

Minneapolis 1: A Prehistoric Village Site in Ottawa County, Kansas

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Article Summary: Contrary to the general belief of archeologists before the 1930s, the central Plains were not an archeologically barren area without pottery artifacts. Moreover, the Plains were the home of not one but several types of culture. (A bibliography appears at the end of this article.)

Cataloging Information:

Names: W. D. Strong, A. T. Hill, B. F. Mudge, J. A. Udden, S. W. Williston, H. T. Martin, J. V. Brower

Kansas Place Names: lower Salomon River, Ottawa County, Lindsborg

Keywords: Minneapolis 1, Beloit 2, Salina 1, earthlodge, burial customs, metates, manos, arrowshaft smoothers, pipes, hammerstones, celts, scrapers, knives, missile points, awls, flaking tools, digging tools, pick, gouge, beads, fishhook blank, arrowshaft straightener, disks, petroglyphs

Photographs / Images (all from Minneapolis 1 except Fig 10):

Plate X: 1. House 2, from the east; 2. House 3 from the east, prior to excavation of caches; 3. metate from Mound 10 and mano from House 2

Fig 8: ground plan of House 3: F = firepit, double circle, center posts; 1-6 = caches, O = outer posts; E = entrance passage; M = Dakota sandstone metate

Fig 9: vessel shapes

Fig 10: vessel shapes from Salina 1, near Lindborg, Kansas [for comparison]

Fig 11. sketch map (of Minneapolis 1)

Plate XI: Fig 1: restored vessels from Houses 1-3

Plate XII: 1. chipped stone objects; 2. bone, stone and shell objects

Plate XII: 1. Pottery objects from Houses 1-3, including rimsherds, bowl fragments, perforated disks, and a pot handle; 2. Work in stone and clay, including arrowshaft smoothers, celts, polished celts, and lumps of roofing clay

MINNEAPOLIS 1

A Prehistoric Village Site in Ottawa County, Kansas

Students of prehistory in the United States have for many years regarded the Great Plains as a barren area, archaeologically speaking. In marked contrast to the numerous ethnological investigations among various tribes of the area, no effort was made to recover earlier phases of aboriginal culture through the medium of archaeology. This attitude of apparent indifference may be accounted for in several ways. In the first place, there were no known remains west of the Missouri comparable to the mounds and tumuli of the eastern Woodlands or to the picturesque pueblo ruins of the Southwest. The ethnological approach to Plains phenomena, moreover, seems to have offered no clues to the former existence of groups other than the roving hunters of historic times. Occasional reports of pottery and earthlodge remains from southern and central Nebraska were met with skepticism. Wissler, indeed, was led to conclude from the apparent absence of pottery that ". . . the tribes of the buffalo country never rose above the cultural level of nomadic hunters."¹ Subsequently, he was led to suspect that systematic work in the area might result in definition of a distinctive type of prehistoric culture,² a suggestion which, unfortunately, went unheeded. Nevertheless, the prevalent notion was that of a thinly populated region whose inhabitants relied primarily upon the bison herds for their sustenance. To the layman, it was full of war-like mounted Indians who spent their time pursuing the bison and fighting each other. So strong was the bias against any former cultural differences that the Plains were ignored by professional archaeologists as an unpromising field of investigation. With the exception of researches along the Missouri river, where horticultural tribes had manifestly lived for a long period, archaeological fieldwork in the Plains was almost wholly non-existent prior to 1920.

Within the past fifteen years interest has grown, if slowly, in the problem of Plains prehistory. A great deal of information has been gathered in portions of the northern Plains, notably in the Dakotas, though much of this remains unpublished. In the south, likewise, much material still awaits publication. In Nebraska and Kansas, however, fieldwork lagged far behind that in adjacent regions. Since 1929, Nebraska has become the focus of attention in the central Plains. Through the work of Strong, Hill, and others, it has been definitely shown that, first, the central Plains are not an archaeologically barren potteryless area and, second, that they were the home of not one but several types of culture.³ Numerous problems still exist, needless

¹Wissler, 1920, p. 150.

²Ibid., 1922, p. 272.

³See bibliography at end of preceding paper by Wedel, "Contributions to Archaeology of the Upper Republican Valley, Nebraska."

to say, but in approaching them we are in large measure able to tread on the solid ground of fact.

One great areal hiatus still remains in Plains archaeology. With three or four notable exceptions, Kansas continues a blank on the archaeological map of the central Plains. Save for the work of Udden, Williston, Martin, and to a lesser degree, of Fowke, Brower, and Winchell, systematic researches with results which can be utilized by other workers have not been made in Kansas. And this despite the fact that the state may be said to form a key area, affording cultural connections between the southern and northern Great Plains. For example, among the most significant and at the same time difficult problems arising from the recent investigations in Nebraska, are those concerning the derivation of such fundamental traits as horticulture, the earthlodge, pottery, and burial customs. Most of these are in all probability southeastern, but the route by which they reached Nebraska is still uncertain. Possibly they came up the Missouri river through the present state of Missouri. It is equally possible that they spread through eastern Kansas and that some traces of their diffusion will be found there. At any rate, until the intervening gaps are bridged, any historical reconstructions must be necessarily incomplete.

In view of the above facts, the Archaeological Survey of the Nebraska State Historical Society extended its 1934 investigations into northern Kansas. There was reason to believe that in the Solomon and other northern river valleys of the state would be found prehistoric remains showing definite affinities with those from the Republican valley of southern Nebraska. It appeared not unlikely that earlier sites of these northern cultures would be found farther southward, affording clues for future more detailed investigations. Whether these problems could be answered or not, it was felt that a representative series of artifacts from northern Kansas would prove of value in comparison with those from southern Nebraska.

Status of Kansas Archeology

At this point, it may be well to review very briefly the status of archaeology in Kansas prior to 1934. For what little information exists, we are indebted primarily to the limited researches made by a few geologists during the closing years of the past century supplemented with cursory notes by various other observers. As early as 1873, Mudge, first state geologist of Kansas, reported sites with abundant pottery from the Solomon valley in Cloud county and from Cow creek in Rice county.⁴ Eight years later, in 1881, Udden began an investigation of an early post-Columbian village site on Paint Creek, tributary to the Smoky Hill river, a few miles southwest of Lindsborg. A careful worker and close observer, Udden has given us a

⁴Mudge, 1896, p. 70.

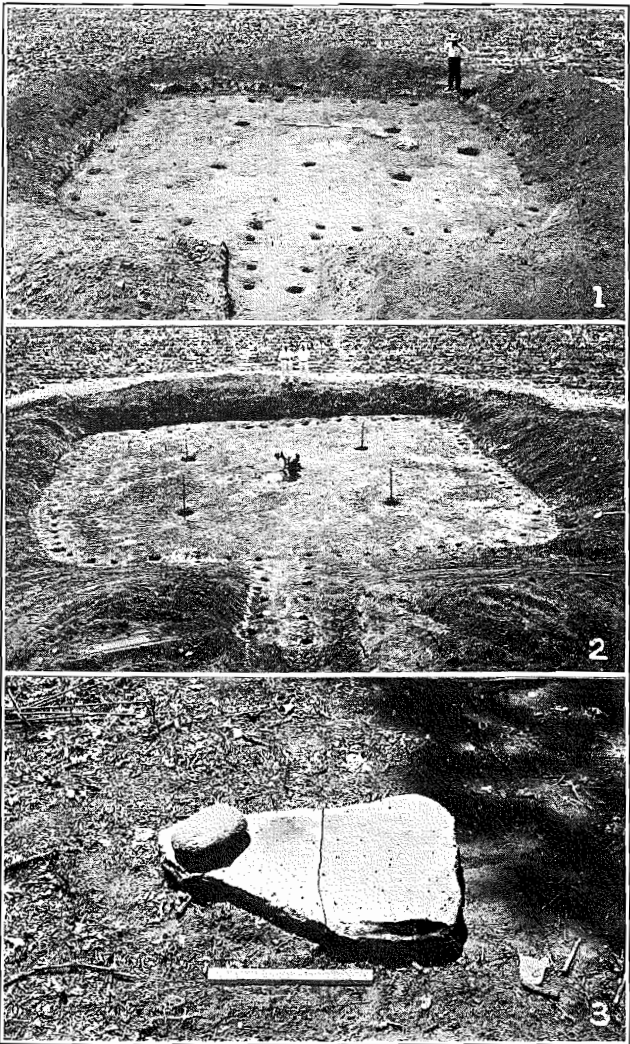


PLATE X

1. Minneapolis 1, House 2, from the east.
2. Minneapolis 1, House 3, from the east, prior to excavation of caches.
3. Metate from Mound 10 and mano from House 2, Minneapolis 1.

