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### Archaic Continuity in the Colorado Rockies: The Mountain Tradition

by

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#### ABSTRACT

*The Paleo-Indian-Archaic transition has been shown to be relatively undramatic on the High Plains, where cultural continuity through maintenance of a bison hunting emphasis is apparent. In adjacent uplands of the Rocky Mountains, however, recent investigations have focused on a number of late Paleo-Indian and Early Archaic period sites containing artifact assemblages and facilities difficult to categorize in known Plains complexes. Some of these early materials have distributions largely limited to upland areas, and the lithic technology represented may be derived from the Western Pluvial Lakes or Stemmed Point Tradition of the Great Basin. Subsequent cultural continuity in high altitude areas of the mountains leads to the definition of a unique Archaic adaptation called the Mountain Tradition. This tradition is widespread in the Rockies during the late Paleo-Indian and Early Archaic periods as far north as southern Montana, but Middle Archaic expansion of the McKean complex limits use of the term in the post-4500 B.P. era to the Southern Rocky Mountains. Archaic continuity in the Southern Rocky Mountains is expressed in archaeological remains as recent as 1000-700 B.P., after which explaining the presence of Numic sites may require a new influx of hunter-gatherer populations.*

#### INTRODUCTION

This paper focuses on the early prehistory of the Southern Rocky Mountains, usually perceived to be a product of seasonal use on the part of populations based in adjacent lowland areas of the Plains, Southwest and northern Colorado Plateaus. Although CRM surveys have greatly increased the number of recorded sites in recent years (see Guthrie et al. 1984), substantial data from excavated sites are available only from a few isolated locales such as the Curecanti Basin near Gunnison, Colorado (e.g., Mueller and Stiger 1983; Jones 1982, 1984, 1986). Problems

of multiple occupations in rodent-disturbed and compressed stratigraphies, low site visibility, and relatively poor preservation of perishable remains such as bone are among the characteristics common in mountain sites which have further clouded the picture. Nevertheless, a body of data is emerging which suggests mountain prehistory can be characterized as representing: 1.) year-round exploitation by nomadic to semi-sedentary groups; 2.) long-term continuity in such patterns of exploitation; and 3.) separate archaeological identity from adjacent lowland patterns beginning as early as late Paleo-Indian times.

Suspicions about unique prehistoric developments in various portions of the Rockies have been expressed for at least the past two decades, using a number of taxonomic categories: Mountain branch, Mountain complex, Mountain tradition and Montane tradition to name four (Husted 1969; Grady 1971; O'Neil 1980; Wheeler and Martin 1984). Unfortunately, such terms usually have been used without the benefit of formal definition (Husted 1969 excepted), confusing the issue for those who cling to the conclusion that the Rockies were, and still are, too cold and snowy to allow persistently successful exploitation on a year-round basis. This perception seems to equate the name Rocky Mountains with the tundra-taiga landscape of the far north when, in fact, many mountain valleys are relatively dry, warm and overall quite pleasant in the winter (see Bender and Wright 1988: 626 for a welcome rejection of the mountains-as-marginal idea). The fact that the bulk of archaeological data on the Southern Rockies exists in unpublished contract reports contributes to a perpetuation of the view that under normal circumstances these mountains were exploited only on a transitory seasonal basis.

Given that the three points set forth above are defensible based on our current state of knowledge, I will argue that prehistoric adaptations in the Southern Rockies were sufficiently distinctive and long-lived to define a synthetic construct termed the Mountain Tradition. In defining this taxon, its characteristics will be outlined, differences with contemporaneous Archaic traditions will be noted, and the relevance to previously defined mountain complexes (e.g., Benedict 1978, 1979, 1981) will be discussed. Throughout the recognizable duration of this upland adaptation, the archaeological manifestations are consistently representative of an Archaic lifestyle as defined by Willey and Phillips (1958). However, in the later time periods, the diversity of these Archaic sites is such that the development of many local groups can be seen.

While some may view this hypothesis as overly cultural historical given today's research preferences, it is also true that many current interpretations of mountain prehistory lean too heavily on frameworks established for lowland

regions, without considering the upland evidence on its own merits. In offering an alternative framework, it is recognized that the implications of so broad a construct as the Mountain Tradition are both important and testable. Thus, I will conclude with a series of archaeological expectations as one means for evaluating the validity of this construct.

### THE MOUNTAIN TRADITION DEFINED

Previous attempts at distinguishing Archaic period developments in the Rocky Mountains from those in adjacent regions have varied widely in their scope and detail. Relatively limited discussions have been offered by several Colorado archaeologists. Grady (1971: 85-87) used the term Mountain complex to describe Early Archaic period materials from Wilbur Thomas Shelter in northern Colorado, which he compared favorably to assemblages from the Magic Mountain and Apex complexes at the Magic Mountain site (Irwin-Williams and Irwin 1966) and to Sorenson IV in Bighorn Canyon, Wyoming (Husted 1969). Essentially, Grady (1971: 85) equated the "Mountain complex" with one of several occupation levels at Wilbur Thomas Shelter, not intending to define a new taxon. Similarly, O'Neil (1980: 20) briefly alluded to the cultural material from the Walton Creek site in Routt County, Colorado as representative of "the Mountain Tradition of the Late Prehistoric period." He explains this statement as follows (O'Neil 1980: 20):

This tradition appears to have grown out of the Late Middle Prehistoric period in the Northwest Plains and is distinguished by smaller triangular points with lateral notches as the principle diagnostic artifacts. This late Preceramic period continued well into the Christian Era in the foothill and mountain areas of Colorado (Wood 1967: 592).

On the one hand, O'Neil (1980) appears to be referring to a technological "tradition" in the chipped stone category rather than a major cultural tradition, but his later mixing of the terms tradition and period do not clarify his intent. An even briefer discussion of a possible Mountain tradition has been offered by Wheeler and Martin (1984: 355-356) in their closing interpreta-

tions of the significant Archaic period remains from the Windy Gap area in Grand County, Colorado. They tentatively propose a "New Montane Archaic Tradition" based on the discovery of Archaic period architectural sites in the Windy Gap and Curecanti localities of Colorado. However, apart from mud-and-stick architecture at four sites, they offer no detailed definition of this tradition and they admit that their proposal has interpretive problems requiring clarification.

More familiar to many Plains archaeologists have been the writings of Irwin-Williams, Benedict, and Husted. At the Magic Mountain site west of Denver, Irwin-Williams and Irwin (1966) identified an Early Archaic period artifact complex which they named after the site, and noted similarities with materials known mostly from survey collections (at that time) throughout the Front Range, eastern foothills and mountain parks of the Colorado Rockies. More distant connections were made to Archaic events in the Southwest and Pacific Northwest regions, but no attempt was made to synthesize the mountain data due to the lack of information then available from upland settings in the region. Benedict's (1978, 1979, 1981, 1985, 1990) views on Colorado Front Range archaeology are both well-known and meticulously presented, none more prominently than his hypothesis of lowland populations using the mountains as "refugia" during the Altithermal climatic episode. The refuge concept would imply that any such refugee populations returned to their lowland homelands once the Altithermal conditions had ameliorated and, indeed, Benedict has not defined a long-lasting tradition of adaptations to mountainous environments having developed from these specific events.

Most relevant to this paper has been the research of Mallory and, especially, Husted (Husted 1965, 1969; Husted and Mallory 1967; Wedel, Husted and Moss 1968). Their hypothesis of a "Western Macrotradition," most widely available in the Bighorn Canyon report (Husted 1969: 83-91), has a northern-derived influx of people represented by the Agate Basin complex splitting into three groups upon arrival in the Rocky Mountain region: a Mountain

branch, Plains branch, and Basin branch. The Mountain branch is seen as a distinctive entity in such sites as Mummy Cave by at least 8500 B.P. and, when Altithermal conditions ended ca. 5000 B.P.:

"... the Mountain and Plains Branches spread from the central and northern Rocky Mountains to occupy the western Plains, the Southwest, and Great Basin. This movement, documented by the McKean, Pinto, San Jose, and similar complexes, was equated with the expansion of Aztec-Tanoans to their historically known regions" (Husted 1969: 83).

In this detailed hypothesis, the diversity of styles in the McKean complex is ascribed to an early divergence and later convergence of the Mountain and Plains branches; stylistic differences in the McKean, Pinto and San Jose complexes then represent linguistic diversity within Aztec-Tanoan populations (Husted 1969: 89-90). Several archaeologists, including the present author in this paper and George Frison (1978; Frison and Grey 1980; Frison et al. 1986), would agree that unique cultural adaptations developed in upland areas, albeit Frison has yet to formally define or name this "separate" adaptation. Also, I would agree that the appearance of the McKean complex interrupts the continuity of upland-adapted Archaic culture in the Montana-Wyoming region, regardless of whether that complex resulted from a "convergence of the Mountain and Plains branches" or from some other scenario. On the other hand, the better data base available today casts doubt on some of the critical details of the Western Macrotradition hypothesis. For instance, Frison and Stanford (1982: 366-367) feel comfortable in deriving the Agate Basin complex directly from Folsom on technological grounds, rather than necessitating a new immigration of people. Also, the Pinto complex—at least its eastern manifestations in Utah and Colorado—is clearly older than the McKean and San Jose material (e.g., Holmer 1986) as it predates 5500 B.P., and therefore Pinto cannot be part of a post-Altithermal movement from the central and northern Rocky Mountains, as posited in Husted and Mallory's reconstruction. With this background in mind, then, the follow-

ing definition of the "Mountain Tradition" is offered.

As conceived here, the Mountain Tradition is considered to have the taxonomic status of a "major cultural tradition" (Willey 1966: 4, 24) in the same sense that the Desert Archaic and Plains Village terms have been used. That is, the Mountain Tradition is seen as a separate ecological adaptation to upland terrain, over an extended length of time and covering a broad geographical area. In chronological terms, the tradition is recognized to survive as a discrete entity for a minimum of 5000 years—from at least 9500 B.P. to 4500 B.P.—and to continue in certain areas of the Southern Rockies until about 700 B.P., when Numic sites begin to be recognized in the archaeological record of the region. Identifiable Numic remains, such as of the Ute and Eastern Shoshone, are comparable in assemblage content to Mountain Tradition sites but are not included among the latter because of the probability that the various Numic-speaking groups were relatively recent immigrants into the Rockies (e.g., Madsen 1975).

