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### **Ecology and Great Plains Studies**

By W. Raymond Wood

*Ecology and Human Organization on the Great Plains*. (1988) DOUGLAS B. BAMFORTH. Plenum Press, New York. Xii + 217 pages, illus., \$ 29.50, cloth, ISBN 0-306-42965-X.

A century and a half ago, or more, an autumn traveler on the Great Plains would from time to time have seen a procession of Indians, horses, and dogs moving over the landscape in search of bison. Carrying everything they needed on the backs of pack animals or on travois, these groups were under the leadership of military societies that managed every significant aspect of the hunt. The locale of the hunt would have given our observer some clue to their ethnic identity, and there was tribal variation in some aspects of the hunt, the most conspicuous perhaps being the organization of their circular encampments of tipis. Nevertheless, an observer too far distant to detect their language or subtleties of tribal style would have been very hard put to determine whether these travelers were members of a nomadic group, or whether their home base was an earthlodge village along the Missouri or Platte River.

Ecological studies in anthropology began very early on the Great Plains of North America. The effects of the dust bowl and the droughts of the 1930s on the Plains were visible to all—nationwide—and one local archaeologist attempted to assess the effects of past climate and climate change on its prehistoric inhabitants. Waldo R. Wedel's 1941 article, "Environment and Native Subsistence Economies in the Central Plains," was the first important study to focus specifically on cultural ecology in that area. This paper was followed over the years by many others in a similar vein by a variety of authors, but perhaps the second most important article in this sphere of interest was Symmes C. Oliver's [page 31] "Ecology and Cultural Continuity as Contributing Factors in the Social Organization of the Plains Indians" (1962). This concern with the interaction between aboriginal Plains Indian culture and environment continues unabated, and Bamforth's *Ecology and Human Organization on the Great Plains* is one of the latest monographs to use the Great Plains as an ecological laboratory.

The goal of Bamforth's study is to provide "a summary of the information which can be used to assess at least some of the important variations in the availability of bison and other ungulates" (p. vi). To this end, he provides an excellent outline of resource structure (Chapter 2), summaries of grassland and of bison ecology (Chapters 3 and 4), patterns of forage production (Chapter 5), and a summary of eighteenth and nineteenth century climate and bison adaptations on the Great Plains (Chapter 6). Plains scholars should find these chapters worth reading even if they are not interested in other aspects of the book.

Bamforth proposes that three important aspects of human adaptations to the biophysical environment were established by Palaeoindian hunters, the first known occupants of the Great Plains—diet, technology, and settlement patterns. The way of life led by hunters on the Great Plains (particularly on the High Plains) is a very ancient one, and it persisted with remarkably little change from Clovis times until the arrival of the Old World horse that diffused north from Spanish sources near Santa Fe.

The early Spanish explorers in the Southern Plains saw pedestrian bison hunters living on the Plains much as their ancestors had lived for millennia before them. Spanish descriptions of these tipi-dwelling, dog-using nomads, who followed the “cattle” for their sole livelihood, probably would differ only slightly from lifeways established 10,000 years earlier—including, in all probability, the use of dogs as pack animals. Dogs are not presently documented for Clovis or Folsom, although they appear in the Plains archaeological record beginning with the Jones-Miller site, a post-Folsom Hell Gap complex site in Colorado (Stanford 1978). Dog bones occur rarely and irregularly in many later Paleoindian sites, but they are common enough for us to assume the probability is good that Plains Indians had dogs (and were potentially using them as pack animals) for the last 10,000 years. I suspect it is only a matter of time before they are documented in Clovis and Folsom as well.

The historic pedestrian Plains lifeway described by the Spanish was to be short-lived, for horses diffused so rapidly beyond the frontiers of the Spanish Southwest that they were essential parts of Native American culture over most of the Central and Northern Plains well before the arrival of the first Europeans. Horses so revolutionized native life that the historical documents on Plains Indians created by the first explorers record an equestrian bison-hunting subsistence that differed in many conspicuous ways from the earlier pedestrian period. Horses induced a massive discontinuity in Plains lifeways that is perhaps equivalent to the magnitude of the changes brought about by the appearance of European diseases and the subsequent reduction in Native American population and knowledge.

