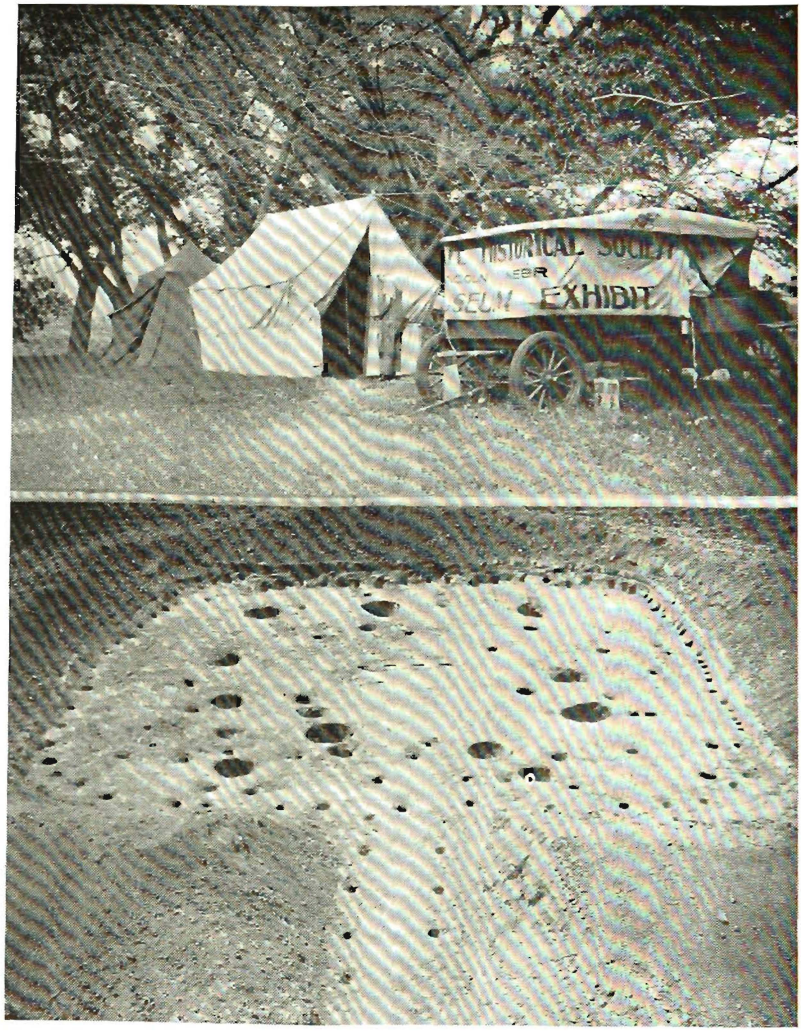

PLATE I

1. Camp of the Nebraska State Historical Society Archeological Survey at the Schrader site.

2. House 1, Schrader site; entrance to the east.

THE SCHRADER SITE

Prehistoric Village in Lancaster County, Nebraska.

By A. T. Hill and Paul Cooper

INTRODUCTION

The eastward extension of the Nebraska State Historical Society Archeological Survey under direction of A. T. Hill, was inaugurated in the spring of 1935 by excavation of three houses in a village about nine miles south of Lincoln on Salt Creek. The stream, composed here of fresh water, flows in a northwest direction through the west edge of Lincoln, where it turns and pursues a general northeasterly course to its confluence with the Platte near Ashland. Owing to the high salt content of the surface water in and below the vicinity of its junction with Little Salt Creek, the lower course of Salt Creek is markedly saline. That this source of salt constituted an attraction to the aboriginal inhabitants of the region is attested by recorded Omaha tradition and the testimony of an early explorer. Both Dorsey[1] and Fletcher and LaFlesche[2] state that the Omaha gathered the salt which had been deposited on the banks of Salt Creek near Lincoln. DeVilliers[3] quotes a document which he ascribes to Bourgmond and dates about 1717 to the effect that the Otoe lived ten leagues above the mouth of the Platte on the banks of a small saline stream from which they made salt. It seems only reasonable to suppose that this salt supply had been utilized for some time prior to white contact. Whether the peculiar character of the locality's surface water was a factor in the establishment of villages nearby is, of course, uncertain, but aboriginal occupation sites in the area are rather numerous. Within ten miles of Lincoln the Historical Society Survey has definitely located five and numerous others have been reported. The area, however, despite its relative isolation from the larger water courses, would be generally favorable for habitation by horticultural and hunting people. The topography is rolling or moderately hilly with excellent drainage, and perennial streams are frequent. Four types of soil characterize the surface, but two of these have such a limited distribution that they need not be considered. The uplands are composed mainly of Marshall silt loam, derived by weathering from loess deposits, which is an easily worked

[1] 1884, p. 309.
[2] 1911, p. 342.
[3] 1925, p. 61.

soil well adapted to the growth of corn. The most satisfac tory soil from the standpoint of primitive horticulture, however, is the Wabash silt loam which covers the bottom lands; it has a high organic content and retains moisture well.[4] Timber is confined mainly to the areas near the streams, and consists principally of willow, box elder, elm, walnut, ash and cottonwood.

The Schrader site—so named because it occurs on the land of J. F. Schrader, to whom thanks are due for permission to excavate—is situated on the gradual slope and the edge of the table land above the west bank of Salt Creek, whose channel is at this point about ten feet wide and approximately fifteen feet below the valley floor. Despite its rapid fall and consequent deep cutting, the stream pursues a winding course, which has altered considerably in the past: an abandoned channel skirts the foot of the slope on which part of the village stood. While the number of houses is of course unknown, the area of occupation is rather extensive, comprising approximately fifteen acres. Test trenches readily revealed the presence of houses, for the fill here was of a rich black nature, easily distinguished from the natural soil. In accord with the Survey's policy of excavating as many sites as possible consistent with careful work, time was taken to locate definitely only four houses, but many more must exist.

The only previous observations at this site were made by Blackman in 1901, when he reported it as "an ancient camp site which embraces a number of small camps scattered with pot-shards and chipped flints".[5] It was his belief that lodge sites were lacking. As far as is known, there was no excavation until the spring of 1935.

That the occupation here was confined to one continuous period cannot be positively asserted on the basis of our present data, but the nature of all the houses excavated and the material recovered from them indicate that a single culture complex is represented. The principal features of the houses were constant, and there are no significant differences in the artifacts from the three excavations. As far as the evidence of the observable traits is concerned, the three lodges may have been inhabited simultaneously. The materials from the different excavation units were lumped together for common analysis and description only after detailed comparison had established their uniformity.

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[4]Burgess and Worthen, 1908, pp. 943-62.
[5]Blackman, 1902, p. 296.

HOUSE 1

House 1 lay on a gradual southeast slope approximately 125 yards from the banks of Salt Creek, and an equal distance from the crest of the hill on whose slope it was situated. It was nearly square, with rounding corners; the two dimensions were 40 feet and 41.5 feet, the greater distance being from east to west. The entrance passage, consisting of three opposite pairs of posts and an additional outer post in line with the south row, extended slightly south of east from the east wall of the house. It was 4 feet wide and measured 11 feet from the house wall to the outermost pair of posts. As a result of the slope of the hill the depth of the floor beneath the present surface varied from 24 inches at the west wall to 12 inches at the east wall. The walls of the pit within which the house was constructed sloped to the floor on three sides, but the west wall was relatively perpendicular. The outer row of posts had been set somewhat into the west wall of the pit, as had some of the posts of the north and south sides in the west half of the house; the situation in the east half was uncertain, owing to the fact that cultivation had reached the floor there. The posts were relatively small, with diameters of from 4 to 8 inches, and, while they ranged from 6 to 54 inches apart, the majority were rather closely set. The greater intervals were in the east wall, while the most closely spaced posts were at the north. Approximately on a line between each of the corners and the center of the house were two larger posts which presumably served as roof supports. The outermost four posts were situated from 11.5 to 14 feet from the center of the house, and formed a somewhat asymmetrical quadrangle with sides measuring from 16.5 to 19.5 feet. Within this quadrangle the four other posts, which were somewhat smaller than those just described, were at radii of 8.5 to 9 feet from the house center.[6] Numerous additional post-moulds occurred within the pit, sometimes near the outer row of posts, and never within the portion of the house enclosed by the central roof supports. Presumably at least some of these posts served as supplementary roof supports. One of them was centered at the inner end of the entrance passage. The charred remains of the posts were rather frequently found in situ, and occasionally extended as much as a foot into the fill above the

[6]Double center posts are not uncommon in this area. Dr. L. N. Kunkel, in an unpublished paper "Archaeology of the Weeping Water Valley", reports their occurrence in two houses excavated by him, and they characterize houses in other sites as well.