Geographically, the Mountain Tradition is recognizable in upland settings from southern Montana to northern New Mexico throughout the Southern Rocky Mountains, Wyoming Basins, the northern and eastern extremities of the Colorado Plateaus, and northern and eastern portions of the Middle Rocky Mountains physiographic provinces (Figure 1; Thornbury 1965), in contexts predating 4500 B.P. The widespread appearance of McKean complex materials in Middle Archaic sites both in lowland and upland terrain interrupts Mountain Tradition continuity outside the Southern Rockies of Colorado, southernmost Wyoming and northern New Mexico. For the time being, I would exclude Mallory sites from the McKean complex, as this affiliation is still in dispute and because Mallory is much more common in the Southern Rockies than the more typical McKean variants (e.g., Benedict 1975a; Buckles 1978; Black 1983a).

Included within the Mountain Tradition construct are the following archaeological "complexes": Rio Grande (Renaud 1942;

Honea 1969), Uncompahgre (Wormington and Lister 1956; Buckles 1971), Rocker (Holmer 1978; cf. Black 1985), Mount Albion (Benedict and Olson 1978), Magic Mountain and Apex (Irwin-Williams and Irwin 1966), and Mountain (Husted 1969; Grady 1971; cf. O'Neil 1980 and Frison et al. 1986: 360). Other complexes and point styles may belong, but their possible relationships with lowland-based cultures cast some doubt on the issue. Among these are Pryor Stemmed-Lovell Constricted (Husted 1969; Frison and Grey 1980), Fourth of July Valley (Benedict 1981), Mallory/Albion Boarding-house (Benedict 1975a; Black 1983a), and Woodland/Hogback (Nelson 1971; Grady 1971; Benedict 1975b).

At least six characteristics appear to separate the Mountain Tradition from contemporaneous traditions in adjacent regions: 1) settlement systems emphasizing upland environments on a year-round basis; 2) frequent use of a split cobble core reduction strategy and derivative split cobble tools, particularly in late Paleo-Indian and Early Archaic contexts; 3) presence of microtools (not microblades), especially after 6000 B.P.; 4) divergent styles of projectile points with general similarities to Great Basin types; 5) habitations and shorter-term dwelling structures in upland settings; and 6) distinctive rock art with general similarities to Great Basin styles.

Each of these traits is discussed below along with mention of some of the more representative sites illustrating the pattern. Also, comparisons and contrasts are made with contemporaneous traditions in adjacent regions such as the Oshara Tradition of the Southwest (Irwin-Williams 1973, 1979), the Plains Archaic Tradition (Frison 1978; Wedel 1961, 1986) and the Desert Archaic Tradition (Jennings 1964, 1978; Aikens and Madsen 1986).

#### UPLAND SETTLEMENT

The upland emphasis in settlement systems, ranging from the margins of the foothills zone up into the montane, subalpine and alpine areas at various times of the year, seems an obvious tendency but has been difficult to demonstrate. That the seasonal round was followed in upland

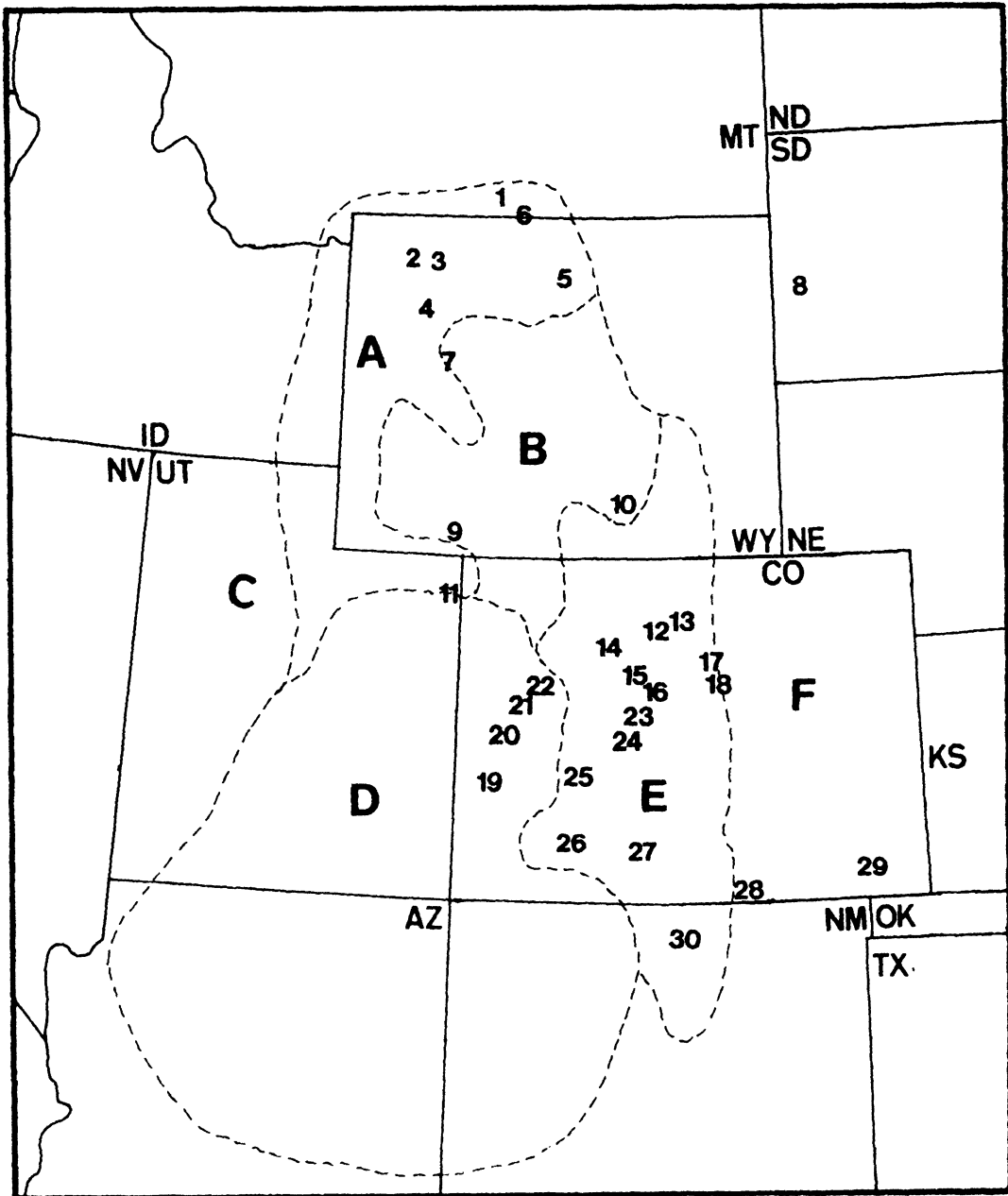


Figure 1. Map of the western United States showing the general locations of sites, site clusters (all numbered) and physiographic provinces (lettered, with limits dashed) mentioned in the text. Physiographic provinces: A) Middle Rocky Mountains; B) Wyoming Basins; C) Great Basin; D) Colorado Plateaus; E) Southern Rocky Mountains; F) Great Plains. Sites and site clusters: 1) Pretty Creek; 2) Mummy Cave; 3) Sheep Mountain; 4) Lookingbill; 5) Medicine Lodge Creek; 6) Bighorn Canyon; 7) Dinwoody Canyon; 8) Andoni and Ditch Creek; 9) Maxon Ranch; 10) Medicine House; 11) Swelter Shelter and Deluge Shelter; 12) Windy Gap; 13) Indian Peaks (Front Range); 14) Yarmony; 15) Vail Pass; 16) Carter Gulch and Porcupine Peak; 17) Magic Mountain; 18) LoDaisKa and Willowbrook; 19) Uncompahgre Plateau; 20) Indian Creek; 21) Sisyphus Shelter; 22) Kewclaw; 23) Fremont Pass and Dead of Winter; 24) Park Cone and Runberg; 25) Curecanti Basin; 26) Piedra Pass; 27) San Luis Valley; 28) 5LA2190; 29) McEndree Ranch; 30) Sangre de Cristo Mountains.

areas throughout the year rather than being limited to warmer seasons distinguishes the Mountain Tradition from other archaeological manifestations. On the other hand, the undeniable fact that lowland-based groups also exploited the mountains on a strictly seasonal basis clouds the interpretation of mountain archaeology, since Mountain Tradition and lowland-based groups may have occupied the same sites at different times, and since such multiple component sites are usually thoroughly mixed in thin soils. Artifact differences do exist, however, and recent work at the Yarmony site (discussed below) clearly supports the notion that winter occupations in the mountains were feasible. While it cannot be said that no lowland sites were occupied by mountain-based groups, such sites should be quite rare away from the mountain fronts and increase in frequency as the foothills are reached. Pretty Creek in Montana, Maxon Ranch, Wyoming and Magic Mountain, Colorado are but three examples of lowland sites located at the margins of foothills environments that I would include in the Mountain tradition (Loendorf et al. 1981; Harrell and McKern 1986; Irwin-Williams and Irwin 1966).

Examples of Mountain Tradition sites in montane and high altitude settings are as numerous as might be expected; among the excavated locations from the Southern Rockies are Vail Pass (Gooding 1981), Hungry Whistler (Benedict and Olson 1978), Fremont Pass (Arthur 1981), Piedra Pass (Reed 1984), Yarmony (Metcalf and Black 1988a), Runberg and Park Cone (Black 1986), Dead of Winter (Buckles 1978) and Porcupine Peak (Elizabeth Morris, pers. comm. 1986). Upland settlement patterns in the Mountain Tradition vary with site types. Warm-season base camps were commonly established on level landforms in proximity to water, vantage points, and tool stone outcrops, within or near major mountain valleys. Shorter-term seasonal camps occur at higher elevations on low prominences, benches and terraces adjacent to streams and cirque lakes, or on level landforms at or immediately below mountain passes. Chipping stations and other special activity sites are often found on high knolls, ridges and benches overlooking—but not adjacent

to—water sources. Winter residential bases include rockshelters and other protected settings at the foot of the mountains both east and west of the Continental Divide, and in warmer interior mountain valleys where average snowpacks are relatively low and, not coincidentally, big game animals congregate. Other briefly occupied sites are dispersed throughout the mountains in diverse settings suggestive of factors such as proximity to travel corridors, location of point resources such as tool stone outcrops, favored sites for ambushing game animals, and staging areas for hunting/gathering forays. Not insignificantly, better ground visibility in non-forested zones contributes to the apparently higher site density in mountain meadows (e.g., Black 1983b, 1986: 24).