valuable account of his results, one of the few bright spots in Kansas archaeology.⁵ In 1898, Williston and Martin of the University of Kansas, excavated a seven-room pueblo ruin in the High Plains of Scott county, in western Kansas. This was identified as El Quartelego, built and occupied during the period from 1650 to 1705 by fugitives from the pueblos of Taos and Picuris, New Mexico. Several good descriptions of this work have been published.⁶ Of a more general nature than the researches of Udden, Williston, and Martin, and in many ways less satisfactory, was the work of Brower, who published two volumes on the archaeology of the Kansas river between Junction City and Topeka.⁷ Between a predilection for stone artifacts and a strong desire to prove the precise locations of Coronado's Quivira and Harahey, Brower never realized the value and usefulness of pottery in determining cultural affiliations. Most of his papers are tantalizingly inadequate in this regard, though they clearly show the presence in northeastern Kansas of sedentary pottery-making peoples. Winchell, in an endeavor to prove the presence of paleolithic man in this same region, presented nothing more than a discussion of certain large forms of stone implements, though his paper has some comparative value.⁸ Aside from these five men, we need mention only a few more names in passing. In the Eighties, Adams reported burial mounds near Fort Leavenworth,⁹ while "furnaces" for baking pottery (actually, earthlodge remains) and mortuary mounds were noted in Riley county near Manhattan by Failyer.¹⁰ There are also references to burial mounds and other aboriginal traces in Davis (Geary?), Butler, and Cowley counties on the Republican, Whitewater, and Walnut rivers, respectively.¹¹ Of much more recent date is suggestive work of Fowke in northeastern Kansas¹² of Moorehead on the Arkansas,¹³ and that of Zimmerman. The latter, an active excavator and collector with an exceedingly fertile imagination, has left us several reports of rather unsatisfactory nature.¹⁴ In the past ten years, there has been virtually no work of any kind with the exception of sporadic digging by relic-hunters. As will be quite clear, however, even from this cursory resume, our ignorance of Kansas prehistory is due not to absence of aboriginal remains but to the dearth of information based upon systematic excavation. Begun so promisingly more than fifty years ago, scientific investigations in Kansas archaeology virtually ended within two decades. It is to be hoped that

⁵Udden, 1900.

⁶Williston and Martin, 1900; also Martin, 1909.

⁷Brower, 1898-99.

⁸Winchell, 1913.

⁹Adams, 1906.

¹⁰Failyer, 1906.

¹¹Parker, 1887; Mead, 1905; Gould, 1898.

¹²Fowke, 1922.

¹³Moorehead, 1931.

¹⁴See the various publications of the Kansas Historical Society, especially volume 14, 1918.

interest in this very promising area will be revived in the near future, and that Kansas will contribute her just share to our knowledge of prehistory in the central plains.

Geographical Background

The topography of Kansas is essentially that of a plains country but, in its broader aspects, presents considerable variety. No less than four physiographic divisions may be recognized. About a third of the state, lying west of the 100th meridian, is included in the High Plains, which continue north into Nebraska, south into Oklahoma and Texas, and west to the foothills of the Rockies. In Kansas it is best described as a region of phenomenal flatness, short bunch-grass, and low rainfall. The general "dead-level surface" is interrupted only by the flat-floored Arkansas valley and, in the northwest, by the more deeply incised headwaters of the Smoky Hill river and its tributaries. Until the middle of the last century, vast herds of bison made this portion of Kansas the hunting grounds for Arapaho, Cheyenne, Kiowa, Comanche, and other tribes. Eastward, occupying the north central part of the state as far as Salina and Clay Center, is a more broken area of high plateaus and eastward-facing escarpments. Known as the Plains Border, this division owes its ruggedness of terrain to the dissection of the eastern High Plains margin by such streams as the Solomon, Saline, and Smoky Hill. The Blue and Smoky Hill escarpments are conspicuous physiographic features. Short grass predominates, sometimes with small shrubs and trees along the scarps. To these grass-covered plateaus came the Loup and Republican river Pawnee of Nebraska in the eighteenth and nineteenth centuries on their annual bison hunts. South of the Blue and Smoky Hills, in the triangle formed by Dodge City, Wichita, and McPherson, is a flat alluvial plain known as the Great Bend Prairie. In the nineteenth century it was the hunting ground of the Kansa and Osage. As well be pointed out in a subsequent paper, however, it was previously the habitat of peoples who subsisted primarily upon corn and other crops and only secondarily upon the products of the chase. The remaining third of the state, east of a line drawn through Wichita and Abilene, is comprised in the Osage Plains. Here, the undulating prairies are interrupted by a series of east-facing escarpments extending from north to south across the state. Of these, the Flint Hills, just east of and parallel to the 97th meridian, with their aboriginal chert quarries,¹⁵ are the most prominent. To the north, the Osage Plains adjoin the Loess Plains of Nebraska. They include much fine farming land, are within the corn belt, and are much the most densely populated part of the state.

Drainage in Kansas is effected by two main systems. In the north, the Solomon, Saline, and Smoky Hill converge above Abilene

¹⁵Gould, 1899, p. 282.

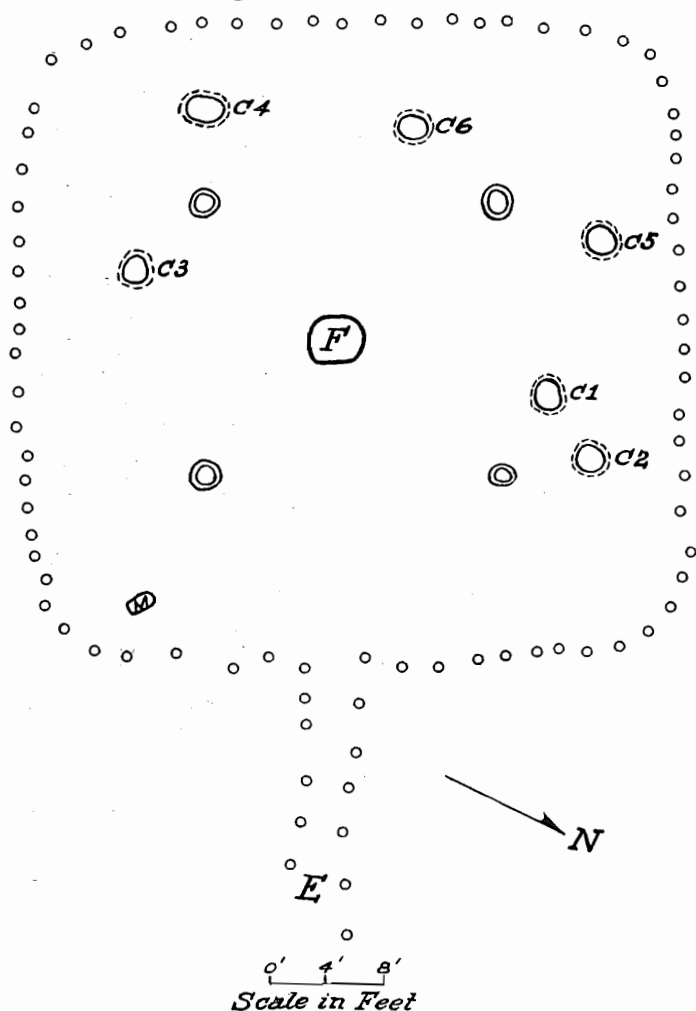
Minneapolis 1-House #3

Figure 8. Ground Plan of Minneapolis 1, House 3.
 F, firepit; double circle, center posts; 1-6, caches; O, outer posts; E, entrance passage; M, Dakota sandstone Metate.

