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THE PLAINS CULTURE AREA IN THE LIGHT OF ARCHAEOLOGY

By W. D. STRONG

CONSIDERING the emphasis placed on ethnological studies among many tribes of the Great Plains it is surprising that so very little archaeological research has been accomplished in the region. Twenty-odd years ago Wissler pointed out the pressing need for scientific excavation in the central area before modern agriculture destroyed the connection between the historic and the prehistoric period.¹ Only in the last few years has this highly valuable suggestion received attention. Despite this one-sided approach, however, the Plains area has now practically assumed the rôle of a type specimen in North America. Like all type specimens, it must be reexamined and reevaluated from time to time as new material becomes available. Recent excavations in the heart of the Plains area seem to make such a review profitable.

Among the tribes of the Plains two distinct modes of life can be distinguished, the nomadic buffalo hunters on the one hand and the semi-sedentary horticultural tribes on the other. The question arises as to which of these two types was most characteristic of the area in strictly aboriginal times. Wissler has described the hunting tribes as "typical" and the horticultural peoples as marginal or atypical.² It is necessary, however, that the influence of the horse be discounted in reaching any correct estimate of purely native culture patterns in the Plains. In his well-known study, *The Influence of the Horse in the Development of Plains Culture*,³ Wissler concluded that from the qualitative standpoint the culture of the Plains would have been much the same without the horse. At the same time, rather paradoxically it seems to me, he showed that the horse culture inhibited tendencies toward agriculture, pottery, basketry, and fixed habitations. Likewise his study indicated that the advent of the horse reversed cultural values in the area, inasmuch as the earlier dominant sedentary cultures of the Siouan and Caddoan tribes were later overshadowed by the Shoshone and other nomads of their old frontier. It is hard to reconcile these two conclusions, since the inhibition of such basic cultural factors as agriculture and its associated traits would seemingly affect the quality as well as the quantity of any civilization.

Since Wissler pointed out in his earlier work that a distinct turnover in Plains cultural values accompanied the introduction of the horse his sub-

¹ Clark Wissler, 1908, p. 201.

² 1920, p. 20, and 1922, pp. 220-221.

³ 1914.

sequent concentration on the nomadic buffalo-hunting tribes might be explained as due to an interest in the very late horse culture alone. However, his tendency to project the nomadic hunting type of life back into the pre-historic past is clearly indicated in more recent papers. It is especially marked in his characterization of the poverty-stricken "Querechos" of the Coronado narratives as typical Plains dwellers of the sixteenth century, whereas the same documents stress the numerous horticultural and sedentary peoples of "Quivira and Harahey" to an even greater extent.⁴ Since the present-day concept of the Plains culture area is largely based upon Wissler's characterization, these apparent contradictions assume considerable importance.

Recently Kroeber has approached the problem of basic Plains culture patterns from the geographic and ethnographic standpoint.⁵ His brief analysis agrees with Wissler's earlier view that the introduction of the horse reversed cultural values in the region. Kroeber, however, suspects that the tendency of ethnologists to place the focus of Plains culture among the northern hunting tribes is historically conditioned, inasmuch as the advanced southern tribes crumbled first under American contact while the more intact northern tribes received the most complete scientific study. He believes that from two to four centuries prior to American contact the cultural focus actually lay south of the Platte and that this may have been true as late as the nineteenth century. The advent of the horse, accompanied by alien white pressure, brought about a dominance of nomadic hunting tribes along the border of the Plains, whereas, it appears to Kroeber, the aboriginal culture of the central regions was probably horticultural and of an attenuated Southeastern type. Since the above questions are primarily archaeological, it may be asked what contribution toward their solution has come from the archaeologist.

The prevalent picture of Great Plains archaeology is very dismal. According to Wissler,

pottery is absent from Plains archeological sites, [and] a general enumeration of the objects found in archeological collections from the heart of the Plains indicates that the tribes of the buffalo country never rose above the cultural level of nomadic hunters.⁶

It has been characterized as a barren area influenced on all sides by adjacent cultures. While pointing out that actual field exploration may change

⁴ 1920, pp. 148-150. Compare Winship, 1896, pp. 527-530, 589-593.

⁵ A. L. Kroeber, 1928, pp. 394-396.