The nature of pre-horse Plains Indian culture was a controversial topic in early Plains anthropology. The first anthropologists beginning work on the Plains had been educated in the East, and were impressed with the aridity of the Plains no less than the even earlier American explorers who described the region as the “Great American Desert.” Because the Plains are a formidable setting for those who do not know them, it was common to believe, as Clark Wissler originally did, that the area had been uninhabited before the arrival of horses. By 1939 A.L. Kroeber had modified this position to accept pre-horse occupation, but he still believed that before the horse, “there was no important Plains culture,” and that “Plains culture has been one of the well-developed and characterized cultures of North America only since the taking over of the horse from Europeans” (Kroeber 1947:76). The persistence of this mythology is such that one popular book on Plains Indians, written by a scholar with a reputation for sound historical research (Haines 1976:15) alleges that “in AD 1200 there were no Indians anywhere on the Great Plains,” and illustrates the book with a map entitled “The Empty Plains, AD 1200”!

This interpretation was reinforced by the prominence horses had for the historic Plains nomads: the Arapaho, Assiniboin, Blackfoot, Cheyenne, Comanche, Crow, Dakota, Gros Ventre, Kiowa, Kiowa-Apache, and other equestrian bison hunters. How,

Kroeber asked, [page 32] “could any good-sized group have lived permanently off the bison on the open plains while they and their dogs were dragging their dwellings, furniture, provisions, and children? How large a tepee could have been continuously moved in this way, how much apparatus could it have contained, how close were its inmates huddled, how large the camp circle? ... By the standard of the nineteenth century, the sixteenth-century Plains Indian would have been miserably poor and almost chronically hungry” (Kroeber 1947:77). Yet live there they did, and they did so successfully for no less than 12,000 years (although we might note parenthetically that, as far as I am aware, there is no good archaeological evidence for camp circles anywhere on the Plains: all the data for them are from the historic, post-horse period).

Kroeber and others who tried to interpret the peopling of the Plains imposed their own preconceptions of the area on its occupants, and found it so difficult to believe the Plains were habitable before the arrival of horses that they ignored sound archaeological evidence for is long-standing occupation. This is especially curious given the kinds of insight Kroeber accumulated in compiling his monumental *Cultural and Natural Areas of Native North America* (1947). This intransigence tells us much about his biases and how they affected his anthropological interpretation.

The hard data of archaeology are best suited to studies of diet, technology, and settlement patterns. Under ideal circumstances, sites can provide abundant and unambiguous data for each of these topics. Even more fortunate, they are so intimately interrelated that conclusions based on composite studies permit a level of confidence much higher than individual studies alone could provide. Bamforth notes there is remarkable continuity throughout the Paleoindian period in precisely these three topics. The major change in fact is “a decrease in the diversity of animals hunted after approximately 11,000 years ago and a series of changes over time in projectile point shape. Neither of these changes seems to indicate any major adaptive shifts” since the change in fauna reflects the loss of extirpated species, “and it is difficult to interpret changes in projectile point style as evidence for substantial changes in other aspects of the Paleoindian way of life” (pp. 1-2).

Bamforth’s thesis is that the adaptive changes that did take place involved the human “*organization* within which similar subsistence resources were procured, similar tools were produced and used, and similar locations were selected for occupation” (p. 2, his emphasis). Human organization is, however, difficult to extract from the archaeological record, especially for hunters and gatherers. Organization is, nonetheless, well illustrated by kill sites, and this circumstance transforms a major flaw in Paleoindian studies on the Plains into a virtue. The reason is that many of the most sought-after sites on the High Plains, and those that are best excavated and reported, are not campsites but bison kill sites. The discovery, driving, entrapment, and killing of large numbers of bison or other ungulates demands a high level of organization, a truism amply documented in the many studies of Plains bison and pronghorn procurement (e.g., Davis and Wilson 1978).

