

PaleoCultural Research Group

2019 Annual Report

Notes from the Lab

PCRG first published an annual report in 1998, in which we summarized projects carried out during our first two field seasons. Each of the 20 subsequent annual reports featured summaries of that year's fieldwork.

This report takes a different approach. Rather than describe the summer's field projects, I review the results of three projects that we completed in 2019. As you know, fieldwork is only one component of archaeological research. In most cases, every field project is followed by two to four years of lab work, analysis, and report writing.

In my view, the story of the past is told mainly in the lab, rather than in the field. The most consequential discoveries occur at the business end of a microscope or in a contingency table, rather than at the tip of a trowel or in a screen.

Of course, this report also updates you on the amazing work our volunteers, partners, and staff accomplished in the field this year. A total of 75 staff and volunteers devoted more than 7,800 hours to six different field projects. Eighty percent of that time was donated by 64 dedicated volunteers; their collective in-kind contributions are valued at well over \$160,000. The projects included 24 days at Awatixa Village, one of the Hidatsa settlements at Knife River Indian Villages National Historic Site; 13 days at two different lithic raw material quarry sites in the Colorado mountains; five days in Wyoming's Wind River Range; and eight days at an Old Spanish Trail-era site in the San Luis Valley.

2019 was also a busy year in the Broomfield lab. Ten work-study students from three different universities sorted and quantified large collections from the 2018 excavation at Molander Indian Village State Historic Site and the 2019 excavation at Awatixa Village. PCRG staff also completed analyses of waterscreen samples from the 2018 excavation at the Magic Mountain site and began analyses of a large University of Colorado collection from the Windy Ridge Quarry site.

In this year's report you will also find summaries of the remarkable work our members are doing. I am continually impressed by our member's incredible productivity and by the variety of projects they undertake. In fact, the number of articles, book chapters, and reports that PCRG members publish has grown so large that this year we decided to move the members' bibliography to our website. Visit <u>paleocultural.</u> <u>org/memberpubs/</u> to find out more about what your fellow members have been writing about. We also added new content to the website, including a page devoted to project videos and other media, an archive of prior annual reports, and a PCRG publications order form.

I also encourage you to visit "Online Resources for Colorado Archaeology and Historic Preservation" (ORCA) at <u>archaeologycolorado.org</u>. There you will find PCRG's new peer-reviewed, open-access journal, *Reviews in Colorado Archaeology*. The 2019 volume includes articles on systematic metal detector surveys and on new approaches to landscape-level heritage management.

I have always been tremendously proud of the work we do together but this year I am especially pleased to report that in 2019 two major organizations recognized our shared commitment to citizen science-based research. In the spring, PCRG and our amazing partner the Denver Museum of Nature & Science received the Award for Excellence in Public Education from the Society for American Archaeology for our work on the Magic Mountain Community Archaeology Project. In the fall, that project also received the 2020 State Archaeologist's Award from History Colorado. Both awards testify to your hard work and your enthusiasm for the archaeology of the Plains and Rocky Mountains.

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Mark Mitchell Research Director

> **On the Cover:** National Park Service archaeologist Jay Sturdevant and PCRG volunteer Will Kane in the boom lift at Awatixa Village; learn more about the project on page 10.

2019 By the Numbers 6 **Field Projects** 50 **Field Days** 6,184 **Volunteer Hours** 132 **Members** 34 **New Members**

Notes from the Boardroom

Greetings from the "Boardroom." PCRG continues to be a vigorous and successful organization thanks to the wonderful participation of volunteers, project leaders, staff, and, of course, our members. 2019 was a great year, featuring many interesting projects. With a solid roster of current and future projects, 2020 looks to be another fulfilling year, although as I write this, we are entering uncharted territory with regard to the Covid-19 pandemic and its potential effects on planned field and lab work. Thanks go out to Mark, the Chrises, Britni, Jess, and seasonal crew leaders Matt, Rebecca, and Scott as well as to all the enthusiastic volunteers who made our projects a success. In addition, the Board is pleased to welcome a new project archaeologist, Chris Davis.

In response to occasional questions, I'd like briefly to discuss the role of your Board of Directors. The PCRG Board of Directors consists of five volunteer members, Carl Falk, Craig Lee, Mike Metcalf, David Purcell, and Kim Spurr. We all have extensive archaeological backgrounds with diverse interests and experiences to bring to the Board. We meet quarterly with Mark as the Research Director and Chris Johnston as Treasurer. But what does the board actually do? Ultimately we are responsible for the conduct of the organization, but specific duties include selection of the Research Director and monitoring project execution; review of the organization's long term strategy; monitoring of the financial health of PCRG; keeping an eye on fundraising and membership issues; and ensuring continuity of the Board by adding new members as needed. Thanks to precedent set by the longer-term members, Carl, Kim and David, and the organization provided by Mark and Chris, our meetings are highly focused, thankfully brief, and interesting and productive.

Excluding preparation, a typical board meeting lasts about 2 hours and includes a detailed review of the finances and on-going projects, consideration of issues related to workload, staffing, facilities, or special equipment needs, and discussion of goals and strategies for the next several months. And, although it is not strictly a Board function, we brainstorm with the PCRG team regarding current and future research results and directions. So, a mix of the mundane and fun things happen at each meeting. If you have any questions about the Board, or for any individual board member, our contact information is on the PCRG web page.

MD Metcap

Mike Metcalf Board President

Innovation and Continuity in the Arkansas Basin



As is true across western North America, the beginning of the Late Prehistoric period in southeastern Colorado's Arkansas River basin was marked by two major technological innovations. Arguably the more important of the two was the bow and arrow, which eventually supplanted the atlatl and dart as the primary hunting technology. A second technological marker of the Late Prehistoric was the manufacture and use of ceramic cooking vessels. Both innovations affected American Indian lifeways but the timing, extent, and character of those effects varied from place to place. Understanding the local consequences of innovation requires data on land use patterns and subsistence practices before, during, and after the introduction of the new technologies.