⁶ 1920, p. 150.

this picture, Wissler states that tipi rings, quarry sites, scattered stone alignments, pictographs, and simple bone and stone artifacts seem to typify the whole area, while permanent habitation sites and pottery are generally lacking.⁷ Kroeber suggests that the largely negative results of archaeology in the Plains indicate a very sparse and intermittent population for a long time.⁸

Thus to the present time the native basis of Plains culture, like the pre-history of the area as a whole, has been approached in terms of ethnological analysis rather than by archaeological research.

An unequivocal answer is now possible to the question whether this negative contribution of archaeology is due to any actual nonexistence of historic and prehistoric evidence in the Great Plains. Recent investigation in Nebraska and adjacent states has revealed an impressive amount of archaeological evidence awaiting scientific excavation and publication. As a test case, to suggest what we may confidently expect to learn with really adequate excavation in this larger area, it is proposed briefly to outline the results of recent archaeological research in Nebraska. Since Nebraska is situated in the very heart of the Great Plains it may be of interest to check ethnological theories against archaeological facts in so far as the latter are available at the present time.⁹

For this purpose it becomes essential to correlate the local environments, the historic location of tribes, and the protohistoric and prehistoric cultures so far revealed at this embryonic stage of Nebraska archaeology. This can be done schematically as follows.

Extending west from the Missouri river almost to the foothills of the Rockies the territory now included within the state of Nebraska bisects the Great Plains in their central portion. Contrary to popular conception, this central section is surprisingly diverse in topography. From the physiographic, and to a considerable extent from the biotic standpoint Nebraska is subdivided into four natural regions. On the east, bordering the Missouri river, is the glacial area of loess-covered bluffs and eastern Woodland conditions so far as flora and fauna are concerned. The soil is rich and varied,

⁷ 1922, pp. 271-272. This, incidentally, seems a good characterization of the High Plains region.

⁸ 1928, p. 394.

⁹ The following material is primarily drawn from two papers, *An Introduction to Pawnee Archaeology*, by W. R. Wedel, and *An Introduction to Nebraska Archaeology*, by W. D. Strong, to be published as *Bulletins of the Bureau of American Ethnology*. Material from a third paper, *Signal Butte, a Stratified Site in Western Nebraska*, now in course of preparation by W. D. Strong and M. E. Kirby, is also included.

water and fuel are abundant, and the conditions for agriculture excellent. It is at present the most heavily populated portion of Nebraska and its advantages would have appealed to horticulturally minded Indians as well. To the west is the great central Loess Plain or "tall grass prairie" crossed by such rivers as the Republican, Blue, Platte, and the branches of the

TABLE 1. APPARENT SEQUENCE OF CULTURE IN NEBRASKA

(East) Historic:	<i>Glacial area</i> Sedentary Siouan	<i>Loess plains</i> Pawnee	<i>Sand hills</i>	<i>High Plains</i>	(West)
			Dakota, Arapaho and Cheyenne		
Proto- historic:	?	Pawnee	Comanche	?	
Prehistoric:	Nebraska culture	Upper Re- publican culture	?	Upper Re- publican culture (?) (Signal Butte site, strati- fied) Signal Butte culture →	Top level III
	Sterns Creek culture				Middle level II (culture?)
					Bottom level I
			(Artifacts associated with extinct bison—geological age?)		
Pleistocene					

Loup. Supporting a rich grass cover and vast game herds, this was also a region highly favorable for agriculture, with rich soil and adequate precipitation. Extending east from the High Plains, north to just beyond the Platte, and south far beyond the state boundaries, this Loess Plain area comprises the heart of Nebraska. Around the headwaters of the Loup forks, and north of the Platte, is an irregular central area of some 18,000 square miles designated as the Sand Hills. This is a thin grass country of shifting sand dunes, unfavorable for farming and offering relatively few inducements for modern occupation. The sand hill lakes, however, swarm with waterfowl, and formerly game of larger size must have been abundant. Its main drawbacks from the primitive standpoint would seem to be difficulty of travel, scarcity of fuel, and inadequate soil and precipitation for horticulture. Bordering the Sand Hills and Loess Plain to the west are the

High Plains extending to the north, south, and west, beyond the state boundaries. The High Plains region may be characterized as a short grass country, with grama grass, buffalo grass, and various grass-like sedges predominant. In its rougher and higher portions are scattered yellow pines, which on the Pine Ridge and similar areas are numerous enough to form small coniferous woodlands. Owing to lack of precipitation the High Plains would offer few inducements to horticultural people, though the presence of large herds of bison and antelope should have appealed to hunters. Such in sweeping outline is the environmental background.

