

DIVERSITY IN OPEN-AIR SITE STRUCTURE ACROSS
THE PLEISTOCENE/HOLOCENE BOUNDARY

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DIVERSITY IN OPEN-AIR
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Edited by

Kristen A. Carlson and Leland C. Bement

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Cover photograph: Gaillardia flower at Bull Creek site, overlooking the broad Bull Creek drainage in
the Oklahoma panhandle. Photo by Kristen A. Carlson.

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Introduction

KRISTEN A. CARLSON AND LELAND C. BEMENT

The late Pleistocene and early Holocene periods are globally plagued by archaeological excavation bias. Predominantly, research has focused on rock shelters and caves overseas and large game kills and butchery sites in North America. Our focus in this volume shifts away from these typical discussions toward open-air sites, which are harder to locate and often more difficult to interpret because of depositional processes.

The contributors to this volume participated in a symposium at the 73rd Society for American Archaeology meeting in Vancouver, Canada. We, the editors, organized that session after conversations arose surrounding the lack of data available during this period. We were turning our own attention away from large-scale kill events to an open-air site in the Oklahoma panhandle. Having spent much of our careers focused on large game hunting, we became frustrated by the scope of discussion that follows excavation of kill sites, the dominant focus of fieldwork on the Paleoindian period in North America. The Bull Creek site (Bement et al., chapter 8) provided new challenges, including discerning a potential camp structure, segregating possible activity areas, and defining which activities were contemporaneous with other activities beyond large-scale kills. Background for such studies led invariably to the complex world associated with the investigation of the classic Late Pleistocene-age sites such as Star Carr (Legge and Rowley-Conway 1988; Rowley-Conway 2017), Ohalo II (Nadel 2001), and more recent work at Monte Verde (Dillehay and Ocampo 2015; Dillehay et al. 2008) to name just a few. Interest in

the research of open-air sites was shared by other investigators who would join the symposium and later become contributors to this volume. Collectively, we move our focus away from caves and kills and instead focus on open-air archaeology at the Pleistocene/Holocene transition.

North American archaeology often finds itself in silos, creating groups that rarely interact with the literature or the people outside of their own region, time period, and specialization. The Paleoindian period has earned a reputation of being one of the worst for this kind of isolationism (Thompson 2018). This criticism can be extended to many scientific fields in general, but the limited scope of Paleoindian conversations has hit a breaking point in which we must reach beyond our standard conversations and analysis. We are dealing with limited data and poor preservation and it has taken researchers in the field a while to compile those data meaningfully so we can build on what we know and ask new questions. If anything, our limitations force us to look more widely for ways to interpret problematic data sets, and now is the time to push those limitations. We hope this volume provides a place for such discussions to develop, while bringing in some of the expertise in regions less affected by North American biases (Jochim, chapter 2; Terry et al., chapter 3).

As we move forward and broaden our scope of conversation to open-air sites, readers and researchers alike would benefit from thinking carefully about the entire archaeological process from site creation, abandonment, burial, possible reuse, and discovery. Taphonomic implications are considered and discussed throughout this text. Taphonomic processes impact all archaeological sites (Schiffer 1986, 1996). At open-air sites we are often looking at many events superimposed upon each other, often leaving the last event to be discovered. These sites pose a variety of challenges but also provide new information to researchers. The contributors of this volume meet these challenges in a variety of ways.

The term “open-air site” is used here to differentiate these sites from “rock shelter” or “cave” sites. This distinction is important because rock shelters and caves, in addition to having better preservation, are bounded by the natural structures that protected the inhabitants and, later, the material culture left behind. Solid, immovable walls that constrict and define activity spaces are different from sites in open settings where fewer, if any, natural borders exist. In open-air sites, the borders and delineation of activity areas result from human-made structures and cultural perceptions. In the open, the distribution and structure of activities may be organized more from cultural beliefs and institutions. This is not to imply that open-air sites can occur anywhere. There are constraints even in an open landscape. But unless the location is bounded on one or more sides by a cliff, river, ocean, or swamp, it would appear that the site could extend outward in other directions forever. And yet open-air sites do not extend forever. They do have boundaries and borders, many of which

are culturally ascribed. And it is within the realm of culture that variability and diversity reign.

Natural barriers to open-air sites include abrupt landform changes: rivers, lakes, arroyos, rock outcrops, subtle soil changes; proximity of vermin, including snake dens, ant mounds; vegetation; aspect/wind direction/protection; and slope. While these perceived natural barriers might be applied to archaeological investigations, the true site boundary may circumvent or incorporate landscape features. For example, an open-air site might be bisected by an arroyo, stream, or river. On the other hand, a river may form the boundary between two culture groups. Determining which scenario is correct for a given context is the task of the archaeologist.