Successful patterns of hunting are likely to persist if the conditions for their pursuit do not change. A spectacular illustration of continuity in hunting patterns appears to be illustrated by the archaeological remains from a 10,000-year-old bison kill site in northeastern Colorado, and by accounts of historic bison pounds, or surrounds, in the Northern Plains. A posthole in the center of the bison skeletal remains at the Hell Gap

complex Jones-Miller bison kill is similar to the solitary “medicine pole” erected in the center of historic pounds. Furthermore, a miniature Hell Gap point (little more than 2 cm long) and butchered canid remains were found near the posthole. These offerings may be analogous to the non-functional artifacts placed on or near the historic medicine post by Northern Plains hunters seeking a successful kill. If these analogies are correct, Stanford (1978:95-96) believes pounding even at that early date was not a fortuitous event as some students of bison procurement have postulated. Rather, it was a complex, ritualized, and planned event, and here at least we must postulate 10,000 years of some level of socioreligious continuity on the Northern Plains.

*Ecology and Human Organization on the Great Plains* is not an accurate title, since the book focuses solely on hunters and gatherers of the High Plains. The monograph only parenthetically alludes to three of the historic village-dwelling tribes, the Pawnee, Mandan, and [page 33] Hidatsas (Chapter 7), who lived along the eastern margin of the High Plains. It is axiomatic that the historic and late prehistoric Plains are dichotomized between these village-dwelling horticulturists and the nomadic hunting and gathering High Plains groups. Much is made of the differences between them, for the distinction between gardeners and hunters is a basic one in anthropology. The horticultural groups are, furthermore, latecomers to the Plains scene, for villagers were present only for the last millennium of Great Plains history, whereas the nomads represent a way of life that endured more than ten times that length, and persisted on the western Plains as the eastern and central horticultural tribes developed. Since the book is devoted to a study of continuity in hunting and gathering groups—and since the continuity between Paleoindian and historic nomadic groups is undeniable—there seems, on the face of it, to be good reason to exclude the villagers from discussion.

Despite the many contrasts between the two groups, however, the mode of life of the horticulturists was not profoundly different from that of the nomads. As Wissler (1948:42) pointed out long ago, the villagers characteristically lived in their lodges principally “only while planting, tending, or harvesting the crop. At other times, they took to tipis. Even in mid-winter the Omaha and Eastern Dakota lived in tipis.” And, when villagers were on their annual bison-hunting expeditions away from their lodges, their life scarcely differed from that of their nomadic neighbors. Whether one was a Plains nomad or villager, the organization of their annual hunts varied only in minor details from tribe to tribe, and in every case was regulated by military societies.

This was only true of the traditional bison-hunting groups, but of composite groups that developed in the full historic period. Jeffrey R. Hanson (personal communication) has pointed out that two of the Plains bison-hunting groups that developed in post-European times mirrored in many respects the bison hunting techniques and organization of Plains Indian tribes. The New Mexico villagers known as *ciboleros* (or *comancheros*) and the Northern Plains *Métis* who went out onto the Plains to hunt bison never came into contact with one another, but the parallels in their hunting technique and organization are striking. Both groups went out en masse, during which time they were directed by hunt police, and their hunts shared many other details that were borrowed directly from neighboring Plains Indians. Perhaps the most distinctive visual difference between the traditional Plains Indians and the *Métis* and *ciboleros* was in transportation. The *ciboleros* used ox-drawn wagons called *carreta*. These wagons were very much like the two-wheeled Red River carts of the *Métis* (both of which were borrowed from European

models). The point here is that if one is to hunt bison on the Plains, and to defend oneself from potential enemies while doing so, the appropriate organization is not likely to differ significantly from ones developed long ago by Plains Indians, and it is not surprising to find that both the *ciboleros* and the *Métis* borrowed from a common source.