Settlement systems among Archaic populations outside the mountains seem to have varied depending on their proximity to the Rockies. For instance, it cannot be denied that warm-season camps and special activity sites occupied by lowland-based groups occur in those mountain ranges bordering other physiographic provinces; Oshara Tradition sites occur in the San Juan and Sangre de Cristo ranges, Plains Archaic sites are well-known from the Front Range, Medicine Bow and Bighorn Mountains, Desert Archaic sites can be found in the Uinta Mountains and Uncompahgre Plateau, and any of these groups may have penetrated the interior mountain ranges from time to time. Differences with the Mountain Tradition mainly lie in the cool and cold season portions of the annual round (late fall, winter and early spring), when snows have closed access to the subalpine and alpine zones. In the Mountain Tradition, the response was to retreat to montane and foothills zone locations for procurement, processing and stockpiling of needed resources, whereas other Archaic groups exited the mountains to foothills-margin locations and other protected settings in timbered valleys beyond the mountains.

Archaic groups in locations more distant from the Rockies show even greater differences in settlement patterns. Oshara Tradition sites in northwestern New Mexico, dating to 7500-2800 B.P., are most often found at "canyon head cliff-

top dunes, canyon head cliff-base springs, canyon rims, ephemeral ponds, low mesaland and upland arroyo-edge dune ridges" (Irwin-Williams 1979: 36). These locations, considering the associated artifact assemblages, seem to have been chosen in regards to the distribution of exploitable floral resources. Plains Archaic sites in the short-grass prairie zone, by contrast, seem to evince a less diverse settlement strategy reflective of the importance of bison in the culture. Proximity to water holes and to locations favorable for the successful planning and execution of bison drives, then, are common site-location factors. To be sure, other site locations occur, particularly around major streams, sand dune fields and isolated buttes and ridges where floral and faunal resource diversity are greatest (Wedel 1961, 1986; Frison 1978). The Desert Archaic Tradition shows closest similarities to Mountain Tradition settlement strategies in that the annual round ranged from low elevation to high elevation environments – local settlement variability depending on proximity to the isolated mountain ranges of the Great Basin and on fluctuations in desert resource productivity. Differences with the Mountain Tradition include the pronounced site densities in those areas with productive lacustrine ecozones, and the apparently persistent utilization of lower woodlands for pinyon nut exploitation (Jennings 1964, 1978; Madsen and O'Connell 1982; Aikens and Madsen 1986).

The above discussion on settlement strategies highlights many environment-related differences between the Mountain Tradition and other Archaic systems. Indeed, it could be argued that environmental differences were the only ones that distinguished the various Archaic Traditions. However, the Mountain Tradition definition is a polythetic one, of which the upland settlement emphasis is only the most obvious component.

### SPLIT COBBLE TECHNOLOGY

Lithic core reduction strategies, like any basic cultural practice, tend to be maintained over extended periods of time unless "better" or more adaptive strategies are discovered or borrowed. The nature of tool stone sources, par-

ticularly bedrock outcrops as opposed to secondary gravel deposits, can also influence the strategy selected. For instance, some bedrock outcrops fracture in tabular blocks which are easily reduced in a bifacial manner. Nodular sources, especially those yielding relatively large cobbles, can be exploited equally well in a number of ways although, on the western plains, the bifacial reduction strategy also was preferred for such material. In the Southern Rocky Mountains, on the other hand, the split cobble method appears to have been more favored in those upland zones where nodular or other non-platy tool stone was available. This trend is particularly noticeable in Early Archaic and late Paleo-Indian contexts, and is found in later sites as well.

For instance, split cobble tools such as large scraper-planes and composite scraper-perforators have been recognized as significant parts of early assemblages at Pretty Creek, Montana (Loendorf et al. 1981) and Runberg, Colorado (Figure 2b; Black 1986); the split cobble reduction strategy also was prominent in representative collections from a large-scale survey in central Colorado (Figure 2a; Kvamme and Black 1986). The technology involves breaking an unmodified nodule or cobble in half, and either using the broken surface as the platform for removing flakes to be used/further modified, or trimming the broken edge of the split cobble for use in heavy scraping tasks. These large scraping tools are easily distinguished from the much smaller and formally-shaped flake scrapers common in Paleo-Indian and Archaic sites of many lowland-based groups outside of the Great Basin. The significance of this technological distinction is believed to be relevant to the origins of the Mountain Tradition, as briefly discussed later in this paper.

This technological characteristic contrasts most strongly with that represented in the Plains Archaic Tradition. Bifacial reduction strategies and frequent use of small to medium sized flake tools are prevalent in the latter. More significantly, true core tools seem to be quite rare on the plains, albeit hammerstones and choppers do occur. But heavy core scrapers, scraper-planes and multifunctional core tools are mostly



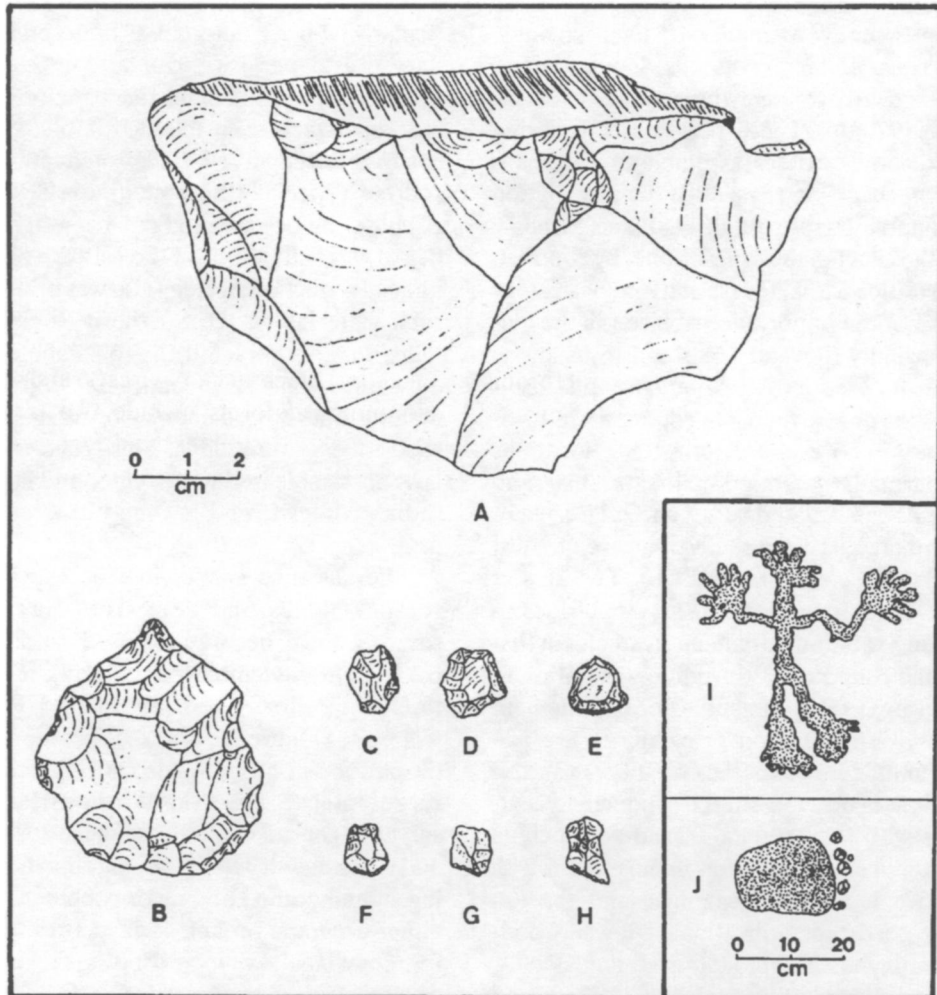


Figure 2. Selected chipped stone artifacts and rock art of the Mountain Tradition: A) split cobble core, Gunnison County, Colorado; B) split cobble scraper-perforator, Runberg site; C-H) microtools, Park Cone site; I) solid pecked anthropomorph, Delta County, Colorado; J) solid pecked bear paw, Montrose County, Colorado. Both I) and J) are individual elements from more complex panels. Illustrations are adapted from: A) Kvamme and Black (1986: Fig. 2.13b); B) Black (1986: Fig. 52g); C-H) Black (1986: Figs. 18-19); I-J) Cole (1990: Figs. 29-30).

absent in Plains Archaic sites, even those at and near tool stone quarries where biface and flake tool production far outstrips the manufacture and use of core tools (e.g. Ahler 1986). On the other hand, split cobble tools do occur in small numbers in the Oshara Tradition and, not surprisingly, are relatively common in early Desert Archaic sites of the Great Basin, where they are characteristic tools in the earlier Western Pluvial Lakes Tradition (e.g. Amsden 1937; Irwin-Williams 1973, 1979; Hogan 1980; Aikens and Madsen 1986). I would contend that the broad similarities in core reduction

strategies among the Mountain, Oshara and Desert Archaic Traditions, particularly in Early Archaic period contexts predating 6000 B.P., may be referable to a common ancestral lithic technology regardless of the manner in which that technology spread (cf. Irwin-Williams 1979: 34, 36).

### MICROTOOLS

A second characteristic of Mountain Tradition lithic assemblages is the presence of "microtools", small chipped stone tools—some less than 1 cm long—used for a variety of deli-

cate scraping, cutting and perforating tasks, and too small to be easily manipulated as hand-held tools. They are prominent in Archaic contexts at the Magic Mountain, Hungry Whistler and Park Cone sites in Colorado (Figure 2c-h; Irwin-Williams and Irwin 1966; Benedict and Olson 1978; Black 1986), and they are probably much under-represented in analyzed assemblages due to their small size and misidentification as resharpening flakes off larger tools. Although Irwin-Williams and Irwin (1966) may have been correct in speculating that these microtools were hafted in notched handles, they mistakenly ascribe them to a prismatic blade industry, when in fact most of these tools from Magic Mountain are not true blades, have only a single dorsal ridge and, thus, are not prismatic in longitudinal cross-section.

Although the predominance of these tools, thus far, in post-6000 B.P. contexts could be used to argue for a northern or northwestern origin of the idea, the examples from mountain sites are not microblades and a local innovation seems as likely an explanation. For example, Irwin-Williams and Irwin (1966: 189) note the parallel between the Magic Mountain site and those in the Pacific Northwest and far north regarding the manufacture of microtools (miniature "prismatic flake tools"). But the microblade industry so well-known in the Arctic Small Tool Tradition and earlier complexes of the far north (e.g. West 1981; Anderson 1984) shows clear differences from the microtools of the Southern Rockies. Also, the fact that neither true microblades nor microtools have been found in Desert Archaic, Plains Archaic or Oshara Tradition contexts argues for the local innovation idea mentioned previously.

### PROJECTILE POINT STYLES

Less distinctive, but still potentially significant, is the presence of large unstemmed, stemmed, serrated and side-notched projectile point styles in Mountain Tradition sites. Although few of these sites are well-dated, others, such as Medicine Lodge Creek, Runberg and Piedra Pass (Frison 1978, 1983a; Black 1986; Reed 1981, 1984) have early projectiles suggestive of relationships with Great Basin materials.

