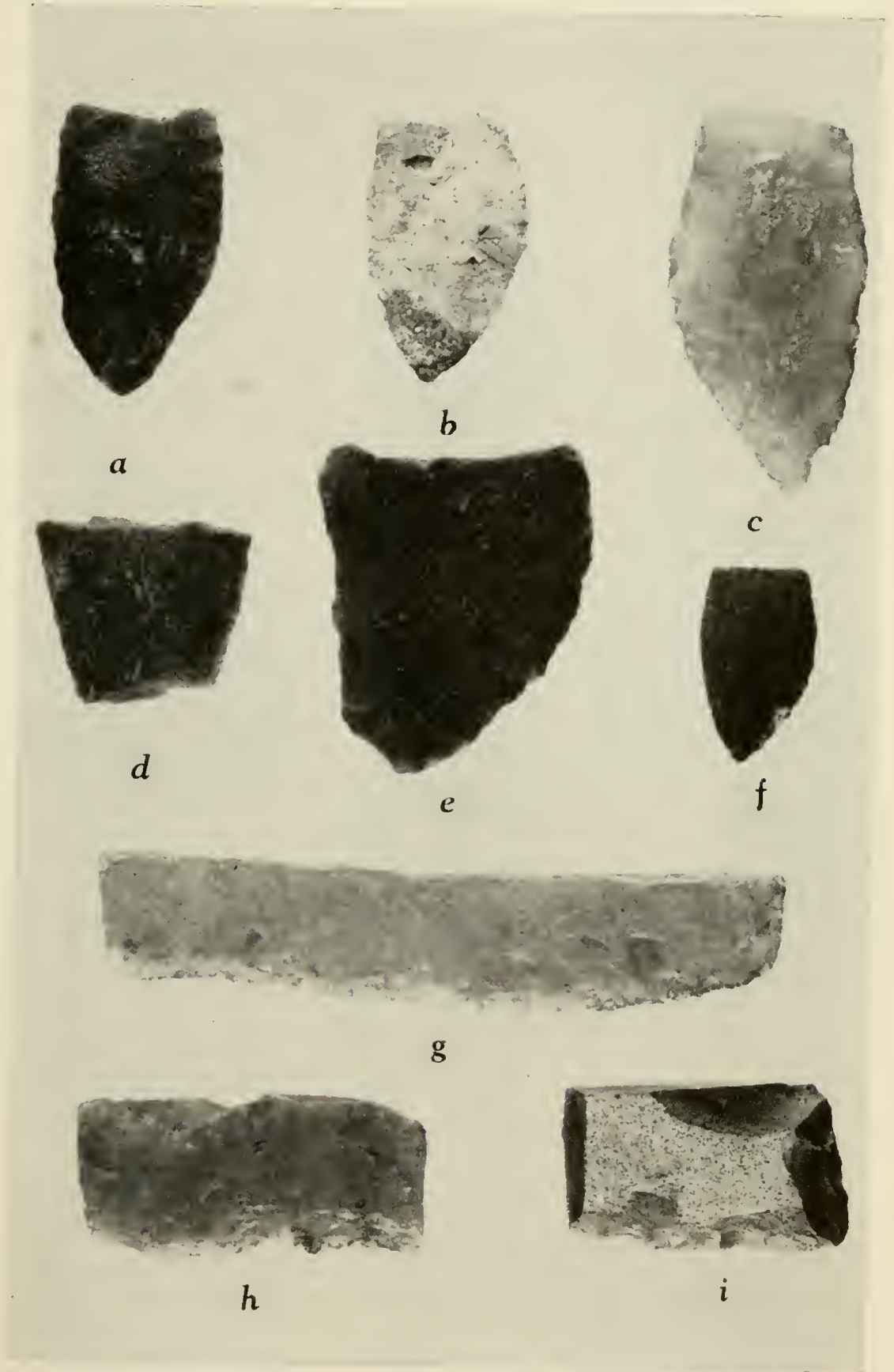


*c*



*d*

Knives from 25HN37. (*a* is 5.5 cm. long.)

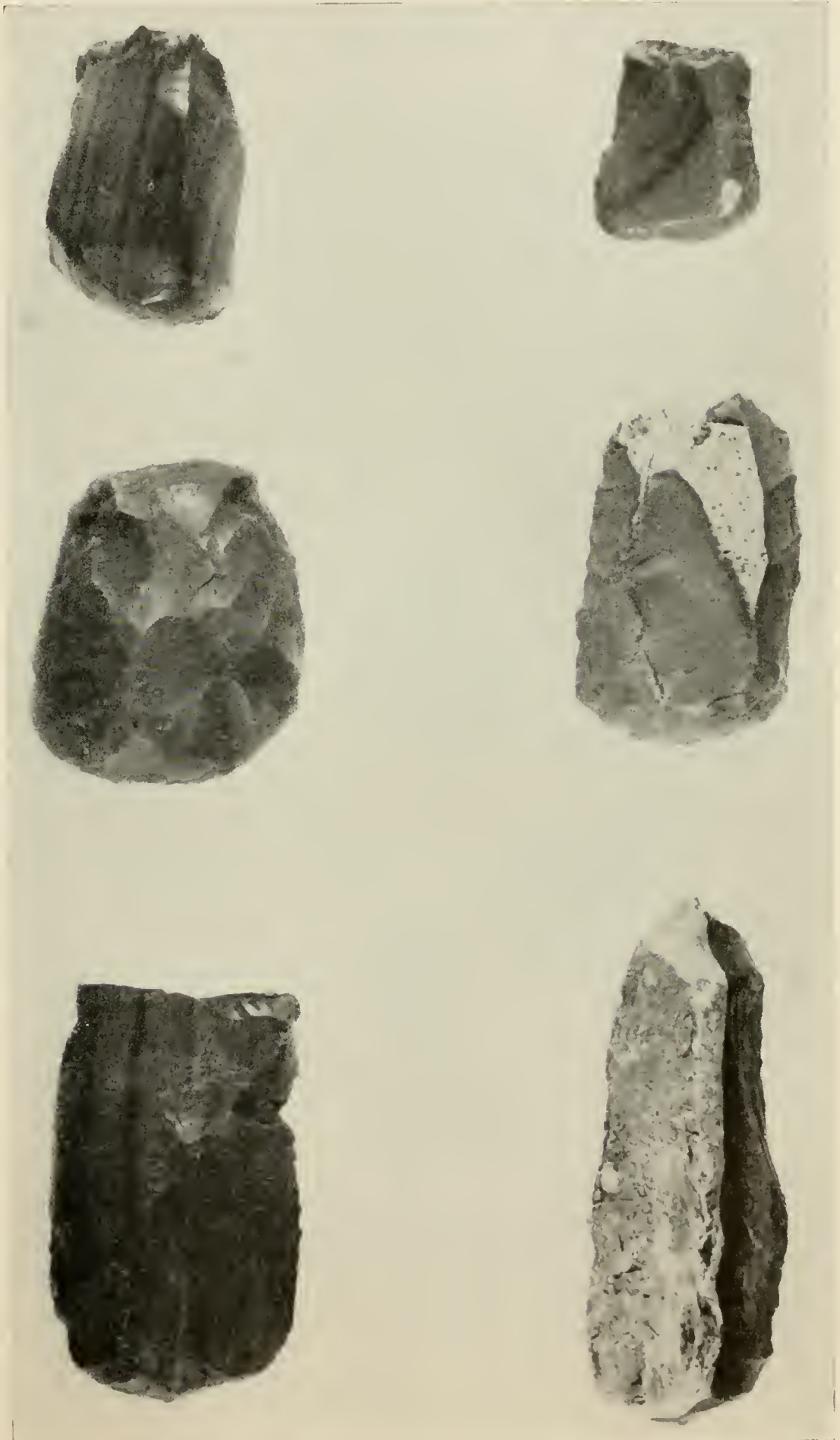


Knives from 25HO21. (*g* is 11 cm. long.)