Late Prehistoric stage archaeology in southeastern Colorado is partitioned into two periods: the Developmental and the Diversification. The Developmental period, which is known elsewhere in eastern Colorado as the Early Ceramic or Plains Woodland period, began in the Arkansas basin around 1850 B.P. The succeeding Diversification period began around 900 B.P. The earliest known arrow points date to about 1900 B.P. Pottery may be present on a few roughly contemporaneous sites and certainly occurs on sites dated to between 1500 and 1700 B.P. The adoption of maize horticulture was once believed to accompany the introduction of ceramic containers and the bow and arrow; however, it is now clear that limited quantities of maize first appeared during

Left: The arroyo of West Dry Creek above the Dry Creek site; *facing page:* three projectile points from the Dry Creek site. (Top row: coated with ammonium chloride; bottom row: natural color).

the preceding Late Archaic. Other aspects of Developmental period lithic technology are markedly similar to those of the Archaic, a pattern that has been interpreted as a sign of long-term cultural continuity beginning in the Middle Archaic or earlier.

Although many Middle and Late Archaic sites also contain Late Prehistoric components, there is evidence for incremental changes in land use over time. Increasing variability in site types and in the range of exploited environments during the Late Archaic and especially the Developmental suggest an increasing reliance on logistical provisioning. Substantial architectural features were more common during the Developmental indicating greater use of longerterm base camps. These general observations suggest that specialized activity sites may have been more frequently and intensively used during the Developmental.

Two contrasting models exist for Developmental period mobility, both derived from research conducted on the Pinon Canyon Maneuver Site. Larry Loendorf and his colleagues argue that Developmental period groups wintered in base camps in the foothills of the Sangre de Cristo Mountains and other nearby ranges. In early spring, they drifted eastward into the canyon country formed by the Apishapa, Cucharas, and Purgatoire rivers, where they occupied architectural sites and rock shelters. A second model, proposed by Bill Andrefsky and others, reverses that sequence, putting Developmental period groups in the foothills during the summer and in the canyons during the winter.

PCRG's 2015 field investigation at the Dry Creek site, located roughly 30 km south of the Arkansas River in western Otero County, Colorado, was designed to address these questions. The project was funded by the U.S. Forest Service and History Colorado's State Historical Fund.

Dry Creek is a dense scatter of chipped and ground stone tools and flaking debris covering roughly 4 ha (10 acres). The surface assemblage consists of 750 to 1,000 flakes, along with numerous millingstone and handstone fragments and small numbers of patterned chipped stone tools and pottery sherds. The PCRG crew opened 11 excavation squares, exposing two intact and two partially deflated hearths.

Multiple lines of evidence point to repeated short-term use of the Dry Creek site spanning several millennia. The oldest temporally diagnostic artifact is a probable Middle Archaic dart point exhibiting a stemmed indented base and abrupt shoulders. The most recent diagnostic artifacts are fragments of a pottery vessel that likely dates to the Diversification period. Two radiocarbon-dated hearths were constructed during the Developmental period (1177-1070 cal B.P. and 1540-1414 cal B.P.). Two other diagnostic projectile points are large, expanding stem specimens commonly assigned to the



Late Archaic period. However, one of them was directly associated with a Developmental period hearth. The two diagnostic arrow points in the collection certainly or probably date to the Developmental.

Assemblage and feature data indicate that Dry Creek was a specialized seed harvesting and processing site. The diversity of the tool assemblage is low. Handstone and millingstone fragments make up two-thirds of the assemblage. Several bifacial core tools in the assemblage, as well as the pottery vessel, may also have been used for plant processing. Only a few patterned chipped stone tools are present, and those that are consist primarily of complete or nearly complete projectile points likely lost during



Basalt chopping tool. Transverse abrasion and faceting use-wear is preserved on one end of the tool. The bit also exhibits irregular bifacial flaking, with rounding and smoothing of arrises and projections.



Two body sherds. Although no rim sherds occur in the collection, the character of the surface treatment, the thickness of the upper body sherds, and the morphology of the base sherds suggests that the recovered specimens date to the Diversification period.

animal butchery or other activities. On-site flintknapping focused almost exclusively on the production of large expedient flake tools by hard-hammer reduction of coarse materials. The few patterned tools in the assemblage were made from imported stone and were carried to the site in finished form.

The features documented in 2015 contained abundant marlstone spalls; one contained a particularly well-defined layer of thin marlstone slabs. These stones may have served as a thermal mass: their size, shape, and friability suggest that they were used for some purpose other than stone boiling. Although the Dry Creek features are smaller than many of the earth ovens documented in the region, the arrangement of slabs suggests that they may have served that purpose. Regardless, the use of marlstone seems to have been important to their function; slabs of the size documented at Dry Creek do not occur on-site but instead had to have been transported from outcrops at least 8 km away. Moreover, sources of more thermally efficient stoneincluding the basalt and argillite cobbles brought to the site for flake tool production—are located not much farther away.

The stone tool raw materials brought to the site likely came from the canyons formed by major southern tributaries of the Arkansas, including the Purgatoire and the Apishapa rivers, about 15 km from Dry Creek. This indicates that the residential base camps to which Dry Creek was tethered also are located in the canyons. If Dry Creek was occupied during the summer, as the botanical data suggest, then it is likely that those base camps also were summer residences. That interpretation supports Loendorf's model, which puts Developmental period groups in the foothills during the winter and the canyon country during the summer.

