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The northern Great Basin and upper Klamath River region of southeastern Oregon in general, and the Fort Rock Basin specifically, has been a focal point for archaeological research by the University of Oregon for six decades (Cressman 1936, 1956; Bedwell 1973). This commitment to the region is reflected in the first volume of the series, published almost a quarter century ago (Aikens 1971). The contrast between the early volume and the present one reveals changes in the growing interdisciplinary nature of archaeology. In the larger intermontane region arena, the project also exemplifies the wetland adaptations focus expressed by Great Basin archaeologists through the early 1990s (Janetski and Madsen 1990). Similar to a number of other wetlands studies, this report reflects major new findings after several years of intensive, dedicated field work and, most importantly, serves to alter our fundamental perceptions of past lifeways in the region.

The volume exploring Fort Rock Basin prehistory offers 25 articles by 20 authors, and is organized into five sections designed to explore a variety of topics related to the archaeological record of the region. The core group of authors is composed of well-seasoned researchers in the region. The articles are "stand alone" in production, including individual bibliographies. Though creating a good deal of text redundancy, this approach greatly aids usage of this hefty volume. This publication is the result of the cooperative efforts of many individuals and organizations associated with the ongoing work of the University of Oregon's archaeological field school from 1989 to the present under the guidance of the two editors throughout that span of time. The primary partnership of the University of Oregon (UO) and the U. S. Bureau of Land Management (BLM) has been invaluably aided by the people of Lake County, including the school board, residents, and industry, as well as a host of volunteers.

Though the report is formally structured into five sections (Regional Context, Lowland Occupations, Upland Occupations, Biotic Studies, and Proposed Model), the collection of papers may be viewed in a different light given that the 1989-1994 UO/BLM field school project is the driving force for this publication. Included are papers reporting results of previous archaeological work in the region, those strictly addressing the biophysical realm of the Basin, those that report findings of the archaeological record by the field school since 1989, and the two syntheses of the current state of knowledge for the region. This review will follow that order.

Seven papers address previous archaeological work in south-central Oregon spanning almost 30 years. The purpose of these articles is twofold: to report archaeological field work results heretofore not readily available to the public, and to aid in further elaborating a regional context within which to interpret results of the UO/BLM field school project.

Of particular interest in this subset of papers are two articles describing archaeological discoveries made in the 1980s that served to alter fundamental perceptions of the archaeological rec-
ord on the dry valley floors of this northern Great Basin region. Mehringer and Cannon discuss research of Fort Rock Valley dune landforms performed in the early 1980s (pp. 283-327). Like the 1979 regional surface survey described by Toepel and Minor (pp. 125-154), this work represented another innovative approach at that time to investigating archaeological sites and settings by employing backhoe trenches where little systematic attention had been previously focused. The wholly new appreciation of dune structure and open site integrity was revealed at five localities within the Fort Rock Basin, building in part the foundation for the later UO/BLM field school project. In the authors’ words, “These exploratory studies establish the dunes as cultural repositories at least as important as the famous Fort Rock Valley caves” (p. 322). Though limited and exploratory in nature, this field work provided a substantially new perspective on site integrity, environmental history, and human use of this region.

In the second article of the Lowland Occupations section, Oetting reports on results of field work involving both survey and excavation on a 2,600-acre project in Christmas Lake Valley between 1986 and 1988. Most impressive are the early radiocarbon dates extracted from shallow buried deposits at four open sites in the most arid area of the Fort Rock Basin. All 12 radiocarbon dates fall within the range between 8,000 and 10,020 radiocarbon years ago. Two of these dates were taken from cultural features interpreted as being related to rabbit drives, thus projecting an ethnographically defined activity back to the Early Holocene. Like other reports in this group, the underlying result of the project’s findings is the documentation of lifeways in this, the driest of the three subbasins (Silver Lake Valley, Fort Rock Valley, Christmas Lake Valley) in the Fort Rock region, remaining relatively unchanged over the past 10,000 years. The more substantial changes occurred primarily due to development of new landforms through time in the region. Implications posed to archaeologists working in the region in this and the Mehringer and Cannon article are significant. Not only do buried cultural deposits with integrity occur in this dry, silty environment, but said deposits are datable and contain intact fragile features.