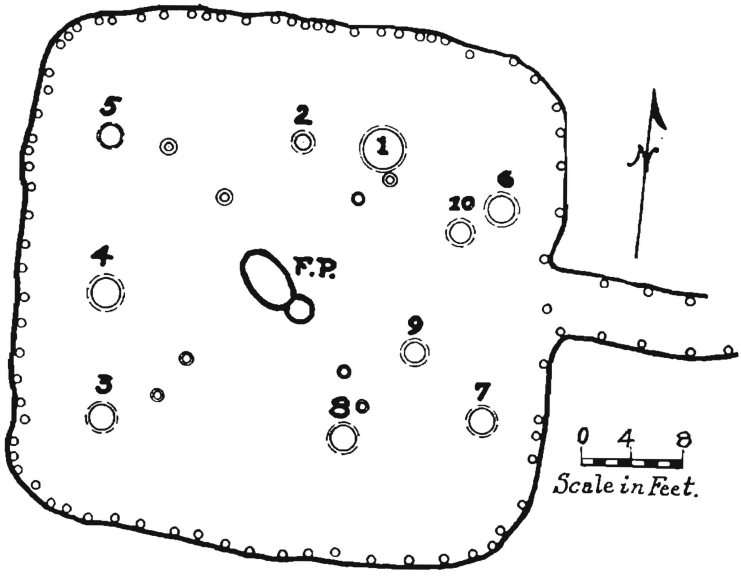

Figure 1. Ground Plan of House 1, Schrader Site. ———, edge of house-pit; o, outer post moulds; double circles, center post moulds; 1-10, cache-pits; F. P., fireplace.

floor. Almost precisely in the center of the house an elliptical area of burned red clay, measuring 46 inches in greatest length along a northwest-southwest line and 42 inches in width, probably represented a fireplace. Immediately to the southeast of this area a basin-shaped fireplace 4 inches deep and 28 inches in diameter contained 3 inches of ashes and was underlain by burned clay. The fill within the pit was unusually black, with the consequence that the outlines of the pit were readily distinguished. The nature of this soil may account to some extent for the extremely poor preservation of the contained bone material. Besides the usual cultural detritus, consisting of fragmentary pottery, stone and bone, charred roof material occurred profusely in the fill, and burned floor areas in the northeast and northwest sections of the house further testify to the action of fire. That the west wall burned last is suggested by the presence on the floor near it of charred posts, whose complete burning was probably prevented by the falling of the earth covering. These posts lay in a general east-west direction, and probably represent uprights from the west wall. That they fell prior to the complete filling of Cache 5 is indicated by the fact that some of them lay partially within the top of

the cache. It is probable that the burning occurred some time subsequent to the abandonment of the house, but of course before there was a general collapse of the roof. Broken pottery and artifacts littered the floor, but complete vessels were lacking. A few charred corn kernels and husks were also found on the floor.

A total of ten cache-pits, all contemporaneous with the house, were present below the floor. They were distributed on all sides of the house, but always outside the quadrangle formed by the outer central roof supports. With the exception of two shallow perpendicular-walled pits, the sides dropped vertically for varying distances and then were undercut to give a cistern or bell shape; both the openings and floors were circular, and the latter were either flat or slightly concave. Top and bottom diameters, the total depth, and the depth at which the vertical walls give way to the sloping walls are given in the accompanying table. The soil within the pits was generally rather ashy and contained bone, stone, and pottery, usually in fragmentary condition; no intentionally cached material of any sort was present. There was no indication that the walls or floors had been lined or prepared in any way; they were apparent during excavation only as lines separating the fill from the undisturbed soil.

TABLE I.—DIMENSIONS OF HOUSE 1 CACHES

No.	Top Diam.	Bottom Diam.	Length of Neck	Depth
1	39 inches	54 inches	20 inches	48 inches
2	28 "	48 "	16 "	40 "
3	33 "	46 "	28 "	56 "
4	36 "	46 "	32 "	52 "
5	28 "	54 "	22 "	54 "
6	26 "	48 "	18 "	43 "
7	29 "	37 "	17 "	34 "
8	28 "	45 "	22 "	46 "
9	46 "	46 "		14 "
10	40 "	40 "		12 "

HOUSE 2

House 2 was situated on the summit of the hill approximately 280 feet northwest of House 1. The floor lay 18 inches below the present surface, at which depth the post moulds were revealed as set immediately within a sloping walled pit 25.5 feet square with rounded corners. Twenty-one posts were set from 30 to 80 inches apart, with an average interval of about 50 inches. Two pairs of posts constituted the roof supports of the entrance passage, which was 4 feet wide and extended 9 feet south-southeast. A slightly elliptical basin-shaped fireplace, 3 inches deep, 32 inches long, and 28

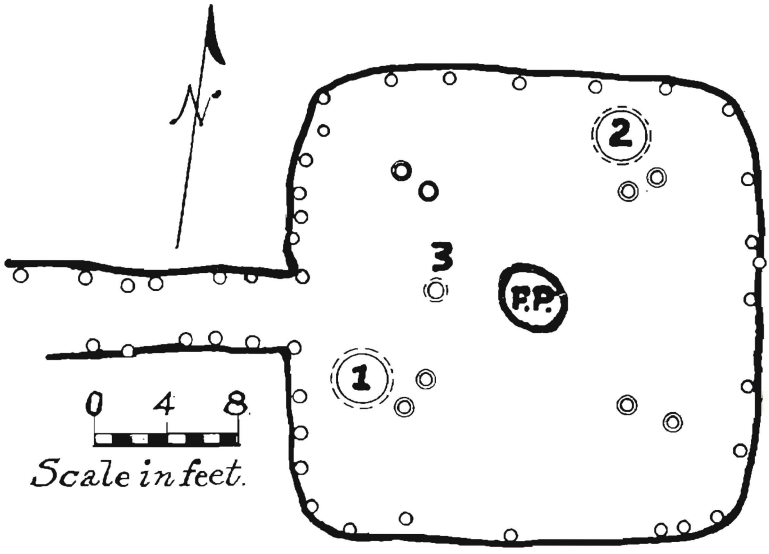

Figure 3. Ground Plan of House 3, Schrader Site. ———, edge of house-pit; o, outer post moulds; double circles, center post moulds; 1-3, cache-pits; F. P., fireplace.

HOUSE 3

House 3, like the others, was square with rounding corners and had eight, rather than the usual four, corner roof support posts. Although, owing to prolonged cultivation, few moulds could be distinguished at the south side and sections of the north wall were indistinct, the east and west walls indicate irregular intervals between posts of 9 to 57 inches. The posts of the entrance passage, which extended 16 feet to the west, were similarly spaced. The elliptical fireplace, centrally located, was 40 inches long and 32 inches wide. The inner group of roof supports were 7 to 8½ feet from the center of the fireplace, the others were at radii of 8½ to 10½ feet. While the floor showed no evidence of burning or other special preparation, it was apparent at a depth of 15 inches below the present surface as the line of demarcation between the undisturbed clay and the overlying refuse-filled soil. Into the otherwise undisturbed zone below the floor were excavated three cache-pits, two of them near the outer walls and the other between the fireplace and the entrance. As is frequently true, the small pit is straight sided, but the two larger ones have the more usual bell shape. Cache 1, near the west wall immediately north of the entrance, had di-

ameters of 38 inches at the top and 66 inches at the bottom, and was 60 inches deep. Cache 2, 36 inches across the mouth, 39 inches across the bottom, and 40 inches deep, was near the northeast corner. Located at a distance of but 30 inches from the fireplace, Cache 3 had a diameter of 14 inches and a depth of 24 inches. As in the other houses, none of the pits had prepared walls or floor, and intentional caches of material were lacking. The artifacts from the cache-pits, as well as those from the floor and the fill above the floor, appeared to be accidental inclusions in the general refuse.