Overall, the amount of stone imported to Dry Creek, in the form of ground stone tools, flaked stone cores, and feature rock, is indicative of significant advance planning. That level of planning further suggests that the specific resources exploited at the site either were not widely available or were especially abundant at Dry Creek. Forays to Dry Creek were no doubt timed to coincide with the maximum availability of specific plant resources. Data from Dry Creek also support models of long-term adaptive continuity. Circumstantial evidence suggests that the specific function of the Dry Creek site changed little over time. The characteristics of the Developmental period assemblage associated with the excavated features are fundamentally similar to the characteristics of the entire surface assemblage, which includes items located throughout the site that likely date to different episodes or periods of site use. Similarities in the sizes and attributes of the documented hearths, the uses of which were separated in time by at least 250 years, further points to continuity in site function.

In addition, the similarity of the distinctive imported quartzite used to make three of the

A High County Transit Camp

The Venado Enojado site, located at an elevation of 2470 m (8100 ft) in central Colorado's upper Arkansas River valley, is a moderately dense scatter of chipped and ground stone tools and flaking debris associated with numerous surface and near-surface hearths. Cultural deposits and features at the site, which covers more than 14 ha (35 acres), preserve a record of episodic use of the Colorado High Country spanning the Middle and Late Holocene.

PCRG's 2016 field investigation, which was funded by the Bureau of Land Management's Royal Gorge Field Office and History Colorado's State Historical Fund, was primarily designed to evaluate two geophysical anomalies identified during ground-penetrating radar (GPR) surveys undertaken in 2011 and 2012. Preliminary analysis of the GPR data indicated that the anomalies might represent the locations of Late Archaic basin houses or brush shelters. A secondary project goal was to recover data from partially eroded hearths exposed on the surface and in an arroyo cutbank.

PCRG's excavation data demonstrate that neither of the GPR anomalies represent basin

five diagnostic projectile points suggests longterm stability. The fact that different groups who exploited specific resources at Dry Creek also obtained stone from similar sources suggests that the site was a consistently used node in a stable, long-lasting subsistence system.

PCRG's Dry Creek project demonstrates that logistical provisioning was a key feature of Developmental period mobility. Although uncertainty exists about the extent to which Late Archaic period and Diversification period groups used the site, the inference of long-term settlement stability suggests that for southeastern Colorado's hunter-gatherers, the effects of the technological innovations marking the Late Prehistoric were limited.

houses. Rather, both represent natural variations in the thickness of the Holocene aeolian deposits that mantle a discontinuous and partially eroded pedogenic caliche formed in middle Pleistocene alluvium. The GPR anomalies occur where chemical weathering and erosion has removed the caliche, forming depressions or channels in the surface of the alluvium that subsequently were filled with Holocene sand.

The lack of basin houses at Venado Enojado is perhaps not surprising, given what is currently known about the archaeology of the upper Arkansas. Existing data from the region point primarily to a foraging adaptation featuring high residential mobility, rather than a seasonal collector adaptation centered on winter residential base camps. It may be that, unlike other portions of the Southern Rockies, the valley's relatively benign climate permits unconstrained land use during the cold season, thereby preempting the need for long-term residential base camps.

If the results of the GPR anomaly investigation were less than satisfying, feature excavation at Venado Enojado—the project's secondary goal—proved to be highly informative. Four nearly intact features were investigated. The ages of the oldest extend the documented occupation of the site into the Early Archaic period. The most recent occupation occurred during the Diversification (Middle Ceramic) period. In fact, the site contains at least nine discrete components—and perhaps many more—spanning six millennia.

The four features investigated at Venado Enojado in 2016 add significant new data to the limited record of excavated hearths in the upper Arkansas River valley. Nine of the 23 radiocarbon-dated hearths documented in the region were located at Venado Enojado (see figure). The dates are relatively evenly distributed throughout the Holocene, apart from a gap between about 5500 B.P. and 7500 B.P. However, that gap may primarily reflect regional geomorphic processes. An apparent peak in hearth construction occurred from the late Middle Archaic through the Late Archaic. The absence of features more recent than 900 B.P. is somewhat surprising, given the documented abundance in the region of side-notched and triangular arrow points and pottery.

As is true of many upper Arkansas sites, the Venado Enojado tool assemblage is relatively diverse. Hunting gear is present but so are a variety of cutting, scraping, piercing, and grinding tools. On-site tool manufacture focused primarily on flake production from freehand cores. Routine tool maintenance likely took place on-site, but the relatively small tool assemblage argues against focused tool production.

The site's modest but diverse tool assemblage, combined with the fact that numerous components are present, suggests that it *Continued on page 24*



Two surface hearths at Venado Enojado.



Distribution of radiocarbon dates from 23 upper Arkansas River valley hearths; samples from Venado Enojado are indicated by cross-hatching.

Geoarchaeology at the Foot of the Rockies

Blackfoot Cave is a complex, multi-component archaeological site located roughly 60 km southsoutheast of Denver, Colorado. The site is named for a rock shelter that was known in the 1840s to mountain men and later to miners traveling the Cherokee Trail. A homestead was established adjacent to the rock shelter in the 1890s and stock raising continued there into the 1960s. The most intensive American Indian occupations likely occurred between about 5600 and 4800 B.P. and again between about 1800 and 800 B.P.

PCRG's 2015 field investigation—which was carried out in conjunction with a Colorado State University archaeology field school and funded by History Colorado's State Historical Fund, the Kansas Geological Survey, and the Douglas County Division of Open Space and Natural Resources—was prompted by the recovery of a Late Paleoindian James Allen projectile point by Colorado Archaeological Society investigators, who began work at the site in 2007.

Both natural and cultural strata at the site proved to be highly disturbed. Virtually all the deposits containing evidence of American Indian occupancy have been disturbed by later homesteading and ranching activities. PCRG's geoarchaeological investigation further demonstrated that a variety of geomorphological and biological factors have affected the site's archaeological deposits.