If the territories of the various Nebraska tribes in the early part of the nineteenth century are considered, a rather remarkable correlation between natural areas and tribal domains becomes apparent (table 1). First, the Pawnee during this period held the heart of the state, including almost all the Loess Plain area. The Omaha and Oto (Dhegiha and Chiwere representatives of the Siouan stock) occupied the entire Glacial area, while the related Ponca border on this area to the north and west. The Dakota controlled the northern High Plains region and the western part of the Sand Hills, while the Arapaho and Cheyenne exerted a transient control over the southwestern High Plains in Nebraska. The Comanche (or Padouca) formerly occupied the heart of the Sand Hill region but had moved far to the south and west prior to 1800. Following their departure the Sand Hills seem to have served mainly as a buffer area between tribes. It is undoubtedly significant that the two richest agricultural regions, the Glacial area and the Loess Plains, were entirely occupied by sedentary and horticultural Siouan and Caddoan tribes respectively, while the nomadic buffalo-hunting Dakota, Arapaho, and Cheyenne occupied the elevated and rather sterile High Plains where game was formerly abundant. A major problem of the Plains area is here outlined: Was the pre-Caucasian mode of life horticultural and sedentary, or based primarily on hunting and thus nomadic? In other words, among the historic peoples do the Western Dakota or do the Pawnee most closely represent the norm of aboriginal culture in the Great Plains prior to Caucasian interference? This question brings us to the archaeological record.

The method of proceeding from the historic to the prehistoric in American archaeology was emphatically set forth by Dixon some years ago¹⁰ and, as indicated, was recommended for the Plains area by Wissler even earlier. Its merits are obvious and its scientific philosophy of procedure from the known to the unknown unassailable. In recent research in Nebraska the

¹⁰ R. B. Dixon, 1913, pp. 549-577.

study of historic Pawnee archaeology has so far been basic.¹¹ Pawnee archaeological remains of *circa* 1800 consist of large villages situated along the Republican, Platte, and Loup rivers in southern and central Nebraska. These villages are composed of large round earth-lodges with floors just below the surface of the ground. Characteristically the lodges have six central posts and an outer row of outward-slanting posts. Each has a post-lined entrance passage to the southeast, and earth altars occur opposite the entrance in some lodges. Cache pits or corn cellars occur both inside and outside the houses, and external horse corrals have been noted. Formerly these villages were surrounded by sod walls, but of these few traces still exist. Burial grounds in which occur individual semiflexed inhumations are located on hills back from the villages. Early trade material and very abundant horse remains are found in all these villages. Intermingled with this type of material are native artifacts. Pawnee pottery of the early nineteenth century is very distinctive. It is hand-molded, perhaps with paddle and anvil stone, and is hard in texture, with grit tempering. In color it ranges from light buff to gray and is without a slip save for a uniformly small percentage of the ware, which is stained with red ocher on the inner surface. Cord markings occur on the outer surface of some vessels, but these are usually almost obliterated by subsequent rubbing. The pots are characterized by an abrupt collar, often decorated with incised triangles, chevrons, and herringbone designs. Often tabs extend from the collar to the shoulder of the vessel, in many cases forming a series of loop handles. The ware of this period is poorly modeled and the designs are extremely irregular and careless. The fixed tradition of form and decoration, combined with a fundamentally advanced pottery technique, is in marked contrast to the lack of interest displayed in finish and decoration. The pottery makers of this period seem to have lost interest in their work, and the ceramic art appears as a dying industry, formalized and decadent. Especially characteristic of the Pawnee in this period are large, crude quartzite scrapers, grooved mauls, rubbing stones, catlinite elbow pipes, incised slabs of catlinite, bison-rib shaft straighteners, elk-antler hide scraper handles, "paint brushes" of spongy bone, bison-rib beaming tools, toothed fleshers of bone, and cylindrical "ear ornaments" of shell. Space is lacking in which to list other historic Pawnee artifacts, such as the omni-

¹¹ A study in which Mr. A. T. Hill, of Hastings, Nebraska, is the leading exponent (see Wedel, *op. cit.*). By historic sites are meant those for which documentation exists. The historic and protohistoric cultures of the sedentary Siouan tribes, however, are as yet undefined archaeologically. Their precise determination would seem to be the next logical step in Nebraska archaeology.

present scapula hoe, which occur in other protohistoric and prehistoric Nebraska cultures as well. Absent from the historic sites, however, are many types of fine flint, bone, and shell artifacts characteristic of earlier cultures.

