



PCRG

PaleoCultural Research Group

Peeled Trees Reveal 19th Century Land Use Patterns
Picturing the Past at Beacon Island
Searching for a Lost Trading Post
Tracing the Old Spanish Trail
Members' Research

2012 Annual Report

From the Research Director

Federal and state budget cuts prompted by the 2008-2009 recession present challenges to nonprofits like PCRG. Funding reductions at land-managing agencies, including the Forest Service and Bureau of Land Management, disproportionately affect research projects designed to help them comply with Section 110 of the National Historic Preservation Act. Cutbacks in National Park Service funding mean less money for Historic Preservation Fund grants awarded by state historic preservation offices.

Debate continues in Washington and in state capitols on the future of science funding, but I am pleased to report that PCRG has so far weathered this new funding climate well. I believe we owe our continued success to the fact that PCRG fills an important, but largely unoccupied institutional niche. Our public archaeology projects connect people to the places they care about, and the importance of that connection is not lost on the dedicated state and federal archaeologists who are making decisions about how to invest limited resources. PCRG's flexible, collaborative approach to project development allows agencies to advance their preservation goals, while at the same time satisfying professional research interests as well as the general public's interest in contributing in a meaningful way to archaeological and historical research and education.

An enduring and productive relationship with the U.S. Forest Service has been crucial to our recent successes. The Master Challenge Cost Share Agreement that PCRG negotiated last year with the Forest Service's Rocky Mountain Region has enabled individual forests to more easily implement projects tailored to their specific goals and to the resources they have available. In 2012, PCRG also began a comprehensive, nationwide assessment of Forest Service-owned artifact collections, which will help the agency better manage these irreplaceable resources.

Funding provided state historical societies has also been crucial to our success. Over the last three years, PCRG has used site assessment grants awarded by History Colorado's State Historical Fund (SHF) to study stone enclosures along Saguache Creek, a high-altitude quarry workshop in the northern San Juan Mountains, and a Late Paleoindian camp at the foot of the Flat Tops Mountains. In 2013, a SHF assessment grant will help support continued research on culturally modified trees, this time in a bristlecone pine grove in central Colorado's Mosquito Range. In addition, a major SHF grant awarded to PCRG in 2012 will fund a multi-phase cultural landscape study of the Forest Service's Baca Mountain Tract, located in the San Luis Valley.

PCRG field investigations at Fort Clark State Historic site in 2012 continued our long-term partnership with the State Historical Society of North Dakota. Northern Plains research generally, and Middle Missouri research specifically, remains at the heart of many members' interests.

Funding for public archaeology is likely to remain tight. But with your continued participation and enthusiasm, I

have no doubt that PCRG will be making important contributions to historic preservation in the Plains and Rocky Mountains for many years to come.

Best regards,

MD Mitchell

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On the Cover: Storm clouds build over the Sangre de Cristo Range in Colorado's San Luis Valley, September 2012.

Photo by Mark D. Mitchell.

2012 PCRG Publications

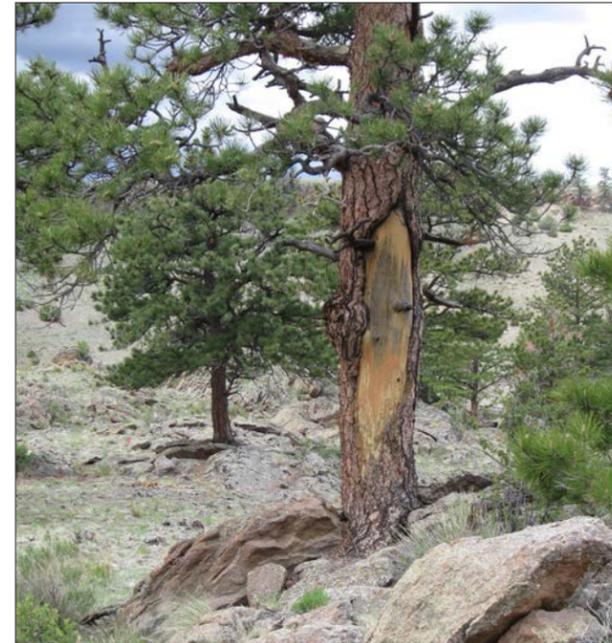
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LIVING HISTORY

Culturally Modified Trees Reveal Patterns of American Indian Land Use



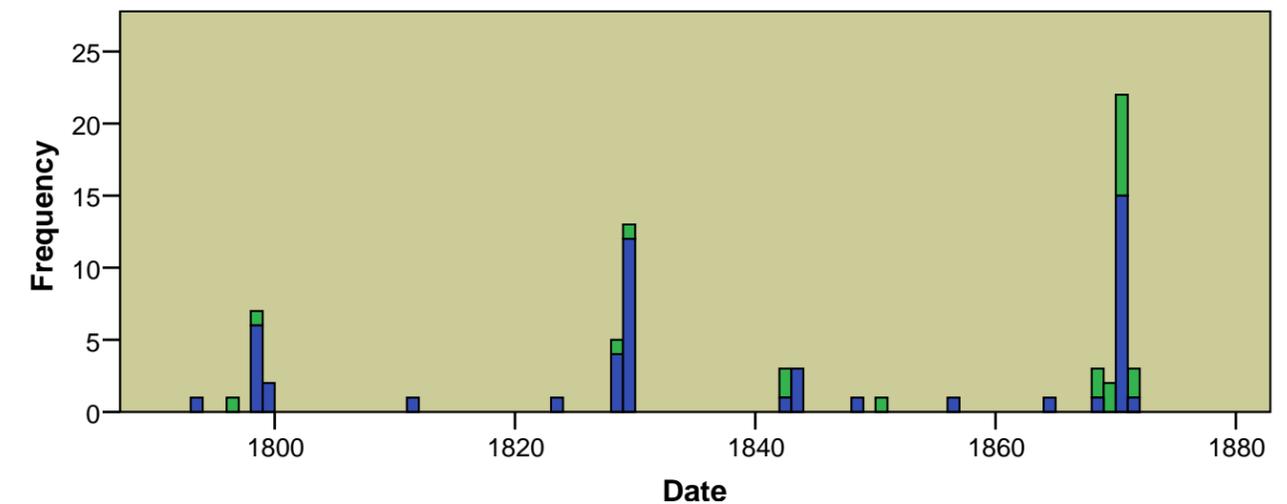
A culturally modified ponderosa pine at the Upper Crossing site in the Middle Saguache Creek valley. PCRG staff and volunteers have so far recorded 85 CMTs in the area.

American Indians harvested tree bark for comestible and medicinal purposes, for building materials, and to obtain raw materials for manufacturing a wide variety of tools, containers, and other objects. Scars left by harvesting are readily observable on both living and dead trees in many parts of the western United States and Canada (left). Archaeological research on these culturally modified trees (CMTs) focuses primarily on the alimentary role of pine inner bark, with debate centering on the context of consumption and on the cultural identities of the consumers. Many researchers argue that pine inner bark was an emergency food, eaten only during periods of subsistence stress. Others believe it was a delicacy, or a special food consumed during rituals or celebrations. While debate continues, PCRG's research in southern Colorado's Middle Saguache Creek valley also demonstrates that CMTs provide otherwise-unavailable data on the mode and tempo of nineteenth-century land use.

To date, PCRG's multi-year field investigation has documented 85 ponderosa pine trees bearing 101 scars. Seventy-five of these trees occur in a single extensive grove within and adjacent to the Upper Crossing site. Dr. Peter M. Brown, principal investigator at the nonprofit Rocky Mountain Tree-Ring Research, has dated 73 scars, revealing a strong pattern of episodic use (below). Ninety percent of the dated scars fall into one of four clusters: 1798-1799, 1828-1829, 1842-1843, and 1870-1871. Return intervals between these periods of intensive bark use range from 13

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Distribution of dated scars. Blue bars represent precisely dated scars; green bars represent eroded or damaged scars possibly missing one or more rings.



PICTURING THE PAST

Reconstructing Indian Lifeways at Beacon Island

Translating the technical findings of the Beacon Island project into a format accessible to a wider audience was a major focus of the final phase of the Save America's Treasures grant awarded to the State Historical Fund of North Dakota, which supported much of the research. To achieve that goal, PCRG commissioned Greg Harlin, an artist well known for his historical and archaeological recreations, to paint two scenes depicting the occupation at Beacon Island. One painting, an overview looking across the kettle basin from the northwest, shows the range of activities taking place at the site, including animal butchery and hunting gear refurbishment. A second close-up shows bison carcass processing in progress.

Harlin and the research team worked closely throughout the process. Project technical specialists first assembled maps showing the locations of activity areas, as identified in the 2002-2006 excavations, along with a summary of the project's major archaeological and paleoenvironmental findings. Team members also provided supplementary data and interpretations on *Bison antiquus* anatomy and butchery techniques, Agate Basin lithic technology, group demography, and clothing and hair styles. Using the excavation blocks as a guide, Harlin created a spatially accurate first draft of the overview scene (right, top). The team's subsequent review suggested changes in the size, location, and number of bison carcasses and in details of the activities taking place (right, middle). The preliminary seasonality estimate for the site put the occupation in the late summer or early fall, and so the team suggested adding a meat drying rack. Harlin also added dogs—human hunters' constant companions for millennia—to the scene, as well as perishable elements of Agate Basin weaponry technology.

The project's faunal analysts completed their dentition study while Harlin was working on the third iteration. Their analysis demonstrated that the occupation occurred in early-to mid-winter, rather than late summer or early fall and so Harlin added additional clothing, removed the drying rack, and added snow drifts around the kettle basin (right, lower).

The finished painting accurately depicts the layout of the occupation and the range of activities that took place there, as revealed through excavation and laboratory analysis, while offering the viewer a concrete portrait of the people who inhabited western North Dakota during the Pleistocene-Holocene transition (page 5).

Look for this scene, as well as the close-up view of bison butchery in progress, when you visit the new Innovation Gallery, Early Peoples exhibit at the expanded North Dakota Heritage Center in Bismarck, tentatively scheduled to open by December 2013. ■



Above: Three draft iterations of a scene depicting the occupation at Beacon Island. The final image is shown on page 5. Artwork by Greg Harlin.