The project identified two depositional strata and two buried soils. Soil 1, a moderately developed soil with A-Bg horizonation, exhibits an overthickened A horizon roughly 50 cm thick and a 24-cm thick Bg horizon indicative of a shallow, fluctuating water table. Soil 1 likely began to form at least by about 3400 B.P. Soil 2 exhibits A-Btg horizonation. The A horizon is approximately 15 cm thick, while the gleyed B horizons are at least 51 cm thick. Burial of Soil 2 began about 5000 B.P.

PCRG also documented the disturbed

remains of one or more occupations dated to about 5400 cal B.P. Artifacts and other materials were deposited on a slowly aggrading surface within a shallow swale or gully. Recovered materials include chipped and ground stone tools, flaking debris, and burned rock indicative of a short-term camp.

The primary research question that the project sought to answer was whether the Late Paleoindian projectile point recovered in 2013 was associated with Early Holocene sediment. The answer is clear: archaeological deposits dating to the Early Holocene are not present in the portion of the site investigated in 2015. The absence of Early Holocene sediment at Blackfoot Cave conforms to a regional pattern.



Annotated photograph of Profile 1 at the Blackfoot Cave site.

2019 Field Season

Fieldwork at Knife River Indian Villages National Historic Site

Awatixa Village, also known as Sakakawea Village, is a nationally significant archaeological site and one of the three major Hidatsa settlements preserved at Knife River Indian Villages National Historic Site, located in Stanton, North Dakota. Although perhaps best known as the early nineteenth-century home of Toussaint Charbonneau—an interpreter for the Lewis and Clark expedition—and his American Indian wife Sacagawea, Awatixa Village contains a detailed and well-preserved record of Hidatsa history during an especially tumultuous period.

In partnership with the National Park Service, Minnesota State University – Moorhead, Oklahoma State University, and the Northern Plains Heritage Foundation, PCRG spent 24 days at Awatixa Village during 2019. The project's primary goals were to better understand the settlement's history of occupation and to study how natural processes such as riverbank erosion and rodent burrowing are impacting its longterm preservation.

The first of two field sessions at the site, which occurred in late May and early June, focused on site assessment through targeted geophysical surveys and cutbank profiling. The goals for that portion of the project included identification and documentation of threatened archaeological deposits through a variety of non-invasive methods, including high-resolution magnetic gradiometry survey, downhole and cutbank magnetic susceptibility survey, terrestrial lidar scanning, cutbank photogrammetry, and geoarchaeological analysis. The second session in July and August focused on archaeological testing of the potentially threatened deposits identified during the first field session.

Although analyses of the 2019 collection



Left: Rinita Dalan and Minnesota State University – Moorhead students collect magnetic susceptibility data; right: NPS archaeologist Shawn Deryk sets up the terrestrial lidar scanner. are ongoing, the project has already produced significant—and surprising—results. Previous research conducted in the 1960s and 1970s suggested that two components are present at Awatixa Village, which was founded about 1797 and abandoned in 1834. PCRG's research has shown that the occupation was far more complex, and very likely longer, than previously believed. A longer occupation at Awatixa Village, perhaps continuing until the Hidatsas moved up the Missouri to Like-A-Fishhook Village in the 1840s, fills an important gap in Hidatsa history. That longer occupation also testifies

Lithic Quarries Research

In July and August, PCRG continued our partnership with the Medicine Bow-Routt National Forest and conducted research at two stone tool raw material quarry sites in northern Colorado. Both sites—the Pinkham quarry in

Larry Hansen and Met Innmon screening rodent backdirt piles at Windy Ridge while Jack Wheeler surveys for additional piles to screen. The crew was treated daily with amazing views and wildflowers in full bloom.



to the resilience of Hidatsa communities in the face of the dramatic social and economic transformations.

The project also provided data needed to preserve the site for the future. The park's recently adopted adaptive resource management strategy is designed to maximize resource preservation through iterative and incremental mitigation. Monitoring is crucial to effective adaptive management and PCRG's 2019 project provided important information about the site's current condition and the disturbance processes affecting it.

northern Jackson County and the Windy Ridge quarry in northeastern Grand County—have been known to archaeologists since the 1980s. Pinkham quarry has 16 circular depressions that are tightly spaced within a 950 m² area. They

2019 Field Season



Jess Harrington (left) and Lilli Hubbell open excavation in the very dense quarry pit at Pinkham. The arc of stones across the middle of the unit marks the edge or rim of the original quarry pit.

range from about 20 cm to over 50 cm deep and are between 1.5 to 3 m in diameter. The stone is highly variable in both color and quality and appears to be from the White River Formation, which occurs more commonly in eastern Colorado, Wyoming, and South Dakota.

PCRG crews excavated in two of the pits to better understand the quarrying strategy, along with two units away from the pits to investigate lithic reduction near the quarry. One of the pits yielded thousands of pieces of chipped stone and we identified what appears to be the base of the original quarrying activity. The other pit, however, had relatively few artifacts and appears to be a failed attempt that did not encounter the geologic deposit containing the stone.

Windy Ridge was intensively documented in 1993 by researchers from the University of Colorado, Boulder. The site includes an extensive quartzite bedrock outcrop and nearly 190 quarry pits along the ridge. About a kilometer north of the quarry is a broad, open landscape where much of the reduction of quarried blocks appears to have taken place.

The Forest Service, faced with a sprawling site boundary which is impacting management decisions, coupled with limited to no surface visibility in this area, needed a way to better understand the workshop area and how it relates to the quarry. To help solve these issues, PCRG crews placed 12 20 x 20-m grids across the landscape and collected rodent backdirt piles. The piles were screened in the field and the remaining materials bagged and returned to the lab for analysis. Preliminary results show that while artifacts are abundant across this broad area, there does appear to be strong concentrations in certain areas. These data will be used to help guide more intensive research at the workshop in 2020.

Old Spanish Trail Research

PCRG closed out the field season at the Bunker site, a *paraje* or overnight camp on the North Branch of the Old Spanish National Historic Trail. The project built on two prior PCRG field investigations at the site. This year's project, which was funded by the Rio Grande National Forest, was a collaborative effort with the Colorado College.