The contrasts between Plains nomads and villages, then, have been overdrawn. Towns of the horticultural Plains village tribes differed, for example, very little from the bands that characterized the nomadic groups. Townspeople of course lived in substantial earth-covered lodges on semi-permanent villages, and relied to varying degrees on produce from their gardens. Save for the specialized architecture of the earthlodge, and the presence of pottery and of gardening tools, the material inventory of any given village was only minutely different from the encampment of one of their nomadic neighbors—whether we are speaking of groups on the Northern, Central, or southern Plains. There is remarkable monotony of pattern in most aspects of material culture on the Plains, whether we are speaking of women's products (such as articles of clothing, parfleches, or even tipis—save for a three- or four-pole foundation) or those presumably made by men (such as arrowpoints and weaponry). Museum curators have found that without specific tribal allocation it is usually impossible to identify the tribe of origin of a given artifact, for tools and implements used on a daily basis vary only in minor matters of style, and not of form. Both formal trade and gift-giving were important social events on the Plains, and these popular activities led to massive exchanges of every conceivable element of material culture between villagers and nomads (Wood 1980).

Furthermore, each village was politically, socially, and economically autonomous. The political authority of a Mandan chief, [page 34] for example, was no greater than that of those in the nomadic groups and, like the latter, had no coercive power. Disaffected members of a Mandan town were free to leave one village and join another. Each Mandan village had its own Okipa ceremony (the Mandan equivalent of the Sun Dance), each held its own annual trade fair, and each conducted its own annual bison hunt in the fall of the year. Plains villages, in short, were markedly similar to the bands that characterized the nomadic groups save for the presence of stationary architecture, pottery and a few other artifacts, dependence on garden produce, and, of course, the presence of sodalities that linked and united the villages of a given tribe.

Ethnographic accounts of the Plains horticulturists rarely make explicit the kinds and the extent of social and political relations between individual villages of a tribe. This kind of information is even more rare in historic documents written by travelers, explorers, and missionaries. One reason for this is the fact that such relations were tenuous; another reason is that ethnographers and others tended to examine the kinds of relations between members of a single village, to the detriment of inter-village relations. To cite one case, the historic Omaha, who for the most part lived in a single town, have been interpreted as having organized their communal hunts at the “full tribal level,” and of having had a central political organization (Roberts 1964:446, 449-450). Life in a single town of course makes it difficult to interpret leadership as other than centralized. However, we may be assured that the historic expression of Omaha political organization differed from that in precontact times when they lived in an uncertain number of different villages. Leadership in each town was provided by a council of Seven Chiefs drawn from an elite order of village chiefs.

In any event, the traditional dichotomy of Plains Indians as nomads and as villagers is a legitimate means of describing differing adaptations to the Plains environment. On the other hand, it is a deceptive practice that masks many deep-rooted and essential similarities in adaptation that they in fact shared. In their activities away from their villages the Plains horticulturists practiced a lifeway as ancient as that of their nomadic neighbors, and one that drew on the same antecedents. There is more unity in the concept of the Plains Indian than is generally conceded.

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Ecology studies organic life, examining such elements as spatial distribution (local or general) abundance and their relationship with the environment. This includes their interaction with other organisms within that environment - essentially their "interrelatedness" as a functioning network (1, p25). It's considered a form of environmentalism and it is usually associated with these sciences, but it also includes aspects of biology, botany, zoology, genetics, bacteriology, chemistry and physics. Ecology is about biodiversity in a given environment. It has as much in common with physiology, behavior, and geology. The ecology of the Great Plains is diverse, largely owing to their great size. Differences in rainfall, elevation, and latitude create a variety of habitats including short grass, mixed grass, and tall-grass prairies, and riparian ecosystems. The Great Plains extend from Mexico in the south through the central United States to central Canada. Many sub-regions exist within the area. The frontier images of America embrace endless horizons, majestic herds of native ungulates, and romanticized life-styles of nomadic peoples. The images were mere reflections of vertebrates living in harmony in an ecosystem driven by the unpredictable local and regional effects of drought, fire, and grazing. Those effects, often referred to as ecological "disturbances," are rather the driving forces on which species depended to create the spatial and temporal heterogeneity that favored ecological prerequisites for survival.