Along the Platte and Loup rivers a few earlier protohistoric sites have been distinguished which contain strong evidence of Pawnee culture.¹² Since these sites so far examined are without horse remains yet contain a few Caucasian artifacts, they can be dated as earlier than 1682, when horses were abundant, and subsequent to the Coronado expedition of 1540, thus giving this phase of the culture an approximate date of 1600. The villages are very large, and are marked by numerous refuse heaps that are still visible despite many years of plowing. The earth-lodges are closely similar to those of historic times but have a characteristic 4-post central foundation and in some cases are larger and more elaborate than the later houses. Other internal features are much the same. The protohistoric burial complex is not yet clear. The ceramic remains in these villages are similar to those of the historic Pawnee sites but more abundant, more complex, and incomparably better finished.¹³ While typical collars occur, broad loop handles (often in series) are more characteristic, and the decoration of lips, rims, and handles with angular incised designs is very pleasing. The paste and tempering is the same as in historic Pawnee ceramics, and the same small proportion of sherds with ocher-stained inner surfaces occurs. This is a relatively advanced ware of considerable complexity, comparable in degree of finish with the best-known Arikara and Mandan ceramics. As for the relationship of this older culture to that of the historic Pawnee, the former contains just one-half of the peculiarly characteristic Pawnee artifact types, namely, a more abundant and richer but similar ceramic type, large side scrapers of quartzite, grooved mauls, catlinite elbow pipes, bison-rib shaft straighteners, and toothed fleshers of bone (the latter rare in protohistoric sites, however). Besides these, the cultures share many common artifact types, such as chipped celts and hoes, hammer stones, rubbing stones, pecking stones, shaft polishers, bone awls, bone and antler picks, bone beads, and scapula hoes. On the other hand, the protohistoric culture is especially characterized by tiny triangular arrowpoints, flaked stone knives, an abundance of short end scrapers, T-shaped chipped stone drills, platform and clay pipes, and antler and bone bracelets. Moreover, the protohistoric Pawnee sites are richer in every regard, save Caucasian artifacts,

¹² By protohistoric is implied a site where small amounts of early Caucasian artifacts occur but for which no documentation exists.

¹³ Holmes, 1903 (figs. 78, 79, and Pl. 177) figures pottery from one of these sites.

than the historic Pawnee sites. Archaeology, therefore, indicates that the advent of the horse introduced a general cultural decline among the Pawnee, at least insofar as the material culture can be relied on. It also indicates that the great period in Pawnee culture came about 1600 rather than in the period from 1700 to 1800 as stated by Wissler.¹⁴ This difference of a century or so, however, does not in itself disprove Wissler's suggestion that the florescence of Pawnee culture may have been connected with the earliest indirect white contact. Prior to the protohistoric period in Pawnee development comes the period of small villages, and it is possible that the advent of the white man, in some obscure way, led to their amalgamation into the large protohistoric villages.

These small villages occur in considerable numbers along the upper Republican river and its branches and are especially numerous in the lower Loup drainage. Judging from the imperfectly known distribution of the ceramic type found at these sites, the culture extends in various phases as far west as eastern Colorado and Wyoming, north into South Dakota, and south into Kansas. It does not occur along the Missouri river in Nebraska, so far as known at present, but seems to be confined to the Loess Plains and the eastern edge of the High Plains region. Sites of this type have so far been intensively investigated on the upper Republican river in south central Nebraska and on various branches of the Loup river. The culture has been tentatively called the Upper Republican, although there is reason to believe that when more is known concerning it, we may safely designate it as prehistoric Pawnee. All sites of the Upper Republican culture have so far proved to be entirely prehistoric. In the central and southern part of its extent this culture is characterized by medium to small earth-lodges, of which the majority are square in outline. Round earth-lodges occur in a minority, however, and the 4-post central foundation, post-lined entrance ways, internal and external cache pits, and other features of both types are identical. These features are likewise shared with the protohistoric Pawnee, though the latter houses are always round. 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, though full knowledge of the protohistoric cult of the dead may bridge the gap.