Cultural barriers take into consideration various factors, including anticipated length of occupancy, population size, and structures. Additional factors include situational conditions discerned by the following questions: Does the task involve meat processing and subsequent decay? Does it generate lots of detritus and is that dangerous? Does it require extensive processing or ancillary activities? Some activities might have additional requirements, including more water, fuel, or space, and more people than are normally required. Finally, consideration may include aspects of group composition: Nuclear family, extended family, fictive family, gender divisions of labor, combined genders, elderly, children, and dogs (humans are not the only inhabitants of sites, and animals can make their own contributions to the archaeological record).

In some instances, circumscribed site boundaries might change as the need arises. In other instances, site boundaries might have immovable cultural barriers established by convention or taboos. Diversity in site layout may be expressed at various scales, ranging from individual discrete tasks to cooperative tasks requiring two or more people or communitywide activities. These various activities may take place at vastly different localities, some on site, and some off. Identifying offsite activity areas may be necessary to truly understand the scale of that activity. In the past we have discussed these use areas in strict terms that link activities often to subsistence and may not accurately portray the lives of the site's inhabitants. For example, mammoth kills in the Clovis period that likely have had unexcavated camps nearby (Mackie et al., chapter 5). We try in this introduction to avoid categorizing human behavior into strict categories (camp, kill, processing area) to avoid minimizing the activities humans carry out in any given location.

As mentioned above, site formation and taphonomic processes are more challenging at open-air sites and are considered primary forces acting on site preservation and the post-abandonment movement of cultural materials. Cultural activities associated with cleaning of activity areas and trash also affect the ability to segregate discrete activity areas from refuse zones in intra-site patterning (Bamforth, chapter 9).

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Conversely, at other sites, discrete hearth-side activity areas are preserved within structure boundaries (Jochim, chapter 2; Puckett and Graf, chapter 4; Mackie et al., chapter 5; Huckell et al., chapter 7; Bement et al., chapter 8; Nadel 2001). Distinguishing between intact activity areas and discard zones is one crucial step in understanding these sites.

Let us consider for a moment what evidence may allow demarcation of a discrete activity area. The recovery of flint knapping debris at the edge of a hearth might lead to the conclusion that a flint knapper reduced lithic material while sitting near the fire. An alternative interpretation is that the knapping debris was swept from the location of knapping and discarded in the vicinity of an abandoned hearth. In this scenario, the locale of actual knapping is not known. However, if the flint knapping was conducted on a dirt floor, its post-cleaning signature may be represented by a dusting of micro-debitage on the floor that escaped the cleanup. Thus, the recovery of micro-debitage could be an archaeological indicator of a discrete flint knapping area. Consider though, the ethnographic description of a flint knapper reducing lithic material while sitting on a large animal hide, then folding the hide and dumping its contents in a trash area (Gallagher 1977). In this instance, the micro-debitage is also transported and discarded, leaving nothing behind to suggest the location of tool production/maintenance activity. Which, if any, of the above scenarios accurately portrays the activity at the site? The study of site formational processes at Ohalo II (Nadel 2001) demonstrated that the flint knapping debris was in primary context. However, the ethnographic analog shows that the discard of material could also be a viable alternative. A demonstration of contemporaneity between the hearth use and knapping might include the recovery of burned flaking debris in the hearth and unburned debris outside the hearth. But again, an alternative scenario would be that the knapping debris was discarded in and adjacent to an active hearth. Which of these scenarios is correct? They all are, or, perhaps none are. Depending on the scale of observation required by the research questions being addressed, it may not be important which scenario led to the observed distribution of knapping debris. Consider, for example, that if the research question only required the *identification* of discrete tasks at the site, then the distribution of those discrete tasks might not be important. Discrete tasks identified by all of these scenarios include (1) hearth activity (cooking/heating) and (2) flint knapping (stone tool production/maintenance).

The diversity of site structure exemplified by these case studies provides the bridge to formal models that seek to capture the essence of human behavior during this important transitional time. The ethnographic literature provides both a starting point and a cautionary tale for these studies, including the often-overlooked insight that ethnographic analogies should not try to pigeon-hole all cultures but rather demonstrate that cultures are diverse in the ways they solved problems.

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“One wonders why anthropologists have tried for so many years to reduce the captivating diversity in human social organization to static archetypes, which may only exist in the anthropological literature! In so doing, knowledge of the reality of hunter-gatherer variability is left to confound the archaeologist. Regrettably, the archaeologist commonly adopts the ethnographic characterizations as guides to the interpretation of the archaeological record, thereby obscuring from view the potentially fascinating variety of the past” (Binford 2006:18).

