

cluded when the raw data are not. In the first five chapters, Pithlado introduces the study and establishes the environmental context, theoretical underpinnings, data collection methodology, and discusses problems of late Paleoindian projectile point typology and classification. It is here that she provides a very useful synthesis of the archaeological literature and establishes a framework for addressing her research questions as stated in the book's preface (p. xv):

When did human occupation of the Rockies flourish? Did Paleoindian people occupy the Rockies year-round, seasonally, or only sporadically? If Paleoindians did not spend all year in the mountains, where did they spend the rest of their time—to the east or the west? How, specifically, did people move around the mountain landscape? Did Rocky Mountain Paleoindian settlement strategies differ from those practiced in neighboring lowland regions to the east and west?

The synthesis of late Paleoindian typology and chronology presented in Chapter 5 is thorough and generally sound, and it provides a useful tool for those dealing with these challenges. However, the critical importance of this chapter magnifies a few of its flaws. For example, Figure 5.28 presents what appears to be a linear regression of the number of dated sites on the range of C-14 dates for each projectile point type. This analysis assumes equal variances and fails to consider the potential bias of sample size. Furthermore, the Eden/Firstview data are absent, and the graph's legend is truncated and incomplete. Because of these problems, it is unclear what the graph in Figure 5.28 represents. One alternative conclusion I have drawn is that as the sample size of radiocarbon dates for each projectile point type increases, so does its range of variation. The histograms in Figure 5.27 show that these data are not normally distributed, which may bring into question the validity of some dates and typological assignments as well as the possibility that variation exists in the rate and tempo of cultural change.

Chapters 6–10 provide the meat of this analysis with comprehensive analyses of the interrelationships between point types, geographic regions, and technological attributes. In my opinion, Chapters 6 and 7 provide the most important contributions of this work. In them, Pithlado documents patterning of projectile point types and lithic raw

material use by physiographic region, environmental zone, and elevation. She also documents the distributional patterning of several late Paleoindian point types across this diverse set of landscapes, and her work effectively integrates data from the Great Basin, Colorado Plateau, Rocky Mountains, and Great Plains. I believe this kind of work integrating the archaeological record across regional boundaries, which are largely based on traditional culture areas, is essential for advancing our understanding of cultural dynamics during the Late Pleistocene and Early Holocene. Pithlado should be commended for taking on this substantial challenge of large-scale analysis and offering a solid contribution to archaeological knowledge.

Chapter 7 concerns lithic raw material variability and provides the greatest insight into contrasting patterns of late Paleoindian mobility and land use. Pithlado identifies several interesting trends, including: lithic materials may move long distances in all regions, but not usually outside the physiographic region of their geologic sources (p. 152); the Great Plains differs from the other regions in that raw material movement occurs in nearly all compass directions (p. 153); the Great Basin tends to show the greatest distances of movement, perhaps related to an associated preference for obsidian use (p. 154); and lithic procurement in montane settings tends to be local regardless of region (p. 155). This last point indicates how mountain adaptations are required to be localized and unique.

Pithlado uses Chapters 8–10 to discuss variation in this sample of projectile points according to various qualitative and quantitative dimensions. I found these analyses of technological variation to be the least effective for her arguments. For example, it is unclear to me how slight differences in heat treatment, blank form, and flaking pattern can be used to support her conclusion that late Paleoindian populations in the Rockies were fulltime occupants. Similarly, I did not find that the metric comparisons in Chapter 9 provide much significant insight toward answering her research questions. Chapter 10 considers the condition and reworking of these projectile points as a way of measuring land use strategy. Slightly greater proportions of broken points and reworked points are shown to occur in the Rockies and Great Plains

regions compared to the Colorado Plateau and Great Basin. Pithlado suggests this pattern is a reflection of the general land use contrasts of collectors versus foragers in these respective regions.

The final chapter summarizes Pithlado's conclusions, including documented preference for quartzite use and identification of Angostura projectile points as distinctive hallmarks of early human occupation in the Southern Rockies. In summary, she identifies three main patterns of late Paleoindian occupation in this region of the Rockies: 1) fulltime occupation by Angostura makers, beginning around 9,700 B.P. and peaking around 8,790 B.P.; 2) seasonal occupation by Jimmy Allen/Frederick makers; and 3) sporadic incursions by Eden/Firstview makers from the Great Plains and Great Basin Stemmed makers from the west.

Overall, I think the strengths of this study outweigh its weaknesses, but from the critical standpoint of a reviewer, I found a few shortcomings worth mentioning. First, this study assumes that projectile points and their geographic distributions are effective measures of the overall mode and intensity of prehistoric land use. However, forms of prehistoric land use that did not involve the loss or discard of projectile points (e.g., plant gathering and other non-hunting activities) are necessarily excluded from Pithlado's analysis. This important limitation should have been more clearly admitted.