Pottery is abundant in these prehistoric sites; in color, texture, and tempering it is similar to later Pawnee types and is especially characterized

¹⁴ 1914, p. 15.

by an overhanging collar with incised designs. As in the historic and proto-historic Pawnee ceramics, a small proportion of the sherds have a red ocher stain or slip on the inside. The Upper Republican ware is usually clearly marked on the outside with cord-wrapped paddles. Unlike the later wares, handles are very rare, especially in Republican river sites. The Loup river pottery characteristically has cord-mark designs on the collar instead of incisions, strongly suggesting an Arikara and Mandan type of rim decoration. Besides pottery, Upper Republican culture sites yield abundant elbow pipes cut from soft stone (not catlinite); rare pottery pipes; sandstone shaft polishers; discoidal hammerstones without any groove; two types of triangular arrowpoints (a medium-sized, rather rough type and a very small and delicate notched type); abundant small end scrapers; small side scrapers; oval, triangular, and diamond-shaped flaked knives, the latter often beveled; chipped celts and, very rarely, polished ones. Bone and antler work is abundant and well finished, including incised bracelets, small fishhooks, antler punches, and perforated shaft straighteners, scapula hoes, and other types too numerous to mention here. Shell ornaments are fairly numerous, including cylindrical and disk shell beads, claw-like pendants, and ornaments cut from the shell of the Gulf coast conch. In one ossuary wooden disks covered with native copper were found. Large quartzite hide scrapers, toothed bone fleshers, elbow type antler scraper handles, beaming tools, bone "paint brushes," and catlinite pipes, all "typical" historic Plains types, are lacking. Not only the house and burial types but also the more specific traits such as Gulf coast shell ornaments, certain designs, and the horticultural basis of life revealed in the Upper Republican culture suggest attenuated Southeastern connections.

Judging from the depth of soil accumulation over both types of sites, the Upper Republican people were contemporary with another strictly prehistoric group occupying the Glacial area along the Missouri river in Nebraska. This second horizon has been termed the Nebraska culture.¹⁵ Like the Upper Republican culture, the contemporary people to the east lived in small, scattered, and undefended villages. Nebraska culture sites have been reported from northeastern Kansas as far north as central Nebraska, but never at any great distance from the bluffs of the Missouri river or adjacent streams. These people lived in semisubterranean earth-lodges which are characteristically square or rectangular in outline, though a few round or oval houses have been reported. In the greater depth of these

¹⁵ First described by R. F. Gilder and named by him (see R. F. Gilder, 1926). The culture has been most extensively investigated by F. H. Sterns, 1914, but his full results have unfortunately never been published (see 1915 a).

houses, the irregular nature of inside posts, the lack of entrance passageways in many cases, and certain other features, Nebraska culture earthlodges differ from those of the Upper Republican people, though the general form is much the same. The Nebraska culture houses, so far as reported, had only internal cache pits, though these are very numerous. There is a suggestion that these people erected low burial mounds; at least the previously exposed dead were deposited in small natural eminences, and it is possible that careful excavation will establish the artificial nature of some of these. Two charnel houses of this culture have also been reported. In range of artifact types the two prehistoric cultures are much the same, though the Nebraska culture is characterized by pottery rather than stone pipes. These pottery pipes are of a semi-elbow type and are often elaborately modeled in realistic forms. On the whole, the Nebraska culture is the richer of the two, both as to range and elaboration of artifacts.

The pottery of the Upper Republican and Nebraska cultures is distinct, though an obscure blending of the two seems to occur in certain north-eastern Nebraska sites which await full investigation. Briefly, Nebraska culture ceramics are reddish brown in color, grit-tempered, and often fairly well polished. Decoration is mainly effected by the modeling of rims and secondary features. Lugs and handles are very common, and collars are very rare. Incising occurs on the upper body of some of the pieces but never on the rims as in the Upper Republican and Pawnee cultures. The vessels range in size from very large to tiny pots, whereas the Upper Republican (and Pawnee) vessels are small to medium in size. Not only the pottery, but also the abundance of charred maize and other vegetal remains, as well as the very numerous bone hoes testify to the horticultural basis of life at these Nebraska culture sites. There is evidence of contact between these two prehistoric cultures but, so far as present evidence is concerned, they would seem to have been distinct peoples. The Nebraska culture coincides so closely with the historic Siouan occupation of the Glacial area and shows so many similarities to presumably Siouan horizons to the east, that one is tempted to regard it as evidence of a Siouan movement along the Missouri prior to the Dhegiha and Chiwere occupation. This should become clear when the archaeology of the historic and protohistoric Siouan tribes in the general region has been investigated.