Other Archaic sites in the mountains have diagnostic projectiles clearly affiliated with plains- or southwest-based groups, and many sites with multiple occupations exhibit a range of styles suggestive of activities by both mountain-based and lowland-based groups. For example, the Runberg site in central Colorado has at least two Early Archaic occupations dating to 7700-8800 B.P.—and several other components post-dating 4000 B.P.—the former containing four hafted biface styles in the general side-notched category (Black 1986: Figures 36 and 43). These side-notched forms include two fragmentary specimens with straight basal edges and well executed collateral flaking comparable to Early Archaic points found on the western plains; one narrow, relatively thick point with a reworked blade and a concave basal edge which most closely resembles Simonsen points of the Logan Creek complex on the central plains; one large side-notched knife with ground, contracting stem edges, concave base and a bi-beveled blade vaguely resembling Pryor Stemmed blade morphology; and one complete point with a short triangular blade and markedly convex basal edge comparable to other Early Archaic point types in the mountains and western plateaus (Figure 3e).

The Carter Gulch site is also in central Colorado, north of Runberg and, by contrast with the latter, has an Early Archaic component with affiliations apparently limited to the Plains Archaic. The evidence includes a side-notched point fragment of thermally-altered chert, an obsidian knife fragment and both chalcedony and obsidian debitage in association with a rock-filled hearth dated at 5230-5000 B.P. (Black 1983c). The projectile point has shallow side notches immediately above an irregularly straight base, and collateral flaking on the remnant blade. Comparisons are difficult because of its fragmentary nature but, in general, side-notched points with straight bases are not typical of mountain sites, being more common on the western plains as mentioned above (e.g. Frison et al. 1976). The characteristic of the Carter Gulch site that is most interesting is the association in the Early Archaic component with non-local obsidian (its source presently un-

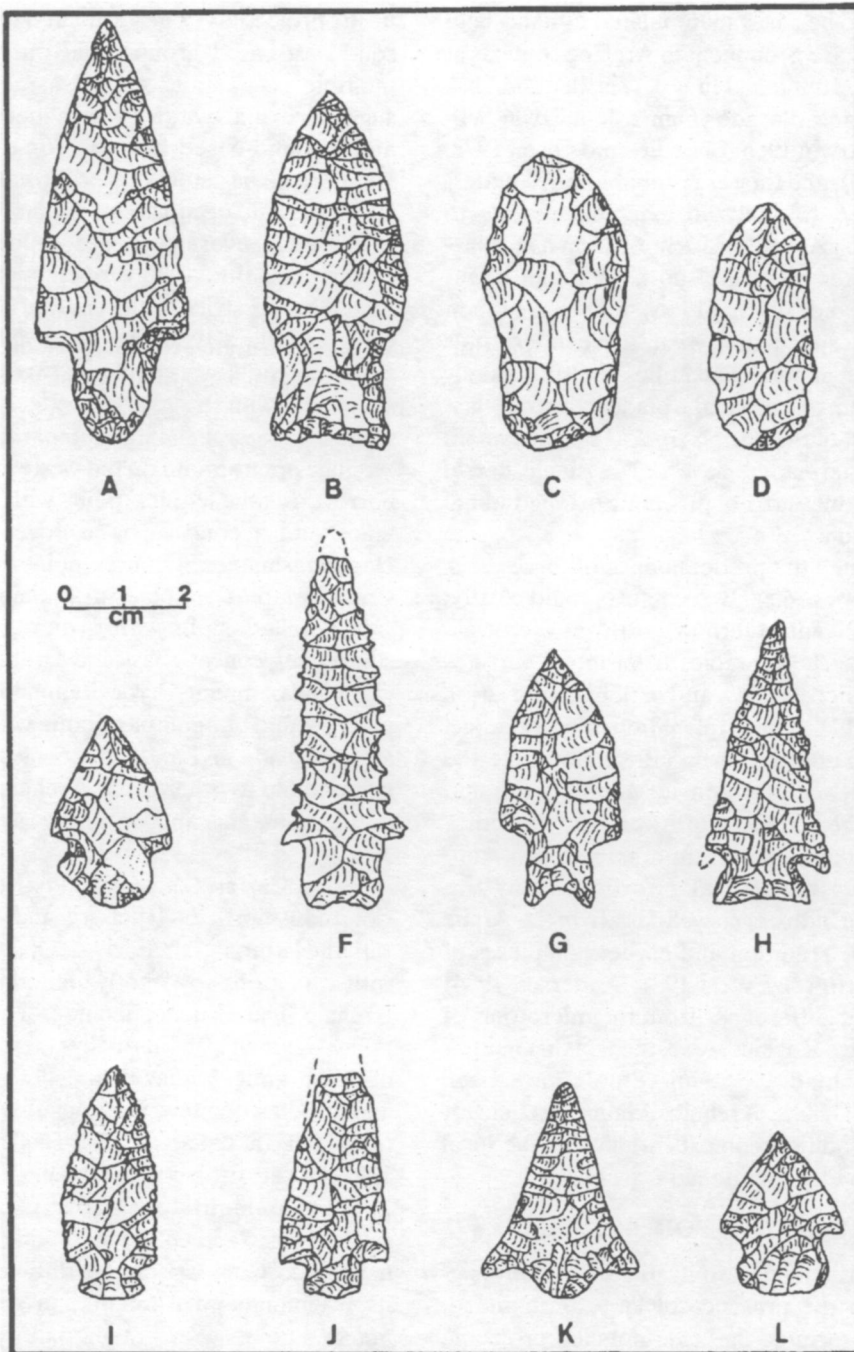


Figure 3. Representative hafted bifaces of the Mountain Tradition: A-G) early stemmed and notched forms pre-dating 5000 B.P.; H-L) late stemmed and notched forms post-dating 5000 B.P. Illustrations are redrawn from Black (1986: Figs. 85-86), except B and G. Source illustrations are as follows: A) Bighorn Mountains (Frison 1978: Fig. 2.2d); B) Paint Rock V (Frison 1978: Fig. 2.4b); C) Gunnison County, Colorado (Baker et al. 1980: Fig. 30); D) Magic Mountain (Irwin-Williams and Irwin 1966: Fig. 20); E) Runberg (Black 1986: Fig. 51); F) Summit County, Colorado (Black 1982: Fig. 5e); G) Yarmony (Metcalf and Black 1988a: Fig. 11r); H) Uncompahgre Plateau (Cassells 1983: Fig. 6-11); I) Gunnison County, Colorado (Black 1986: Fig. 16f); J) Park Cone (Black 1986: Fig. 33); K) Chaffee County, Colorado (Stewart 1970: Fig. 1-6); L) Gunnison County, Colorado (Black et al. 1981: Fig. 21).

known, but the closest known quarry is 150 km southwest), since Mountain Tradition sites typically exhibit local material types to the virtual exclusion of non-local materials. That the Early Archaic component at Carter Gulch includes a predominance of non-local obsidian in the assemblage (109 of 119 items, or ca. 92%) suggests either an unfamiliarity with local materials or the participation in a trade network that did not include local Mountain Tradition groups.

A third situation is seen at the Hungry Whistler site in the Front Range of Colorado, where Mount Albion side-notched points—a type herein included in the Mountain Tradition—far outnumber other styles (40 of 49 specimens; Benedict and Olson 1978). The Mount Albion point, dated to ca. 5800-5500 B.P. at the type site, has low-set shallow side notches, a convex basal edge, ground edges on the haft element and generally collateral flaking. Use of local materials in manufacture of Mount Albion points is typical.

Projectile points of the Mountain Tradition, then, are not uncommonly found on sites yielding points of other Archaic traditions, but are also sometimes found in relatively unmixed components. Stylistic similarities can be seen with projectile point sequences of the Oshara, Desert Archaic and Plains Archaic traditions, and general technological similarities are also present, yet some distinctive types do occur in the Mountain Tradition (Figure 3), and certain technological details are consistently represented. For instance, side-notched points with convex basal edges such as the Mount Albion type and both MM3 and MM5 from Magic Mountain (Figure 3d; Irwin-Williams and Irwin 1966) are common Early Archaic types in the mountains, but do not occur in the Oshara or Plains Archaic traditions. The Rocker side-notched type of the northern Colorado Plateau (Desert Archaic) is somewhat comparable, but is wider and thinner than most mountain specimens (e.g. Holmer 1980: Fig. 35).

Stemmed points with convex basal edges also occur in the Mountain Tradition, especially in early contexts. Examples include the Rio Grande type of central to southern Colorado and northern New Mexico (Figure 3c; Renaud

1942; Honea 1969; Baker et al. 1980), and unnamed points from the Bighorn Mountains and Black Hills (Figure 3a; Frison 1978; Cassells 1986). Comparable types are not present in the Plains Archaic, but similarities with Jay points of the Oshara Tradition, Silver Lake points of the Desert Archaic and various stemmed forms of the Western Pluvial Lakes Tradition are notable (Irwin-Williams 1973, 1979; Wallace 1978; Holmer 1986; Willig et al. 1988).

Stemmed points with straight basal edges are common Late Archaic period finds in the mountains, such as at Park Cone, Vail Pass, and the Upper Gunnison Basin in Colorado (Figure 3j; Gooding 1981; Black et al. 1981; Black 1983a, 1986). Park points (Stewart 1970) may be variants of this style, which is not represented in the Oshara, Desert Archaic or Plains Archaic traditions.

Technologically, Mountain Tradition projectile points tend to be relatively thick with biconvex longitudinal cross-sections and collateral flaking patterns. Flaking quality is moderate to well-executed, and reworking of broken specimens is extremely common. Serrated blade edges are common features that cross-cut all styles in the post-7000 B.P. era; it is not unusual to see a serrated point with an impact-fractured tip and blunted serrations suggesting secondary use as a knife. Haft element edges and notches are not usually ground, but there are important exceptions such as the Mount Albion type. Manufacturing techniques include a common use of the ubiquitous bifacial reduction sequence but, importantly, many Mountain Tradition points are made on flakes—including larger dart points. Use of local materials is typical. This latter tendency, as well as manufacture of points from flakes and frequent reuse of broken specimens, demonstrates that expediency in manufacture and use of projectile points is a hallmark of the Mountain Tradition. This tendency occurs throughout the lithic assemblages of mountain sites; in fact, simple flake tools with little or no retouch are often the most abundant ones found, and reworking of broken tools other than projectile points is quite common. Certainly the widespread availability of knappable tool stone

in upland areas is a factor in this trend, but it is nonetheless characteristic.