to form the Kansas river. This is joined from the north by the Republican and Blue, before emptying into the Missouri at Kansas City. All of these streams have entrenched themselves in flat-floored, tim-

bered, bluff-bordered valleys. Southern Kansas is drained by the Arkansas, of which the Neosho is the largest tributary. The Arkansas flows in a wide shallow valley, and throughout much of its course has but sparse stands of timber. Generally speaking, cottonwood and willow are found throughout the state. Osage orange and black walnut are common in the south, while in the north there are many fine stands of oak, especially along the valley and river bluffs.

The archaeology of Kansas is as yet too little known to permit of a correlation of cultures with geography, as has been done in Nebraska. Nevertheless, certain generalizations can be made. As has been noted, the western two-thirds of the state may be classed as hunting area, roamed by unsettled tribes dependent upon the bison. The more fertile Osage Plains to the east, on the other hand, were occupied by horticultural Indians, notably the Kansa and Osage. Prior to the last century, moreover, sedentary corn-growing peoples at one time or another were found in most or all of the major river valleys westward at least into the Plains Border. As will be pointed out in a subsequent paper, a fairly distinct type of culture appears also to have dominated the Great Bend Prairie in very early historic times. In other words, prior to diffusion of the horse complex over the Plains, sedentary peoples seem to have inhabited those portions of Kansas which are today recognized as most suitable for the growing of corn.

We may turn now to the area more immediately under consideration. The North Solomon river heads in the High Plains of Thomas county in western Kansas, whence it flows in a general easterly direction for some 250 miles to join the Smoky Hill west of Abilene. Near Cawker City it is augmented by its one large tributary, the South Solomon. Throughout much of its course, the Solomon flows in a narrow trench within a wide fertile valley bordered by high bluffs. It has a meandering habit, and remains of ancient channels may be seen at many points in the valley. As a rule, it carries a good flow of water throughout the year. The immediate channel is fringed with a fine growth of oak, cottonwood, and willow, which in summer contrast markedly with the hot dry prairies on the enclosing uplands. An important route of travel across Kansas in post-Civil War days, the Solomon valley is still one of the most attractive and picturesque in the state.

In aboriginal days, the valley offered many inducements to horticulturally minded peoples. Water and wood, two prime requisites, were abundant. The rich bottoms grew excellent crops of corn. Small game was plentiful along the river, and bison could be gotten in the nearby broken upland plateaus. The Plains Border, in which geographical province the Solomon largely lies, was eminently suited to the stalking of bison by Indians on foot. That these opportunities were not ignored is shown by the numerous village sites scattered throughout much of the valley.

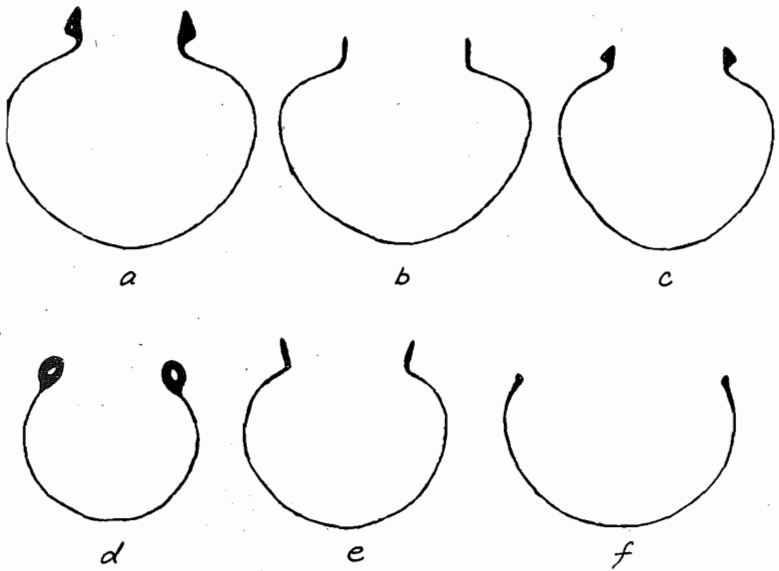


Figure 9. Vessel Shapes from Minneapolis 1, on the lower Solomon river, Kansas.

Sites characterized by abundance of pottery have been reported by local collectors as far west as Cedar Creek in Phillips county. Some seven miles northwest of Downs, in Smith county on Twelve-mile creek, members of the present Survey identified sherds of cord-marked gray ware of the type usually found on the upper Republican in Nebraska. One small cache pit was opened, but efforts to locate house sites were unavailing. Three miles below the forks of the Solomon, on the north bank of the river, is the Wakonda or Great Spirit spring, sacred to the Pawnee, Iowa, and other historic tribes of the central Plains. Some three miles farther east, on a prominent hill immediately west of Glen Elder and overlooking the river, is a site yielding light brown smooth ware with incised body decorations and loop handles, very unlike the Republican river wares. Attempts to obtain excavation privileges here were unsuccessful. Twenty-five miles southeast, on Asher creek in Cloud county, is a site reported by Mudge.¹⁶ From this point southward, village remains become increasingly numerous, the lower Solomon valley, like the Kansas, evidently having had a fairly dense Indian population. The Survey party of the Nebraska State Historical Society spent the period from July

¹⁶Op. cit., p. 70. For notes on Wakonda Spring, see Patrick, 1906 and Grinnell, 1912, p. 358.

11 to 23 in excavations in the vicinity of Minneapolis. For discovery of the principal site, Minneapolis 1, we are indebted to Mr. G. L. Whiteford of Salina; for permission to excavate, to Mr. Fred Rarig of Minneapolis.

Minneapolis 1

Minneapolis 1 is one of several large prehistoric villages lining the banks of the Solomon in Ottawa county, near its exit from the broken hilly Plains Border. The site is about three miles south of Minneapolis, on a fertile flat with the river on the east and Salt Creek on the west. At present, the two streams are slightly more than 400 yards apart at this point, with the creek emptying into the river about a mile and a half to the southeast. Salt Creek, like the Solomon, flows in a deeply entrenched meandering channel nearly thirty feet lower than the village site. Some hundreds of years ago, the river swung in a great curve westward to within 250 yards of the serpentine course of the creek. This old bend, since cut off and partially filled up, is still visible as a depression six feet deep by fifty yards wide. Along the curving strip of bottoms between the old channel and Salt Creek were scattered twenty-four elevations of varying size. Six were within thirty yards of the dry channel, while four were on the immediate bank of Salt creek. There were none east of the dry channel, within the old bend, indicating that the village was occupied when the Solomon flowed in the now dry course. The area covered measured about eighty yards from east to west by 1,000 yards, a total of approximately twenty acres. (Fig. 11).