TENTING ON THE TRAIL

Metal Detector Survey Confirms Only Known Old Spanish Trail-Era Camp

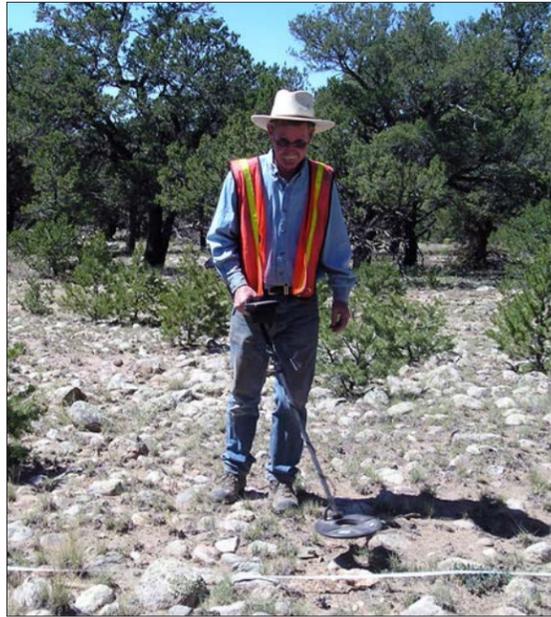
The Old Spanish Trail (OST), pioneered by Mexican trader Antonio Armijo in 1829, connected Santa Fe to Los Angeles, across the nearly unknown deserts and mountains of the interior West. Traders swapped woolens made in the Rio Grande valley for hundreds of mules and horses raised in coastal California. Multiple trails developed over time, as traders and travelers sought routes affording better water and pasture. Trade ended on the OST in 1848, when Mexico ceded the Southwest to the U.S. in the Treaty of Guadalupe Hidalgo.

Despite extensive archival and on-the-ground research, archaeologists have so far identified just one potential *paraje*, or overnight camp, along the trail. This location, situated on the western flank of the majestic Sangre de Cristo Range in Colorado's San Luis Valley and known

today as the Bunker site, was the focus of a September 2012 collaborative public archaeology project sponsored by the U.S. Forest Service, the National Park Service, and History Colorado and jointly undertaken by the Rio Grande National Forest, RMC Consultants, Inc., and PCRG. The project's primary goal is to determine whether the site was occupied during the OST's period of significance.

Led by Marilyn Martorano (RMC Consultants, Inc.), Angie Krall (Rio Grande National Forest), and Mark Mitchell, a crew of 25 professionals and volunteers conducted a systematic metal detector survey on 4 ha (10 acres), in the process recovering nearly 200 metal, glass, and stone artifacts. Recovered metal items include numerous iron and brass projectile points, *coscojos* (decorative

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Tenting on the Trail, continued from page 5

elements of Spanish chain bridles), musket parts, fired and unfired lead musket balls, cone tinklers, buttons, wagon parts, knives, and other tools. Notably, the assemblage also includes numerous scraps of brass and iron, byproducts of the on-site manufacture of projectile points, tinklers, and possibly other items.

Work previously carried out at the site had documented the fact that in the past axes had been used to remove hundreds of limbs from piñon trees, giving the site an open, “manicured” look compared to the surrounding forest. Removed limbs may have been used for firewood or to construct temporary shelters. The absence of low-hanging limbs also may have eased the handling of numerous saddled pack animals. To determine when the limbs were cut, as well as the age of the piñon stand, dendrochronological samples were taken from 20 de-limbed trees. Some of the limb rings proved to be too tight to read, but the data do point to multiple periods of de-limbing, including one in the late 1700s, another in the 1820s and 1830s, and a third in the 1850s and 1860s.

Artifact analysis continues, but the preliminary results of the field and lab effort confirm that the site was indeed occupied when the OST was in use. But the data also suggest that the site was more than simply an overnight camp used by trail travelers. Like many nineteenth-century trails, the OST followed a network of paths that American Indians, Taos trappers, and others first blazed for hunting, trade, and travel. The presence of metal manufacturing debris, along with the dendrochronological data pointing to multiple periods of occupation in the eighteenth and nineteenth centuries, suggest that the Bunker site was a long-term focal point for both Hispano and American Indian peoples in the San Luis Valley. ■



Clockwise from top: PCRG volunteer Jon Horn conducting the systematic metal detector survey; Volunteers for Outdoor Colorado Partnership Coordinator Brinkley Messick cutting a stob from a de-limbed tree; a sample of the brass and iron projectile points recovered during the project; decorative links from Spanish chain bridles, known as coscojos, recovered during the project. (Artifact photos by RMC Consultants, Inc.)



SEARCHING FOR A LOST TRADING POST

2012 Investigations at Fort Clark State Historic Site

Fort Clark, built by the Upper Missouri River Outfit in 1830 and now part of Fort Clark State Historic Site, is among the best-known Missouri River fur trade posts. Visited by a succession of travelers and artists in the early 1830s, and described in fur trader’s journals, the fort and the adjacent Mandan town of Mih-tutta-hang-kush figure prominently in both scholarly and popular views of life on the Missouri and of the fur trade.

But the post illustrated and described by these travelers and journalists was not the first trading establishment built on the site. In 1824, James Kipp built a post within or adjacent to Mih-tutta-hang-kush, which the Mandans had established in 1822. This new post replaced Tilton’s Fort, a Columbia Fur Company post originally located several miles downstream. The location of Kipp’s 1824 trading post, now known as Fort Clark I, has never been determined. However, geophysical surveys carried out in 2011 by PCRG member Dr. Kenneth L. Kvamme and University of Arkansas graduate student Adam Wiewel identified one likely candidate location, a large rectangular structure positioned just inside the fortification ditch on the settlement’s west side. Accordingly, in July 2012, a team of PCRG and State Historical Society of North Dakota researchers set out to determine whether this structure was in fact Fort Clark I.

The feature identified in the 2011 geophysical data is approximately

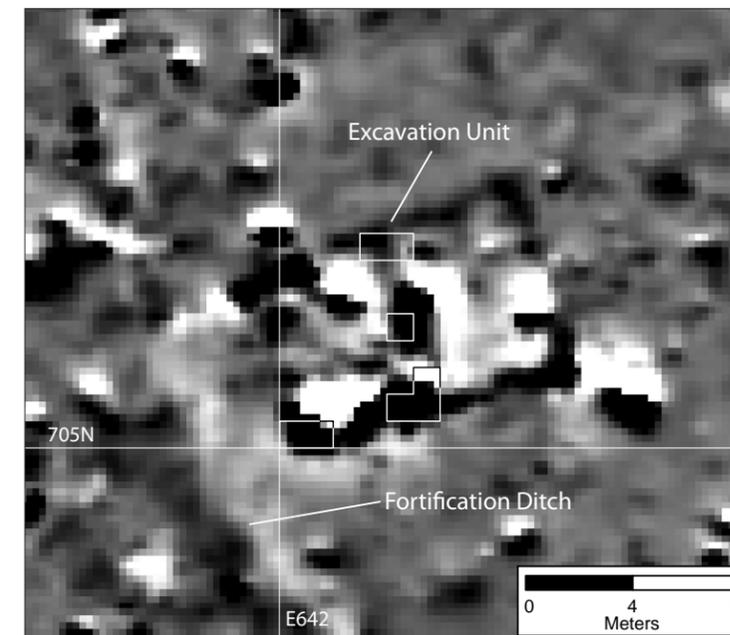
11 m long and 7.5 m wide. An interior wall divides the structure into two rooms. The long walls flare slightly, making the eastern room slightly wider than the western room. A doorway pierces the center of the east wall. Whether similar doorways occur in other walls is unclear.

Guided by multiple geophysical datasets, the team opened four small excavation blocks designed to expose selected sections of the building’s walls. These tests demonstrated that the foundation, consisting of sill planks set on a prepared floor, is located just 10 cm below the modern ground surface. The building’s robust magnetic signature is a byproduct of the fact that it burned catastrophically.

Continued excavation beneath the floor exposed postmolds and a slab-lined central hearth marking the location of at least one, and probably two, earthlodges. Together these data suggest that the rectangular structure could not have been built in 1824, just two years after the settlement was founded, but instead likely was built sometime between the late 1830s and about 1850. This construction date is corroborated by preliminary analysis of the more than 1,600 glass beads recovered during the field investigation. On-going analyses of faunal remains, earthenware pottery, metal artifacts, and other materials will answer additional questions about who lived in the structure and when.

Though the location of Fort Clark I remains a mystery, the 2012 field investigation does open a window onto a period of dramatic social and cultural transformation for the native peoples of the Upper Missouri. Traffic on the trails crossing the Plains dramatically increased in the 1840s and 1850s, as American immigrants flocked to Oregon and the California gold camps. Steamboats plying the Missouri transported more traders and settlers into the heart of the Plains. The increasing level of interaction—and conflict—between immigrants and Indian peoples that ensued led directly to the Fort Laramie Treaty of 1851 and to further American incursions into the Plains.

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Magnetic gradiometry map showing the rectangular structure investigated in 2012 along with the locations of four test units.

Perhaps nothing embodies more fully the magnitude of the period's social and cultural transformations, at least for some Indian families, than the changeover from one form of domestic architecture, the earthlodge, to another, the rectangular log cabin. Circular, four-post earthlodges had for centuries been the sole house form of the native farming peoples of the Upper Missouri, but in the 1850s, or possibly earlier, some families began building log cabins. Gaining a better understanding of the people who adopted this new architectural form, and why they did so, is a crucial contribution archaeologists can make to the region's native history. ■

The slab-lined central hearth of an earthlodge underlying the rectangular structure investigated in 2012.

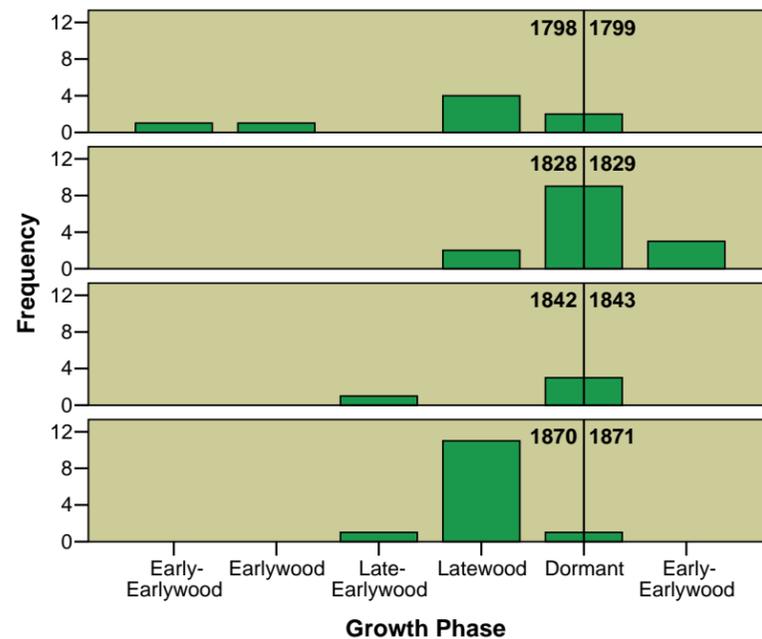


to 27 years. The distributions of trees dating to each of these clusters are conterminous within the major grove at Upper Crossing, indicating that people returned on a generational time scale to the same restricted area. Individual trees peeled sporadically between these periods of intensive, multi-tree harvesting mostly are located around the perimeter of the main grove. Thus, two tree-use patterns are evident. Intensive harvesting of numerous trees occurred episodically, once or twice each generation, and was focused on one part of the landscape. Minor harvesting occurred intermittently in a wider range of landscape settings. The marked differences in harvest intensity that distinguish these two modes suggest that larger, aggregated groups were responsible for large-scale harvests, while smaller bands or family groups were responsible for small-scale harvests. The number of trees peeled during large-scale harvest events increased steadily through the nineteenth century, suggesting that the scale of periodic aggregation also increased.