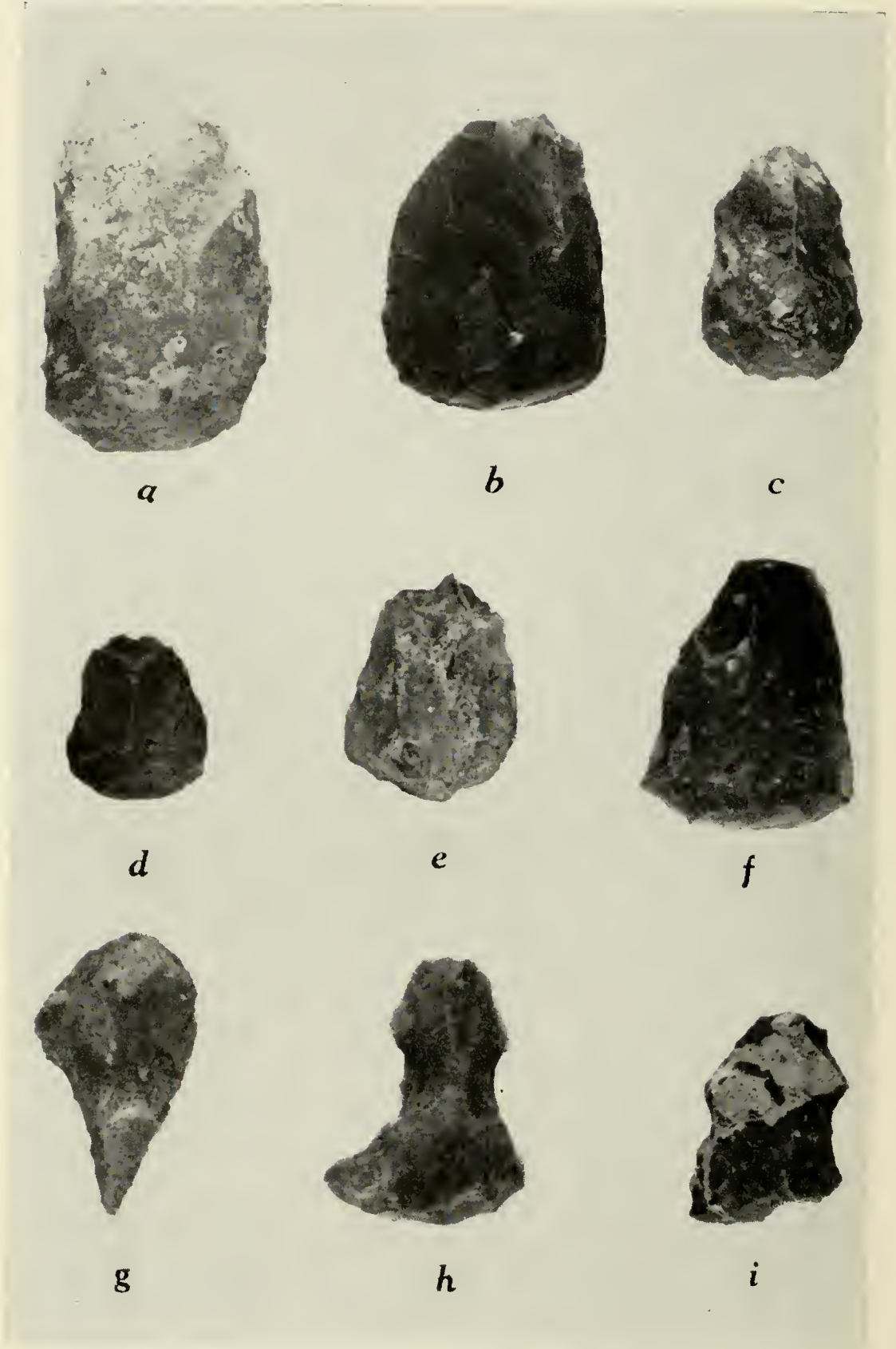




Choppers from 25HN37. (Upper left is 15 cm. long.)

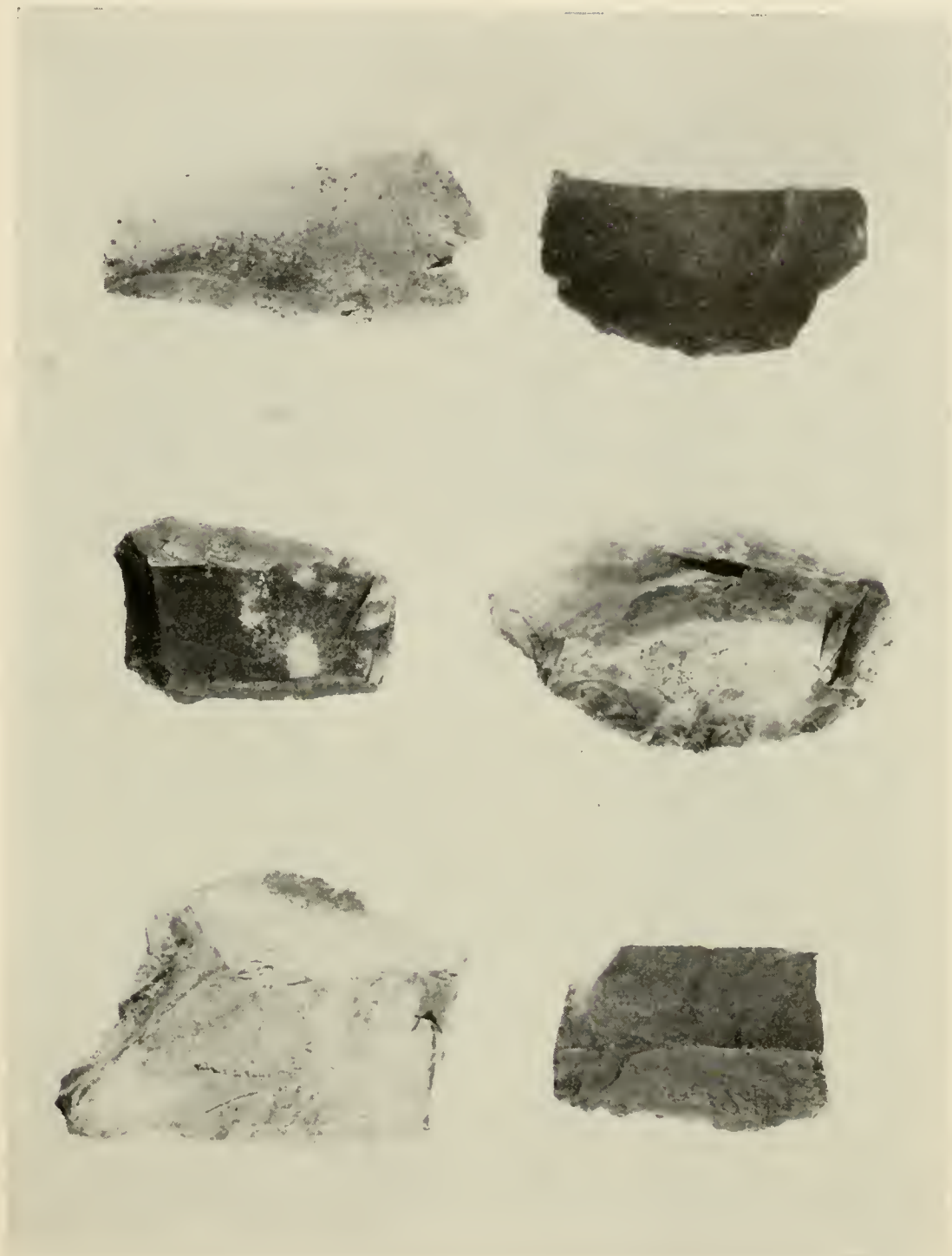


End scrapers from 25HN37. (Upper left is 4 cm. long.)



