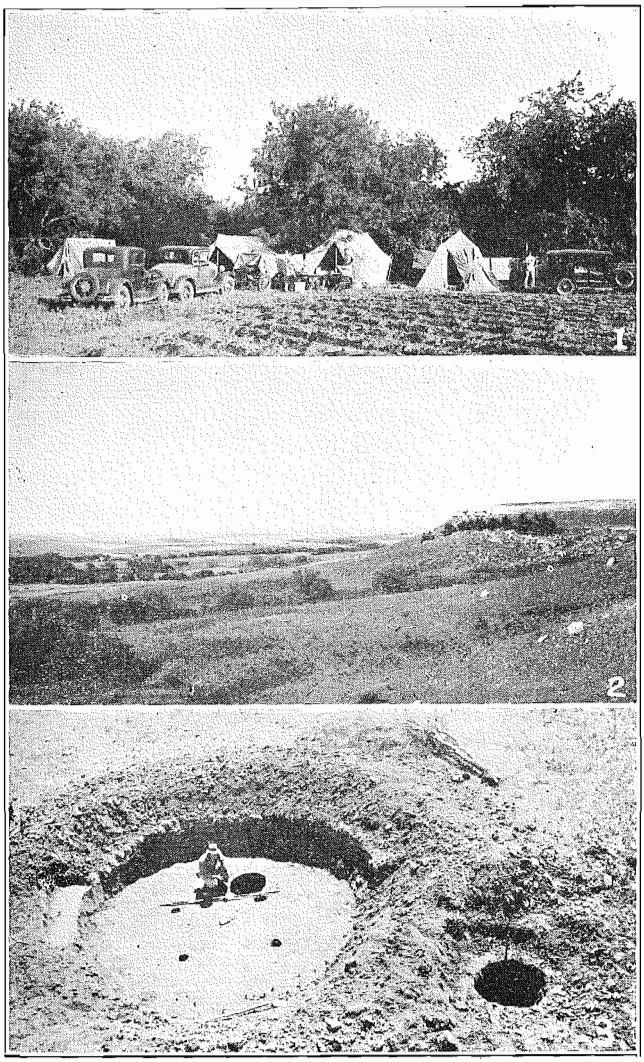


PLATE I

1. Expedition Camp on Lost creek, Holdrege 3.
2. View northward on Reams creek; Republican valley in distance; Lookout Mountain on right.
3. House 1, Superior 2, showing four center postholes, firepit, and one interior cache. Note absence of outer postholes. Cache 36 in lower right corner.

CONTRIBUTIONS TO THE ARCHAEOLOGY OF THE UPPER REPUBLICAN VALLEY, NEBRASKA

Introduction

On May 1, 1934, the Nebraska State Historical Society inaugurated an archaeological survey of Nebraska. Inasmuch as the State University had been carrying on intensive investigations on the Missouri river, it was decided that the Historical Society could most profitably examine the central and southern portions of the state. In a very general way, the framework of Nebraska prehistory had been erected,[1] and it was fairly clear that at least two major cultures existed in the state prior to arrival of Europeans. One was confined largely to the immediate valley of the Missouri; the second was distributed throughout the drainages of the Loup, Platte, and Republican rivers. The latter, as was to be expected from its wide areal spread, showed many local variations. It gave evidence, moreover, of being closely related to the historic Pawnee culture which centered on the Lower Loup and Platte rivers. The program undertaken by the Historical Society was in reality twofold. The first problem was to determine definitely what constituted the pattern in central and southern Nebraska, and whether it remained fundamentally the same throughout its distribution. The second was to ascertain its exact relationship to the historical peoples of the region. These problems were obviously too large to be solved finally in one summer's work. Accordingly, a survey of each of the principal river drainages beginning with the Republican, was decided upon as the logical first step.

The method of this preliminary survey, as exemplified in the present project, was to examine a number of sites at various points along the course of the stream. This included excavation and the collection of a series of representative artifacts. Many more sites might have been visited had the work been confined to gathering of surface remains. This, however, would have resulted in a much less accurate picture of the actual situation. House types, burial customs, and many other traits could be

[1]Strong, 1933, pp. 271-286.

determined only through actual digging. In a few cases surface collections only were practicable. However, in the following discussions, the main reliance has been placed upon those remains which were excavated by us, and whose authenticity is definitely established.

The valley of the Republican in southern Nebraska was selected as the starting point for the Survey. This choice was due in part to the fact that Dr. W. D. Strong, now of the Bureau of American Ethnology, had conducted excavations in the vicinity of Franklin during the summer of 1930, and had tentatively defined the culture typical of the upper Republican valley. Mr. A. T. Hill and the present writer, under the auspices of the Historical Society, had made preliminary investigations in the Medicine valley in 1933. In general, the remains appeared to be quite uniform, and showed definite relationship to many other sites throughout central Nebraska. Since this district was best-known, it seemed the logical place to begin.

The field party was under the direction of Mr. A. T. Hill, Director of Field Archaeology of the Historical Society. His wide acquaintance with archaeological remains in central and southern Nebraska plus a keen appreciation and enthusiasm for the larger problems involved were a primary factor in the successful prosecution of the summer's work. The personnel included, besides the writer, the following: J. C. Samms, Hastings, who acted in the capacity of cook; George F. Lamb, Williams, in charge of the field catalogue; E. C. Harte, Wray, Colorado, artist and cook; John Adams, Curtis, and Laird Wolfe, Red Cloud. In addition to their individual duties, these men comprised the sole working force in all excavations carried on by the expedition.

It is impossible to acknowledge here all of the many courtesies received by the Survey. To the Managing Board and members of the Nebraska State Historical Society are due especial thanks for sponsoring the researches, and particularly for granting a free rein in the choice of areas to be investigated. To each of the following men who permitted excavation on their farms we are indebted, viz., Messrs. Dave Geiger, Guide Rock; J. W. Ramsay, Chas. Henderson, R. Parker, and Ted Hill Bloomington; C. W. Copley, Riverton; Fred Arent, Freedom;

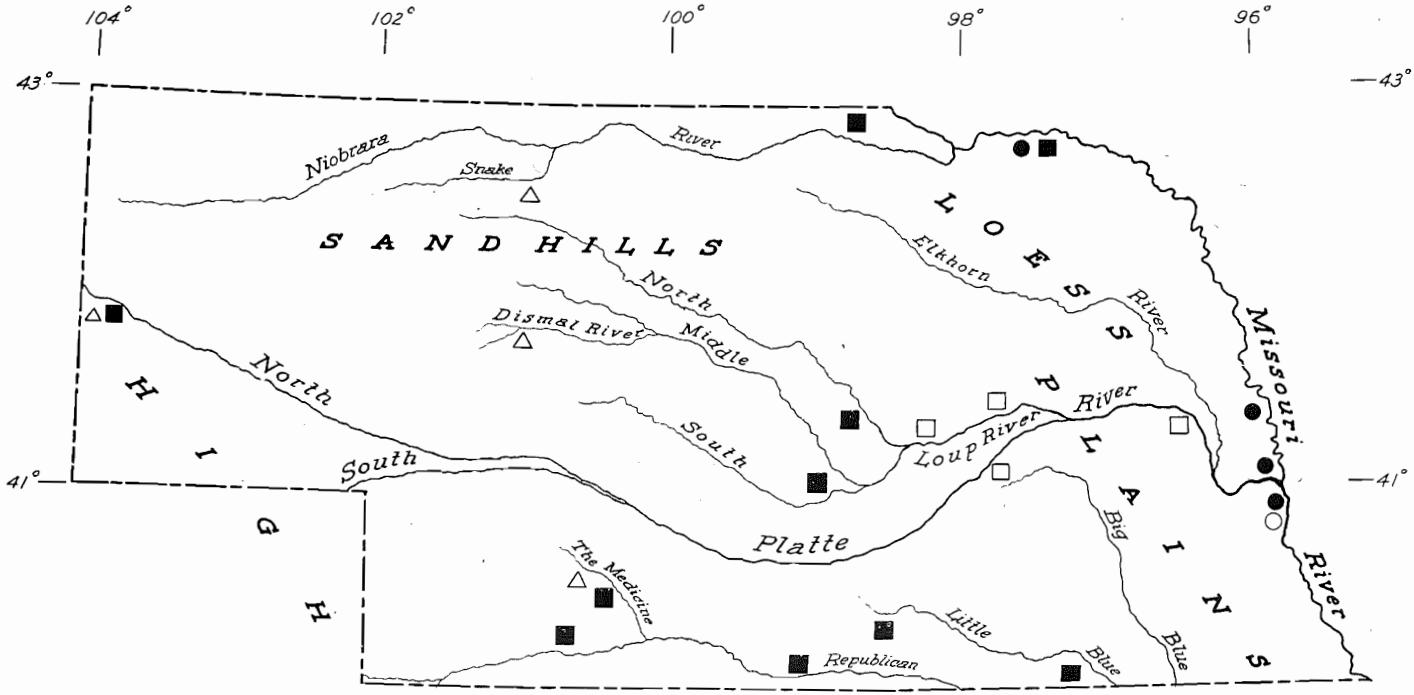
and Martin Rinck, McCook. For assistance in locating sites, we wish to thank Messrs. John Howe, Stockville; F. E. Dillman, McCook; H. D. Strunk, editor of the McCook **Gazette**; and Ralph Douglass, Franklin. To Doctors Robert H. Lowie and Julian H. Steward of the University of California and to Dr. W. D. Strong of the Bureau of American Ethnology, all of whom read the manuscript, the writer is indebted for helpful suggestions and criticisms. To the many persons not named here who helped in one way or another, we extend a word of sincere thanks. The cooperation received on every hand was highly gratifying and contributed in no small measure to the success of the work.

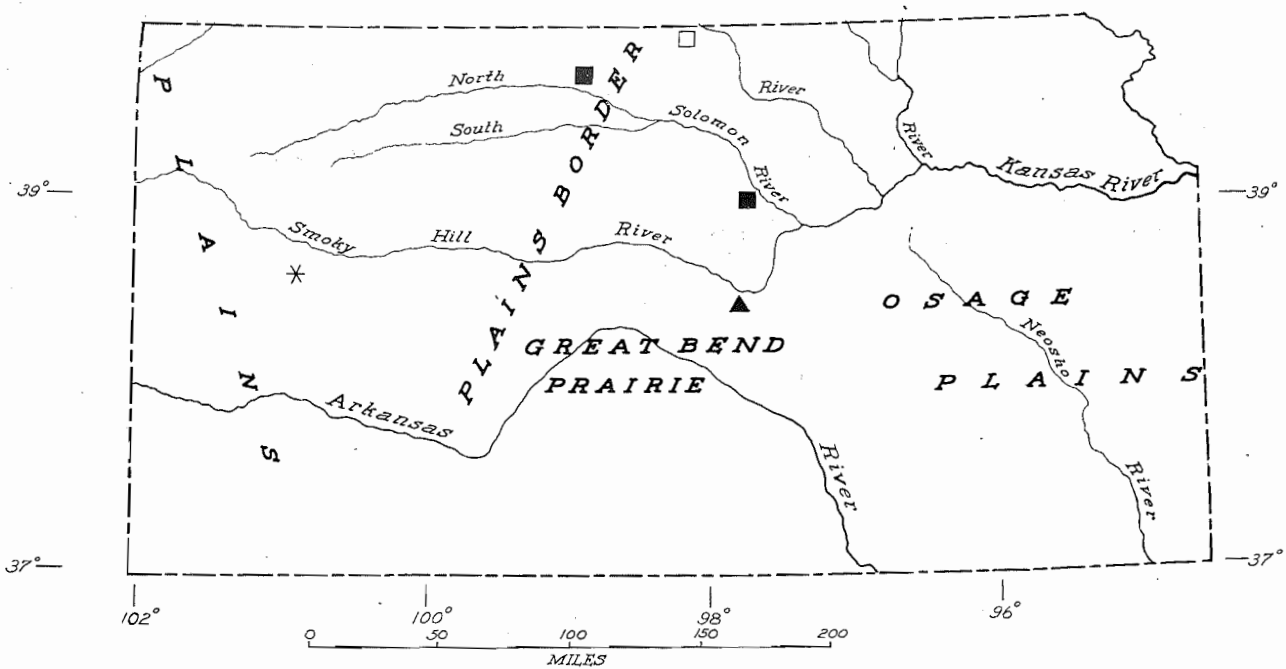
The 1934 investigations were begun in the vicinity of Guide Rock and Superior, a few miles above the point where the Republican leaves Nebraska to enter Kansas. A month was spent on sites south of the river near Franklin and Bloomington. About two weeks were consumed on Medicine creek near Stockville and on Redwillow creek northeast of McCook. Eight house sites and one prehistoric burial ground were opened, and representative cultural material secured from each. Inasmuch as the sites, with a single exception, conform generally to one pattern, the results may be considered together according to topics.

In the following report, we shall describe, first, the general physiography of Nebraska and the immediately adjacent portions of Kansas. Beginning with the easternmost site examined. We shall then briefly note the features of each village and details of house remains. This will be followed by sections dealing successively with ceramics, stonework, work in bone, horn, and shell, and food remains. Since the sites are to all appearances related, each of these aspects of the material culture may be treated as a whole for the area involved. The final section is a discussion of the relationships of the culture.

As regards the designation of archaeological sites in the present series of papers, a word of explanation seems advisable. The method is based upon the topographic maps prepared by the United States Geological Survey. Each site is designated by a number preceded by the name of the topographical quadrangle within which it lies. Within a given quadrangle, all sites will thus have

FIGURE-1. DISTRIBUTION OF PRINCIPAL KNOWN CULTURES IN NEBRASKA AND KANSAS





■ UPPER REPUBLICAN
□ HISTORIC PAWNEE
● NEBRASKA CULTURE
○ STERNS CREEK CULTURE
✳ PUEBLO CULTURE
▲ PAINT CREEK CULTURE
△ DISMAL RIVER CULTURE

the same name, but each has a different number. The historic Pawnee village on the A. T. Hill farm east of Red Cloud would be called "Superior 1," because it lies within the Superior quadrangle. Across the river is a prehistoric site designated as "Superior 2." Any other sites lying within this quadrangle would be assigned higher numbers, though the name "Superior" would be retained. West of Red Cloud for some twenty-four miles the name would be "Red Cloud" instead of "Superior." Within this quadrangle sites would again be numbered consecutively from '1' upward. Key maps showing precise locations of all villages, burial grounds, and other features investigated during the past summer have been placed on file in the records of the Nebraska State Historical Society. In western Nebraska, where topographic maps are not available, we have assigned index numbers based upon such features as streams. On the Medicine creek, for example, sites are designated as "Medicine Creek" plus a number. The superiority of this system of nomenclature over the use of landowner's names, for example, lies in the fact that wherever topographic sheets are available they are uniform in scale. Moreover, the names used are generally more permanent than personal names.

Geographical Background

The geographical setting upon which the prehistoric drama in Nebraska was enacted presents more variety than is commonly supposed. Broadly speaking, four physiographic divisions may be recognized. The southeast half of the state comprises the loess region, which consists in turn of the Drift Hills and Loess Plains. The Drift Hills form a comparatively narrow belt along the Missouri river at the eastern edge of the state. They are characterized by a hilly broken topography with many bluffs and canyons. Formerly, groves of deciduous trees and a woodland fauna grew in the canyons, while the hills and bluffs were barren or grass-covered. When, with the arrival of the whiteman, the menace of prairie fires disappeared, the forests gradually crept out over the hills in many places, to be again driven back or obliterated by modern agricultural activities. Immedi-

ately to the west are the Loess Plains, a region of smooth prairie-covered uplands formerly providing grazing grounds for bison, antelope, deer, and elk. It is crossed by broad, flat-floored valleys in which flow the Elkhorn, Loup, Platte, and Republican rivers and their tributaries. Timber occurs only along the streams. The loess region, in general, is one of high fertility and today contains some of the richest farming lands in the state. Climatically, it is well suited to the growing of corn, and in aboriginal days the river bottoms furnished croplands well suited to primitive horticulture. The loess thins out into northern Kansas, while west of the 99th meridian in Nebraska it gives way to a different type of landscape.

North of the Platte and west of the 99th meridian is an area of some 18,000 square miles known as the Sandhills. It is a region of sand dunes sparsely covered with bunch grass or high sandy ridges with broad valleys between. Numerous small reedy lakes are scattered about among the dunes, with larger lakes between the higher ridges. These provide breeding grounds for vast numbers of waterfowl. The headwaters of the Loup system are in the very heart of the Sandhills; at first they flow in open meadow-like valleys, which give way to deeply-incised narrow canyons, and these in turn, as the Sandhills are left behind, to wide, flat-floored valleys typical of the loess region. Trees occur only along the watercourses, and include cottonwood, willow, and some juniper. From an agricultural standpoint, the region has little to offer aside from pasturage for livestock. In aboriginal days it seems to have been primarily a hunting area.

West of the 100th meridian, the sandhill region excepted, are the High Plains. These are actually a series of smooth tablelands cut through by wide flat-floored valleys such as the Platte and Republican. The soil varies from the fertile to the rocky, rainfall is low, and vegetation characteristically of the shortgrass variety. In the more rugged portions and along the "breaks" are occasional stands of juniper and yellow pine, but for the most part it is a treeless expanse of grassland. It was wholly unsuited to primitive horticulture, but as in the Sandhills, this was compensated by the presence of great numbers of antelope and bison.

Within historic times the loess region, with its horticultural potentialities, was the home of two different Indian stocks. Both were semisedentary and corn-growing. Along the Missouri river were the villages of the Ponca, Omaha, Otoe and Missouri, all of the Siouan linguistic stock. Farther to the west, on the Platte, Loup, and Republican rivers and in the heart of the Loess Plains, was the habitat of the Pawnee who belonged to the Caddoan stock. In the southwest Sandhills were the Padouca or Comanche, representatives of the Shoshonean, who disputed the High Plains with hunting Siouan peoples. As will be pointed out later, there seems to be, a definite correlation between prehistoric cultures and these same geographical environments. (See map, Fig. 1).

Surface drainage in Nebraska is effected by a series of streams with a generally eastward flow. Beginning in the North, the more important are the Niobrara, Elkhorn, Loup, Platte, Blue and Republican. With the exception of the Niobrara and the upper reaches of the Loup all flow in wide flat-bottomed valleys bordered with prominent bluffs. Valleys are separated from one another by grassy upland divides forming long tongues with an east-west trend. While aboriginal settlement was largely restricted to the valleys, it must not be supposed that the interfluvial divides were a very serious barrier to migrational movements. Short tributary creeks, cutting headward into the divides from each side, made direct movements from one major valley to the next a comparatively easy matter. This can be clearly demonstrated from facts gathered during the past summer.

The Republican river in Franklin county is joined from the south by three tributaries, viz., Reams, Lost and Rebecca creeks, all heading in the uplands along the Kansas-Nebraska line. Springs are, or formerly were, present in each of these within a mile or so of the boundary. Not more than five or six miles to the south are the sources of Cedar and Beaver creeks, draining into the North Solomon. Village sites are present in both drainages. The actual distance between springs on opposite sides of the divide is under seven miles, all of which is comparatively smooth and easily traversed. A half- day's

easy march would be sufficient to cross from the Solomon to the Republican valleys. Barring the High Plains and Sandhills, it is doubtful whether any of the divides between the Arkansas and Niobrara rivers were sufficiently dry and rugged to prevent free travel between the major river valleys. That the High Plains were unfavorable to travel by foot is indicated by the extreme paucity of pueblo-an influences in the central Plains area. But from the Arkansas river in southern Kansas to the Niobrara in northern Nebraska the stream valleys apparently formed the rungs of a ladder, so to speak, up which village movements and tribal migrations could easily have proceeded. This comparative ease of movement doubtless accounts at least in part for the widespread occurrence of certain cultures.

We may now turn to a more detailed consideration of the area investigated by the Archaeological Survey during the season of 1934. The Republican river rises in the High Plains region of eastern Colorado and northwestern Kansas, and pursues a meandering easterly course for more than 200 miles along the southern boundary of Nebraska before swinging southward into Kansas. Despite the semi-arid environment of its upper reaches, spring-fed tributaries, notably the Frenchman and Medicine from the north and the Beaver, Sappa, and Prairie Dog from the south, provide a perennial flow of water in all save the very driest of summers. The river flows characteristically in a flat-bottomed valley from two to five miles wide, bordered by bluffs up to 200 feet high. Beyond the bluffs lie the high, grassy, treeless plains, rolling away southward to the Solomon and northward to the Platte. Prior to white settlement the valley bottoms were covered with a luxuriant growth of grass, and the immediate course of the stream was marked by groves of cottonwood, willow, oak, walnut, and ash. Beaver, otter, deer, and smaller mammals inhabited the timbered bottoms, while bison, antelope, and coyote abounded on the uplands. Within the memory of men still living, elk and deer were frequently shot in the Republican valley.

