63rd Annual Midwest Archaeological Conference

Abstracts

October 10-12th, 2019
Mankato, Minnesota

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Paper Symposia Abstracts

2019 MAC Sponsored Symposium: Ceremonial Situations in the North American Midcontinent: Perspectives from the Middle Woodland Era

In this symposium we grapple with questions pertaining to identifying, and elucidating, ceremonial situations in the Middle Woodland. We see this as important for advancing Anthropology in that situations (and assemblages) offer a way to engage with materials and concepts Middle Woodland archaeologists have grappled with for generations. Situations offer a more productive, detailed view of assemblages than concepts like culture, especially when addressing diverse patterns of large-scale material and/or social phenomena with many local expressions. Unpacking what is taking place during a cooperative Middle Woodland situation helps identify how diverse assemblages of people, places, and things alter the possibility for temporary and localized interactions to occur, or to affect a separate situation at a different scale. Through the research presented in this session we hope to begin moving toward a clearer understanding of how Middle Woodland situations shaped the ceremonial landscape of the midcontinent.

Ritual as Function and Process in Midcontinental Pit Features

Pits are one of the most common yet varied features at archaeological sites, spatially and temporally. Pits are rich in context and their use is grouped by archaeologists into numerous categories, such as pits for burial, pits for storage, food processing, etc. The anthropological concern for the

life-cycle of archaeological remains has recently become an exciting topic of exploration by scholars of pits as structures and of their contents. In the Midwestern context, pits are mostly considered from a functional perspective in terms of practicality. The possibility of a sacred intent behind dug-out features is often underrepresented, even though pits in this area can offer varied insights into ritual actions made possible by the archaeological record and scientific methods of excavation. We hope to spark interest in the interpretation of ritual elements in pit construction and use, and encourage archaeologists to systematically consider the ritual use of pits.

Thinking Globally, Digging Locally: Guy Gibbon's Contributions to Archaeology

Guy Gibbon retired from the University of Minnesota in 2011, after a teaching career spanning over 40 years. He began teaching at the University of Illinois in 1969 and moved to the University of Wisconsin-Milwaukee in 1972. He came to the University of Minnesota Department of Anthropology in the fall of 1973. While at Minnesota, he was Director of the Center for Ancient Studies (CAS) from 1981 to 1985 and Director of Interdisciplinary Archaeological Studies (IAS) from 1991 to 2011. Gibbon is a prolific and wide-ranging author, with articles and monographs on the Oneota, Woodland, and Archaic traditions, historical archaeology, archaeological method and theory, and Siouan ethnography. He edited a major encyclopedia of North American archaeology and has contributed chapters to many publications. This symposium will celebrate some of Guy's many interests and accomplishments.

A Legacy in Place: Minnesota's Statewide Survey of Historical and Archaeological Sites

In 2008, Minnesotans passed a constitutional amendment dedicating a portion of sales tax revenues to preservation of natural and cultural resources, with 20% of the revenue

assigned to cultural resources. Over the past 10 years, three million dollars went to the Statewide Survey of Historic and Archaeological Sites. Minnesota's State wide Survey has implemented 33 contracts over the first 10 years of funding. These contracts have emphasized archaeological projects including county surveys, detailed examinations of sites associated with particular historic contexts, artifact studies, scientific method examinations of LiDAR and radiocarbon dating, and field investigations of property types such as burial mounds, historic cemeteries, CCC camps, dams, and masonry ruins. The symposium will summarize the first 10 years of the survey as well as looking at projects from that last five years.

The Dixon Oneota Site, 13WD8, Data from the Third Round of Excavations

The Dixon Oneota Site, 13WD8, is a Late Prehistoric village located on the Little Sioux River in Woodbury County, northwest Iowa. During late 2016 and the first half of 2017 data recovery excavations were conducted prior to the construction of a 1600 ft revetment to stem the tide of further erosion. Four blocks were excavated to provide adequate space for construction for a total of 726 sq m. This symposium presents the findings of these excavations both confirming previous findings and offering new insights to an important archaeological site.

Native American Perspectives on Archeological Practice in the Midwest

Relationships between archeologists and Native Americans have always been complicated. For the most part this can be characterized as total or near total disengagement, but there are examples of collegial and collaborative relationships as well as examples of difficult ones, and very commonly there is an air of tenseness about it all. However, there has been progress across the region, and perhaps across the continent. Some of this can be put down to intellectual and emotional growth in the discipline itself and in cultural attitudes, but more may be due

to the raising of strong Native voices. This symposium seeks to examine, through Native voices, a sense of how things have changed in the last 20 years, and where things should go from here.

The Red Rock Ridge Research Group's Investigations at Jeffers Petroglyphs and the Red Rock Ridge
This Symposium will present summaries of the research of the Red Rock Ridge Research Group's (RRRRG) efforts along southwest Minnesota's Red Rock Ridge. Began at Jeffers Petroglyphs Historic Site in 1998, the RRRRG is made up of American Indian elders, historians, archaeologists, and ecologists whose goal is to promote the preservation of American Indian sacred sites on southwest Minnesota's Red Rock Ridge. To date, members of the RRRRG have surveyed 1400 acres on the Ridge, identified 19 new sites, 6300 petroglyphs, one pictograph, two pipestone quarries, three astronomical petroform observatories, and 13 linear, circular and cairn petroforms.

Poster Symposium Abstract

Living Landscapes: Growing Communities and Crops in the Lower Illinois River Valley
"Long-term Perspectives on Human-River Dynamics at the Confluence of the Illinois and Mississippi Rivers: Interdisciplinary Research for Students in Ecology and Archeology" is the Center for American Archeology's (CAA) National Science Foundation Research Experiences for Undergraduate (NSF-REU) program designed to provide students with practical experiences in archaeological and anthropological research. This unique program exposes students to topics and experiences necessary for careers in STEM fields and encourages scientific literacy. As part of the CAA NSF-REU experience, students complete original research projects that engage elements of the diverse 10,000-

year human record of the Lower Illinois Valley. In the summer of 2019, nine students addressed multiple dimensions of past and present human, plant, and landscape interactions from a variety of archaeological, paleoethnobotanical, and ethnographic perspectives. This symposium presents results of their research.

Paper and Poster Abstracts

Robert Ahlrichs (University of Wisconsin-Milwaukee)
Copper Awls and Archaeological Classification
Despite being the most prolific type of copper tool, perforators have received relatively little scholarly attention. For example, Wittry (1950, 1951) organizes the morphological variation found in copper projectile points into 16 primary types, based on suites of formal attributes and presumed function, while perforators are organized into only five formal types. Inventory of a large copper collection from Wisconsin has highlighted the inadequacy of the current perforator classification scheme as fully 40% of perforators simply do not fit within a type as strictly defined in the literature. These kinds of classification problems are quite common in archaeology and can certainly be over emphasized. However, classification is important because it strongly influences our understanding of what an object was used for, and ultimately our understanding of the culture of the people who made, used, and deposited it. This poster explores copper perforators and their surprisingly numerous variations.

Mark L. Anderson (University of Iowa Office of the State Archaeologist)
The Dixon Site (13WD8): an Introduction and Overview
The Dixon Site, 13WD8, is a large Oneota village located along the Little Sioux River in Woodbury County, northwest Iowa. This site has been well known to professional and avocational archaeologists for decades, largely due to erosion along the Little Sioux Channel that was cut through the western portion

of the site in the early Twentieth century. Data recovery excavations were first conducted in 1964 by the University of Wisconsin as part of a larger climate study, and again in 1994 by the University of Iowa Office of the State Archaeologist OSA) after the divesting 1993 floods. The third round of data recovery excavation occurred in 2016-2017 by the OSA in preparation for the construction of a revetment to quell continued erosion. This presentation provides an introduction and overview of the site, it's history, natural context, and current condition, and sets the stage for the other papers in this symposium.

Mark L. Anderson (University of Iowa Office of the State Archaeologist)
An Overview of the Lithic Assemblage from the 2016-2017 Excavations at the Dixon Site, 13WD8
The lithic assemblage recovered during the 2016-2017 data recovery excavation was large and varied. The chipped stone tool assemblage represents the full array of tools found on Oneota sites. The debitage assemblage contains a wide variety of lithic raw material types from nearby sources as well as distant locations. The ground stone and cobble tools are also varied and largely represent locally available raw materials. Amongst the exotic lithic materials pipestone or catlinite, slate, and limestone are prominent. Fire cracked rock composed roughly 2,400 pounds for the largest single artifact category. This paper provides a brief review of entire the lithic assemblage and will focus on the more interesting and unique aspects of this large portion of the Dixon artifact assemblage

Scott F. Anfinson (Minnesota State Archaeologist, Retired)
Minnesota's Statewide Archaeological Survey: the First Ten Years
In 2008, Minnesotans passed a constitutional amendment dedicating a portion of sales tax revenues to preservation of natural and cultural resources, with 20% of the revenue assigned to cultural resources. Over the past 10 years, three million dollars went to the Statewide Survey of Historic and

Archaeological Sites. Guided by an Oversight Board, the Statewide Survey examined poorly known areas, poorly known historic contexts, and poorly known property types. Of the 33 projects, 28 have focused on archaeological resources, including 15 area surveys, 8 historic context studies, and 5 property type examinations. The area surveys have covered almost 30,000 acres and located over 350 previously unrecorded sites. The context studies have examined four prehistoric cultural traditions and produced about 250 radiocarbon dates. The property type studies included LiDAR examination of burial mounds and handbooks for prehistoric lithics and ceramics.

Scott F. Anfinson (University of Oslo)
The End of Prehistory: the Dakota at Lake Mille Lacs
Guy Gibbon has long been interested in the prehistory of the Dakota Indians as reflected in his books The Sioux (2003) and The Prehistory of Minnesota (2012). He has also been interested in the archaeology of the Lake Mille Lacs area in east central Minnesota, excavating several vicinity sites. Elden Johnson's late 1960s excavations at the Cooper site just south of Lake Mille discovered early French trade goods associated with Oneota and Sandy Lake pottery. Elden Johnson's and Janet Spector's 1970s excavations at the nearby Wilford site found similar materials. Early Historical accounts document the Mille Lacs area as being the core of the Dakota homeland in the mid-1600s. The paper will examine Dakota lifeways at Lake Mille Lacs at the time of European intrusion and the initial effects this intrusion had on the Dakota.

Andrew Anklam (Michigan Technological University, Isle Royale National Park), Seth DePasqual (Isle Royale National Park)
Lost and Found: Identifying Ephemeral Mining Sites at Isle Royale National Park by Reconstructing Government Land Office Survey Paths in GIS
Isle Royale National Park located in Lake Superior was one of the centers of the nation's first copper booms. High quality

copper veins drew mid-19th century miners looking to stake a claim. By the mid-1850s these initial attempts at mining were met with demise as the remote location and logistical hurdles made extracting copper a costly business. Translating government land ordinance survey notes from 1847 into coordinate geometry and applying them to the public land survey system in GIS, locations for these abandoned mines and related sites were approximated and ground-truthed. Several of these sites, which had not been visited since 1847, were confirmed as apart of section 110 inventorying activities. Surveying these small-scale ephemeral sites was targeted to improve the park's understanding of this early exploratory mining period which is overshadowed by later more successful mines on the archipelago.

Alec Anton (Minnesota State University, Mankato), Andy Brown (EARTH Systems Laboratory, Minnesota State University Mankato), and Elizabeth Hobbs (EARTH Systems Laboratory, Minnesota State University Mankato)
MnModel Phase 4: Building an Updated Historic Hydrographic Model for the State of Minnesota
New and updated hydrographic data were used in the development of improved historic and prehistoric hydrographic models for use in MnModel Phase 4, the archeological site predictive model for the State of Minnesota. The hydrographic model from MnModel Phase 3 used modern hydrographic data available at the time, as well as data from SSURGO, and MnModel's Landform Sediment Assemblage (LfSA) mapping. The new models incorporate data from digitized historic Public Land Survey maps, updated soils maps (gSSURGO), Phase 4's geomorphic Landscape Model, Phase 4's Vegetation Model, the National Hydrographic Dataset, Minnesota Native Plant Community dataset, in addition to revised polygons from the National Wetlands Inventory. Phase 4's hydrographic models produced a rational approximation of the early historic and prehistoric locations of lakes, rivers, and wetlands, and played a key role in the predictive success of MnModel Phase 4.

Cherie Haury Artz (University of Iowa Office of the State Archaeologist)
Food, Feathers, and Animal Symbolism: Fauna from the Dixon Site (13WD8)
A large sample of faunal specimens was recovered from the 2016-17 excavations at the Dixon site (13WD8), a large Oneota village in northwestern Iowa. Analysis of this assemblage provides evidence for discussion of hunting practices and the utilization of animal resources. This paper, however, focuses beyond basic survival strategies for obtaining food and utilitarian objects. Evidence for ornaments such as bone and shell beads, delicate bone pins, and carved items, which might be gaming pieces, speak to the aesthetic side of life. A number of the less common species such as cougar and bobcat, which are not commonly recognized as edible by Oneota descendants, and the narrow selection of bird elements focused on wing and tail specimens may have had culturally symbolic functions. These specimens may have been hunted for personal or social use in regalia or ceremonies or they may have been part of an Oneota trading system.

Constance Arzigian (Mississippi Valley Archaeology Center, University of Wisconsin-La Crosse), James Theler (Mississippi Valley Archaeology Center, University of Wisconsin-La Crosse)
Ritual Contexts from Oneota Sites in La Crosse, Wisconsin
Several late precontact Oneota pit features excavated in La Crosse, Wisconsin, contained assemblages of faunal, floral, and artifactual remains suggesting a ritual component. These include bones of fur-bearing animals, bears, dogs, worked bone, tobacco, copper, catlinite, and indications of feasting episodes. Examples of different contexts are considered, along with potential ethnographic parallels, including descriptions of sacred or medicine bundles as reported historically.

William M. Balco (University of North Georgia), Eric E. Burant (University of Wisconsin-Milwaukee)
When Old Maps Meet New Tech: Exploring Northern Wisconsin's "Indian Trails"
Roads and trails are unique structures, critically important to past and modern societies, facilitating mobility, trade, and communication yet are difficult to identify archaeologically and therefore appreciate. Government Land Office (GLO) survey maps of Wisconsin made in the mid to late 1800s serve as a record of the state's early vegetation, environmental conditions, cultural improvements, and transportation systems, including routes labelled as "Indian trails." These trail systems were possibly established during prehistory and used into the historical period. We employ Historic Geographic Information Systems (HGIS) to study such trails. Historical documentation, archaeological site information, and modern LiDAR data will be utilized to construct a data sample within Northern Wisconsin. Applied HGIS methods incorporate a least cost path analysis to identify preserved sections in undeveloped areas and contextualize their broader significance as historic resources.

Margaret Beck (University of Iowa), Jeffrey Ferguson (University of Missouri), Brandi MacDonald (University of Missouri)
Monks Mound Red in the Northern Hinterlands: Raw Materials and the Spread of Mississippian Slip Technology
Red slips were introduced to the northeastern Plains approximately AD 1050, spreading from the Cahokia area into the Upper Mississippi valley and across Iowa. Potters in northwest Iowa and southeast South Dakota adopted red slips with surprising enthusiasm, given their distance from Cahokia; indeed, northeastern Plains potters may have produced their own red-slipped ceramics at a higher rate than any other region to the north of Cahokia. Through experimental replication and chemical analyses (LA-ICP-MS), I characterize red slips and possible slip materials such as red shale, iron concretions from sedimentary rock, and powdered pipestone. The results may

shed light on how this ceramic trait spread and why it was unevenly adopted by local potters.