Scrapers with tangs or projections (*a-f* and *h*) and graters (*g* and *i*) from 25HO21. (*b* is 4.5 cm. long.)





Side scrapers from 25HN37. (Upper right is 5.4 cm. long.)



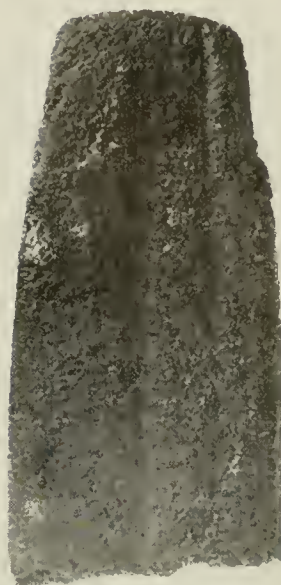
End scrapers with projections or tangs from 25HN37. (Upper left is 2.7 cm. long.)



*a*



*b*



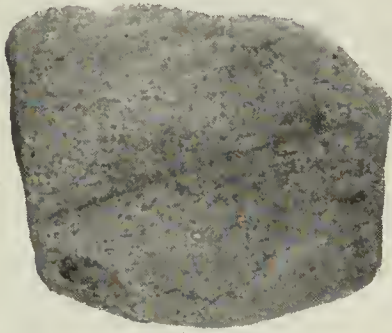
*c*



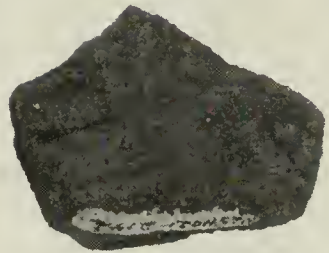
*d*

*a-c*, Sandstone abraders from 25HN37. *d*, Metate from 25HN37. (*c*, 7.7 cm. long; *d*, 20 cm. long.)





*a*



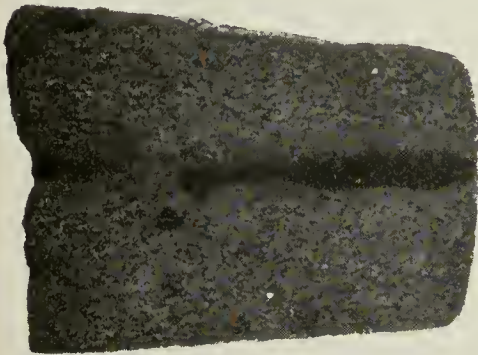
*b*



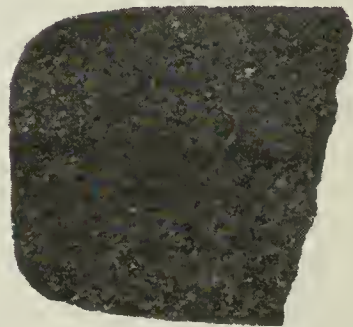
*c*



*d*



*e*



*f*

Sandstone abraders from 25HO21. (*b* is 4 cm. long.)