POTTERY

Among the artifacts recovered from the houses of this site, pottery is by far the most abundant. Although complete or restorable vessels number only four, of which two are miniature pots, the ceramic complex is represented by 3014 fragments, of which number 334 are rim sherds and 2671 are body sherds. The fragmentary pottery, like the other artifacts encountered in the excavation of the site, comprised part of the refuse filling abandoned cache-pits and occurring directly on the house floors or mingled with the fallen roof material. Partly because of its detrital nature, a large proportion of the sherds are very small, and thus give us little information regarding the form and dimensions of the vessels they represent.

Although the paste of which this pottery is composed is not remarkable for uniformity, the range of variation is not wide. It is preponderantly rather compact, and, while a small proportion tends toward a slightly granular structure, a flaky tendency is much more characteristic. The granular structure correlates with a marked abundance of coarse tempering. The tempering material is composed, with very few exceptions, of crushed rock. Sand occurs rarely, 167 sherds contain cells from which crushed shell has probably been leached, and very rare pot-sherd fragments have been noted in otherwise grit-tempered paste. The tempering material varies in size from very small to rather large and in amount from very sparse to very abundant, but in both respects the majority of sherds are intermediate. There is little variability in hardness. Of the rather large number of specimens tested, none was found to be softer than 2 (gypsum) or harder than 3 (calcite). The large proportion of the grit-tempered pottery is very slightly softer than 3, while that with cell-tempering approximates a hardness of 2.

Variations in the firing of the pottery have resulted in a rather notable lack of uniformity in color. While the paste

is in the main dark gray or black, the surfaces range from gray to bright orange-red, and considerable variation even on a single vessel is common. The predominating color of the exterior surfaces, however, is a dirty buff, while interior surfaces are more often gray. The surface color is also apparent in a cross-section of the pottery to a depth varying apparently with the intensity or duration of firing, but this usually consists of a thin line adjacent to the surface. The exterior surfaces are frequently discolored by smoke.

A cord-wrapped paddle has been commonly applied to the exterior surface of the vessel, after which the cord-markings have been obliterated to varying degrees by smoothing either with the hands or with an implement. Of 2803 sherds, 1719 exhibit the vestiges of cord-markings. In view of the small size of many of the sherds and the fact that considerable areas of many pots have been so thoroughly smoothed that cord-markings have been entirely obliterated, the proportion originally paddled may be much larger than these numbers indicate. The smoothing has often been carelessly done, with the result that both exterior and interior surfaces are irregular and bear the striations of the implement used. A wash applied to the surface of vessels prior to firing is indicated by a number of sherds. In some cases this wash, usually dark brown in color, has scaled partially off, exposing an underlying surface on which the tempering material outcrops. Where this treatment occurs on cord-marked sherds, the wash seems to have been applied subsequent to the paddling and smoothing.

The variation in the thickness of sherds is not great. The measurement of a random sample of 231 sherds indicates a range of from 3 mm. to 10 mm. (1/8 to 13/32 inch). 216 are between 4 mm. (5/32 inch) and 8 mm. (5/16 inch) while thicknesses of 5 and 6 mm. (3/16 to 1/4 inch) are represented by 125. In general, there seems to be no portion of the vessel which is consistently thicker than the rest. Although some vessels are thickened somewhat at the neck and the immediately adjacent shoulder region, this is by no means the rule.

As has been previously stated, our knowledge of the pottery shapes has been necessarily derived mainly from a very few restorable vessels and large sherds, supplemented by a large collection of very small sherds. These data indicate that the typical vessel was invariably round at the mouth and in horizontal section, had a constricted neck, rounded shoulder, and rounded base. The only exceptions to this general form

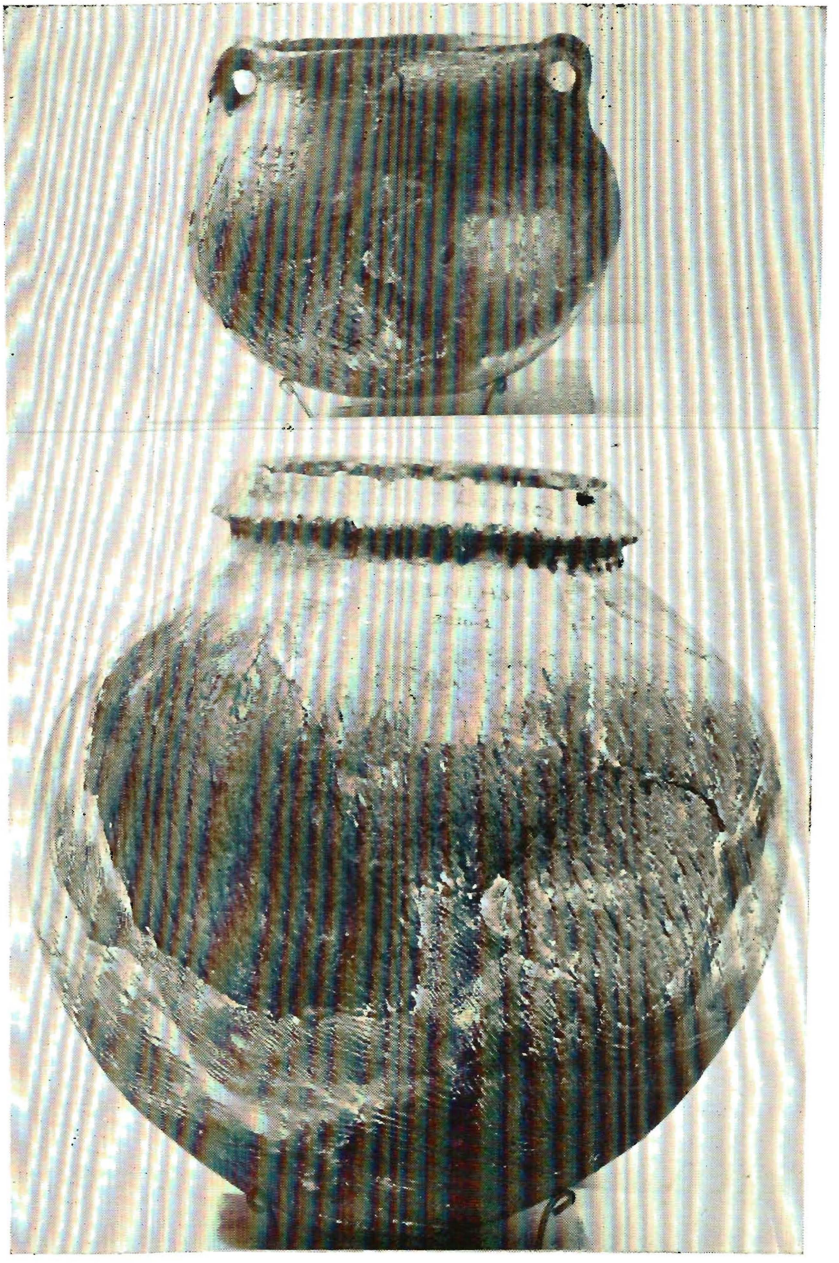

PLATE III

1. Restored pot from House 3, Schrader site; height, 170 mm. (6¾ inches); greatest diameter, 202 mm. (8 inches).

2. Restored pot from House 3, Schrader site; height, about 320 mm. (12½ inches); greatest diameter, 320 mm. (12½ inches).

seem to be represented by a few cell-tempered sherds, some of which indicate a straight-sided bowl and others a pot with angular shoulder, flattened upper body, and with rim either very low or lacking. Extremely large vessels are lacking, and small to medium sized pots appear to be the rule. Miniature pots are represented by a rather large number of sherds, and are globular, with constricted necks and flaring rims.