Prior metal detector surveys had revealed the presence of numerous iron, brass, and lead artifacts associated with the Old Spanish Trail's period of use between 1829 and 1848, as well as artifacts dating to the late eighteenth and late nineteenth centuries. Those surveys also fortuitously revealed the presence of subsurface hearths associated with metal artifacts. Investigation of activity areas around those features was the focus of the 2019 project.

The fieldwork employed three primary methods: intensive metal detector survey, tree-ring sampling, and limited hand excavation. Traditional pedestrian survey was also used.

The 2019 testing revealed the presence of a weakly developed buried soil across much of the site, capped by 3 to 8 cm of sheetwash alluvium and aeolian sand. Colonial-era features originate at the top of this buried soil and metal artifacts occur on and within the buried A horizon. The overlying alluvium may have accumulated during the late 1800s or mid-1900s.

Top: A hearth at the Bunker site after excavation; **bottom:** Colorado College students Amalie Hipp and Robert Wehner-Ortega.





Rob Bozell

Probably the most time-consuming project in 2019 was writing the script for, managing, and co-curating a new exhibit at the Nebraska History Museum in Lincoln entitled *Piecing Together the Past: An Exhibit Exploring 13,000* Years of History with Nebraska's Archeologists. While far more work than I had imagined, this was a rewarding project and we all had fun looking through old collections, notes, maps, and particularly photographs. The exhibit was sponsored by the Nebraska Department of Transportation, the National Park Service (via the SHPO Historic Preservation Fund), and the Nebraska State Historical Society Foundation. The next time you are in Lincoln, please take an hour or so to walk through the exhibition.

In addition to various cultural resource management survey, testing, and reporting efforts, I was heavily involved in writing up the report on our 2016-2019 Nebraska Sand Hills Archeology Project. That report is due out in the



Bozell: Life's a beach.

early summer of 2020. We also made two videos in conjunction with the Sand Hills project. Low resolution copies can be found on YouTube at: <u>https://youtu.be/O2zQSnrJ7ik</u> and <u>https://youtu. be/6HOcYpaK8lo</u>.

Vertebrate remains research included analyses of bone recovered from the Late Woodland Quixote site in northeastern Kansas and the Great Bend Aspect (proto-Wichita) Tobias site in central Kansas. The Quixote project is being done for Dr. Brad Logan (Kansas State University) and in collaboration with PCRG Vice President Carl Falk. The Tobias project is sponsored by the Kansas Historical Society.

Recreationally, my daughter organized an extended family trip to Maui. Not being a fanatical beach person, I enjoyed sneaking away to visit a few historic sites, volcanoes, and waterfalls. Paradise!

Carl M. Davis

In July 2019, Riverbend Publishing of Helena, Montana published *Six Hundred Generations: An Archaeological History of Montana*. This public archaeology work takes readers on an archaeological journey through time, technologies, and cultures of Montana's First Peoples, beginning with the Paleoindian bands who followed the mammoth into the Americas at the end of the last Ice Age. The book focuses on twelve key archaeological sites, spanning some 13,500 years, and closes with a description of three traditional cultural landscapes that retain special significance to tribal peoples today. The well-received book is beautifully illustrated by artist-archaeologist Eric Carlson.

I have also been working with Jim Keyser and his Oregon Archaeological Society (OAS) volunteer crew to record rock art sites near and within the Blackfeet Reservation. One site, called No Bear, contains some particularly **Davis:** 13,500 years of Montana history.



unusual warrior figures on massive sandstone blocks above Cut Bank Creek that really have us scratching our heads. We enlisted Mark Willis to help record this site using drones and pole photography. We'll report out on the project at the Montana Archaeology Society (MAS) meetings in April, having received funding from both MAS and the OAS to support the project.

Dersam: The Bearthooth Plateau survey area.



Scott Dersam

The second field season of the Beartooth archaeological project took place over two 14-day sessions in the summer of 2019. Both sessions focused on areas between 3,000 and 3,300 m above sea level, on Montana's Beartooth Plateau. The project's goals are to document prehistoric uses of the Beartooth's mountain ecosystems and to better understand prehistoric land use and habitation patterns in the region.

Over the field season, we systematically surveyed approximately 500 acres of the Beartooth alpine landscape. The sites and isolates recorded ranged in context and chronology, displaying varying land use goals. These vary from basic lithic tool manufacture and maintenance, eagle traps, and vein quartz quarries, to multi-activity habitation sites. Several of these habitation areas displayed hearths, stone circles, and curated formal tools, often displaying varying chronologies of projectile points.

During the 28-days of fieldwork, our team recorded 35 archaeological sites and over 40 combined archaeological isolates and features.

Recorded diagnostic tools spanned the Late Paleoindian through the Late Prehistoric transition. Additionally, our team recorded some of Montana's highest archaeological sites, stone circles, ceramics, hunting blinds, and Paleoindian tools.

Our team discovered two sites hosting ceramics at altitudes exceeding 3,000 m. Testing at one of these locations revealed multiple hearths, and an intensely used high-elevation ceramic manufacturing area, dating to the Late Archaic. Additionally, our team documented a diverse Late Paleoindian presence in the Beartooth's alpine region. This Late Paleoindian presence included a hunting blind associated with an Alberta point, and a Foothill Mountain Complex cache containing a complete and unused Angostura point.

Carl R. Falk

During the past year Holmes Semken and I continued analysis of small mammal remains from National Science Foundation-sponsored investigations at Chief Looking's Village. Our present focus, linking ethnographic and archaeological data, is on the role of ground squirrels in village cuisine. Tests at Molander Village in 2018 yielded over 30 kg of bone. Following initial processing in Broomfield, Colorado additional sorting, specimen identifications, and description of modified pieces are now complete. A finished project report is anticipated in 2020. Field investigations at Awatixa Village in 2019 generated a significant sample of vertebrate remains. Basic lab work is underway with completion scheduled for the late spring to early summer of 2020 – at which time all collections will be returned to the sponsoring agency (NPS).