The elevations showed no evidence of any attempt at orderly arrangement or grouping. They varied in diameter from forty to 100 feet, and in depth from a few inches to three feet. Sherds, flints, and occasionally burnt clay were scattered over them. Cultivation has no doubt obliterated additional mounds. The locality has yielded arrow-points and other remains for many years, but it was assumed by collectors that the elevations were merely foundations for tipis. Hence, prior to our investigations, no digging of any kind had ever been done.

Three mounds were excavated by the Survey party.

Mound 1 lay near the north end of the group, about 100 yards from the dry channel. It measured twenty yards from east to west by fifteen, and was perhaps fifteen inches deep. The surface was thickly strewn with bits of burnt clay, sherds, and flints, with the amount of debris diminishing toward the peripheries. Excavation showed that the upper eight inches consisted of humus topsoil mixed with detritus. Below this depth, burnt clay, often in large lumps and mixed with grass, became much more abundant. At sixteen inches was encountered a level covered with sherds, stones, and bones, beneath which was the rich black unmixed gumbo of the valley bottoms. The great amount of burnt clay, plus the underlying horizon of artifacts, made it quite apparent that the mound represented the ruins of

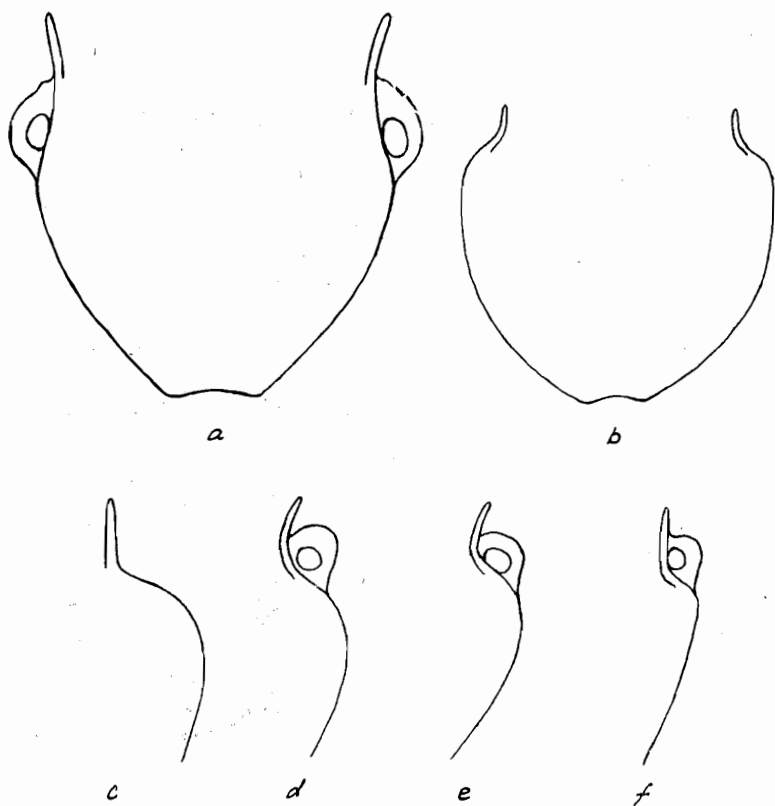


Figure 10. Vessel Shapes from Salina 1, near Lindsborg, Kansas.

an earthlodge. This verdict was soon justified with discovery of the firepit and postholes.

This house, Number 1, was approximately square in outline, with a diameter of twenty-five feet. Twenty-two postholes marked the periphery; they were six inches in diameter, fifteen inches deep, and spaced at 36-54 inch intervals. The firepit was twenty-four inches in diameter by four inches deep, filled with ashes, and underlain with baked clay. There were four center postholes, at a radius of eight feet from the hearth. Two of these were found to contain the remains of eight-inch oak posts; the holes were about twenty-four inches deep. The doorway was to the east, marked by two pairs of holes; it was nine feet long, four feet wide at the inner end by two feet at the outer. The floor sloped very slightly downward to the firepit. A small cache, fifteen inches deep by twenty inches wide, was found on the west side.

Near the southeast center post was encountered a broken mealing slab of sandstone; another, smaller, lay north of the firepot between the north pair of central supports.

Artifacts were not very numerous. Two or three badly broken jars were found south and southeast of the fireplace, near the larger grinding stone. Scattered about over the floor were arrowshaft smoothers of Dakota sandstone, chipped and polished celts, end scrapers, four-edged knives, and one red stone pipe suggestive of Siouan type. In a small pocket at the south edge were found eleven end scrapers, two small knives, and a few unworked flint flakes. A similar cache near the north edge yielded thirty-five well made end scrapers of gray chert. The artifacts will be discussed in detail in a future section.

Mound 2 was 170 yards south of No. 1, and thirty yards from the edge of the old channel. The maximum diameter was slightly over twenty yards and the depth was about twenty inches. The upper twelve or fifteen inches were comparatively free of refuse save for an occasional sherd. In contrast, the lower portion of the mound contained large amounts of burnt clay and broken pottery, and was quite similar in character to Mound 1.

House 2, underlying this mound, was of rectangular form (Plate X, 1), measuring thirty-two feet north to south by thirty-one feet. There were thirty-one outer postholes, similar in size, depth, and spacing to those in House 1. The center posts, four in number, were located eight-nine feet from the middle of the floor; they were fifteen inches in diameter by twenty-four to thirty inches deep. All yielded charred or rotted remains of oak posts. The fireplace was unusually large, with a diameter of forty-eight inches and a depth of eight inches, and filled with ash. Near the southwest center posthole the floor was twenty inches below the mound surface. There were three caches, one on the north and two on the west side. The doorway, to the east, was eight feet long by three feet wide.

North of the firepit were two mealing slabs, with a third to the south; all were within the square formed by the center posts. Two polished celts, arrowshaft smoothers, shell beads, and a broken pipe were among the artifacts recovered from the floor. A charred corncob, too fragile to save, lay near the north wall. Of unusual interest were several perforated pottery disks from the west and north sides. Sherds, stones, and flint chips were abundant.

House 3 lay some 450 yards south by east of No. 2. The mound covering it was thirty-five yards long, twenty-five yards wide, and nearly three feet deep—much the largest on the site. As regards composition, the upper twenty-four inches consisted of clean dark soil with almost no admixture of cultural material. Beneath this was a layer ten-twelve inches thick containing much charcoal, burnt clay, and broken pottery. There was no clearly defined floor line, other than the abrupt break between the debris-mixed fill and the clean underlying black earth

Like the others, House 3 was square in outline, with seventy-one postholes in the secondary or outer system of roof supports (Fig. 8). The floor was slightly depressed, with the actual edge of the house pit about three feet outside the outer posts. From north to south across the firepit, the area enclosed within the postholes measured forty-seven feet, and the interior diameter of the house must have been upwards of fifty-two feet. The writer knows of no other prehistoric house site of comparable size among those so far excavated in the Central Plains (Plate X, 2). Despite the exceptional size, there were but four central postholes. They were at a radius of fourteen feet six inches from the center, carefully placed so as to form a rectangle twenty-one by nineteen feet with the long axis north to south. Each hole was nearly twenty-four inches across, and the depth varied from twenty-six to thirty-two inches. Remains of fourteen-inch oak posts were found in three of the holes. Careful search failed to reveal any additional postholes between or behind the main supports. The firepit was forty-two inches in diameter and twelve inches deep. The ashes which filled it were so hard and compact at the top that it was almost impossible to force a shovel into them. Five pairs of holes formed a doorway seventeen feet long by about four feet wide on the east side.