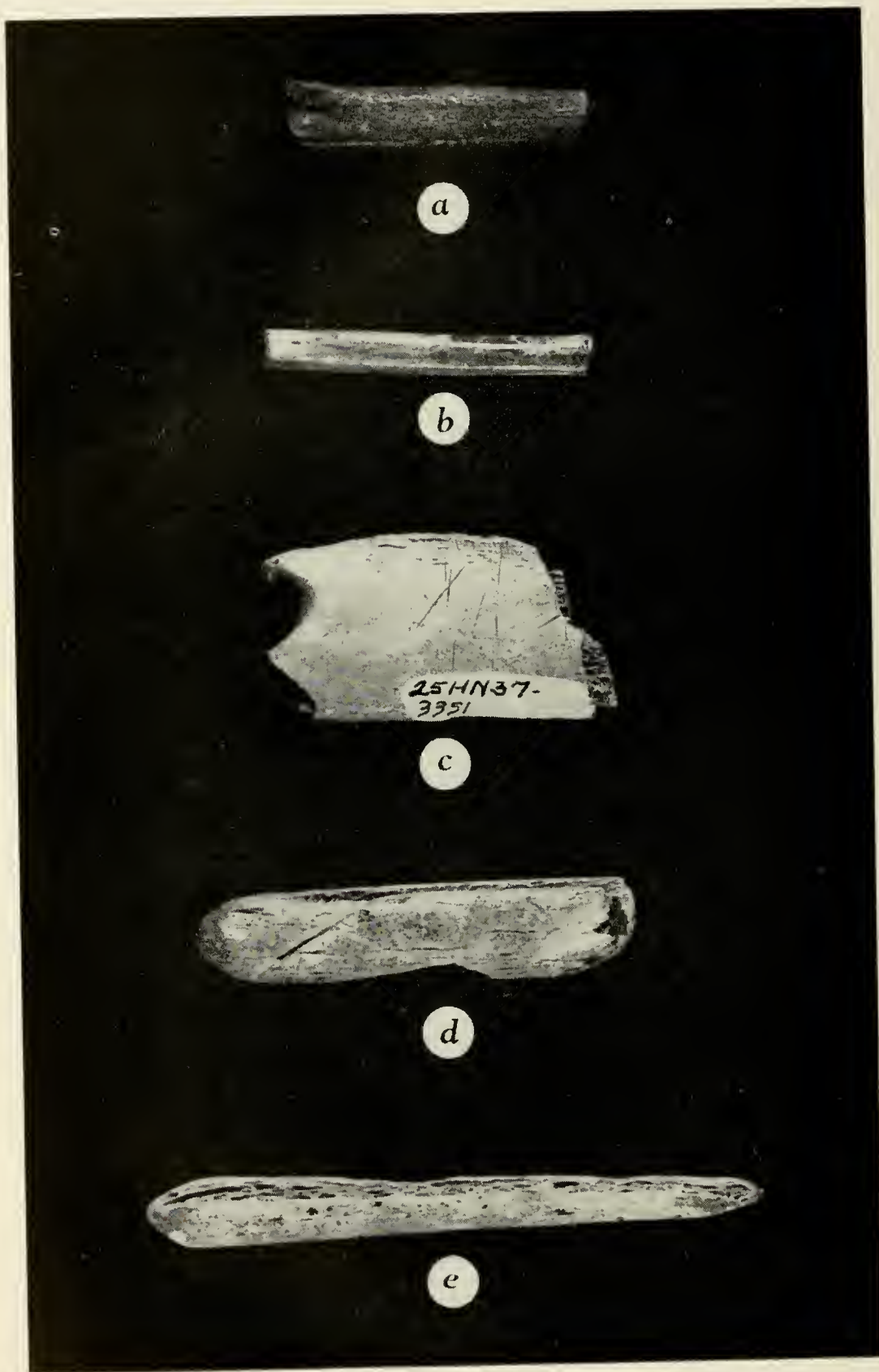


*a*



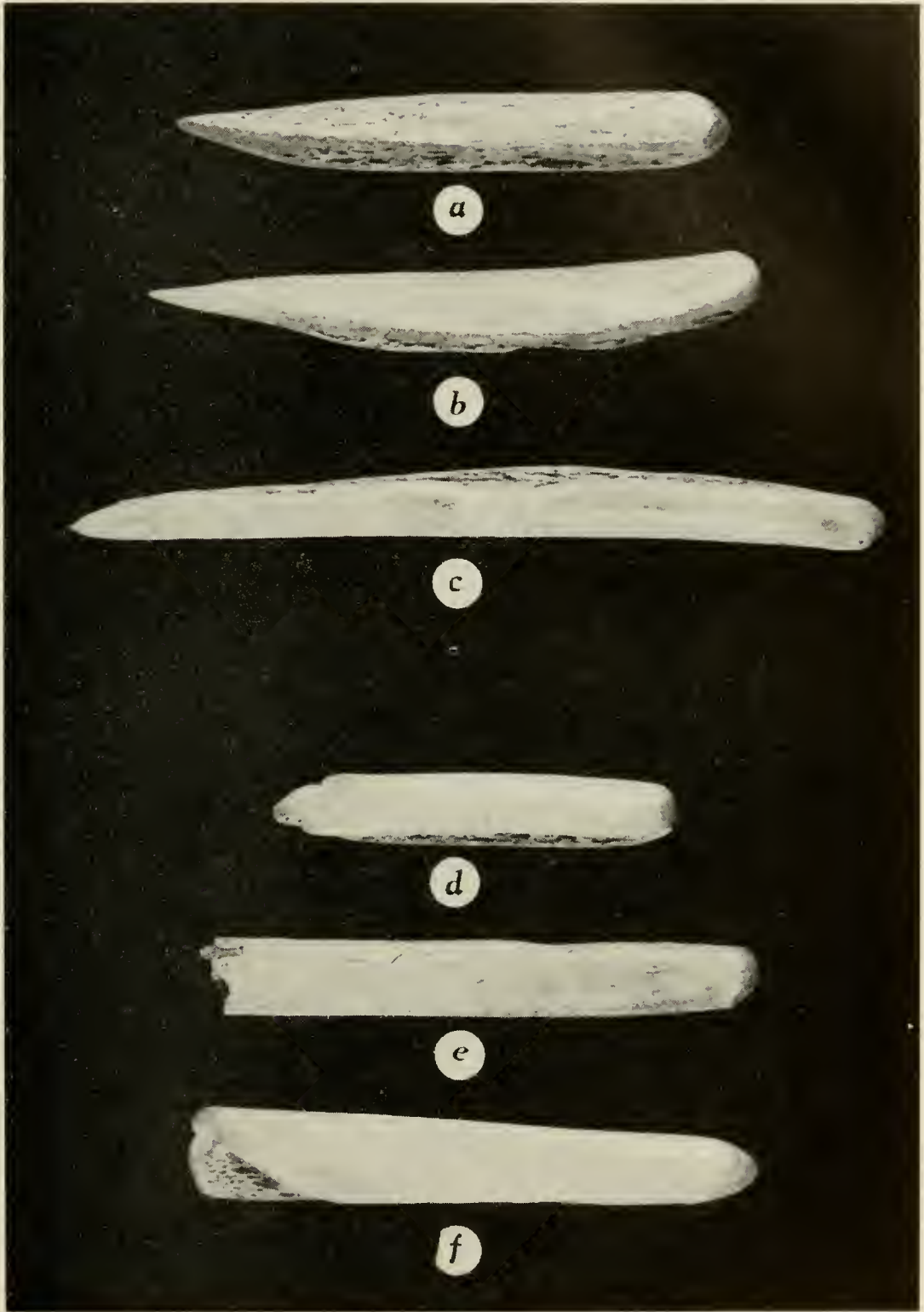
*b*

Ground stone artifacts from 25HO21. *a*, Hammer stone. *b*, Grinding or rubbing stone.  
(*a*, 19 cm. long.)

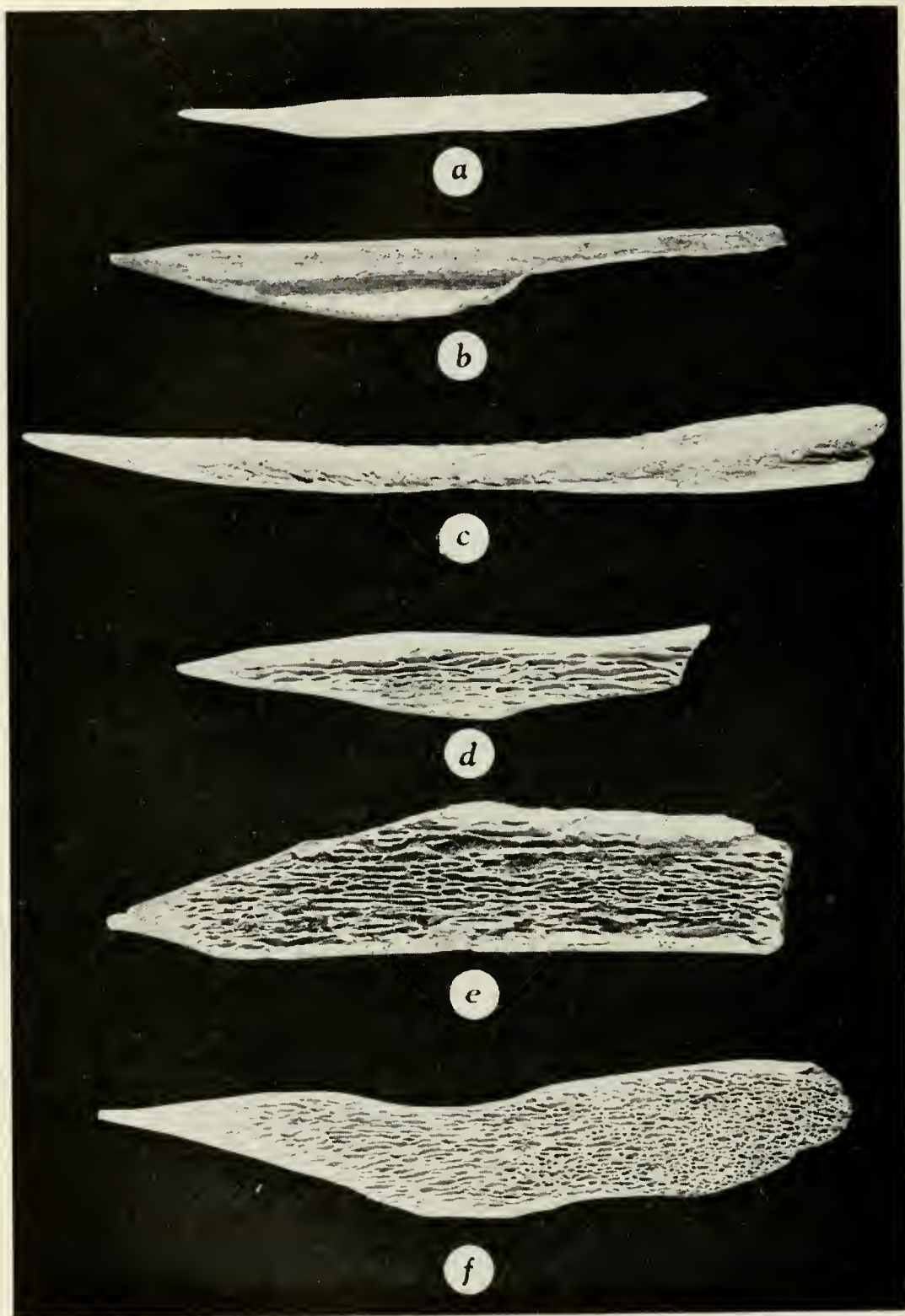


Worked bone from 25HN37. *a, b*, Beads. *c*, Shaft wrench. *d*, Butt of an awl or punch.  
*e*, Awl. (*b* is 4.2 cm. long.)