Comparisons with other Archaic traditions regarding these technological trends show some individual similarities but no across-the-board parallels. Thick, biconvex cross-sections are common features of Oshara Tradition points but less so in the Desert Archaic and Plains Archaic. Collateral flaking is also frequently expressed in the Oshara Tradition while in the Desert Archaic and Plains Archaic, particularly in the earlier periods, parallel oblique flaking is not uncommon, and the chevron pattern occurs in later periods (especially on arrow points). Blade serrations are rare in the Plains Archaic, infrequent in the Desert Archaic and somewhat common in the Oshara Tradition after 5000 B.P. Flaking quality is variable in all traditions but tends to be poorer in the Oshara and Desert Archaic than in the Plains Archaic and Mountain traditions. Ground base and stem edges are not typical in any of the traditions. Points made from flakes are rare in the Plains Archaic and Oshara traditions, and uncommon in the Desert Archaic; all three traditions, as might be expected, show a predominance of bifacial reduction methods from blank to preform to final product. Use of local materials is typical in all three traditions, although there are occasional instances of the acquisition of exotic tool stone in the Plains Archaic.

Thus, closest similarities to Mountain Tradition trends can be seen in the Oshara Tradition, only slightly less so in the Desert Archaic and least of all in the Plains Archaic. While stylistic similarities may be due to little more than limited information sharing over broad areas (e.g. Lister 1953), technological similarities may be evidence of closer relationships. In this regard the early chronologies of the various traditions may be instructive. Both the Oshara Tradition and Plains Archaic Tradition have beginning dates of roughly 7500 B.P., while the Desert Archaic and Mountain Traditions are thought to have developed by 10,000 and 9500 B.P. respectively. Considering that most archaeologists accept an unbroken development from the plains-based Paleo-Indian cultures to the Plains Archaic, and from the Western

Pluvial Lakes Tradition (a.k.a. Great Basin Stemmed Tradition; see Bryan 1980 and Willig et al. 1988) to the Desert Archaic and Oshara Traditions, it is at least worth mentioning that stemmed and lanceolate points strongly resembling Western Pluvial Lakes types such as Lake Mojave, Windust and Lind Coulee have been found in widely scattered places throughout the Middle and Southern Rocky Mountains region (e.g. see Renaud 1942; Wendorf and Miller 1959; Smith 1966; Frison 1978, 1983a; Reed 1979; Cassells et al. 1984; Greiser 1984; Mayer 1989). Unfortunately, only Medicine Lodge Creek and Swelter Shelter have yielded such specimens from excavated contexts (Frison 1978, 1983a; Leach 1970a), so assessing the significance of this distribution is hampered.

Difficulties arise in making projectile point comparisons as well, because of inconsistent quality in published illustrations, inadequate descriptions and the use of vague labels such as Agate Basin-like, Hell Gap-like and Alberta-like (e.g. Husted 1969; Loendorf et al. 1981). All in all, it can be said that projectile points of the Mountain Tradition are different from those of neighboring Archaic Traditions, but that more important differences—even if they are sometimes subtle ones—exist in other characteristics.

### ARCHITECTURE

A fifth trait which might distinguish Mountain Tradition sites from others is the early presence—only recently recognized—of habitation structures employing mud-and-stick type construction, heretofore unsuspected among local hunter-gatherer groups. Thus far, such structures have been reported from a number of sites in the Curecanti Basin west of Gunnison, at the Yarmony site in the Colorado River valley, and at the Granby and Hill-Horn sites in the Windy Gap area of Middle Park, within the Southern Rockies of Colorado (Euler and Stiger 1981; Stiger 1981; Mueller and Stiger 1983; Jones 1982, 1984, 1986; Wheeler and Martin 1982, 1984; Metcalf and Black 1988a, 1988b, 1988c). These occur in contexts as old as 8000 B.P. and continuing until at least 3300 B.P. Archaic sites in the Wyoming Basins also have been found with habitation structures in recent years,

such as the Medicine House and Maxon Ranch sites (McGuire et al. 1984; Harrell and McKern 1986), and add to the range of variation in these features which is so striking considering how recently they have been recognized. Indeed, the slab-paved structure of Late Archaic age from Sisyphus Shelter in western Colorado (Gooding and Shields 1985) is unique in the archaeological literature of the region. Year-round occupation of these structures is not indicated, but on the other hand, habitation periods may be measured in time frames of a month or more rather than days or weeks.

Perhaps the most convincing case to support the idea that year-round occupation of mountain environments was practical comes from the Yarmony site, believed to be a winter habitation (Metcalf and Black 1988a, 1988b, 1988c). This site is situated at an elevation of 2176 m near the Colorado River in north-central Colorado, within a juniper and sagebrush-dominated environment but closely bordered by dense conifer woodlands on all sides that reach timberline elevations of nearly 3500 m. The location is an interior valley of the Southern Rockies that is subject to occasional severe weather, but winters are relatively drier and, especially, warmer than the upper Colorado River valley in Middle Park, where stagnant cold air masses are prevalent winter phenomena. The completely excavated habitation structure at Yarmony, one of at least two, is a 6 m diameter pithouse with a 3.4 m diameter antechamber or work area on its southeast side. Floor features are numerous and similarly patterned in both rooms of the pithouse, yielding nearly identical  $C^{14}$  dates of 6320 and 6290 B.P. Interior hearths, slab-lined storage cists and unlined floor depressions are represented.

Artifacts include a very diverse range of chipped stone, ground stone, bone and antler items, with abundant points and knives that are comparable to the Pinto style in contemporaneous sites of the Desert Archaic in the eastern Great Basin and northern Colorado Plateau (Holmer 1986). Subsistence data are equally diverse as at least 16 species of mammals, birds and fish have been identified, along with pollen and macrofloral evidence for use of

five or more species of berries, grasses, forbs and cacti. At least in terms of the faunal remains, no other open site of the Mountain Tradition has given us a clearer picture of such broad-based subsistence strategies. No direct data regarding seasonality are available, but indirect evidence supporting a winter occupation is abundant, consistent and plausible (Metcalf and Black 1988b), including: 1) intensive labor investment in construction of a sophisticated habitation structure with a highly patterned arrangement of floor features – obviously not a first effort; 2) presence of interior hearths; 3) presence of tightly-fitted, rodent-proof, interior slab-lined storage bins; 4) ethnographic evidence correlating pithouse use, storage facilities and biseasonal mobility with cool-cold season occupations (Gilman 1987); 5) evidence for storage of prickly pear pads, a floral item available in winter; 6) intensive processing of animal bone, including low-yield elements, for marrow extraction and bone grease/juice production, suggesting dietary stress; 7) presence of the site within excellent winter range for deer and elk, both well-represented in the faunal assemblage; and 8) intensive use and reuse of chipped stone materials despite local availability of tool stone, suggesting poor access due to snow cover and frozen ground.

Less tied to seasonality, but also indicative of the diversity of activities typically encountered at residential base-type sites such as Yarmony are: 1) presence of domestic dogs; 2) evidence for on-site use and manufacture of ornamental artifacts (hematite, bone beads and pendants); 3) utilization of a wide variety of floral and faunal species procured from a number of local microenvironments; and 4) accumulation of debris in a thick, midden-like deposit indicative of repeated occupation of an adjacent structure for a number of seasons.

Other probable winter residential bases of the Mountain Tradition likely include many of the rockshelters along the Colorado Front Range such as LoDaisKa, Wilbur Thomas and Willowbrook (Irwin and Irwin 1959; Breternitz 1971; Leach 1966), and foothills shelters west of the Continental Divide such as Deluge Shelter, Sisyphus Shelter, Taylor and Moore (Leach

1970b; Gooding and Shields 1985; Wormington and Lister 1956). Archaic period pithouses at Kewclaw in western Colorado, and Medicine House and Maxon Ranch in southern Wyoming (Conner and Langdon 1987; McGuire et al. 1984; Harrell and McKern 1986) also might be winter residences considering the thorough ethnographic work of Gilman (1987). In none of these sites are clear-cut direct data on seasonality present, but, as at the Yarmony site, indirect measures are quite suggestive. Given that season of occupation is a notoriously difficult site characteristic to investigate in the absence of a large sample of faunal remains with well-preserved tooth eruption patterns, it should not be surprising that our data base for seasonality in the Mountain Tradition is so small, since preservation of faunal remains is usually less than desired.

Regardless of season of occupation, the varied architectural remains from Archaic contexts in the Rocky Mountain region have yet to be duplicated in adjacent areas. It remains to be seen whether the low frequency of such remains in lowland areas is due to a real difference from Mountain Tradition strategies, poorer preservation of architectural features outside the mountains, inadequate sampling size, or a heretofore expectation by archaeologists that no substantial architectural features would occur in Archaic sites. In the Desert Archaic Tradition, architectural sites thus far have been found only in the western and northern peripheries of the area, such as Surprise Valley (O'Connell 1975), where settled village life tended to develop in later eras. Western Colorado sites with architecture, such as Kewclaw, Sisyphus Shelter and Indian Creek (Conner and Langdon 1987; Gooding and Shields 1985; Horn et al. 1987) are better included in the Mountain Tradition than in the Desert Archaic, because all are in valley locations surrounded by mountainous terrain, and all contain archaeological remains comparable to assemblages from upland areas.

In the Oshara Tradition, Archaic architecture thus far has been found only in Late Archaic contexts post-dating 3500 B.P., which can be easily tied to later Anasazi developments (e.g. Stiger 1986; Kane et al. 1988; cf. Irwin-Williams

1979). Plains Archaic architecture is almost entirely limited to stone circles, albeit important exceptions occur which suggest a closer look is in order. The McEndree Ranch site in southeastern Colorado, for example, contains a partially excavated pithouse with a ramp entrance, indirectly dated to no later than 2170 B.P. (Shields 1980). Site 5LA2190 west of Trinidad in southeastern Colorado (Rood 1990) is a probable mud-and-stick structure with a masonry foundation along a portion of the perimeter, dating to ca. 3160 B.P. However, while its location is technically on the Great Plains (i.e. the Park Plateau portion of the Raton Section; Thornbury 1965: 313), the local geography, environment and cultural sequence argues for closer ties to the Oshara or Mountain Traditions. In conclusion, since our knowledge of Archaic architecture has been established only since the late 1970s, inclusion of diverse and substantial architectural features as a defining characteristic of the Mountain Tradition is a provisional assessment. This contrasts with the view of Wheeler and Martin (1984) who used architectural features as the major distinguishing trait of their Montane Tradition.

### ROCK ART

The final trait to be discussed is also the most difficult to quantify: rock art. Because rock art is uncommon in much of the Rocky Mountain region, especially at higher elevations, a detailed treatment of Mountain Tradition rock art necessarily focuses on site clusters in semi-arid valley and canyon settings rather than upland locations. However, it can be noted that a recently completed study of Colorado Plateaus region rock art has identified at least one areally distinct style that may be limited to the Mountain Tradition (Cole 1987, 1990: 82).