Megan E. Belcher (University of Tennessee- Knoxville), Daniel R. Williams (Ohio State University), Natalie G. Mueller (Washington University in St. Louis)

Testing the Soil Preferences of Erect Knotweed (Polygonum erectum) in a Common Garden Experiment

Before maize cultivation, a unique crop system of plants was cultivated and domesticated by farmers in pre-Columbian eastern North America called the Eastern Agricultural Complex (EAC). Though known archaeologically, important questions about how these crops were grown, consumed, and shared among past peoples remain largely unanswered. For example, ideal soil conditions for different EAC crop cultivation is unknown. Preferences for certain soil types by these crops could have played a role in where and how past peoples interacted and moved on the landscape. This poster explores cultivation practices favored by one crop species, erect knotweed (Polygonum erectum), through growth experiments. Results indicate that populations of P. erectum grown in rich, well-drained soils grew faster and larger than those in clay-rich soils. This information contributes to our understanding of EAC crop cultivation and that illustrates that factors, like crop soil preference, could have influenced ancient farming practices and settlement patterns.

Erin M. Benson (University of Illinois at Urbana-Champaign)

The Emergence of Meaning Through Place at Two Late Cahokian Sites

Contemporary theoretical approaches in archaeology include the relational turn, a focus on materiality, and the de-centering of humans as the preeminent actor in social life. While humans are still our focus of study, we can now understand that meaning and power are not produced because humans deem something or someplace meaningful and powerful, but rather

those qualities emerge from relationships between materials, persons, spaces, and practices. Shifting the focus away from the human allows for an exploration of how meaning in the late Mississippian world was more broadly constructed and negotiated through the placements of buildings, posts, pits, and objects. This paper elucidates these relationships and the emergence of meaning specifically in relation to particular places at two late Mississippian sites, Schoolhouse Branch and Rhea, in the Greater Cahokia region.

Colin Betts (Luther College)
Multi-Instrument Geophysical Survey of Two Bird Effigy Mounds in Allamakee County, Iowa.
This paper presents the results of a multi-instrument geophysical survey of two Keyes phase bird effigy mounds from the Capoli Bluff site (13AM204) in northeastern Iowa. Three non-invasive remote sensing techniques—magnetic gradiometry, soil resistivity, and ground penetrating radar—were used to investigate the subsurface characteristics of the Capoli site effigy mounds. It is necessary to document these material residues of the ritual practice of mound construction to fully understand the effigy mound phenomenon. The survey data yielded complementary insights into the methods of their construction, internal structure, historic disturbances, and documented significant differences between the two mounds. This research provides important insights into the nature of Capoli site mound ceremonialism and more broadly establishes a reference point for guiding and interpreting future geophysical surveys of effigy mounds.

Caleb Blair (Cornell College), Jason King (Center for American Archeology)
Reanalysis of Chipped-Stone Artifacts at the Kamp Mound Group (11C12)
The Kamp Mound Group (11C12) is a Middle Woodland/ Hopewell (ca 50 cal BCE-400 cal CE) floodplain mound site that includes 10 mounds arranged around a central plaza. The

site was excavated by Stuart Struever in 1958-1959, who later characterized it as a "regional transaction center" involved in the distribution of Hopewell items in the Lower Illinois Valley and the broader Hopewell Interaction Sphere. Despite its importance, data from their Kamp Mound Group have not included in more recent analyses and have not be analyzed since Struever's original work. This presentation reports initial reanalysis of chipped-stone debris, specifically projectile points and bifacial tools. Results show there is significantly less extra-local chert than has been found at similar sites in the region. Though Middle Woodland tools, including lamellar blades, are common at the site, evidence of other occupations are also present at the Kamp Mound Group.

Zoe Blair (Wichita State University), Natalie G. Mueller (Washington University in St. Louis)
Cooking in a Lost Kitchen
The Eastern Agricultural Complex includes multiple food crops that were cultivated before the widespread of maize agriculture. Despite considerable paleoethnobotanical knowledge of Eastern Agricultural Complex (EAC) plants found at archaeological sites in the North American midcontinent, little is known about the manner in which indigenous peoples prepared them as food and consumed them. In this poster, I present results from preparation and cooking experiments conducted using EAC pants. Chenopodium spp., Iva annua, and Polygonum erectum seeds were threshed and winnowed in preparation for boiling and other cooking experiments. Iva annua and Polygonum erectum foods had strong flavor profiles in comparison to the milder Chenopodium ssp. foods. Because of the strength of the Iva annua and Polygonum erectem foods, it is believed it is possible that they were used to flavor larger dishes.

Kathleen T. Blue (Minnesota State University, Mankato)
Osteological Analysis of a Possible Archaic Burial from Clay County, MN

In June 2016 a loader operator working at a gravel pit in central Clay County, MN uncovered the partial remains of at least four individuals deposited three feet below the ground surface. Bones and the surrounding soil were stained a deep red. No mound was present and no artifactual material accompanied the remains. These factors, in addition to the noted robusticity of the skulls and lower limb bones and the marked amount of dental attrition in the remaining teeth, strongly suggest the burial is Archaic in age (7000-500 BCE). Unfortunately, most Archaic burials in Minnesota are classified as such on these very suppositions and not through a confirmed radiocarbon date. This paper assesses osteological and archaeological features of this recently disturbed burial in conjunction with other known and presumed Paleoindian and Archaic burial and archaeological sites in Minnesota.

Samantha Bomkamp (University of Wisconsin-Milwaukee)
Ceramic Analysis of Casas Grandes Vessels at the Milwaukee Public Museum
A collection of 82 ceramic vessels from the Casas Grandes (Chihuahua, Mexico) cultural region is curated at the Milwaukee Public Museum. This collection was accompanied with little to no provenance information and no research has been conducted on the materials since they came to the museum in the 1970s. Research is currently underway to bright light and information to the collection. Ceramic analysis was performed on each vessel with the use of a coding scheme recording many attributes (e.g. form, orifice, neck length, rim shape, temper, external and internal treatment, paint color, decoration, texture). Thereafter, typology and time period was determined for each vessel. Iconographical studies are currently being performed focusing on duality symbolism and human and animal icons.

Laura M. Bossio (University of Michigan)
Assessment of Mortuary Data at the Williams Cemetery (33-WO-7A)

The Williams site (33-WO-7A) of northern Ohio is a Late Archaic - Early Woodland cemetery that was excavated in the 1970s. Since excavation, analyses have been performed, but both the original data and the analyses have been largely unconsolidated and unpublished. These data and analyses are assembled here to gain a clearer understanding of the site, the findings, and potential for future research. The significance of this site in understanding regional interaction and networks of exchange in the Great Lakes region of the Late Archaic - Early Woodland Transitional period is here assessed.

Charles Broste (Red Rock Ridge Research Group)
Preserving the Carvings at Jeffers Petroglyphs Through Photography
In 1976, archaeologist Gordon Lothson and artist Meredith English inventoried approximately 2000 carvings at the main Jeffers Petroglyphs site as well as several other sites along the Red Rock Ridge of Southwest Minnesota. As part of a long-term site conservation plan, lichen was removed from main outcrop of the Jeffers Petroglyphs. Between 2010 and 2014 thousands of previously unknown carvings were exposed and seen for the first time in hundreds, if not perhaps thousands of years. The huge numbers of newly discovered carvings necessitated an ongoing data collection project to document the site. Satellite imagery, white light scanning, low altitude aerial photography and digital microscopy have revealed layers of previously undocumented information contained in the site.

Andrew A. Brown (EARTH Systems Laboratory, Minnesota State University Mankato), Alec Anton (Department of Anthropology, Minnesota State University Mankato), Elizabeth Hobbs (EARTH Systems Laboratory, Minnesota State University Mankato)
MnModel Phase 4: Building an Updated Archeological Predictive Model for the State of Minnesota
MnModel Phase 4 is an inductive statistical model that predicts archeological site locations within Minnesota

based on predicted past environmental conditions. Earlier phases of MnModel have used an inductive approach, but MnModel Phase 4 greatly improved upon previous models by using models of the historic and prehistoric environments not previously available. New data include a terrain-based least-cost-path model to account for probable routes of Prehistoric travel, an historic vegetation model based on Public Land Survey data, a 10m DEM conditioned to minimize modern infrastructure, historic and prehistoric hydrographic models, and more detailed soils and geomorphological data. In addition, nearly 3,000 new archeological sites were added for Phase 4. The resulting models perform exceptionally well, with only 6.5% of each region in the state being in the "high potential" category and predicting 95% of known sites.

Kevin Brownlee (Manitoba Museum)
Unsettling Archaeology and Integration of Indigenous Heritage
As an Indigenous person I feel very strongly about the importance of the past and history. The past grounds us, helps to shape our perception of ourselves and how we relate to the world. My desire to know more about my heritage drew me into the field of Archaeology in the first place. Archaeology provides a piece of the past but certainly was only a part. I have spent my entire career as an archaeologist working with Indigenous communities. My attitude has changes over the years and I have become more aware of how archaeology can impact the lives of youth from our community. The arbitrary lines that the Western Education System draws over and through our heritage and culture has been a point of frustration for me. Any attempt to divide this past, serves only to weaken what it means to be Indigenous.

Johnathan L. Buffalo (Meskwaki Nation, Historic Preservation Director), D. Suzanne Buffalo (Meskwaki Nation, and Iowa OSA Indian Advisory Council member)
Know Ye that the Foxes are Immortal - Pemousa, Siege at Detroit, 1712

This presentation looks at the past, present and future of Archaeology through a Meskwaki lens. Tribal perspectives will be shared, based on 75 combined years of personal and professional experience. We remember, and we want archaeologists to remember too, the events that it took for us all to be able to be here together today ... events that can continue to motivate and strengthen our dialogue as we look toward the future.

Luke Burds (Minnesota State University, Mankato), Richard Mataitis (Minnesota State University, Mankato), Ronald C. Schirmer (Minnesota State University, Mankato), Phillip H. Larson (Minnesota State University, Mankato), Garry L. Running IV (University of Wisconsin-Eau Claire), Brittany Rickey (University of Wisconsin-Eau Claire), Matthew Mangin (University of Wisconsin-Eau Claire), Eric Drost (University of Wisconsin-Eau Claire)

Geophysical Investigations of the Kiwanis Site, Lower Chippewa River Valley, Wisconsin

Reported here are the preliminary results of geophysical investigations of linear and conical features at the Kiwanis Site. The Kiwanis Site is located in the Lower Chippewa River Valley in Western Wisconsin and was discovered in 2016 during investigations of cliff-top dunes. Ambiguous conical and linear features were hypothesized to be cultural features during these investigations. In 2019, preliminary ground penetrating radar (GPR) surveys were conducted to confirm whether the features were formed through anthropomorphic means and locate areas where future samples could be taken for dating through optically-stimulated luminescence. Using 200 and 500 MHz antennae, over 430m of data were collected and analyzed. Initial GPR results include low-angle reflection facies within the features that do not correspond with the high-angle reflection facies of the surrounding dunes, making initial survey results inconclusive in determining their genesis. Future work will include conducting more GPR and other geophysical surveys at the site.

Luke Burds (Minnesota State University, Mankato), Ronald C. Schirmer (Minnesota State University, Mankato), Richard Mataitis (Minnesota State University, Mankato), Andrew A. Brown (Minnesota State University, Mankato), Donald W. Johnson (Retired), Alec Anton (Minnesota State University, Mankato)

Geophysical Investigations of Redeemer Cemetery, Henderson, Minnesota

Redeemer Lutheran Church, located near Henderson, Minnesota is the longest running Lutheran church in Minnesota. Founded in 1855, the church has maintained a cemetery for over 150 years and hopes to construct a columbarium to house cremains in the future. Empty areas within the cemetery would ideally serve as the location for such a memorial, yet it is unknown if these areas are void of graves. Between May and August of 2019, members of the AGES laboratory from Minnesota State University, Mankato began preliminary, noninvasive geophysical investigations through the use of ground penetrating radar (GPR). Using 200 and 500 MHz antenna, GPR data were collected over four grids. Results deemed it necessary to incorporate additional geophysical methods in the near future. While the investigation of the cemetery at Redeemer Evangelical Lutheran Church is ongoing, initial results prove promising and illustrate the need for a multi-method approach in similar investigations.

Leslie L. Bush (Macrobotanical Analysis)

Tobacco, Bulbs, and Other New Plant Finds from the Dixon Site (13WD8)

Flotation samples from 2016 investigations at the Dixon Site recovered several plant taxa new to the site: four seed types (tobacco, strawberry, elderberry, and caric sedge), bulb scale fragments, and two new types of wood charcoal (hickory and dogwood). The 35 flotation samples represent 70 liters of fill from a dozen features. Plant remains are generally consistent with those from the larger sample acquired during earlier

investigations (972 liters). Some differences between the Dixon Site macrobotanical remains and those from other Oneota sites are clearly ecologically driven. Other differences may have more to do with seasonal scheduling and the integration of agriculture, tending "wild" plants, and the demands of hunting on the western prairies.

Chloe K. Butcher (Allegheny College), David Ruiz Menjivar (University of Florida), Megan Belcher (University of Tennessee Knoxville), Natalie G. Mueller (Washington University)

Paleoethnobotanical Primary Analysis of German Site

German site (11C377) is a Late Woodland Jersey Bluff Phase (ca 800-1200 CE) habitation located on a south-facing colluvial slope in Crawford Creek valley, approximately 2 miles west of the Illinois River. Center for American Archeology field schools conducted geophysical surveys and excavation at the site during the 2019 field season. Excavated features at the site included several refuse pits and a house basin. The paleobotanical assemblage recovered from German site provides an insight into the variety of crops, nuts, and seeds utilized in the Lower Illinois River Valley during the Jersey Bluff phase. In this poster we present preliminary results of our paleobotnical analysis of German Site. Within the collection found at German site were numerous native crops including: domesticated sumpweed (Iva annua var. macrocarpa), little barley (Hordeum pusillum), and goosefoot (Chenopodium sp.). Additionally, maize kernels and cupules found in the house basin, one kernel dated to CE1117-1206 cal.

Christopher Carr (Arizona State University)

Scioto Hopewell Souls and Intercommunity Alliance-Making: Three World-View Metaphors that Scioto Hopewell Peoples Lived

Hopewellian communities in the Scioto-Paint Creek area established alliances among themselves in part by interring their dead together within single charnel houses in multiple instances,

by intermixing the cremation ashes of their dead within a single depository, and by placing, burning, and fusing together within single depositories on multiple occasions their ceremonial paraphernalia from jointly performed rituals. These practices, along with close ethnohistorical analogs, point to the operation of three basic world view principles—metaphors for the idea of interpersonal cooperation—that were harnessed to build intercommunity alliances: spatially associating souls, blending souls, and the equation of the domicile with a large ceremonial building, mound, and ceremonial center as expressions of the extension of family-like ties and ethics of cooperation to the scales of the community, multiple communities, and the cosmos. Insights are drawn from mortuary and nonmortuary ceremonies of the historic Huron, Cherokee, and Munsee-Delaware and other Woodland tribes.

Angela R. Collins (University of Iowa Office of the State Archaeologist)

Aerial Thermography at Two Historic Sites in Iowa

Aerial thermography, obtained utilizing a small uncrewed aircraft system (sUAS; a.k.a. drone), is a useful addition to an archaeologist's toolkit as a means to prospect for buried features and deposits. As a non-destructive technology it could be employed in culturally sensitive areas as well as provide another layer of information to inform and expand upon interpretations from standard archaeological survey methodology. Mounting the thermal camera on a drone further expands project coverage possibilities. At Lime City, a turn-of-the-twentieth century abandoned town in eastern Iowa, thermography was able to detect and discern below-ground disturbances as well as buried areas with potential for archaeological preservation. Combined with systematic archaeological survey and subsurface testing, thermographic interpretations strengthened recommendations for further archaeological work at two historic archaeological sites as well as indicated disturbance in areas impractical for archaeological testing.