The line of bluffs enclosing the valley is broken at intervals by small tributary creeks which drain the uplands to the north and south. For the most part these creeks are comparatively short, and flow in narrow in-

cised valleys. Springs formerly were quite numerous on these tributaries, but have been filled up since introduction of intensive agriculture. The majority of prehistoric village sites appear to lie on the low gentle hills and benches bordering the creeks; more rarely, they are on the main river bottoms. In historic times, that is, after circa 1750, with consolidation into great compact villages of several thousand persons, the larger valleys were seemingly preferred for residential purposes. Practically without exception, the late Pawnee villages occur on the banks of the Republican, Loup, and Platte rivers and are not found in the small tributary valleys.

For non-equestrian Indians, the Republican valley must have presented a most attractive habitat. Wood for fuel and building purposes was plentiful. Good water was everywhere available. The broken margin of the uplands on either side of the main valley offered a favorable terrain for stalking bison and antelope. Grazing lands ideally suited for bison could be reached within a few miles of the village sites, so that hunts lasting one or at best a few days were quite feasible. The great communal hunts of late historic times may not have been so important among the corn-growing peoples of Nebraska prior to introduction of the horse. Fruits, nuts, berries, and roots were readily obtainable throughout the valleys. The main reliance was apparently upon horticulture. The uplands, with their heavy sod cover, were not at all favorable to native farming methods. Like the historic Pawnee, therefore, the earlier peoples doubtless restricted their activities to the more easily worked alluvial soils of the creek and river bottoms.

Needless to say, significant changes have been wrought in the region since the day of the Indian. With the breaking of the prairie sod, wind erosion has been tremendously facilitated. This has resulted in the filling up of many fine springs and a marked silting up of streams. Numerous Indian sites which are today situated on dry creeks lie near formerly excellent springs which have since been covered by erosion. In a few cases, the springs have been reopened and are in use today. The effects of settlement on native wild life are too well-known to need comment.

VILLAGES AND HOUSE SITES OF UPPER REPUBLICAN

Superior 2

Superior 2 lies three miles west of the town of Guide Rock, and about twenty miles west of the point where the Republican crosses the state line into Kansas. It occupies a curving terrace on the right bank of Willow Creek, two miles north of the river. At one time, possibly during the occupancy of the site, the creek skirted the base of the terrace. Today, its channel is more than 100 yards to the east. Though small, the creek carries an abundant flow of good water, easily sufficient for a community of some size. Sixty years ago, the immediate creek bottoms were quite swampy as the result of a series of beaver dams extending for some ten miles or more along its course. Needless to say, this condition no longer obtains.

The terrace on which the village site lies rises perhaps fifteen or twenty feet above the bottoms. The land has never been broken for cultivation. Archaeological features consist of a series of forty-two pits scattered along the edge of the terrace. All are within fifty yards of the brink. For the most part they vary in diameter from six to ten feet; in depth, they average six to fifteen inches. Two or three are as much as twenty feet across, and prior to excavation showed as slightly elevated rings. No artifacts of any kind could be found on the surface.

There were three main groups or clusters of pits. The western group comprised thirteen of the depressions, the northern group 12, and the eastern group 11. The six remaining pits were distributed along the margin of the terrace farther south.

Within each of the western and northern groups lay one pit which was definitely larger and deeper than the others. They were generally located somewhere near the center of their respective groups. The arrangement of these features was unique, and combined with the singular absence of pottery or other village detritus, invited careful examination of the site.

Tests were made in nine of the depressions and the

most promising selected for complete excavation. Pits 14 and 44, each over twenty feet in diameter and about fourteen inches deep, were trenched. The former yielded bits of burned clay, charcoal, and an occasional very small sherd at depths down to approximately fifteen inches. No floor line could be found nor were there any traces of firepit or postholes, but the mixture in the soil indicated that the material within the depression had been moved. We are inclined to regard it as a house ruin, though the traces were too faint to give conclusive proof. The other pit, 44, showed some discoloration below ground but no occupational detritus, and it may have been formed through pawing of the ground by cattle or through some other non-human agency.

Pit 35, lying some sixty yards northeast of Number 44, was next tested. Prior to excavation it was twenty-three feet in diameter by twenty inches deep, with raised encircling ring. At a depth of about twelve inches was found a faint brown line overlain with burnt clay and charcoal—to all appearances, the floor of a house. Near the south side and within the basin was a deeper pit, at first thought to mark the spot where some relic hunter had dug. Convinced that this was a lodge site, we at once began complete excavation. The task was made very difficult by the extreme hardness and dryness of the ground.

The northeast quarter of the depression was very carefully dug out, special pains being taken to find the edge of the original house pit. After considerable difficulty a slight crack in the ground was noted, separating a fine gray, very hard soil from the somewhat softer refuse-mixed fill within the house. A brisk shower of rain accentuated the differences between the two types of earth. The curving wall of the pit was then followed, care being taken to remove only the disturbed dirt. The roots of an elm tree which had grown within the depression were presently encountered. These roots had expanded outward until they reached the wall of the pit. Then, partly because of the greater hardness of the soil outside and partly because the surface depression had acted as a catchment basin for rainwater, they had turned and followed the curvature of the house wall for a distance of some six or seven feet before breaking through the floor

and disappearing. The differences in soil, combined with the peculiar directional growth of the tree root, made it quite certain that we had found the edge of the house.

The house, Plate I, 3, was circular in outline and measured seventeen feet in diameter. The floor lay thirty inches below the surrounding ground surface; it was uneven and not very well-defined. At the center was a firepit twenty-four inches across by four inches deep, marked by burnt earth, charcoal, and some ash. At a radius of four feet from the firepit were four central postholes, each nine inches across by ten to twelve inches deep; they formed a five-foot square about the hearth. Five feet southwest of the house center was a circular cache pit filled with rich black gumbo but containing no artifacts. It measured twenty-eight inches in diameter by forty-four inches deep. Despite persistent search, no traces were found of a doorway. A slight break in the east side of the ring surrounding the house may have marked the entrance, assuming that this was of the usual tunnel-like form. The condition of the ground was such as to completely obscure the door. There is, however, another possibility, viz., that entry was through the smokehole or otherwise out through the roof directly onto the village level.

As regards construction, this house differed from any other found during the summer. Indeed, it belongs to a type extremely uncommon in the upper Republican drainage. The outer ends of the sloping rafters which supported the roof evidently rested directly upon the edge of the pit. In the usual form of earthlodge, both rectangular and circular, there was a second set of upright posts and horizontal beams just inside the pit wall. The butts of the rafters were laid upon these beams, and the wall was constructed by leaning other poles against them on the outside. In other words, in House 1 at Superior 2, roof and walls were in one piece, so to speak, whereas characteristically in central and southern Nebraska, roof and wall are separate structural features. The former method seems to have been not uncommon on the Missouri river in eastern Nebraska.

A few sherds were recovered from the floor. They were dark gray in color, sand-tempered, and bore partially obliterated cord impressions on the exterior. There

were no rims. In a very general way, these conform to the usual type found in the upper Republican drainage, but specific identification cannot be made as yet.

Six caches were excavated in various portions of the site. All were cistern-shaped, that is, had a constricted mouth below which the diameter increased to its maximum at the floor. There was a wide variation in the dimensions. A brief description of each follows. Numbers correspond to those on the index map prepared by the Survey.

Cache 10.—This was excavated by A. T. Hill, J. C. Samms, and the writer in the spring of 1932. The limited time available did not permit of thorough excavation, hence measurements will be omitted. Charcoal and discolored soil comprised the material within the pit.

Cache 11.—Excavated at the same time as the preceding, this one was sixty-eight inches deep, with a diameter at the top forty-two inches and at the bottom of eighty-eight inches. The floor was covered to a depth of about two inches with charred cornhusks, cobs, and bits of cornstalk. Thin layers and pockets of similar material were encountered for about a foot above the floor. A few kernels of burnt corn were detected among the remains.

Cache 12.—Previously to our work, vandals had dug into this cache to a depth of sixty-seven inches. The mouth had caved somewhat, so the diameter was uncertain. The maximum depth of cultural material was sixty-two inches, and the floor diameter was seventy-four inches. The floor was lined with cornhusks, leaves and stubs. In the fill immediately above were found kernels of corn, corn on the cob, and a few beans, all charred

Cache 13.—This was marked by a surface depression four inches deep by thirty-nine inches in diameter. The fill consisted of five inches of humus underlain by thirty-one inches of yellow clayey soil. At this point came a layer of burnt cornstalks; another was encountered two inches deeper; and a third stratum covered the floor two inches lower still. The maximum depth was forty inches. The greatest diameter was fifty-eight inches. The floor was depressed some three or four inches at the center. From the three layers of charred vegetal matter came corn, beans, and some fragments of what appeared to be squash.

Cache 36.—This was located ten feet from the northwest wall of House 1. The surface depression measured forty-eight inches across. The maximum depth was fifty-eight inches. Due to caving, the bottom diameter was indeterminate. The floor was littered with cornhusks, corn, and squash fragments.

Cache 30.—A test here showed very little detritus, so the pit was not completely excavated. It was apparently quite small and shallow.

Superior 2 is an interesting site, as well as somewhat puzzling. Aside from the architectural differences already noted, two points are of particular interest. In the first place, there are about ten caches or more to each habitation. This is based upon the assumption that the one or two large depressions in each group represent house sites, while the smaller ones were caches. Horticulture was intensively carried on as indicated by the food remains found in nearly every cache. It seems scarcely probable that the two or three families which could have been accommodated in the lodges found at the place would have required as much storage space as was afforded by the numerous caches. Furthermore, to bring up the second point, the almost complete absence of artifacts, animal bones, or refuse of the sort usually found in every Indian village would suggest that the place was not regularly inhabited. The presence of a firepit, House 1, would argue for at least a temporary occupancy. The site may have been a farming outpost for a larger village not as yet located. The fertile Willow creek bottoms could have been utilized by persons unable to find suitable land nearer the main village. A few families may have occupied the place from time to time in order to watch the growing crops or to prevent the plundering of the storage caches. It may be noted that about the year 1800, there was a village of some 1,700 Pawnees located directly across the river from Superior 2. That the two sites were contemporaneous seems highly improbable. Every known Pawnee site occupied since 1750 is littered with iron grubbing hoes, bits of horse trappings, porcelain, glass, and other trade goods. Likelihood of such remains in caches and farming sites of the historic period seems far stronger than for cultural detritus in

pre-European sites. This would hold particularly in the present case, where the two villages were not more than three miles apart. In brief, we incline to regard Superior 2 as a prehistoric farming settlement which was probably attached to a larger village somewhere in the vicinity but not as yet discovered.

Red Cloud 1

This site is located on the east edge of the town of Red Cloud and about six miles west of Superior 2. It is on a bench overlooking the Republican bottoms, and lies a little more than a mile north of the river. At the base of the bench is an excellent spring, and a little farther out is Crooked creek. Most of the site is now under cultivation, hence our activities were confined to brief examination of some shallow pits at the unbroken edge of the terrace.

A depression eighteen feet in diameter was selected for the test. A trench twenty-four inches deep was run through the center. The fill consisted of fourteen inches of aeolian deposits underlain by ten inches of dark mixed soil, apparently roof material. At a depth of twenty-four inches an ill-defined firepit was encountered, measuring eighteen inches in diameter by two inches deep. Though the level of the firepit was carefully followed out to a distance of fifteen feet on the south side, no postholes could be found nor was there any satisfactory floor line. Bits of hematite, a few sherds, and one or two grains of charred corn were recovered from this level. The mixed character of the soil indicated human activity and the presence of the firepit made it fairly certain that we were in a house site, despite our failure to find any postholes. Occupation must have been quite brief in view of the scarcity of refuse. The dwelling probably rotted down, for wherever fire has been the destructive force, fairly definite indications of posts, beams and earth covering are left.

A limited amount of grit-tempered cord-impressed pottery was recovered, but for the most part artifacts were scarce. Further investigation here is advisable, since our cursory examinations scarcely touched the available remains.

Red Cloud 2

Red Cloud 2 is one of a large group of prehistoric village sites in Franklin county, where the upper Republican culture pattern has been most intensively investigated. The southern portions of both Franklin and Harlan counties apparently were thickly populated in pre-Columbian days, inasmuch as remains occur on every tributary creek as well as on the river itself.

Red Cloud 2 is located on the west fork of Reams creek two miles south of the river and about four miles southeast of the town of Franklin. It occupies a gently-sloping terrace on the right, i. e., east, bank of the creek, with higher rolling hills to the south and west. A half-mile south of the site, the uplands terminate in a prominent northward-facing tableland, locally known as Lookout Mountain. The limestone cap forming this table presents a scarp some ten to fifteen feet high, beneath which the ground falls away in a long slope toward the north. The top of Lookout Mountain is some 200 feet above the village site. Several small overhangs and caves along the base of the limestone wall were investigated, but no traces of Indian occupancy were found. Tests on the summit for burials were also unsuccessful. Lookout Mountain is a very local feature, its maximum length being under 400 yards. Nevertheless, when viewed from the west, north, or east it presents a striking appearance. An excellent panorama of the Republican valley to the north is afforded from its northern extremity.

One house site was excavated at Red Cloud 2. This had been discovered by the owner, Ted Hill, when lateral erosion by Reams creek cut into the west edge of the house and exposed quantities of broken pottery. The house lay at the immediate edge of a terrace; the creek, now dry, followed a channel perhaps forty feet directly below. As it proved later, somewhat less than half the house had been removed. Enough remained, however, to give a fairly clear idea as to its general character.

The floor lay eighteen inches beneath the ground surface. It was marked principally by a thin stratum of charcoal, broken bone, and potsherds. Several badly broken jars were encountered as the work of clearing the

floor progressed. Generally speaking, however, artifacts were not common. The extreme dryness of the soil, which had never been broken by tillage, made it impossible to work as carefully as was desirable. It was necessary to pour nearly 200 gallons of water over the floor in order to bring out the postholes and define the edge of the house.

A plan of the house showed that approximately half the site had been removed. Sixteen outer postholes remained, forming a semi-circle with a diameter of nineteen feet. These holes were about six inches in diameter, twelve to sixteen inches deep, and from eighteen to thirty inches apart. All contained mixed earth, charcoal, and the like. Near the east side, approximately two feet within and parallel to the row of outer postholes, were three additional holes. Two central postholes remained, evidently the easternmost pair of a four-post square. They were five feet apart, and were respectively seven feet inside the south and north ends of the peripheral arc. Each was approximately twelve inches in diameter by sixteen inches deep. Quantities of charred wood were taken from both. Midway between the two was a smaller hole, six inches across, also containing charcoal. Between the south central posthole and the outer row was a cache. This measured twenty-four inches in diameter by eighteen inches deep. From it came charcoal, a few potsherds, and one clamshell. The fireplace was gone, but had probably lain within a foot of the eroded edge of the floor.

The house was evidently subcircular or elliptical in outline (Plate II, 1), and approximately twenty feet across. There was no indication of entrance, and it seems quite likely that it had been toward the southwest, opening onto the edge of the terrace. Like the firepit, it had been removed by forces of erosion. As for the interior arrangement, there was nothing unusual. In every respect save its general circularity, this house conformed to the typical dwellings of the Republican drainage. Ceramic remains confirmed the opinion that the site was merely a local variant of the common pattern for the area.

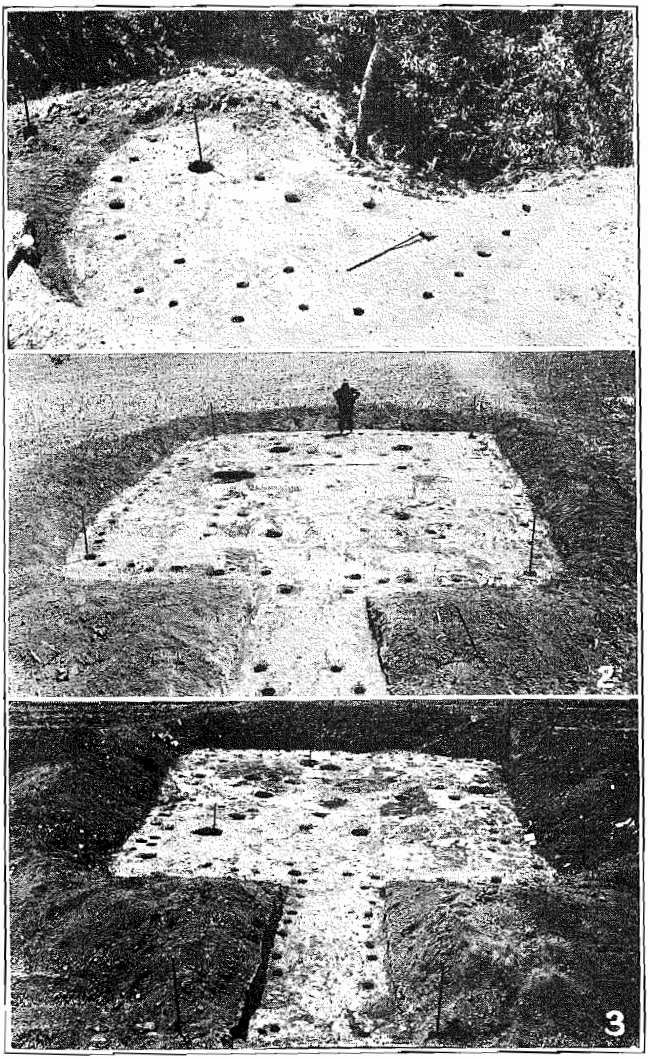


PLATE II

1. House 1, Red Cloud 2. West half of floor, including firepit, carried away by erosion.
2. House 2, Holdrege 4. Outer corners indicated by shovels; four center postholes marked by pins. Compare with Figure 2, which does not show all the supernumerary postholes visible in the photograph. View from west.
3. House 2, Red Cloud 3. From the east.

Red Cloud 3

Red Cloud 3 is on the left bank of the west fork of Reams creek, one mile southwest of Red Cloud 2 and some 500 yards west of Lookout Mountain. At this point a small bench of two or three acres extent rises perhaps twenty-five feet above the creek bottoms. The arable, partially timbered bottomlands combined with nearby springs and good hunting grounds doubtless made the location an ideal one for aboriginal occupation.

At the time of our excavations, the ground was under cultivation but the growing crops were only a few inches tall. Sherds and flints were strewn plentifully over the site, but with several definite areas of concentration. Viewed at a distance, the latter were distinctly noticeable as patches darker in color than the native soil. This discoloration was due to presence of organic matter such as charcoal, ash, and similar detritus. Differences in color were especially marked following a light shower.

Two house sites were cleared and investigated. House 1 was about twenty yards from the southeast edge of the bench. The lister had barely touched the top of the firepit, leaving it partially exposed to view in the furrow. Upon clearing away the surrounding soil, it proved to be basin twenty-two inches across by four inches deep, colored a deep red by long usage. Ashes filled the pit. The loose, dark topsoil was next removed, working outward in every direction from the hearth. Yellow clay subsoil formed the house floor. At a distance of roughly six feet from the firepit the floor curved sharply upward to form a wall averaging slightly more than a foot high. A squarish pit had obviously been dug as the foundation for the house. At the center the floor was depressed some four inches below the surface of the yellow subsoil.

The interior arrangement was most puzzling. There were no clearly marked central postholes. Within the pit, however, there were twenty-nine postholes. If all were in use at the same time, there would have been scarcely room for any amount of useful human activity. Probably the roof was originally supported by twelve or fifteen of the outermost posts, braces being added later

on the inside when the regular posts began to give way. The holes varied in diameter from five to twelve inches, in depth from eight to fifteen inches. For the most part they were filled with mixed soil of looser texture than the surrounding earth.

Two caches were found. Cache 1 was three feet southwest of the firepit. It was sixteen inches in diameter by sixteen inches deep, and yielded only flint chips and a few sherds. North of the hearth was a second cache, elliptical in outline. It measured twenty-two by sixteen inches, the long axis being north-south; the depth was twenty-two inches. Mixed and discolored soil, but no artifacts, formed the contents. Artifacts were generally very scarce in this house. One bone awl and a few sherds were recovered from the floor, and a small shell bead from the firepit.