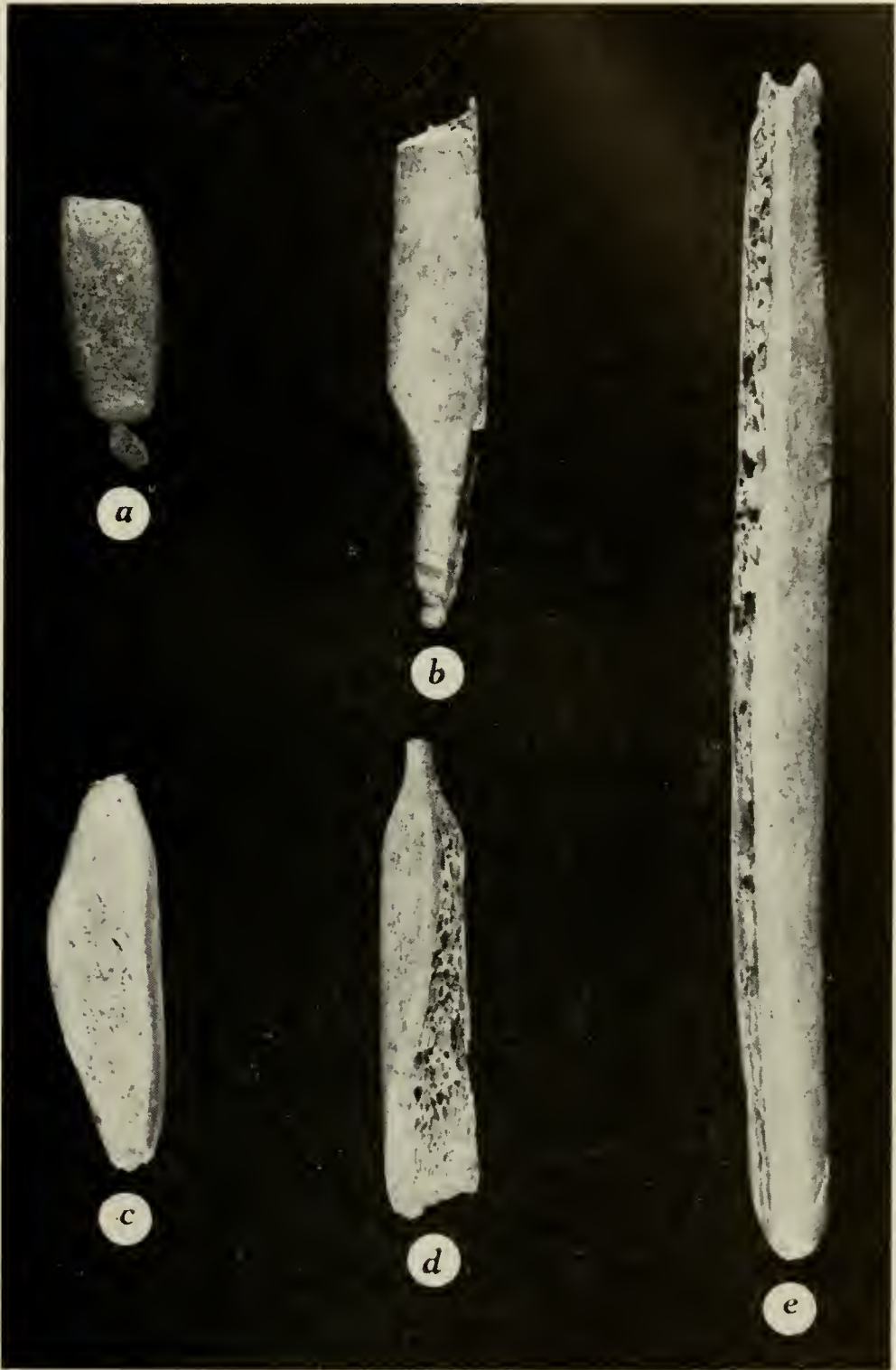




Triangular bone awls (*a-c*), awl butts (*d-e*), and bone "punch" (*f*). (*a* is 8.8 cm. long.)

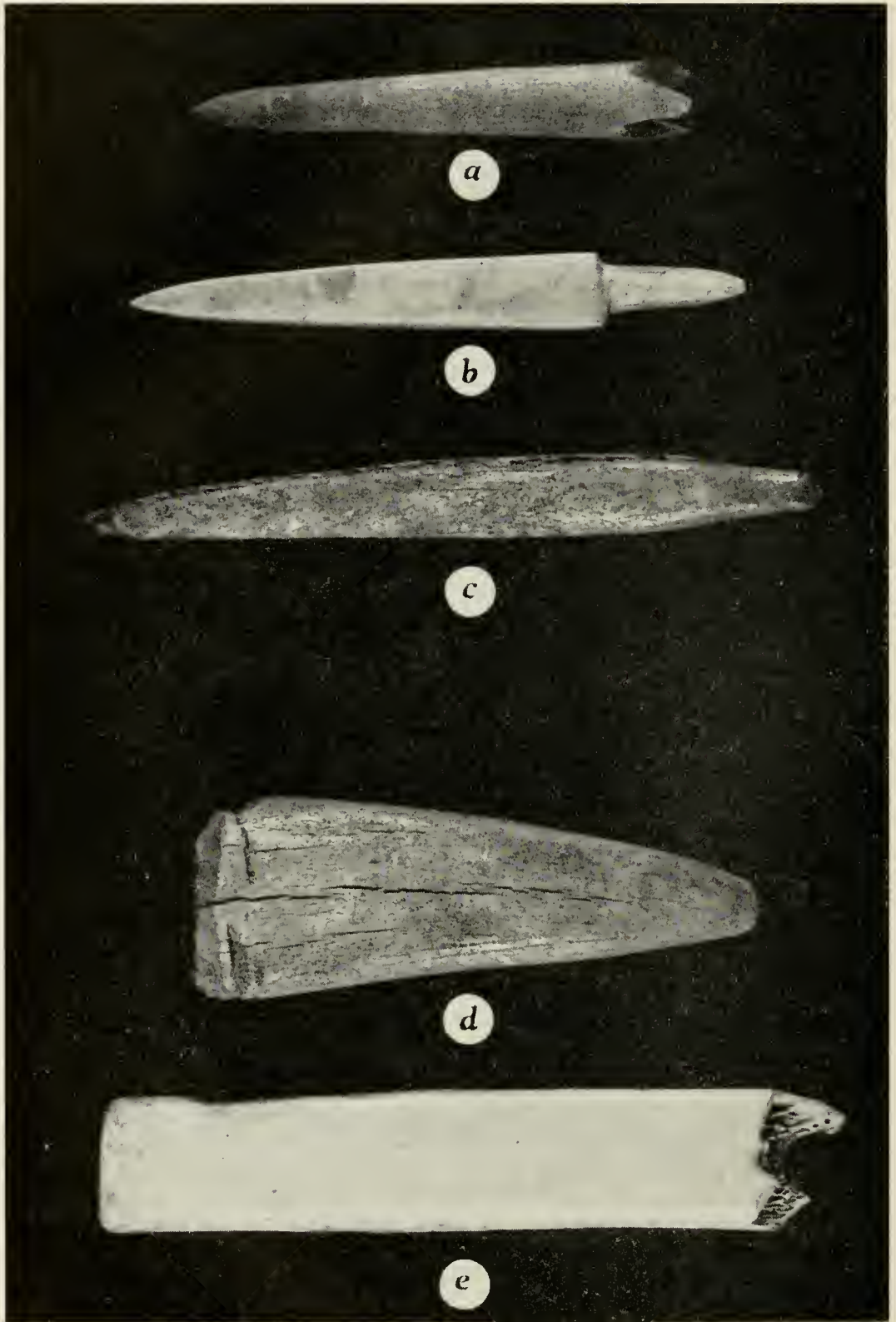


Splinter bone awls (*a-c*) and flat bone awls (*d-e*) from 25HO21. (*a* is 8.4 cm. long.)