Two disparate types of rim occur. The first, designated as Form A, comprises approximately 78% of the total collection of rim sherds (Figure 4, a-e). Characteristically it flares in a gradual curve from the constricted neck to a lip which is usually simply rounded, but occasionally is thickened, narrowed or flattened. In but ten instances it flares in a straight line from neck to lip, while vertical rims are entirely lacking. The degree of flare may be expressed in terms of the angle between the perpendicular and a straight line from the neck to the lip. The total range is from 7° to 57°, but the specimens representing the extremes are few. 82% of those sherds sufficiently complete to be measurable fall between 20° and 44° from the perpendicular; the mean angle is 32°. The height of rims of this type varies from 6mm. to 36 mm. (¼ to 1 7/16 inches), but the higher ones are rare. Of the measurable fragments, 96% are between 6 and 25 mm. (¼ to 1 inch), and 68% are between 11 and 20 mm. (7/16 to 13/16 inch) high; the mean height is approximately 16 mm. (5/8 inch).

Form B rims (Figure 4, f-j), which constitute approximately 22% of the total, are characterized by thickening which creates a collared appearance. Both interior and exterior profiles are rather variable. The interior profile varies as follows: a continuous curving flare to the lip, 32%; vertical, 13%; a flare to the point of greatest rim thickness or higher and then a recurving toward the interior of the vessel, 55%. In profile the exterior of the rim between the lip and the point of greatest thickness may be concave, straight or convex, but the majority fall into the last category. The height of these rims ranges from 20 to 44 mm. (13/16 to 1¾ inches), but a large proportion vary little from the mean height, which is approximately 30 mm. (1 3/16 inches).

Decoration is not an impressive feature of this pottery. With the exception of a few definitely atypical specimens to be described later, body decoration is lacking, while rim decoration is in general rather carelessly executed. Techniques are confined to incising and, less commonly, impressing. Modeled and painted ornamentation does not occur.

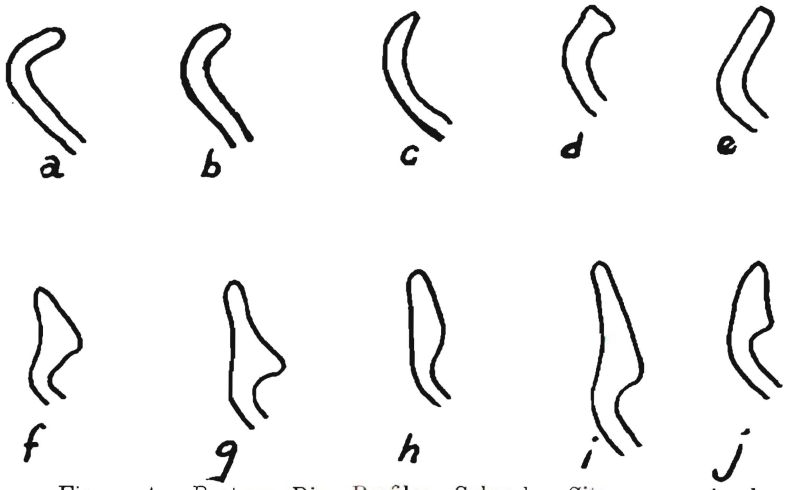

Figure 4. Pottery Rim Profiles, Schrader Site. a-e, simple flaring rim (Form A); f-j, collared rims (Form B). Inside surface of rim to left.

Incised lines vary from shallow and fine to wide and deep, but the majority tend toward the latter characteristics.

Of the Form A rims, approximately 58% are undecorated, while the remainder are decorated either on the lip or the exterior rim at its juncture with the lip. 62% of the decoration is on the lip alone, and 38% is on the exterior rim alone; no single specimen is decorated on both areas. Lip treatment consists usually of incised rectilinear designs, the most common of which are parallel diagonal and diagonal cross-hatched lines. Incised zigzag lines are less frequent, as are impressed diagonal lines and punctations. Decoration on the exterior rim is invariably a scalloped effect achieved by a series of notches made in the wet clay with the fingernail.

One treatment is almost invariably present on Form B rims, namely the scalloping of the lower margin of the collar by notching with the nail and occasionally pinching the resulting nodules between the fingers. While only one specimen lacks this element, other modes of decoration are rare. Incised or impressed diagonal lines occur on the lips of but 20% of the rims; otherwise the lip is left plain. In only three instances the exterior surface of the rim between the lip and the lower margin of the collar has been incised. The designs consist of cross-hatching and groups of diagonal lines alternating in direction to form triangular units. This

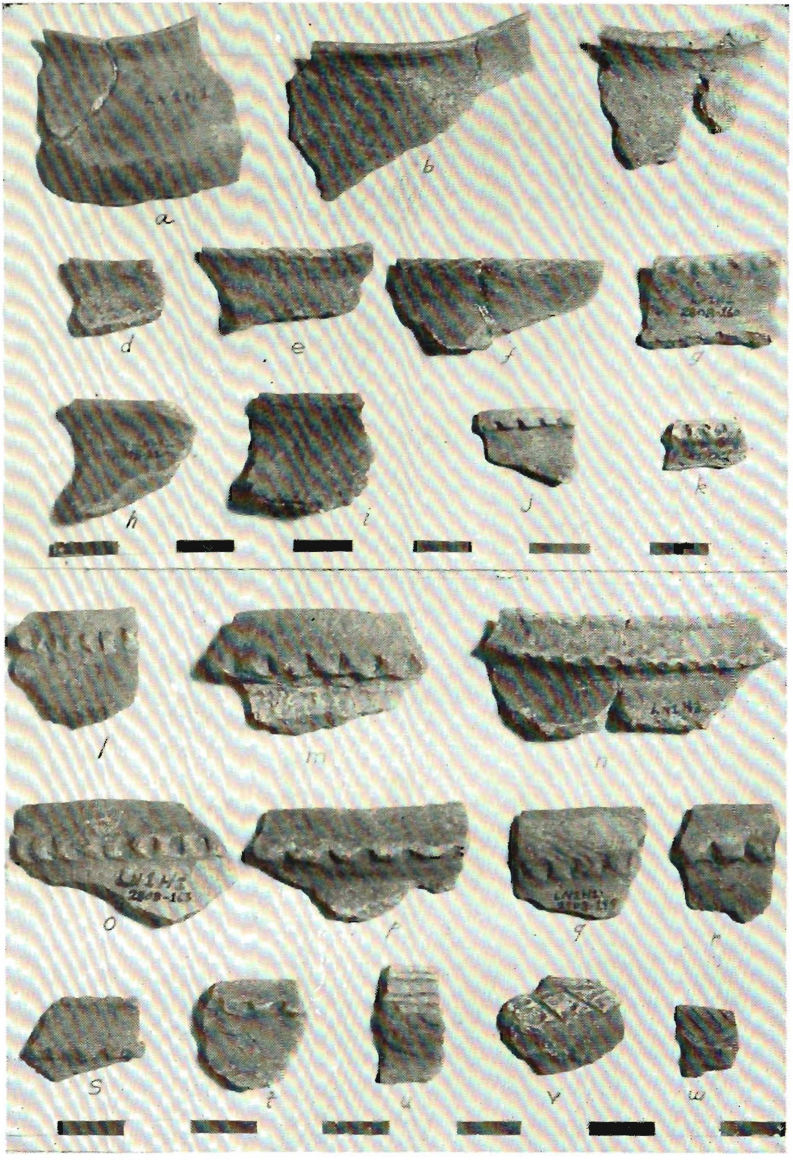

PLATE IV

Rimsherds, Schrader site. a-k, simple flaring rims (Form A); l-w, collared rims (Form B).