Della Collins Cook (Indiana University)
Late Woodland "Battle" at Koster Mounds? Evidence from Paleopathology
In his report on excavation of the Koster Mound Group, Greene County, Illinois, Gregory Perino suggested that two groups of burials laid out on the original ground surface and covered with mound fill were the victims of battles. His evidence was missing parts in otherwise intact primary burials and the large numbers buried at once. Perimortem injury, cut marks, and rodent damage are negligible, but age-sex distribution may support his idea. One young woman had a hip pathology that would have compromised mobility.

John L. Creese (North Dakota State University), Marvin Defoe (Red Cliff Tribal Historic Preservation Office), Heather Walder (University of Wisconsin-LaCrosse)
Connecting People, Past and Present: Collaborative Archaeology in Red Cliff, WI (Part 2)
Working collaboratively, participants of the Gete Anishinaabeg Izhichigewin [Ancient Anishinaabeg Lifeways] Community Archaeology Project (GAICAP) have recovered substantial evidence for repeated, likely seasonal, occupations of a Nipissing Stage shoreline by ancestral Indigenous peoples over several millennia from Middle Archaic through Late Woodland periods. Evidence includes post molds, possible hot-rock cooking or thermal features, and a complex midden deposit. Distinctive aspects of the site – such as a lithic industry based on the reduction of locally available quartz cobbles – link its inhabitants with those of other nearshore sites in the Apostle Islands and wider western Lake Superior region, while rare lithic materials speak of more distant social and economic connections in the midcontinent. Crucially, the material remains of ancestral Indigenous lifeways at Frog Bay do not simply provide scientific information about the past; they embody powerful human connections to place and identity for Red Cliff tribal members.

Linda Scott Cummings (PaleoResearch Institute), R. A. Varney (PaleoResearch Institute)

Examining the Minnesota State Radiocarbon Database: Why this was Valuable

From wide ranging dates on Brainerd ware to bone collagen and burned bone age offsets, ancient carbon plagues the Minnesota radiocarbon dataset. This presentation updates our research into dates on charred food crust and introduces our efforts to understand dates on bones. We delve into cooking chemistry, examining the question of compounds in charred food crust and our ability or inability to chemically separate them. Dates on bone collagen and burned bone appear similar, but when compared with dates on calcined bones from the same level, we observed an offset, with the calcined bones often yielding more recent dates. We review a series of bone collagen, burned bone, and calcined bone dates from LaMoille that illustrate the problem. Finally, the we review the radiocarbon ages for 66 samples from the Wilford Site, creating a chronology that stretches from 668 ± 21 RCYBP to 115 ± 15 RCYBP.

Carly DeSanto (Department of Anthropology and Geography, Colorado State University), Edward R. Henry (Center for Research in Archaeogeophysics & Geoarchaeology (CRAG), Colorado State University)

Peter Village and the Production of Space: New Research at an Unusual Enclosure in Central Kentucky

Peter Village (15Fa166) is a large irregularly shaped earthen enclosure that has intrigued antiquarians and modern archaeologists since the 1800s. Most recent interpretations of the site have suggested it represents a diverse range of late-Early and early-Middle Woodland activities. Historically, this enclosure has been viewed as different from smaller Adena or Hopewell geometric enclosures because of its shape and arrangement of the ditch to the embankment. Recent archaeological investigations at Peter Village have included LiDAR visualizations, geophysical survey, and soil coring. These datasets allow us to revisit the monument's construction

and organization. Doing so provides an opportunity to reconsider the production of space among early complex societies in the Middle Ohio Valley.

Marvin Defoe (Red Cliff Tribal Historic Preservation Office)
A Perspective from Red Cliff
A perspective on archaeological practice with regard to Native peoples will be offered based on traditional knowledge and ceremonial ways.

Brennan J Dolan (Iowa DOT)
Transportation Solutions for Archaeological Sites Affected by Erosion
How can we design our transportation projects to help provide long-term sustainability to archaeological sites and other cultural resources, while protecting transportation infrastructure? Over the decades Iowa DOT has been forced to find cultural resource related solutions to problems caused by increased flood events. Some of these events have increased in duration, some have increased in frequency and some have increased in magnitude. In the context of erosion control historically we looked to a variety of structure types like bend way wiers, rock point levees, jetties, and slope/bank armoring. This poster reviews three case studies and argues for slope/bank armoring as a preferred approach to long-term sustainability of archaeological sites and other cultural resources. These projects highlight our decision to select bank armoring as a means of providing the most stable solution to places that are often highly susceptible to damage.

Brennan J Dolan (Iowa DOT)
Project Consultation and Preservation at the Dixon Site (13WD8)
In late 2015 it became clear that erosional effects on the Little Sioux River severely threatened the Dixon site and Iowa Highway 31. This presentation reviews how the project developed and illustrates how consultation for the project

involved numerous stakeholders from 2015 thought today. This talk also provides a context for which the research was completed and helps describe some of the decision making that lead to the data recovery effort. Further, this presentation covers preservation efforts at the site and describes how consulting parties worked to creatively mitigate the effects of the project. This presentation briefly visits some of the decade's old discussion about bank stabilization that did not take place at the site before 2017, and reviews some of the lessons learned. This talk emphasizes collaboration amongst archeologists, tribal members, agency officials, and engineers who worked to stabilize the site and the highway.

Zoe Doubles (University of Louisville), Alana Surowiec (Center for American Archeology), Tania Milosavlievic (University of Wisconsion-Milwaukee), Anna Lockhart (Vassar College), Jason L. King (Center for American Archeology), Jane E. Buikstra (Arizona State University)
Habitation and Interaction at the German Site (11C377)
The German site (11C377) is a Late Woodland habitation site (ca 800-1200 cal CE) located at the McCully Heritage Project on a colluvial slope north of Crawford Creek, approximately 2 miles west of the Illinois River. During the 2019 field season, Center for American Archeology field schools conducted geophysical survey and excavation at the site. Magnetic survey results suggest multiple structures and associated features at the site. CAA field school students partially excavated one house basin and several associated features containing Late Bluff/Jersey Bluff pottery and associated residential debris. In this paper, we report this summer's fieldwork and discuss preliminary results, placing the site in the context of other regional Late Woodland occupation sites.

Patrick Druggan (Pennsylvania State University)
Making Sense of Ohio's State Historic Preservation Office's Data with Maximum Entropy Modeling

State Historic Preservation Office (SHPO) site files are a potentially valuable yet often underutilized resource for archaeological research. One concern limiting their application is the issue of sampling, as opportunistically surveyed and excavated sites may skew spatial patterns to reflect modern development rather than prehistoric behavior. This poster presents a preliminary analysis of Ohio Archaeological Inventory (OAI) forms using maximum entropy modeling, a species distribution modeling approach which constructs species niches from environmental data and species occurrence records. In archaeology, site records allow the reconstruction of cultural niches and the exploration of human-environmental interactions. Because it is explicitly designed to be used for presence-only occurrence records, maximum entropy is well-suited for handling SHPO data which may lack confident absence data, minimizing the influence of sampling bias.

Danielle Duguid (University at Albany, SUNY)
Using Elevation and the Floodplain to Analyze the Settlement and Abandonment of Sites in the Lower Illinois River Valley
Humans living in the Lower Illinois River Valley have always had their lives impacted by the waterways that cut through the valley. By examining the settlement patterns of different populations through time, we can view a glimpse of their relationship with these bodies of water. Utilizing Location data in relation to the Lower Illinois River, I have analyzed changing patterns of occupation and continuity of sites. This was accomplished by using the site elevation, occupation and abandonment, and number of sites in the floodplain for each period to identify changing patterns through time. Results show how groups were moving in relation to altitude and the floodplain, including evidence that pre-Columbian occupation periods consistently abandon sites of higher elevations and continue to live at lower levels, while in post-contact occupation periods this trend reverses.

Sean Dunham (Chippewa National Forest)

"If it's a Good Place to Camp…"
We've all heard the adage that "if it's a good place to camp today, then someone probably camped there before." Recreation planners have examined the kinds of places people select for camping and archaeologists have researched the ecological settings of archaeological sites. As land managers, we have location information for archaeological sites as well as for camping sites. These disparate, yet parallel, lines of inquiry may provide a mechanism to reframe this perception into a working hypothesis. This poster will compare the distribution of camping sites and archaeological sites on the Chippewa National Forest as part of an effort to determine whether the places that people use to camp today were also used by people in the past.

Sean Dunham (Chippewa National Forest)
Pits as Place: an Exploration of the Socio-Cultural Significance of Cache Pits
Cache pits are located on the landscape in such a way that they are accessible, but unlikely to be happened upon by an outsider. As such, these features are part of the web of relationships between people and places. The construction of such pits and storage of things in them links the lives of the users to a place on the landscape. Archaeological investigations of cache pits have shown that plant remains gathered in different seasons and from different ecological settings are stored in such features which demonstrates they may have served as anchor points on the landscape. This, in turn, may imbue cache pits with cultural significance, sensu social memory, beyond purely technological and subsistence processes. The goal of this presentation is to resituate cache pits into a more dynamic socio-ecological landscape and explore the potentialities of the socio-cultural role of these features in the Upper Midwest.

Richard E. Edwards IV (Commonwealth Historical Group, Inc.), Robert Jeske (University of Wisconsin-Milwaukee)
Dog-Human Relationships in the Late Prehistoric Northern Prairie Peninsula

The adage, “The dog is man’s best friend” may be true enough today, but our modern conceptions of dogs often color our perceptions of the animal in prehistory. Dogs are regularly credited as having a unique relationship with humans, but that relationship was varied, complicated, and must be examined on a case-by-case basis. Using ethnohistoric examples, archaeological contexts, biological markers, and bone chemistry, we explore the nature of the human-dog relationship. Specifically, we examine the potential roles of dogs as workers, food sources, companions and cosmological mediators in the Late Prehistoric of Wisconsin and Northern Illinois. The utility of dog remains for understanding past human behaviors is also explored.

Thomas E. Emerson (Illinois State Archaeological Survey, University of Illinois), Kristin M. Hedman (Illinois State Archaeological Survey, University of Illinois), Kjersti E. Emerson (Illinois State Archaeological Survey, University of Illinois)

Disentangling the Late Pre-Contact Native History of Northern Illinois: Ongoing Research in the Legacy Collections of the Fisher Mound and Village Site, Will County, Illinois.

During the 1920s George Langford, an early avocational archaeologist, conducted extensive excavations in one of the best preserved and most important Upper Mississippian sites in the midcontinent. The Fisher site contained the unplowed remains of at least fifty house depressions and twelve mounds associated with what we now identify as the Langford and Fisher phases on the bluffs of the Des Plaines River. He donated his extensive notes and well-documented collections to the University of Chicago in 1930. Unfortunately, they dispersed the collection in the early 1960s. Since 1995 the authors have been seeking to reassemble this important data set and to prepare a comprehensive analysis and report on his research. Our preliminary analyses have provided extensive bioarchaeological information on Upper Mississippian diet and movement, detailed data on Langford and Fisher material

cultures, and insights into ethnic interactions that suggests a social and political environment dominated by violence.

Patricia Emerson (Minnesota Historical Society), Bruce Koenen (Office of the Minnesota State Archaeologist), Scott Anfinson (Minnesota State Archaeologist, Retired)
Minnesota's Statewide Survey: the Next 15 Years
The funding source for the Minnesota Survey of Historical and Archaeological Sites, the Minnesota's Legacy Amendment, has a required sunset after 25 years. The first 10 years of the survey have been successful in surveying poorly known areas, better defining poorly known historic contexts, and examining important property and artifact types. Significant additional funding has been obtained for the 2020-21 biennium, but no formal survey strategy has yet been defined beyond the strategy utilized for the past 10 years. This paper will examine possible new emphases and projects worthy of undertaking if there is 15-year extension of the statewide survey.

Timothy D. Everhart (University of Michigan)
The Scioto Situation and the Steel Group Monument Assemblage
Scholars have offered various approaches to create a synthetic view of the Middle Woodland period that integrate the geographically expansive and heterogenous material remains. Situation theory offers a fresh analytical approach to the multiplicity of Middle Woodland ceremonialisms, allowing us to conceive of how people and communities across the Midcontinent got caught up in shared conditions. The Middle Woodland situation occurring within the central Scioto Valley of southern Ohio is perhaps most famous with its many large earthen monuments and ornate material symbols. I will analyze this Scioto situation, with a particular focus on its monumentality, from the view of the Steel Group – an earthwork site with at least 13 earthen enclosures. Through an analysis of the Steel Group as a monument assemblage, I offer an approach to monumentality that grounds interpretations of

the physical nature of monuments within the complicated web of historical connections from which they emerged.

Anthony P. Farace (University College London)
Technological Choice in Pottery Production at Wickliffe Mounds, Kentucky
Very few studies have documented the steps of pottery production within the Mississippian Midwest. The following project describes the chaîne opératoire of ceramic production at Wickliffe Mounds, Kentucky using both visual and quantitative thin section petrography. The analysis focuses on the interpretation of raw material acquisition, the processing of raw materials, the preparation of pastes, vessel formation, finishing and decorating, and firing conditions. The project also yields information on the similarity of methods used across the Midwest and Southeast and helps with the determination of local and non-local vessels through the petrographic identification of fabric groups.

Nurit Goldman Finn (Wapsi Valley Archaeology)
Toby Morrow's Legacy: Stone Tools of Minnesota
Wapsi Valley Archaeology was awarded the opportunity to prepare a handbook on Minnesota's stone tools in 2015, funded by Minnesota's Legacy Program. Spearheaded by Toby Morrow, the project involved delving into the depths of Minnesota's repositories and collections to view and photograph thousands of artifacts. Propelled by Morrow's knowledge as a lithic analyst and expert flintknapper, the book evolved into an expression of Morrow's philosophies on lithics, archaeology, and life. This paper will summarize the preparation and assembling of the book, will showcase some of the artifacts examined, and will muse on future directions for lithic analysis in Minnesota and beyond.

Edward Fleming (Science Museum of Minnesota), Jasmine Koncur (Science Museum of Minnesota)

Examining Village Space in the Spring Creek Valley: Organizing Spatial Data from the Burnside School Site

The Burnside School site, a 14th century Oneota village located in the Spring Creek valley near Red Wing, Minnesota, was the focus of several data collection projects by the Institute for Minnesota Archaeology during the 1990s. From controlled surface collections and geophysical methods, to shovel test surveys and formal excavation, multiple methods were brought to bear on exploring the site with limited degrees of impact. In 2018, the Science Museum of Minnesota received a Legacy grant to process the surface and shovel test collections from this work, and collate the multiple sources of spatial data from the Burnside School site to examine the village extent and intra-site patterning of artifacts and features.

Edward Fleming (Science Museum of Minnesota)

Expanding the View of the Sheffield Site on the St. Croix: Investigations by the Science Museum of Minnesota

One of Guy Gibbon's early publications of a Minnesota site was a study of a collection from the Sheffield Site, an Oneota site on the St. Croix River excavated by Lloyd Wilford in the 1950s. The site has long been recognized as a small isolated village or campsite on the northern fringe of the Oneota range. Aside from a few isolated sherds, the Sheffield site is the only known open-air Oneota site along the St. Croix. Following Wilford's initial work, SMM investigated the site on two occasions, first in 1959/1960 – a largely forgotten collection left unprocessed. In 2013, I initiated a new research program designed to expand our understanding of the chronological and functional contexts of the Sheffield site and the Saint Croix Valley during Late Precontact times. The Sheffield site project began with assessing the 1959/1960 collection, and followed with new field research and specialist analyses that continue.