This house is rather difficult to interpret. Much too small to have been inhabited by any number of persons, the well-marked fireplace and the caches would indicate considerable usage. A small house of about the same size has been recorded from a prehistoric site near Williams, Nebraska, associated with structures of normal size and pattern.[2] Perhaps single individual, with no relatives or friends in the village, occupied the tiny dwelling. Again, it may represent some form of special lodge for ritualistic purposes, as for example, for the isolation of girls at puberty or of women during menstruation.

House 2 lay some forty yards west by north of No. 1. It was apparently associated with a midden, and the mixed character of the soil over an area twenty yards or more in diameter offered some puzzling problems before the house was finally cleared.

The house, (Plate II, 3), was rectangular in outline, measuring thirty-six feet from east to west by thirty feet north to south. The periphery was marked by sixty-seven postholes, unevenly spaced and poorly aligned. The extreme irregularity was doubtless due to addition of braces and, especially at the west (rear) wall, perhaps to enlargement of the dwelling. Probably the original wall included about forty of the posts. These postholes averaged about six inches in diameter by twelve to twen-

[2]Lamb, G. F. Personal communication.

ty-four inches in depth. A few of those on the west side were full of rotten wood, and could be easily cleaned out by hand. Mostly, however, they were fairly hard. Eight pairs of holes indicated the position of a covered doorway twenty feet long by four feet wide, opening to the east.

The floor was somewhat uneven and not easy to follow. It sloped downward toward the center, from a depth of approximately sixteen inches at the margin to twenty-four inches at the firepit. The superimposed material consisted of some twelve inches of wind-laid humous topsoil containing almost no cultural remains. Then came a stratum from four to eight inches thick containing charcoal, burnt clay, charred grass, and other debris, evidently fallen roof material. Very hard packed soil, mixed with rubbish, formed the lowest layer and reached a thickness about the firepit of nearly four inches. This we are inclined to regard as floor, since it had a somewhat stratified profile. Refuse, if allowed to accumulate for some time, and the deposition of dust through storms, would account for the building up of the floor in this manner.

At the center and lowest point in the floor was a basin thirty-six inches in diameter by nearly eight inches deep, forming the firepit. A bed of white ashes six inches thick filled the fire basin, and the bottom and sides were baked to almost the color and hardness of brick. Four central postholes were rather carelessly arranged, as regarded both spacing and orientation. Posthole I was eight feet to the northeast of the firepit, II was nine feet to the southeast, III was ten feet to the northwest, and IV was ten feet to the southwest. A fifth posthole was found eight feet southwest of the fireplace; it seems to have been added later, and may have been erected in place of the original post (IV) when the latter decayed. Charred remains of a twelve-inch post were found in posthole II; I, III, and V yielded quantities of charcoal, some rotted wood, and mixed earth. Number IV, though containing essentially the same fill, was packed very hard, as though intentionally filled up and floored over.

Normally, a line drawn through the middle of the doorway so as to cut the firepit will evenly bisect the

square formed by the four central postholes. In the present case, the center posts formed an irregular quadrilateral which was decidedly askew. Less care than usual seems to have been exercised in laying out the structure.

Fragments of a charred post, standing in a hole fifteen inches across by twenty-three inches deep, were found four feet east of the firepit. For what purpose a large post was needed in this position, it is difficult to see. It is not an uncommon feature of prehistoric earthlodges in central and southern Nebraska. As a rule, this fifth pothole is inside the square formed by the four regular supports. Possibly it received a post which served as crane for suspending vessels over the fire in cooking.

Seven caches were scattered about beneath the house floor. There was no evidence of attempt at orderly placement, though all were located outside the rectangle formed by the center posts. The following table gives their dimensions in inches:

	Diameter at Top	Depth	Diameter at Bottom
Cache 1	28	36	48
Cache 2	23	28	32
Cache 3	19	34	40
Cache 4	24	36	36
Cache 5	24	32	48
Cache 6	28	18	28
Cache 7	24	30	32

With the exception of Cache 6, all evince the usual tendency toward the cistern shape, reaching their maximum diameter at the bottom. There was no sign of any sort of lining, or of any attempt to improve upon the simple hole in the ground.

A list of the contents from one or two of these storage pits may be of interest. Cache 1 yielded flint knives, bone and shell beads, a bone awl, two worked scapulae, clamshells, animal bones, and a few sherds. Cache 3, slightly smaller, gave up the following: one worked scapula, a broken awl, two tubular bone beads, three end scrapers, an oval knife, two triangular arrowpoints, clamshells, animal bones and teeth, and sherds. Artifacts usually occur in a matrix or fill of discolored soil, with ash and charcoal present. In most cases, the caches were

doubtless emptied of their more valuable articles, such as corn and pottery, when the house was abandoned. Rubbish was then thrown in and the hole filled up. Hence only the minor artifacts, or such things as had been overlooked, are ordinarly recovered.

During the preliminary digging, large quantities of burnt grass, baked clay, and charred pole fragments had been encountered along what proved to be the north side of the house. A large portion of the roof had evidently collapsed en bloc when conflagration destroyed the lodge, and had smoldered instead of burning to ash. Very careful work with penknife and camel's hair brush disclosed an unusually fine section of roof material, and afforded an opportunity to recover structural details. Ash poles about three inches in diameter served as rafters for the roof. They were so laid that their butts rested on the outer row of horizontal beams, while their upper ends rested on the large beams which had connected the four central posts. The rafters were spaced at intervals of approximately eighteen inches. In a lodge of the size of that under discussion, this would mean from twenty to twenty-five rafters on each side. At right angles, i. e., horizontally, to these, and at intervals of three to six inches, were laid willow rods an inch or less in diameter. The rods were then covered with prairie grass to a thickness of nearly two inches. Prior to burning, this layer may have been considerably thicker. The grass was laid with the stems somewhat crisscross, but generally parallel to the rafter poles. Over these was a covering of mud and dirt, in some cases baked hard to a thickness of two inches or more. This mud was freely mixed with grass before being laid on the roof. Grass, earth, and willows totaled perhaps six inches in thickness, but the roof may have been appreciably thicker when new. In general, this method of construction tallies with that reported for the historic earthlodge-using tribes of the Missouri, such as the Pawnee, Mandan, Arikara, and Hidatsa.

One more feature remains to be noted here. While the fill immediately above and adjacent to Cache 7 was being removed, masses of baked clay with pole impressions were found. The clay was in irregular chunks, mostly about two inches thick by four to eight inches across. These were scattered over an area about three

by four feet, and in places were piled to a depth of over six inches. Some bore the impress of closely-laid willow rods an inch in diameter; in others, the poles had measured nearly two inches. As a rule, the imprints were confined to one side, the other being fairly smooth. All of the clay was thickly mixed with grass. For the most part, it was red or yellow in color, and had been subjected to much more intense heat than had the roof clay previously described.

Two possible sources may be suggested for this material. Wet clay may have been plastered onto the roof about the smokehole to minimize danger of fire. Heat would tend to burn this to a brick-like color. When the roof collapsed, the material surrounding the vent may have fallen toward one side. Against this is the fact that the great bulk of the roof covering was wholly unlike the present material. It is doubtful whether the customary fires would affect the color of the roof covering, twelve feet or more overhead. The second possibility is that a small pole-and-mud storage crib collapsed in the general conflagration. The unusually intense color may have been caused by burning of stored corn, animal fat, or other organic matter. There were no traces of wattlework on the floor, which might have formed the framework, nor was there any sign that the floor had been particularly affected by the heat. The presence of wattle-and-daub storage chambers or of partitions is not attested for this area in historic times. Neither explanation is without its difficulties, but we are inclined to regard the former as nearer the truth of the matter.

No effort was made work out the middens, one of which lay near each house. They consisted of the usual detrital material—sherds, bones, flints, ashes, and charcoal. Cultivation had rendered obscure the contours of the mounds which may formerly have existed. The accumulation appears to have been sufficiently large, however, to indicate a protracted occupancy of the site.

Holdrege 3

Holdrege 3 lies near the head of Lost creek, some six miles south of Bloomington and about the same distance southwest of Red Cloud 3. Lost creek rises in the rolling uplands immediately south of the Kansas line and pur-

sues a winding course some eight or ten miles northward to join the Republican two miles below Bloomington. In common with other creeks to the east and west, its valley bears a limited growth of hardwood, has local outcrops of yellow-brown chert suitable for coarse implements, and, in the old days, boasted a number of springs.

Lost creek may be considered the type locality for the Upper Republican culture. This does not imply priority in time nor maximum intensity of the pattern which we believe was the common one in central and southern Nebraska. Our information is as yet too meagre to permit us to define precisely the center of origin of the complex. But Lost creek represents the district where the first intensive studies were made and the culture tentatively defined. Reams and Rebecca creeks, immediately to the east and west, respectively, are very intimately related, and are apparently equally prolific in an archaeological way.

The type site lies about a half mile above the mouth of Lost creek, on the right bank of the creek. It is known as the Dooley site (Holdrege 1). Excavations were conduced here by Dr. W. D. Strong for the University of Nebraska in the summer of 1930. These resulted in the discovery of rectangular semi-subterranean earthlodges associated with certain characteristic pottery types and stone and bone remains. Credit for the discovery and definition of this interesting prehistoric complex must go jointly to Mr. A. T. Hill of the Nebraska State Historical Society and to Dr. Strong, now of the Bureau of American Ethnology. Because it was best known from the valley of the Republican in southern Nebraska, it was given the name of "Upper Republican culture" by Strong.[3] The present researches have verified and amplified his results, and there is little question now that the Republican river, at least in Nebraska, was the habitat mainly of a people with one uniform civilization.

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[3]The Upper Republican "culture," as the term is employed in the present paper, is equivalent to the Upper Republican "aspect" as given in the fourth paper of this series. The new system of classification was adopted after the manuscript was completed, hence the older term will be retained here. For an excellent summary of Upper Republican culture, see Strong, 1933, pp. 278-279. A detailed report on the Dooley site is awaiting publication at the Smithsonian Institution in "An Introduction to Nebraska Archaeology" by W. D. Strong.

Holdrege 3 is four miles south of the Dooley site and about a half mile north of the Kansas line. It occupies a broad terrace of some twenty acres lying in the forks of Lost creek. Aboriginal remains are scattered all along the creek from the Dooley site southward into Kansas. Our activities were confined to the immediate locality of the forks.

Two house sites were opened. The first proved to be a subcircular basin seventeen feet across with steeply sloping walls. The maximum depth, near the center, was thirty inches. An extremely hard nodular soil, at first sight apparently undisturbed, was underlain at twenty-four inches by a six-inch horizon of charcoal, burnt earth, and other roof material. The floor was very indistinct. An eighteen inch firepit occupied the center of the floor, but contained relatively little ash. This seems to have been the original hearth. Later, the fire was shifted northward about a foot, though still overlapping the first. A second shift placed the third and latest fireplace still farther northward, its center lying more than two feet from the earliest pit.

The peculiar mottled nature of the soil plus its exreme dryness made the finding of the postholes very difficult. There was evidence of a four-post center foundation. None of the postholes exceeded eight inches in diameter and twelve inches in depth. The central square or quadrilateral was approximately five feet on a side. Other small postholes were found at intervals of four to five feet near the east and south sides of the pit and about eighteen inches inside the wall. Persistent search failed to uncover any holes on the north and west sides. All in all, the interior arrangement and the precise nature of the superstructure remain matters of uncertainty. The entrance was on the south, as indicated by a ramp three feet wide which rose from the floor to open on the ground surface some six or eight feet away.

There is some similarity between this house and that opened at Superior 1, more at least than between either and the typical rectangular lodge sites. The former are somewhat deeper and their limits are more difficult to determine. Outer postholes are absent or doubtful, though the four center posts are present. Both, curiously enough, contained a very hard clean fill, and conveyed an impres-

sion of greater antiquity than did the usual houses. Very few artifacts were found in either, but the occasional sherds appeared to be of the common cord-impressed ware. Possibly these aberrant structures represent vestiges of a culture which preceded that of the later rectangular houses. As survivals, they may have existed more or less contemporaneously with the latter. Perhaps they represent merely contacts with other peoples and are due to exchange of architectural ideas. Or again, they may be nothing more than individual variations from the form.

House 2 lay some 200 yards south of No. 1 on the lower northerly slopes of a gently rounded hill overlooking the village site. Erosion had removed much of the soil cover, and the plow had exposed the firepit. The floor was no longer distinguishable. Accordingly, the procedure adopted was to commence at the hearth and clear away all loose dirt down to clean undisturbed subsoil. Postholes then showed as small discolored spots mixed with charcoal detritus.

The house was roughly square in outline, and lay at slight variance with the cardinal directions. It measured twenty-four feet east to west by twenty-three feet. Thirty-two postholes marked the periphery. They averaged six to eight inches in diameter by ten to fourteen inches deep. Four twelve-inch postholes formed an irregular central quadrilateral about seven to nine feet on a side. The firepit was thirty inches across, burned red, and contained four inches of white ashes. Two gaps were present in the outer row of postholes, one on the east, the other on the west. Careful work failed to disclose entrance postholes on either side. There was considerably more discoloration in the soil to the east, however, and the entrance was probably in that direction. Postholes lining the entrance were, as a rule, somewhat shallower than those for house posts, and in this case they may have been plowed out.

Three caches were found. Cache 1 was ten feet six inches southeast of the firepit. It was thirty-two inches in diameter at the top, twenty-four inches at the bottom, and twenty-four inches deep. Bones and a few sherds were the sole yields. Cache 2 was eleven feet six inches southwest of the fireplace; diameter at the top was forty-

two inches, at bottom thirty-six inches, and depth was forty inches. The walls were clearly defined, being of yellow clay. The fill was black, mixed with flints, bones, and sherds. Several large slabs of white chalky limestone lay twenty-four inches below the top, covering the east half of the cache. Below these were found a bone awl, a pipe blank, a bison scapula, rimsherds, and similar artifacts. Cache 3 was eight feet north of the firepit, with a diameter at the top of thirty-eight inches and a depth of twelve inches; the floor was basin-shaped. A pipe fragment and a large pick made of bison ulna were taken from this cache.

House I was within fifty yards of the creek bank; House 2 was a little more than 200 yards from water supply. Middens appeared to be scattered about over the site. Two of these were tested. They showed on the surface as discolored areas some fifteen yards in diameter, with bones, flints, and sherds littered about over the ground. Midden 1 was sixty yards west by north of House 1. It was twenty-four inches deep, but the tests showed little evidence of stratification. Midden 2 was sixty-five yards east of House 1, and had a depth of about sixteen inches. All rims recovered from the middens were of the same type as those found in the houses. Further work, particularly with an eye to possible stratigraphic variations, seems advisable, although the vertical section appeared quite devoid of significant differences.

Holdrege 4

Holdrege 4 is a large village site on Rebecca creek, five miles west of Lost creek, three miles south of the Republican river, and six miles southwest of Bloomington. Traces of aboriginal activity are abundant on both banks of the creek throughout the greater part of its course. Terraces and benches were, of course, favorite locations for villages, but commonly even the slopes and summits of the less rugged hills were utilized.

The immediate incentive for settlement at this particular location was without doubt the presence of a dependable water supply. A large spring issues from the right bank of the creek; it flows perhaps ten to twelve

gallons of water per minute at an average temperature of less than 50 F., and shows but slight seasonal fluctuation. The water loses itself in the sandy creek bed within 100 yards of the spring. Sixty years ago, the creek is said to have carried a fine stream of water, and this was doubtless the condition at the time of Indian occupancy. Sedimentation, accelerated by farming, has long since altered these circumstances.

Operations were begun in partially rifled house site about 200 yards south of the spring, on a sloping terrace overlooking the creek. Freshly turned earth, littered with broken scapulae hoes, large sherds, and flints, showed where relic-hunters had been active a few days prior to our arrival. Heavy admixture of charcoal and ash, in addition to the other rubbish, indicated that the vandalism had been done in a house site. A few minutes work with shovels revealed the floor at a depth of eight to ten inches underground. On the south or downhill side, erosion combined with tillage had obliterated the floor level, and it was only with the greatest difficulty that the postholes could be located. No trouble whatever was experienced on the north side where the floor lay at a depth of some fifteen inches. Promiscuous digging within the house further complicated matters, since two of the center posts had been almost entirely dug out.

This house, No. 1, was irregularly rectangular in outline. It was twenty-two feet north to south by twenty feet. The depth of the floor was fifteen inches at the north and six inches at the south; the floor was generally ill-defined. There were thirty-one outer postholes, but it is quite probable that a few more actually existed than were found by us. They averaged eight inches in diameter by twelve inches deep. Four central postholes lay at a radius of 5.5 to 6 feet from the firepit; they were ten inches across by eighteen inches deep. In the center was the firepit, thirty inches across by three inches deep, and full of ashes, charcoal, and burnt earth. Cache 1 was eight feet east of the center; its top diameter was thirty inches, depth twenty-six inches, and bottom diameter thirty-eight inches. A poorly defined entrance 4.5 feet wide could be traced out some four feet toward the west.

The house pit was quite clearly discernible on the north side, where the floor had been dug into the yellow

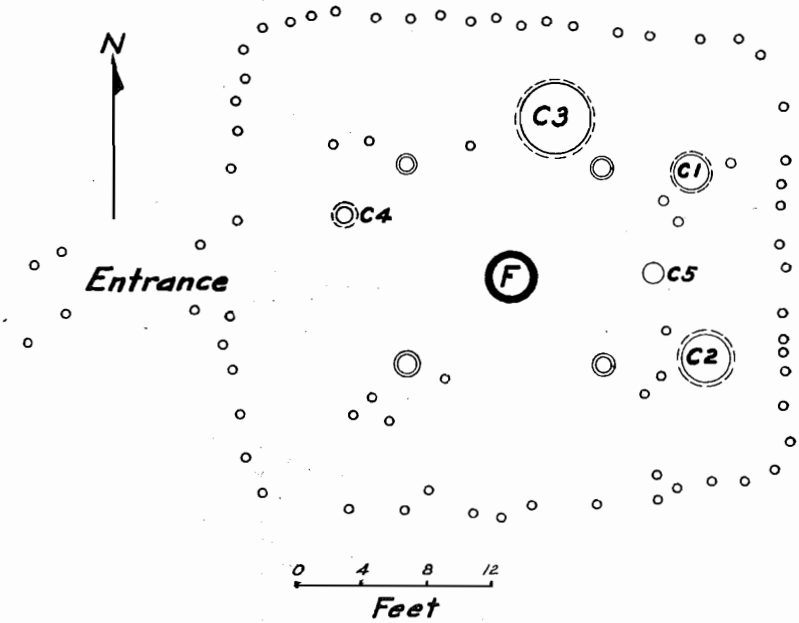

Figure 2. Ground Plan of Holdrege 4, House 2.
F, firepit; double circle, center posts; 1-5, caches ; O, outer posts; E, entrance passage; depth of floor, eight inches.

clay subsoil. The doorway was not very easily followed, but considerable admixture of charcoal and sherds occurred to the west just outside the house wall, substantiating meagre evidence afforded by three small postholes as to direction of entrance. A few feet to the west, directly in front of the opening, were two shallow pits filled with rubbish. They may have been caches, though there was nothing in either their shape or contents to indicate this. Possibly they were dug in a search for clay with which to mend the roof of the house, the open pits being afterward filled in with garbage. The larger of the holes was forty-two inches across; the smaller was eighteen; both measured fifteen inches in depth.

Two fragmentary vessels were recovered from the northeast corner of the house floor and a third came from the northwest. Diamond-shaped bevelled knives, clam-

shells, two scapula hoes, and a stone ball lay on the north side of the house. Thin knives and scrapers of yellow-brown chert were plentiful. This material came mostly from the north peripheral half of the floor; perhaps 70% of the house area had been stripped by either plow or vandals.

House 2 was on the summit of a hill perhaps 100 yards east of the spring. Its exposed location had necessarily subjected it to erosion, though until the prairie sod was broken it is unlikely that much of the covering soil had been removed. In all probability more material has been washed off this hilltop within the past fifty years than in the previous 500. Some compensation lay in the fact that the floor had for the most part been barely scratched by the lister, and had not at all been touched by vandals. It was found necessary only to remove the loose tilled soil, and then scrape away the firm earth in thin layers.