At the Walker Gilmore site, just south of the junction of the Platte and the Missouri in Nebraska, Sterns investigated an interesting stratification of cultures.¹⁶ Here the prehistoric Nebraska culture overlies an earlier hori-

¹⁶ F. H. Sterns, 1915.

zon which I have designated as the Sterns creek culture. While the exact age of each horizon remains to be determined, the Sterns creek culture appears to be the older of the two by several centuries. Up to the present the Sterns creek culture is unique in Nebraska, though it seems to have affinities with sites across the Missouri in western Iowa. Particularly characteristic of this horizon are small surface houses (now covered by some sixteen feet of alluvium) with reed-thatched roofs, small poles, and possibly bark walls. Equally distinctive is the pottery, which is sand-tempered and crumbling rather than flaking in texture. The ware lacks handles or lugs, body cord markings, incisions, or collars. It is gray-black to buff in color, smooth or grass-marked on the outer surface, and decorated around the rim by delicate "pie crust" scallops or, very rarely, by simple designs made with small pieces of heavy cordage. The few complete or restorable vessels have conical or round pointed bases. Stone artifacts are scarce. One portion of an excellent polished celt or ax, a few chipped celts or hand picks, hammerstones, crudely retouched knives and side scrapers, and a few notched and plain triangular arrowpoints have been recovered. Bone and antler work, on the other hand, is excellent, including awls, needles, knapping tools, antler picks, bone beads, and hollow phalange "ring and pin" game pieces. Especially notable is the presence of abundant squash and gourd remains but, so far as Sterns' or my own investigations extend, no trace of maize. Moreover, deer bones predominate over those of bison, as is also the case in the Nebraska culture.

Comparable in importance to the Walker Gilmore site in eastern Nebraska is the recently discovered stratified site at Signal Butte on the North Platte in extreme western Nebraska. Here, on top of an isolated mesa, occur three levels of human occupation separated in each case by some two feet of barren aeolian deposit. The uppermost occupation level below the grass line is prehistoric and contains pottery and artifact types suggesting some definite connection with the Upper Republican culture. Stone-lined graves for both complete and partial burials were also encountered. The middle level is very definite but quite thin, and too few artifacts have been recovered to permit a definite cultural assignment at the present time. The lowest level is thick and rich, consisting of a series of open hearths with cache pits dug down into the underlying sand and gravel. Graves were not encountered, but one fragment of human jaw was found. The artifacts from this lowest level include two types of arrow or small dart points (abundant leaf-shaped type with a concave base and a less abundant stemmed type with shoulders and a concave base), large leaf-shaped knives or spears, often with a straight base, large retouched

flake knives, three types of end scrapers, numerous side scrapers, T-shaped stone awls, numerous ungrooved hammerstones, rare grooved hammerstones, numerous rubbing-stones, rare shaft-polishers of sandstone, flat awls cut from sections of rib, a few rounded awls, bone beads, rare worked shell, and fragments of geometrically incised bone. Pottery was entirely absent in both middle and lowest levels. The lowest human occupation level rests on water-borne material laid down during an early period of precipitation when the butte was still connected with the main escarpment to the south. Whether a time break occurs between the water-borne materials and the earliest human occupation remains to be determined, but an early post-Fleisocene dating from this horizon seems probable. Owing to the unique nature of the abundant artifacts from the lowest level on Signal Butte the complex thus revealed has been designated as the Signal Butte culture. It seems significant that the medium-sized leaf-shaped points, so abundant in this culture, are of the same general form as those which have been found with extinct species of mammals in Nebraska and elsewhere, whereas the tiny chipped points from the upper level are characteristic of both the Upper Republican and the protohistoric Pawnee culture. Such linkages appear to cover considerable time periods and give fair promise of establishing definite typological sequences and chronologies for the pre-history of central North America when more work has been accomplished.

Perhaps older than any other human evidence yet uncovered in the Great Plains are the recently reported cases of association between artifacts and fossil bison in Nebraska.¹⁷ It is significant that the medium to large arrow or dart points found with remains of extinct bison at Cumro, Grand Island, and recently just below Signal Butte, are of the same general type. Likewise their very general similarity in size and outline to those from the Folsom quarry in New Mexico is suggestive. When the geological age of the Nebraska finds has been generally agreed upon this type of point will probably be assignable to an early and as yet undescribed culture in the region. However, one cannot describe a culture on the basis of a few unique artifacts, and until living levels characterized by the presence of such artifacts have been uncovered we shall not know a great deal about the earliest Nebraska hunters. Since the time of extinction of the various bison species is uncertain, it remains for the glacial geologist to correlate definitely the horizons in which such associations occur with others of known age in glaciated regions. The final decision regarding the age of these discoveries rests with the geologist rather than the paleontologist or anthropologist.