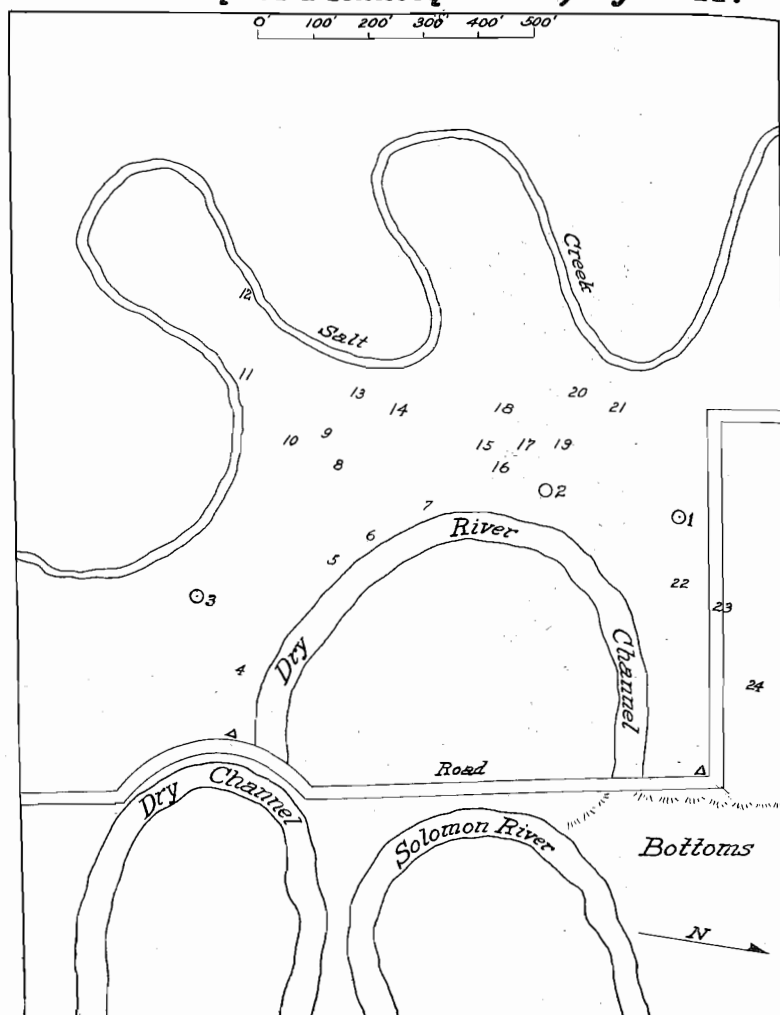
Six caches were excavated in this house. Their dimensions in inches were as follows:

	Diameter at Top	Depth	Diameter at Bottom
Cache 1	24	31	28
Cache 2	36	42	36
Cache 3	34	50	38
Cache 4	27	24	27
Cache 5	28	54	46
Cache 6	28	54	42

Caches 1 and 4 were lined with grass, preserved by charring which made the mouth of each pit distinctly visible at floor level as a blackened ring. The walls of Cache 3 were burned to a bright brick-red, presumably by building a fire in it after excavation. The purpose here was no doubt the exclusion of moisture. The ashes and rubbish which filled the pits were in every case well consolidated and very hard, and specimens were not at all abundant.

Two broken mealing slabs lay near the southeast center posthole, and broken pottery was abundant about the fireplace. Broken animal bones were piled to a depth of nearly six inches immediately northwest of the hearth, and intermingled with these were sherds and scrapers. Otherwise, the usual variety of implements were recovered from the floor.

A comparison of the three houses opened at Minneapolis 1 with those found on the upper Republican river in Nebraska reveals certain

Sketch Map Of Minneapolis - 1, Figure 11.

fundamental similarities. In both districts, a square or rectangular form, four central roof supports, a secondary or outer series of posts, inside caches, an earth covering, and a covered entrance passage were characteristic. A noteworthy difference exists, however, in that the

upper Republican houses were always partially (eighteen-thirty inches) underground, whereas at Minneapolis 1 the floor was on the ground surface or, at most, only a few inches below. To this difference may be attributed the absence of domiciliary mounds in southern and central Nebraska and their presence in northern Kansas. In the former, collapse of the lodge resulted in filling up the pit; in the latter, a low mound was formed. The clean soil constituting the upper portions of the mounds today is no doubt wind-blown material which was caught and held by grass growing over the ruins. It may be pointed out that slight elevations with burnt clay and debris were reported by Mudge from Cloud county fifteen miles above Minneapolis on the Solomon, and by Failyer from the Republican and Wildcat bottoms near Manhattan.¹⁷ They were also observed by the writer on the Smoky Hill river east of Salina. Apparently, therefore, surface earthlodges were typical of the lower Solomon and Republican and adjacent parts of the Smoky Hill and Kansas valleys, while the semi-subterranean earthlodge was characteristic in southern and central Nebraska.¹⁸

One more feature merits attention in connection with the houses at Minneapolis 1, viz., the great abundance of burnt clay in each of the mounds. The clay occurred in tabular lumps of varying size lying in the square within the four central posts. Some of the pieces were as much as a foot across, though they were seldom more than three inches thick. One side bore the impress of poles, two or three inches in diameter, laid side by side, the other was comparatively smooth, flat, and somewhat discolored as though from weathering. The clay had been freely mixed with grass, but the intense heat which imparted to it the brick-red color had burned out all organic substances.

This material doubtless came from the central portion of the roof. Its color and brick-like character cannot have been due to burning of the house, since it occurred always only in the center of the floor area, nor to the heat of the cooking fires. The flat tabular form of the pieces argues against their having been plastered onto the upper portion of a cone-shaped structure of the usual Plains earthlodge type. Moreover, if House 3 had been dome-shaped, the ribs which supported the roof would have been not less than twenty-four feet long in order to reach from the outer supports to the edge of the smoke hole, a length which would call for timbers of almost prohibitive size or else for the splicing of shorter poles. It may be suggested, therefore, that the center of the roof was flat rather than domal, as was the case in most historic earthlodges. Taking House 3 as an example, we might reconstruct this portion of the roof as follows: Heavy beams, resting on the tops of the four central posts, formed a twenty-foot square. Six or eight smaller beams, each per-

¹⁷Mudge, *op. cit.*, p. 70; Failyer, 1906, pp. 130, 132.

¹⁸See p. 172.



PLATE XI

Figure 1. Restored vessel from Minneapolis 1, House 2. Figure 2. Restored vessel from Minneapolis 1, House 1. Figure 3. Restored vessel from Minneapolis 1, House 1.

naps six inches in diameter, were placed across this square parallel to each other, and on these, at right angles, two-three inch poles were laid side by side. Wet clay, thickly mixed with long prairie grass, formed the final covering. This was carefully smoothed and made hard and water-resistant by building a fire on it. The final result would be a flat substantial roof not unlike the pueblo type. Flat-roofed earthlodges were not at all common among the historic Plains tribes, but they have been reported for the Hidatsa.¹⁹ Remains of historic Pawnee earthlodges, which were definitely dome-shaped, never yield these masses of baked clay, even where the lodges seem to have burned down, a further indication that their occurrence may be due to structural differences. Baked clay mixed with grass has been found under similar conditions in Nebraska sites, notably near Williams, Franklin, and on Medicine creek near Stockville, as well as on the domiciliary mounds above mentioned on the Smoky Hill and lower Republican rivers—and always in prehistoric sites. The change from the prehistoric rectangular flat-roofed type to the circular domal habitation of historic times would then be in line with the general cultural deterioration which seems to have taken place in the central Plains about the time of the earliest white contacts, and which was later greatly accelerated by the introduction of the horse.