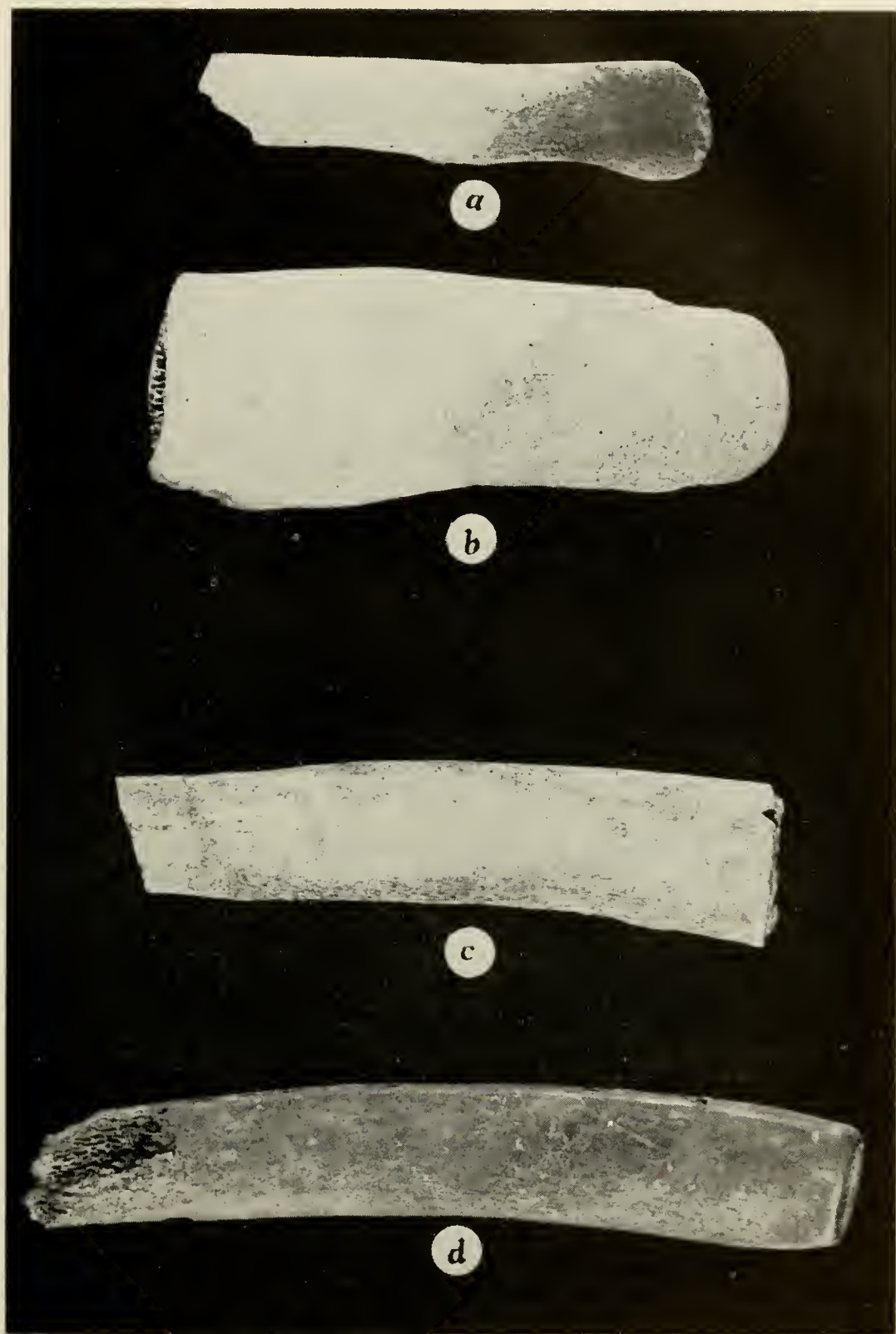


Worked bone from 25HO21: *a, c*, Scraps left from making bone projectile points(?). *b, d* Scraps left from making triangular awl. *e*, Blank for triangular awl. (*c* is 4.9 cm. long.)

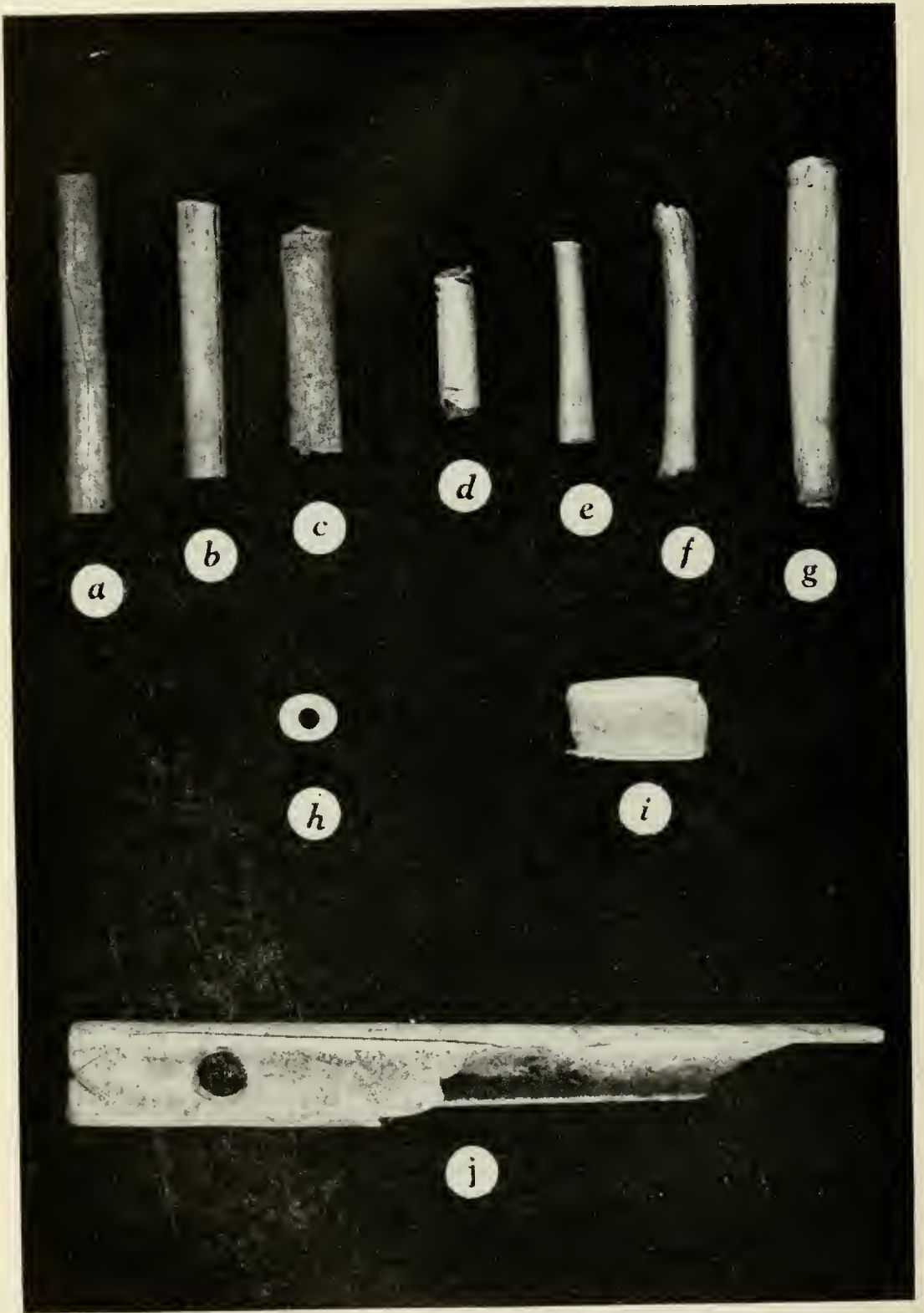




Bone and antler artifacts from 25HO21. *a, b*, Bone projectile points. *c*, Bone projectile point(?). *d*, Cut antler tine. *e*, Shaft wrench. (*b* is 9.6 cm. long.)