Brown's dendrochronological data also provide a higher-resolution record of tree use. The graph on the right illustrates the season during which peeling occurred within each of the four periods of intensive use. Slightly different patterns are evident among them; however, in each case, a majority of trees were peeled in late summer, close to the end of the growing season, or in fall or winter, after tree growth had ceased. This pattern suggests that multi-band aggregation began in August and extended into the fall or

early winter. A primarily winter occupation is indicated for the 1828-1829 cluster, which includes trees peeled at the end of the 1828 growing season, during the period of winter dormancy, and at the beginning of the 1829 growing season.

This documented pattern of late-summer, fall, and winter use contrasts with the pattern of spring use reported in many historical accounts. For instance, Meriwether Lewis reported that Nez Perce people obtained inner bark from ponderosa pines during the month of May. Ethnographic data indicate that in the late nineteenth century the Kutenai of western Montana also peeled trees in May. The fact that native peoples living near the San Luis Valley at precisely the same time harvested inner bark during a different season suggests that they also used it differently. ■



Distribution of dated scars relative to the ponderosa pine growth cycle. Tree growth begins in late May and continues through August.

Bill Billeck

Presently I am working on describing the beads from features at Tonwontonga or the Big Village (25DK5) of the Omaha. The glass bead analysis is one of several studies underway by specialists on the contents of seven features excavated by the Nebraska State Historical Society in 1983 prior to highway improvements. The bead assemblage will be compared with recently described assemblages from Engineer Cantonment (25WN106), 1819-1820; Fort Atkinson (25WN9), 1820-1827 (figure 1); and other sites to try to more precisely date the features within the circa 1775-1845 occupation span of the village. Next year, I also expect to describe the beads from the PCRG excavations at Fort Clark. My research interest continues to focus on the variation in glass bead assemblages from the Plains and adjoining areas to create an overview of glass trade beads through time. If you have a bead assemblage, I am willing to work on it or assist in the descriptions.

In November 2012, I attended a repatriation and the 14th Annual Spirit Run at the Sand Creek Massacre National Historic Site. Representatives of the Northern Cheyenne, Northern Arapahoe, and Cheyenne and Arapaho Tribes repatriated the remains of two victims of the massacre. The partial skeletal remains of the individuals were obtained by army personnel from the surface a few years after the 1864 massacre and had been in the collections of the National Museum of Natural History, Smithsonian Institution.



Figure 1. Large-size glass beads from Fort Atkinson, Nebraska.

Rob Bozell

In addition to routine Nebraska Highway Archeology Program survey and testing projects, I have been slowly chipping away at several backlog analysis and reporting projects. I am co-project coordinator for publishing the results of the Stephen Long Expedition (1819-1820) Winter Camp (Engineer Cantonment) excavations (discussed in the 2010 PCRG annual report). If all goes well, the work will be reported in two 2013 venues—a *Central Plains Archeology* technical report and a more popular-oriented book to be published by the Nebraska State Historical

Society (NSHS). Other PCRG members involved in the project include Carl Falk, Amy Koch, Bob Pepperl, Paul Picha, and Bill Billeck.

In 2012, the NSHS began dusting off several late 1970s to early 1980s highway archeology excavation projects and started laboratory analysis or edits on dormant reports. These include work at the Palmer Johnson site (a Central Plains tradition hamlet), Tonwontonga (the late eighteenth-early nineteenth century Big Village of the Omaha), and the Larson site, a protohistoric Pawnee village. Carl Falk will be working with a large sample of fish remains from the Big Village site and Bill Billeck is analyzing the glass trade beads. I have also been working on a chapter on the modified and unmodified faunal remains from University of Kansas and Kansas State Historical Society excavations at site 14RP1, a major earthlodge village for the Kitkehahki Band of the Pawnee on the Republican River.

But by far the most enjoyable professional experience in 2012 was spending a few warm days helping out at the PCRG excavations at Ft. Clark State Historic Site in July. It was great spending time with old friends Carl Falk and Paul Picha and getting to know much better former casual acquaintances Mark Mitchell, Ken Kvamme, and Jo Ann Kvamme. If time allows, it would be nice to participate on a PCRG field project every summer.

John S. Craig

Lost Battlefield Found

Due to a lack of funding our team did not return to our unfinished business at Amisfield Tower in the borders region of Scotland last summer. I did keep busy, however, working part-time with the University of Oregon Archaeology Department, mostly digging holes for Oregon Department of Transportation contracts. The following was the year's most interesting project.

On October 31, 1855, at the height of the Rogue River Wars, a company of U.S. dragoons and three companies of militia engaged an estimated 200 American Indian warriors in the rugged coastal mountains of southwest Oregon Territory. Historically known as the Battle of Hungry Hill, the fight was one of the largest in the Pacific Northwest between the United States government and local Indian tribes and a resounding defeat for the military. Due in part to the lack of official military reports and other documentation, the actual battle site has been lost for nearly 150 years.

In 2009 Mark Tveskov, an archaeologist with Southern Oregon University, began searching for clues that could solve the mystery. After countless hours of research, gleaning bits of handwritten accounts and maps, Mark and a handful of volunteers, including myself, hit the trail last September in some very rugged country armed with maps, packable screens, and metal detectors (figure 2, top). On September 6, 2012, after several fruitless and exhausting



Figure 2. Top: John S. Craig armed with a metal detector in the Coastal Mountain Range, Southwest Oregon; Bottom: Artifacts from the Battle of Hungry Hill.

days we uncovered three artifacts that are specifically related to the dragoons and the battle: two .69 caliber musketballs (figure 2, bottom right), which were used by the dragoons in their Model 1847 musketoons, and a lead stopper for a gunpowder tin also known to have been used by the dragoons at the time (figure 2, bottom left).

Fortunately, the site is on Bureau of Land Management land and next summer we plan to revisit the area to hopefully discover much more detail about the battle and the combatants. I was very pleased and fortunate to have been asked to participate in this search and especially pleased that I found two of the three artifacts: the lead gunpowder tin stopper and one of the musketballs!

A brief story of our discovery can be seen on page 20 of the January/February issue of *Archaeology*.

Carl R. Falk

The past year was busy; unhappily, my “to do list” seems to be growing, not shrinking. In mid-April, I traveled to Memphis, Tennessee for the 77th Annual Meeting of the Society for American Archaeology, joining colleagues for two poster presentations. The first, included in a session for Paleoenvironmental Research, was a continuation of earlier work with Lauren Milideo and Russell Graham (Penn State University, Department of Geosciences) and Holmes A. Semken, Jr. (University of Iowa, Department of Geoscience). The poster (“Multivariate Analysis of a Late Holocene Faunal Transect across the Forest-Prairie Ecotone”) was a refinement of an earlier presentation at the annual meeting of the Society of Vertebrate Paleontology in 2011. While distribution of sites clearly reflected the known east-to-west environmental gradient, the importance of field methods, particularly consistent use of fine screen recovery, was once again emphasized.

Paul Picha (State Historical Society of North Dakota) and I prepared a second poster (“Curved Technology: Elk Antler Bow Production and Use in the Middle Missouri Subarea”) for a session organized by Mark Mitchell entitled Plains Village Technology and Settlements: Recent Research in the Northern Middle Missouri. Making use of ethnohistoric and ethnographic accounts we described the manufacture and use of composite elk antler bows, concentrating primarily on late prehistoric and historic Mandan and Hidatsa groups. We suggested that the comparatively low visibility of the antler bow in archaeological collections from Middle Missouri village sites reflected a combination of factors: the possible manufacture of antler bows away from the village, difficulties in distinguishing bow manufacture debris from waste resulting from production of other antler tools and ornaments, and recycling of failed bow components. Though functional, ethnohistoric and ethnographic evidence suggests that antler bows were primarily decorative and ceremonial in use. This role, combined with the significant investment of labor required for manufacture also argues for a high level of curation. Background research for the project served to sharpen a personal interest in the role of elk in Middle Missouri village economies.

In July, I drove to Bismarck, North Dakota, returning bone and other materials from the Beacon Island project for permanent storage. I continued up-river to participate in the field program at Fort Clark State Historic Site, one of several sites I worked on with Ray Wood in 1968 during a first foray into Middle Missouri archaeology. The Fort Clark work is described elsewhere in this annual report, but I must note that the project was a wonderful experience, providing a much appreciated opportunity to visit and work with many old and new friends.

During the past year, I also continued my participation on the PCRG Board of Directors and on a number of ongoing projects described elsewhere in this section.

Michael Fosha

Sturgis, South Dakota landowners Virgil and Debbie Shulz brought a box of bone fragments to the Archaeological Research Center for identification this past spring. These consisted of pelvic and limb bone fragments of mammoth. What caught our immediate attention was what appeared to be compression and spiral fracturing on the limb bones that occurs when they are modified while still green. The bones were recovered prior to backfilling a trench recently excavated in their back yard to hook up to the new city sewage system. Principles Steve and Kathie Holen and Rose and Michael Fosha began archaeological investigations at the site in late spring of this year with the assistance of members of the South Dakota Archaeological Society (figure 3).

Those of you that know us know that we chase mammoth remains whenever they show up as part of our study the early human experience on the Plains. So why are mammoths important? Archaeologists, paleontologists, and geologists seek to understand when people arrived in the Americas and how they adapted to the new environment. To do this, sites of great antiquity need to be investigated, reported on, and dated. The problem is finding these early sites, especially those of pre-Clovis age. Competent archaeologists can often use soil horizons to identify settings of great antiquity and target those areas for close examination for flakes, tools, or bone. Mammoth bone, on the other hand, is recognizable to the general public and gets us back to at least 10,900 years and earlier which is a good starting



Figure 3. (L; front-back): Rose Fosha, Katie Lamie, Matt Bush; (R; front-back): Ernie Miller, Don Ericson, Laura Mounce.

place. Certainly not all mammoth remains are the result of human predation, but when they are these sites can greatly add to our understanding of basic questions about early human activity. So, if you don't investigate, you never learn.

In April of this year, the principles and volunteers began a search for undisturbed deposits that contain mammoth remains and evidence of possible human activity. In an exploratory backhoe trench we identified mammoth bone in two different depositional units within a small area. One of the settings was low energy silty sand containing a distal femur fragment beneath two high energy gravel-laden deposits. Encapsulated within these two gravel levels was another low energy deposit of varying thickness that also contained mammoth bone consisting of skull fragments and thoracic vertebrae.