¹⁷ For brief references to these discoveries see Science Service Research Announcements No. 130, June 27, 1932, and No. 140, August 8, 1932.

The present venture into the archaeology of one state in the central Plains area reveals two outstanding features—first, the almost infinitesimal amount of actual archaeological work yet accomplished in the general region, and second, the surprising amount of work to be done, as well as the breadth and depth of the prehistoric scene that is opening up. Dimly seen at the bottom of the time scale are evidences of early hunters associated with now extinct species of bison, presumably in early Recent or late Pleistocene times. Somewhat later in western Nebraska, an apparently related hunting culture is revealed in the lowest stratum at Signal Butte. As was expected, the dawn of the prehistoric period finds man intimately related to the great bison herds of the region. Thus the prediction of the earliest New World hunters occurring in this central area seems about to be fulfilled.

The next type of evidence revealed by archaeology has not been generally predicted by theorists. This is the early appearance of at least semi-horticultural peoples in the central Plains. Strange to say, it is a Woodland culture of northeastern affiliations that occurs on the eastern border as the earliest known occupation of this sort in Nebraska. This was demonstrated by Sterns's discoveries at the Walker Gilmore site; and the fact that Sterns creek culture is apparently related to the "Algonkian" and Lake Michigan cultures of Iowa and Wisconsin is undoubtedly significant. Overlying this horizon in eastern Nebraska is the prehistoric Nebraska culture which extends over the rich glacial area later claimed by the Ponca, Oto, and Kansa. This culture appears to be identical with the recently distinguished Glenwood culture in western Iowa and less closely related to the prehistoric Oneota and Mill creek cultures of that state.¹⁸ It likewise bears many resemblances to the Upper Mississippi culture of Wisconsin. Since the archaeology of the historic Siouan tribes in Nebraska is totally unknown at present it is impossible to correlate positively any of them with the prehistoric cultures. Nevertheless, since the Nebraska culture is markedly different from that of the Pawnee in any known period and also affiliates most closely with what are believed to be Siouan cultures in Iowa and Wisconsin, there is reason to suspect that the Nebraska culture may be Siouan in origin.

In the central and western portions of Nebraska occurs an extensive occupation by slightly differentiated groups, here designated as the Upper Republican culture, which appears to have been more or less contemporaneous with the Nebraska culture to the east. From its relationship to the pro-

¹⁸ Chas. R. Keyes, 1929. For Wisconsin see W. C. McKern, 1931.

tohistoric and historic Pawnee it has been suggested that the Upper Republican culture was ancestral to the Pawnee and perhaps to the Arikara as well. Both the Nebraska and Upper Republican cultures were at least semihorticultural and, in general, exhibit attenuated characteristics of the Southeast. This is indicated by the occurrence of both square and round earth-lodges,¹⁹ 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. Unfortunately too little is yet on record concerning the archaeology of Kansas and Oklahoma immediately to the south to permit any definite correlation with specific Southeastern cultures. From the standpoint of our immediate area this occurrence of a period of as yet undetermined duration in which horticulture was as important as hunting is surprising. Instead of being confined to a narrow strip along the Missouri river, this type of life flourished in strictly pre-Columbian times over an area extending some 400 miles west of the Missouri in Nebraska and 200 miles west of that river in South Dakota. So far evidences of this prehistoric cultural type have been found as far west as Signal Butte in the first state, and by Mr. Over in the Ludlow cave in extreme northwestern South Dakota. Finally, from the distribution of these sites along the lesser waterways of the region it would seem that the southeastern influences had followed up the rivers and streams into the north central Plains.

The lack of any Pueblo influences, at least north of Kansas, is very marked, and it thus appears that prior to the acquisition of the horse the barren High Plains to the west and the Staked Plains to the south served as definite barriers between the central Plains and the Southwest. It may be added that, contrary to various striking ethnological parallels, the material culture of the protohistoric and historic Pawnee seems to be utterly alien to the Pueblo cultures of the Southwest. Apparently these ethnological parallels can best be explained on the basis of a common origin in Mexico and separate lines of diffusion to the north, but this discussion is beyond our present scope.