LESSER REMAINS

Pottery

Pottery, abundant at Minneapolis 1, is represented in our collections by several hundred sherds and a number of broken but restorable vessels. Most of it is medium to dark gray in color, like that on the upper Republican river, but with a larger proportion of brown ware. The paste is hard, dark in color even where the surface is brown, and is not porous. Tempering varies, but nearly all sherds contain a moderate amount of medium coarse water-worn gravel. Crushed shell is present in many sherds. Bits of bone, sometimes large enough to be visible to the naked eye, are less common, but were evidently intentionally added to the clay. A fourth medium, not as yet positively identified, appears to be crushed potsherds. The shell, bone, and sherds were generally used in conjunction with gravel; occasionally, three or more tempering agents were used in the same vessel. Vessel interiors are rough and uneven: where attempts have been made at smoothing, the surface is often finely checked and cracked. The exterior surface is, as a rule, cord-impressed, but a small percentage of the sherds are perfectly smooth; incised decoration is extremely uncommon. A very pleasing decorative effect was obtained in one jar by means of dark gray firing clouds on a light

¹⁹Wilson, 1934, pp. 364-5.

brick-red ground, though it is difficult to say whether this was intentional or not.

Vessel shapes are comparatively simple. Large jars usually have a rounded but not quite hemispherical bottom, a rounding shoulder, flattish upperbody, and constricted neck (Fig. 9, a-c). Smaller specimens tend more to the globular body, though retaining the constricted orifice (Fig. 9, d, e). The walls of even the largest vessels were rarely more than .25 inch thick, and on the shoulder they were usually under .15 inch. Small fragments of three bowls were found; the shape seems to have been hemispherical, with the lip turning slightly inward (Fig. 9, f).

Rims are of two general types or classes.²⁰ Those of Class I have a collar-like thickening below the lip on the outside which, in profile, accentuates the constriction of the neck; in Class II this collar is absent and the rim is either vertical or flaring. Out of a total of 105 rimsherds from the three houses, twenty-three belonged to Class I; of these thirteen bore the partially obliterated imprint of cords, six had scallops on the lower edge of the collar, and four were undecorated. Incised decoration, so characteristic on the Republican, was entirely absent here. In passing, also, we may call attention to the fact that on the Republican, collared rims comprise from sixty to eighty-five percent of the total, as contrasted with twenty-two percent on the lower Solomon at Minneapolis 1. In rims of Class II, decoration consisted principally of cord impressions which were continuous with those on the body; fifty-four (66%) of the eighty-two uncollared rims were undecorated.

Handles are a not uncommon feature of the pottery from Minneapolis 1. In some cases, they are wide and flat; in others, they are narrow with a circular or oval cross section. They are vertically placed so as to connect the lip with the upperbody, and so far as known, there were two on a jar. They were usually luted to the vessel; in one instance, however, the lower end had been inserted into a perforation in the vessel wall and then welded both inside and out (Plate XII, 1).

In connection with pottery, we may mention here the occurrence of perforated clay disks, of which six complete and four fragmentary specimens were recovered from Houses 2 and 3 (Plate XII, e, f, k). They were made by grinding sherds into a circular shape and then piercing them centrally. The diameter varied from 1.5 to 2.5 inches and the thickness averaged about .25 inch. They were drilled from both sides. Their purpose is unknown, but it is possible that they were used as gambling chips or gaming devices.

We may compare the ceramic pattern at Minneapolis 1 with that of the upper Republican valley, its nearest known prehistoric neighbor, to the North. In both occur the same vessel shapes, the same two rim types (though in differing proportions), and the same pre-

²⁰Cf preceding paper by Wedel, *op. cit.*, pp. 186ff and Figure 5.

valence of cord-impressed exteriors; at first glance, collections from the two areas strike one as very much alike. Republican valley pottery is further characterized by exclusive use of gravel tempering, a marked predominance of incised collared rims, absence of bowls, and absence or extreme scarcity of handles. At Minneapolis 1, tempering materials include gravel, shell, bone, and sherds; collared rims are uncommon and incised rim ornamentation absent; bowls are present; and loop handles are fairly common. The use of a variety of tempering agents other than gravel, and including shell, bone, and potsherds appears to have had fairly wide distribution in central Kansas, and loop handles are common in the northeastern as well as central part of the state. It would seem, therefore, that the Minneapolis pottery is basically related to the Upper Republican, but with a very strong admixture of elements from other ceramic traditions to the east and south.

Beloit 2

A markedly different ceramic complex, of which mention has already been made, occurs at Beloit 2, a site of unknown age near Glen Elder. Glen Elder lies on the north bank of the Solomon some forty-five miles northwest of Minneapolis 1; the site occupies a high bluff on the west edge of the town, with the river immediately at its base. The sherds which litter the hilltop are characteristically light brown in color, though with some variation, and have a fine hard gray paste. Tempering consists of rounded gravel grains and angular fragments of limestone; shell, bone, and sherds seem to be absent. The ware is well-fired, and has a clean straight fracture; many sherds are under .1 inch thick. Surfaces are smooth; no cord-impressed ware was found. Of fifty body sherds picked up by the writer, twelve bear decoration consisting of a series of triangles filled in with parallel incised lines, the lines in consecutive triangles slanting in different directions. The scorings vary in degree of fineness, but the designs are nearly always well executed. Rims are all vertical or slightly flaring, and are mostly about an inch high; collared rims are wholly absent. In a series of nineteen rimsherds, five were plain and fourteen bore small incised or punctate elements on the lip. One loop handle, bearing five vertical flutings, was found, and the writer was assured that until a few years ago, loop handles were very abundant on the site. Aside from quantities of pottery, collectors have removed numbers of grooved mauls, four-edged bevelled knives, and other artifacts. A large collection of material from this site is in the possession of Mr. E. W. Norris of Glen Elder, but lack of time precluded a detailed study of the artifacts. However, the pottery bears little resemblance to that from Minneapolis 1 or from the Upper Republican area. In the Hill collection at the Hastings Museum is a series of similar sherds, said to have been associated with disk pipes and other unus-

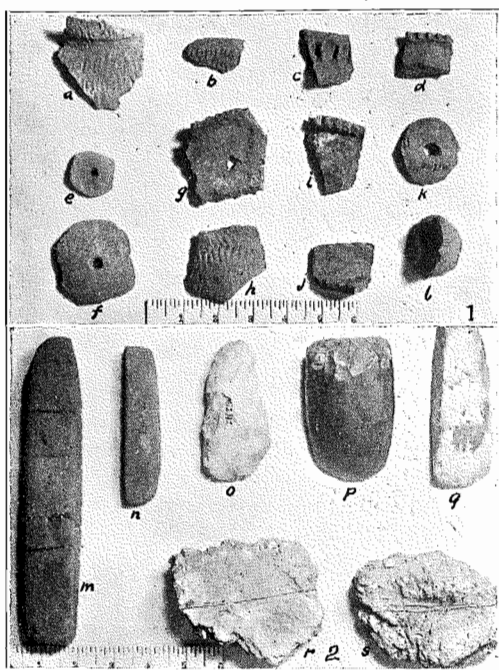


PLATE XII

1. Pottery objects from Houses 1-3, Minneapolis 1, on the lower Solomon. a-d, i, j, rimsherds; g, h, bowl fragments; e, f, k, perforated disks; l, pot handle.

2. Work in stone and clay from Minneapolis 1. m, n, arrowshaft smoothers; o, celts; p, q, polished celts; r, s, lumps of roofing clay.

ual features, from White Rock creek near the eastern border of Jewell county, some thirty miles north of Glen Elder. The authorship of the Beloit 2 and White Rock remains is unknown, but there appear to be some relationships with sites in central Kansas.