We opened an area large enough to excavate a small 2 x 3-meter block. Recovered from the low energy sediment that included the distal femur fragment were two additional small bone fragments and one flake of possible cultural origin (figure 4). A thoracic spinal process and mandible that may exhibit a cut mark were recovered from the silts encapsulated by the two gravel lenses. What appears to be vertical displacement of the bone will be an interesting aspect of the site we hope to work out when we reopen it this spring. We currently have two collagen dates from separate laboratories that place the age of the mammoth at 30,000 B.P. and a little before 30,000 B.P.

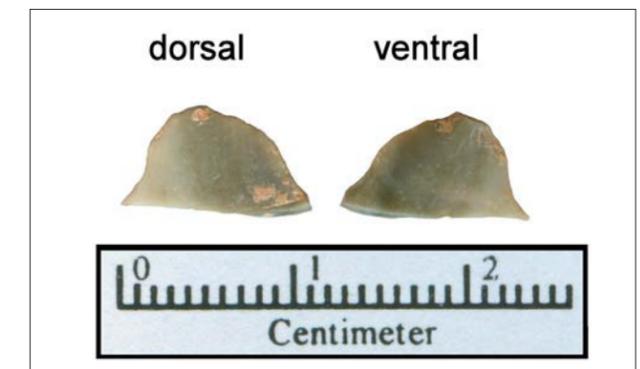


Figure 4. Small flake found in the lower silt zone that also contained mammoth bone.

Eugene M. Gryba

2011 and 2012 Projects

In 2011, I had the good fortune of spending the better part of the field season along a pipeline project which followed close to the Alaska Highway in southwestern Yukon (figure 5, top). This project involved participation of representatives of several Yukon First Nations groups. The spectacular beauty of the northern landscape certainly mitigated any feelings I held of being restricted to surveying within a narrow linear corridor as opposed to the large

block areas that I had become accustomed to working in during the previous years. Unfortunately, although we were within microblade country, we did not recover any cores or microblades during our survey. Perhaps some of the sites we did discover do contain these distinct items and future excavations might disclose this.

Other 2011 archaeological survey projects along proposed pipeline routes took me to the forested Hudson's Hope area just east of the Rocky Mountain Front Range of northeastern British Columbia, where the alignment crossed ancient terraces of the Moberly River with their high Paleoindian potential, and to the Souris River drainage basin in the farmland of southwestern Manitoba.



Figure 5. Top: Eugene Gryba with an Argo in southwestern Yukon, 2011; Bottom: 2012 oil sands survey crew in northeastern Alberta.

After a year's absence, it was back for me to the Frontier Oil Sands Lease in northeastern Alberta in the 2012 field season (figure 5, bottom). This lease is located in pristine boreal forest around 100 km north of Fort McMurray. It extends from the base of the Birch Mountains east to the Athabasca River and straddles complex terrain that includes part of the Glacial Lake McConnell basin on the east and stagnant moraine topography dotted by numerous small lakes in the southwest. The

northeastern part of the lease had burnt in 2011. Perhaps the most unpleasant aspect of the 2012 survey was that, due to an abnormally hot and dry 2012 summer and to the fact that the temperature of the mosquito hatcheries had not, as in previous years, been radically interrupted by major influxes of water from rainstorms but remained relatively constant, we had to endure numerous swarms of these unsavory critters.

As was the case during the 2008 and 2010 seasons, access to and within the lease in 2012 was by helicopter. We used shovels and fine mesh screens to sample areas of archaeological potential. During the 2012 field season we added LIDAR imagery of the local terrain to our tool kit which made it much easier for us to identify potential areas for testing. We discovered and assessed 57 new prehistoric sites which now give us a grand total of 209 prehistoric sites for the lease. A significant number of sites yielded tiny burnt bone fragments that will prove valuable for dating some of the components in an area where artifacts usually occur within several decimeters of the surface and where a cultural chronology is largely lacking due to the absence of deep stratified sites. Excavating some of these sites and possibly more survey work is on the agenda for this part of the province in the 2013 field season.

At the beginning of December, I was involved with another Alberta archaeologist, Jason Roe, and Professor Julie Cormack of Mount Royal University in Calgary, in preparing a video on various Stone Age flaking techniques. The video is meant to be used for teaching purposes in introductory archaeology courses. I demonstrated various blade production technologies and basal thinning. Jason covered hard and soft hammer percussion and bipolar reduction as well as pressure flaking. Editing of the video is scheduled for the coming spring.

I have already made plans to attend the 50th Anniversary of the Saskatchewan Archaeological Society in Regina on April 25-28, and the Paleoamerican Odyssey Conference, which will take place in Santa Fe, New Mexico on October 16-19.

Dale Henning

This has been another active year, thanks to continuing good health, good luck, and general enthusiasm for whatever I have been doing. I look back on many hours of pretty intensive research that seem not very productive in terms of projects completed. Could I be slowing down? Work continues, though, on the Beals site, a two-component Woodland and Great Oasis village site in northwest Iowa; on Oneota mound building in the Late Prehistoric-Early Contact period (with Colin Betts); on catlinitic distributions in the Late Prehistoric-Contact Period; and a re-analysis of the Correctionville Oneota villages using materials that date back to my M.A. thesis work. Amazing how much one can learn by looking into research

done 50 years ago! I presented a few papers this past year including "Minnesota Pipestone: Out of the Quarries and into the World" at the 75th anniversary celebration of Pipestone National Monument; "Late Prehistoric Catlinitic Distribution Patterns" at the 2012 SAA meetings in Memphis; and "Behold! An Anomaly" at the annual Plains Conference in Saskatoon, Saskatchewan. When we left Memphis, we headed east to see the sights (and sites) for a couple of weeks. Fantastic!

We have begun adapting to my entering the superannuated age set. Just before Christmas we moved to a huge retirement facility in West Des Moines where we are just "testing the waters," taking up residence in a "villa" (read duplex) where we are on our own but can take advantage of the facilities (exercise, swimming pool, three restaurants, even a bar) in the main complex. It is like living in a condo—someone else mows, shovels, etc., while we can watch from inside. The full basement has been partitioned and the finished part is the largest office and lab space I have ever had. Of course, I still have several old projects to work on, so spend plenty of time down there. This has been a great year; many challenges, but great fun. I look forward to what comes our way in 2013.

Craig Johnson

This has been another busy and productive year. In addition to completing my fourteenth year conducting Section 106 review and compliance with the Minnesota Department of Transportation, I spent many evenings and weekends working on research projects. Most of my spare time was spent doing lab work and background reading for my planned book on chipped stone raw material exploitation in the Middle Missouri subarea of the Great Plains. Unlike my previous ceramic research, it deals with all cultural traditions to provide some time perspective, although the emphasis will be on the Plains Village tradition.

Data collection of chipped stone tools and flaking debris was a major aspect of my work this year. Early in the year I spent two weeks in Rapid City working on collections at the South Dakota Archaeological Research Center (figure 6). Mike and Rose Fosha once again were gracious hosts, allowing me to stretch my limited budget. This was a particularly intense period, spending 12 to 14 hours a day collecting data. Unable to complete the effort, I borrowed a number of site collections, which I completed at home in about four months. I also took shorter trips to the University of Kansas in Lawrence and the University of Wisconsin in Madison to collect data on the stone tools from some of Carlyle Smith's early work in the Big Bend region and David Baerreis's excavations near Moberly. Mary Adair and Danielle Benden were especially helpful during these visits.

Realizing that I needed some additional guidance in my analysis, I began reading the voluminous literature



Figure 6. Craig Johnson with Ogallala orthoquartzite bifaces from the Medicine Creek site (39LM2).

on chipped stone technology. I was familiar with some of this, largely through the work of Stan Ahler and his mass analysis approach to flaking debris. I began by exploring the various discussions of mass analysis, pro and con, since a large portion of the data I have from past and current research is in this form. I also focused my effort on publications dealing with lithic raw materials and the variables that play a role in how they were selected, such as availability, abundance, package size, and quality. This research identified a number of empirical generalizations from other parts of North America which are applicable to the Middle Missouri. In addition, I organized all past research in the Middle Missouri on the topic in a discussion and table that summarizes key conclusions over the last 50 years. Placing my research within a broader theoretical approach will probably be the most difficult, particularly since the emphasis will be on raw material exploitation for a limited set of stone tool technological types and a relatively small number of sites with flaking debris. The technological organization approach, which stresses identifying technologies, how they were organized to implement social and economic strategies, and how technological change relates to long-term cultural change, seems to hold the greatest promise.

Other research projects include continuing work on Jones Village and a recently-awarded contract to the Augustana College Archeology Laboratory in Sioux Falls. This work, most of which will take place in 2013, explores the poorly-known Woodland manifestations in west-central Minnesota. I am the specialist on the project responsible for synthesizing ceramic information from various amateur collections for sites to be excavated this spring.

Chris Johnston

Graduate School, Year 2

Among many other things, the spring finds me continuing with my thesis research on the Roberts Ranch Buffalo Jump (5LR100), located north of Fort Collins near the town of Livermore. The project has been ever-changing but I have finally narrowed it down (I promise!). I will be focusing my analysis on a few different aspects of the site, but mainly dealing with the bonebed, the only piece of the site I swore not to touch when I started my research (figure 7)! The Roberts jump is one of the southern-most known Late Prehistoric bison jumps on the northwestern Plains and was originally excavated by a Colorado State University field school in 1970. These excavations were preceded by test excavations in 1969 as well as excavations by an amateur archaeologist in 1966. A thesis discussing these excavations was published in 1971 by Max Witkind, but very little has been done with the collection since.

The first section of my thesis will discuss the site in more general terms and provide a descriptive report of the artifacts associated with the site. In this section, I will also discuss the stratigraphy of the site and the relationship between the bonebed and the rest of the site, as it currently is not known how many occupations or kills are present. The second section will discuss the bonebed in more detail



Figure 7. CSU undergraduate Jerry Smith works on humeri from the Roberts Ranch buffalo jump (5LR100).

from a site structure perspective, where I hope to identify discrete work areas within the site.

To date I have received over \$2,000 in external funding for radiocarbon dates and obsidian sourcing from the Alice Hamilton fund of the Colorado Archaeological Society, the Karen S. Greiner endowment from CSU for archaeological research, and the Ward F. Weakly fund from the Colorado Council of Professional Archaeologists. I am in the process of selecting appropriate samples for dating. I also work with a few CSU undergraduate practicum students on the faunal analysis. I look forward to sharing these results with you in the near future!

I have also begun helping Dr. Jason LaBelle plan for the upcoming Plains Anthropological Society's annual conference, which will be held in early October in Loveland, Colorado. We have some very neat things in store for the conference this year with details coming soon, so start planning and we hope to see you there!