In addition, when considering differences in scales of mobility, it seems reasonable that we should expect group mobility ranges in mountain terrain to be smaller simply by virtue of the greater physical challenge—short map distances can represent significantly greater traveling times in rugged country with high relief. Pithlado (p. 59) notes the potential of this factor to affect archaeological measurements of mobility in her study, but it does not seem to play a very significant role in her interpretations. Furthermore, because she focuses on identifying land use strategies, I would have preferred greater consideration of the constraints that situational factors (such as raw materials, skill levels, and notions of acceptability) can place on stone tool manufacture, including the challenges of matching anticipated needs with unanticipated consumption in a difficult environment. For example,

there are good reasons to expect heat treatment to occur in response to changing technological needs associated with variation in seasonal activities, but Pithlado seems to view it more as a measure of cultural identity than as a functional response.

Finally, this book was first published in 2003, but the bibliography is almost exclusively limited to references published before the mid-1990s reflecting the completion date of the dissertation. Updating the manuscript and bibliography with greater consideration of the most recent literature would have made this publication seem more timely.

Despite these criticisms, this book is a useful document and framework for those interested in regional approaches to early hunter-gatherer adaptations in North America. I have already found the data presented in this study useful for improving my overall understanding of cultural change and diversity during the early Holocene.

**The Archaeology of the Snake River Plain.** By MARK G. PLEW. Boise State University Press, Boise, Idaho, 2000. ix + 230 pp, 8 maps, 51 figures, 2 tables, bibliography, index. \$21.95 (Paper, ISBN 0-9639749-6-3).

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In the introduction, Mark Plew states that *The Archaeology of the Snake River Plain* is intended for a wide readership that includes "professional archaeologists and students, some members of the general public, federal and state archaeological managers, and those working with private cultural resource firms" (p. 1). With this broad an intended audience, it's probable that not everyone will be satisfied. While I commend Plew for his efforts to bring together a vast literature, I was disappointed with the uncritical assessment of the state of Snake River Plain archaeology, despite the citation of previously published reviews. Much of his discussion merely reiterates what the original authors provided, despite, in some instances, having been written several decades prior. To be fair, he does state in the introduction that the book is "largely an overview of the range of human adaptations during the past 12,000 years" (p. 2) on the Snake River Plain, and

maybe writing for such a diverse audience is an unrealistic goal.

The book follows chronological order, beginning with a short chapter on the history of the regional archaeology, chronology, the environmental setting, and the environmental dynamics of the Holocene. The introductory chapters provide a cultural historical overview of the region illustrating the long shadows that Earl H. Swanson, Jr., and later B. Robert Butler, cast over contemporary archaeology. Cultural historical periods from Swanson, Butler, and others are presented as Paleolithic, (also referred to as Big Game Hunting), Archaic, and Protohistoric. In his final chapter, the author alludes to a fourth period, Pre-Clovis (15,000 to 12,000 B.P.). Time frames are presented in years BP, which I assumed to mean uncorrected radiocarbon years before present. However, an explicit statement about the dating would have clarified any misconception. I was also a bit perplexed by two dates, 15,000 (p. 21) and 12,000 BP (p. 30), for the beginning of the Paleolithic period.

In Chapter 5, Plew presents a cursory view of late Quaternary climate change based upon research conducted from the 1960s through 1980s. He fails to discuss or incorporate some of the recent work by paleoecologists Patrick Bartlein, Robert S. Thompson, Cathy Whitlock, and other members of COHMAP, that provides a much more complex picture of post-glacial climate change in reference to solar forcing and shifts in the jet stream, models that are beginning to explain transgressive, both spatial and temporal, variation in climate regimes. Also excluded from this discussion is the work of the FAUNMAP Working Group lead by Russell Graham that has begun examining patterns of faunal communities within these newer climate models. Their research illustrates large-scale coherent patterns for the west, although small-scale variability, often of greater interest to archaeologists, is also presented. The reader would also benefit from greater attention to detail. For example, in citing a dendroclimatic study of Douglas fir from south central Idaho, Plew (p. 26) fails to present a unit of measure for the samples:

At East Fork, intervals ranged from 1,090-1,975, whereas at Sheep Mountain ranges were from 1,320-1,975. Hawley Mountain ranged between 1,530-1,975 with Big Butte ranging from 1,530-1,975.

I assumed the reference is to years before present, but in the context of the discussion it could easily be interpreted as elevational distribution of the samples. I was also confused by the statement "It is clear that early Holocene conditions were cooler to moister than during the *previos* 7,000 years" (p. 26; italics added). I think this should read during the *following* 7,000 years.

In Chapter 6, Plew describes four subperiods within the Paleolithic framework: Clovis, Folsom, Plano, and Western Idaho Plano. Important sites discussed include: Wilson Butte Cave, Jaguar Cave, Simon Clovis Site, Kelvin's Cave, Buhl Burial, Wadsden site (Owl Cave), Bison and Verratic Rockshelters. More problems with details arise in this chapter. These include the misspelling of several taxa of Pleistocene fauna. For example, *Equus* should be *Equus*, *Equus conversidens* should be *Martes nobilis*, and *Marmota flaviventris* should be *Marmota flaviventris*. And more substantively, the domestic dog remains recovered from Jaguar Cave are reported as dating to 8000 years ago as reported by Barbara Lawrence in 1968, while recent direct dating of the elements indicates they are probably no more than 3,000-4,000 years old.