Also in 2019, coordinating with Mark Mitchell, I completed a report on vertebrate fauna from the Venado Enojado site (PCRG Research Contribution 107; see page 7 of this report) and a preliminary analysis of fauna from PCRG's work at the Magic Mountain site. A final report on the Magic Mountain project is tentatively scheduled for 2020. In addition, in collaboration with PCRG member Rob Bozell, I completed a paper on vertebrates from the Quixote site, a Late Woodland occupation in northeastern Kansas; publication of this work is slated for *The Kansas Anthropologist* (Volume 40, 2019) later this year.

Professional travel included attendance at the 77th Annual Plains Anthropological Conference in Bloomington, and an extended visit to the Royal BC Museum in Victoria, BC, Canada. During 2019 I served as PCRG Vice President and as a member of the Board of Directors.

Amy M. Gillaspie

2019 was a wonderful year full of lab analyses, writing, and new excavation projects. The first half of the year saw the completion of my internship with PCRG and the Denver Museum of Nature and Science. I, along with three other interns, completed analysis on the lithics excavated during the 2018 Magic Mountain field season. This marked the close of two years of analysis looking at a total of 14,996 lithics.

Throughout the year I completed writing my master's thesis, currently entitled *Ritual Spaces Among the Classic Maya: Looking at the Baking Pot Figurine Collection.* My thesis examines ritual and its importance for societies as they experience political upheaval and societal reorganization or collapse. To understand ritual space, I examined 207 ceramic figurines and musical instruments left as offering in deposits at the time of abandonment at the site of Baking Pot in the Cayo District, Belize. I am currently editing the thesis and my defense will occur in *Gillaspie:* The enthusiastic Wooten site excavation crew on the Auraria Campus.



2020. A field report and preliminary findings on the figurine collection are listed in the PCRG members' publications online bibliography.

The second half of 2019 saw the implementation and start of excavations at the historic Wootton Site (5DV35112) on the Auraria Campus in downtown Denver under the leadership of Gene Wheaton, a faculty member at the Community College of Denver (CCD). As crew chief on this project, I am happy to work once again with students from CCD, teaching field and excavation methods. This project will continue into the spring semester of 2020. Stay tuned for an update on that project.

I wish all PCRG members a wonderful and successful year wherever life and archaeology take you!

Pete Gleichman

There is always more to do than I can possibly get done. I have been working with the Swallow Oversight Committee on the Swallow site manuscript. The Swallow site is a rockshelter in the Hogback Valley south of Denver, excavated by avocationals with the Colorado Archaeological Society (CAS) from 1983 to 1998. The shelter contained a remarkable amount of cultural material from the Early Archaic period through the Early Ceramic period. Over 800 projectile points, 350 of which are complete enough to type, and close to 50,000 bones were recovered. CAS worked to analyze the data and produce a report over 20 years but did not manage to complete the project. CAS formed the Oversight Committee of professional archaeologists to get the data out to the archaeological community.

Other projects include continuing analysis of the Flatiron Crossing site, which as currently known consists of a portion of one firepit eroding out of the bank of Rock Creek in Broomfield County, Colorado. The firepit contained faunal material from at least five species, and abundant carbonized plant elements from eight species. Macrobotanical analysis is ongoing, and the next major step is to get radiocarbon dates for the feature. Although I'm retired from contracting and don't maintain antiquities permits, I do have a research permit with the Utah Bureau of Land Management. With a friend who is a land surveyor and has a Trimble SX-10 Survey Scanner, we scan architectural sites in the canyon country as selected by the BLM's Monticello Field Office. The scanner takes 68,000 survey points a second, creating a point cloud of several million points, resulting in an extremely accurate digital image of the site. I'm also wrestling with a collaboration with Roger Echo-Hawk on a paper entitled

The CCPA, Native Americans, and Colorado Archaeology – Retrospect and Prospect.

Dale Henning

Again, another year has flown by with some progress, but always too little! The book I dwelt on in my 2018 report, *Cahokia in Context: Hegemony and Diaspora*, by the University of Florida Press, was published early in 2020. An author's copy was with mail collected while we were on a cruise (see below). There are many interesting articles in that volume.

This was not just any Caribbean cruise; this one with Viking took us to several islands, then over 900 miles up the Amazon to Manaus, Brazil, the end of the line for ocean-going ships. There is so much to comprehend, learn and understand about this vast territory. A few things were surprises; we saw no mosquitoes and no piranhas! We are pleased to have had this experience but will not rush to repeat it.

In the late summer we visited the Menominee reservation in northeast Wisconsin, guided by Dave Overstreet, Bill Gartner, and members of the Menominee tribe. Fascinating area with



Henning: Touring the tropics. acres of prehistoric and contact period garden beds and storage pits that can still be seen in the ground despite extensive tree cover. At the annual Midwest Conference in Mankato, Minnesota, in a festschrift for Guy Gibbon I discussed the Correctionville Oneota sites and was a discussant for a symposium entitled *Native American Perspectives on Archeological Practice in the Midwest* which was timely and well-attended. The 2019 Plains Conference was impossible to attend, but we expect to be in Boulder in 2020.

Craig Johnson

2019 marked the first year that I was in full retirement mode and it's all that many people say it is. The extra spare time allows me some additional recreational activities, such as more fishing and WWII re-enacting. But most of all, it lets me devote even more time to archaeological research. This year saw the publication of my long-awaited book on chipped stone in the Middle Missouri subarea. Background work consisting of data collection began over 40 years ago, with a major push beginning in 2010. The next step in the process is to wait for the professional reviews to be published.