Amy Koch

New Archeology at Fort Robinson, Nebraska

As a result of a donation by a private citizen, the Nebraska Game and Parks Commission plans to reconstruct one of the Officers' Quarters, or B-14, formerly located on the north side of the new parade ground at Fort Robinson State Park in northwestern Nebraska. The reconstructed quarters will be used as an interpretive center, group lodge, and meeting room. The original building (circa 1891) was a two-story frame structure with a sandstone foundation.

Early in the planning stages it was agreed that archeological investigations would be required prior to reconstruction to provide necessary information regarding the footprint of the former building and possibly recover other structural evidence and building hardware needed for accurate reconstruction. A partial basement feature near the rear of the structure had been documented in building plans. It was believed investigation of this feature might yield a sample of artifacts material for an interpretive display.

To accomplish these objectives, the Nebraska Game and Parks Commission contracted with the Nebraska State Historical Society (NSHS) to conduct the necessary archeological research prior to building reconstruction. Dr. Terry Steinacher and I, both NSHS archeologists headquartered at the Fort Robinson Museum, were placed in charge of the field work and overall project investigations. The field crew consisted of fourteen individuals including NSHS staff members and an enthusiastic group of volunteers (figure 8). The field work was completed in four days.

We were successful in locating the former foundation remains and footprint of the original B-14 Officer's Quarters. It became clear from the excavation units that the original building was a basic "T" layout, similar to archive plans for other U.S. Army officers' quarters from this era.



Figure 8. Volunteers Greg Veys and Carla Plantikow draw profiles, while Maddy Rodenbaugh and Terri Steinacher confer on the basement feature.

A wide front was pinched inward near the center of the side walls and then the main structure was extended back in a narrower structure. Side porches were present on the two narrow sides. Drain pipes in several excavation squares confirmed the original structure corners. The pipes would have been connected to down spouts from the roof and eventually led underground to an outlet.

It also became clear that sometime, probably prior to or during World War II, the building was remodeled. The side porches were removed and foundation extensions were constructed to the back to coincide with the front side walls. New outside walls were constructed up to and including a second floor, which enclosed additional inside space for quarters.

The basement area noted in plans was investigated by several test squares to confirm the feature's existence and determine if significant material remains were present that would add to the interpretation of the building. The basement was located, but unfortunately it was filled with rubble and large amounts of furnace coal, slag, and clinker. No further excavation was therefore conducted into the basement.

Because the structure was built at the turn of the twentieth century and subject to intense salvage when it was razed, the recovered artifact inventory was fairly limited in research potential. Only a few artifact classes yielded information useful for interpretation and display. Many of the artifacts undoubtedly represent the different periods of construction and reconstruction. The artifacts were typical for a late nineteenth century structure and included square and wire nails, window glass shards, foundation rubble, burned coal, a door latch, a few historic ceramic sherds, a partial bottle, a picket pin, and a pewter or lead decorative finial (a crowning ornament) that resembles a bulldog head (figure 9). The report was completed in December of 2012 and submitted to the Nebraska Game and Parks Commission.



Figure 9. Bulldog finial recovered from the B-14 Officers' Quarters excavation.

Dick and Michael Krause

Surgery again forced me to forego PCRG summer field work. I was, however, able to visit my son Michael's field crew on several occasions. They were excavating a proto-historic Choctaw site north of Meridian Mississippi. This work has documented the Choctaw construction of French style bosillage cabins and smoke houses, the latter used for preparing deer hides for the French trade (figure 10). I am an affiliate of Tennessee Valley Archaeological Research, the company doing the Choctaw research; hence, my visits served both as advising and observing sessions. Michael is currently an anthropology major at the University of Alabama.

Last year has been reasonably productive in other ways. *Plains Anthropologist* published my contribution titled "An Inventory and Analysis of Ceramics from Sites on the Fort Carson Military Base" in Vol. 56, No. 220. The *Journal of Alabama Archaeology* published "The Import of Earthen and Stone Tumuli in North American Prehistory" in Vol. 56, No.1. I submitted an article on "The Pottery Vessel from Site 5LA3189, Pinon Canyon, Colorado" to *Plains Anthropologist*. It is out for review.

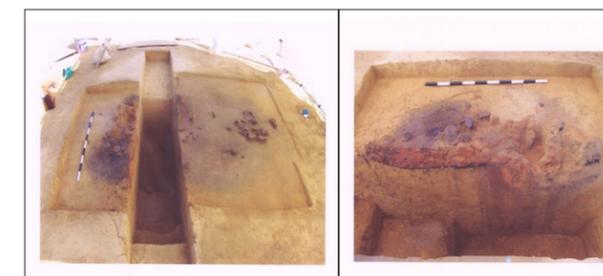


Figure 10. Left: Stain marking a structure at a historic Choctaw site in Mississippi, excavated by Michael Krause and personnel from Tennessee Valley Archaeological Research; Right: Intersecting pits at the site.

Plains Anthropologist has accepted my article on “Kinship, Tradition and Settlement Pattern Archaeology of Middle Missouri Community Life” for publication in the July 2012 issue. The editors of a volume titled “Damed if You Do and Damed if You Don’t,” have accepted my contribution on “Federal Archeology in the Southeast,” for publication by Left Coast Press. Finally, Kacy Hollenback and I are editing an Arikara-themed volume for *Plains Anthropologist*.

Kenneth L. Kvamme and Adam S. Wiewel

Magnetic Profiles of Archaeological Features at Double Ditch, North Dakota

Over the past decade, nearly three dozen archaeological excavation units have been placed within the Double Ditch site, a fortified earthlodge village (circa 1490-1780), located on the Missouri River in central North Dakota. These excavations, now backfilled, offered a sampling of the various kinds of archaeological features that occur within villages of the Northern Great Plains. As co-principal investigators in a grant supported by the National Center for Preservation Technology and Training (NCPTT) of the National Park Service, our research led us to re-open three previous excavation units during the summer of 2012. The units selected for further study were located in a house floor, through a bell-shaped subterranean storage pit, and across a defensive fortification ditch. Our purpose was to examine magnetic properties of the sediments and soils in the profiles of these features in order to better understand magnetism recorded on the surface by conventional magnetometry or magnetic gradiometry surveys.

The first step was to remove the backfill matrix from each unit, a coarse sand, which was taken out by mechanical means (a mini-backhoe) or by hand. Next, one wall

was selected and scraped clean. Visible stratigraphy was recorded and mapped and each wall was photographed in detail. Finally, measurements of magnetic susceptibility, the ability of materials to become magnetized, were recorded by a magnetic susceptibility meter every 5 or 10 cm, depending on the size of the profile. Two susceptibility meters were employed: an Exploranium KT9 and a Bartington MS2F, each with somewhat different sensing characteristics.

The result included matrices of magnetic measurements from each excavation profile that could be color-coded according to magnitude using GIS methods. Results for a subterranean storage pit nearly 2 m deep are illustrated in figure 11. Clearly, magnetic variation is considerable, with high magnetism correlating with units of ash, particular sediments, and other variations pointing to differences in individual basket loads of fill as they were dumped into the pit. On-going analyses will model the sum of the magnetic effects as recorded on the surface by a magnetometer. Margaret Patton and Jo Ann Kvamme (University of Arkansas), Kacy Hollenback (University of Arizona), and Fern Swenson and Tim Reed (State Historical Society of North Dakota) assisted in the fieldwork. The SHSND made a significant contribution by providing the backhoe and helping to relocate some of the former excavations.

Craig and Jennie Lee

After Craig taught at Montana State University (MSU) for a year (2011-2012), Jennie and Craig formally hung out a shingle for Metcalf Archaeological Consultants, Inc. (MAC) in Bozeman and bought a house! Ella (who is 6 years old) likes the house, wants a dog, and is into ballet and ice skating. Jennie is a Principal Investigator and Project Manager as well as the company’s faunal analyst.

She is still working with the extensive faunal remains recovered from several complex sites MAC excavated in south-central Wyoming as a part of the Ruby Pipeline project—tens of thousands of artifacts were recovered during the project. At last, there is an end in sight, and the first complete drafts will soon be submitted to government agencies for review. (The assemblages are predominantly pronghorn, rabbit, and small rodents, with a little bit of butchered beaver mixed in for added excitement.) Craig is MAC’s Research Director, a Principal Investigator and Project Manager, and the nascent Branch Coordinator for the Bozeman office.

In addition to teaching a summer course at MSU for the American Cultural Exchange program, Craig also contributed lectures to one of MAC’s partner groups in Bozeman, the Bureau of Land Management’s “Project Archaeology.” He had two peer-reviewed articles appear in print in 2012, including one in a special supplement to the journal *Arctic*. Craig remains a Research Scientist at the Institute of Arctic and Alpine Research (INSTAAR) and is also an affiliate at MSU (figure 12).



Figure 12. Organic artifacts from Yukon Territory ice patches on display at the 3rd Biennial Frozen Pasts Conference in Whitehorse, Yukon, June 2013. (Craig, Jennie, and Ella all made the trip!)

You can watch a short (about 9 minute) overview video showcasing of some of Craig’s research in Glacier National Park with Co-Principal Investigator Robert Kelly at: <http://www.youtube.com/watch?v=ifmndf2RHsK8&feature=youtu.be>. In addition, Craig, Mark Mitchell, and two other co-authors submitted a book chapter entitled “Microcores and Microliths in Northwestern Plains and Rocky Mountain Front Lithic Assemblages” to an edited volume under review at University of Utah Press.

Kerry Lippincott

Two of my articles will appear in the forthcoming issue of *South Dakota Archaeology*, one on the age and distribution of marine shell mask gorgets from South Dakota and another on an analysis of a freshwater mussel feature at the Initial Middle Missouri Mitchell site. I also recently completed a preliminary report on test excavations conducted a number of years ago on another Initial Middle Missouri site in South Dakota, 39LM57. The report describes the chipped and ground stone tool assemblage and the bone, antler, and shell artifacts.

Maxine McBrinn

This past year has been filled with projects and change. In October, I began work as the Curator of Archaeology at the Museum of Indian Arts and Culture in Santa Fe. My first exhibit will be on turquoise and will feature the museum’s rich collection of historic and modern turquoise jewelry (figure 13). Topics addressed in the exhibit will include the meaning of the stone in the Southwest and around the world, mining (especially in the nearby Cerrillos Hills), prehispanic use of turquoise, and the development of various ethnically distinctive jewelry styles. The exhibit will open in April 2014 and be on display for a couple of years.



Figure 13. Hundreds of objects like these will be on display in “Turquoise, Sky, and Water,” at the Museum of Indian Arts and Culture in 2014.

Last summer, Jon Kent and I led a Metro State University of Denver field school excavation of a small rock shelter outside of Taos. The work conditions were difficult at times, but our students were a stellar group and the scenery was fantastic! We’re now hard at work analyzing the materials, gathering radiocarbon dates, and learning how the site was used over time.