Taking the bare outlines of Nebraska prehistory as a tentative cross-section of the Plains area generally, it appears that pure hunting cultures dominated the region during two main periods. The first of these began with the men who hunted the extinct species of bison and extended for an indefinite period beyond; the second began with the introduction of the horse and ended with the extinction of the bison. Between these two, which mark the beginning and the end of Plains Indian history, it now appears that

¹⁹ Compare Harrington, 1920, pp. 256-259, 291-297.

there was a third period of considerable but as yet undetermined duration when horticulture played at least an equal part with hunting in the economic life of the central Plains. It is this horticultural stage in Plains culture which has been overlooked or disregarded in the majority of ethnological theories bearing on the region, Kroeber's remarkably accurate analysis being a marked exception in this regard.

In the light of the archaeological evidence it appears that the horse culture of historic times spread like a thin and strikingly uniform veneer over the central Plains, bringing with it many traits more typical of the forest-hunting regions to the north than of the prehistoric Plains themselves. Given the horse, the Plains with their vast bison herds could not be resisted, and in the course of a century or two a new mode of life developed, involving many peoples that were apparently relative strangers to the region. Added to the lure of horses and bison hunting was the gradually increasing pressure of an alien culture. Thus, while the bison herds drew newly mounted tribes to the west, the guns of the traders in the hands of enemy tribes to the north and east discouraged loitering. Only the fortified villages along the main rivers could withstand the pressure of hunters and warriors; hence when the French and American explorers entered the region, the warlike nomadic tribes were completely in the ascendancy, while the more advanced semi-horticultural villagers had already been crowded back into a narrow strip along the Missouri and its branches.

If the prehistoric situation revealed in eastern and central Nebraska is typical, it is obvious that the historic period did see a complete reversal of Plains cultural values. Prior to the coming of the horse it was the village tribes that prevailed in the area; afterwards the border tribes or late invaders held the balance of power. Thoroughly motile, possessed of an apparently unlimited meat supply, having nothing to lose from war and almost everything to gain, such peoples as the Comanche, Crow, Gros Ventre, Blackfoot, Kiowa, Assiniboin, and Teton Dakota completely dominated the scene. The others, like the Mandan, Arikara, Pawnee, Ponca, Omaha, and Oto, clung to what they could of the old settled and horticultural life or else, like the Arapaho and Cheyenne, gave up the attempt and took over the entire horse complex with its correspondent nomadism and parasitism based on the buffalo herds. In Nebraska, to judge from the archaeological and historical record, such tribes as the Pawnee attempted to compromise between the two types of life and apparently failed at both. It can be said, therefore, that while the Dakota mode of life typifies the Nebraska area subsequent to 1650, the old Pawnee type was certainly predominant prior to that time. The same can un-

doubtedly be said in regard to the Arikara and Mandan on the upper Missouri, and this probably applies to all the central and eastern Plains.

One more fact remains to be stressed, namely, that the Plains area generally has produced or supported a considerable variety and succession of culture types, indicating that its environmental limitations are not so drastic as has often been believed.²⁰ Not only hunters but native horticulturists as well have flourished in the region, and the latter cultures, while relatively simple, do not exhibit that striking uniformity which characterized the mounted tribes of the region in the eighteenth and nineteenth centuries. Moreover, it is already apparent from the definite correspondence between tribal cultures and geographic areas in Nebraska during the early historic period that even this one state contains several distinct topographic regions quite capable of shaping human culture. Hence the much stressed uniformity of Plains culture in its closing phase was in the main the result of historic forces rather than the direct result of environmental control.

In conclusion, it can be said that the prevalent concept of the Plains culture area seems to have been based primarily on the ethnology of the hunting tribes. It is therefore one-sided and subject to correction. When coordinated and reasonably complete ethnological studies of such peoples as the Arikara and Pawnee are available, the historic picture will be better balanced. This may only be done by immediate field work combined with intensive historical research. Almost as urgent is the need for adequate archaeological research in the Dakotas, Nebraska, Kansas, and Oklahoma before plow and relic hunter destroy or obscure the prehistoric record. Here is one of the four most important archaeological areas north of Mexico which is still practically unknown. The Great Plains, therefore, appear as an extremely promising field wherein the closely coordinated researches of historian, ethnologist, archaeologist, geographer, and geologist seem certain to throw a flood of light upon the antiquity and development of man in the New World.

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²⁰ For example, see W. P. Webb, 1931.

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