Cole (1990: 82-96) defines "Uncompahgre Style" rock art, primarily petroglyphs, across a broad area of central and western Colorado into a small portion of east-central Utah. Proposed dates for the style are in the range of 3000-1000 B.P., and no positive connection with later Ute rock art is recognized. Petroglyphs are mostly stipple or solid pecked, but ground, incised and dulled examples also have been found — in some

cases incorporated into pecked figures. The relatively small number of pictographs found thus far may be due to greater weathering considering the mesic environment of the region. Abstract images occur in the region, although Cole (1990: 42-58) includes it in a separate rock art tradition widespread from southwestern Wyoming to the Four Corners area; some incised figures in the Uncompahgre Style are similar to the "abstract groove art" variant.

Most of the Uncompahgre Style is representational, however, and is often expressed in elaborate and complex sets of images. Anthropomorphs, while not dominant elements of panels, are commonly depicted but with few decorative embellishments (Figure 2i). Instead, they are usually sticklike or elongated rectangular figures:

Heads are generally rounded, and arms often extend stiffly out to the sides or raised above the head. Large hands and feet with spread fingers and toes are shown. Some anthropomorphs are more realistic and hold stick or spear-like items. . . . Details such as headdresses, hair-bobs, and possible masks are exhibited on a few figures. Facial features and interior body decorations are generally not shown. Phallic figures are common in Uncompahgre Style art, and possible vulvas are indicated. . . . (Cole 1990: 90).

Zoomorphs and the aforementioned abstract images are commonly associated with these anthropomorphs. Snakes, canids, deer, elk, bighorn sheep and bears are frequently depicted, some panels exhibiting more than 30 such figures—scenes of animals migrating, or being driven or hunted—are sometimes suggested. Body shapes are rectangular to elongated linear, often depicting details like hooves, tails, ears and antlers, the latter sometimes in exaggerated size and complexity. Bear images are common, and bear paw prints are particularly abundant in the style. These paw prints occur in a range of forms from solid/realistic images to banded stylized forms (Figure 2j); associations of bear paws with abstract art also occur. Less common elements include prints and tracks of birds and ungulates, and bird zoomorphs. Linear abstracts are associated with the style and take such forms as "wavy and straight lines,"

"squiggle mazes," T-shaped images, "one-pole ladders" and branchlike forms, "stars," "rainbows" or "concentric arcs, and concentric circles" (Cole 1990: 95-96). "Connecting lines" sometimes physically associate representational elements with each other and to abstract figures.

Cole (1987, 1990) provides illustrations of many panels of Uncompahgre Style rock art, primarily sites in the Uncompahgre Plateau country of Delta, Mesa, and Montrose Counties, Colorado. Scott (1981) describes another site, Sheep Spring, from a higher elevation valley in Gunnison County, Colorado, and both Buckles (1971) and McKern (1978) also provide important descriptions of Uncompahgre Style rock art.

Cole (1990: 96-108) describes another rock art style with less definite ties to the Mountain Tradition, the Interior Line Style of western Wyoming, northeast Utah and northwest Colorado, the most prominent site cluster of which is in the Dinwoody Canyon area of the Wind River Mountains in Wyoming. She dates the style to "pre-A.D. 1-1000," contrasting with the age estimate of ca. A.D. 1500-1800 made by Gebhard (1969, 1972). Regardless of who is correct, if the Mountain Tradition as defined thus far ends with the appearance of the McKean complex in regions north of the Southern Rocky Mountains, then the Interior Line Style should not be included in the Tradition. More likely associations are with Late Prehistoric plains culture. The style includes linear abstracts, dot patterns, zoomorphs, and especially anthropomorphs, which assume a dominant position in the style. Outlined petroglyphs are most common, and interior body decorations are distinguishing embellishments. Owl-like imagery is common, including anthropomorphs with large round eyes. Interpretations of the style being symbolic of shamanistic practices is common.

Comparisons of Mountain Tradition rock art, particularly the Uncompahgre Style, with other prehistoric art styles are impeded by the difficulty in dating such features, but some contrasts are noticeable nonetheless. For the Desert Archaic, the Abstract style described by Cole (1990), Castleton (1978, 1979), Schaafsma



(1971), Heizer and Baumhoff (1962) and others is the most commonly associated art. As already mentioned, however, the Uncompahgre Style is more representational than abstract, although elements of the latter do occur. Another possible Desert Archaic and/or Oshara Tradition style is called Glen Canyon Style 5 by Turner (1963, 1971) or Glen Canyon Linear (Schaafsma 1980) and occurs throughout eastern Utah into southwestern Colorado and northern Arizona. This petroglyph style has been suggested to date as early as 6000 B.P., and dates of 4000-2000 B.P. would not be out of line considering similarities to split twig and other wooden figurines found in nearby caves and rockshelters. Most significantly, the style's anthropomorphs are elaborated well beyond that shown in the Uncompahgre Style with masks, headdresses and interior body decorations all commonly depicted (e.g. Cole 1990: 60-67).

Other possible Desert Archaic rock art is called the Barrier Canyon Style, after the famous series of panels in Canyonlands National Park, Utah (e.g. Schaafsma 1971; Castleton 1978, 1979). While some would ascribe the style to the Fremont or Anasazi, others suggest a Late Archaic age of ca. 3000-1500 B.P. (Schaafsma 1971; Cole 1990). The style is primarily expressed in pictographs, in an area stretching from western Colorado through eastern and southern Utah into northern Arizona. Large ghost-like anthropomorphs are characteristic and clearly separate the style from the Uncompahgre rock art. Similarly, Fremont rock art of 1500-800 B.P. is dominated by anthropomorphs, many elaborately decorated, and is easily distinguished from Mountain Tradition rock art (e.g. Schaafsma 1971; Gunnerson 1969, Castleton 1978, 1979; Cole 1990). In the Southwest, Oshara Tradition art includes the Abstract and Glen Canyon styles already described (Schaafsma 1972, 1980). Anasazi rock art of the same region dates to 2000-700 B.P. and includes various substyles common to specific portions of the Four Corners area, but in all cases elaborately decorated anthropomorphs are characteristic and defining elements (e.g. Schaafsma 1971, 1972, 1980; Cole 1990). Plains rock art is described by Conner and Conner (1971), Frison

(1978), Hendry (1983), Keyser and Sundstrom (1984), and Wedel (1986), among others. For the Plains Archaic, however, it would appear that the widespread Abstract Style already mentioned is the predominant style (e.g. Renaud 1936; Tatum 1944; Buckles 1974, 1980, 1989), unless the Interior Line Style already described is also a Plains Archaic manifestation.

## DISCUSSION

In any construct as broadly defined as the Mountain Tradition, the remains from any single site are less important than the trends apparent from a large number of sites covering an extended period of time. Thus, a listing of "typical" Mountain Tradition sites would be misleading from a standpoint of assemblage content, although the Vail Pass site in Colorado (Gooding 1981) is "typical" in the sense that it exhibits multiple components mixed in vertically compressed (30cm) stratigraphy with a variety of artifacts suggestive of occupations by both Mountain Tradition and lowland-based groups. However, a number of sites and site clusters, many already mentioned, are important in demonstrating the geographical and chronological extent of the Mountain Tradition. Beginning in the south, several sites in the Sangre de Cristo mountains of New Mexico (Wendorf and Miller 1959), and at Piedra Pass (Reed 1984) and in the San Luis Valley in southern Colorado (Renaud 1942) have undated surface assemblages with large side-notched, unstemmed and stemmed projectile point types suggestive of Mountain Tradition occupations. The Runberg, Vail Pass and Magic Mountain sites in central Colorado (Black 1986; Gooding 1981; Irwin-Williams and Irwin 1966; Butler 1990) are multiple component camps with a number of radiocarbon dates from 8800 B.P. to less than 1000 B.P. Runberg yielded split cobble tools and a few microtools; Magic Mountain contained an abundance of microtools plus some split cobble tools; and all three sites had distinctive large stemmed or side-notched point types.

Mention has been made that, at Curecanti in south-central Colorado (Euler and Stiger 1981; Mueller and Stiger 1983; Jones 1982, 1986

among others) and at two sites in Middle Park near the Colorado River headwaters (Wheeler and Martin 1982, 1984), remains of surface mud-and-stick structures were among the first discoveries of such Early to Middle Archaic features. The Yarmony site's pithouses and extensive artifact assemblage expand the data base considerably, as do the numerous Archaic structures recently excavated in the Wyoming Basins (e.g., McGuire et al. 1984; Harrell and McKern 1986). At Sheep Mountain in the Absaroka Mountains of northwest Wyoming, a recently-reported animal trapping net dated to 8860 B.P. may be evidence of Mountain Tradition perishable materials, and has been compared with Desert Archaic artifacts of the Great Basin and Columbia Plateau (Frison et al. 1986). Medicine Lodge Creek in the Bighorn Basin foothills of northern Wyoming (Frison 1978, 1983a) and the Ditch Creek and Andoni sites in the Black Hills of South Dakota (Cassells et al. 1984) have yielded stemmed points with rounded bases similar both to other stemmed points of the Southern Rockies and to Western Pluvial Lakes Tradition types. Mention also has been made of the Pretty Creek site in south-central Montana (Loendorf et al. 1981), with its series of Early Archaic split nodule tools and an "Alberta-like" stemmed point in levels dating to 7700-5500 B.P.

Frequent references have been drawn to similarities between archaeological assemblages in Rocky Mountain sites and those in the Great Basin and Southwest. These similarities appear to be greatest in the earlier time periods, i.e., pre-6000 B.P., contemporaneous with western plains manifestations of the Paleo-Indian and Early Archaic time periods. I would argue that these similarities are more than coincidental and, in the earliest periods, result from more than the maintenance of communication networks. Further, I believe that severe environmental stresses as causative agents can be identified to account for initial peopling of the Rockies via expansion of Western Pluvial Lakes Tradition populations from the Great Basin — an immigration resulting in permanent occupation of these upland areas both contemporaneous with seasonal visits by plains-based Paleo-Indian groups and initiating

the Archaic sequence defined above as the Mountain Tradition (cf. Irwin-Williams 1979: 36).