Other research projects included examining the possibility of intermarriage between the Ancestral Pueblo and the Fremont of Utah (co-authored with James Adovasio)

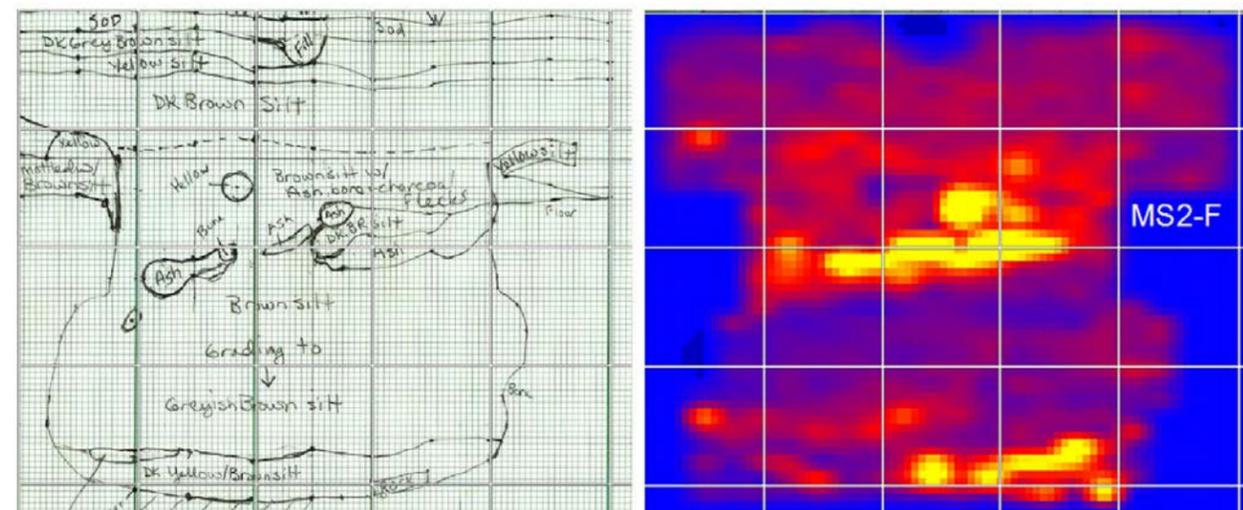


Figure 11. Field-drawn profile of stratigraphy and features within a bell-shaped storage pit; Right: Magnetic susceptibility measurements of the same feature, recorded every 5 cm, with yellow high and blue low. Large boxes are 50 cm squares.

and a consideration of why foraging remained the primary subsistence pattern in the northern Rio Grande while people elsewhere in the Southwest began farming in earnest (co-authored with Bradley Vierra). In 2013, I will contribute chapters about the Southwest Archaic to a couple of edited volumes, so life continues to be busy and rewarding!

Mark D. Mitchell

I had the pleasure this past year of serving as the President of the Colorado Council of Professional Archaeologists and as a member of the Board of Directors of the Plains Anthropological Society. Both of these organizations have meant a great deal to me and I am grateful to have had a chance to offer my time in return.

PCRG's Board of Directors generously allowed me to spend part of 2012 revising my dissertation on Heart River archaeology. The resulting book, *Crafting History in the Northern Plains: A Political Economy of the Heart River Region, 1400-1750*, is now available from the University of Arizona Press (figure 14). As I noted in the 2010 annual report, this work would not have been possible without the contributions that dozens of members have made to PCRG's Middle Missouri research projects over the last 15 years.

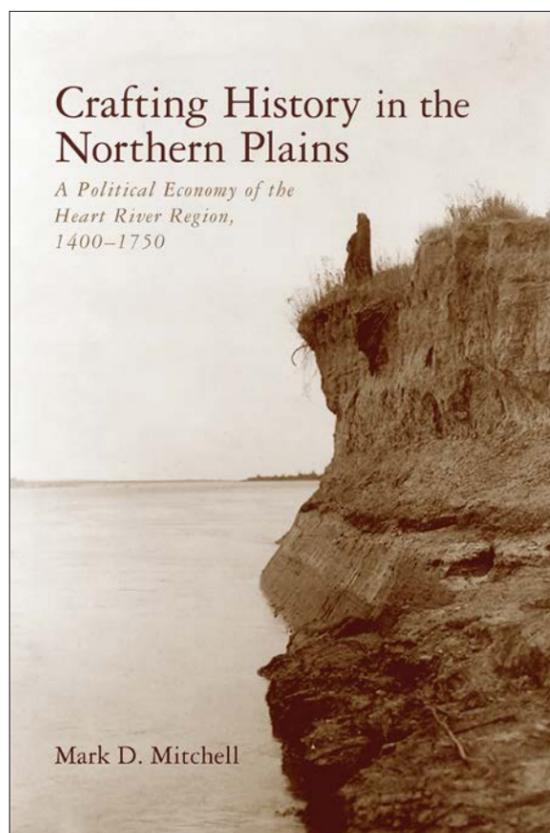


Figure 14. A new title from the University of Arizona Press.

The highlight of my year, though, was a surprise trip that my partner, Cindy Souders, arranged to Head-Smashed-In Buffalo Jump and Writing-On-Stone Provincial Park, both in southern Alberta. If you haven't yet visited these iconic Plains sites, I highly recommend you make the trip.

Cody Newton

The Little Snake River Postcontact Project (LSRPP) 2012 Field Season

In July and August of 2012, archaeological investigations were carried out in the Little Snake River drainage of extreme south-central Wyoming. The 2012 LSRPP fieldwork continued an investigation begun in 2011 of a substantial post-horse indigenous occupation along the Little Snake River and its tributaries. Working in cooperation with the Rawlins District of the Wyoming Bureau of Land Management and the Wyoming Office of State Lands and Investments, I directed fieldwork carried out by University of Colorado at Boulder Archaeological Field School students. The fieldwork consisted of recording and testing campsite locations containing European-derived trade goods and, in many cases, wooden habitation structures.

Four sites, which are all located on juniper-covered ridges overlooking the Little Snake River or a large ephemeral tributary, were recorded and tested in 2012. The surface and metal detector surveys of the sites yielded both metal artifacts and glass trade beads along with lithic debitage and tools, including those made of obsidian (figure 15). The fieldwork also located wooden habitation features (figure 16). Glass trade beads were primarily of the simple drawn type, although compound drawn faceted and wound beads were also found. Metal detector survey



Figure 15. Artifacts from the LSRPP 2012 field season.



Figure 16. Leaner wickiup recorded in 2012.

located several different types of metal artifacts, including pieces of cut metal resulting from both tool and ornament manufacture. The recording of the wooden habitation features revealed that different types, from the classic freestanding wickiup to a lean-to structure, could be found at these sites. Test excavations within one of the wickiups exposed a buried hearth and associated butchered bone, along with trade goods and lithic artifacts.

The complete analysis of the 2012 data and artifacts is not yet complete. However, the preliminary analysis, along with the findings from the 2011 fieldwork, indicates that the postcontact occupation of these camps occurred in the early to mid-nineteenth century and can likely be attributed to the Ute or Shoshone. This research is part of a larger dissertation project aimed at better documenting and understanding the socioeconomic relationships between Europeans, Americans, and Plains/Rocky Mountain Indian groups, as well as the relationship between those groups and their environment, during the post-horse/pre-Civil War era in the western Central Plains and adjacent Rocky Mountain regions.

Bob Nickel

In 2012, we conducted two geophysical surveys at locations near Lincoln, Nebraska. One area involved a portion of one of the earliest platted blocks developed near the present city center. Earlier testing by Professor Peter Bleed and colleagues at the University of Nebraska revealed evidence for both residential and commercial activity dating to the 1860s. In the very recent past, the City of Lincoln razed a lumber yard located there since the early 1900s and created a rock-surfaced parking area. Proximity to an active Amtrak rail line, a nearby elevated highway overpass, and a multi-block scrap metal salvage yard dictated the use of ground-penetrating radar (GPR). Few of the nineteenth-century residential features were revealed in the resulting radar maps, but several features associated with

early twentieth-century development and growth of the lumber yard and the rail lines that served it were recorded (figure 17).

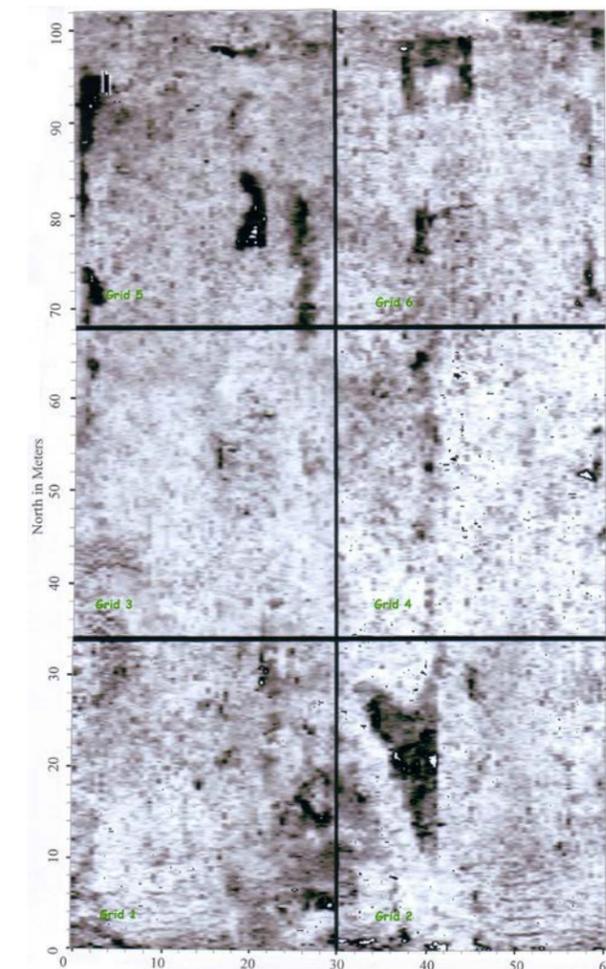


Figure 17. Map of near-surface reflections from historic Block 51 in Lincoln, Nebraska, revealing late nineteenth and early twentieth century commercial development.

In addition to the survey in Lincoln, we conducted a GPR survey of a small rural cemetery in Seward County, Nebraska. The cemetery had been associated with an adjacent church during the late 1800s. The church building and congregation moved to a new location in the late 1800s and interments in the original cemetery appeared to stop. As often happens, the site had been overgrown with trees and ignored for several decades. Recent interest in genealogical research prompted the clean-up of the area containing nine grave monuments. The GPR survey revealed good radar reflections adjacent to or near most of the monuments as well as a few additional apparent grave signatures in areas that presently lack monuments (figure 18).