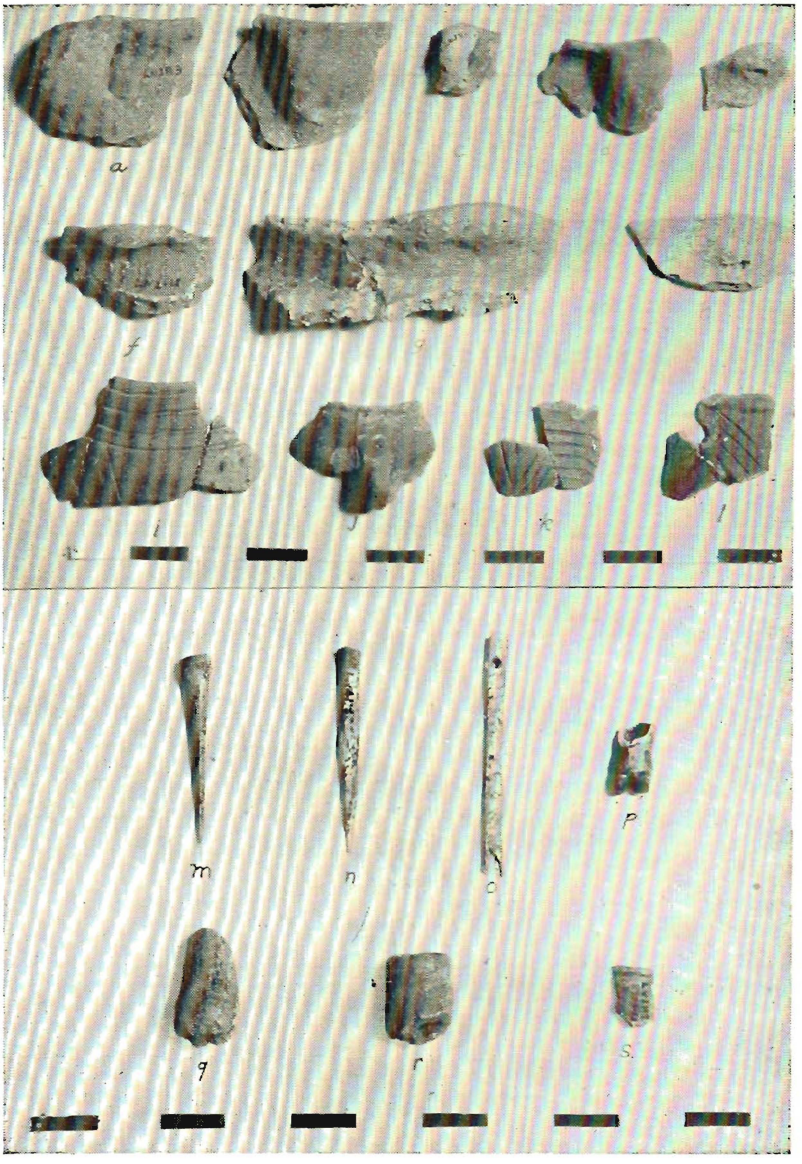

PLATE V

Pottery and bone artifacts, Schrader site. a-l, handles, lugs and sherds with body decoration; m-p, bone artifacts; q-s, pottery pipes.

upper body immediately below the lip, and beneath the lowest line punctations are arranged within panels formed by incised lines.

Pipes, which are represented by three fragments, are made exclusively of pottery clay. The small size of the two bowl fragments and the stem fragment make the shape of the complete specimens uncertain, but at least two of them are from either obtuse-angled elbow or curved tubular pipes.

WORK IN STONE

Artifacts of stone from this site are not numerous and the range of forms is limited; this is especially true of objects of ground stone. Furthermore, no forms occur which distinguish the culture of this village from that of any of the sedentary horticulture peoples thus far known in Nebraska. All forms found here occur universally in the earth-lodge villages thus far excavated in this state.

Ground celts number only four, and of these two are fragments. One of the complete specimens is made of an impure limestone roughly battered into shape and ground near the bit only. The other three specimens are made from a basaltic rock, and are carefully pecked into shape. They have a curving bit and are oval in cross-section, and the complete celt, which is pecked over all but ground only on the bit half, tapers to a narrow rounded butt.

Fifty-two fragments of Dakota sandstone have been utilized for abrading purposes. Most of them bear varying numbers of irregular grooves, which have possibly served in sharpening awls. While some of these are rough unshaped fragments, others are probably re-used fragments of former arrowshaft smoothers,[7] for they appear to be parts of boat-shaped forms and occasionally retain vestiges of smooth shallow grooves. One piece shows the grooves created in order to break it from a larger boat-shaped stone. Other small fragments have flat or slightly convex or concave surfaces which have been used for grinding or polishing.

Pecking stones are invariably water-worn pebbles, whose use for this purpose is indicated only by the battered condition of their ends. Rarely there is a flattened surface which has probably been used for grinding.

[7]Specimens of this type, as well as an arrowshaft straightener made from the scapula probably of a cow, were secured by the senior writer from Chief Crazy Bear, a Yankton Sioux who was using them in the construction of arrows for sale; they are now in the Hill collection at the State Historical Society Museum in Lincoln. See also LaFlesche, 1924, p. 113, for a description of their use.

A number of hematite fragments bear marks which appear to be the result of removing portions, presumably for paint. A few fragments of limonite were possibly intended to serve the same function, but they are without any tool marks.

Although no artifacts of catlinite were encountered, a few small fragments apparently of this material exhibit the results of cutting and slight polishing.

Among the chipped stone artifacts projectile points are the most abundant. Of the thirty-one specimens, twenty-nine are classified as arrow points, all triangular. Plain triangular and notched points are represented in approximately equal numbers; there are eleven unnotched and thirteen notched points. The forms represented and their frequency are indicated in the following table:

Triangular, unnotched, straight base (NBa)	10
Triangular, unnotched, convex base (NBc)	1
Triangular, straight-base, 2 side notches (NBa1)	2
Triangular, straight-base, 2 side notches, base notch (NBa2)	1
Triangular, straight base, 4 side notches, base notch (NBa3)	1
Triangular, straight base, 4 side nothes (NBa4)	4
Triangular, concave base, 2 side notches (NBb1)	4
Triangular, concave base, 4 side notches, base notch (NBb3)	1
Indeterminate	5
Total	29

The size of points correlates to some extent with their form. Although there is overlapping, the plain triangular are in general larger than the notched types. The notched points range in length from 21 mm. to 36 mm. (12/16 to 1 7/16 inches), with three specimens exceeding 30 mm. (1 3/16 inches), while the lengths of the unnotched points range from 28 mm. to 55 mm. (1 1/8 to 2 3/16 inches), and only one specimen is shorter than 35 mm. (1 3/8 inches). Thus, while this class of artifact is usually rather well made and the form is triangular, a rather heavy point is the rule, and the small finely chipped triangular points so characteristic of protohistoric and historic cultures of the area are lacking.

Two larger points, too large and heavy for use on arrow shafts, are classified as lance heads. One, measuring 95 mm. (3 3/4 inches) in length by 36 mm. (1 7/16 inches) in width, is triangular with a straight base and two side notches; the other, which is 59 mm. (2 5/16 inches) long and 31 mm. (1 1/4 inches) wide, is leaf-shaped with a straight base.