Edward Fleming (Science Museum of Minnesota), Jasmine Koncur (Science Museum of Minnesota), Joshua Anderson (Science Museum of Minnesota)

Archaeological Surveys of Dakota and Wadena Counties, Minnesota

Over the last two years, the Science Museum of Minnesota conducted surveys of two counties as part of the Minnesota Statewide Archaeological Survey. Wadena County, located in north-central Minnesota, is a rural county with a low population density and has seen little demand for prior archaeological survey. Because of this, only 32 sites were documented prior to our survey. Our work here focused on major waterways and lakes, resulting in 36 new sites ranging from Paleoindian to Late Precontact. Conversely, Dakota county lies within the Twin Cities area with a large urban population in the northern half. Prior to our survey 106 sites had been documented – most along the highly managed Minnesota and Mississippi rivers. Our objective was to examine the streams and lakes of the rural southern half where little survey had been done. This survey added 32 new sites from Early Archaic to Late Woodland.

Lance M. Foster (Iowa Tribe of Kansas and Nebraska)

The Ioway Indians in Minnesota

The Ioway (or Iowa) nation had a long period of residence in Minnesota, with locations as far north as the Twin Cities and along the Minnesota River, all the way west to Pipestone and the Coteau des Prairies, up until about 1700 or so. With colonization and the wars to the east over furs, a domino effect pushed the Ioway out of ancestral lands in Minnesota by about 1700-1720. This happened just before Euroamerican settlement, so that the Ioway are not often thought of as a Minnesota tribe. This paper takes a look at some of what has been learned about the Ioway's time in Minnesota and continued connections as a result of ongoing mutual interests of the THPO of the Iowa Tribe of Kansas and Nebraska, other tribal nations, archaeologists, and agency compliance consultations.

Christina Friberg (Indiana University Bloomington), David Massey (Indiana University Bloomington), Quinn Lewis

(Indiana University Bloomington), Edward Herrmann (Indiana University Bloomington)

Pump Up The Volume: Aerial and Drone Based LiDAR Point Cloud Comparisons at Angel Mounds (12VG1)

Increased accessibility to drone-mounted remote sensing technologies has provided archaeologists with unprecedented control over the frequency and spatial resolution of data collection. This trend toward "personal" remote sensing enables the use of non-invasive and cost-effective survey methods in challenging landscapes, and it provides more precise and accurate measurements than traditional aerial methods. In this paper, we demonstrate the practicality of drone-mounted sensors for three-dimensional modeling of earthworks at the Angel Mounds State Historic Site in Vanderberg County, Indiana. We calculate the volume of Mound A using models based on drone-and aircraft-fixed Light Detection and Ranging (LiDAR) and compare the results to assess each strategy's viability in the field. These findings are extrapolated to assess labor investments for the mound's construction and implications for the degree of sociopolitical complexity among Angel's earliest inhabitants. Finally, we discuss the application of these methods for informing site management and preservation efforts.

Elspeth Geiger (University of Michigan), Eloise Janssen (University of Michigan)

2019 Investigations at the Cloudman site (20CH6): New Opportunities for Dating

During the summer of 2019, a University of Michigan team conducted new excavations at the Cloudman site on Drummond Island. This multicomponent site in Northern Michigan has been recognized as an important piece in understanding the "Contact Period" in Michigan. However, the occupation history has been recently reevaluated, and research has revealed a complicated use of the site. This poster presents an overview of the fieldwork completed during the most recent field season. It will showcase the preliminary finds and examples of analysis

to come. In particular, there are new opportunities to conduct bayesian radiocarbon modeling.

Bretton T. Giles (Kansas State University), Brian M. Rowe (University of Memphis), Ryan M. Parish (University of Memphis)
A Situational Perspective on Hopewell Mound 2
We unpack the situations or "nontotalizable" assemblages that resulted in Hopewell Mound 2 and its caches of blue-gray disk cores. Our analysis emerges from a comparison of Hopewell Mound 2 and other Middle Woodland contexts, such as similar caches of disk cores in Ohio, Indiana and Illinois. Moreover, a preliminary assessment of reflectance spectroscopy data for a sample of disk cores from Hopewell Mound 2 provides sourcing information, which has ramifications for the production and accumulation of the cache. We also work to unpack the importance of the two surfaces/caches found at the base of the mound, which probably indicate the ritual renewal of this precinct. Additionally, we explore a situational perspective on the burials, grave goods, mortuary furniture and features, including how they exemplify scalar differences in various ritual practices and their associations.

William Green (University of Iowa and Beloit College), George R. Holley (Minnesota State University Moorhead), James B. Stoltman (University of Wisconsin-Madison), Joseph A. Tiffany (University of Iowa), and Cynthia Strong (Cornell College)
Caddo or Cahokian? Stylistic and Compositional Analysis of a Fine-Engraved Vessel from Northwest Iowa
A ceramic vessel found at a Mill Creek (Initial Middle Missouri) site in northwest Iowa exhibits features characteristic of both Holly Fine Engraved (a Southern Caddo type) and the fine engraved type of the Fine Grog series from the American Bottom. Knowing its likely manufacturing locale is important in understanding connections between Middle Missouri, Mississippian, and Caddo groups. Previous study could not

determine whether the vessel was made in the Caddo area or the Cahokia region. This investigation employs stylistic analysis and three forms of compositional analysis—petrographic, X-ray fluorescence, and neutron activation—to learn how and possibly where the vessel was made. We determine that it was neither made locally nor in the Caddo area and that it may have been made in the Cahokia region by a potter versed in the Caddo ceramic vocabulary. This conclusion may apply to similar vessels found in the American Bottom.

Amanda Gronhovd (Minnesota Office of the State Archaeologist), Melissa Cerda (Minnesota Indian Affairs Council)

Above and Beyond: Collaboration between the Office of the State Archaeologist and Minnesota Indian Affairs Council

Over the last three-and-a-half years, the Minnesota Office of the State Archaeologist (OSA) and Indian Affairs Council (MIAC) have been working closely to protect the state's cultural resources and cemetery sites. This paper will discuss the legal framework within which the OSA and MIAC operate, and how our agencies go beyond these mandates. To illustrate this collaboration, we will provide specific examples to illustrate this teamwork.

Claire L. Hankla (Smith College), Jacob Lulewicz (Washington University in St. Louis), Jason L. King (Center for American Archeology)

Using Magnetometry to Identify Late Woodland Pit and House Features

The German site (11C377) is a Late Woodland (ca 800-1200 CE) habitation site located on a colluvial slope north of Crawford Creek in Calhoun, County, IL. Center for American Archeology field schools conducted geophysical survey and excavation during the summer of 2019. Excavation units targeting magnetic anomalies revealed several pit features and a house basin. Magnetic gradiometric data from unexcavated portions of the site were analyzed referencing excavation data

to predict other structures and features. Excavated features were geo-referenced and compared to magnetic anomalies in QGIS. Magnetic data of corresponding features were analyzed based on magnetism, size, and shape factors. This supports the characterization of German as a Jersey Bluff habitation site and provides methods of mapping site organization and feature identification. Increased understanding of geophysical survey data contributes to a field-wide turn toward minimally invasive archaeological method and allows future excavators to determine relevant positions for future excavation units.

Adrien Hannus (Augustana University), Austin Bhuta (Augustana University)

Archaeological Investigations All Over the Place: Some Observations from Nearly a Decade of Minnesota Statewide Survey Initiatives

During the last decade, the Archeology Laboratory, Augustana University, Sioux Falls, South Dakota has undertaken countywide investigations in Lac Qui Parle, Red Lake, and Watonwan counties as part of the Statewide Survey of Historical and Archaeological Sites. Pedestrian survey in these three counties culminated in the investigation of over 13,000 acres and the documentation of 86 previously unidentified archeological sites. Augustana has also participated in four thematic context studies related to Minnesota prehistory as part of the Statewide Survey during this time. Though largely preliminary in nature, archeological, paleoenvironmental, and geomorphological data generated by these studies collectively offer insights into perceived precontact landscape utilization as human groups responded to changing environmental parameters.

Megan Harding (University of Wisconsin-Milwaukee)

Oneota Lithic Economy at the Schmeling Site (47JE833) in Southeastern Wisconsin

The homogeneity of Oneota lithic assemblages have often provided a challenge for archaeologists in extrapolating

broader conclusions about Oneota tool economies beyond their preference for speed and efficiency. Using standardized methods, lithic materials recovered from the 2006 and 2008 excavations at the Schmeling Site (47JE833) have been examined with the goal of producing data that can be easily compared to other archaeological sites. In this paper, these results have been compared to data from the Crescent Bay Hunt Club site (47JE904) in order to examine procurement, manufacturing strategies and assemblage diversity across Oneota sites in south central Wisconsin.

Katherine Hayes (University of Minnesota), Tom Trow (University of Minnesota, Retired)
Guy Gibbon's Legacy at the University of Minnesota
In this paper we offer a snapshot of Guy Gibbon's rich legacy at the University of Minnesota. Professor Gibbon's service in the Department of Anthropology and the College of Liberal Arts is extensive, and his impact as a teacher, administrator, and scholar was significant, although not as well-known as his research and writing. During his career as a professor for nearly 40 years he introduced many hundreds of undergraduate and graduate students to archaeology through courses in the methods and theory of Archaeology. He mentored numerous graduate students in three distinct graduate programs. He was a faculty member, a Director of the Center for Ancient Studies, and he created the Interdisciplinary Archaeological Studies Program. Professor Gibbon's highest commitment within the university was to grow the field of Minnesota archaeology.

Dale R. Henning (Research Associate, Illinois State Museum)
A Re-analysis of Correctionville Oneota Prehistory
Over six decades ago I blundered into the complexities of northwest Iowa Oneota archaeology through analysis of materials from a site near Correctionville, Iowa. The results of these analyses (1961) were followed (1970) with a discussion of Correctionville's placement in the Oneota pantheon. The

materials from these three sites have been reanalyzed, resulting in significant changes in my thinking. In this presentation, the current temporal, cultural and spatial parameters of the Correctionville sites are discussed and the rationale for updated interpretations are offered.

Edward R. Henry (Department of Anthropology and Geography, Colorado State University), G. Logan Miller (Department of Sociology and Anthropology, Illinois State University)

Assembling People, Earth, and Things: Understanding Middle Woodland Ceremonial Situations in the Midcontinent

Elaborate mounds and enclosures on the landscape, exotic material exchange and long-distance interaction, the organization of cooperative labor events and other ritual activities—these Middle Woodland characteristics provide evidence for social institutions that helped coordinate the gathering of large communal social groups on the ancient midcontinent. However, the heterogeneity documented in these institutions suggest there were diverse material, historical, and social forces influencing communal gatherings. In this presentation we introduce the 2019 MAC sponsored symposium and propose new ways to frame the scalar and temporal diversity of Middle Woodland ceremonialism. We introduce theoretical notions of Situations and Assemblages to conceptualize how temporally and geographically disconnected Middle Woodland gatherings can share and reinforce similar conditions of being-in-the-world. By focusing on the material evidence for situations where people, earth, and things converged, we hope to elucidate how Middle Woodland activities shaped the ceremonial landscape of the midcontinent.

Edward R. Henry (Department of Anthropology and Geography, Colorado State University), Andrew M. Mickelson (Department of Earth Sciences, University of

Memphis), Michael Mickelson (Department of Physics and Astronomy, Denison University)
Documenting Ceremonial Situations and Institutional Change at Middle Woodland Geometric Enclosures in Central Kentucky
The construction of small geometric earthen enclosures marked a difference in how the Middle Woodland landscape was monumentalized in Central Kentucky. However, understanding the social changes reflected in the spread of Middle Woodland enclosures across the mid-continent is challenging. Current archaeological interpretations of enclosures across the Eastern Woodlands emphasize their role in society as gathering locales for large kin-based coalitions, material evidence for cooperative labor, and representative of pan-regional ritual practices and cosmological beliefs. Recent research at multiple enclosures across Central Kentucky shows that the majority of situations under which these monuments were constructed correlate with astronomical phenomena. However, the shape and construction of individual enclosures exhibit clear diversity in how they were constructed. In this presentation we will introduce new data that helps explore the situations under which social groups built and used enclosures. We suggest the geographic spread of enclosures reflects pan-regional institutions adopted by local communities.

Noel Hincha (Marquette University)
Talking Trash: Public Health in 19th and 20th Century Bronzeville (Site 11CK1235)
Urbanization in the United States boomed during the 19th century, with cities like Chicago becoming desirable spaces for socioeconomic opportunity; however, urban neighborhoods also increasingly experienced significant health challenges due to a dissonance between policy and practice. Through a preliminary analysis of archaeological materials—trash deposits from a Bronzeville, residential backyard—supplemented with historical archives, I investigate the relationship between: the domestic reality of urban residents living in Chicago's Bronzeville neighborhood, the successes and failures of municipal strategies

of garbage management in Chicago, and the popular culture movements sweeping through the nation from 1839 to 1990. The research suggests that residents constructed everyday garbage disposal practices as both a reflection of materialist ideologies and a buffer against insufficient public health initiatives throughout the 19th and 20th centuries.

Brian Hoffman (Hamline University), Thomas Sanders (Red Rock Ridge Research Group), Bob Larsen (Red Rock Ridge Research Group), Joe Williams (Red Rock Ridge Research Group), Forest Seaberg-Wood (Hamline University), Charles Broste (Minnesota Historical Society), and David Tennessen (Hamline University)
Archaeology on the Red Rock Ridge - 2011-2019 Field Seasons
The Red Rock Ridge is an outcrop of Sioux Quartzite that stretches some 20 miles across the prairies and farmlands of southwestern Minnesota. The Red Rock Ridge Research Group involves a team of archaeologists, historians, naturalists, and American Indian elders working to understand the cultural and natural history of this unique landscape. In our nine field seasons we have surveyed 1150 acres, investigated 28 sites, and analyzed over 1700 artifacts. Through this work we have documented a diverse range of archaeology sites from ancient stone quarries to astronomical observatories. I will discuss how our collaborative work has transformed our understanding of the history of the Red Rock Ridge.

George R. Holley (Minnesota State University Moorhead
The Oneota Fringe in the Northwest: Creolization, Hybridization, or Just Oneota?
From the perspective of the Northwest, Oneota as defined by an occupation with strictly Oneota ceramics exists as an early intrusion along the ribbon of the Minnesota River, exemplified by the occupation at Fort Ridgely. This intrusion never flourished as elsewhere such as Blue Earth or Red Wing. We have no examples of localities featuring intensive or long-term Oneota-only occupations. Yet, Oneota influence is widespread

comprising bona-fide Oneota pots, inspired copies in grit or shell temper, and an established fluorescence that is coeval with the shell-tempered cordmarked Sandy Lake ceramics, known as Ogechie. Complicating the assessment of Oneota impacts is an incised tradition in the Northeastern Plains, which merges the curvilinear of Cambria with the rectilinear of Oneota and the use of incised designs on cordmarked jars, known as Sandy-ota. The resolution of Oneota in the Northwest requires the tandem resolution of the Sandy Lake phenomenon.