Specifically, I would argue that the radical Pleistocene-Holocene environmental transition lowered the productivity of the Great Basin landscape as a whole to such an extent that the resulting lowered "carrying capacity" of the land for hunter-gatherer groups necessitated emigration by at least some portion of the population. Some people stayed and some people left. Those who stayed followed divergent adaptive paths; some of those who left adopted the Rocky Mountains for their new home developing an adaptive strategy which paralleled their previous Great Basin lifestyle. Style and, especially, technology in chipped stone assemblages constitute most of the physical evidence for such population movements. Whether the other defining characteristics of the Mountain Tradition — architectural forms, rock art and settlement systems — also bespeak of such movements or merely represent later adaptations and developments within the mountains cannot be assessed from present data. See the Cottonwood Pass report (Black 1986: 198-215) for a more detailed treatment of my views on the origin of the Mountain Tradition, which is beyond the scope of this paper.

Defining a major cultural tradition in the Rockies obviously entails conflicts with previous interpretations of mountain archaeology, notably those of Benedict (1978, 1979, 1981, 1985, 1990) and Bender and Wright (1988). Benedict's research in the Indian Peaks area of the Colorado Front Range has led him to posit that the mountains served as "refugia" for lowland-based populations abandoning areas stricken by droughts during the Altithermal climatic episode. He identifies several archaeological complexes of the Early Archaic period as evidence for the "mountain refuge" hypothesis including Mount Albion, Albion Boardinghouse, Fourth of July Valley and one characterized by an unnamed stemmed indented base point type seen as transitional from Pinto to McKean (Benedict 1975a, 1978, 1981, 1990). While it is clear that most of his complexes are undeniably representative of moun-

tain occupations in the Altithermal era (the Albion Boardinghouse point type has yet to be verified as an Early Archaic form distinct from the Mallory type; see Black 1983a: 17, 20), less certain are the interpretations one draws from the presence of these remains.

Bender and Wright (1988: 619-624), elaborating on the earlier work of Reeves (1973), challenge the mountain refugia hypothesis based both on radiocarbon and environmental data. They see no chronological evidence for an influx of populations into mountainous terrain given the current C<sup>14</sup> date sequence for upland areas bordering the High Plains. Further, they summarize extant paleoenvironmental studies and conclude that the Altithermal episode(s) did not cause "widespread, wholesale environmental deterioration" sufficient to force abandonment of plains ecozones (cf. Greiser 1985). I, too, would dispute the accuracy of Benedict's interpretations, but from more direct archaeological information.

For instance, plains-based antecedents for the four complexes mentioned above have yet to be convincingly identified. Albion Boardinghouse has been suggested to date to ca. 5730 B.P. at the type site (Benedict 1975a), but the association of the dated material with the artifact assemblage is indirect at best, and other dated sites in the Southern Rockies such as 5GN344 and Dead of Winter (Black 1983a; Buckles 1978) indicate that the complex postdates the Altithermal. Until corroborating evidence for an Altithermal age is forthcoming, the Albion Boardinghouse point type might be better considered nothing more than a local variant of the Mallory type dating to ca. 4700-3600 B.P. over a broad area of the Southern-Middle Rocky Mountains and northern Colorado Plateaus (e.g. Holmer 1986). The complex's antecedents, regardless of its relationship to the McKean complex, most likely occur within the late Altithermal time frame, not prior to it.

Mount Albion, securely dated to ca. 5800-5200 B.P., has no known predecessors in lowland environments (Benedict 1979: 9). However, I have included the complex in the Mountain Tradition on the basis of recent discoveries of side-notched points with convex

bases in assemblages dating as early as 8800-8200 B.P. at such upland sites as Runberg, Fremont Pass and Piedra Pass (Black 1986; Arthur 1981; Reed 1984). These earlier assemblages show the diversity in tools typical of Mountain Tradition sites, including Mount Albion, in the form of a variety of multipurpose flake tools, knives, scrapers, perforators, milling stones, etc. Mount Albion, in my view, is nothing more than another local Archaic group in the Southern Rockies with origins directly traceable to already well-established mountain adaptations.

The Fourth of July Valley complex has associated C<sup>14</sup> dates of 6045 and 5880 B.P. from the type site (Benedict 1981), and has been interpreted as transitional from late Paleo-Indian remains such as James Allen and Pryor Stemmed to the Middle Archaic period McKean complex. This view ignores the similarity of Fourth of July Valley remains to essentially contemporaneous Early Archaic materials called Humboldt and Triple T in a broad area from Nevada to western Colorado within a date range of ca. 7600-6100 B.P. (e.g. Holmer 1980, 1986). Not only are these latter materials found in both high altitude and foothills environments throughout the region, but their Early Archaic age suggests a closer relationship to Fourth of July Valley than those late Paleo-Indian complexes. In addition, any connections between Fourth of July Valley and Pryor Stemmed would be an argument for continuity in mountain-adapted populations (e.g. Frison and Grey 1980) rather than evidence for a movement of plains "refugees" into the mountain environment.

Finally, the fourth complex Benedict (1990) identifies is characterized by a stemmed identified base point type in an assemblage radiocarbon dated to 5710 B.P. at the Coney Lake site in the Colorado Front Range. Antecedents are not identified by Benedict (1990), but I see no problem in directly relating this material to the abundant remains from the Yarmony site with C<sup>14</sup> ages of 6300-6000 B.P. (Metcalf and Black 1988a) as well as other scattered materials in the Southern Rocky Mountains and northern Colorado Plateaus (e.g. Black 1986; Stiger 1981;

Holmer 1980, 1986). Given that the Yarmony site archaeology argues for a well-established mountain adaptation by 6300 B.P., and that these materials have been found in upland contexts as early as 8300 B.P. (DeBloois 1979; Holmer 1986), it is not necessary to derive the Coney Lake materials from anything other than a local Mountain Tradition origin. Unfortunately, Holmer (1986) prefers the type name Pinto Shouldered for these eastern Utah and western Colorado materials, despite the fact that the true Pinto remains from the type locality in the distant western Great Basin are largely undated (Warren and Crabtree 1986; Amsden 1935). A local name would be preferable for the eastern complex.

To summarize, there is no doubt that most of Benedict's complexes represent Altithermal-age populations utilizing mountain environments, and that his work is both thoroughly documented and well-illustrated. However, there are substantial problems in accepting his interpretations of those remains, in terms of the mountain refugia hypothesis. While I would concede that some plains-based groups did exploit upland resources during the Altithermal (cf. Bender and Wright 1988), I am not convinced that Benedict's Early Archaic complexes are evidence of such use. Both Mount Albion and "Pinto"/Coney Lake are herein included in the Mountain Tradition, and both Fourth of July Valley and Albion Bordinghouse are provisionally included in the Tradition pending further work.

Bender and Wright's (1988) synthesis of mountain archaeology focuses on upland environments bordering the Northwestern Plains such as the Bighorn, Wind River and Absaroka Ranges of the Middle Rocky Mountains. In their view, mountain environments were not marginal (an opinion I obviously share), but integral components of a "broad-spectrum" adaptation by High Plains hunter-gatherer groups. They see high country use as "seasonally scheduled" and "intrinsic" to local adaptive strategies, and cite the presence of various architectural remains in southern Wyoming as evidence for Altithermal-age occupation of lowland environments by plains groups, contrary to Benedict's hypothesis

(Bender and Wright 1988: 620, 626). They also contrast their "broad spectrum" model with "task-specific" models of high country use, criticizing the latter as too focused on the archaeology of valley environments and too narrow in the interpretation of individual high altitude sites (Bender and Wright 1988: 625).

They go on to elaborate their broad-spectrum approach in terms of Binford's (1980) expectations for a collector-type subsistence and settlement system, noting the presence of a variety of site types in diverse mountain settings as consistent with their model. Finally, they interpret the evidence as suggestive of a "settling-in to a local environment [in their example, the Big Horn Basin and environs] by populations becoming increasingly sophisticated in broad spectrum hunting and gathering" – a trend they see well-established by the Early Plains Archaic period (Bender and Wright 1988: 633). They refer to a "foothill-mountain oriented tradition" but clearly imply it is part of Plains Archaic culture (Bender and Wright 1988: 633).

In general, their broad-spectrum model is not unlike Steward's (1938) interpretation of the use of Great Basin environments by Shoshonean groups. In the Historic period, Shoshonean (i.e. Numic-speaking) bands were observed exploiting the resources of the isolated Basin mountain ranges as integral portions of their annual rounds (e.g., see Thomas 1982, and Thomas and Pendleton 1990 for supporting archaeological data). I have no quarrel with Bender and Wright's (1988) model insofar as I, too, view Mountain Tradition adaptations as broad spectrum – the Yarmony site remains are clear evidence of this (Metcalf and Black 1988a, 1988c) – and I have little doubt that Plains Archaic groups seasonally exploited mountain resources as part of their annual round. However, we have two main points of departure in our views.

First, Bender and Wright (1988) seem to imply that most, if not all, use of mountain environments was by Plains Archaic groups rather than by both Plains Archaic and another Archaic culture distinct in its own right within the Middle and Southern Rocky Mountains. Part of our difference of opinion may be environmen-

tally based; many of the eastern ranges in the Middle Rocky Mountains, plus the Black Hills, are relatively isolated uplifts surrounded by semi-arid-to-arid basins and plains of the Wyoming Basins and Great Plains provinces. By contrast, the Southern Rocky Mountains present a more continuous landscape of mountainous terrain with intervening valleys and parks of relatively high elevation. It is easy to understand, then, why Bender and Wright (1988) would include the upland sites of the Middle Rockies in the Plains Archaic tradition. In my view, however, the "lowland" environments within the Wyoming Basins are not only more like those of the mountain parks in Colorado than like those of the western Great Plains, but also occur at relatively high elevations often exceeding 1830 m (6000 ft). Further, the archaeology of the Wyoming Basins is of a different character than that of the plains, for example, in the presence of the pithouse architecture which Bender and Wright (1988) include in the Plains Archaic and I include in the Mountain Tradition. Thus, I have chosen to separate the Archaic archaeology of the Wyoming Basins-Middle Rocky Mountains from that of the remainder of the Northwestern Plains, and would include the former in the Mountain Tradition for the 9600-4500 B.P. era.

Our second point of disagreement is more specific, the above-mentioned interpretation of Archaic architectural sites in southern Wyoming. A few of these remains represent true pithouses comparable to the Yarmony site in Colorado, such as Maxon Ranch and Medicine House (Harrell and McKern 1986; McGuire et al. 1984), and pre-date 4500 B.P. Others are less labor-intensive facilities that are little more than shallow saucer-shaped depressions covered by (presumably) lightweight superstructures and have dates as late as 1200 B.P.; examples include Sweetwater Creek, Buffalo Hump and Split Rock (Newberry and Harrison 1986; Harrell 1989; Eakin 1984). Diagnostic material at the pithouse sites is not particularly abundant, but does include some straight-based, and especially concave-based side-notched projectiles comparable to those from such foothills-montane sites as Lookingbill and Mummy Cave

(Frison 1983b; Wedel et al. 1968). It is my contention that the pithouse architectural sites in the Wyoming Basins are consistent with the archaeology of the Southern Rocky Mountains, both in terms of the architecture and their evidence for a typically broad-based subsistence strategy, and should be included in the Mountain Tradition. The other house depressions ("dish houses") of the Wyoming Basins, particularly those post-dating 4500 B.P., have not been included in the Mountain Tradition because of the previously stated view that the appearance of the McKean complex interrupts the continuity of upland adaptations north of the Southern Rocky Mountains.