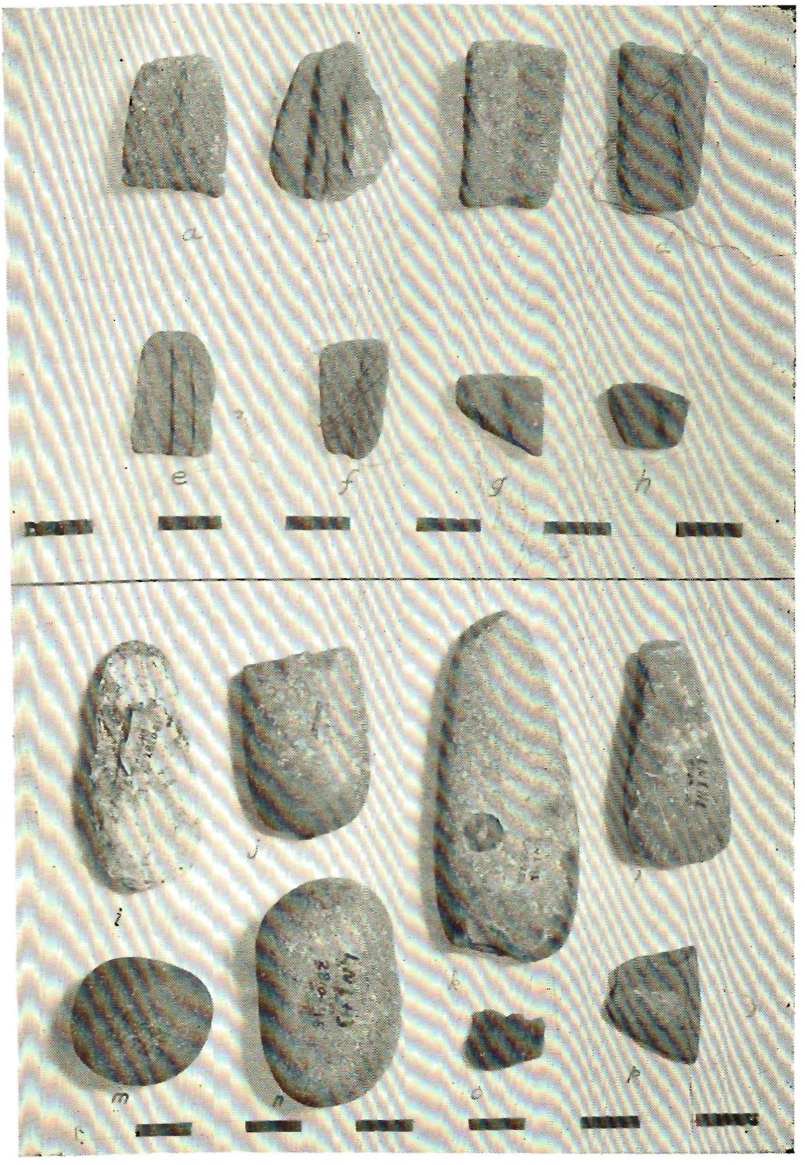

PLATE VI

Ground stone artifacts, Schrader site. a-h, Dakota sandstone abraders; i-l, celts; m, n, hammerstones; o, hematite fragment; p, catlinite fragment.

Projectile points are approximately equalled in number by end scrapers, which are represented in the collection by twenty-eight definitely identifiable specimens and probably five other fragments. The ventral surface almost invariably consists of the unretouched original flake surface, and the dorsal surface is characterized, with but two exceptions, by a longitudinal keel created usually by flaking from both edges but occasionally by coarse longitudinal flakes. While their proportions vary, the sides usually taper from the cutting edge to a fairly pointed butt, thus giving a roughly triangular shape to the implement. The variations in size and proportions are indicated by the following dimensions of the twenty-three complete specimens:

No.	Length		Greatest Width	
1	109 mm.	(4 9/32 inches)	32 mm.	(1 1/4 inches)
2	72 "	(2 27/32 ")	26 "	(1 1/32 ")
3	57 "	(2 1/4 ")	25 "	(1 ")
4	57 "	(2 1/4 ")	23 "	(29/32 ")
5	57 "	(2 1/4 ")	27 "	(1 1/16 ")
6	57 "	(2 1/4 ")	22 "	(7/8 ")
7	53 "	(2 3/32 ")	27 "	(1 1/16 ")
8	53 "	(2 3/32 ")	27 "	(1 1/16 ")
9	51 "	(2 ")	25 "	(1 ")
10	49 "	(1 15/16 ")	27 "	(1 1/16 ")
11	48 "	(1 29/32 ")	21 "	(13/16 ")
12	45 "	(1 25/32 ")	26 "	(1 1/32 ")
13	49 "	(1 15/16 ")	21 "	(13/16 ")
14	42 "	(1 21/32 ")	23 "	(29/32 ")
15	39 "	(1 17/32 ")	25 "	(1 ")
16	40 "	(1 9/16 ")	25 "	(1 ")
17	43 "	(1 23/32 ")	25 "	(1 ")
18	42 "	(1 21/32 ")	26 "	(1 1/32 ")
19	42 "	(1 21/32 ")	24 "	(15/16 ")
20	39 "	(1 17/32 ")	21 "	(13/16 ")
21	37 "	(1 7/16 ")	21 "	(13/16 ")
22	35 "	(1 3/8 ")	25 "	(1 ")
23	30 "	(1 3/16 ")	24 "	(15/16 ")

Knives and scrapers are of various types, each of which is represented by rather few specimens. Seven side scrapers, resembling the end scrapers in their unretouched, often concave, ventral surfaces and keeled dorsal surfaces, but differing in that they are long and narrow and pointed or rounded at both ends, vary in length from 35 mm. (1 3/8 inches) to 112 mm. (4 7/16 inches) and in width from 16 mm. to 28

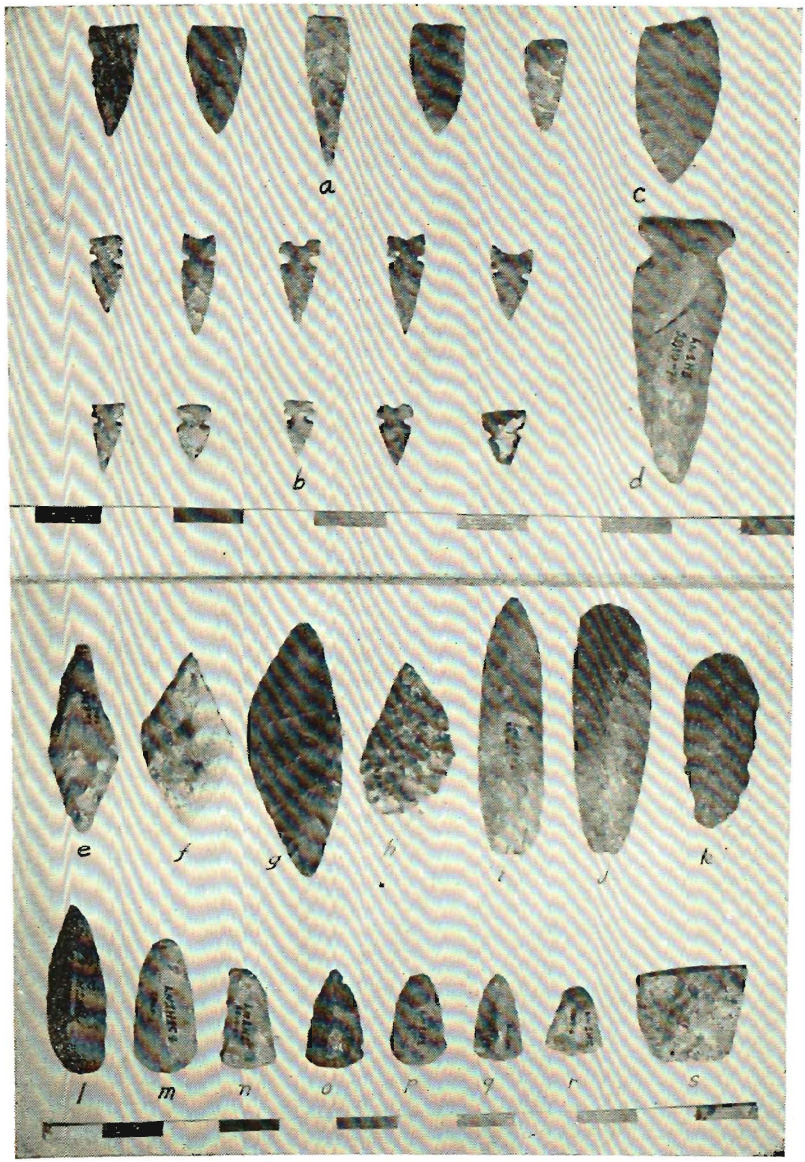

PLATE VII

Chipped flint artifacts, Schrader site. a-d, projectile points; e-s, knives and scrapers.

mm. (5/8 to 1 1/8 inches). The medial ridge or keel may be created either by chipping from each edge or by the removal of longitudinal flakes. Beveled knives are present, but are not numerous, and only two are definitely diamond-shaped. These, as well as three of attenuated form, have adjacent edges beveled in opposite directions. A roughly lunate blade has four beveled edges, as has one which is intermediate between leaf and diamond-shaped. An irregular blade has but two beveled edges, with a third slightly retouched. All of these blades are thin in cross-section and have been chipped on all surfaces. In every case, the edge held away from the user is beveled to the left. A fragment of a parallel-sided knife with a width of 19 mm. (3/4 inch) is worked on both surfaces and has the two edges beveled in opposite directions. Three roughly leaf-shaped blades, worked on both surfaces and retouched all around, are 48, 72 and 74 mm. (1 7/8, 2 27/32, and 2 15/16 inches) long respectively. A fragment of a sub-rectangular blade, 48 mm. (1 7/8 inches) wide and of unknown length, is well worked over all and is thin and lenticular in cross-section. All the remaining knives or scrapers are retouched on the edges only, and of these, four are long, relatively parallel-sided flakes. Numerous unshaped irregular flakes have been adapted to some use by slight retouching of one or more of the edges.