George R. Holley (Minnesota State University Moorhead), Edward Fleming (Science Museum of Minnesota)
A New and Improved Precontact Ceramic Handbook for Minnesota
Publication of the 1979 Handbook of Minnesota Prehistoric Ceramics was a watershed moment in Minnesota archaeology. By forcing archaeologists to characterize ceramic variability in Minnesota, it resulted in a systematic attempt to grapple with diversity in the prehistoric record. Forty years later, there is a call for a revision. This new version will offer a history and critique of ceramic analysis practiced in Minnesota, a review of types, and descriptions of ware groupings and new types. We provide two examples of the promise of this revision incorporating recent radiocarbon dating of pottery residues and re-analysis of Fox Lake ceramics. We detail two newly identified phases (Fox Lake and Temperance Lake) and ceramic types for this Initial Woodland period in southwestern Minnesota. We also present a new type for the Late Prehistoric, Cass Incised that further reveals the benefits that await completion of an updated ceramic handbook for Minnesota.

George Horton (Iowa Archeological Society, Independent Scholar)
Bears, Buffalos, Lady Falling from the Sky-Oh My!
This presentation is a narrative that combines the 1881-1885 Mound Explorations of the Bureau of Ethnology by Cyrus Thomas, the 1992 Lakota Star Knowledge by Ronald Goodman

and stories from Native American friends and neighbors. Goodman, with the help of Lakota elders and other researchers developed a mirroring concept, what is below on earth is above in the sky. Combining this previous research with specific learning from Meskwaki storytellers, might help decode some Midwest earthwork patterns. Horton has learned from the Meskwaki (their spelling), his Iowa neighbors, for over 50 years.

George Horton (Independent Scholar, Iowa Archeological Society)

The Beaded Belt Story: a Fox Nation Timeline

The stylized panels on this Meskwaki beaded belt are visualizations of a spoken language, read from right to left, that utilizes familiar patterns from ancestor history through WWII. The stories on the belt were traditionally recounted by the tribal historian in order to teach and enable cultural survival. Starting on the right side, the first panel represents the beginning or creation of earth. Some panels represent Meskwaki travels through ancestral lands with familiar mound patterns. Some patterns, as interpreted by Mary A. Owen in Folk-Lore of the Musquakie Indians of North America (1904), are recognized as Earth Mother, Brothers, and Earth Diver stories. The panels are believed to depict not only Meskwaki creation, ancestor history, and travels, but reunions with the Sac, forced Indian removal, citizenship, and a 1925 eclipse as well.

Amber C. Javers (Burns & McDonnell Engineering Company)

Creative Approaches for Site Avoidance in the Center Creek Archaeological District

A segment of ITC Midwest's Minnesota – Iowa 345 kV Transmission Project in southern Minnesota was designed through the Center Creek Archaeological District. The District is a concentration of Blue Earth Phase Oneota sites near the confluence of Center Creek and the Blue Earth River dating from around AD 1100 to 1300. Burns & McDonnell conducted

archaeological compliance surveys for the project, sections of which were designed directly over and through some of the sites in the District. As a result, Burns & McDonnell worked with a variety of consulting parties to develop innovative avoidance measures so the project would not adversely affect sites within the District. The process included survey that identified several sites and located previously recorded sites, geophysical testing to identify features, and working with government agencies, tribes, ITC Midwest, and the construction crew to develop access routes and transmission structure placement that avoided potential intact features.

Elizabeth K. Johnson (Associate Dean, Southern New Hampshire University)
Experiential Learning – Taking the Archaeological Experience Online
In 2018, the Southern New Hampshire University (SNHU) Social Sciences team began exploring the possibility of creating an experiential learning course in archaeology under the SNHU-290 Experiential Learning course umbrella. Due to the unique parameters of the course, the field of archaeology and the online delivery method, we have met significant challenges in the design process. However, in September of 2019, Social Sciences began a collaboration with Inkwell Interactive Studios, a game art development studio on the SNHU campus in Manchester, NH. As a result, the course has begun to take shape with promising new directions, which will be shared in this presentation.

Craig M. Johnson (PaleoCultural Research Group)
Central Place Foraging and Exchange in the Western Division of the Initial Middle Missouri
Plains Village communities of the western division of the Initial Middle Missouri variant were occupied from A.D. 1000-1300. Research has documented the presence of marine shell artifacts from the East, West, and Gulf coasts in these communities. While their participation in the Mississippian exchange system

has been established, another aspect of this western trade network has been virtually ignored by archaeologists: the movement of massive amounts of Knife River flint from west-central North Dakota down the Missouri River into central and southeastern South Dakota. While debitage/tool ratios, debitage size, amount of cortex, and end scraper length all decrease downriver, the number of dorsal flake scars on debris and retouched/utilized flakes increase. This conforms to predictions made by the field processing model, a derivative of central place foraging theory and behavioral ecology.

Harry M Jol (Department of Geography and Anthropology, University of Wisconsin-Eau Claire), Garry L. Running IV (Department of Geography and Anthropology, University of Wisconsin-Eau Claire)
When is a Mound a Mound?: a Geoarchaeological Perspective
The West Prairie Mound Group (WPMG) is a cluster of thirteen low, conical, earthen mounds located on the Fort McCoy Army Reserve facility in west-central Wisconsin. Since the 1860s the mounds have been interpreted as PreColumbian Native American burial mounds and as such are protected by U.S. Federal antiquities laws. The purpose of the paper is to demonstrate how geoarchaeological principles were used to understand the origin of mound-like features. Landscape mapping was followed by a detailed topographic survey of two representative mounds. To image the subsurface in a non-invasive, non-destructive manner, ground penetrating radar grid surveys were collected. In both mounds, reflection patterns were consistent with aeolian processes and lacked patterns typical of burial disturbance. The results of the study will assist decision makers in applying geoarchaeological strategies in their efforts to resolve complex land-use and resource management issues.

Geoffrey Jones (Archaeo-Physics LLC), Nikki Klarmann (Kansas Historical Society/Michigan State University)
Magnetic Susceptibility Reconnaissance at the Tobias Site

The Tobias site (14RC8) is a Wichita village occupied circa 1400-1700 CE. The Tobias site is nationally known among researchers as likely being the region of Quivira encountered by Coronado's expedition in 1541 CE. In 2019, A magnetic susceptibility reconnaissance survey was conducted at Tobias, followed by excavations and surface collections by the Kansas Archeology Training Program field school. The investigation attempted to answer some basic questions related to community organization and subsistence, with the geophysical survey providing target areas and insights in large-scale patterning. Low-resolution reconnaissance using susceptibility methods has been little used in North American archaeology. Preliminary findings of the field school excavation help provide an assessment of the method, along with previous surface collections and comparison with high resolution geophysical methods

Geoffrey Jones (Archaeo-Physics LLC)

New Views of Sacred Landscapes: Geophysical and Remote Sensing of Earthworks Sites in the Upper Midwest

Mounds and earthworks form some of the most visually obvious and earliest recorded sites in the Upper Midwest. These sites often had a mortuary function, but beyond this their purpose and meaning are ambiguous. Beyond the ethical concerns of using invasive methods in sensitive contexts, the value of conventional archaeological methods is limited by the extensive scale of the sites. Several recent case studies are presented illustrating new insights into these sites and their relationship to the landscape provided by subsurface geophysics and Lidar. Geophysical mapping has revealed culturally patterned landscapes of much larger extent than visible earthworks. Lidar-derived modeling provides new insights on scales ranging from microtopographic expression to regional relationships.

Steven A. Katz (Atwell, LLC), Elizabeth Wilk (EBI Consulting), Lucas Howser (Midwest Archaeological Research Services)

Not Always Rainbows and Unicorns…(A Brief Introduction to Biological Hazards in the Field)
Contrary to the picture presented by elaborate Hollywood productions, field archaeology has been and will always be a relatively dangerous profession. The dangers associated with conducting field reconnaissance are not necessarily what one might expect afterviewing certain big screen epics. That being said, the authors of this poster present certain field situations that pose potential biological hazards. This poster briefly introduces these safety issues as manifested by archaeological fieldwork efforts (This presentation contains sensitive content/ imagery).

Deniz Kaya (University of Notre Dame)
The State of Ritual in Pits: what can the Pits in Neolithic Thrace Tell Us about Ritual Activities in Midwestern Pits?
In 2007 in central and eastern Bulgaria, sites that had previously been considered settlements were re-categorized as pit fields. The identification of a new type of prehistoric site (in addition to village or cemetery) has shaped methodological approaches and problematized what are these sites for. Since 2007, archaeologists have discovered such sites thought most of eastern Europe and western Anatolia. The interpretation of the archaeological site context as well as individual finds, is that these pits and their landscape had a ritual purpose for the early farmers that used them. This paper intends to use some of the conceptualized framing and methodology that has emerged and apply it to Midwestern sites that encounter a plethora of pits in multiple contexts. I will examine some of the similarities and differences in the pits from the two regions. I suggest that an understanding what to look for in a ritual during excavations

Bryan Kendall (University of Iowa Office of the State Archaeologist)
Dixon Site and Setting
Recent work at Dixon (2016-2017) has provided new perspectives for interpreting how the site has been affected

by geomorphic processes and what implication this may have for future work on similar sites in western Iowa. Documented Oneota village sites along the Little Sioux are strongly correlated to outwash terrace landforms. Occupation at Dixon was not restricted to the outwash terrace, suggesting similar sites may have buried components along the terrace margins that are difficult to identify at the surface. Additional outwash landforms may exist south of Dixon but are likely masked by Holocene alluvium. Streambank erosion at Dixon has been episodic with long periods of stability punctuated by intense erosional events. Lateral streambank erosion in excess of 15 m in a single year has been observed at Dixon. Total site loss at Dixon due to erosion and stream channelization is estimated to be just over 10 percent.

Addison P. Kimmel (University of Iowa), Steven A. Katz (Atwell LLC)

Preliminary Analysis of the Walker Slough Site, A Multi-Component Site in Northwest Illinois

The Walker Slough Site (11WT35) is a multi-component site located in northwest Illinois that was originally recorded during a regional survey of the lower Rock River region in 1961. This paper summarizes the archaeological survey and excavation work that has been conducted at and near the site over the past year. Between December 2018 and August 2019, the previously reported site area and roughly 150 surrounding acres have been subjected to pedestrian survey as well as remote sensing and a systematic archaeological metal detecting survey. This archaeological testing confirmed its already-recorded Early-Middle Woodland component, revealed a substantial Archaic component and greatly enhanced our understanding of its "historic period" post-Contact component, dating to the early 1800s. Preliminary archaeological investigations and historical documentary evidence suggest that this site locality may be the location of at least a portion of a significant early-19th-century primarily Ho-Chunk settlement on the Rock River.

Jason L. King (Center for American Archeology), Jane E. Buikstra (Arizona State University)

The Hopewell Situation in the Lower Illinois Valley: Whose Situation Is It?

Few archaeological phenomena have aroused as much scholarly and popular attention as the assemblage of ancient material remains referred to as "Hopewell." This diverse array of mounds, earthworks, exotic raw materials, iconography, and finely crafted items found in locales across the midcontinent has been variously referred to as a culture, tradition, horizon, period, phase, interaction sphere, or simply "Hopewell." Though widely recognized as an object of archaeological inquiry, little consensus exists concerning what the materials we refer to as Hopewell were or meant, particularly across regions of study. In this paper, we consider Hopewell as represented in one of its most prominent manifestations, the Lower Illinois Valley, focusing on Hopewell as both a situation encountered through the materials left by ancient peoples and as a modern situation assembled through archaeological practice.

Jason L. King (Center for American Archeology), Jane E. Buikstra (Arizona State University), Natalie G. Mueller (Washington University in St. Louis), Jacob Lulewicz (Washington University in St. Louis), Andrew Flachs (Purdue University), and Daniel Williams (Ohio State University)

Anthropological STEM Research Experiences at the Center for American Archeology

The Center for American Archeology (CAA) pursues a mission of archaeological education, research, steward, and public service through the implementation of experiential programs that integrate education and research. These programs provide students with field and laboratory research experiences during formative years of their education, encouraging careers in archaeology and related STEM disciplines, as well as promoting science literacy. One such program is "Long-term Perspectives on Human-River Dynamics at the Confluence of the Illinois

and Mississippi Rivers: Interdisciplinary Research for Students in Ecology and Archeology," a National Science Foundation Research Experiences for Undergraduates (NSF-REU) site at the CAA that combines archaeological, paleoethnobotany, and ethnographic research experiences for students focused on human-plant interactions in the Lower Illinois Valley. In our poster, we present the program and its connection to the research interests and education mission of the CAA.

Kurt F. Kipfmueller (Department of Geography, Environment, & Society, University of Minnesota), Cait Bell (Department of Geography, Environment, & Society, University of Minnesota), Sean Dunham (Chippewa National Forest)
A Story of Fires and People on Star Island in Cass Lake, MN
Ongoing research is beginning to reveal the role of Native Americans in the Upper Great Lakes region as an important agent in the maintenance of red pine forests through the use of fire. In many landscapes, the frequency is too large to be due to lightning and associated climate patterns alone. It seems more reasonable that Native Americans were an important agent of ignition, augmenting fire frequency in particular areas and at particular times. Here we present preliminary dendrochronological fire history evidence developed at Star Island in Cass Lake, MN. Star Island has a long history of human occupation and use and was important Ojibwe settlement locale in the eighteenth and nineteenth century. Our aim is to better understand the timing of fire activity in relationship to Ojibwe presence on the island and begin a dialog surrounding the important role played by people in tending landscapes using fire.

Anthony Krus (University of South Dakota), John Richards (University of Wisconsin-Milwaukee), Robert Jeske (University of Wisconsin-Milwaukee)
Chronology for Mississippian and Oneota Occupations at Aztalan and the Lake Koshkonong Locality

Aztalan is a heavily fortified Mississippian-period center located on a tributary of the Rock River in Wisconsin, representing the northernmost large Mississippian village recorded. The Lake Koshkonong locality of the Rock River drainage is located approximately 20km south of Aztalan and consists of a 3km2 area along the northwest shore with five Oneota settlements. A total of 72 radiocarbon measurements have been obtained from Aztalan and 48 from the Lake Koshkonong locality. In this paper, we discuss how to best interpret this radiocarbon dataset and further use Bayesian chronological modeling to explore multiple possibilities for how to analyze these dates. At 95% probability the results suggest: 1) Aztalan's occupation began in the AD 900s ceased in the AD 1200s, 2) Oneota occupation at Lake Koshkonong began at or near the same time Aztalan is occupied by Middle Mississippians, and 3) Oneota occupations at Lake Koshkonong continued after Aztalan's Mississippian abandonment.

Douglas Kullen (Burns & McDonnell Engineering Company)
Recent Work at Southern Minnesota's Blue Earth Locality
Archaeological compliance surveys for ITC Midwest's Minnesota-Iowa transmission line rebuild project provided Burns & McDonnell archaeologists the opportunity to revisit the Center Creek Archaeological District. The District is a National Register-listed amalgam of late prehistoric sites clustered around the confluence of Center Creek and the Blue Earth River in Faribault County, Minnesota. The locality contains dozens of Oneota habitation sites, evidence from which define southern Minnesota's Blue Earth Oneota Phase. This paper reviews the Blue Earth Phase and provides updates regarding the Center Creek Archaeological District, as derived from the recent compliance work.

Jared A. Langseth (Bear Creek Archeology, Inc.)
Results of Geomorphological and Phase II Archeological Investigations at 13AM615, Allamakee County, Iowa.

Site 13AM615 is a multi-component Oneota, Late Woodland, and Middle Woodland temporary base camp and a Euro-American farmstead/residence located along Waterloo Creek, near its confluence with Bear Creek and the Upper Iowa River in northern Allamakee County, Iowa. The site was discovered during a Phase I archaeological survey, which identified a multi-component site extending across a variety of alluvial and colluvial landforms, with archeological deposits ranging from depths of 0-290 centimeters below surface. These deposits included materials from a deeply buried Holocene alluvial terraces. The subsequent geomorphological testing and Phase II investigation conducted at the site documented the colluvial and Holocene alluvial landforms and archaeological deposits present and concluded there were three prehistoric components represented at the site. These components are stratigraphically distinguishable from one another and sequenced based on the diagnostic pottery specimens recovered but there is some amount of depositional overlap observed.