### SUMMARY AND CONCLUSIONS

Recent work in the Rocky Mountain region has consistently uncovered archaeological evidence of prehistoric adaptive strategies specifically structured toward upland environments. Far from being an inhospitable land, the Rockies offered diverse and abundant economic resources such as tool stone, wood for fuel and construction, reliable water, game animals and a mosaic of vegetation communities. Elevational factors insured that resource availability was spread throughout the non-snowy months, and once the snows arrived, big game animals were concentrated in easy-to-hunt herds within the drier valleys. Thus, occupation of the mountains was certainly possible on a year-round basis; pithouses at the Yarmony site demonstrate the architectural expertise needed to cope with upland winters ca. 6300-6000 B.P.

Evidence is also growing that the adaptive strategies to exploit the diverse Rocky Mountain environment year-round were in place by at least 8000 B.P. and perhaps as early as 10,000-9500 B.P. Archaic in lifestyle, these adaptations persisted for thousands of years—at least to 4500 B.P. in the north, and to 700 B.P. in the south—a unique development defined herein as the Mountain Tradition. Differences in lithic technology and style suggest the origins of this Archaic Tradition lay to the west in the Great Basin proper rather than among the Paleo-Indian "big-game hunters" of the plains. Specifically, the split cobble reduction technique and the

resultant split cobble tools are taken as evidence in the earliest mountain sites for such a Great Basin origin. Likewise, diagnostic projectile points at many early Holocene sites in the Rockies are most similar to Great Basin types. Other distinctive characteristics of the Mountain Tradition – microtools, architecture, settlement systems and rock art – suggest local innovation and adaptation, and maintenance of communication networks toward the west.

In conclusion, the major points of this paper can be summarized as follows:

1. The early work of Husted and Mallory (1967; Husted 1969) in defining a Mountain branch within a more inclusive Western Macrotradition has some validity in its recognition of the development of mountain-oriented adaptations by the late Paleo-Indian period. However, the availability of a much broader data base today casts doubt on many of the details of their scenario. It seems unlikely, for instance, that mountain-oriented groups have their origin in the Agate Basin complex, nor does the Agate Basin complex represent an influx of populations from the north. Also, their inclusion of linguistic developments in the definition of the Mountain branch seems premature, and has not been followed here. That their “Mountain branch” represents part of an expansion of “Aztec-Tanoans” into historically known territories may or may not be true. However, I am uncomfortable in ascribing any linguistic affiliation(s) to the Mountain Tradition, considering that archaeologists have difficulty enough in tracing linguistic connections back 500 years, let alone 9000 years.
2. The occurrence in Colorado of upland-adapted populations by at least 9000 B.P. heralded the development of a genuine “Mountain Tradition” unrelated to contemporaneous events in adjacent semi-arid lowlands (cf. O’Neil 1980: 20). This major cultural tradition (Willey 1966: 4, 24) was characterized by seasonal transhumance within the foothills, montane, subalpine and alpine zones, occupation of short-term habitation structures at base camps and more temporary shelters at outlying camps, occupation of pithouses at long-term winter bases, an early hunting emphasis in subsistence strategies supplemented by some floral resources, and competition with adjacent plains and desert-based groups in prime mountain hunting and gathering zones during the summer and early autumn months. Competition for mountain resources lessened in the late fall, winter and early spring when the plains and desert-based groups returned to the lowlands while the indigenous mountain groups stayed in the warmer foothills and mountain valleys. The distinctiveness of Mountain Tradition archaeology is expressed, then, in settlement systems, lithic technologies, projectile point styles, architecture and rock art.
3. The tremendous diversity in archaeological remains which is at once so characteristic and so frustrating in mountain prehistory is the result both of seasonal competition between the indigenous upland and lowland-based populations, and of later Archaic territoriality in the Mountain Tradition as the Early Archaic groups gradually became more familiar with their mountain environments. The development of local cultural groups (e.g., Keyser 1985) is most apparent in post-5000 B.P. contexts within the Southern Rockies, when diversity in architecture, technology and settlement reaches a peak.
4. The upland adaptation characteristic of the Mountain Tradition is recognizable throughout the Rocky Mountains in late Paleo-Indian and Early Archaic times from northern New Mexico to at least southern Montana. After 4500 B.P., however, rapid expansion of the McKean complex – perhaps from Mountain Tradition groups in the Middle and Southern Rockies – into both forested uplands and lowland prairies spatially limits the Mountain Tradition to the Southern Rockies. In the latter area, the tradition is recognizable at least until 1000-700 B.P., and might end in the Historic period

if Numic groups like the Ute and Shoshone had local ancestors.

5. The origin of the Mountain Tradition, while not important in assessing the validity of the taxon, may be to the west in the Western Pluvial Lakes Tradition (Willig et al. 1988). Both the Oshara Tradition of the Southwest and the Desert Archaic Tradition of the Great Basin—northern Colorado Plateaus also have been tied to this early Paleo-Indian tradition (Irwin-Williams 1973, 1979; Jennings 1964, 1978; Aikens and Madsen 1986). The admittedly tenuous connection to Mountain Tradition archaeology is in projectile point styles, lithic reduction strategies and the use of split cobble tools, while environmental degradation at the Pleistocene-Holocene transition is suggested as the causative agent for a movement of Great Basin populations into the Rocky Mountains. Considering the mesic, lake-strewn and woodland-dotted landscape of the Great Basin at the end of the Pleistocene epoch, population movements to similar environments in the Rockies are seen as more conservative than a local shift in adaptive strategies. An analogous situation is described by Eddy (1968), who notes that the puebloan farmers of the Navajo Reservoir District on the Colorado-New Mexico border ultimately emigrated from the area ca. A.D. 950-1050 to maintain their agricultural lifestyle elsewhere rather than to change their adaptive strategy locally in the face of degrading environmental conditions.
6. The various Early Archaic complexes investigated by Benedict in the Front Range of Colorado are better explained as local groups representative of an already long-established mountain adaptation in the Southern Rockies, rather than as “refugee” populations fleeing Altithermal drought-stricken lowlands. The “broad spectrum” model of mountain exploitation defined by Bender and Wright (1988) can be applied to the Mountain Tradition, but use of mountain environments in the Middle Rocky Mountains was not limited to the Plains Archaic Tradition. Many of the ar-

chaeological manifestations cited by Bender and Wright (1988) as evidence for Plains Archaic high-country adaptations, such as the pithouse sites of southern Wyoming and the Pryor Stemmed and Lovell Constricted complexes, have been included in the Mountain Tradition in this paper.

#### DIRECTIONS FOR FUTURE RESEARCH

The implications of this admittedly complex scenario can be expressed in a series of testable hypotheses. Suggestion of west-to-east migrations necessitates that the oldest sites representative of such movements in the eastern Rockies be younger than those in the western Rockies and eastern Great Basin; population migrations should result in transport of a wider range of material culture traits than would be accommodated by simple borrowing of ideas. The immigrants would be expected to be initially unfamiliar with their new homeland resulting, perhaps, in early reliance on a more diverse range of material types for stone tools including many of non-local origin. Diagnostic artifacts such as projectile points, and technological characteristics such as core reduction strategies, should bear closest similarities to contemporaneous Great Basin materials during this earliest prehistoric period. Later local diversifications and innovations would be expected to blur these earlier relationships. In other words, the farther removed in time from the migratory event(s), the greater the difficulty in distinguishing sites of descendant populations from sites of adjacent cultural groups—e.g., Mountain Tradition sites should be identifiable by their artifact assemblages in early Holocene contexts, but settlement systems (e.g., location of winter residential bases), architecture and rock art may be better diagnostics in later Holocene contexts.

Other expectations that can be tested archaeologically include the prediction that Mountain Tradition winter habitations like the Yarmony site will continue to be found in the foothills and drier interior valleys of the Rockies, and should not be found in lowland areas away from the mountain fronts. Current information would also lead to the expectation that the later Archaic development of local groups

should result in increasing stylistic diversity within lithic assemblages, and the necessity for archaeologists to devise regional typologies within the Rockies to organize these variations. Also in later Archaic contexts, present data suggest that non-local materials are quite rare, implying either limited trade activity or a dominance of perishable materials within exchange networks. Finally, sites representing seasonal use of the mountains by lowland-based groups are well-known in the Rockies, but it is expected that cool-season/winter camps and residential bases of these populations will be limited to sheltered lowlands and foothills margins rather than in interior mountain valleys.

Obviously, the ideas outlined above are not based on overwhelming amounts of evidence. To the contrary, the data are sparse and amenable to speculations in a number of directions different from that offered here. More than twenty years ago, the results of the Magic Mountain and Bighorn Canyon-Mummy Cave excavations led Irwin-Williams and Irwin (1966) and Husted (1969; Wedel, Husted and Moss 1968) to similar speculations on the origins of Early Archaic remains in the foothills zone, ideas which have fallen out of favor given current trends in archaeological research. Yet it is argued here that the general tone of those speculations made long ago had a certain validity if one's time frame was suitably ancient. It can still be said that mountain archaeology is distinct from that of the plains and other lowland areas, and we must again consider the possibility that the ancestors of the Archaic period mountain folk were other than Paleo-Indian bison hunters: "mountain-foothill cultural groups were *separate* and practiced subsistence strategies different from those used by the classic Plains bison hunters of the same time period" (Frison et al. 1986: 360; emphasis mine).

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Mountains—I'm still baffled why more archaeologists don't work there, too. My interest in mountain archaeology owes at least partial inspiration in the prolific work of Jim Benedict, our differences in interpretation notwithstanding. The manuscript was revised (several times) from a paper presented at the 1986 Plains Conference in Denver, and benefitted from critical readings by, and discussions with, Michael Metcalf, Adrienne Anderson, Sally Cole, Mark Stiger, Elizabeth Morris, Bruce Jones and several anonymous reviewers for *Plains Anthropologist*. Any errors of omission or, especially, commission in this paper are strictly my own. Manuscript typing was accomplished at various times by Sally Metcalf, Tracy Cameron and Nan Glick. Artifact illustrations were adapted from line drawings by Anne McKibbin. Thanks one and all.

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