The other five reports in this group address a diverse range of topics. Marchesini (pp. 171-212) reports on a 1967 UO archaeological excavation led by Stephen Bedwell at Seven Mile Ridge Cave, where over a hundred perishable specimens of basketry, sandals, and cordage were recovered from late prehistoric occupations. Connolly (pp. 63-83) provides an informative review of basketry material taken from the Fort Rock region by collectors and archaeologists since the 1930s. These materials, excavated from the region prior to the UO/BLM field school project, are now curated at the Oregon State Museum of Anthropology. As with Marchesini’s article, Connolly’s findings conform to regional and temporal expectations concerning basketry manufacture and decorative techniques reflecting the Northern Great Basin Center basketry model postulated by Andrews et al. (1984). These studies provide convincing archaeological data supporting long-term Klamath/Modoc use of the region until late prehistoric times.

In 1979, the University of Oregon, under contract with the BLM, surveyed 66 quarter sections in Christmas Lake Valley to accumulate data on the general character of the archaeological record from a regional perspective. Toepel and Minor document a highly transitory use of the areas inspected throughout the Holocene, an area with no record of use in the ethnographic literature. In his article, Oetting (pp. 41-62) attempts the difficult task of using data derived largely from surface survey field work directed by himself and Richard Pettigrew along the shores of Lake Abert and the Chewaucan River between 1977 and 1986 in order to establish a
chronological yardstick to assess UO/BLM project discoveries. A key contribution of the article is a reasoned rebuttal of the contention by Flenniken and Wilke (1989) that rejuvenation negates the utility of projectile points as time markers. As Oetting ably demonstrates, rejuvenation behavior actually introduces only minor noise into the archaeological record and the validity of such time markers is maintained. Adding a dimension not often included in archaeological volumes of this nature is an assessment of rock art in the region by Ricks (pp. 85-98). Her extensive work, as well as the work of others, strives to gain a higher visibility of the rock art component in the professional archaeological literature.

The majority of articles in this volume reports results of the UO/BLM project itself. Three articles address primarily the biophysical characteristics of the region. Freidel (pp. 21-40), adding to data reported in the Mehringer and Cannon and Oetting articles, describes the basic landscape characteristics concerning geologic influences, climatic factors, and hydrologic system. Of note are the discontinuous character of the ancient shoreline features around the basin's perimeter, the sparseness in absolute dates associated with the features, and the apparent hydrologic stability of the region over the past 9,000 years. Benjamin (pp. 275-281) reports on geomorphic fieldwork conducted in 1990 at Paulina Marsh, summarizing basic marsh dynamics: variations in sediment sequences about the marsh; how to find old surfaces; occurrence of ongoing deflation; and specific marsh fluctuation behavior.

In a different vein, Housley (pp. 559-561) reports on plant surveys conducted in conjunction with the field school in 1991, as well as long-term observations in the area. In one of the more enlightening articles in the volume, Housley explores implications of climatic variation for productivity of plant communities, an issue that would be of paramount interest to Indian peoples living in the region, both in the past as well as today. Major points worthy of highlighting from this too brief paper include: (1) the dynamic nature of some vegetative communities in response to not-so-drastic, short-term climatic changes, particularly in marsh and playa settings; (2) the impressive long-term adaptiveness and resiliency of some drier site communities to moisture variations; and (3) the traditional cautionary note that more water is not necessarily tied to greater productivity of a given locality, especially when considering marsh settings. Housley (p. 569) notes,

The plant communities of the Fort Rock Basin are mosaics composed of many different plant species that respond differently to fluctuating weather and climatic changes. Individual plant species are not dependable or predictable; however, the very diversity of the plant communities can always be counted on to provide some form of food resources.