Albert M. LeBeau III (Cultural Resource Program Manager, National Park Service, Effigy Mounds National Monument)

Effigy Mounds National Monument's Disgrace

The failure of past superintendents has placed Effigy Mounds National Monument (EFMO) in dire straits in maintaining the National Park Service's Fiduciary Trust Responsibility to Indian Tribes and placed it at odds with the general public Trust Doctrine. Due to the blatant mismanagement of irreplaceable resources Superintendent Phyllis Ewing and Maintenance Chief Thomas Sinclair placed the very resources they took an oath to protect, in jeopardy. Previous to the Ewing and Sinclair debacle, Superintendent Thomas Munson with the help of Administrative Assistant Sharron Greener, stole 42 individuals from the park's museum collections and actively participated in a conspiracy that lasted for 22years. This paper will navigate the past acts and decades of lies. Through the use of innovative thinking and taking an open and transparent look at what happened as well as

being honest, Effigy Mounds and the Tribal Partners are on their way to establishing a working relationship.

William A. Lovis (Michigan State University), G. William Monaghan (Hayes & Monaghan, Geoarchaeologists, LLC), Daniel R. Hayes (Hayes & Monaghan, Geoarchaeologists, LLC), Kathryn C. Egan-Bruhy (Commonwealth Heritage Group, Inc.)

Floodplain Cucurbit Dispersal During the Late Woodland ca. 1000 BP: an Example from the Detroit River, Michigan(or) Bill's Seed

Dispersal of gourds and squashes has been attributed to multiple natural and cultural processes including downstream dispersal of seeds and intact fruits into wetland environments, where stands become established. Despite the established buoyancy of such gourds by Hart, there are few empirical precontact examples of this process. Recent deep testing on the Detroit River in southeastern Michigan produced no evidence of precontact occupation. The basal stratigraphy was a zone of compacted wetland plant deposits. Sampling yielded a large uncarbonized seed of C. pepo spp. ovifera, a domesticated squash variety. A direct AMS date produced an age of 974-1150 cal AD (p=.95). This age range coincides with the Medieval Climatic Optimum, reduced Great Lakes water planes and increased rates of river downcutting. Regardless of association with these macroscale events, this is early regional evidence for Late Woodland age cucurbit varieties, and the first clear precontact evidence for floodplain dispersal of cucurbits.

Jennifer E. Mack (University of Iowa Office of the State Archaeologist)

"Of Little Archaeological Value": the Remains of the "Unknown 15" Lost and Found

In 1958, a highway construction project disturbed human remains buried on a blufftop in South Ravine Park, Sioux City, Iowa. The hurried salvage excavation that followed was understaffed, poorly documented, and punctuated by

looting episodes. Dating of the coffined burials was heavily debated locally, but the excavators believed the finds were relatively recent and thus "of little archaeological value." In the 60 years since their discovery, the human remains from this burial ground have been misplaced twice, and many artifacts have been lost. In 2018, the Iowa Office of the State Archaeologist arranged for the return of the remains from Tennessee. Thorough analysis and background research was made possible by the generous support of the Iowa Department of Transportation. This MAC presentation will shed light on the history of the South Ravine Burial Site and the individuals whose graves inspired the children's novel, Secret of the Unknown Fifteen.

Mark L. Madsen (Member of the C.A.S., S.S.A.S., and I.A.A.A.)

In Search of the Elusive "East Fork (Gridiron) Earthwork" in Ohio

The "East Fork Earthwork," also called the "Gridiron" by Gerard Fowk, may have been located on property once owned by General William Lytle II. He surveyed and drew a map of this mysterious earthwork in 1803. Evidence for Lytle's property being its location consists of a gridiron pattern of parallel trenches and several linear mounds that show up continuously on aerial photos and during a field survey in 2015-16. Suggestive of a Thunderbird design, as noted by Sauk and Fox friends of George Horton, this bluff-top earthwork overlooks a serpent-shaped meander on the East Fork of the Little Miami River--bringing to mind legendary clashes between Under-World "Serpents" and Sky-World "Thunderbirds." When the linear trenches on the aerial photo are overlaid by the earthwork map, eleven of its walls align to the rise of Schedar in Cassiopeia and set of Gamma Crucis in A.D. 250 according to SkyMap Program.

Mark L. Madsen (Member of C.A.S., S.S.A.S., and I.A.A.A.)
Last Interviews with Myles Donnelly Goddard on the Shepard Site at Little Senachwine Creek
Myles Goddard published his book "The Shepard Sites" in 1991, dedicated to his wife Loretta and son David. Since he first learned about his Native American roots, Myles became fascinated by artifacts found on his cousin Phil and Katherine Shepard's farm along Little Senachwine Creek on the border of Marshall and Peoria Counties in Illinois. His mother was a Brunel from Leech Lake Chippewa, and his father, a fraction Pequot and Mahican. As Social Studies Department Chair, with Masters in Anthropology and History, he and his wife brought students from Holy Cross and Mother Guerin High Schools in the 1960s and 1970s to survey the Shepard Site. Chicago Archaeological Society members and Myles's students from Triton and Du Page Colleges also helped out by the 1990s. This year, in failing health, Myles pointed out artifact locations dating from the Paleolithic through Mississippian Periods on GLOs, topographic maps, and aerial photos.

David Maki (Archaeo-Physics), Kent Bakken, Sigrid Arnott (Sigrid Arnott Consulting)
Archaeology and the Cultural Landscape in Pope County, Minnesota
The Pope County archaeological survey mapped relationships between sites, hydrology, plant communities, and trails in the indigenous cultural landscape. Archaeological occupations wereexpected in proximity to lakes and streams, but water features alone were not an especially meaningful predictor of site locations. In this Prairie Lakes ecosystem, people settled in, and traveled between, islands of "Big Woods" within fire shadows protected by specific hydrological features. Furthermore, more than 50% of sites were located within one mile of the Wadsworth Trail, which traversed the county connecting a hub around Lake Minnewaska to an ancient cultural landscape at Chega Iyapi 150 kilometers west on the Coteau des Prairie. Significantly, many sites identified along

the trail date to pre-colonial periods, evidencing its indigenous origin. Artifacts from these sites show varying participation in development of regional precontact ceramic traditions, and the persistence of Native American communities and their technologies well into the historic period.

Matthew J. Mangin (University of Wisconsin-Eau Claire), Harry Jol (University of Wisconsin-Eau Claire), Samuel G. Schneider (University of Wisconsin-Eau Claire)
Subsurface Imaging of a Late Woodland Effigy Mound Site: Lake Koshkonong Effigy Mounds, Wisconsin
The preservation of Effigy Mound sites continues to be a concern, as these protected landscape monuments and sacred sites remain poorly understood and require innovative, noninvasive and nondestructive techniques for archaeological investigations. A collaborative study of a Late Woodland (ca. A.D. 700 - 1100) effigy mound site on the east shore of Lake Koshkonong, in Jefferson County, southeastern Wisconsin, was undertaken. Ground penetrating radar (GPR) transects, or lines, were collected using a pulseEKKO 1000 unit with two antennae frequencies: 225 MHz (0.5 m antennae separation/step size of 0.1m) and 450 MHz (0.25 m antennae separation/step size of 0.05 m). The surveys were conducted over several mounds, although only to be discussed, with topographic data being collected with a Topcon laser level to geometrically correct the data. The results reveal a complex natural and cultural stratigraphy which can be applicable for studies of similar mounds.

Andrew Martin (Principia College)
A New Early Woodland Occupation Site at the Confluence of the Illinois and Mississippi Rivers
Due to the threat of a natural gas pipeline cutting across Principia College property at the confluence of the Illinois and Mississippi Rivers near Grafton Il., students used advocacy, archaeological surveys and excavations to identify and protect archaeological sites along the corridor. The work not only saved

several sites in this important but neglected area and secured extensive mitigation, but also discovered a settlement with Adena occupation, including interesting structures in one of the few preserved bluff valleys along the river. This project proves the value of fighting pipelines with archaeological expertise.

David Mather (Minnesota State Historic Preservation Office)
Zooarchaeology of a Bear Feast: the Crace Site (21ML3) in the Kathio National Historic Landmark District
Guy Gibbon directed excavations at three Mille Lacs locality sites in 1972, finding a significant concentration of black bear (Ursus americanus) remains at the Crace site. Recent zooarchaeological analysis of this collection supports the original MNI calculation of 32 bears based on the lower right 2nd molar. The total assemblage numbers 3,203 by count, with identification of 388 fragments of black bear (NISP). Most are mandibular fragments and teeth. Some are intensely burned and others scorched. Butchering and disarticulation marks are present. This taphonomy, and large fire-cracked rock fragments in the collection, suggest that the feature was an earth oven where many bear heads were cooked for a large feast. A radiocarbon date of 830±20 BP supports Gibbon's estimation of Late Woodland age. Comparison of tooth measurements and wear to recent bear skulls of known life history indicates that both males and females were hunted, and most were young adults.

Patricia A. Mathu (University of Texas at Dallas), Jason L. King (Center for American Archeology)
Putting Mound House on the Map : Comparing Magnetometry and Excavation
The Mound House site (11GE7) is a Middle Woodland/ Hopewell (ca 50-400 cal CE) floodplain mound site located in Greene County, IL, that consists of three mounds, a plaza, and habitation/activity areas. Magnetic gradiometry surveys conducted in 2008 and 2010 revealed a high density of magnetic

anomalies within the habitation area that correspond with dense surface debris scatters. Interpretation of magnetic data, however, remain limited for understanding ancient activities at the site, requiring comparison to excavated features. Comparison of magnetic and excavation data indicate refuse pits correspond with small positive nanotesla readings from the magnetometer. Geospatial and statistical extrapolation to unexcavated parts of the site identifies possible features for future excavation. In addition, circular patterns of possible pits suggest circular bent-pole structures. Analysis also identified large anomalies that did not conform to excavated features, raising new questions only excavation can answer.

Madeleine McLeester (University of Notre Dame), Mark R. Schurr (University of Notre Dame), Terrance Martin (Illinois State Museum)
Expanding Huber: Recent Findings from Northern Illinois Reveal New Aspects of Protohistoric Lifeways and Environment
Middle Grant Creek is a well-preserved protohistoric Huber Phase agricultural village located in northern Illinois at Midewin National Tallgrass Prairie. Excavations and geophysical surveys conducted over the past four years are yielding valuable data that are reshaping understandings of the critical period before direct European colonialism. This project is revealing a wide range of protohistoric activities enacted on-site, including food production and consumption, craft specialization, tool making, and games, as well as far flung trade relationships that illustrate the endurance of early 17th century indigenous trade networks. This presentation discusses the latest research from Middle Grant Creek alongside broader regional narratives of late prehistory. In particular, we will focus on fine-scale environmental data and key artifacts that highlight Middle Grant Creek's contributions to broader regional and anthropological discussions.

Michael Michlovic (Minnesota State University Moorhead)

Bridging the Gulf: Guy Gibbon and the Conflicts of Archaeological Theory
Guy Gibbon's contributions to archaeological theory span a period of more than three decades. His early foray into the field was mostly descriptive of archaeological thinking. Over time he became increasingly philosophical and situated himself between Anglo-American empiricism and a variety of Continental philosophies in an effort to find common ground in a version of archaeological realism. While he has repeatedly championed an understanding of the post-processual agenda, he has also used thoroughly empirical approaches in his presentation of the actual archaeological record.

G. Logan Miller (Illinois State University)
Bladelets and Middle Woodland Situations in Southern Ohio
Studies of Hopewell bladelets often often point to dichotomous categories such as the metric differences between Havana and Ohio bladelets, whether or not blades were made by specialists, their use at habitations vs. ceremonial centers, or their role in dual ritual spheres. But the concept of situation offers a more nuanced view of bladelets that goes beyond the oppositions imposed by archaeologists. Viewed in this context, bladelets were clearly bundled with other materialized elements of Middle Woodland institutions serving to structure these while also being used to build new heterogeneous practices into the larger institutions. Through an examination of bladelet use, broadly defined, both at and away from earthen enclosures, this paper illustrates how bladelets can be used to understand the diversity of Middle Woodland situations and how the concept of situation provides insight into the use of bladelets.

Susan C. Mulholland (Duluth Archaeology Center)
Archaeology of the Reservoir Lakes, Northeastern Minnesota
The Reservoir Lakes on tributaries of the St. Louis River in northeastern Minnesota reflect a long history of occupation since the glacial retreat through historic times. Much of the information is from deflated contexts within the reservoir

basins through private collectors; some intact sites add critical data on connections between traditions. As with other areas of Minnesota, influences from both the Great Plains and the Eastern Woodlands are represented, suggesting interactions from both areas.

Wendy Munson-Scullin (Midwest Ethnohorticulture)
Soil Humic Acids - Applications for Archaeology and Phytolith Analysis
Humic acids are a group of stable organic compounds in soil with centuries-long half-lives which are influenced by the plant communities from which they form, as well as by climate and microbial communities. Humic acids are routinely extracted from the soil with other organic substances in the process of phytolith extraction. Like phytoliths, humic acids tend to deposit in place, thus reflecting the conditions in which they formed. Comparative humic acid analysis may provide a means to enhance the accuracy of data from soil phytolith analysis and other technologies.

Mark P. Muñiz (Deptartment of Anthropology, St. Cloud State University)
Paleoindian Bifaces to Woodland Blades: Long-term Utilization of the Boundary Waters Canoe Area Wilderness, MN
The Daughter District contains multiple sites clustered around bedrock outcrops of Knife Lake siltstone in the Boundary Waters Canoe Area, MN. Research conducted by St. Cloud State University between 2009 and 2014 identified 13 sites occurring within 100 total acres. Dense concentrations of lithic debitage resulted from quarry activities focused on the production of large bifaces, cores, blades, and probably flake blanks. Subsurface testing occurred at five of the sites. Diagnostic artifacts and OSL dating of four sites established that the Daughter District was occupied by at least the Middle Paleoindian period and consistently revisited throughout the Archaic and Woodland periods as well. The timing of the earliest occupations has direct bearing on models of glacial

retreat and cultural adaptations for the region, while the presence of prismatic blade production during the Middle Woodland has important implications for possible connections between Laurel and other peoples to the south.

Kirsten Nafziger (Vanderbilt University)
Using Paleoethnobotanical Data to Put the Prairie Back into "The Prairie State"
Modern seed mixes used in prairie restoration intend to restore an area to its previous untouched or "pristine" state. However, the prairie environment of Illinois was created by centuries of Native American burning and modification. The landscape encountered by European settlers was not a "pristine" environment and was instead modified by millennia of indigenous human and environmental interaction. Unfortunately, archeological data are not currently employed in the formulation of seed mixes in Illinois. In order to discover species commonly omitted in modern seed mixtures, paleoethnobotanical data from sites were compared to prairie restoration seed mixtures used in the region. Although paleoethnobotanical data are biased in that they represent an anthropogenic environment, they can provide a sample of the environment of Illinois with a greater time depth. Results indicate that plants common in the paleoethnobotanical record are excluded entirely from modern seeds mixes, which often contain fewer than ten different taxa.