House 2 was rectangular in shape, with a fairly regular outline. It measured thirty-two by thirty-four feet, the long axis north-south. The floor lay eight inches underground, was indistinct, and had been scored by the lister in plowing. There were fifty-five outer postholes, averaging six inches in diameter by twelve to sixteen inches deep. There were four center postholes, each at a radius of nine feet from the firepit; they formed a twelve-foot square. The center postholes ranged from fifteen to eighteen inches diameter and from twenty-four to thirty inches deep. The firepit was slightly off center; it was thirty inches across, and contained several inches of ashes. The doorway was to the west, marked by three pairs of postholes. (See Fig. 2; also Plate II, 2).

There were five caches, located as shown in the accompanying floor plan; their dimensions, in inches, were as follows:

	Diameter at Top	Diameter at Bottom	Depth
Cache 1	30	36	36
Cache 2	32	42	36
Cache 3	48	48	24
Cache 4	14	14	20
Cache 5	14	14	18

Inasmuch as the plow had skimmed the floor level, most of the sherds, bones, and flints had been brought to the surface and scattered. Small end scrapers were fairly abundant, and several large chipped celts were recovered. An elbow pipe of fine pink limestone was found about six feet southeast of the firepit. While not very rich from the standpoint of specimens, this house gave an excellent idea of the general type of habitation found in the upper Republican valley.

Excavation was begun on a third house site about 400 yards south of the spring. Tests here revealed the presence of large masses of yellow burnt clay bearing impressions of cornstalks and sticks. Beneath this was a twenty-four-inch firepit containing two or three inches of ash. By working radially outward, four center postholes were found, in addition to several small caches. Numerous rodent burrows slowed down the operation. To climax matters, it was necessary to fill in the excavation, begun in the morning, during the early afternoon of the same day to facilitate listing of the field. As a result, the size and shape of the house, as well as other features, could not be determined. Little pottery and few artifacts of any sort were dug up.

Medicine Creek 4

Medicine Creek is one of the principal tributaries of the Republican river in western Nebraska. It heads in the High Plains about twenty miles south of the forks of the Platte river and flows in a southeasterly direction for some forty miles to join the Republican at Cambridge. The headwaters are generally treeless with relatively broad shallow valleys. Below Maywood, however, the creek is characterized by a valley from one to three miles wide bordered by high bluffs. The floodplain was formerly marshy, and subject to frequent overflow during the spring rains. Elm, ash, and other hardwoods grew abundantly along the stream at the time of settlement; today, cottonwood and willow predominate, with but small remnants of the hardwood groves surviving. Spring-fed all along its course, the Medicine carries a considerable volume of cool water even during the heat of midsummer.

Terraces of variable size, evidently remnants of a former higher flood plain, rise some thirty feet above the present bottoms. They are a conspicuous and typical feature of the physiography of the valley throughout much of its length. Nearly every terrace bears remains of aboriginal occupancy. In some instances these terraces have been reduced in size by lateral stream erosion so that portions only of the villages are left. Sites are present literally by the score. They occur not only on many terraces, but as well on the higher hills, though seldom as much as a mile from water. They are never found on the bottoms. These, subject to inundation, were doubtless used for horticultural purposes. The density of population in aboriginal days was probably not much less in the valley than it is at present, even if we assume that the sites were not all occupied at the same time.

Preliminary excavations were made in the Medicine Creek district during the summer of 1933 by A. T. Hill, J. C. Samms, and the writer, sponsored by the Nebraska State Historical Society. Three sites were investigated in the neighborhood of Stockville, and their affinities demonstrated with the Upper Republican pattern.[4] The area was not in the itinerary as at first planned for the 1934 season. However, at the invitation of John Howe, Stockville merchant, it was decided to examine briefly a site which promised supplementary information.

The site is about two miles south of Stockville and within a mile of the Thompson site, investigated in 1933. It consists of a series of house ruins scattered along a high ridge or bluff nearly a hundred feet above the valley of the Medicine, below the point where it is joined by Cedar creek. The latter formerly flowed in a wide sweeping curve at the base of the bluff, but now empties into the Medicine several hundred yards above. The nearest water supply is thus nearly

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[4]Wedel. 1934, pp. 144-166; see also Strong, 1932a, p. 152.

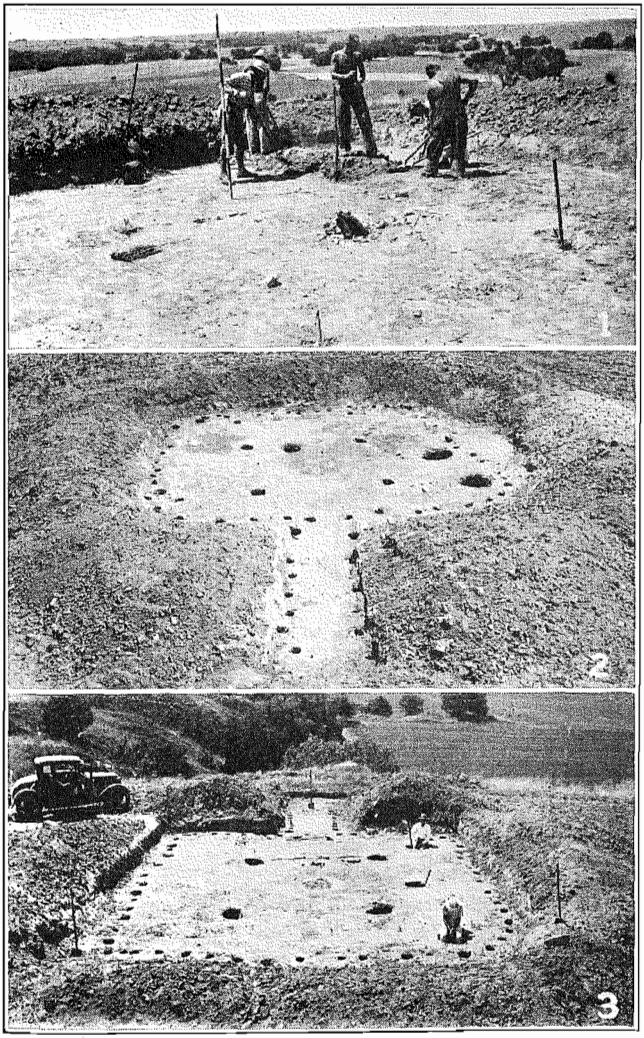

PLATE III

1. Excavation of northwest corner of House 2, Medicine Creek 4. Medicine Valley in background.
2. House 1, Medicine Creek 4, showing four center post-holes and three caches. Entrance to southwest. Diameter twenty-four feet.
3. House 2, Medicine Creek 4, showing four center post-holes and caches 1-3. Entrance to west. Medicine-Cedar creek bottoms in background.

a half mile distant, but during aboriginal days was doubtless much closer.

The site was arbitrarily designated Medicine Creek 4, three sites having been surveyed the preceding season. There is no topographic map for the valley. Hence the name of the valley itself was selected and incorporated in the site designations.

House 1 (Plate III, 2) may be summarized as follows. The shape was rectangular, but very irregular. It measured twenty-two by twenty-four feet, long axis lying northeast-southwest. Depth was twenty-four inches at the center, somewhat less at the edges, with the floor generally indistinct. The outer edge of the house was marked by forty-seven postholes from twelve to twenty inches apart. They average six inches in diameter and varied in depth from eight to sixteen inches; a few yielded rotten wood. There were four central postholes, each six feet six inches from the center of the firepit; they average eleven inches diameter by twenty-four inches deep. Entrance was to the southwest, fifteen feet long by four feet wide. The firepit was twenty-four inches across and six inches deep, baked red, and filled with ashes. Cache 1 was four feet three inches north of the firepit; it was seventeen inches across the top and fifteen inches deep, with vertical sides. Cache 2, twelve feet six inches south of the firepit, had a diameter at top of twenty-five inches, at bottom fifty-two inches, and a depth of thirty-eight inches. Cache 3, nine feet nine inches southeast of firepit, was twenty-two inches across the top, nineteen inches deep, and had vertical sides.

From the central portion of the floor were taken large masses of yellow burnt clay, impregnated with grass and showing pole impressions on one side. Several lumps showed that the grass-clay mixture had been twisted or wrapped about the poles. All had obviously been subjected to intense heat. It seems likely that this material came from the roof, probably from the central portion. In one lump was found a small freshwater clamshell, indicating that the roofing material was gathered in the marshy creek bottoms immediately below the village.

Just above the west central posthole was found the fragmentary skull of a bison and a nearly complete, though crumbly, horn. The latter was nearly eleven inches in circumference at the base. Possibly the skull had been suspended for religious purposes from the post or placed elsewhere in the dwelling, as was customary among the historic Pawnee. A few grains of charred corn came from the north posthole. Sherds were scattered about over the floor, along with a few bones and flints. On the west side was a small patch of floor baked almost to the hardness of pottery.

Caches 2 and 3 yielded a fair amount of cultural material. From the former came two bison scapulae used as hoes, an end scraper, a tubular bone bead, an arrowpoint, broken animal bones, and a few sherds. The latter yielded charred corn, flints, animal bones, and a

bone gorget. In general, however, the artifact record was not very extensive.

House 2 (Plate III, 3; Fig. 3) lay about seventy yards north by east of House 1. Unlike the latter, it was oriented to the cardinal points, the long axis lying north-south. In shape it was rectangular, measuring thirty-two by twenty-seven feet. The depth was twenty-seven inches at the center, but decreased to twenty-four at the edges. There were fifty-one outer postholes, about twenty-four inches apart, averaging eight inches in diameter and varying in depth from eight to twenty inches. Center posts were four in number, each approximately eight feet from the firepit, varying in diameter from sixteen to twenty-four inches and in depth from twenty-four to thirty-two inches. The entrance was to the west, twelve feet long by slightly over four feet wide. The firepit was thirty inches across by eight inches deep, and contained ashes.

Near the outer end of the entrance passage was an ash layer about six inches thick, which probably represented dumpings from the fireplace. The floor was very indistinct, but its general level was indicated by a thin stratum of potsherds, flints, and bones. There was no charcoal in the house, and the general indications are that it rotted rather than burned down. From a number of the postholes, particularly on the west side, were taken quantities of decayed wood. One, indeed, yielded chunks as much as eight or ten inches in length.

Six caches were opened in House 2. Their location and measurements were as follows:

	Diam. at top	Diam. at bottom	Depth	Dist. and Dir. from firepit	
Cache 1	18	36	38	North	8 ft.
Cache 2	16	58	58	No.Ea.	15 ft.
Cache 3	30	36	36	No.We.	14 ft.
Cache 4	30	36	36	East	8 ft.
Cache 5	24	32	32	South	8 ft.
Cache 6	27	36	36	So.Ea.	16 ft.

As will be seen by a glance at the floor plan (Fig. 3), the disposition of the pits is quite systematic. One cache is in each corner save the southwest, and there is one on each side of the fireplace save the west. The west side was doubtless left open because of the doorway. Such a definite plan is unusual, the only concern ordinarily having been to place the pits outside the center posts and nearer the wall

From House 2 came an unusual series of bone artifacts. Awls were especially numerous and fine, but there were also beads, shaft "wrenches," bodkins, hoes, and various ornaments. Sherds, flintwork, paint, and the usual broken animal bones were present in quantities. The artifacts will be discussed more fully in a subsequent section.

We may note in passing that hardwoods were most frequently used in house construction on the Medicine. Ash, locust, and perhaps

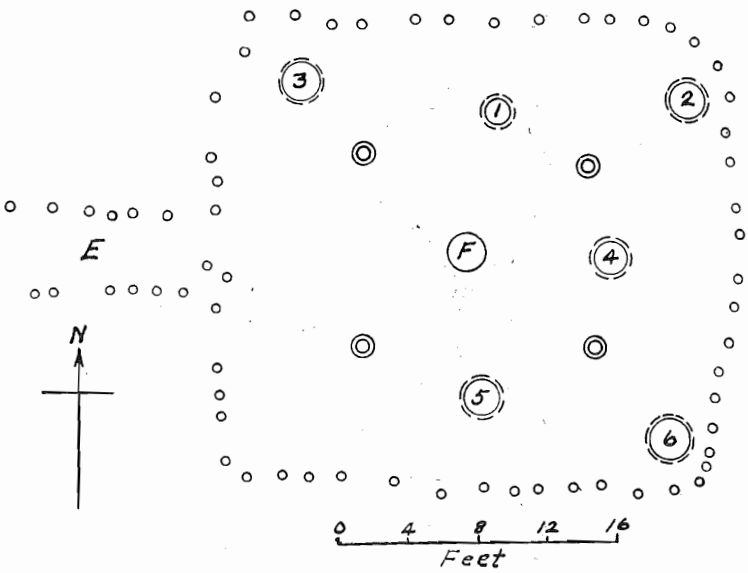

Figure 3. Ground Plan of Medicine Creek 4, House 2. F, firepit; double circle, center posts; 1-6, caches; O, outer postholes; E, entrance passage; depth of floor, twenty-seven inches.

elm were well represented in all sites so far investigated here. From House 2 came one piece of pine, used as a center post. In aboriginal days, presumably, conifers were present in the breaks along the Medicine; today, they are rare and consist mainly of scrub juniper. Cottonwood and willow were never used for construction, at least in prehistoric days. On the Republican, below the mouth of the Medicine, oak was the favorite wood, being nearly always employed for center posts. In the historic period, the Pawnee likewise seem to have had a predilection for oak, with some minor use of juniper.

Middens at Medicine Creek 4 were located along the edge of the bluff, within twenty yards of the house sites. Sporadic excavations have been conducted here by vandals for a number of years, and our party made no attempt to work out the deposits. Several small series of sherds and flint artifacts from the middens were brought to camp by local collectors for our inspection, and all were essentially identical with the material recovered from the house sites. The refuse seems to occur to a depth of some thirty inches, but much of the superincumbent soil is wind-blown and sterile. The actual depth of detritus is uncertain, but is probably not over fifteen to eighteen inches.

Additional house sites are doubtless present along the ridge. However, it was felt that an adequate artifacts series for comparative purposes was obtained. As a whole, the material tallies with that recovered in the Stockville area in 1933, and shows unmistakable specific relationships to the culture found in the Lost creek district of the Republican valley.

Redwillow 1

Six or eight miles below McCook, the Republican is joined by a large creek—the Redwillow—coming in from the north. The Redwillow parallels Medicine creek at a distance of about fifteen miles, and has much the same topography but carries less water. Village sites occur on gentle slopes about forty feet above the bottoms.

Redwillow 1 was on the right or west bank of the creek, some four miles above its mouth and about six miles northwest of McCook. The line of bluffs bordering the valley is highly irregular in this district, with many headlands separated by short deep gullies and coves. Houses have been discovered on a number of these headlands and aboriginal remains appear to be quite numerous throughout the valley as a whole. It was at the invitation of Messrs. H. D. Strunk, editor of the McCook **Gazette**, and F. E. Dillman that the Society undertook the very brief investigations on the Redwillow.

One house site was opened. This lay at the edge of a bluff about thirty-five feet above the creek bottoms. Part of the floor had been carried away by erosion and much of the remaining portion had been dug over by the discoverers. There remained for examination the west and south walls and an eight-foot strip of floor on the corresponding sides; the fireplace and the center posts had been destroyed by digging or washed away.

The floor lay thirty inches underground, and what remained of it was very hard and well-defined. The walls, to a height of about fifteen inches above the floor, were surfaced with baked clay, so hard that when struck with a trowel it gave forth a ringing sound. The house was rectangular; the west side, probably almost with its original length, measured seventeen feet while the incomplete south wall was thirteen feet long. At intervals of twenty-four to thirty-six inches were postholes set just inside the wall, and in some cases, embedded partly in the plaster. There was no indication of doorway, but it was presumably to the east where erosion had long since carried it away. Charred corn, bones, and a few sherds were scattered about over the floor.

Three caches were found and opened. Cache 1, near the northwest corner, was twenty-six inches across the top, thirty-five inches across the bottom, and forty inches deep; it contained a few bones and sherds, with angular blocks of sandstone on the floor. Cache 2, near the southwest corner, was thirty-six inches at the top, forty-eight

inches at bottom, and forty-two inches deep; it yielded nothing. Cache 3, on the south side, was thirty-four inches at the mouth, forty-eight at the bottom, and forty-four inches deep; from it came a scapula hoe, a well preserved badger skull, (**Taxidea Taus**; Schreber) and a quantity of sherds, bones, and flints.

Tests on the summit of another promontory some 300 yards to the northwest revealed the presence of a shallow midden, comparatively rich in sherds and flints, and covered with eight inches of clean aeolian soil. Efforts to locate house sites were unsuccessful, but there is no doubt that a relatively large community at one time was scattered up and down the valley bluffs for some little distance.

The writer made a short reconnaissance trip, in company with Messrs. Strunk and Dillman, to a site some fifteen miles northwest of McCook on the Redwillow, where strong indications of semisubterranean earth lodges were found. Pottery and flints from the site were identical with those in the Stockville vicinity on the Medicine. According to local residents, five crania and a number of shell beads were taken from a burial pit on a prominent hill overlooking the village. From the abundance and character of remains, it would appear that the Redwillow valley is still well within the area dominated by the peoples who lived in prehistoric times throughout most of the Republican valley in Nebraska. The area would well repay thorough investigation.

Data for thirteen house sites are tabulated. Nine of these, or 70 per cent, are definitely rectangular in outline. To this total may be added a square house opened by Dr. Strong on Lost creek in 1930. Less satisfactory, though suggestive of the rectangular form, were remnants of two lodges excavated at Medicine creek 4 by the Society's party in 1933. These additions bring the proportion of rectangular house to 75 per cent of the total on record for the area. Whatever the exact figure, it seems quite obvious that the circular structure is decidedly in the minority. The typical form of dwelling among the prehistoric horticultural peoples of the upper Republican valley was the rectangular semisubterranean earthcovered lodge, supported by four central posts, and varying from twenty to forty feet in diameter. The depth was generally from eighteen to thirty inches below ground level. In our table, the exceptions to this latter statement were due to location of the houses either on the slope or summit of a hill, where erosion had removed most of the overlying material.

Rectangular pitlodges are common along the Missouri river in eastern Nebraska,[5] and are known from a number of sites in the Blue river drainage in southeastern Nebraska. In the Republican valley, they were found by the present party as far west as McCook, nearly 300 miles west of the Missouri, and in the very heart of the Plains area. In the Loup drainage they would appear to be at least equally

[5]Strong, 1933, p. 279.

characteristic.[6] They have also been found in northeastern Kansas, and it seems likely that their distribution will prove to extend southward at least to the Kansas river.

The prevalence of the rectangular over the circular structure in prehistoric central and southern Nebraska raises an interesting point.

Summary of House Data

Site	No. of House	Form	Dimensions	No. of Center posts	Direct. of Entrance	Depth
Superior 2	1	Circ.	17	4	East ?	30
Red Cloud 2	1	Oval	19	4 ?		18
Red Cloud 3	1	Rect.	13x12		East Direct	18
	2	Rect.	30x36	4	East 20x4	24
Holdrege 3	1	Circ.	17	4 ?	South 6x3	30
	2	Rect.	23x24	4	East ?	8
Holdrege 4	1	Rect.	22x20	4	West 4x4	8-15
	2	Rect.	32x34	4	12x4	8
Medicine Creek 1	2	Circ.	14	4	West 3x1.5	16
Medicine Creek 2	1	Rect.	30x27	4	So. West ?	24
Medicine Creek 3	3	Rect.	26x23	12	East 7x3	28
Medicine Creek 4	1	Rect.	22x24	4	So. West 15x4	24
	2	Rect.	32x27	4	West 12x4	27

In the above table, Column 1 gives the index number for the site. Column 2 gives the index number for each house excavated in the site. Column 3 indicates the shape of house—Circ, circular; Rect, rectangular. Column 4 shows dimensions in feet; where 2 figures are given, the first is the north-south measurement. In Medicine Creek 2, House 1, and in Medicine Creek 4, House 1, the first figure is northeast-southwest. Column 5 indicates number of center posts. Column 6 gives direction of entrance and the measurements in feet; the first figure refers to length, the second to width. Column 7 shows depth of house floor below ground surface in inches. Medicine Creek 1 - 3 were investigated during the 1933 season, and their inclusion needs no justification. All other sites were opened during the present season, and their full descriptions are given elsewhere in this report.

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[6]Hill, 1934, p. 168, and 1932, pp. 172-175. For a note on the Blue River sites, see Lamb, 1932, p. 169.