Most of the articles report archaeological findings of the UO/BLM field school in Fort Rock Basin from 1989 through 1994, with the primary focus being the exploration and comparison of upland and lowland occupation sites. Excavations were conducted at the three lowland sites of Big M, Carlon Village, and Zane Church from 1989 to 1992. As with the 1980s field work discussed above, archaeologists who work in similar lowland settings can easily find the results reported here disquieting. For example, the Big M Site in Fort Rock Valley is the proverbial large lithic surface scatter so commonly found in the soft, silty soils and sparse saltbush vegetation settings of the Great Basin, repeatedly subjected to sheet wash, deflation, bioturbation, and human disturbance. Yet, the excavations reported by Jenkins (pp. 213-258) revealed not only integrity of artifactual patterning and stratigraphy, but also the fragile remains of house floors thousands of years old left in depressed surface pockets. In addition, a range of likely nonutilitarian items were present as
well, including ceramic artifacts reported separately by Mack (pp. 99-106). Of particular note at Big M is the living floor of perhaps a shallowly excavated wickiup. A hearth feature dated to almost 5,000 years ago is associated primarily with Northern Side-notched projectile points and Olivella shell beads. Found on the living surface were clay pipe fragments, fish gorges, an elk antler wedge, and a wide variety of bone tools. An assessment of faunal remains from one house feature is provided by Dean (pp. 505-529).

The Big M Site is the best example of lowland village life in Fort Rock Basin at a time when lakes and marshes of Fort Rock Valley filled with water, creating an extensive dune and slough landscape, and being very productive for both plants and fish. Another lowland site, the Carlson Village Site located in Silver Lake Valley, consists of large boulder house ring occupational structures. Used later in time than Big M, this site represents a possible shift in focus of human habitation in the Fort Rock Basin from the relatively wet Mid-Holocene times to "association with modern water sources—marshes, lakes, rivers, and springs" (p. 247).

Four articles are dedicated solely to the investigation of the Boulder Village Uplands area. Byram (pp. 369-384) reports on a 1990 field survey, setting the stage for excavations that followed. The high density of sites, with most containing structural features, clearly is contrary to previous perceptions of upland sites in the northern Great Basin. This site patterning owes its existence to the presence of small playa basins and an abundance of traditional food plants. Time-sensitive artifacts observed during the survey suggest a marked increase in upland use during the past several thousand years, indicating potentially larger populations and more intense use of the area, "an upland village lifestyle in an apparently xeric upland environment" (p. 381). Brashear (pp. 385-430) adds more survey information gathered from the 1991 field season.

Archaeological evidence from excavations at the Boulder Village area is the focus of two articles, one by Jenkins and Brashear (pp. 431-484), another by Prouty (pp. 573-598). Jenkins and Brashear report on the 1990 to 1992 excavations at four sites in the uplands, with Boulder Village being the largest. Boulder Village contains 122 boulder-ringed structures and a minimum of 48 cache pits established in talus slopes. Due to the size range of rock rings, it is assumed (based on a Modoc ethnographic model) that these rings represent habitation features as well as smaller utility structures. Excavations are reported for 17 of the Boulder Village structures and at five other structures elsewhere. Periods of occupation between 1,500 B.P. and the mid-1850s were identified through absolute dating procedures. Interestingly, the later period was established through use of dendrochronological dating using stumps of juniper trees originally incorporated into the wall construction of the later period houses. The occurrence of glass trade beads helped to confirm the dates. Additionally, 24 radiocarbon dates were obtained. Identified trends included general reduction in structure size and depth through time.

In contrast to the early, lowland Big M Site assemblage, the artifact assemblages of Boulder Village are strictly utilitarian in nature, lacking the items of personal ornamentation and worked bone tools. Groundstone artifacts were numerous, including metates, hopper mortar bases, manos, and pestles. The economic context of the upland sites is considered to center on root plants growing in the surrounding rocky soils. A more thorough assessment of these resources is being pursued by Prouty, including plant surveys conducted in 1993 and 1994 and investigation of the paleoethnobotanical record.