Lara K. Noldner (University of Iowa Office of the State Archaeologist)
Mortuary Practice and the Oneota Tradition: a Case Study from the Dixon Site (13WD8)
Past populations that are associated with the Oneota archaeological tradition appear to have practiced a variety of burial practices. This paper serves as a presentation of another case study that contributes to our knowledge base of Oneota burial practices. Contexts for human skeletal remains recovered from Oneota sites range from scattered isolated

elements to primary burials (both extended and flexed) oriented in various directions, both within constructed mounds and other non-mound features. This paper summarizes the human skeletal remains recovered through 2016-2017 archaeological excavations at the Dixon Site (13WD8), as well as remains that were exposed in past years by both controlled excavations and stream bank erosion. The site is an extensive Oneota village site that was initially exposed by re-routing of the Little Sioux River in 1913. Recent archaeological investigations were necessary for the much needed stabilization of the river bank.

Samantha Odegard (Upper Sioux THPO)
A Dakota THPO's Perspective on Archaeology
As Indigenous people our experience with Archaeology is trouble to say the least. Our views of preservation are at odds and yet the way the system is set up today we are required to work hand in hand for the preservation of our sacred and cultural sites. The goal of the presentation is to share insight from an Indigenous perspective on how the history of our relationship with Archaeology influences our working relationships. How new approaches today are changing those relationships and how understanding Indigenous knowledge and beliefs is key.

Jeffrey M. Painter (Michigan State University)
Cooking Up a Common Ground: Vessel Use and Social Interactions at Morton Village
In recent years, research on cooking has become increasingly important for understanding the past, as it can inform us about many sociocultural issues of interest to archaeologists. Despite this growth, analyses of ceramic use-alteration, damage that is the direct result of cooking and vessel use, have been applied infrequently to these larger topics. In this paper, I conduct a use-alteration analysis of pottery from Morton Village, a multi-cultural occupation site located in the central Illinois River valley, in order to gather information about social interactions and community building. When these use-alteration patterns

are compared against two related sites, the results indicate that some vessel use traditions were maintained while others were altered or invented, suggesting that food, cooking, and food presentation played critical roles in the negotiation of community life at Morton Village.

Autumn M. Painter (Michigan State University), A.L. McMichael (Michigan State University)

Campus as Laboratory: an Oral History of MSU's Campus Archaeology Program

By the time Dr. Lynne Goldstein retired from Michigan State University's Department of Anthropology in 2018, she had gathered 22 years' worth of stories and experience. Among these are the origins and development of the Campus Archaeology Program (CAP), which continues to offer students experience in field and lab methods in archaeology. The primary goal of this project is to span best practices in oral history research and archaeology, while promoting the public outreach missions of both CAP and MSU. This was achieved first through audio interviews with Lynne Goldstein, followed by the creation of an accessible, public-facing web presence to share the oral history and media documentation of twelve years of CAP. This project serves as a case study for similar programs wherein oral history may serve as both valuable "grey literature" in recording unpublished archaeological data, as well as outreach to wider publics.

Timothy R. Pauketat (ISAS University of Illinois), Susan M. Alt (Indiana University)

Powerful Substances in Special Pits at 11th Century Shrine Complexes

Yellow silt linings are relatively common at the bottoms of a subset of 11th century pits at three of Greater Cahokia's "shrine complexes" in the Richland uplands east of the American Bottom. The contents appear to range from ashes to incinerated objects, the possible sweepings from ritual events, and human remains. Compared to domestic pits at East St. Louis and

elsewhere, the cultural significance of the color, deposition, and origins of the linings, and contextual evidence hints of pits specially dug and lined in order to safely contain powerful ritual substances.

Nicolette Pegarsch (University of Wisconsin-La Crosse)
Investigating the Accuracy of 3D-Photogrammetry in Relation to Artifacts
3D-photogrammetry is a newer photographic technological advancement in archaeological documentation. Photogrammetry is the progress of taking overlapping pictures of an object, feature or site in order to digitally construct a 3D model. My research is testing the accuracy of 3D-photogrammetric models in assessing differences in measurements taken from the physical and digital objects. After constructing models of five different artifacts, 15 individuals took measurements in digital and physical space. With these measurements, I conducted statistical analysis between the five artifacts. My data confirmed that there are no significant differences between measurements on three and a half out of the five artifacts when measured with calipers versus in Agisoft Metashape. The differences found are due to the nature of the objects, the language used during measuring and a large quantity of human error. This research demonstrates how 3D-photogrammetry can be used for documenting artifacts for archaeologists and the general public alike.

Mike Penrod (St. Cloud State University), Jonathan Corbin (St. Cloud State University), Veronica Parsell (Cardno Inc.), Rob Mann (St. Cloud State University)
From Lower Town to St. Cloud State: Geophysical Survey of an Evolving Urban Landscape 1869 -2019
In 2019 St. Cloud State University (SCSU) celebrates its sesquicentennial. Prior to 1869 what is today the campus of SCSU was a community known as Lower Town. In May 2019, the SCSU Anthropology Department partnered with Cardno Inc. to conduct a geophysical survey over parts of the SCSU

campus. Using ground penetrating radar we examined the supposed location of a mid-19th century cemetery associated with Lower Town and the locations of two original buildings used by the institution in its early days, one of which was once a hotel in Lower Town. This poster outlines the evolution of Lower Town into SCSU and describes the results of our geophysical survey.

Ryan Edward Peterson (Indiana University)
Prehistoric Copper Mining as an Industry
Since its inception, the field of industrial archaeology has focused on studying industrial remains dating from the Industrial Revolution to the present day. Much of this study is directed at examining the extraction and manufacturing of raw materials on an industrial scale. The concept of what defines an industry, however, can be widened to include the study of activities that existed independently from the Industrial Revolution. For thousands of years, Native people in the Upper Great Lakes have mined and processed native copper from various sources in the Lake Superior Basin. Archaeologically, this scale of production and procurement can be examined as an industry unto itself. The examination of these pre-Industrial Revolution sites constitute an inclusion into the field of industrial archaeology as a whole.

Staffan Peterson (National Park Service)
Historical Archaeology of a Swedish Pioneer Homestead and the US-Lakota War of 1861
Archaeological investigation of a pristine Swedish homestead site in Swift Co. Minnesota, dating to 1860-61, revealed new insights on its construction, use, and its and destruction in the war. Land claims, a survivor account and depredation claims are analyzed and compared with the archaeological findings. Recommendations for preservation, interpretations, and future research of this exceptionally rare site type are presented.

Sara Pfannkuche (University of Wisconsin-Milwaukee, Midwest Heritage Resource Consultants)

Same Artifacts Same Conclusions? Using Legacy Collections to Better Understand Settlement Patterns in the Upper Midwest

Archaeologists often use legacy survey projects to keep down costs and save time when investigating individual sites or specific areas within larger regions. Excavation reports often have "context" chapters that rely on these previous surveys to explain what is going on in the larger universe that the site/area sits in. But how accurate is the information provided by those early surveys given how archaeological theory and how we analyze artifacts has changed over the last few decades? As part of dissertation research, legacy surveys housed at the Logan Museum of Anthropology at Beloit College and the University of Wisconsin-Milwaukee were re-analyzed using contemporary practices to provide data to help identify Late Archaic settlement patterns in the Illinois/Wisconsin Stateline area. After artifact re-analysis, the new data was compared to previously recorded site data to determine if the previously identified settlement pattern is still valid.

Melody Pope (IU Glenn A. Black Laboratory of Archaeology), April Sievert (IU Glenn A. Black Laboratory of Archaeology)

The Glenn A. Black Laboratory of Archaeology is Rehousing Angel Mounds!

In 2018, the Glenn A. Black Laboratory of Archaeology at Indiana University received a 3-year grant through the federal Save America's Treasures program, administered by IMLS, to rehabilitate its core collection. The Angel Mounds NHL legacy (1939-1983) collection comprises over 2,500 boxes of artifacts, associated documents and images. Angel Mounds is a large fortified Mississippian town site on the Ohio River, excavated nearly continuously for over 30 years beginning with WPA crews in 1939. Housed in original containers, most of the collection has remained untouched for the past 50 to 80 years. We describe our process for rehousing Angel within an ongoing

university-wide collections initiative and Angel Mounds research focus. We also share challenges and future plans to increase awareness and preservation of this valuable research and teaching collection.

Brian G. Redmond (Cleveland Museum of Natural History)
Layering the Cosmos: Structured Deposits and Stratified Pits in Late Precontact Northern Ohio
This study examines the possible ritual associations of special deposits on precontact sites in northern Ohio. Such deposits are found in pits, post molds, and trenches and are often marked by layered fill and discrete clusters of artifacts and ecofacts. In many cases such deposits occur within typical domestic (e.g., village, hamlet) settings alongside unstructured (mundane?) deposits. Such structured deposition is interpreted as different from ordinary refuse disposal and instead may represent aspects of the cosmological order and interactions with non-human entities.

John D. Richards (University of Wisconsin-Milwaukee), Eric E. Burant (University of Wisconsin-Milwaukee), Megan E. Thornton (University of Wisconsin-Milwaukee)
Investigations into Aztalan's Northeast Mound: the 2019 UWM Archaeological Field School at Aztalan
UWM's Archaeological Field School returned to the Aztalan site (47JE0001) during the summer of 2019 to continue investigations of the Northeast Platform Mound. In addition, several subsurface anomalies identified during the recent geomagnetic survey of the site were ground-truthed and portions of the survey area were re-examined using GPR. Mound investigations were designed to complete excavation of a 2-X-2-m unit begun in 2013, continue efforts to precisely define the western and northern extent of the mound, and to acquire high resolution locational data on features reported by earlier mound investigators. Results suggest that mound dimensions may be somewhat larger than indicated by historical mapping and also exposed significant Late Woodland deposits

at the base of the mound. The locations of two anomalies tentatively identified as pit features were confirmed by GPR, but testing returned ambiguous results that suggest robust interpretation of the geophysical data will require large scale, extensive ground-truthing.

Andrew M. Saleh
Bison in Wisconsin Archaeology: Perspectives from GIS Modeling
This paper synthesizes master's thesis research related to bison appearing in the Wisconsin archaeological record. A Geographic Information System (GIS) was used in the thesis to better understand native vegetation near sites with reported bison bone. Near modern La Crosse and Oshkosh, Wisconsin, an assessment of twenty-square kilometer areas surrounding Oneota localities with bison remains was conducted to understand the potential prehistoric ecological viability. One comparative approach to assessing the viability of a local prehistoric bison acquisition hypothesis versus other hypotheses in Wisconsin is to consider the vegetative needs of a bison herd, and to model local vegetation around the sites where bison bones have been recovered. This paper identifies the potential viability of bison in prehistoric Wisconsin by considering historic accounts of vegetation from General Land Office (GLO) documentation and archaeological data in coordination with GIS modeling.

Tom Sanders (Red Rock Ridge Research Group, Hamline University, Minnesota Historical Society, Retired)
New Discoveries in Ancient Astronomy on Southwest Minnesota's Red Rock Ridge
During the spring of 2018 phase one archaeological survey on the Red Rock Ridge (RRR), two petroforms with astronomical alignments were discovered. These are located 4 miles west of the astronomical petroform found in 2004. Cottonwood County's RRR is home to Jeffers Petroglyphs Historic Site. There are 209 exposed Sioux quartzite outcrops on 16 miles

of the ridge surrounding JPHS. Of the outcrops, 24 have petroglyphs carved into them. The irregularly shaped 300-yard-long by 50-yard-wide outcrop at JPHS contains most of the 8000 rock carvings. Numerous lithic scatters and petroforms are also found on the Red Rock Ridge. The focus of this presentation is the RRR petroforms found with astronomical alignments. The investigation of these boulder arrangements is the result of a 20-year research project by a team of American Indian elders and archaeologists (Red Rock Ridge Research Group) exploring the rich cultural landscape

Tom Sanders (Red Rock Ridge Research Group), Joe Williams (Red Rock Ridge Research Group), Tom Ross (Red Rock Ridge Research Group), Bob Larsen (Red Rock Ridge Research Group)

Introduction: a History of the Red Rock Ridge Research Group

Beginning in 1998, a team of American Indian elders and archaeologists working as colleagues have engaged in a day to day dialogue of researching, preserving, and documenting the rich cultural landscape of Jeffers Petroglyphs located on the Red Rock Ridge in Southwest Minnesota's Cottonwood County. This 160-acre-site, owned and managed by the Minnesota Historical Society. The site is sacred to many American Indian communities and is situated in a Dakota homeland. This presentation will give a brief history of the team that would become the Red Rock Ridge Research Group and its research methodology. This methodology privileges American Indian traditional knowledge, oral traditions spirituality, inquiry methods, and perspectives. This methodology not only provided a telling of Indigenous history but also satisfied the goal of these elders to recover, preserve, enhance and expand our knowledge of Indigenous people before the coming of Europeans.

Sylvia Sandstrom (Minnesota State University Moorhead, State Historical Society of North Dakota)

The Boller Site Platter - A Northern Plains Ceramic Anomaly

An inventory of the Alfred Bowers archaeological collection in North Dakota recently revealed a unique ceramic container. The pot is unique in that its shape, shallow plate, appears to be unparalleled and the incised design on the interior, which conforms to the shallow shape, is inconsistent with the known register of ceramic designs. Given its supposed date ranging in the early 1800s, it is possible that it represents a skeuomorph of a Euro-American artifact. However, the use of concentric lines does fit within an ancient design system linking back to the beginnings of the Woodland period in the Upper Midwest and Plains. This singular vessel opens up the possibility of examining the convergence of indigenous stylistic and technological changes at the cusp of Euro-American contact. Whether it is a one-of-a-kind Native creation, or something else entirely, it is clear that this vessel is unique among others in the Northern Plains.

Robert F. Sasso (University of Wisconsin-Parkside)
Sand Lake and the Context of Late Prehistoric Agriculture in the Upper Mississippi Valley
Between 1982 and 1986, archaeologists from MVAC at UW-La Crosse investigated a series of buried Oneota ridged fields at the Sand Lake site (47LC44) in La Crosse County, Wisconsin. Research revealed that the Oneota utilized bison scapula hoes to construct linear/curvilinear ridges out of rich bottomland soil within Sand Lake Coulee, along the eastern margin of the Mississippi Valley. Shortly thereafter, the original set of early Fifteenth Century ridges began to be buried by alluvium from adjacent bluffs. This ongoing process led to the rebuilding of ridge sets as many as ten times within a period of roughly ten to fifty years, incorporating the sediments and sealing in agricultural contexts and integrated features. The site provided an unparalleled opportunity to explore and understand both the where and the how of Oneota cultivation practices, and continues to provide meaningful insights into Native American agricultural practices across Eastern North America.

Kimberly Schaefer (Illinois State Archaeological Survey)
Eating and Building in a Time of Conflict: Plant Remains from the Orendorf (11F1284) Site in the Central Illinois River Valley
The Orendorf site is a Spoon River Mississippian (AD 1150-1300) fortified village in the Central Illinois River Valley. Evidence from other fortified villages in the valley and Orendorf itself suggest that residents of the area experienced high levels of violent conflict. This conflict created dangerous conditions that may have impacted the daily lives of the people of Orendorf and influenced their basic subsistence and technological activities. A recently completed analysis of 171 flotation samples and 119 hand-collected samples from Orendorf's Settlement D and comparison to other sites in the area are used to address this topic. The residents of Orendorf continued to employ a mixed foraging and farming strategy but may have chosen to shift their focus to accommodate for local conditions.

Tim Schilling (NPS-Midwest Archeological Center)
Food Production in the Border Lakes Region: an Archeological Investigation at Voyageurs National Park
Voyageurs National Park is the traditional homeland of the Bois Forte Ojibwe who abandoned the area in the early 20th century after a series of dams were constructed on the Rainy River and at Kettle Falls. A long terms research project by the Midwest Archeological Center has documented numerous places associated with the Bois Forte. Recently, MWAC archeologists undertook a project in August 2019 to examine these locations in more detail with the goal of understanding the possible age and functions of pit type features found at many of these sites. Our work suggests pits served a variety of purposes but most are probably associated with food productions and storage. In this paper, I present the historical, environmental, and social contexts of food production as viewed through the archeological record.