In historic times, the earthlodge was the characteristic dwelling among practically all the corn-growing tribes of the central and northern Plains. Without exception, however, these were circular. In the Pawnee area of Nebraska, archaeological research has shown that this form characterizes protohistoric and historic sites. Rectangular lodge remains have not been found to date in any but prehistoric villages. That the two types are fundamentally related there seems to be very little doubt. Each has ordinarily the four-post central foundation, a secondary system of outer posts, a depressed floor, and a covering of brush and dirt. Occasionally, as at Sweetwater in the South Loup drainage, the two are found together, suggesting a gradual transition from the earlier rectangular to the later historic circular type.[7] In the present state of our information, solution of this problem is hardly possible. Detailed studies on distribution of house types, particularly with an eye to the temporal sequence, will probably give us the key.

BURIALS

Holdrege 5

Holdrege 5 was a prehistoric burial ground lying on the left bank of Rebecca creek about a mile north of Holdrege 4. The majority of prehistoric cemetery sites in the upper Republican region are located on lofty hilltops overlooking the river valley. In this case, however, the burials were made on a gently sloping bench some fifteen feet above an ancient channel of the creek. Farther to the east on the bench were found evidences of a village, but efforts to locate houses were unsuccessful. Ceramic remains on the surface indicated that the site belonged to the same general pattern as the villages previously described in the present report.

The site was discovered some years ago when farming operations brought to light numbers of shell disk beads. Local collectors have dug from time to time with an almost insatiable mania for acquiring these beads. Owing to the fragmentary nature of the skeletal material, however, no interest was shown in the method of burial. Since this trait shows historical and areal variation in our area, the precise character of the present phenomenon was a matter well worth serious attention.

At the time of our visit, the ground had been disked and it was possible to gather a few stray beads on the surface. Some fruitless attempts were made to locate graves through trenching, and recourse was finally had to team and scraper. Humous topsoil to the depth of about sixteen inches was removed in a strip perhaps forty feet long by ten feet wide. Underlying this was yellow clay, very distinctive in color and consistency. The grave pits were plainly marked as black

[7]Strong, 1932 a, p. 151 and Fig. 146.

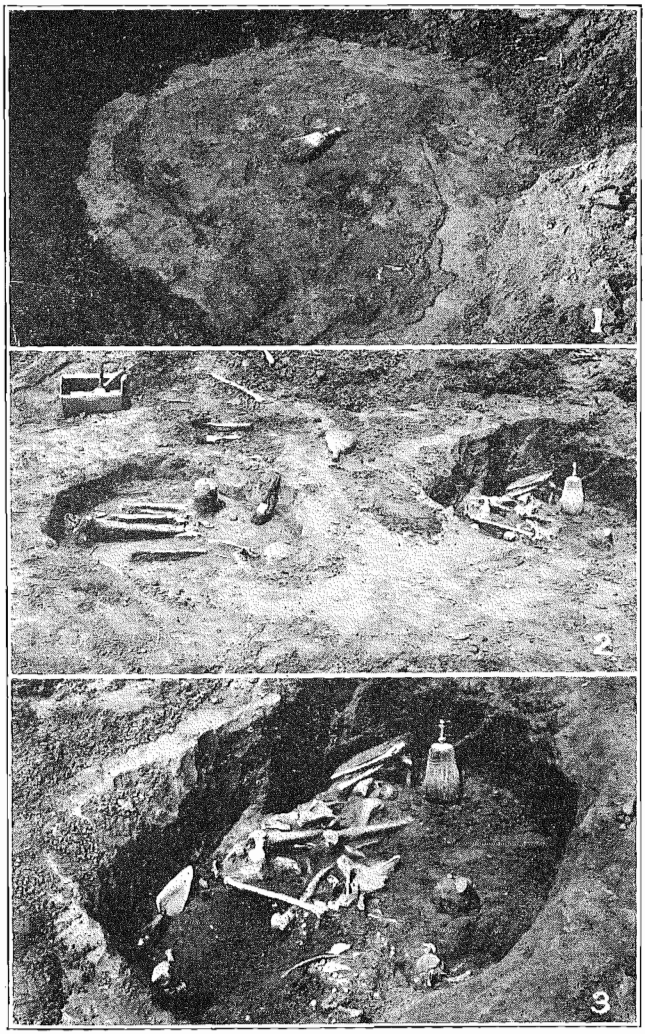

PLATE IV

1. Holdrege 5, Grave 1, prior to opening. The grave fill, with the broom at the center, contrasts sharply with the surrounding lighter clay.
2. Holdrege 5, Graves 4 (at right) and 5.
3. Holdrege 5, Grave 4, showing disorderly nature of burials. Remains of three individuals were in this pit. Shell beads may be seen at lower edge.

oval patches scattered about over the cleared area (Plate IV, 1). Once the several pits had been uncovered, the work was continued with trowel and brush. In all, five pits were opened.

Grave 1.—This consisted of two parts. The grave proper was thirty-four inches in diameter and forty inches deep.[8] About twelve inches above the bottom was a mass of very crumbly bone, too far gone to permit of preservation. In immediate association with the bones was a double row of shell beads about three inches long. Overlying these was a mass of tiny tubular bone beads. These no doubt formed a part of the mortuary costume, perhaps as a bracelet or anklet. Additional bones, comprising parts of a skull and a few teeth, came from a small niche on the southeast side of the grave. This niche was about twenty-four inches square and twenty inches deep. No skull fragments were recognized in the main pit, and it seems not improbable that the skull may have been detached and placed separately in the higher portion of the grave.

Grave 2.—This lay eighteen feet north of Grave 1 and, like it, was in two parts. The main pit was thirty inches in diameter and twenty inches deep. Fragments of crumbly bone were scattered through the fill. The annex, again on the southeast, was sixteen inches across and twenty inches deep. An adult skeleton, probably female, lay in the annex, immediately below plow line. Remains of a young child were closely associated. Both skeletons had evidently been flexed.

There were no mortuary accompaniments with the skeletons. In the overlying topsoil, however, were found four arrowpoints. All were of notched type, with very fine serrations along the edges. Two of them were each three inches long; the others were slightly over one inch each. All were made of brown chert and show careful workmanship. They differ from the usual type of point found in the area, as regards both placing of the notch and serration of edges. They may or may not have been placed with the burials.

Grave 3.—This was a small pit lying just north of Grave 2. It was rectangular in outline, the long axis lying northwest-southeast. Dimensions were thirty by eighteen inches, with a depth of twenty-four inches. The pit was almost perfectly rectangular and had been dug with more care than any of the others. However, it contained barely a handful of crumbly bone, unaccompanied by any artifacts. The pit would have been sufficiently large for a flexed adult burial, and it seems unlikely that it would have been dug for the few bits of skeletal material recovered. Assuming that exposure of the corpse and secondary interment were customary, some ceremonial practice might be invoked to account for the fact. Less likely, perhaps, is the probability of aboriginal grave-robbing in quest of buried trinkets and ornaments.

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[8]All measurements of depth were taken from the original ground surface, not from the top of the clay stratum.

Grave 4.—The largest burial pit lay about ten feet southeast of Gravel 1. It was oval in outline, measuring fifty-four by thirty-six inches, with the long axis north-south. The depth at the south end was twenty-seven inches, at the north end forty inches. Bones were scattered in disorderly fashion throughout the pit. Against the north wall, about twelve inches above the bottom, was the skull of an adult male. Fragments of a child's skull lay near the south end. Near the east wall were parts of a second adult cranium. Femurs, humeri, pelves, ribs, vertabrae, and other parts were so disposed that articulation at time of interment would have been impossible. The pit contained remains of at least three skeletons (Plate IV, 3). Shell beads, mostly about the size of a ten-cent piece or smaller, were found in profusion among the bones, perhaps 500 being recovered from this one pit. There were no pendants or gorgets, nor was there any indication whatever of wrappings or grave lining. Skin or textile shrouds, if any, would have rotted away long ago.

Grave 5.—This was immediately south of Grave 4 (Plate IV, 2). It measured thirty-five by twenty-seven inches, long axis north-south, with a depth of eighteen inches. It contained the remains of a single flexed adult burial, apparently a female. Most of the vertebrae and the pelvis were gone. The head was to the north, resting against the grave wall. The legs clearly indicate flexure, with the knees drawn tightly against the chest. If secondary burial was carried out here, a deliberate attempt was made to simulate the flexion of primary interment. Shell beads were present, though far less numerous than in Grave 4. Broken bits of shell pendants occurred in the fill above the skeletal remains.

Burial methods throughout central and southern Nebraska may be briefly characterized as follows. Among the historic Pawnee, on the Republican as well as on the Loup, the bodies were interred singly in unlined pits. Generally, they were flexed, and lay on one side or the other, or on the back. Children sometimes, and adults rarely, were buried at full length. Glass beads, red and yellow paint, shell objects, and very rarely, pottery, accompanied the body. Sitting burials, mentioned for the Pawnee by La Flesche,[9] have never been found in excavation at historic Pawnee sites.

In regard to the prehistoric practice, we quote Strong:[10]

> "Upper Republican interments consist of ossuaries on the tops of hills or bluffs where previously exposed fragmentary human remains and various artifacts have been deposited in large pits. The transition between the individual burials of the historic Pawnee and these prehistoric ossuaries is not yet clear . . . "

Ossuaries of this type are fairly common along the Republican river.

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[9]Bushnell, 1927, p. 79. Also see Wedel in "Introduction to Pawnee Archaeology" waiting publication at the Bureau of American Ethnology, Washington, D. C.

[10]Strong, 1933, p. 278.

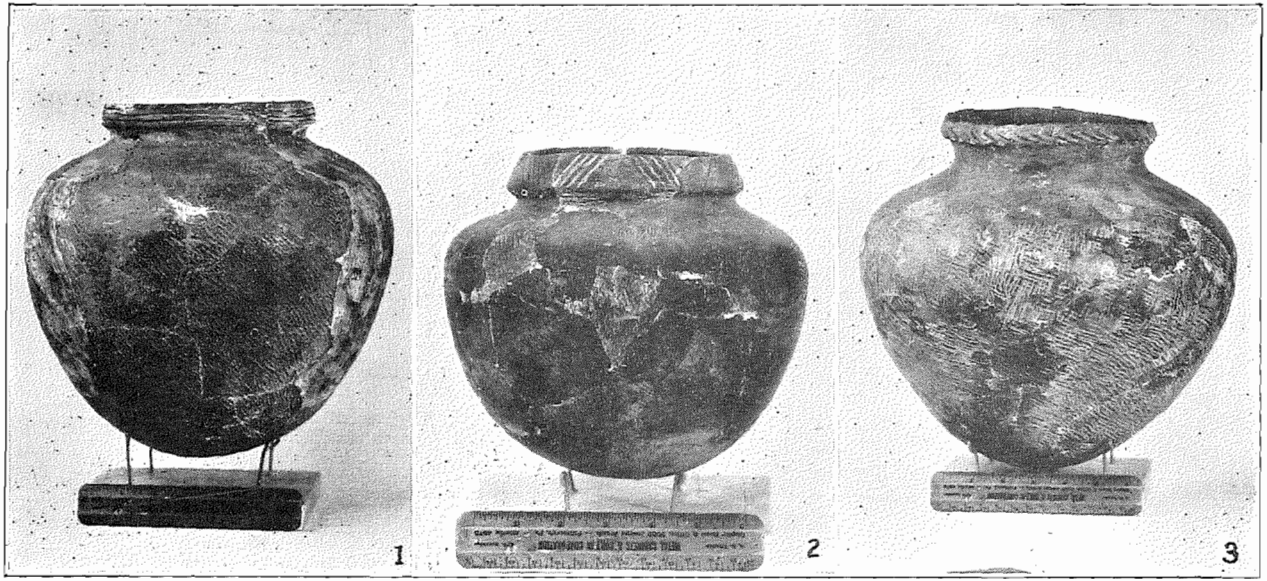

PLATE V

Pot 1. From Red Cloud 3, House 2. Pot 2. From Holdrege 4, House 1. Pot 3. From Medicine Creek 3.

A second focus for the trait is in the Loup drainage in south central Nebraska. The pits ranged up to about twenty-five feet in diameter by five feet deep. The skeletal remains were thrown helter-skelter into the pit and covered with dirt. Sometimes sherds were thrown in with the bones. At other times, shell beads were used, literally by the thousand. Beads and pottery seem never to occur in the same ossuaries.

A somewhat different method appears to have been followed on the Medicine and Redwillow creeks. Local collectors here report the presence of individual and group burials in pits varying up to about six feet across. The graves are generally lined and covered with stones. As a rule, they are found on hilltops, their location being indicated by the stone covering upon removal of overlying soil by erosion. Shell ornaments are said usually to accompany the interments. Detailed and accurate data on this practice are highly desirable, since there are certain variations from the usual ossuary type of burial. These data, it may be pointed out, can be gotten only through careful excavation and not by promiscuous looting of the graves.

Holdrege 5 recalls the historic Pawnee pattern in the use of small oval pits, and by the evidence of flexion in Graves 2 and 5. The very fragmentary bone in Graves 1 and 3 suggest ossuary burial. Grave 4 is nothing more nor less than an ossuary on a small scale. The scattered bones, clearly belonging to several individuals, and the numerous shell beads tell a convincing tale to anyone with experience in ossuaries of the usual type.

At least one other burial ground similar in character to Holdrege 5 is known. This is the Marshall site, opposite the town of Alma on the south side of the Republican, about twenty-five miles west of the Rebecca creek site. This was excavated by Strong in 1930, and has been examined on several occasions by A. T. Hill for the Nebraska Historical Society and the Hastings (Nebraska) Museum. Here also a group of small pits yielded broken and disarticulated human remains, with thousands of shell beads intermixed.[11] It seems likely, therefore, that the use of these small pits instead of the large ossuary was not an isolated phenomenon at one locality, but may represent the beginning of a trend toward individual sepulture.

The precise nature of the transition is, as stated by Strong, still obscure. The data are as yet too scattered and incomplete to permit of a solution for this highly interesting problem. The collection of accurate first-hand data on burial methods, bearing in mind chronological changes, is certainly one of the most pressing needs in the upper Republican area at present.

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[11]A report by Strong on this interesting site is awaiting publication at the Bureau of American Ethnology, Washington, D. C.

ABERRANT SITES

Medicine Creek 5

Fifteen miles northwest of Stockville, above the town of Curtis, Medicine creek is joined from the south by Brushy creek. Brushy, like the Medicine, flows in a valley perhaps 400 yards wide. About half a mile west of the confluence is a narrow ridge between the creeks, evidently the last remnant of the divide which formerly separated the two valleys. The meandering habits of the Medicine resulted in cutting away of the divide above the ridge, while the latter itself has escaped for a time. Upon this isolated ridge were found aboriginal remains quite different in character from those in the Stockville vicinity. The party was guided to them by John Adams of Curtis, while en route from Stockville to McCook, and a few hours only were spent at the place.

The ridge varies in height from eighteen to thirty feet, and extends perhaps 150 yards in a general easterly direction. At no point is the top more than fifteen yards wide. Along the summit were scattered charcoal, sherds, and some flints. Exploratory digging presently disclosed two contiguous firepits immediately below the crest on the south slope. The larger measured twenty-four inches across and contained five inches of ash. The second, on the east, was twelve inches across by two inches deep. Careful work on the uphill side of the firepits revealed an occupational horizon at a depth of about six to eight inches. Discolored soil, mixed with charcoal and sherds, occupied a roughly rectangular area extending some five feet to east, north and west of the hearth. Erosion had removed the south side. There was no traces of postholes, the margin being marked only by a change in nature of the soil. Sherds were quite abundant, and it seems probable that some sort of lodge once stood here. If so, it was apparently a perishable structure of light brush or skins; there was nothing to indicate an earthlodge ruin.

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

lies in the heart of the Sandhill region, about ninety miles north of Curtis. According to Omaha tradition, the Padouca (Comanche) formerly had a 'fort' in the forks of the Dismal, the region in which this ware is most abundant. Sites yielding this 'Dismal River Ware' have been reported on the Stinking Water creek near Wauneta, but have not as yet been investigated. The ware is wholly different from that of the upper Republican and lower Medicine, and the two types have been recorded together from only one site—Signal Butte, in extreme western Nebraska.[12]

Small crude end scrapers of usual Plains type and small notched or triangular arrowpoints were found in association with the ware. Broken leg bones of bison, particularly by the heavy joint ends, were common. There were no bone artifacts, but Mr. Adams reported the finding of bone awls in the past.

Immediately east of the firepits were found five conical copper jingles. These varied in length from one to 1.5 inches and were rather crudely made of sheet copper. They lay together in a small pocket in the floor. In the fill above the floor was found a copper cartridge case, calibre .44, rim fire, stamped with an "H" on the base. Nearby, and also above the floor, was a bit of harness leather.

The identity, age, and distribution of the culture here represented are still uncertain. Tentatively, we may designate it by the purely geographical term "Dismal River Culture." As already stated, it is distinct from the Upper Republican type ceramically. Great quantities of broken animal bones characterize the sites on the Dismal river, suggesting a hunting rather than a primarily horticultural subsistence. The pattern seems to be distributed throughout the Sandhill and High Plains regions of Nebraska, lying in general to the west and north of the villages of the horticultural peoples of the upper Republican. As regards age, we have already noted its occurrence in the same level with upper Republican type remains at Signal Butte. This would place it definitely in the prehistoric period. Elsewhere, however, the two cultures seem to have had little or no contact. There remains to be explained, then, the presence of metal in the site near Curtis.

The copper jingles, made of sheet metal, may have been of aboriginal manufacture, i. e., traded in from the copper-using Indians of the eastern United States. At Mound City near Chillicothe in southern Ohio, Mills found

> " . . . tubular copper beads, about an inch in length, rolled from thin metal. With these were several copper bangles, similar in manufacture, except that one end is closed, or pointed, after the manner of the conical metal bangles so generally used by the western Indians of later days."[13]

This description would fit the Nebraska objects equally well. Moreover, copper has been found by Strong in a prehistoric ossuary on

[12]Strong, 1932 b, P. 72; Fig. 72, a, b.
[13]Mills, 1922, p. 554.

the Republican in the form of foil laid over a thin wooden disk and perforated centrally.[14] This view, if verifiable, would make the Dismal River and upper Republican cultures contemporaneous with certain prehistoric mound-building groups.

The copper cartridge case is of much later date. The trademark "H" clearly identifies it as of the type used with the famous Henry rifle, invented in 1860 and popularized during the Civil War.[15] This would place the time of the site within the last seventy-five years. The writer is unable to find record of pottery-making Indians living on the upper Medicine in 1860 or after. The Pawnee, who were primarily horticultural, seem to have made very little pottery after 1850, and it is extremely unlikely that there were any other pottery-using Indians in southern or western Nebraska at that late date. Moreover, it is fairly certain that the site now under consideration was not late historic Pawnee. We are inclined to regard the cartridge case and the piece of harness leather as intrusive, perhaps dropped in comparatively recent times and covered over by soil wash and slumping. As stated before, both were in the fill above the floor. The jingles probably associate with the pottery and stone work, and date from prehistoric or very early protohistoric days.

MINOR ANTIQUITIES

The lesser remains recovered in the excavations included pottery, food remains of a vegetal nature, implements of stone, bone, horn, and shell, and ornaments. Objects of a perishable nature, such as wood, bark, skin, basketry, and textiles are almost never found in the usual prehistoric or protohistoric village sites on the Plains. Caves are virtually absent from the greater part of the upper Republican drainage. Consequently, perishable remains can be recovered only in those rare instances where they have been charred by fire. This means that only a part of the material culture of the aborigines can be reconstructed by archaeology. Of their non-material culture, such as social organization and religion, obviously nothing remains. We can give, therefore, but a fraction of the picture, drawing attention wherever possible to similarities of this to known historic cultures.

In the following sections, the artifacts found will be described as fully as circumstances permit. Beginning with foodstuffs, we shall continue through pottery, stone, bone, horn, and shell. The descriptions will necessarily be incomplete, since the writer was able to spend less than a week, following the end of actual digging, in a laboratory comparison of the material. This brief study, plus field notes taken from day to day and a series of photographs, provide the

[14]Strong, 1933, p. 279.
[15]Sawyer, 1920, pp. 277-278.