My current research focuses on completing full reports on five Plains Village sites excavated by the Smithsonian Institution River Basin Surveys (SI-RBS) in the 1950s. All five villages (Sully, Oldham, Cheyenne River, Black Widow, and Black Widow Ridge) have large artifact collections, enhancing their usefulness in exploring various research topics. In addition to the familiar ceramic vessels and chipped stone tools, I am also working for the first time with bone and antler tools and records of identified unmodified vertebrate remains and freshwater mussels.

During the summer, I volunteered for PCRG's

excavations at Awatixa village. It was 40 years since I last visited the sites in this locality, so it was interesting to see the changes, including the new interpretive center. Our excavations encountered numerous artifacts and features, including an unusual large split glacial erratic that exhibited blunting and smoothing on its upper acute edge, perhaps from use as an anvil to crush and break bone or softening animal hides.



Johnson: Glacial erratic anvil.

Chris and Allison Kerns

2019 was quite a year for the Kerns family. In May, Chris finally submitted his doctoral dissertation after working on it for nearly eleven years. In the end, the research focused on a social history of archaeological inquiries into the Orcadian Neolithic. The research examined the influence of social context in the production of knowledge related to archaeological understandings of the Orcadian Neolithic. The research included a series of oral history interviews along with a detailed examination of published and unpublished documentary sources. The oral defense, or Viva Voce, took place in October and Chris passed with only minor corrections from the examiners. Chris is planning several publications based on the research. After submitting his dissertation, Chris returned to commercial archaeology and spent the rest of 2019 working on the excavation of the military complex underlying the Canadian Parliament building and associated with the earlier construction of the Rideau Canal, a World Heritage Site.

Over the course of 2019, we were both active in the local chapter of the Ontario Archaeological Society by attending lectures and events. In December, Chris was elected to the Executive Board of the Ottawa Chapter and will once again be producing an archaeological newsletter. Finally, the biggest event of the year for us was welcoming our son Edwyn James Kerns. He arrived with a lot of commotion in the wee hours of November 27, 2019. He was quickly adopted into the pack by the family dog Jynni, and the whole family can't seem to get enough of him.

Stephen Perkins

This past year, Richard Drass, Susan Vehik, and I published a summary statement concerning Southern Plains fortifications and their entryways in the *Journal of Field Archaeology*. The article is based on our collaborative research beginning in 2003 with extensive excavations at Bryson-Paddock (34KA5), a contact-period archaeological site in northern Oklahoma, followed by testing and geophysical analyses at other Wichita sites (Longest [34JF1] and Duncan [34WA2]).

In June, I participated as a volunteer on an MIA/KIA recovery mission sponsored by the non-profit organization, History Flight, Inc. Archaeologists—including Steve Cassells—and retired military personnel successfully excavated a World War II crash site near Buchen, Germany.

The German crew members served beer at the dig site and wondered if we did the same for undergraduates on field schools. Nein!

Speaking of field schools, I was gratified that PCRG invited Oklahoma State University students to attend a second consecutive summer excavation in North Dakota. Capably led by Mark, Chris, Britni & Jess, we spent two wonderfully temperate weeks excavating at Awatixa village, part of the NPS Knife River Indian Villages National Historic Site (see page 10 of this report). We not only learned a lot about this significant Hidatsa site, but we also had the opportunity to interact with a lot of great archaeologists and volunteers, along with individuals from the Three Affiliated Tribes.

Since August, I've been back to teaching anthropology at OSU. I'm talking up North Dakota archaeology so I can sign up another bunch of students to go where PCRG needs us!



Perkins: Kaitlyn Tingle, Oklahoma State University undergraduate with pot sherd from a bell-shaped pit, Awatixa Village, July, 2019.

Hoyt House: A Fremont Habitation along Upper Deer Creek, Boulder, Utah

Phil R. Geib

During a 5-week period in late May and June, 12 students participating in a University of Nebraska-Lincoln archaeological field school excavated a Fremont habitation located along upper Deer Creek, near the modern community of Boulder, Utah. This site, named Hoyt House after the landowner, proved to be an ideal training ground for budding archaeologists in a truly spectacular setting. Known previously only to the landowner and a few others based on surface remains, the fieldwork exposed portions of two houses as well as smaller features and a trash midden. Work at the site progressed in a series of steps that started with mapping, laying out a metric grid system across the site area, and recording surface materials along with selective collection of specific informative artifacts. This was then followed by systematic soil coring across the dune ridge of the site to try and pinpoint where intact subsurface deposits or features might be hidden. Such a minimally destructive approach is an efficient way to narrow down where it might be best to open excavation units.

A series of 1 x 1-m excavation units



Overview of the sand-covered bedrock ridge that forms the setting for Hoyt House.

were then laid out in areas that might prove most informative about the site. Several test units located on the highest portion of the dune ridge revealed what appeared to be the remains of two different structures. Additional 1 x 1-m units were excavated to more fully expose these probable houses. Ultimately this amounted to an excavation area of 29 m², including 17 m² around a burned surface wattle-and-daub (jacal) structure, and 12 m² around a semi-subterranean house, which had not burned.

These structures lie adjacent to each other with the surface jacal to the south of the pithouse. Both structures contained artifacts from the time of occupation including fragments of pottery vessels, stone flakes and tools, a few bone artifacts, and some lignite (coal) ornaments. A small pit in the floor of the jacal was filled with lignite for the production of ornaments.

Additional 1 x 1-m units were excavated in select areas extending down the dune ridge to the south of the structures. About 10 m south of the surface jacal a series of four units sampled a trash midden deposit some 20-30 cm thick. This deposit yielded abundant and diverse artifacts along with animal bones.

Farther south, four additional 1 x 1-m units exposed two different types of cooking features. One of these consisted of a cluster of sandstone slabs that had been laid flat on the occupation surface and then heated, with food items then likely placed on the hot slabs and covered with heated fist-sized cobbles. Adjacent to this feature was a shallow fire basin where the fist-sized cobbles were heated. In the field we recovered carbonized corn remains in and around the features along with some carbonized seeds of wild plants.