Ronald C. Schirmer (Minnesota State University, Mankato)
45 Years Later: Gibbon's Red Wing Models and Their Place in Research Today
In the last 40+ years Guy Gibbon wrote numerous works which remain essential reading about the Red Wing region. In each of these works one can see the hallmarks of Gibbon's thinking: a focus on applying theory to flexible models intended to provide testable hypotheses about the past, and a willingness to wade into complex issues that may not be answerable in simple terms. The last 20 years of research in the Red Wing region provides much new data to inform and revise the cultural transformation models that Gibbon proposed, and lays clear what we need to do to answer central questions.

Seth A. Schneider (University of Wisconsin-Milwaukee), Philip G. Millhouse (Red Gates Archaeology)
Known, but Not Known: the Oneota Component at the Crab Apple Point site on Lake Koshkonong
At least seven Oneota sites dating between A. D. 1050 – 1400 are present on the northwest shore of Lake Koshkonong in Jefferson County, Wisconsin. Several of these sites are well known through excavations in the 1950s to 1970s and the long-term research program at UW-Milwaukee focused on multiple seasons of systematic excavation. However, the Crab Apple Point site (CAP) is only known from limited excavations and avocational collecting. The initial investigations indicated that CAP was a substantial, multicomponent Late Woodland, Oneota, Ho-Chunk and French fur trade site that included habitation and burial areas. Recent CRM work at CAP provides new data on the Oneota component. This information allows us to compare the CAP site with assemblages from neighboring sites in the immediate vicinity. The Oneota component from CAP is compared to other Oneota sites in the area to see how the site fits within this cultural landscape on

Mark Schurr (University of Notre Dame), Madeleine McLeester (University of Notre Dame)

Reflections of Protohistoric Ritual in Pits at the Huber Phase Middle Grant Creek Site

The Middle Grant Creek site is a late Huber (ca. A.D. 1600) site in northeastern Illinois. The site contains numerous pit features. Excavations indicate most were maize storage pits which were refilled with refuse after they were emptied. The refuse includes discarded or spent ritual objects, or materials often used to fabricate them. Ritual deposits are often interpreted using ethnographic analogies to historic practices. At Middle Grant Creek, some deposits appear to have ritual significance but do not correlate with practices known ethnographically, suggesting either a broader range of ritual practice existed in the protohistoric period, or local innovation. Consideration of ritual deposits in pits at Middle Grant Creek expands our understanding of Huber ritual and of current limitations on the interpretation of ritual from pit deposits.

Kevin R. Schwarz (ASC Group, Inc.)

Woodland Period Settlement Succession in the Middle Scioto Valley: Phase III Investigations at the Columbus Southerly Sites, Franklin County, Ohio

This presentation provides an overview of Phase III investigations of five predominantly Woodland period (800 BC-900 AD) archaeological sites at the Columbus Southerly Wastewater Treatment Plant, Franklin County, Ohio. The sites are located on a floodplain and terrace overlooking a relict channel of the Scioto River. The investigations indicate three primary occupations and data are presented on the material culture and radiocarbon dates associated with them. The Phase III investigations contribute to understanding factors leading to the development of settled village life. To provide a refined understanding of the chronology of this transition, a temporal hygiene analysis and a Bayesian analysis are applied to the radiocarbon data. A kernel density estimate smooths the radiocarbon data and reduces over-dispersion. The refined chronology is compared against temporal data for the Woodland-period Scioto Valley. The study provides evidence of

Woodland period settlement succession in one place, with only limited temporal overlap of occupations.

Michael Scullin (Midwest Ethnohorticulture)
The Cambria Focus – Again
In 1975 some students and I decided to check out the Cambria site (21BE2) not far from campus. In asking for directions, the owner of what we subsequently called the Price site, invited us to see a site on his property. This led to four seasons of fieldwork on that part of the site not being tilled. First we thoroughly surveyed the apparent limits of the occupation. The large numbers of storage pits excavated and their contents led us to believe the Price site (21BE36) to be a satellite of the nearby and much larger Cambria site. Just where the Cambria focus fits into the larger picture of villages from the juncture of the Ohio and the Mississippi rivers and the Missouri is not, in my opinion, completely clear. There are multiple attempts to include it with one cultural/cartographic setting or another. It just may be unique.

George W. Shurr (GeoShurr Resources)
Taking Directions from Blood Run
Orientations of archaeologic patterns at Blood Run National Historic Landmark (13LO2) in northwest Iowa appear to correspond with orientations of specific geologic elements (Shurr and Henning, 2017). The dominant trends of 30 cultural features are northeast (about N50°E) and southeast (about N145°E). These closely match the trends of linear topographic components such as elongate hills and linear stream segments and of bedrock attributes such as fracture patterns. The apparent correspondence of geologic and archaeologic orientations is also found at a dozen other sites in the region. Features at these sites are similar to Blood Run including structures such as mounds and dwellings as well as in-situ artifacts. Measurements of 45 features show modes of N40°E-N50°E and N140°E-150°E on circular histograms. The modes of directions for 36 geologic attributes near the twelve sites are nearly identical with

the archaeologic modes. Clearly, these people made detailed observations of the landscape.

Michael Strezewski (University of Southern Indiana), Staffan Peterson (National Park Service)
Middle Woodland Celebrations of Life and Death at the Mann Site, Indiana
In the past few decades, numerous platform mounds have been recognized in Middle and Late Woodland contexts. Most are located in the Deep South, with few instances north of the Ohio River. Unfortunately, little is known about the use and contents of such mounds. Recent magnetometry data from the Mann site, in Posey County, Indiana, have provided invaluable information on the nature of the activities taking place atop the largest platform mound at the site, IU 9. These data, coupled with information from past amateur excavations, indicate that numerous geometric post enclosures once adorned the top of the mound. Ceremonial activities, likely shielded from public view, included the use of intense fires, which were used, at least in part, for the destruction of ritually charged exotic items. While habitation-type debris was also identified at IU 9, the mound was likely not used for residential purposes.

Mara Taft (Science Museum of Minnesota), Edward Fleming (Science Museum of Minnesota)
Rehabilitating the 1974-1976 Silvernale Site Collection
The Silvernale site (21GD03) is an 11th-14th century Native American village in Red Wing, MN. Located at the confluence of the Mississippi and Cannon rivers, it was an important gathering place for many Native groups throughout the Plains and Midwest. It was excavated in the 1970's by Christina Harrison, and the collection of artifacts was eventually acquired by the Science Museum of Minnesota (SMM). In 2017, SMM received Minnesota Legacy funding to fully process this collection. This poster illustrates the process with which we inventoried, cataloged, photographed, and described this

important collection of artifacts to make it research-ready and bring it up to modern curatorial standards.

Michelle M. Terrell (Two Pines Resource Group)
Remembering and Revisiting Mallard: a Minnesota Lumber Town
For three field seasons between 1989 and 1991, Guy Gibbon led a University of Minnesota field school at the Mallard townsite in Clearwater County. Incorporated in 1902, Mallard was a classic boomtown that rose and fell in direct correlation with the region's logging industry. In investigating the townsite, students not only learned archaeological technique, but were exposed to multiple avenues of research including oral history, documentary research, and cemetery studies. This presentation will provide an overview of the history of the townsite and a summary of the University's investigations. Mallard's legacy will also be explored, and aspects of its history re-examined through modern data sets not available thirty years ago.

Michelle M. Terrell (Two Pines Resource Group)
Investigations of Early Aspect of Historic Fort Snelling
The Fort Snelling National Register Historic District is located at the confluence of the Mississippi and Minnesota rivers. While the core of the district is the promontory occupied by the fort itself, additional locations and archaeological resources associated with significant aspects of the fort's history are present throughout the confluence area. The Oversight Board of the Statewide Survey of Historical and Archaeological Sites contracted for the identification and archaeological assessment of four such resources for which the exact location or extent was not known including occupations of Pike Island; Cantonment St. Peter's (New Hope); Camp Coldwater; and the 1862-63 Dakota stockade. For each locale, this presentation will provide a synopsis of its history, the methods used to identify its potential location, and the results of the archaeological assessment.

Marina Tingblad (University of Wisconsin-La Crosse)
Understating the Construction of Oneota Vessels with Experimental Archaeology
The Oneota were farmers living in La Crosse, Wisconsin, and the upper Midwest 1300-1650 A.D. They are known for their sturdy, large, shell-tempered, and rounded bottomed vessels accented with various linear designs. Oneota vessels are upwards of 10 gallons--significantly larger than the previous Woodland culture's vessels. While earlier Woodland vessels have been successfully replicated, Oneota vessels have not been replicated using comparable clay and temper. Several possible construction methods were tested and compared to the archaeological record to learn about how the Oneota constructed their unique vessels. The most successful method, coiling, was used to construct a replica Oneota vessel comparable in size and shape that can be used in future Oneota studies.

Katherine Trotter (University of Wisconsin-Madison)
A Study of Prehistoric Mining Hammerstones from Michigan
Two types of hammerstones were used in prehistoric copper mining in the Keweenaw Peninsula of Michigan and on Isle Royale. In this study, rock type, hammer shape, presence or absence of grooves, and wear patterns were recorded on a sample of complete well-worn hammerstones from three collections acquired through excavation and survey. Ungrooved hammerstones dominate collections from Isle Royale while grooved hammerstones, which require more labor to produce, are most common in the Keweenaw. Hammerstones from the Keweenaw show more extensive wear and irregularities in shape than on the island. These regional variations could reflect differences in raw material availability or cultural practices, longer use-life for the grooved hammerstones, changes through time, or collector bias.

Heather Walder (University of Wisconsin-La Crosse), Marvin Defoe (Red Cliff Tribal Historic Preservation Office), John L. Creese (North Dakota State University)

Connecting People, Past and Present: Collaborative Archaeology in Red Cliff, WI (Part 1)
In the first of two related papers, the authors describe outcomes of two seasons of Gete Anishinaabeg Izhichigewin [Ancient Anishinaabeg Lifeways] Community Archaeology Project (GAICAP), a collaboration between the Red Cliff Band of Lake Superior Chippewa Tribal Historic Preservation Office (THPO) and academic archaeologists. Our project began in 2018 with the return and reanalysis of pre-contact and historic artifact collections from a Beloit College 1979 field school for curation at THPO, followed by excavations in Frog Bay Tribal National Park. Work focused on a parcel of the park repatriated to Red Cliff through a purchase from a private landowner in 2017. Driven by shared interest in protecting and understanding the multicomponent Archaic through Late Woodland period occupations at the Frog Bay Site (47BA60) and others nearby, this project involves Red Cliff community members, students, and additional stakeholders in all stages of planning, research design, excavation, and interpretation.

Trisha Walker (Minnesota State University, Mankato)
Till Death Do We Part? How Gender and Identity are Preserved in 20th Century Gravemarkers
In modern Western culture, gravemarkers are frequently used to commemorate the lives of the deceased. Gravemarkers frequently include the deceased's name, birth and death dates, marriage ties and other kinship associations, military service, and religion. Therefore, gravemarkers provide a noninvasive method of examining the identity of the deceased, and entire cemeteries can provide context into the identities of historic populations. In this study, the intersection of gender and gravemarkers over the twentieth century was analyzed at Mount Olivet Cemetery in Mankato. To observe the relation of gender identity and death, two gravemarker elements were examined: the use of kinship terms and the size and type of gravemarkers. This study found that females were more likely to be described in kinship terms than males on gravemarkers, and while there

was no significant difference between gravemarker size and gender association, males tended to initially occupy the largest gravemarkers in Mount Olivet.

Dan Wendt (Minnesota Archaeological Society)
Stone Tool Survival Skills on the Minnesota Prairie: the Strategic Choice Between Low Quality Local Materials and Distant Premium Toolstone Sources
A biface replication study was conducted on 34 different lithic materials relevant to Minnesota's archaeological record and the results highlight large differences in the potential of these materials for making bifacial stone tools. Basic biface metrics were analyzed to characterize the potential size and ability to thin bifaces for at least twelve samples of each material. Inherent variability of individual results was high but clear differences are evident in aggregated sets of a dozen or more by material. Every Minnesota material limited either the potential size of a biface or the ability to thin a biface relative to premium lithic materials that are available beyond Minnesota's borders. Utilizing the various till cherts of the Western Minnesota Prairie was particularly challenging. Results highlight the strategic choice required on the resource poor Western Minnesota Prairie of either adapting to local materials or investing in long distance procurement of premium lithic materials.

Jessica Yann (Michigan State University)
Eighteenth Century Trade and Politics of the Potawatomi of the St. Joseph & Kankakee River Valleys
This paper investigates the economic relationships created between Potawatomi villages and Euro-American traders of the St. Joseph and Kankakee River valleys of Michigan, Indiana, and Illinois, and how these economic relationships were used to negotiate their political positions. By examining the artifact inventories of these sites in new ways, additional insights can be made about the choices the Potawatomi were making to navigate the complicated political landscape of the eighteenth century Midwest.

Larry J. Zimmerman (Indiana University-Purdue University Indianapolis)
Working Together: is the Process More Important than the Product?
Sonya Atalay's concept of braided knowledge in her Community-Based Archaeology book is a good one, an approach that seeks to intertwine community knowledge with archaeological data. Yet, after several decades of working to accomplish just this, I've come to realize that a braided product is only a goal and is rarely satisfactory for either community members or archaeologists, partly because expectations and epistemologies can be very different for both, even when the archaeologist happens to be a community member. I've decided that "braiding" knowledge, attempting to work together and figuring out how to do it, is usually much more important than the braided knowledge that gets produced. Braiding opens the door to mutual respect and true collaboration and maybe closer to a satisfactory product.

Workshop Abstracts

MAC Student Workshop: Geophysics: Tools to Aid in Noninvasive Archaeological Investigations
This workshop will allow students to receive a brief introduction to noninvasive geophysical methods in archaeology, including hands-on application and best practices. Panelists who are experts in the field will discuss ground-penetrating radar, electrical resistivity, magnetometry, and magnetic susceptibility while providing examples of each method's use in past and ongoing archaeological research. Attendees will also have the opportunity to gain hands-on experience by setting up and operating geophysical equipment in nearby Washington Park (weather permitting), where the remnants of a historic train station from

the early 20th century lie. Additionally, attendees may observe and assist in the initial processing of geophysical data.

Developing an Effective Anti-harassment MAC Culture
This workshop is open to all MAC annual meeting attendees and will be a working session intended to produce recommendations for the MAC Executive Board for implementation as appropriate via Bylaws changes, best practices guidance (MAC website content and links), and as future standards for annual meeting organizers. The workshop presenters are members of the MAC Presidential Task Force whose charge is "review the MAC, Inc. bylaws and propose specific changes/additions to the Board appropriate to creating an enforceable policy relating to preventing incidences of sexual harassment and assault specifically at our annual meeting and broadly in our archaeological workplaces." They will each briefly state issues of particular concern and then facilitate discussion and creation of recommendations. All MAC members should consider contributing their thoughts on this important topic and are invited to participate.

Radiocarbon Dating in the Midwest: Review and Recommendations
The workshop thread is one of ancient carbon and the freshwater reservoir effect. While archaeologists have complained for decades about dates on charred food crust or ceramic residue being "too old", there are still surprises in the radiocarbon dating record for dates that appear "too old" on bone collagen and burned bones. Bones have long been considered the "gold standard" for radiocarbon dating. We visit specific examples of dates on multiple materials, allowing time for questions and answers as we progress.