Work in Stone

Metates.—A highly characteristic feature of the remains from Minneapolis 1 was the abundance of metates or grinding stones. Two were found in House 1, three in House 2, and one in House 3; all were badly cracked and broken through the action of fire, frost, and other agencies. They were sandstone slabs from sixteen-twenty-four inches long by eight-fifteen inches wide and about four inches thick; on one of the flat surfaces was a shallow concavity produced by wear in grinding. A complete specimen was recovered from Mound 10; it was twenty-five by fifteen by six inches and the grinding surface had been worn down 1.5 inches (Plate X, 3). It had been artificially roughened by pecking so as to increase the milling efficiency. All the metates were of dark red-brown Dakota sandstone, apparently natural slabs of stone from the nearby outcrops on Salt Creek; none showed any evidence of having been dressed to the present shape.

Manos.—Manos, for use with the metates, were surprizingly uncommon. A single complete specimen was found in House 1; otherwise, only fragments were obtained. The one mentioned was oval in form, 5.5 by 4.3 by 2.7 inches, flattened on the grinding face, with the ends apparently pecked into shape. Like the metates, they were of Dakota sandstone. Their scarcity may have been due to their small size as compared with the metates, which would make it possible to carry them from one location to another when the village was abandoned.

Arrowshaft Smoothers.—Very common in all the houses were carefully made arrow shaft smoothers. They were boat-shaped, tapering slightly at either end, with a longitudinal groove on one side (Plate XII, m, n). The largest specimen, from House 1, was 8.5 inches long 1.3 inches wide, and 1.4 inches deep, with a straight full-length groove on the narrow face. The smallest was 4.5 by .9 by 1 inch. One had shallow grooves for the fingers on either side. Fragments were abundant; they often had grooves on all four sides. These stones were used in pairs; the shaft to be smoothed was placed between the two in the groove and drawn back and forth.

Pipes.—Two pipes were recovered; one, almost complete, came from House 1, and the other, badly broken, from House 2. Both were of elbow type, but with the stem prolonged very slightly beyond the bowl. The specimen from House 1 was of a fine-grained red stone, well finished and polished. It was slightly over two inches high, with a stem 1.7 inches long. There was a groove just below the

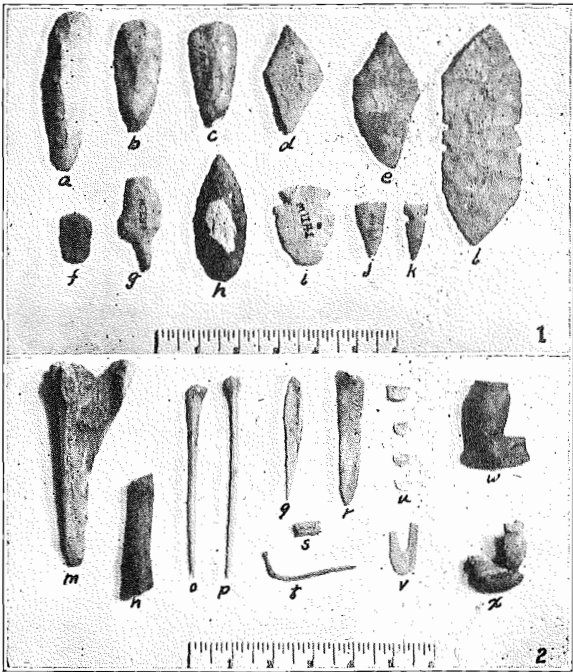


PLATE XIII

1. Objects of chipped stone from Minneapolis 1, lower Solomon River. a-c, f, end scrapers; d, e, four-edged bevelled knives; g, h, drills; i-k, arrow-points; l, hexagonal bevelled knife with notches for repairing fracture.

2. Bone, stone and shell objects from Minneapolis 1. m, broken gouge or skinning tool; n, problematical object; o-q awls; r, bodkin; s, bead; t, os penis; u, s, shell disks and beads; v, fishhooks blank; w, x, stone pipes.

top of the bowl, and on the under side of the stem were five deeply incised chevrons pointing toward the smoker (Plate XIII, w).

The second pipe was of chalky white limestone. A deep groove encircled the top of the bowl, and the upper side of the stem was decorated with small incised diagonal lines. The inside of the bowl was narrower at top and bottom than at the middle. The specimen was smaller than the preceding and, due perhaps to the nature of the material, was not as well finished (Plate XIII, x).

So far as the writer is aware, clay pipes are not found in the Solomon area.

Hammerstones.—These were roughly shaped river pebbles, somewhat flattened, and of convenient size for grasping. The edges are usually somewhat battered from hard usage.

Celts.—Celts are of two types, viz., chipped and ground. A typical example of the former from House 1 was of gray chert, and measured 3.8 by 1.8 by .7 inches (Plate XII, o). Ground or polished celts were found in House 1 and 2. Complete specimens average about five inches long, two inches wide, and one inch thick. They are well made, of dark fine-grained stone which may be diorite. They are widest at or near the cutting edge and are rounded off at the butt (Plate XII, p, q).

Scrapers.—Chipped implements include scrapers, knives, and missile points. Like practically every archaeological site so far worked in the central Plains, Minneapolis 1 yielded a large number of "snub-nose" or end scrapers (Plate XIII, a-c, f). As already mentioned, two small pocket caches in House 1 gave up respectively, eleven and thirty-five of these implements, and many others came from the general digging in the houses. Typically, they are of gray chert, long, slender, and carefully chipped. They range in length from 1.7 to 4.5 inches, with a prominent medial ridge or "keel" and flat or slightly curving underside. Very few scrapers are under 2 inches long. In general, they are larger, heavier, and far better made than most of those with which the writer is familiar from Nebraska and Kansas, and were in the highest degree utilitarian.

Knives.—Bevelled knives are typical, but they varied considerably in form. They are of gray flint, quite thin in cross section, and carefully made. From Houses 1 and 2 came 3 complete and several broken diamond-shaped specimens, varying in length from 2.2 to 3.5 inches (Plate XIII, d, e). Somewhat different is a type in which two bevelled edges are brought to a point while the other end is round and unbevelled. A third form, not hitherto encountered in the Plains, is shown in Plate XIII, 1. The specimen illustrated is 5.5 inches long by two inches wide, and has two parallel edges three inches long. At either end, the sides converge to a point, with bevelled edges. The two notches on each side were evidently for repairing a fracture by lashing the two pieces together with sinew or rawhide crisscrossed over the break.

Flakes were sometimes retouched on one or more edges and used as knives.

Missile Points.—Of the fourteen points found, seven were triangular; they were crudely made, and ranged up to 1.3 inches in length (Plate XIII, j). Five were of small notched type, one having two pairs of notches (Plate XIII, k). A single heavy stemmed point came from House 1 (Plate XIII, i); as a type, this belongs farther east, on the lower Kansas river. The remaining specimen was broken and its form is indeterminate.

Work in Bone

Awls.—In contrast to the abundance of scrapers, which might indicate a marked emphasis upon skin-working, bone awls number only four in our collections (Plate XIII, o-q). Two, of split deer metapodials, were about five inches long, slender, and well made. The others, each 3.2 inches long, were crudely fashioned from slivers of bone.

Flaking Tools.—This is a short cylindrical section cut from the basal portion of deer antler. It measures three inches long by .5 inch in diameter, with rounded ends. Its use is uncertain (Plate XIII, n).

Digging Tools.—These were made by trimming down the scapulae of the bison to roughly triangular shape and sharpening the vertebral border. Those from Minneapolis 1 were all highly polished and carefully made, but conformed to the usual Plains type in every respect. No complete specimens were recovered.

Pick.—From House 3 came a well worn bison fibula with highly polished tip. This may have been used as a pick for loosening hard soil, as in digging caches. It was quite evidently subjected to hard use.

Gouge.—A fragment of bison leg bone from House 2, split longitudinally, has a rounding, sharpened edge with a high polish, and may have been a gouge or skin-dressing tool. It is a little over five inches long and is incomplete (Plate XIII, m).

Beads.—A single tubular bone bead was found in House 3. It measures .7 inch long, with many fine scratches on the sides (Plate XIII, s).