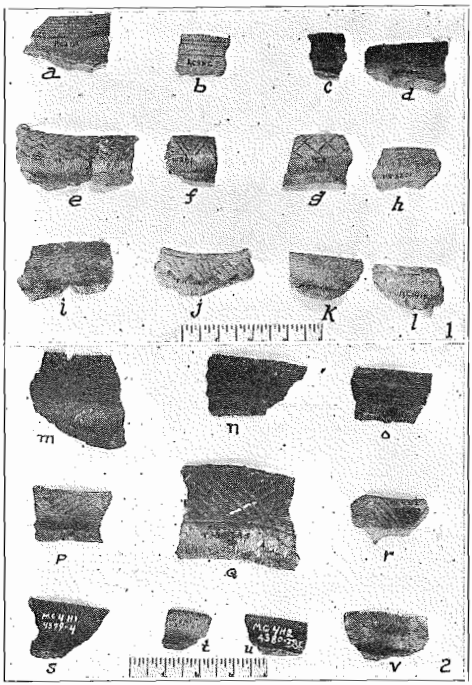

PLATE VI

1. Rimsherds from the Lost creek district, upper Republican valley. a-g, k, l, Red Cloud 3; h-j, Holdrege 4.

2. Rimsherds from Houses 1 and 2, Medicine Creek 4.

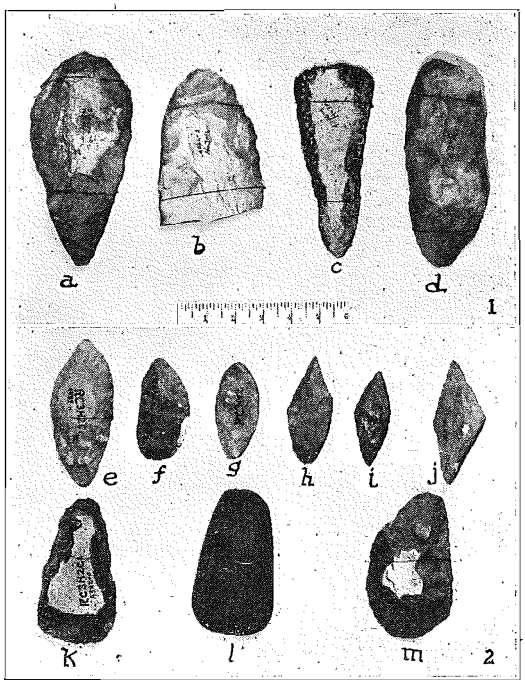

PLATE VII

1. Flints from the Lost creek district, upper Republican valley. a-c, Holdrege 3; d, Holdrege 5.

2. Chipped and polished stonework from Lost creek district, upper Republican valley. e, g, i, k, m, Red Cloud 3; f, h. j, Holdrege 4; 1, Red Cloud 2.

basis for the present report. All of the collections are in the Museum of the Nebraska State Historical Society at Lincoln. The report was prepared in Berkeley, California.

Food Remains

Vegetal.—Positive evidence was found showing that corn and beans were cultivated by the prehistoric people of the upper Republican. The caches at Superior 2 yielded quantities of charred corn, as well as husks and stalks. Two small charred corncobs were recovered at Red Cloud 3, House 2. The length of neither could be determined, but each had apparently not more than 6 rows of kernels. Cobs from the historic Pawnee site at Red Cloud, occupied in 1800, have 12 and 16 rows. At Holdrege 4, House 3, corn was again found, mostly as short wide kernels. Corn was also found at Medicine Creek 4, House 1.

Beans were found only at Superior 2 in Cache 13. There were two of these, each about the size and shape of a navy or pinto bean.

Cucurbitaceae were discovered at Superior 2. Fragments of squash rind and stem came from Caches 13 and 36. Expert identification of these vegetal products has not as yet been made, and their specific names can not be given here.

Many fruits, nuts, berries, and seeds were doubtless utilized for food, but their remains were not found—or if found, were not recognized as such.

Animals.—Among the bones scattered as refuse about the several sites were represented bison, elk, deer, antelope, dog, jackrabbit, beaver, otter, and probably several other smaller mammals. Turtle bones were especially plentiful at Red Cloud 3, House 2, and on Medicine Creek. Bird bones were not very numerous, but at Holdrege 3 in the middens were found sternums of four prairie chickens. Probably ducks and geese were also eaten, but their bones were not recognized. Expert examination would doubtless result in expansion of this list.

Pottery

The characteristic prehistoric ware of the upper Republican valley in southern Nebraska is medium to dark gray in color. A small proportion of sherds, seen in cross section, have a gray core with surfaces fired to a light brown. The color is never uniform throughout the entire vessel, probably due to mechanical difficulties encountered in baking the pieces. The paste is fine, hard, and even in texture. Fracture is in fairly straight lines and even curves, and the break is clean but slightly granular. The ware does not shatter nor crumble readily, nor do sherds bubble freely when immersed in water. Tempering consists of sand or of angular quartzitic particles, moderately used.

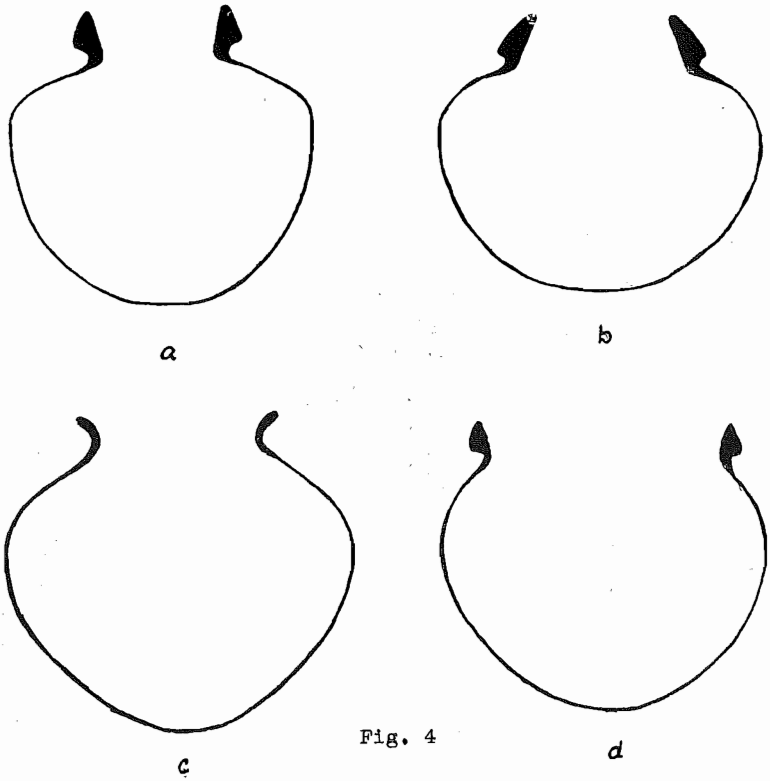

Figure 4. Upper Republican Vessel Shapes.

Two small sherds from Holdrege 3 were tempered with crushed shell, extremely rare in the area.

Large full-bodied vessels are the common form. The walls, as judged from the great majority of our sherds, averaged about .2 inch in thickness; rarely they ran as high as .3 inch or slightly more. Exterior surfaces in perhaps 95% or more of the sherds bear cord impressions, evidently applied with a cord-wrapped paddle while the clay was wet. Sometimes the impressions crisscross. In many cases, the vessel had been gone over with the moistened hand or a smooth pebble, partially obliterating the cord marks. Basketry and true textile impressions are absent. Vessel interiors are moderately smoothed but uneven. They sometimes show slight cracks due to imperfect drying or firing. At other times, faint striae suggest the use of a pebble in rubbing down irregularities. Vessels never show a high polish. Slip, painted decoration, and incised or applique body designs are uniformly absent.

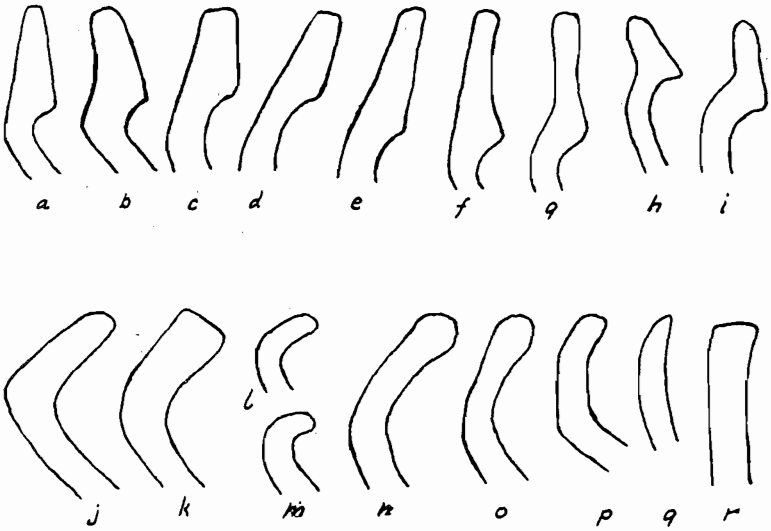

Fig. 5

Figure 5. Upper Republican Rim Shapes. Class I (collar type), a-i; Class II, j-r. The exterior surface in each is to the right.

Vessel shapes are simple and uniform (Fig. 4). Very characteristic is a large hemispherical jar with rounded shoulder, flattish upper-body, and a constricted neck overhung by a collared rim. These jars range in diameter from 9 to 15 inches, and are usually somewhat less in height. A less common shape, usually found in somewhat smaller vessels, is almost perfectly globular and lacks the shoulder, though retaining a constricted neck and more or less flaring rim. Smaller pots are almost unknown as yet[16], but there is some reason to believe that they resembled in a general way the foregoing. Bowls, ladles, and potlids, found in historic Pawnee villages, are so far unknown from these prehistoric sites.

The absence of handles or lugs of any sort is quite typical. A small globular pot with two perforated "ears" or tabs on the lip is known from the Medicine valley[17]; it is quite unique for the area, however. Handles are, on the other hand, a common feature along the Missouri river in eastern Nebraska. They are likewise highly characteristic of proto and historic wares of the Pawnee area.

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[16]Strong, 1933, p. 280 asserts that "the Upper Republican (and Pawnee) vessels are small to medium in size." The statement holds for the Pawnee, but appears to be inaccurate for the Upper Republican.

[17]Wedel, 1934, p. 160 and Plate III, t.

Rim shape and decoration constitute valuable taxonomic characters. Rims may be grouped into two main classes on the basis of profile. Specimens of Class I, seen in cross section, are characterized by a thickened "collar" which overhangs and accentuates the constricted neck. The degree of overhang, as well as the angle made by the inside of the neck, show considerable variation (Fig. 5, a-i). Rims of this type may be considered the typical form in the upper Republican area from Red Cloud west to McCook, including the Medicine valley. As an example, 76% of the rims from Holdrege 3 and 74% from Holdrege 4 belong to this class. The same general form occurs abundantly in prehistoric sites on the Little Blue and Loup drainages. In passing, we may say that it is also found commonly in historic Pawnee sites.

Class II includes all rims which lack the collar (Fig. 5, j-r). For the most part, they flare outward from the neck but in varying degrees. In a few cases, the rim rises vertically from the neck. Thickness is generally uniform, and about the same as the wall of the particular vessel from which the rim came. Occasional exceptions occur where the rim is flattened. As a type, this class is less characteristic than the preceding, and in one form or another it is found nearly everywhere in Nebraska.

Rim ornamentation (Plate VI) goes hand in hand with form as a diagnostic. For practical reasons, those of Class I were most elaborately decorated. The space between lip and lower edge of collar provided a sort of panel for various designs. The predominant motif consisted of three to eight parallel incised lines encircling the vessel horizontally (Fig. 6, a-c). 51% of collared rims from Holdrege 3 and 40% from Holdrege 4 exhibit this pattern. Less commonly, the zone was divided into triangles filled in with diagonal parallel lines, the lines in adjacent groups slanting in different directions. Lozenges, chevrons, and vertical cord-impressions were other motifs (Fig. 6, e-k). Less than 10% of collared rims remain undecorated. Applique was found in but one specimen, where small nodules of clay had been stuck onto the lower edge of the rim to give a scalloped effect.

Class II rims were left plain in 50% of our series. The remainder bear small diagonal incisions or punctate units on the lip. Where the rim rises vertically from the neck, it usually carries cord impressions, a continuation of the exterior body treatment.

Intrusive Wares

Special mention should be made of a large broken jar from Red Cloud 3, House 2. Though scattered freely over the floor, the fragments were readily recognized as not of local type. The size and shape of the vessel, not yet restored, were calculated as accurately as possible in the field. It was evidently a full-bodied jar with conoid-

al bottom. The mouth was approximately 12 inches across. The maximum diameter, 6 inches below the mouth, was 13.5 inches. The depth was about 16 or 18 inches. The lip turns outwards very slightly, is roundish, and has no decoration. Walls vary in thickness from .25 to .75 inch, the bottom being heaviest. The paste is gray, tempered with coarse grit which shows on the interior surface. The exterior shows coarse cord impressions, vertically placed. All in all, the vessel strikes one as definitely foreign to the locality where it was found.

In the Nebraska State Historical Society's Museum at Lincoln are three similar pots. They were obtained years ago in the extreme southeastern corner of Nebraska near the Missouri river. One, restored, stands about 17 inches high by 11 inches in diameter. It was found 9 feet underground near Falls City in 1916, while a drainage ditch was being dug. The exact provenance for the others is uncertain. Much smaller but similarly shaped vessels were found by Strong at the Walker Gilmore site south of Plattsmouth, at depth of 16 feet. This site has been assigned by Strong to "a Woodland culture of northeastern affiliations . . . apparently related to the 'Algonkian' and Lake Michigan cultures of Iowa and Wisconsin . . . "[18]. Unfortunately, we know almost nothing of the pottery types and cultures of southeastern Nebraska. Conoidal vessels are, however, anomalous on the Upper Republican 200 miles west of the Missouri, and their nearest known occurrence is in Richardson and adjacent counties. If an Algonkian culture did exist throughout this district, it appears to have underlain temporally the Nebraska culture which characterizes the Missouri valley[19]. Contemporaneity of the Algonkian with the Upper Republican peoples, as suggested by the cross find of Algonkian type pottery at Red Cloud 3, would imply then priority in time of the Upper Republican over the Nebraska culture. The exact relationship here must wait determination of the southeastern Nebraska field.

At Redwillow 1, a small percentage of the sherds differed suggestively from the common type. They were light gray in color and ranged from .3 to .6 of an inch thick. The paste appears finely sponge-like in cross section, and is sparingly tempered with sand. The exterior is deeply impressed with heavy cords. In a few pieces, the interior is similarly treated. We feel that these sherds indicate

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[18]Strong, 1933, p. 281. The Lake Michigan pattern, so far as the writer is able to determine, is characterized chiefly by conoidal pottery vessels, highly varied stone industries, effigy mounds, horticulture, and perishable houses of bark or thatch. The pottery, perhaps its most distinctive feature, has been found at sites known to have been occupied by historic pottery-making Algonkians, and is basically identical with eastern Algonkian ware. For these reasons, it has been attributed to a "Western Woodland Algonkian" culture, probably similar to that of the Menomini of historic times.

[19]Sterns, 1915.

external influence, but from where and by whom there is not the slightest evidence.

No puebloan sherds were found during the seven weeks spent on the Republican. Southwestern influences upon the prehistoric people of the upper Republican seem to have been nil, at least so far as archaeology is any indication. No traces were recognized of possible intrusive wares from the east or southeast, other than the single Algonkian type vessel above described.

TABLE II

Rim Types and Designs

Site	No. Rims	% of Total	Class I Incised	Plain & Misc.	Class II % of Total	Dec.	Plain
Red Cloud 3	144	53	44	9	47	28	19
Holdrege 3	41	75	51	24	25	12	13
Holdrege 4	47	74	55	19	26	13	13
Medicine Creek 4	71	86	70	16	14	7	7

Table II very briefly summarizes the rim types from four representative sites in the upper Republican valley. The total number of rims from each site is given in Column 2. Columns 3 and 6 show the relative percentages falling into each of the two main classes on the basis of profile. Column 4 indicates the proportion of the total which has incised decoration. Column 5 includes rims which are either plain or bear cord impressions, the latter usually almost obliterated. Column 7 and 8 show the presence or absence of ornamentation on rims of Class II.

It will be seen that Class I includes from 53 to 86 percent of all rims from the various sites. The proportion appears to rise as we go west, that is, up the Republican and away from the Missouri. Collared rims, we may note, are very rare in the Missouri valley of eastern Nebraska. Generally speaking, the collar occurs in about 70% of the rims from the upper Republican valley. Within Class I, moreover, incised linear motifs—parallel lines, lozenges, hachuring, and triangles—form the rim embellishment in 65% or more of the specimens. The extensive use of parallel lines in this area is evidently a local peculiarity, due to concentration upon one motif in a wide range of known designs. The combination of collar with parallel lines is a very marked characteristic of the Republican drainage between the 99th and 101st degrees of west longitude.

The distribution of collar and incised rim decoration, associated with grit tempering, gray color, cord-impressed exteriors, and large full-bodied vessels, is by no means limited to the Republican valley, however. Pottery of this type is unmistakably present at many sites on the Loup drainage in central Nebraska, approximately 100 miles north of the Upper Republican. It has been recognized at several

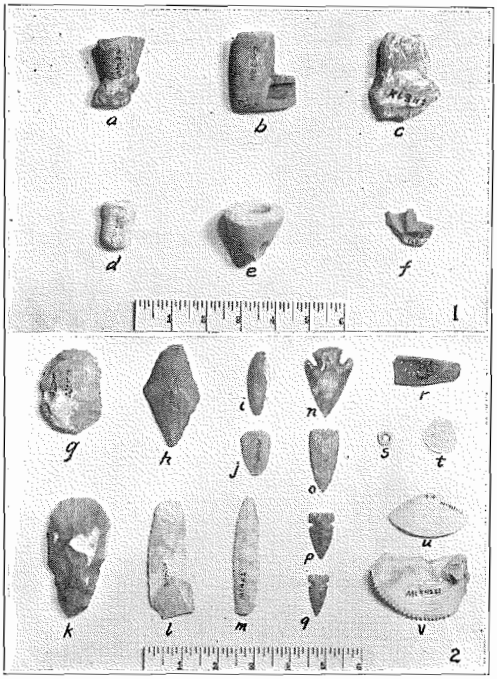

PLATE VIII

1. Stone pipes from upper Republican valley. a, d, f, Holdrege 3; b, Holdrege 4; c, Red Cloud 3; e, Medicine Creek 4.

2. Objects of stone and shell from Medicine Creek 4, g, k, skinning tools; h, l, knives; i, pendant; j, end scraper; m, drill; n-q, arrow-points; r, pipe of steatite (?); s, shell bead; t, perforated shell disk; u, clamshell pendant; v, notched clamshell.

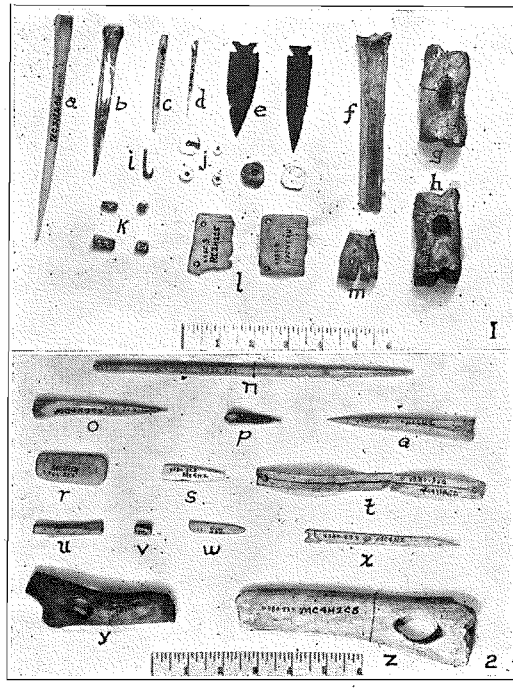

PLATE IX

1. Bone, shell, and flint objects from Lost creek district, upper Republican valley. a-c, i, k, l, Red Cloud 3; d, f, g, m, Holdrege 4; e, j, Holdrege 5.