WORK IN BONE

Bone, both worked and unworked, was very rare in the soil of this site, and the small amount which occurred was very fragmentary and friable. The very poor preservation of the specimens found suggests that bone may have constituted a much more important part of the complex than its meager representation would indicate.

The presence of the bison scapula hoe is indicated by three small fragments, from which only some of the characteristics of the complete implement can be determined. In each case the spinous processes have been removed and ground down, and one fragment which includes a portion of the vertebral margin shows this edge to be sharpened and polished by use, while the adjacent edge bears two worn notches. There is no evidence regarding the treatment of the proximal articulation, a feature in which variation is common in this area.

Two awls made from split metapodial bones, with the butts formed by part of the proximal joint, measure 79 and 85 mm. (3 ½ and 3 3/8 inches) in length. A fragment, similar in all respects except that the distal end has been broken,

is probably also an awl. A pointed canine ulna implement has probably been used as some sort of a graver rather than a perforator, as the shaft has been worked down to a blunt point.

Other bone objects are represented by single specimens. A small cylindrical bead is 15 mm. (19/32 inch) long; the diameter cannot be determined because of its fragmentary nature, but a very slender bone supplied the raw material. A fragment of a small rib (Plate V, o), 8 mm. (5/16 inch) wide, is unworked except near the unbroken end, which bears a slight notch. At a distance of 12 mm. (½ inch) from this end a biconical perforation 5 mm. (3/16 inch) in diameter occurs. The nature of the other end is, of course, unknown. The length of the fragment is 99 mm. (3 7/8 inches). A deer phalangeal bone, illustrated in Plate V, p, has had its proximal joint cut off and has been perforated by grooving through the concave portion of the distal articular surface. A good guess as to its function would seem to be that it served as a piece in the ring and pin game so widely distributed during the historic period.[8] A single canine mandible shows vestiges of red pigment on its surface, but there is no evidence of working.

WORK IN SHELL

Fragments of shell are very rare, and of the few found, none shows any evidence of having been worked. The very poor condition of the fragments leaves open the possibility that shells may originally have been more abundant.

FOOD REMAINS

The data from which can be inferred the food of these people are unfortunately limited, for, as previously stated, all but the most imperishable materials are rare and in poor condition. The small amount of bone material is so poorly preserved that specific identification has been possible for only a few specimens.[9] Among the mammals, the remains of the black-tailed deer (*Odocoileus hemionus*) (Rafinesque)

[8]This game consisted of a varying number of phalangeal bones strung on a thong, at one end of which was fastened a long needle and, among certain tribes of this area, at the other end several loops of glass beads. It occurs, with numerous variations, over a wide range. The specimen described from the Schrader site is identical to pieces of this game in the Nebraska Historical Society collections from the Rosebud Agency. Specimens of this same type collected from the Oglala and Brule Dakota are described and illustrated by Culin, 1907, p. 556.

[9]All identifications by T. M. Stout, Nebraska State Museum, University of Nebraska, Lincoln.

were most numerous, but bison bones (*Bison bison*) (Linnæus) were also rather common. The only other bones of this class which were even tentatively identifiable were probably those of the wolf (*Canis nubilus*) (Say). Two species of birds, neither identifiable, were also represented by a few bones, but fish remains were entirely absent, and molluscan remains consisted only of a very few fragments of shell.

Although agriculture must have been rather extensively practiced, the only vegetal remains present at the time of our excavation were a few charred kernels of corn which lay on the floor of House 1. The few species of plants and animals found in the excavation certainly represent a very small fraction of those used as food by the inhabitants of this village, and future excavation may expand the list.

SUMMARY AND CONCLUSIONS

The excavations of the Nebraska State Historical Society at the Schrader site was the first prosecuted in the immediate vicinity, although numerous sites to the north, east, and west had been previously investigated. Data on three houses, relatively large quantities of fragmentary pottery, and a presumably fair sample of work in stone were collected, but, probably owing to the acid nature of the soil, objects of bone and shell were very rare. The scarcity of bone artifacts is especially regrettable in view of the fact that such objects are as a rule well represented in the components with which this manifestation must be compared. While of course all the material culture of a group is never available to the archeologist, it is very desirable that analagous phases of the cultures being compared should be represented in their proper proportions. If, however, the absence of bone at the time of excavation denotes a corresponding lack of bone utilization by the group, comparison on the basis of traits now present is obviously justified. The latter situation is highly improbable and it seems almost certain that objects made from bone constituted a much more important part of this group's material culture than is indicated by the few specimens which have survived the destructive action of ground water.

Wedel and the present senior writer have previously suggested, on the basis of a preliminary study of the artifacts, that a culture hybrid between the upper Republican

and Nebraska aspects is represented here.[10] More detailed analysis of the complex represented confirms this conclusion. While the mechanisms by which the admixture of traits was accomplished are not clear, elements characteristic of both cultural divisions are present in this component. That a true amalgamation rather than a simple importation of foreign artifacts occurred is indicated by the manner in which various elements, particularly of the pottery, are blended. Previous mention of the occurrence together of Nebraska Culture and Upper Republican Culture traits is not lacking[11] but usually the situation has been described as an Upper Republican intrusion into Nebraska aspect sites.[12] In the present case, however, we can point to no aberrant traits, for the elements which appear to derive from different sources have been combined to constitute a single cultural pattern.

The house type and, in the main, the stone and bone artifacts occurring here are equally characteristic of the two major patterns considered, although there is a single exception which may be significant. Although the same general types of projectile points occur in sites of both aspects, the proportions seem consistently to differ. Plain triangular points predominate in Nebraska Culture sites and notched points are decidedly in the minority, but Upper Republican sites usually yield approximately equal proportions of the two types. The latter situation is also true of the Schrader component. It is mainly to the pottery, however, that we must look for light on the relationships of this cultural manifestation. The general nature of the paste, the occasional use of shell and sherds as tempering material, the predominance of buff surfaces, the general form, and the presence of handles and lugs are traits characteristic of the pattern common along the Missouri. On the other hand, collared rims point to an Upper Republican influence, but they constitute only 22% of the rim sherds, a much smaller proportion than occurs in sites of the latter culture, and are almost invariably undecorated except for scalloping on the lower margin of the collar and cord-paddle impressions. The proportion of

[10]Hill and Wedel, 1936, p. 3.

[11]Hill and Wedel, 1936, pp. 32,34,69; Strong 1935, pp. 173, 181, 287.

[12]That more or less pure Upper Republican sites may occur as far east as the Missouri River is suggested by the reported presence in the valley of Weeping Water Creek of houses yielding a majority of collared vessels, Kunkel, no date.

vessel bodies which have been cord-marked corresponds more closely with that for Upper Republican pottery, but subsequent smoothing is more frequent and thorough than is usual in that ceramic complex. The unthickened rims and lips bear incised decoration more frequently than do those of usual Nebraska Culture pottery, and in this respect there is a marked similarity to the Upper Republican. The presence of pottery pipes and the complete absence of stone pipes, however, point to a stronger influence by the former, and the abundance of miniature pots tends to corroborate this. From the foregoing it appears that the more fundamental characteristics are those typifying the Nebraska Culture, and that in some details Upper Republican influence is apparent. The obvious inference is that into a basically Nebraska aspect pattern have been incorporated a number of elements from the other aspect.