Fishhook Blank.—In Plate XIII, v, is illustrated a piece of flat bone, U-shaped, with one arm broken. One side is smooth; the other shows the porous tissue of the bone. The piece, while incomplete, was evidently intended to be made into a fishhook.

Arrowshaft Straightener.—This is a ten-inch section of bison rib; the articular end is broken off, the other is cut. Near the distal end is a .4 inch perforation, showing evidence of much wear about the edges. It was in all probability used as a wrench for straightening arrowshafts.

Work in Shell

Clamshells were recovered in quantities from all of the houses, being especially plentiful around the edge of House 1. For the most part, they were undecorated and showed no signs of workmanship. One, from House 3, has notches cut into the edge, but for what reason we do not know.

Disks.—In House 2 were found two small unpierced shell disks, each .4 inch in diameter. They were very thin and may have been intended for manufacture of beads. In the same house was a small very thin disk bead, about .35 inch in diameter. Half of a tubular bead, biconically drilled, also came from here; it was .6 inch long by .45 inch in diameter (Plate XIII, u). The apparent scarcity of beads may have been due in part to the extreme hardness of the soil, which no doubt resulted in many of them being overlooked.

Petroglyphs

Petroglyphs or rock carvings were locally reported as being present at several places in the vicinity of Minneapolis, where sandstone outcrops are not uncommon. Only one group was seen by members of the Survey; it was on a cliff about three and a half miles southeast of Minneapolis 1, and included human, animal, and geometric figures, some of them extraordinarily elaborate. A number of the carvings are clearly spurious, others are probably so, and on the whole, the authenticity of the group is questionable. Petroglyphs of probable Indian origin are present, if sparingly, in central Kansas, and it seems not at all unlikely that some of the simpler ones said to occur in the lower Solomon valley are likewise genuine. So far as we were able find out, geometric motifs and very simple animal representations are the rule. Specific descriptions are wanting, however.

SUMMARY AND CONCLUSIONS

The researches of the Nebraska State Historical Society in northern Kansas revealed the fact that the area is one with many archaeological possibilities. It was found that the Solomon valley contains numerous aboriginal remains throughout a very considerable portion of its course, the remains consisting of village sites, petroglyphs, and similar features. Moreover, the Solomon valley was the habitat of two or more distinct cultural groups who appear to have inhabited the region at different times. All of these cultures were carried by semi-sedentary peoples rather than by roving hunters. In the upper portion of the valley, specific influences from southern Nebraska can be recognized, but below the juncture of the North and South forks, notable differences appear. Excavations at Minneapolis 1, assuming that the site is representative, show that the lower Solomon was characterized by the following traits in prehistoric times:

- 1) Horticultural subsistence pattern with maize, beans, and squash, hunting secondary.
- 2) Earthlodges rectangular, surface rather than semisubterranean, with four center posts and interior caches; loosely arranged villages of small to moderate size; probably communal houses, ten to twenty inhabitants per house.
- 3) Pottery gray, cord-impressed, tempered with gravel, shell, bone, and sherds; large full bodied vessels, with or without collared rims, no incised decoration on rims; handles common; bowls present.
- 4) Burial methods unknown.
- 5) Perforated pottery disks for gaming or spindle whorls.
- 6) Elbow pipes of stone; no clay pipes.
- 7) Celts of both chipped and polished type.
- 8) Knives commonly bevelled; diamond-shaped, hexagonal, etc.
- 9) End Scrapers large, well made.
- 10) Arrowpoints either plain, triangular or small notched; rarely, large stemmed.
- 11) Arrowshaft smoothers of sandstone, boat-shaped.
- 12) Hammerstones plain, discoidal.
- 13) Metates and manos.
- 14) Bonework including fishhooks, incised ornaments, scapula hoes, picks, awls, beads.
- 15) Shaft straighteners of rib bone.
- 16) Flakers (?) of antler.
- 17) Circular shell beads, notched clamshells.
- 18) Absence of horse remains or other signs of Caucasian contact.

A comparison of this list of traits with that for the Upper Republican culture in southern and central Nebraska shows a large number of identical or closely similar elements.²¹ All of the fundamental features, such as horticulture, the earthlodge, and pottery are markedly similar, as are also most of the minor elements, viz., stone pipes, knives, scrapers, arrowpoints, arrowshaft smoothers, and artifacts of bone, horn, and shell. The first three traits suggest southeastern influences coming perhaps from the lower Mississippi, and lead to the general impression that the prehistoric culture represented at Minneapolis 1 is fundamentally derived from the same early base as the two great prehistoric patterns of Nebraska, viz., the Upper Republican and the Nebraska Cultures. Many of the minor constituents above mentioned are likewise shared by all three patterns, notably end scrapers, small arrowpoints in contrast to heavy stemmed forms, boat-shaped shaft smoothers, bone fishhooks, awls, scapula hoes, horn "flakers," and perhaps some types of shell work. A number of these traits are general to the Plains area; others occur in the Plains as well as elsewhere, though they are not essentially south-

²¹See pp. 204-205, also Strong, 1933, p. 279.

eastern. Polished celts, stone elbow pipes, bone fishhooks and scapula hoes recall the eastern and southeastern United States; metates and manos may be puebloan.

In addition to the above resemblances between Minneapolis 1 and the Upper Republican remains, there are noteworthy dissimilarities. As already pointed out, the rectangular earthlodge was common to both; in Nebraska, however, it was always semisubterranean whereas on the Solomon it was a surface structure. Ceramically, Minneapolis 1 differs in the presence of shell, bone, and sherd (in addition to gravel) tempering, in a much smaller proportion of collared rims, in absence of incised rim decoration, in frequent use of handles, and in presence of bowls. Some, at least, of these traits may have been due to the influence of other pottery traditions in eastern and southern Kansas. Polished celts, abundant in the Woodlands from Missouri eastward, are much more numerous on the Solomon than in Nebraska. Metates and manos, common at Minneapolis 1, have been seen by the writer in collections from northeastern as well as central Kansas, but are practically unknown in most of Nebraska. They are one of the very few archaeological traits in the area which may be of southwestern derivation, though not necessarily so.

In the overwhelming majority of elements, there is thus a close correspondence between Minneapolis 1 and the Upper Republican culture—a closer correspondence, it may be added, than between Minneapolis 1 and any other known prehistoric complex in Nebraska or Kansas. Such differences as exist can be attributed to intrinsic local variations, to extraneous influences which affected one or the other but not both patterns, or, as seems more likely, to a difference in time between the two. On the whole, the lower Solomon may be considered as genetically, the upper Solomon as specifically, related to the Upper Republican culture. Pottery, here as elsewhere the most sensitive register of specific relationships, shows that west of Cawker City the peoples on the Solomon were in direct and intimate contact with those in the Republican valley thirty miles to the north. Below this point, there were apparently no direct contacts but rather some divergences. Upper Republican pottery, as pointed out previously, is highly distinctive and can be readily distinguished from other wares in the region. At Minneapolis 1, not a single sherd was found which could be attributed to trade with the Republican river peoples. In a culture as widespread as the Upper Republican, it is difficult to see why there were no trade connections with the lower Solomon as there seem to have been with the upper. The most logical explanation at present would seem to be that the lower Solomon and Upper Republican peoples were not contemporaneous. Furthermore, since the latter appears to be directly ancestral to known historical peoples (Pawnee and Arikara) whereas the former does not, it is probable that the Upper Republican is the more recent of the two. In other words, we are inclined to regard the lower Solomon as an earlier manifesta-

tion of the widespread prehistoric pattern which assumed such a characteristic aspect, ceramically in particular, in the upper Republican and Loup drainages, viz., the Upper Republican culture.

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