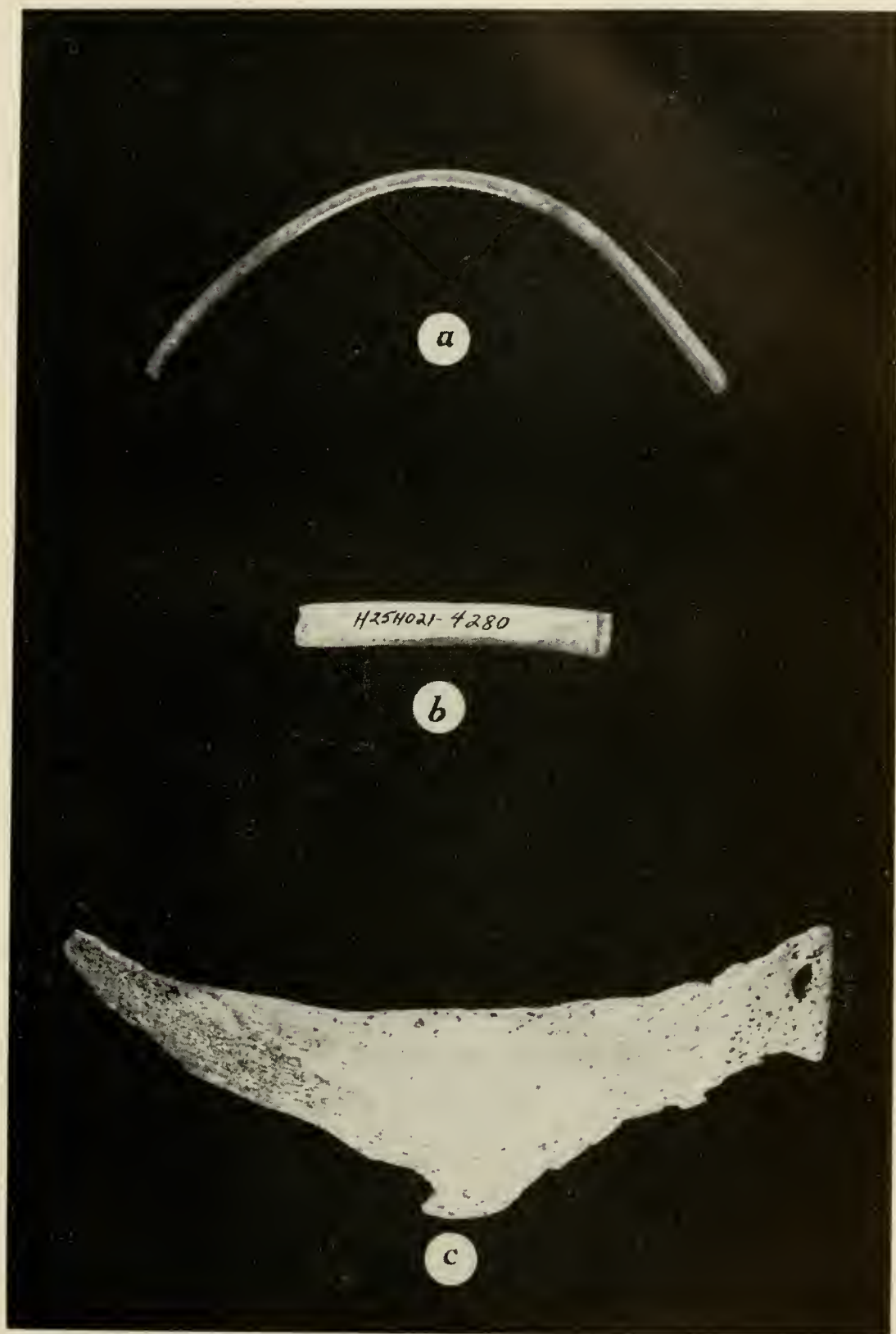


Bone spatulas (*a* and *b*) and worked rib sections (*c* and *d*) from 25HO21. (*a* is 7.9 cm. long.)

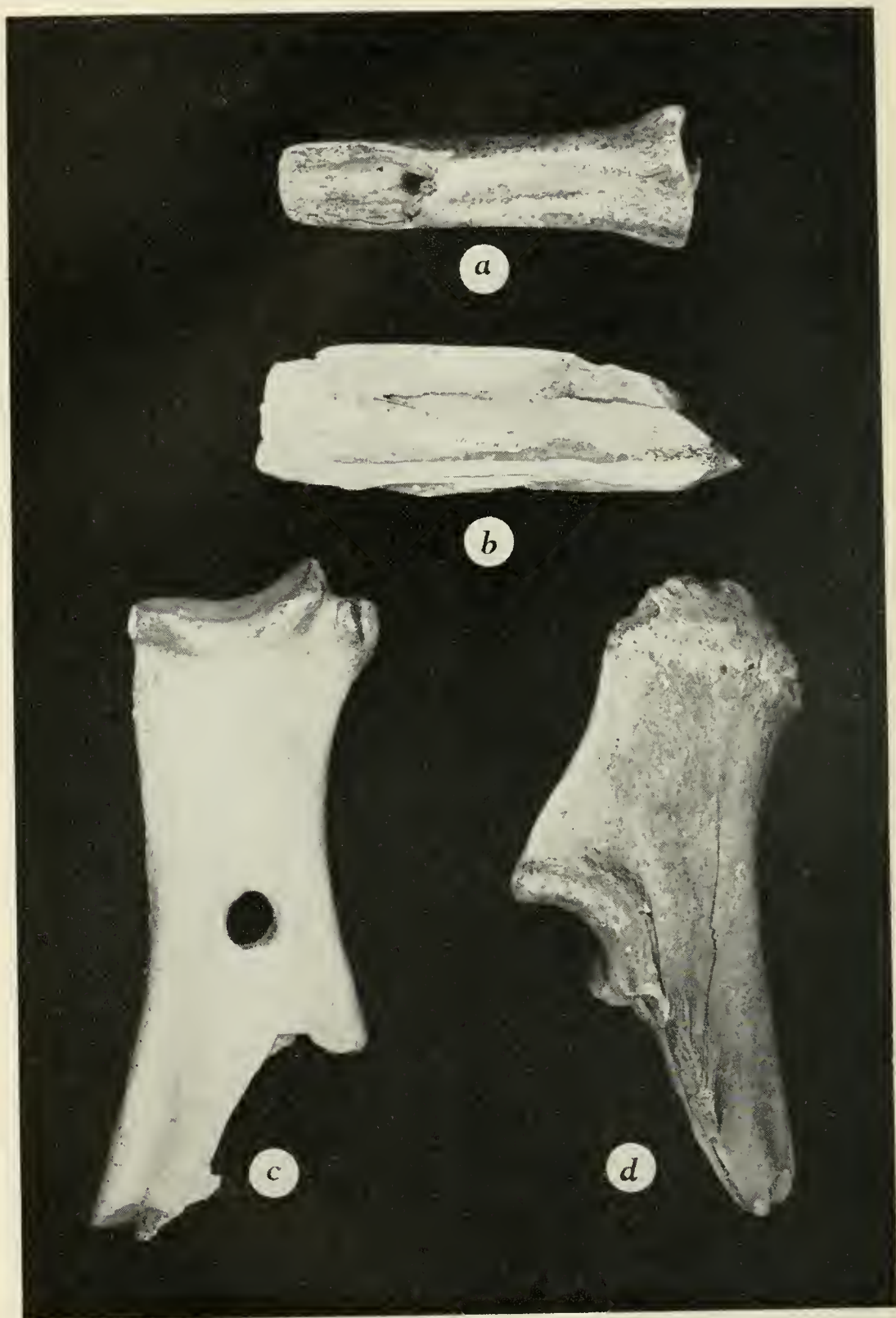


Worked bone from 25HO21. *a-i*, Beads. *j*, Whistle. (*a* is 4.7 cm. long.)