This sort of culture fusion is not uncommon in our area. In 1934 the Nebraska State Historical Society excavated in a village site near Minneapolis, Kansas, the pottery from which is similar in a number of respects to that from the Schrader site.[13] Such similarities include general form, color, the occurence of shell and pot sherds as tempering material, the presence of loop handles, and the same proportion of collared rims, which are decorated only by scalloping of the lower margin of the collar and by cord-paddle impressions. Along the Missouri River in southwestern Iowa predominantly Nebraska Culture pottery which includes some collared rims has been found on the surface. Keyes has ascribed it, as well as the house-pits and burial mounds in the vicinity, to a single culture complex, which he has designated the Glenwood Culture. Inasmuch as no excavation has been done, it is not certain that a single complex is represented, and but a single general report even of the surface finds is available;[14] nevertheless, the possibility that a manifestation similar to that at the Schrader site may be encountered there suggests itself. Investigations up to the present time have served to reveal the complexity of cultural contact and interplay in the prehistoric plains, but much more excavation will be required to elucidate the problems raised. The identity of the people who left traces of their hybridized culture at the Schrader site, and their temporal relations to other sites of the region are problems whose solution remain for the future.

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[13]Wedel, 1935, pp. 225 ff.
[14]Strong, 1935, p. 287.

LIST OF TRAITS

Pottery

1. Grit tempering—94.5%. Sand rare.
2. Size of tempering varies, but usually medium.
3. Tempering material usually abundant.
4. Shell tempering—5.5%.
5. Potsherd fragments occur very rarely.
6. Hardness between 2 and 3. A large proportion is slightly less than 3.
7. Shell tempered ware has hardness of about 2.
8. Paste compact, varying from slightly granular to flaky, with the latter common.
9. Exterior surface color ranges from orange-red through light buff to gray. Large majority light buff.
10. Interior surface usually gray, but has same range as exterior.
11. Smoke blackening on exterior surface very common.
12. Color of paste usually dark gray, buff near the exterior surface.
13. Exterior surface of 61.3% of sherds roughened with cord-wrapped paddle, the remainder are smoothed.
14. Paddle-marks usually more or less obliterated by smoothing.
15. Surfaces usually roughly finished, either with the hand or tool.
16. Occasional wash or slip.
17. Mouth and horizontal section of body always round.
18. Constricted neck.
19. Rounded shoulder.
20. Rounded base.
21. Simple straight or flaring rim (Form A)—77.2%.
22. Form A: Nearly always recurving, and vary from slightly to pronouncedly flaring.
23. Form A: Rim height variable, but very low or very high rims rare. Average 15 mm.
24. Form A: Lip treatment variable; rounded, narrowed and rounded, thickened, or flattened. Most are rounded.
25. Form A: Decoration on this type of rim—42.4%.
26. Form A: Decoration on lip—62.4%; on rim exterior immediately adjacent to lip—37.6%.
27. Form A: Lip decoration; incised diagonal cross-hatching, incised or impressed parallel diagnoal lines, incised zigzag lines, and punctations.
28. Form A: Exterior rim decoration—scalloped effect produced by a series of notches made with the nail.
29. Collared rim (Form B)—22.8%.
30. Form B: Height of rims variable, but average 30 mm.

31. Form B: Interior profile of rims varies from flaring to secondary contracting; majority are of latter form.
32. Form B: Exterior profile of rims varies from pronouncedly concave to convex; the majority tend toward the latter.
33. Form B: Lower margin of collar almost invariably scalloped.
34. Form B: Other decoration almost lacking. Incised designs occur on the lip or rim of a very few sherds.
35. Form B: Rim cord-paddle marked in a large number of sherds. Usually more or less smoothed.
36. Thickness of sherds varies from 3 to 10 mm., but most fall between 4 and 8 mm.
37. Vessels usually small to medium in size.
38. Miniature pots numerous.
39. Loop handles occur (not abundantly) on Form A rims only, probably 2 on a vessel.
40. Loop handles most commonly strap-like and attached to lip and shoulder area below the neck.
41. Eared handles very rare.
42. Lugs occur on Form A rims only.
43. Lugs usually tongue-like projections from the lip, occasionally perforated.
44. Incised body, very rare. Occurs only on cell-tempered sherds.
45. Bowls and angular shouldered vessels, very rare; cell-tempered only.
46. Curved tubular or obtuse-angled elbow pipes.

Work in Stone

1. Arrow points triangular; approximately equal number notched and unnotched.
2. Notched points have varying numbers of notches.
3. Lance points side-notched triangular and leaf-shaped with straight base.
4. Beveled knives, either diamond-shaped or not.
5. Keeled end scrapers numerous.
6. Keeled end scrapers—most range from 35 to 57 mm. in length.
7. Keeled side scrapers.
8. Leaf-shaped knives.
9. Sub-rectangular knife.
10. Long flake knives, retouched only on edges.
11. Irregular flakes, retouched on one or more edges.
12. Chipped celt.
13. Ground celts with oval cross-section and narrow rounded butt.
14. Irregularly shaped sandstone abraders with irregular grooves.
15. Arrowshaft smoothers re-used as awl (?) sharpeners.

16. Sandstone abraders with flat or slightly concave surfaces.
17. Pebble pecking stones, occasionally with a flattened surface.
18. Hematite used for paint.
19. Catlinite (?) fragments, occasionally showing tool marks.

Work in Bone

1. Bison scapula hoes.
2. Scapula hoes have notches on margins adjacent to blade.
3. Awls of split metapodial
4. Graver (?) of canine ulna.
5. Small cylindrical bone bead.
6. Deer phalangeal bone, proximal joint removed by transverse cutting, distal joint perforated by grooving the articular surface.
7. Section of small rib grooved and perforated at one end.

Work in Shell

No evidence found.

Houses

1. Semi-subterranean.
2. Outer posts set immediately within the walls of pit.
3. Approximately square with rounded corners.
4. Four pair of central roof support posts.
5. Central fireplace.
6. Interior cache-pits, usually cistern-shaped, but occasionally cylindrical.
7. Entrance passage.

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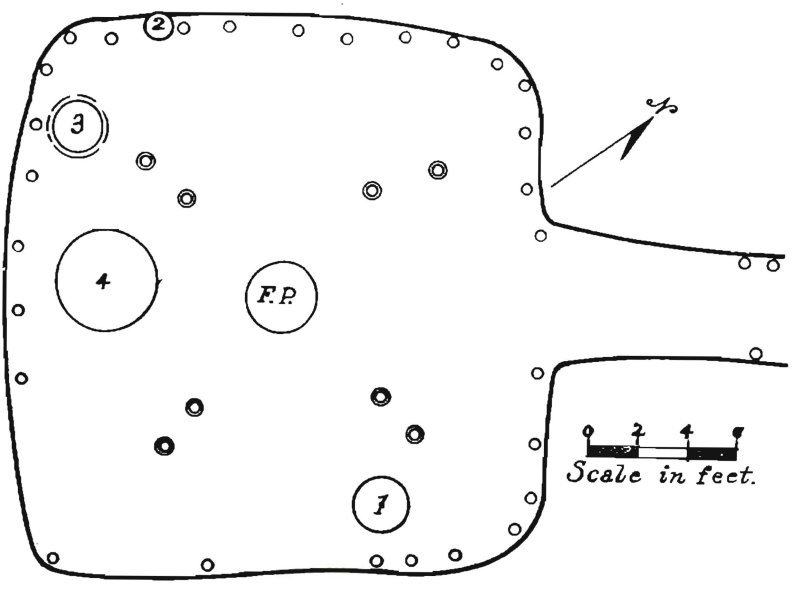

Figure 5. Ground Plan of House 1, Champe Site. ———, edge of house-pit; o, outer post moulds; double circles, center post moulds; 1-3, cache-pits; F. P., fireplace.