Three papers of note rely on data from both the lowland and upland site investigations discussed above. Greenspan (pp. 485-504) makes another important contribution to the understanding of the role of fishing in the economies of the
Great Basin. Fish remains recovered from 17 sites in Fort Rock Basin aid Greenspan in describing the ebb and flow of fish habitats in the Basin through time. She constructs the argument that fishing was more than a minor supplement to the Great Basin diet, but rather at times a key factor in supporting semisedentary lowland village life. An equally important contribution is provided by Stenholm (pp. 531-559), who reports on paleoethnobotanical analyses of materials recovered from five of the excavated sites. She also provides a useful overview of ethnographic information concerning prospective resource uses in the area. Inclusion of information contributed directly by American Indian traditionalists who today perpetuate ancient land uses would have been a welcomed addition to this useful article (cf. DeWalt 1994). The third contribution of this excellent subset of papers, by Jenkins and Wimmers (pp. 107-123), describes over 150 shell, bone, and glass beads found in various excavations by the project, as well as interpreting their meaning in the archaeological record. Interesting questions are posed concerning temporal changes in bead types and the role beads played in society.

Three papers present archaeological data obtained from other localities in the project area: Far View Butte by Paul-Mann (pp. 329-348); Paulina Marsh by Jenkins and Aikens (pp. 259-274); and the Duncan Creek area by Jenkins (pp. 349-367). Other facets of the regional archaeological record are presented, including the occurrence of numerous rock cairns observed at Far View Butte, nuances of present-day marsh associated sites, and the nature of an isolated house structure.

The above set of 23 papers are sandwiched between two articles that synthesize project results thus far and general anthropological knowledge of the region. Aikens and Jenkins (pp. 1-19) provide a culture history summary emphasizing the flexibility of Great Basin lifestyles, i.e., simply changing the emphasis of individual components of a settlement/subsistence system without changing the harvesting and processing activities themselves. Such has been the theme of other northern Great Basin studies as well (cf. Hanes 1988). Also addressed is the open cultural-environment system operating in the Fort Rock Basin in which human populations could depart during times of greatest environmental stress, and correspondingly immigrate into the area as food sources and social situations allowed.

Jenkins closes the volume with a new look at the dynamic character of traditional lifeways in the region over the past 5,000 years. Also provided is a summary table listing the 41 radiocarbon dates contributed by the project thus far, and another 20 dates provided by others. A critical contribution of this volume is a greater understanding of a dual village settlement/subsistence system lifeway in the northern Great Basin, ethnographically associated with the Klamath/Modoc. The Boulder Village Upland sites are attributed to spring/summer habitation, the lowland sites (Big M and Carlon Village) constituting winter villages located around Silver Lake and other water bodies. In addition, a prehistoric shift in emphasis to plant resources previously suggested for the Columbia Plateau region (Ames and Marshall 1980) is now considered to be mirrored at a somewhat later date in parts of the Great Basin.

As noted by Greenspan and numerous others, much is left to be done with materials gathered to date. A number of analyses is left wanting given the low funding provided to the project. However, it is admirable for the University of Oregon to proceed with publication of current interpretations and data now, rather than waiting for some indefinite point in time to share this wealth of new information pertaining to an area well known to archaeologists working in the Great Basin and Pacific Northwest. The work reported in this volume has furthered a recognized similarity to the later period archaeological records of other northern Great Basin wetlands.
sites at Lake Abert (Pettigrew 1985), Malheur Lake (Oetting 1992), and Warner Valley (Cannon et al. 1990). In addition, the earlier Archaic record also draws increased parallels to other regions, such as the dense but relatively homogeneous lithic scatters dominated by Northern Side-notched projectile points found immediately along ancient river courses (cf. Hanes and McGuckian 1986). A much broader spectrum of the archeological record in the Fort Rock Basin may now be appreciated than that previously suggested by the pioneering early cave site excavations of Cressman and Bedwell.

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