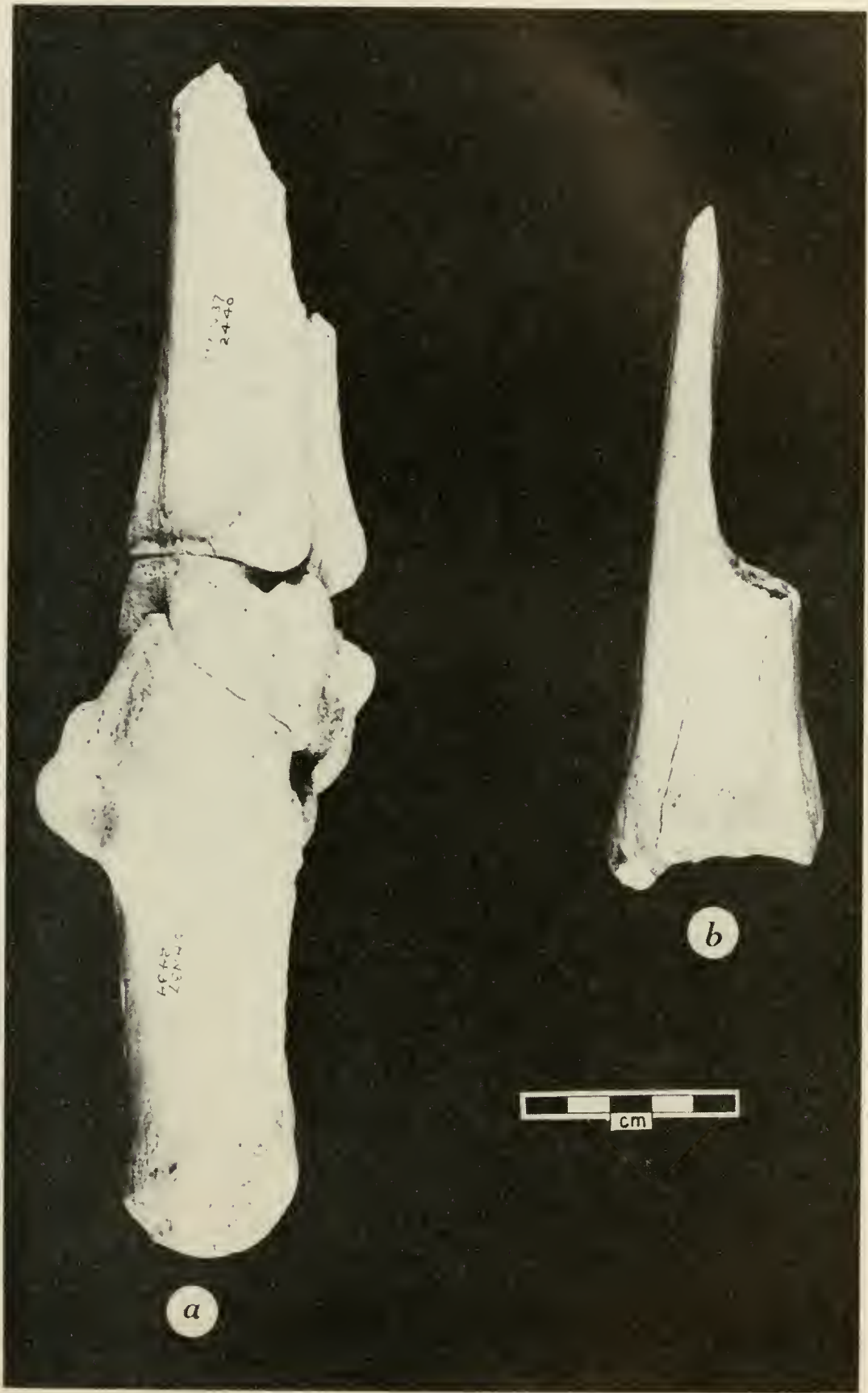




Worked bone from 25HO21. *a*, Broken-eyed needle(?). *b*, Needle fragment(?). *c*, Bracelet(?) or head band(?). (*b* is 4.4 cm. long.)

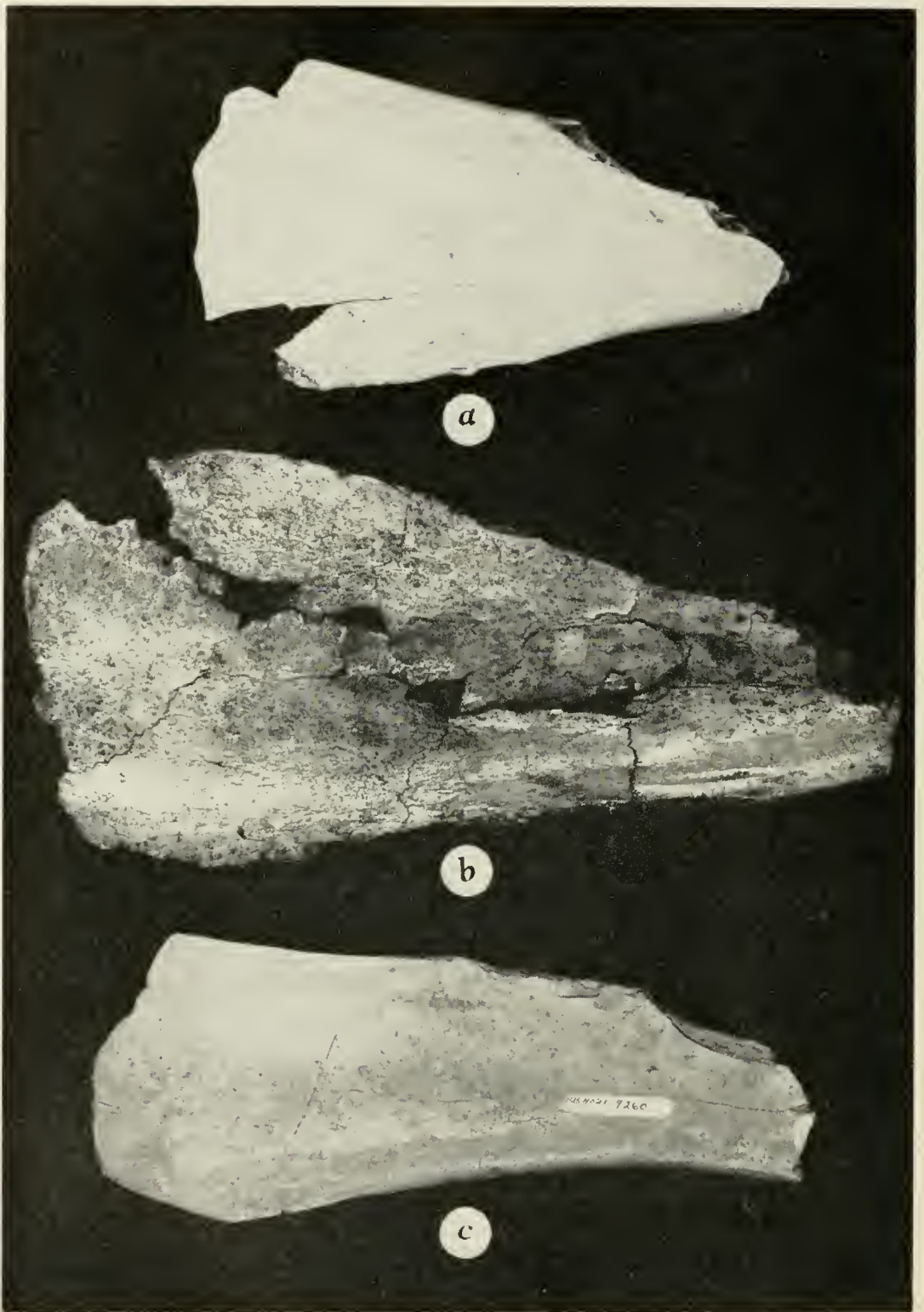


Bone tools from 25HO21. *a*, Metapodial flesher. *b*, Possible flesher. *c*, Ulna pick(?).  
(*a* is 7.1 cm. long.)



Bone fishers from 25HN37. *a* is only partially finished.





Scapula digging tools. *a, c*, From 25HO21. *b*, From 25HN37. (*a* is 19 cm. long.)



Iron ax found in the fireplace of House VI, 25HN37. (16 cm. long.)



*a*



*b*



*c*



*d*



*e*

European trade items from 25HN37. *a, b*, Gun flints. *c-e*, Copper or brass jingles. (*c* is 2.5 cm. long.)