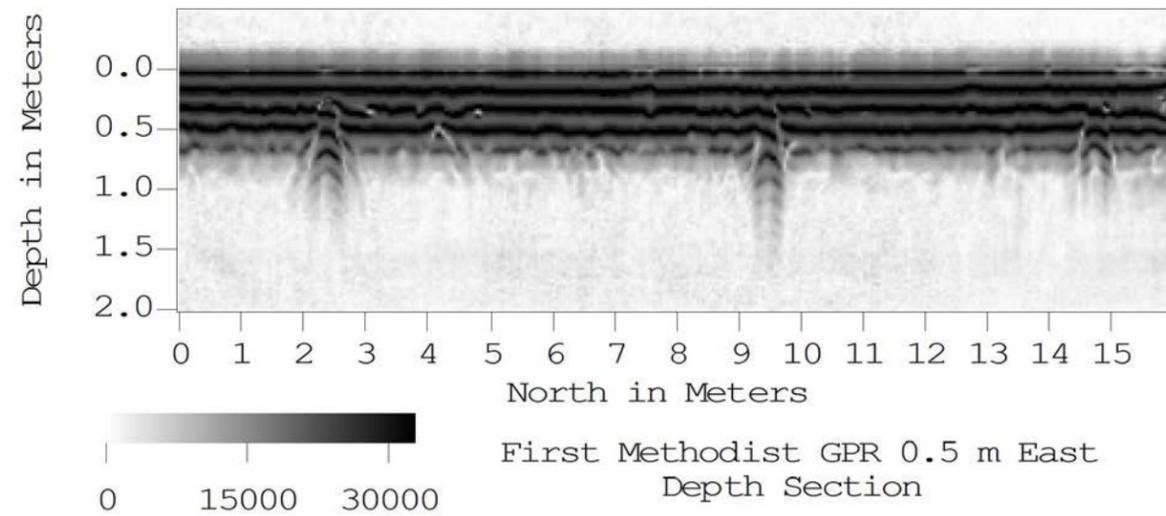


Figure 18. Ground-penetrating radar profile of historic Old Salem cemetery in rural Seward County, Nebraska. Grave monuments indicate the cemetery was abandoned about 1900 with relatively few interments.

Laurinda (Rin) Porter

I was nearly able to take part in one of PCRG's summer work projects in Colorado, but a problem came up at work and I had to stay home. I hope to work on a project this year. One highlight of 2012 was a trip to northwestern Russia with a group of other senior citizens. When we visited the Kremlin (which really is a fort, not a political building), I took a photo of the outer wall which shows some of the different layers of stonework through time (figure 19).



Figure 19. A section of the Kremlin Wall, showing different construction phases. The lowest section dates to 1380 C.E.

Kimberly Spurr and David Purcell

Kim's professional projects this year were somewhat less exciting than last year; no fieldwork in spectacular national monuments and no cool historic trail documentation. Much

of my time this year was spent on tasks related to repatriation of human remains under the Native American Graves Protection and Repatriation Act (NAGPRA). Prior to repatriation most remains undergo detailed documentation, which requires the skill of a bioarchaeologist (that's me). I also spent time sorting through a large number of boxes of long-forgotten faunal bone to ensure that no human remains are overlooked. It's not exciting, but it's important, since there is nearly always human bone in the collections. In addition to working with curated collections, I consult with private archaeology companies to excavate and document burials for compliance projects, which took me to sites across northern Arizona this year.

In terms of more typical archaeology, Kim directed (and David participated in) a survey in southern Utah that involved hiking around some impressive rock formations, with spectacular views of the Grand Staircase and Lake Powell (figure 20). The sites were mainly Archaic and Protohistoric resource processing camps, which comprise broad scatters of lithic tools eroding out of semi-stabilized sand dunes—a nice contrast to the more common structural habitation sites that dominate the Southwest. We also spent a week in southwestern Colorado working for PCRG on a site reassessment project. That work gave us the chance to drive around the national forest looking at Archaic and historic Ute camps, historic railroad and logging camps, and a few really wonderful masonry pueblos. As an added bonus, one site north of Dolores was covered in wild hops, which we harvested for inclusion in one of our home-brewed beers!

David spent most of the year continuing to work in the White Mountains of eastern Arizona, doing inventories in areas burned by the Wallow Fire in 2011. In total, he and his crews walked over 13,000 acres, and recorded 86 sites, most of which are prehistoric Mogollon culture habitations, artifact scatters, or rock art sites. One petroglyph site in the

Blue River valley contained Archaic, Mogollon, and, probably, Ancestral Puebloan elements, including clan symbols (figure 21). Although some of the sites were very impressive, including a 30-room pueblo with at least one Great Kiva, and many of the survey areas were in spectacular, remote locations (requiring camping), much of the terrain was extremely rocky and steep, with much stumbling, slipping, and cursing for every mile of survey. David's smaller projects were scattered along I-40 at Two Guns and Sanders, and in a desert valley northwest of Phoenix. In early 2013, David took a position with a Tucson-based company that recently opened an office in Flagstaff; he will be managing projects and overseeing the archaeology program for that office.

Joseph A. Tiffany

This past summer the Mississippi Valley Archaeology Center (MVAC) conducted a massive archaeological recovery project within the existing corridor of State Highway 35/2nd Avenue in downtown Onalaska, Wisconsin. The City of La Crosse, nearby Onalaska, and surrounding environs are built on an extensive complex of late prehistoric Oneota village sites (1300-1500) that comprise the La Crosse locality. Several of these sites, including the Sanford National Historic Archaeological District in south La Crosse, survived to the present day, in some instances under modern development. The 2nd Avenue project is an example of an intact site under a modern highly developed landscape. We relocated site 47LC288 and then excavated over 500 features found in situ beneath more than four feet of existing street, sidewalks, a former interurban rail spur, and fill (figures 22 and 23). This is urban archaeology at its best; media coverage of the project was statewide and included the Associated Press. MVAC worked in close cooperation with state and federal agencies, the Native American community, the City of Onalaska, and the contractors to complete this massive field project during road construction. We did our work expeditiously and did not cause a day of construction downtime. Our cooperative efforts with all parties involved garnered as much attention as the site. Due to our effort, MVAC received a Wisconsin Department of Transportation Tribal Excellence Award.

Adam S. Wiewel and Kenneth L. Kvamme

Continued Fieldwork at Fort Clark State Historic Site

In July and August, the Archeo-Imaging Lab of the University of Arkansas returned to Fort Clark State Historic Site in central North Dakota. Fort Clark is the site of an early nineteenth-century Mandan and Arikara earthlodge village as well as the location of two historic trading posts, Fort Clark and Fort Primeau. In 2011, we

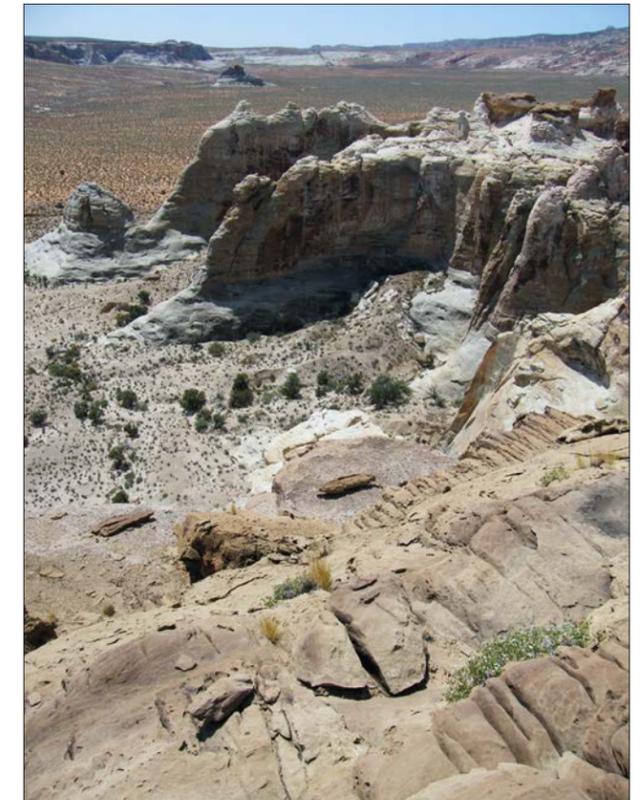


Figure 20. The Amangiri project area from above, near Big Water, Utah.

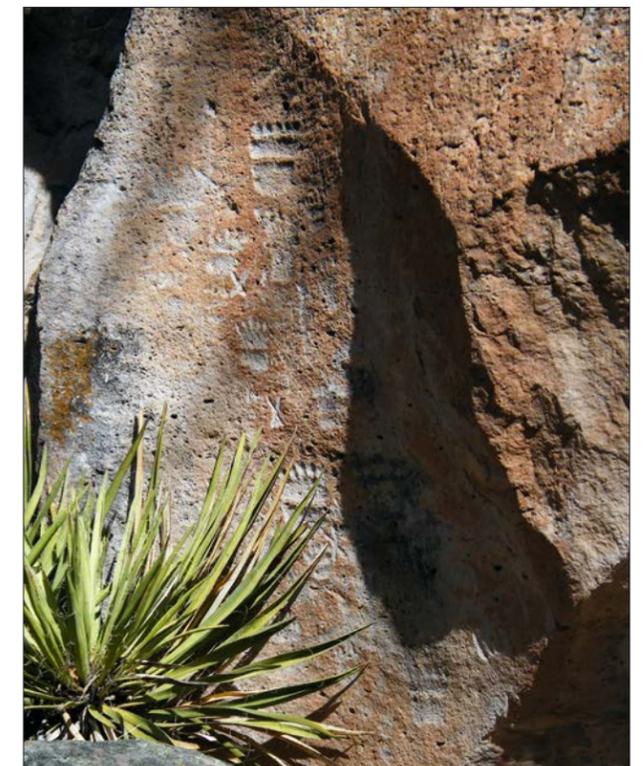


Figure 21. Blue Crossing Rock Art site, near Blue, Arizona.



Figure 22. 47LC288, Late Prehistoric Oneota culture site under State Highway 35/Main Street, Onalaska, Wisconsin.

successfully completed magnetic gradiometry and electrical resistivity surveys of the entire village, with smaller areas surveyed by electromagnetic induction and ground-penetrating radar. This year a crew consisting of Ken and Jo Ann Kvamme and graduate students Adam Wiewel and Margie Patton expanded the extensive geophysical surveys initiated the previous summer.



Figure 23. Street-level view of 47LC288 data recovery in progress.