Trends in human behavior have been identified. For example, there is a tendency for distance between habitation zones and trash areas to increase proportionately in relationship to the anticipated duration of habitation (Kelly 2013; Kelly et al. 2006). The expected duration of occupation also affects decisions concerning the selection of materials for structure and hearth construction. Longer anticipated periods of occupation are linked to selection of sturdier construction materials and more formalized hearth construction (Kelly et al. 2006). Increased house size has been linked to greater length of stay (Kent 1992). An increase in the number of formalized tool classes at a site has been linked to the length of stay, as the number of activities performed at a site increase with longer site occupancy (Kelly 2013). Similarly, the number of taxa associated with a site increases with the increase in length of stay. Other factors that might affect site layout include the season of occupation, number and type of tasks performed, number and makeup of people in residency, and availability of resources.

The chapters that follow provide a dynamic discussion of the state of archaeological study into the diversity of open-air sites during the Late Pleistocene/early Holocene transition. This book reevaluates a range of topics, providing new case studies that integrate knowledge generated by generations of researchers with the latest analytical tools to tackle age-old problems afflicting the investigation and interpretation of these sites. Several of these authors examine sites that ancient people returned to many times, identifying persistent places on the landscape during a period when single occupations are often thought to be the norm (in the Americas at least). The researchers of these sites also examine topics beyond subsistence, engaging with broader conversations to expand our understanding of lives across the Late Pleistocene/early Holocene interval and connect our work more broadly to the study of anthropology.

REFERENCES

- Bement, Leland, and Kristen Carlson. 2017. “Open Air Camps of the Terminal Pleistocene.” Symposium chairs at the 82nd SAA Conference, Vancouver, BC, Canada, April 1.
- Binford, Lewis R. 2006. “Bands as Characteristic of ‘Mobile Hunter-Gatherers’ May Exist Only in the History of Anthropology.” In *Archaeology and Ethnoarchaeology of Mobility*,

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- edited by Frederic Sellet, Russell Greaves, and Pei-Lin Yu, 1–22. Gainesville: University Press of Florida.
- Carlson, Kristen, and Leland C. Bement. 2018. *The Archaeology of Large-Scale Manipulation of Prey*. Boulder: University Press of Colorado.
- Dillehay, Tom D., and Carlos Ocampo. 2015. “New Archaeological Evidence for an Early Human Presence at Monte Verde, Chile.” *PLOS ONE*. 10, no. 11 (November 18, 2015): e0141923. doi:10.1371/journal.pone.014192.
- Dillehay, Tom D., C. Ramirez, M. Pino, M. B. Collins, J. Rossen, and F. D. Pino-Navarro. 2008. “Monte Verde: Seaweed, Food, Medicine, and the Peopling of South America.” *Science* 320(5877):784–786. DOI:10.1126/science.1156533.
- Gallagher, J. P. 1977. “Contemporary Stone Tools in Ethiopia: Implications for Archaeology.” *Journal of Field Archaeology* 4: 407–414.
- Kelly, Robert L. 2013. *The Lifeways of Hunter-Gatherers, the Foraging Spectrum*. New York: Cambridge University Press.
- Kelly, Robert L., Lin Poyer, and Bram Tucker. 2006. “Mobility and Houses in Southwestern Madagascar, Ethnoarchaeology among the Mikea and their Neighbors.” In *Archaeology and Ethnoarchaeology of Mobility*, edited by Frederic Sellet, Russell Greaves, and Pei-Lin Yu, 75–107. Gainesville: University Press of Florida.
- Kent, Susan. 1992. “Studying Variability in the Archaeological Record: An Ethnoarchaeological Model for Distinguishing Mobility Patterns.” *American Antiquity* 57: 635–659.
- Legge, A. J., and P. A. Rowley-Conwy. 1988. *Star Carr Revisited. A Re-Analysis of the Large Mammals*. London: University of London, Centre for Extra-Mural Studies.
- Nadel, Dani. 2001. “Indoor/Outdoor Flint Knapping and Minute Debitage Remains: The Evidence from the Ohalo II Submerged Camp (19.5 Ky, Jordan Valley).” *Lithic Technology* 26 (2): 118–137. DOI:10.1080/01977261.2001.11720982.
- Robinson, Brian S., Jennifer C. Ort, William A. Eldridge, Adrian L. Burke, and Bertrand G. Pelletier. 2009. “Paleoindian Aggregation and Social Context at Bull Brook.” *American Antiquity* 74 (3): 423–447.
- Rowley-Conwy, Peter. 2017. “To the Upper Lake: Star Carr Revisited—by Birchbark Canoe.” In *Economic Zooarchaeology: Studies in Hunting, Herding and Early Agriculture*, edited by Peter Rowley-Conwy, Dale Serjeantson, and Paul Halstead, 197–207. Oxford: Oxbow Books.
- Schiffer, M. 1986. *Formation Processes of the Archaeological Record*. Albuquerque: University of New Mexico Press.