Discussion of Wilson Butte Cave (Wilson Butte I-III) is puzzling in the implication that horse and camel were present in deposits dating from 15,000 to 6,850 years ago (p. 29). Following the interpretations of Ruth Gruhn, Plew indicates climate was "somewhat cooler-moister conditions." In fact, this 9,000-year period saw significant shifts in climate from cold to cool-moist conditions of the late Pleistocene to a time of post-glacial maximum warmth with reduced effective moisture around 7,000 years ago. Another confusing statement in reference to the Paleolithic deposits (Wilson Butte I-III) deposits (p. 29):

It contained bone fragments exhibiting possible cut marks. These and slightly later deposits were associated with the extinct camel and horse which suggest somewhat cooler-moister conditions during the period 15,000-6,850 years ago.

It is unclear how camel and horse are indicative of cooler-moister conditions when all indicators of which I am aware suggest camels and horses are xeric, open grassland species. Also, my reading (or misreading) of this sentence implies camels

and horses survived well into the Holocene.

The Archaic (Chapter 7) is described as beginning "some 9,000 years ago" (p. 39) with the end of the Plano subperiod when warmer and drier conditions, and the extinction of Pleistocene mammal species, facilitated changes in hunting and gathering strategies. Key elements of the Archaic include:

1. The adoption of the atlatl commonly associated with large corner- and side-notched projectile points.
2. More varied utilitarian assemblage reflecting multiple strategies of hunting, collecting, and processing.
3. More common recovery of decorative, recreational, and ceremonial items.
4. Appearance of new site types which include quarry/workshops, rock alignments, other hunting facilities, fish weirs, rock art, and habitation sites.
5. Semi-subterranean pit houses and "wickup type" structures.

Plew places the Early Archaic between 7,800 and 5,000 years, although he also states "the earliest Archaic occupations date to about 11,000 years ago at the Hetrick site in western Idaho" (39). Important Archaic sites include Bison and Verratic Rockshelters, Malad Hill, Wadsden site (Owl Cave), Weston Canyon, Jimmy Olsen Rockshelter, Wilson Butte, Rock Creek, Hetrick Site, and Bachman Cave.

Chapters 8 and 9 are overviews of Middle Archaic and Late Archaic sites, respectively. Many of the Middle Archaic sites are located on the western Snake River Plain, possibly a result of more intense compliance-mandated investigations. Some of the more interesting and exciting sites from this period include the lava tube caves of the eastern Snake River Plain that apparently were cold storage meat lockers (e.g., Bobcat Cave). Structures such as those from Givens Hot Springs also become more common during the Middle and Late Archaic. Rockshelter and cave sites from this time produce an incredible array of perishable materials. For example, Schelbach Cave produced harpoon points, net sinkers, a bundle with a wooden spear, matting, and fishing line.

Protohistoric and early historic archaeology are discussed in Chapter 10. Relatively few sites date

to this time, which are placed between 300 and 220 B.P., and was initially referred to by Butler as the Equestrian period. Important sites from this time include Plew's work at the Bliss site, which produced evidence of four discrete activity areas dating between 1,140 and 250 B.P. This site produced a large assemblage of lithic and faunal remains that provide evidence of the transition between the Late Archaic and Protohistoric. The Wahnuza site, while having occupations dating back into the Middle Archaic, provides a unique opportunity to research the transition that occurred during the contact period. Another site of this time is Challis Bison Jump, which was investigated by B. Robert Butler in 1971 and interpreted as a historic bison jump. Reanalysis of this material is being undertaken and suggests a revision of the initial interpretation.

In addition to the specific examples mentioned above, other inconsistencies in the book also exist. Not all sites discussed in the text are present on reference maps; in-text citations list all authors at times (e.g., Meate, Titmus, and Woods 1989), while at other times only the lead author is cited (e.g., Meate et al. 1989). Missing references (e.g., Arkush n.d.; Davis 1982; Gruhn n.d.) are also a problem. The quality of the book would be greatly enhanced with higher resolution and larger figure reproductions. Many of the figures appear as reduced photocopies of original figures that are difficult to understand. This is particularly true of Figure 5: a poorly reproduced chart summarizing the biotic and cultural changes in the region. The figure has been reduced so drastically that some of the text is not legible. Other editorial issues include bewildering statements. For example: "No archaeological material was found, though 277 lithic flakes were recovered" (p. 51). Non-professionals and beginning students may benefit from an explanation of technical terms and abbreviations, such as EDXRF (energy dispersive x-ray fluorescence).

Despite my many criticisms, some trivial and others substantive, Plew should be commended for compiling and reporting on a literature base that extends back into the late 19th century. Many of these sources are grey literature reports and not easily obtained. While I would like to have seen a more critical assessment of the literature, Plew provides a key resource for southern Idaho.