Our goals were to 1) extend the magnetic gradiometry survey to determine if numerous surface depressions well outside of the village core are associated with additional earthlodges not visible on the ground surface; 2) expand the very successful electromagnetic induction and ground-penetrating radar surveys within the village core area because these methods offer different and highly insightful views of the subsurface; 3) perform exploratory geophysical surveys south of the village with the aim of locating spaces occupied by nomadic tribes that frequently visited the site for trading purposes; 4) complete additional ground-penetrating radar surveys of an interesting feature identified the previous summer, an 8 by 11 m rectangular structure believed to be an even earlier trading post at Fort Clark; and 5) participate in the excavation of this structure with other PCRG members and volunteers.

We achieved these objectives and to date have surveyed nearly 12 ha by magnetic gradiometry, over 7.9 ha with electrical resistivity, almost 2.6 ha by electromagnetic induction (including both soil conductivity and magnetic susceptibility), and slightly less than 1 ha by ground-penetrating radar (figure 24). These surveys have been highly successful because they revealed many anomalies of likely archaeological significance. For example, many of the earthlodges visible on the ground surface today—numbering 86—are mapped in great detail. Interior features like central hearths and storage pits are clearly visible within and surrounding these houses. Additionally, the lodge support posts and entryways of some houses are also evident.

More importantly, the geophysical data sets have yielded significant new information about the archaeology of Fort Clark. Thus far, we have identified at least 45 previously unknown earthlodges, most of which are not visible on the ground surface. We believe that many of these houses date to the Mandans' occupation of the village prior to the smallpox epidemic of 1837. Additionally, these data sets produced important insights about the Arikaras'

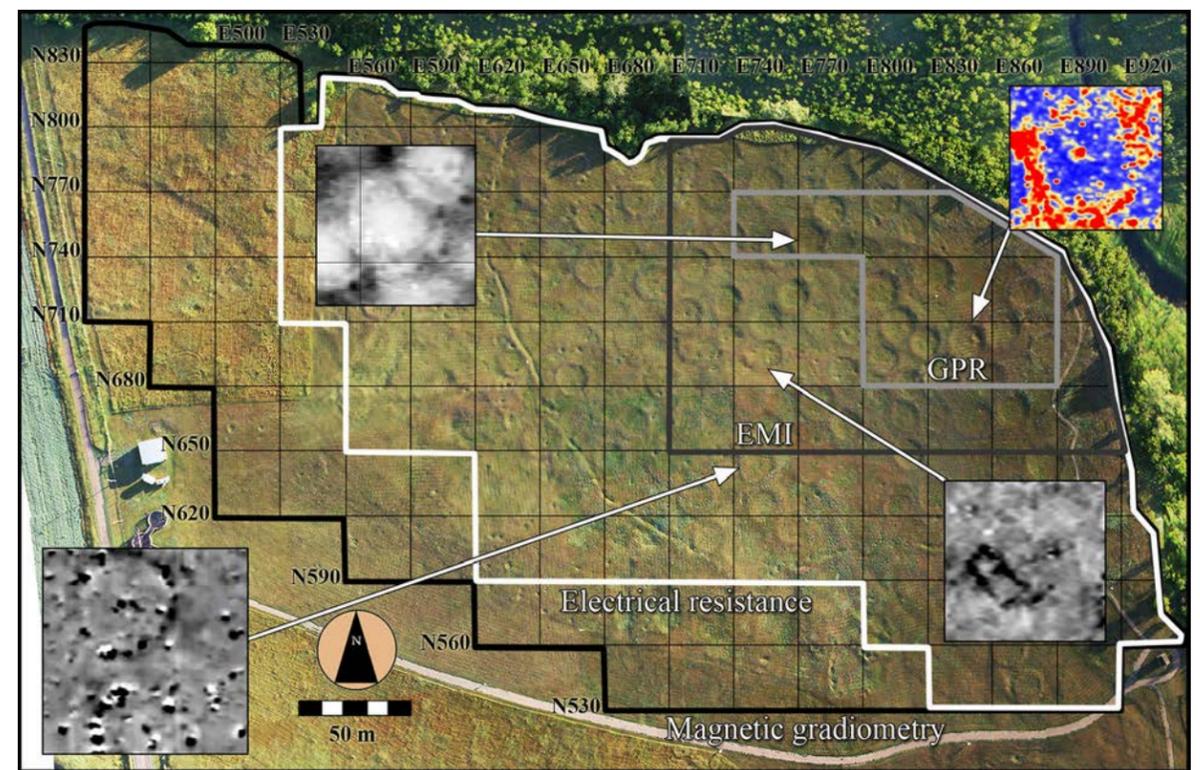


Figure 24. Map of the geophysical surveys within the earthlodge village at Fort Clark. Insets show selected features visible in different datasets.

later occupation of the village. That is, we have discovered at least seventeen rectangular anomalies believed to be log cabins based on historical references to the presence of such structures at Fort Clark late in the site's history.

Considering the importance of this site to Northern Plains history, our work at Fort Clark provides an important new perspective, allowing for more complete documentation and interpretation. The fieldwork performed during 2011 and 2012 was supported by grants from the State Historical Society of North Dakota, the National Council for Preservation Technology and Training, and the American Philosophical Society Lewis and Clark Fund for Exploration and Field Research. The geophysical data will be used by Adam Wiewel as part of his dissertation project at the University of Arkansas.

Ray Wood

My 57th Plains Conference in Saskatoon, Canada, took me as near the Arctic Circle as I'd been for some time, and I had a great time there (I've never been to a bad Plains Conference). I had no talk to give and I was not a discussant: just enjoyed it. In March, I gave (yet another) talk about James Kipp, the fur trader, at the Missouri Conference on History here in Columbia.

In July, son Eric and I once again invaded North

Dakota, this time to help excavate the suspected site of Fort Clark I at Fort Clark State Historic Site. It turned out to be some kind of cabin—hardly what we'd hoped to find. Eric, however, picked up two more birds for his life list, and was introduced to yet more of my old stomping grounds in the Dakotas.

This fall will see the last of my several atlases of old maps published, this one co-authored with Graham A. Callaway: *Lieutenant Gouverneur K. Warren's 1855 and 1856 Maps of the Missouri River*, issued by the State Historical Society of North Dakota in the closing days of December (figure 25). These charts were the backbone, as it were, of Warren's great 1859 map of the American West. Containing detailed sketches of the Missouri River from the Kansas-Nebraska boundary to a point some 60 miles inside Montana, they are a valuable source of cultural elements along the river and, probably equally important, are unsurpassed as an ecological document of the state of the river—just check the sample on the cover!

Finally, after more than twenty years in the making, I read page proofs in November for *Karl Bodmer's America Revisited: Landscape Views Across Time*, to be published by the University of Oklahoma Press in July 2013. It's a "rephotography" of Karl Bodmer's 1832-1834 views of the country from Boston Harbor to Fort McKenzie, Montana. In it we combined Ansel Adams Award winner Robert M. Lindholm's photography with my background on Prince

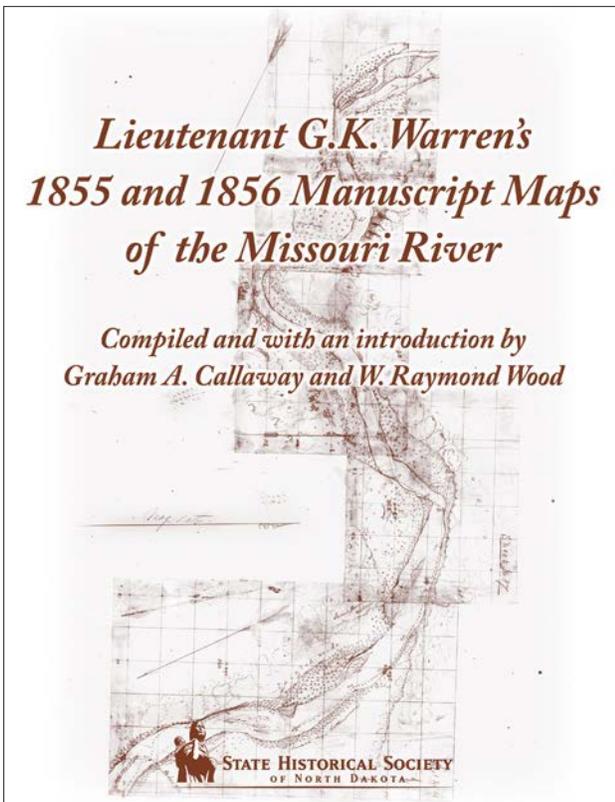


Figure 25. Book cover of the State Historical Society of North Dakota's most recent publication. If you are interested in the history of the Missouri River, be sure to check it out.

Maximilian's travels and of the history and landscapes along the Missouri River.

Just before the Plains Conference, Carolee and I spent several days in and around Albuquerque, visiting Old Town, local museums, and driving north through the Valles Caldera (America's *other* super volcano), and visiting Pecos Pueblo (it had been on my "must-see" list for decades) and other local sights.

In Memoriam: John W. Weymouth

Thomas D. Thiessen and Robert K. Nickel

John W. Weymouth passed away in Lincoln, Nebraska, on December 20, 2012, at the age of 90. A native of California, Weymouth received a Ph.D. in physics at the University of California at Berkeley in 1951, and subsequently taught physics at several institutions, including the University of Nebraska, where he retired in 1989.

In the 1960s he experimented with the application of x-ray diffraction to archaeological ceramics, but his archaeological interests shifted to different directions as a result of a class he taught in geophysical methods in archaeology

during the fall semester of 1971. He became a pioneer and authority in the use of geophysical prospecting techniques for the exploration of archaeological sites, eventually garnering an international reputation for his innovation and excellence in interdisciplinary research. From 1972 until shortly before his death he conducted conductivity, resistivity, ground-penetrating radar, and especially, magnetic surveys at archaeological sites and collaborated with archaeological and geophysical colleagues in the interpretation of the results. Much of his early work was conducted in the Plains, where he often collaborated with staff of the National Park Service's Midwest Archeological Center. In 1972 and 1973, he experimented with proton magnetometer surveys in Nebraska and Iowa, but beginning in 1974 the focus of his work shifted to the Dakotas, where he conducted magnetic surveys at the Walth Bay site (39WW203), the Knife River Indian Villages and Fort Union Trading Post National Historic Sites, among other places.

Eventually his work involved him with the investigation of archaeological sites in many other states and even Greece and Japan. Through his classes and participation as an instructor in the annual National Park Service geophysical prospecting course, he mentored many archaeological colleagues (including PCRG members) who subsequently adopted and applied the geosensing methods he advocated.

In 1998, Weymouth received the Society for American Archaeology's Frixell Award which recognizes interdisciplinary excellence of scientists whose research has contributed significantly to American archaeology. On November 5, 2012, he was honored with the prestigious Rip Rapp Award from the Geological Society of America, which recognizes lifetime achievement in archaeological geology.



John W. Weymouth and Bill Volf, using a cesium gradiometer at Hopewell Culture National Historical Park in 2001. (Photo by Steven DeVore, Midwest Archeological Center.)