Even farther down the dune ridge students excavated two 1 x 1-m units to test for a feature that was indicated by material found in rodent backdirt piles. This reflects another way for archaeologists to get an indication of what might lie below the ground surface: look into animal burrows or into the sediment that they have removed. In this area tiny fragments



The burned surface jacal structure is in the foreground and contains an interior slab-lined hearth. The semisubterranean structure is in the background.



Excavation of a thermal feature consisting of flat-lying sandstone slabs.

of carbonized corn cobs were evident, a clear anomaly. Test units were placed over the rodent backdirt pile with corn and excavation revealed a shallow pit that appeared to have been used for heating, perhaps as a roasting pit. Charcoal stained fill from the pit contained burned corn cob fragments just like those seen on the surface in the backdirt pile. All collected materials are currently being processed and analyzed at the University of Nebraska-Lincoln. Two of the undergraduate students who participated in the field school continue to work with the collection. They completed all the preliminary analysis this fall and are now embarking on a detailed examination of pottery and the flaked stone artifacts.

Fremont evidently occupied Hoyt House sometime between about A.D. 800 and 1000; radiocarbon dates on charred maize eventually will provide a better estimate. The site was evidently occupied for at least a portion of the year and repeatedly across a generation or more. Year-round occupancy so far seems unlikely since no large food storage features were found. Also, the structures were rather insubstantial for winter residency and lacked hearths indicative of heat generation. The sampled trash midden deposit was also not supportive of winter residency since wood charcoal was not abundant and there were no ash lenses from cleaning out structure hearths used for winter warmth. The story may change, but as of now the site is interpreted as a warm-season occupation, perhaps related to growing corn and other crops on the canyon floodplain.

Wyoming Archaeological Society Battle of Red Buttes Project

Michael D. Metcalf

On July 26, 1865 a force of between 2,000 and 3,000 Cheyenne, Arapahoe, and Lakota warriors converged at the Platte River Bridge on the Oregon-California Trail to harass the army as well as civilian and commercial traffic. The raid followed a succession of other attacks on emigrant trails in the aftermath of the Sand Creek Massacre late in 1864. Over the course of two fights between the Native Americans and the soldiers, 28 soldiers and about eight Native Americans were killed. The fights are known as the Battle of Platte River Bridge and the Battle of Red Buttes. Both occurred in the vicinity of modern-day Casper, Wyoming. Among those killed at the Platte River Bridge was Lieutenant Caspar Collins, son of Colonel William O. Collins for whom Fort Collins, Colorado is named, along with four other soldiers. The Platte River Station was re-named Fort Caspar, and later the city that developed along the North Platte River became Casper, Wyoming.

The Battle of Red Buttes involved 25 soldiers of the 11th Kansas Volunteers. Four wagons under the command of Sgt. Amos Custard were returning to the Platte River Station after hauling supplies to Sweetwater Station about 90 miles to the west. Despite some warnings, the small wagon train rode into range of the warriors who had amassed around the Platte River Bridge. The wagons were attacked shortly after they crested a ridge about 5 miles west of the fort. Five men were



Mule shoe located beneath matted grass.



Metal arrowhead located during the metal detector survey.

dispatched to the fort to get reinforcements and the wagons attempted to form a defensive circle to resist the attacks. Three of these advance scouts were killed; the other two reached the fort but too late to affect the battle. The battle site was barely visible from the fort and wagon tops and smoke are reported to have been seen by witnesses. Accounts vary, but the 20 remaining soldiers held out for some period of time before all being killed.

Surprisingly, the exact location of the battle site was lost to history, and several attempts have been made to locate the battle site. The most recent of these have involved the Natrona County Historical Commission, the Wyoming Archaeological Society, the Office the Wyoming State Archaeologist, and the Bureau of Land Management. As a result of historical research, terrain analysis, and fieldwork, investigators led by Dr. Danny Walker, retired from the Office of the Wyoming State Archaeologist, focused fieldwork on a locality just west of Casper in an area slated for residential development. Fieldwork consisting of magnetometer and metal detection in 2008 and 2016 resulted in localizing a high probability area where period artifacts were suggestive of burned wagons, and possibly a battle.

Fieldwork in August 2019 focused on a series of metal detection grids in areas near the 2016 discoveries indicative of burned wagons, and also targeted a reported mass grave. I was able to participate with a crew of students and volunteers, detecting and digging targets for half of the 11-day session. The 2019 results expanded the collection of period artifacts, possibly located wagon remains, and narrowed the search area for the mass grave of the soldiers. Two-hundred-thirty-two period artifacts have been found in the target area, including nails and staples likely from wagons, bullets and balls, a boot lace eyelet, a singletree harness hook, a mule shoe, and a metal arrowhead. Distribution maps are not yet available but intuitively the distribution of round balls and army bullets indicate that the shape of battle can be inferred from current and future detection. The search area for the mass grave has been narrowed. Additional work is pending additional funding.

Venado Enojado, continued from page 8

was occupied sporadically by small multigenerational bands practicing a foraging landuse strategy featuring relatively high residential mobility. That inference could be applied to many sites in the upper Arkansas region.

By contrast, many sites in other nearby upland regions, including the Gunnison River basin and the San Luis Valley, exhibit longerterm use. Geography may play a role in this difference. The upper Arkansas is probably not large enough, or ecologically diverse enough, to support a resident population. At the same time, relatively low passes in the ranges surrounding the valley facilitate travel between adjacent resource-rich upland basins. These data suggest that the upper Arkansas River valley may have served as a major conduit for travel through the most rugged part of the Southern Rockies. If so, many sites in the region, including Venado Enojado, could be described as transit camps occupied briefly by small bands moving between more productive resource patches.

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