2. Bonework from Medicine Creek 4. n-q, awls; r, gambling chip?; s, graving tool for pottery?; t, incised bone; u, v, tubular beads; w, tip of bodkin; x, eyed needle; y , z, arrowshaft straighteners.

sites in northeastern Nebraska, notably near the confluence of the Missouri. Here it is associated with a different type of pottery common along the Missouri river in eastern Nebraska, which has been assigned by Strong to the "Nebraska Culture." This is in turn correlated with the Upper Mississippi wares of Wisconsin and adjoining regions, probably of Siouan origin.[20] Sherds "suggesting some definite connection with the Upper Republican culture" were found by Strong in the uppermost level at Signal Butte, some fifteen miles southwest of Scottsbluff. McCook represents the westernmost known occurrence on the Republican, but there is reason to believe that it will be found westward perhaps into eastern Colorado. Southward, the ware has been identified on Twelve-Mile creek, a tributary of the North Solomon, about 7 miles northwest of Downs, Kansas. Related though less distinctive pottery was found by the present expedition on the lower Solomon. Too little is as yet known of the archaeology of the upper Solomon to enable us to define the southern limits in western Kansas any more closely. Eastward in Nebraska, wares of this general character are found in the Blue drainage, but are absent from the Missouri river save in the northeastern corner of the state. Brower figures sherds from sites on the Kansas river near Manhattan, Kansas, which are reminiscent of upper Republican remains.[21]

As to its relationships, we may offer a few suggestions. The Nebraska Culture ware has already been noted as dissimilar. Distinct and seemingly unrelated pottery, but of somewhat later date, apparently dominates central Kansas between the Smoky Hill and Arkansas rivers. The most striking similarities, indeed, are not with any prehistoric pattern. Within historic times, the Pawnee of the Republican and Loup rivers made pottery which shows marked resemblances to the prehistoric Republican river product. Pawnee ware was gray in color, grit tempered, cord impressed, and made into globular pots with constricted necks and overhanging collars. The most striking differences probably lay in the very common use of loop handles and in the universally lower quality of workmanship among the later peoples. Manufactures of the protohistoric residents of the Loup valley are generally of much higher grade than those of the later historic period, but basically present little that is new. There are also marked correspondences between Arikara sherds and those from our area. These parallelisms between prehistoric and historic ceramic

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[20]Strong, op. cit., P. 283. Upper Mississippi ware exclusively has been found on Winnebago sites of the early historic period; associated traits include triangular arrowpoints, "snub-nose" scrapers, flat mortars and mullers, a Siouan type of stone pipe bowl, inhumation, horticulture, and other lesser elements. It has been assigned a "Western Woodland Siouan" origin; its carriers were probably much like the historic Winnebago of eastern Wisconsin.

[21]Brower, 1899. The writer is unable to give the specific number of the plate in Brower which he has in mind.

traditions within a comparatively limited geographical area can hardly be accidental. The most logical interpretation would seem to be that the upper Republican pattern is fundamentally Caddoan, and represents the culture base from which the Pawnee and Arikara of historic times developed.

Temporally, we may suggest that the upper Republican ware is at least as old as the Upper Mississippi-Nebraska Culture wares of the east. This is indicated by the occurrence of the two types in the same sites in northeastern Nebraska. Moreover, as has been mentioned, a large conodial jar of Algonkian type was recovered from Red Cloud 3. So far as our present evidence goes, the postulated Algonkian horizon in eastern Nebraska (Sterns Creek Culture) underlies stratigraphically the Nebraska Culture.[22] Assuming that this sequence is generally correct, we then have the upper Republican coexistent first with the Sterns Creek and later with the Nebraska Culture. Stated in another way, Caddoan peoples seem to have arrived in the central Plains about as early as the Algonkians, and to have remained and contacted a later Siouan population. The correctness of this hypothesis remains to be tested. Certainly there is at present nothing to prove that the upper Republican culture followed or sprang from the Upper Mississippi. Rather, it would appear that the two were collateral developments from some common ancestral pattern with Southeastern affiliations.

WORK IN STONE

Aside from pipes and arrowshaft smoothers, work in stone consisted primarily of chipped objects. Most striking perhaps is the presence of large numbers of heavy celts and scrapers on many village sites (Plate VII, 1). These were made of yellow or brown chert, obtained from veins and nodules in local outcroppings. Owing perhaps to the nature of the material, there was comparatively little flaking of any fineness. Ovate scrapers sometimes reach a length of six or eight inches and a thickness of nearly an inch. Celts range up to four inches or more in length. Some of the objects may represent agricultural implements. This heavy stone industry occurs from the lower Medicine valley eastward down the Republican, and into the Kansas river drainage of northern Kansas. Discovery of these unusually large implements led Winchell to argue the presence of paleeolithic man in Kansas.[23] As yet, its exact character and distribution are too imperfectly known to permit of a more complete discussion. It would appear, however, that the trait has a physiographic basis, and is correlated with the occurrence in southern Nebraska and northern Kansas of extensive chert exposures. Earlier investigators emphasized stone artifacts, and the associated remains in the Kansas

[22]Sterns, 1915, pp. 125 ff; Strong, 1933, p. 280.
[23]Winchell, 1913, p. 1, 170-176; Plates III-VIII.

drainage are rarely set forth in their reports. In southern Nebraska these large tools are found along with Upper Republican pottery types, so that they were in all probability the product of horticultural peoples.

Smaller chipped implements included celts, knives, scrapers, missile points, and drills. Celts were usually of yellow to chocolate-brown chert, coarsely chipped to almond shape. They ranged in length from .5 to 5.8 inches, in width from 1.7 to 3.5, and in thickness from .4 to 1 inch. Many show the limestone matrix on one or both faces, indicating that the thickness was determined by the vein. At Red Cloud 3, House 2, seventeen celts were recovered, and they occurred in lesser number at practically all other sites.

Knives.—These were of three general types. Most common by far were "flake" knives, in which flakes of varying size and shape were retouched to give a cutting or scraping edge (Plate VIII, 1). These were from one to four inches long and their form depended upon that of the original flake. A second type was more or less ovate, almond —, or leaf-shaped with finely retouched edges(Plate VII, e-g). These seem to have been particularly characteristic of the Lost creek area near Franklin. Knives of the third type were four-edged and diamond-shaped, with opposite sides more or less parallel (Plate VII, i, j). All four edges were chipped to a bevel, with parallel edges bevelled on the same face. Thus, two bevelled edges are visible at all times regardless of which face is under observation. Specimens of the last two types seldom exceed 4 inches in length and 2 inches in width, and their thickness is usually under .25 inch. The four-edged knife occurs in the Loup drainage and perhaps less commonly on the Missouri. It has been recorded from the uppermost level at Signal Butte. Four complete and several broken specimens came from House 2 at Medicine Creek 4. It is a quite common type in the Republican valley, and has been figured from the Kansas river near Manhattan.[24] Moorehead reports it from Butler county, Kansas,[25] and the writer has personal knowledge of many specimens from Harvey and adjacent counties in the same state. According to Moorehead, it is present in the Texas Panhandle but not south of Oklahoma nor to any extent eastward. Its distribution seems to be limited to the buffalo country.

Scrapers.—These may be divided into two types, viz., end and side scrapers. The former are of the familar small "keeled" form typical of the Plains (Plate VIII, j). They are mostly under two inches long. The working edge is invariably at the thicker end, though the sides are often retouched. Side scrapers may be as much as four inches long, but lack the definiteness of form characteristic of the preceding. One side was retouched to give a scraping edge.

Missile Points.—These are not as a rule very numerous in pre-

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[24]Brower, 1897. p. 166.
[25]Moorehead, 1931, p. 86.

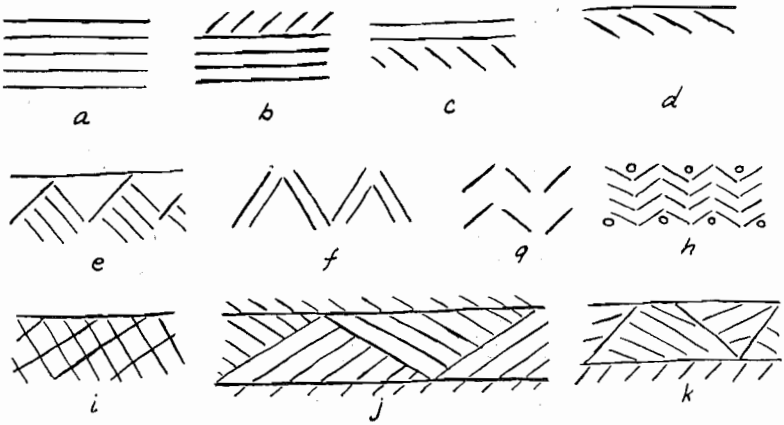

Fig. 6

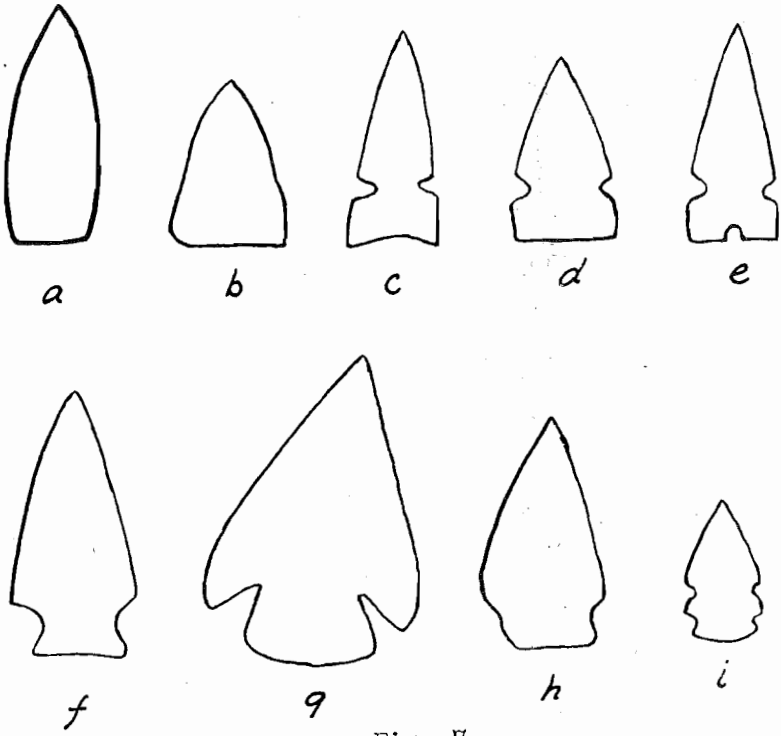

Fig. 7

Figure 6. Upper Republican Incised Rim Designs.
Figure. 7. Forms of Upper Republican Missile Points.
See also Table III.

historic upper Republican sites. The forms represented from our excavations are shown in Figure 7 and Plate VIII, n-q. Table III indicates the number of specimens of each type from four sites. Most abundant in each case are large triangular points of type a. These vary in length from 1.25 to 2.5 inches; the width is from a third to a half of the length. Three specimens from Medicine Creek 4, House 2, were three inches long by 1.5 inches wide. The sides are generally curving, with the greatest width somewhat above the base. As indicated in Table III, they comprise about 40% of the total. Small triangular points of type b are much less common, and were found by us only on Medicine Creek. Curiously enough, this type constitutes more than 95% of all points found at protohistoric Pawnee sites on the Loup and Platte rivers.

Types c, d, and e may be considered together. The first two differ only in regard to the base, which may be concave or straight. The third differs in having a small basal notch. These types are all small, seldom reaching 1.5 inches long and about half as wide. Collectively considered, the three forms include more than 40% of all points found, and almost equal the two triangular unnotched types, a and b. Their distribution is not very well known throughout Nebraska, but they are quite abundant in the Loup drainage and may prove to be intimately associated with the upper Republican type of pottery throughout the central plains area.

The remaining types in our series, f-i, may be designated as stemed points. For the most part, they are fairly heavy, roughly chipped, and may be relatively wide. They are seldom over two inches long. They are comparatively scarce, totalling approximately ten to twelve percent. The forms are reminiscent of types found in eastern Kansas and across the Missouri, and are atypical in the upper Republican region.

TABLE III

Classification of Missile Points

Types (See Fig. 7)	a	b	c	d	e	f	g	h	i	Total Per Site
Red Cloud 3	8		3	3	4	1				19
Holdrege 3	3		2		2	1				8
Holdrege 4	5					2			1	8
Medicine Creek 4	16	5	3	8	9		2	3	1	47
Total of each type	32	5	8	11	15	4	2	3	2	82

It must be pointed out that only four sites and a total of 82 missile points are included in the counts here given. The first three sites are within twelve miles of each other on the Republican south of Franklin; Medicine Creek 4 is some eighty miles distant to the northwest. The limited data may not represent a fair sample. At least, they are suggestive. For the four sites as a whole, triangular

unnotched points include 45%, small notched (c-e) 41%, and stemmed 13%. At Medicine Creek 4, corresponding percentages were 45, 43, and 12; at Red Cloud 3 they were 42, 52, and 6; at Holdrege 3, they were 38, 50, and 12; at Holdrege 4, they ran 62, 25, and 13. The two larger series, from Medicine Creek 4 and Red Cloud 3 do not diverge markedly from each other nor from the group average. It seems fairly certain, at any rate, that they represent more nearly the correct proportions than do the figures from Holdrege 4.

Drills.—Only two specimens were recovered. One is diamond-shaped, about two inches long, and has one end sharpened for perforating. The other is 3.3 inches long, .65 inch wide, square at the butt, and tapered to a point. The former from Red Cloud 3, House 2; the latter from Medicine Creek 4, House 2. (Plate VIII, m).

Mano.—From Holdrege 4, House 3, was taken a rectangular sandstone block, well shaped and smooth. It measured 6 by 2.8 by 1.4 inches. The flat mealing stone or metate is virtually unknown from the upper Republican area, and this was the only object found that could be identified as a muller or grinding stone. In historic times, the Pawnee used a wooden mortar for grinding corn, and the metate is uniformly absent. Possibly the same method prevailed in prehistoric days.

Arrow Smoothers.—In the Franklin vicinity these are commonly of dark brown Dakota Sandstone. They may be described as boat-shaped, somewhat deeper than wide, with a groove extending longitudinally along the flat face. They were used in pairs, the shaft being placed between two of these stones and then drawn back and forth through the groove. A pair of matched smoothers came from Holdrege 4, House 3. One of the pair was broken. The complete specimen measured 5.5 inches long, 1.1 inches wide, and 1.2 inches deep. This general form is likewise characteristic of the historic Pawnee, and seems to have been fairly common in prehistoric as well as historic times.

Smoothers found on Medicine Creek appear to differ somewhat. No complete specimens were recovered, and it is possible that the fragments had been secondarily used until the original shape was lost. They were of light gray soft sandstone, usually thin and flat, and not infrequently bore grooves on two or more sides. One incomplete boat-shaped specimen was found, and it was somewhat wider and flatter than those from the Republican river proper.

Bead Grinders.—At Red Cloud 3, House 2, were found three irregular lumps of calcareous sandstone of whitish color. Each bore a curved, deeply worn groove on one side, about .45 inch in diameter. The stones were not matched, and must have been used singly. Curvature of the grooves agrues against their use in smoothing shafts or any other straight objects. Possibly they were employed to grind and shape shell disk beads. A series of blanks, if strung and drawn through the groove, could be quite readily ground to an even uniform

circular shape. Of nearly 700 beads recovered from Holdrege 5, more than 500 were under .45 inch in diameter, and could be drawn through the grooves on these buffers.

Polished Celts.—Of unusual interest are two polished celts from Red Cloud 2, House 1. The larger one is made of a crystalline material with an uneven dimpled surface. It is 6.2 inches long, 2.7 inches wide, and 1.8 inches thick. Both ends are battered from usage, but the original form is obvious (Plate VII, 1). The smaller specimen was in two pieces, but was readily restored. It is 4 by 2.2 by 1.2 inches. The butt is narrow and rounded; the broad end is brought to a sharp cutting edge. Both faces are well polished, but the edges show the pecked surface produced by the manufacturing process. The material appears to be gray diorite. Neither of these objects is grooved. Polished celts occur also on the North Loup near Elba and have been dug up by the writer near Ravenna on the South Loup. As a whole, however, they can hardly be considered common throughout central and southern Nebraska. Polished axes with three-quarter groove have been reported by local collectors from Holdrege 3 and from Ravenna. Both axes and celts of this type are definitely eastern, and their occurrence in the Loup and Republican drainages is sporadic.

Pendant.—This came from Medicine Creek 4, House 2. It was 1.8 inches long by .6 inch wide, with elliptical outline. One side was slightly flattened. A deep groove encircled one end, providing a small knob or button for attachment of a cord. It was made of fine-grained red stone resembling catlinite, but probably not identical (Plate VIII, i).

Paint.—Bits of red pigment were found in small amounts in practically every house site. At Red Cloud 1 a few small stains of brilliant red suggested vermillion. Several lumps of dark red hematite were found at Medicine Creek 4, House 2. All showed striations produced by grinding off pigment for paint. The largest piece weighed slightly over twelve ounces. There were no specially prepared bricks or cakes, and the mineral appears to have been kept in the natural state until used. Yellow ochre was much less common. Chalky white limestone was used for white color.

Pipes.—Throughout the upper Republican area, pipes are almost without exception made of stone. Pottery pipes, common on the Missouri, are rare or absent. Typically, the pipes are of double conoidal form, with the stem and bowl bored at right angles. The external form varies. Commonly, it is a simple L-shape, the stem being shorter than the bowl. One specimen of this type from Holdrege 4, House 2, has a bowl 2.3 inches tall and a stem 1.7 inches long; the drilling is conical (Plate VIII, b). Sometimes, the stem is prolonged so as to project slightly beyond the bowl, suggesting the Siouan form (Plate VIII, a). One specimen consists of a partially shaped limestone block with a very short stem bore (Plate VIII, d). Soft-grained limestone was the usual material employed. No traces of catlinite

pipes were found. Ordinarily, it may be pointed out, the boring is conical. Drilling was doubtless done with flint tools.

An unusual type is illustrated in Plate VIII, r. This came from Medicine Creek 4, House 2. It is conical in shape, tapering toward the stem end. The bore is thickly caked. The pipe measures 1.8 inches in length, is thin-walled, and has been cut off rounding at the smaller end. The material is a fine-grained crystalline stone, resembling but somewhat harder than steatite. It recalls the "cloud-blower" of the southwest, and as a type is unique in our area.

For the most part, pipes are of small or medium size. The large heavy forms made in later times of catlinite and ornamented with animal figures do not occur in the prehistoric period.

WORK IN BONE

Awls.—These are fairly well represented in our collections (Plate IX, a-d). Red Cloud 3, House 2, yielded 13; at Medicine Creek 4, House 2, the total was twenty. They vary in length 1.5 to 8 inches, but average under four inches. For the most part, they are made from split metapodials of the deer or antelope. The distal end of the bone is usually cut off and discarded. Then the bone was split and each half ground down on a sandstone block until of the desired size and sharpness. Traces of the proximal end of the bone are usually visible at the butt of the instrument.

An interesting specimen is figured in Plate IX, n. It is a long slender object, measuring 8.3 inches, and is highly polished. It is perfectly circular in cross section, with rounded butt. Six incised lines encircle the butt; they are intersected by a longitudinal line. The care with which this artifact was made and decorated suggests that it may have been used as an ornament, perhaps in the hair. A broken cylindrical piece about six inches long was found in the same house, and may have been a counterpart of that described.

Needle.—From Medicine Creek 4, House 2, came a bone needle 4 inches long by .25 inch wide by .07 inch thick. It tapers gradually from butt to tip. The butt is partially broken off, but still shows about half of a .12 inch perforation (Plate IX, x). Eyed needles in general are uncommon in the upper Republican area.

From the same house came an incomplete, flat, tapering bone piece which may represent the point of another needle or bodkin.

Beads.—These are tubular, varying in length from .3 to 1.5 inches, and in diameter up to about .25 inch (Plate IX, k, u, v). Bird bones were the usual material. At Holdrege 5 were found a number of very tiny beads less than .12 inch in diameter. Six others were up to .5 inch long, with from 1 to 5 encircling lines, probably for ornamentation. Most of the beads by far, however, are plain and merely well-polished. No disc beads of bone were found.

Scapulae.—Spades or hoes made from the scapula of the bison are one of the most common types of implements found. They were

recovered from every site investigated, either complete or fragmentary. They were quite uniform in type. The scapula was trimmed down by removal of the scapula spine and of the thickened portion along the anterior edge. The vertebral margin was invariably cut back an inch or more and brought to a sharp edge. Use gave this edge a very high polish. Commonly, though not invariably, the articular end was likewise cut off, leaving a rounded butt for grasping. These changes resulted in a triangular tool from nine to fifteen inches long with a maximum width at the working edge of six to eight inches.

A series of three scapulae showing stages in the making of a spade was recovered at Medicine Creek 4, House 2, Cache 6. One was complete save for removal of the scapular spine; it measured nineteen inches long by ten inches at the vertebral margin. A second had both spine and anterior edge trimmed down, while the vertebral margin had been cut back but not sharpened. A small split extended about two inches up the middle of the blade. On either side was a small hole. Cords were doubtless passed through these to prevent further cracking. In the third specimen spine, anterior and vertebral margin had all been trimmed down, and a sharp polished edge placed on the latter. Five inches above the blade was a shallow notch on either edge, probably to aid in lashing it to a handle.

These implements are very widespread throughout the Plains area, and were as common apparently in historic as in prehistoric days. Among the historic Pawnee, they were used by women for horticultural pursuits, and probably for general digging as well.

Fleshing Tool.—From Red Cloud 3, House 2, came a flattish, sharpened tool 8 inches long by 1.4 inches wide, made from the anterior edge of a scapula. It was much worn, and may have been a fleshing or skinning tool.

Flaking Tools.—This name is used to designate two objects whose exact use is unknown. They are made of deer antler, the basal portion being used. The larger specimen is from Medicine Creek 4, House 1. It is four inches long by nearly one inch in diameter. The smaller, from Red Cloud 3, House 2, is 3 inches by .7, and darkened by exposure to fire. Both are well polished and shiny. They follow the natural curvature of the antler. It has been suggested that they were used in chipping flint.

Picks.—Two large picks made from the ulna of the bison were found at Medicine Creek 4. They are well polished, and one specimen bears a well worn groove or notch a few inches above the point, possibly for attachment of a cord. To what use these were put is not certain, but the points show evidence of much wear.

Fishhook.—A single specimen was recovered from Red Cloud 3, House 2, (Plate IX, i). It was .9 inch long and the maximum width across the curve was .3 inch. The shank is circular in cross section, about .07 inch diameter, with a groove near the upper end for cord

attachment. The point is unbarbed. Grooved fishhooks are probably much more numerous than our finds would seem to indicate. Their small size makes discovery difficult, except when they occur in caches where greater care is exercised. To the writer's knowldege, they have never been found in historic Pawnee sites.

Corn Sheller (?).— At Red Cloud 3, House 2, was found a portion of lower jaw from deer or antelope. The teeth were worn flush with the alveolus, and the entire bone was very smooth from much handling. The Pawnee are said to have used jawbones to remove corn from the cob, and in the historic sites these bones with teeth very much worn are not uncommon. Possibly they were used in the earlier period as well.

Ornaments.—Two fragments of a bracelet or pendant were found at Red Cloud 3, House 2, Cache 5. Both ends are represented; the middle is missing (Plate IX, 1). The specimen measured 1.8 inches wide, and was slightly convex. Five pairs of parallel incised lines extended longitudinally across the convex surface. Each long edge bore fine short scorings, averaging about forty to the inch. It is manifestly impossible to determine how much of the original is lacking, and the ornamentation may well have been much more involved. The piece may have been a bow-guard, the perforations serving for reception of a cord.

A somewhat similar specimen, broken but restorable, came from Medicine Creek 4, House 2. This was a flat curved strip of bone, 6.1 inches long by .4 inch wide. A quarter inch from either end was a single perforation. A shallow groove extends medially end to end, passing through the holes. There was no other decoration.

Shaft-Straighteners.—Three specimens came from Medicine Creek 4. Two were made from deer antler (Plate IX, y). The third was from House 2. It was made of the spinous process from some large animal, probably a bison (Plate IX, z). Each had a single "countersunk" oval hole near one end. They were probably used as wrenches in straightening arrowshafts.

Gambling Chip (?).—A rectangular piece of bone, one rounding, measuring 1.8 by .7 inches (Plate IX, r). The ends and sides have been well smoothed, and the concave face shows the porous inner structure of the bone. It shows no markings of any kind, but in form and size resembles the Mandan gambling chips figured by Brower.[26]

Phalanges.—These, in common with all animal remains, were found at every village site. However, many of those from the Lost Creek district were characterized by a small hole about .4 inch in diameter cut or punched into either the dorsal or ventral surface (Plate IX, g, h). The hole was seemingly never entirely through the bone. The medial phalanx of the bison was commonly treated thus. They could not have been strung. Perhaps they were used as

[26]Brower, 1904, p xvi.

dice, or in some other form of gambling. In this event, the hole would serve as a marker. These objects were found by us at Holdrege 3 and Holdrege 4. According to A. T. Hill, they appear to be distinctive for the region about Lost and Rebecca creeks. Further work may show that they have a much wider distribution.

WORK IN SHELL

Clamshells of various species were quite plentiful in all sites, but in most cases were badly broken and crumbly. Most common were the elongate thin-walled creek clams, from one to four inches long. Very few of these were worked, however. Most of our shell work was obtained on Medicine Creek.

Five thick-walled shells, all broken, were found with serrate edges. The serrations varied in fineness from 6-16 per inch. The shells were not otherwise treated in any way (Plate VIII, v).

Gorget.—A three-cornered piece measuring 2.2 by 1.3 inches, and having two holes in one corner to permit suspension with the long axis horizontal. The lower edge is curving, so that the general outline is that of a thickened lens. There is no decoration. The specimen came from House 1, Medicine Creek 4 (Plate VIII, u).

Disk.—From House 2 came a thin shell disk, slightly concave, and measuring 1.1 inches across. In the center is a conical perforation .07 inch in diameter. The surfaces are smooth but undecorated.

Graving Tool.—This was a small oblong implement 1.6 inches long, and tapering from a maximum width of .4 down to less than .2 inch. The heavier end was .12 inch thick and squared. The smaller end was thin and wedge-shaped. It was made of very firm solid white material, almost ivory-like in appearance. It was undecorated (Plate IX, s). The small end fits the incisions on many rims from House 2, and it may have been used for decorating pottery. Except in its general form, there is little resemblance to the "bear-claw" pendants which have been found in ossuaries, and it is doubtful whether the piece served for ornament.

Beads.—These were by far the most abundant objects made of shell (Plate IX, j). One small bead came from Red Cloud 3, House 1, and another from Medicine Creek 4, House 2. From the burial pits at Holdrege 5, on the other hand, were taken nearly a thousand complete and incomplete beads. These consisted of blanks, perforated blanks, and finished beads.

Blanks ranged in diameter up to nearly .9 inch and in thickness up to .4 inch. They were very roughly rounded out, and mostly seem to have been taken from the thicker parts of heavy river clamshells. They no doubt represent an early stage in the process of bead-making.

Perforated blanks were subcircular or almost squarish in outline, but were generally better finished than the preceding. The diameter was up to .7 inch, the thickness mostly under .25 inch. Of the unperforated blanks our collections show 98; of the perforated, 190. The

bulk of these had been collected on the surface of the cemetery by the Schnuerle brothers, who turned them over at the time of the digging. A few, however, were found in the grave pits.

The finished beads are in all cases well smoothed and very uniform in diameter and thickness. The holes were usually well centered, and were mostly biconical, that is, drilled from both sides. On the basis of diameter, three groups may be recognized. One hundred thirty beads were less .3 inch (8 mm) in diameter; 526 were between .3 and .45 inch (8-12 mm); thirty were more than .45 inch in diameter. In the first two groups, they averaged .12 inch or less thickness; in the third they were slightly thicker. In very few cases, however, were they more than .5 inch in diameter.

Two curious facts must be mentioned in connection with shell beads. In the first place, they are almost never found in house sites. Ossuaries containing the beads are known from the Loup area as well as from the Republican. Nearly fifty house sites of the prehistoric period have been opened in these two districts, and beads have been found in them but very sparingly. Their occasional occurrence in houses indicates that they were made by the people who dwelt in the villages. Their scarcity in the habitations in contrast to the abundance in the ossuaries leads to the conclusion that they were made and used primarily as grave furniture and not for ordinary use.

The second point has been mentioned before. Shell beads are almost universally absent from those ossuaries in which pottery occurs. A single small sand-tempered sherd with cord markings came from the burial ground at Holdrege 5. Elsewhere, however, it is almost axiomatic that where shell beads are found there will be no pottery, and vice versa. Yet both were made by essentially the same people, so far as we can judge at present. Whether these differences represent temporal variations or are due to some other cause, it is impossible to say at present.

Shell beads are conspicuously absent from both village sites and burials of the historic Pawnee.

Pendants.—These were found in very fragmentary condition only. All came from Holdrege 5. One seems to have been long, slender and tapered, resembling the "bear-claw" type. Three others were evidently triangular, measuring about an inch or slightly more on a side; they may have been perforated in two or more corners. These two general types are present in virtually all shell bead ossuaries.

SUMMARY AND CONCLUSIONS

The investigations carried out by the Nebraska State Historical Society in the valley of the upper Republican have resulted in a fairly clear definition of the prehistoric culture which dominated the area. The outstanding traits may be briefly summarized as follows:

1) A horticultural subsistence pattern with maize, beans, and squash; hunting secondary.

2) Earthlodges rectangular, semisubterranean, with 4 center posts; rarely circular or oval; interior caches; small villages, loosely arranged, unfortified.
3) Pottery gray, grit-tempered, cord-impressed; large globular vessels with collared rims bearing incised decoration; handles absent.
4) Ossuary burials, accompanied by shell beads or potsherds; primary burial doubtful; individual burial rare.
5) Elbow pipes of stone; clay pipes very rare.
6) Celts chipped; very rarely polished.
7) Grooved axes rare or absent.
8) Knives ovate and diamond-shaped; latter usually bevelled.
9) Small end and side scrapers.
10) Arrowpoints either plain triangular or small notched.
11) Arrowshaft smoothers of sandstone, boat-shaped.
12) Hammerstones plain, discoidal.
13) T-shaped flint drills.
14) Extensive bonework, including fishhooks, incised bracelets and gorgets, scapula hoes, picks, awls, bodkins, beads, and miscellaneous objects.
15) Beaming tools of split deer metapodials.
16) Shaft straighteners of bone or antler.
17) Flakers (?) of antler.
18) Small perforated clay disks.
19) Circular shell beads, pendants, and gorgets.
20) Absence of horse remains or other signs of Caucasian contact.
21) Absence of catlinite.

These traits comprise a pattern to which Strong has given the name "Upper Republican Culture,"[27] from the area where it was first studied. This does not imply that it originated or reached its highest development here, and least of all, that it is peculiar to the Republican valley. Many of the traits are shared by distinct cultures to the south and east, and a few have a very wide distribution throughout the Plains. Others, notably the pottery, are quite unique. Morever, the general configuration or grouping of traits differs from those in surrounding cultures and is sufficiently distinctive to set it apart.

The Upper Republican culture has been found in widely separated localities throughout Nebraska and Kansas. It is abundantly represented by sites on the Loup river in central Nebraska, particularly above the confluence of the North, Middle, and South forks. Northward, it is present at least as far as Ponca creek, where it touches the Missouri river. Doubtless, it will be found to continue into South Dakota. In southwestern Nebraska, McCook and perhaps Frenchman creek form its western-most known limit on the Republican. It does not occur in the Sandhills. Generally speaking, it is correlated with the Loess Plains, to which reference was made earlier in the report. The Upper Republican people, perhaps of Caddoan stock, occupied much the same territory in Nebraska as did the Pawnee of historic times. They were excluded from the Missouri river by another group, possibly Siouan, whose habitat was the Drift Hill region

[27]Strong, 1933, p. 278.

and who are known to us as the Nebraska Culture. A still different people, represented by the "Dismal River Culture," ranged over the Sandhills and High Plains. This third group, like the Comanche of the nineteenth century, seem to have been less closely bound to the soil and probably depended far more upon products of the chase. The Republican and Loup river areas were thickly populated, probably with an arm of Upper Republican peoples stretching westward up the Platte as far as the present state of Wyoming. The primitive horticulturists of eastern Nebraska spilled over into the High Plains province in the Republican and Platte valleys, where river bottoms made feasible their methods of corn-growing. In other words, in pre-Columbian times, horticultural groups lived in the region which today supports agriculture, while hunting tribes dwelt in what is today primarily a cattle-raising country.

To the south, the Upper Republican culture reaches at least to the Solomon and possibly to the Smoky Hill in western Kansas. Sites have been excavated on the Blue river in southeastern Nebraska revealing houses, pottery, and other artifacts very similar to those of the Republican river. As would be expected from their geographical location, these remains show certain extraneous influences from the eastern Nebraska Culture, but the pottery is basically of Republican river type. Related remains have been traced southward into Kansas as far as the Kansas river. Eastern Kansas is virtually unknown archaeologically, at least so far as house types and pottery are concerned. Finally, we may mention cord-marked sherds and full-bodied vessels reported by Moorehead from the Texas Panhandle, in pithouse ruins.[28] Two restored jars are strikingly similar to several from the Republican valley in Nebraska. Small notched arrowpoints, end scrapers, and drills add to the list of resemblances. Until the intervening gaps, notably in southeastern and eastern Kansas, are investigated, it would be hazardous to do more than call attention to these southern distributions. Nevertheless, it would appear that Upper Republican traits can be traced from South Dakota through Nebraska and Kansas and perhaps into still more southerly states.

This brings us to the point of authorship for the pattern. In the discussion on ceramics, it was pointed out that there are very notable similarities between prehistoric Upper Republican and the historic Pawnee and Arikara wares. It is no exaggeration to say that no other known prehistoric culture in Nebraska coincides so closely with that of the eighteenth and nineteenth century Pawnee. These resemblances, plus the general areal concurrence, lead us to assign the Upper Republican to a pre-Columbian northern Caddoan stock which was directly ancestral to the Pawnee and probably to the Arikara as well. The steps by which the historical patterns grew out of the prehistoric

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[28]Moorehead, 1933, pp. 81, 83, 89.

are not yet clear. Additional work in the Loup and Elkhorn drainages would perhaps afford a key to solution of this problem.

The Upper Republican culture apparently derived its most fundamental traits from the Southeast. As has been pointed out by Strong,

> "Both the Nebraska and Upper Republican culture were at least semi-horticultural land, in general, exhibit attenuated characteristics of the Southeast. This is indicated by the presence of both square and round earthlodges, the general type of ceramics employed, the occurrence of certain types of artifacts and symbolic designs, and the use of ossuaries in disposing of the dead."[29]

Artifacts such as scapula digging tools, elbow pipes, polished celts, bone fishhooks, and beaming tools made of split deer metapodial are eastern and southeastern, not southwestern. Mention might be made here, in connection with horticulture and the maize complex, of the fact that the historic Pawnee used the wooden mortar instead of the mealing slab for grinding corn. Mealing slabs are extremely rare in the Upper Republican area, and it is possible that the wooden mortar, a southeastern trait, was used for grinding in prehistoric as well as in historic days. Direct evidence for this is, of course, lacking. Nevertheless, it is quite apparent that we must look to the east and southeast for the origins of Upper Republican culture. Little or nothing was borrowed from the Pueblo area to the southwest, at least as regards material traits.

The two major horticultural patterns of Nebraska—the Upper Republican and the Nebraska Culture—may be regarded as contemporary offshoots from some common Mississippi valley base. Wares characteristic of both occur together in northeastern Nebraska, indicating contemporaneity. There is also some evidence suggesting that the former was coeval with an Algonkian occupation of eastern Nebraska, which appears to have preceded the Nebraska (Upper Mississippi or Siouan) Culture. Of the two, therefore, the Upper Republican may prove to be the older. It represents, so to speak, the westermost extension in the central Plains of the eastern maize culture complex.

We may turn our attention briefly to some of the more pressing problems in Nebraska archaeology. In the first place, there is need for additional survey work of the sort carried on during the past season by the Society. The drainages of the Blue, Loup, Elkhorn, and Niobrara rivers are as yet but little known. The Nebraska State Historical Society under A. T. Hill has conducted investigations at a number of sites on the Little Blue and its tributaries, with splendid cooperation from local enthusiasts. The Society and the University of Nebraska have done excavation at several locations on the North and South forks of the Loup. This region becomes of great potential importance because it contains village remains from prehistoric, protohistoric, and historic times. Systematic work, preceded by a careful

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[29]Strong, 1933, p. 284.

survey, may give a clue to the process by which the last grew out of the earlier stages. The Elkhorn and Niobrara are to all intents and purposes unknown, save for a short distance up their lower reaches. Generally speaking, these streams appear to lie within the Upper Republican area, culturally. Their investigation would help greatly in clarifying many obscure details in this pattern. Special problems here include mortuary customs, particularly in regard to differences between prehistoric and historic complexes. In southeastern Nebraska there are suggestions of an Algonkian culture; its definition, distribution, and relation to Upper Republican and Nebraska Cultures are still largely enigmatic. In the Sandhill area north of the Platte and west of the 99th meridian, and extending southwestward into the High Plains, is the so-called "Dismal River Culture," whose precise character and authorship are problematical. Of the Niobrara, at least above the mouth of the Keyapaha, even less is known. In the extreme east, along the Missouri, historic and prehistoric Siouan patterns present much the same problem as was encountered in the Pawnee area some years ago. At present, the University of Nebraska is engaged upon this highly pertinent question.

As will be seen from the foregoing, the surface, has barely been scratched in Nebraska, archaeologically speaking. To date, questions have arisen much more rapidly than they could be answered. But for many of them we are beginning to see possible solutions. The highly successful season spent by the Society's expedition in the summer of 1934 under Director A. T. Hill has thrown a great deal of light upon many puzzling matters. Problems of the type now existing cannot be settled except through continued field work. Concrete information is essential and can be gotten only through careful and systematic excavation. Many scientifically valuable sites have been partially or completely destroyed through careless digging. Where no record of the work is kept, information of much possible value to archaeology, is irretrievably lost. It is suggested that persons with knowledge of archaeological remains in their neighborhood communicate with the Nebraska State Historical Society at Lincoln and cooperate in their preservation and proper study.

In conclusion, the study of prehistoric man in the central Plains presents a most promising field of inquiry. It is to be sincerely hoped that the work begun by the Nebraska State Historical Society will be continued, and that officers and members of the organization will make it possible to carry on active field research in ensuing years.

Literature Cited

Brower, J. V.
1897. Quivira; the Elliott Indian Village Site. The Missouri River. St. Paul, 1897.
1899. Harahey. Memoirs of Explorations in the Basin of the Mississippi, Vol. 2. St. Paul, 1899.

1904. Mandan. Same series, Vol. 18.
St. Paul, 1904.

Bushnell, D. I.
1927. Burials of the Algonquian, Siouan, and Caddoan Tribes West of the Mississippi. Bureau of American Ethnology, Bulletin 83.
Washington, 1927.

Hill, A. T.
1932. Ruins of a Prehistoric House in Howard County, Nebraska. Nebraska **History Magazine**, Vol. 13, No. 3, pp. 172-175.
1934. A Survey of Prehistoric Nebraska.
Nebraska **History Magazine**, Vol. 14, No. 3, pp. 167-169.

Lamb, G. F.
1932. Earth Lodge Ruins . . . in Thayer County, Nebraska.
Nebraska **History Magazine**, Vol. 13, No. 3, pp. 169-172.

Mills, W. C.
1922. Exploration of the Mound City Group.
Ohio Archaeological and Historical Quarterly, Vol. 31, pp. 423-584.

Moorehead, W. K.
1931. Archaeology of the Arkansas River Valley.
New Haven, 1931.

Sawyer, C. W.
1920. Firearms in American History, Vol. 3, Our Rifles.
Boston, 1920.

Sterns, F. H.
1915. Stratification of Cultures in Eastern Nebraska.
American Anthropologist, Vol. 17, No. 1, pp. 121-127.

Strong, W. D.
1932. a. Archaeological Reconnaissance in the Missouri Valley. Explorations and Fieldwork of the Smithsonian Institution in 1931, pp. 151-158. Washington, 1932.
1932. b. Signal Butte, a Prehistoric Narrative in the High Plains.
Same series and volume, pp. 69-72.
1933. Plains Culture in the Light of Archaeology.
American Anthropologist, Vol. 35, No. 2, pp. 271-287.
An Introduction to Nebraska Archaeology.
Smithsonian Miscellaneous Collections, Vol. 93, No. 7. (In Press).

Wedel, W. R.
1934. Preliminary Notes on Archaeology of Medicine Valley in Southwestern Nebraska.
Nebraska **History Magazine**, Vol. 14, No. 3, pp. 144-166.
An Introduction to Pawnee Archaeology. Ms.

Winchell, N. H.
1913. Paleoliths of Kansas.
Minnesota Historical Society Collections, Vol. 16, pt. 1.