Lithic Material Workshop

Hosted by the Office of the State Archaeologist at the University of Iowa

Friday 24 February and Saturday 25 February, 2012

To be held at the Old Capitol Museum/Museum of Natural History on the campus of the University of Iowa, Iowa City

Schedule for 2012 Lithic Workshop

Friday, 24 February

Doors open at 9:00 am for set up and conversations

10:00 – 11:30 Poster Presentations

Iowa Projectile Points

Sarah E. Horgen* and Mark L. Anderson** – University of Iowa, Museum of Natural History* and the Office of the State Archaeologist**, Iowa City

Stone projectile points, including tools which functioned as spear heads, dart tips, knives, and arrow heads, are the most identifiable artifacts left by prehistoric Native Americans. Archaeologists have long understood that this artifact class varies both spatially and temporally. Projectile point typologies are a common descriptive tool of archaeological analysis as a preliminary stage in the assessment of any artifact assemblage. Through excavation of archaeological sites, recovered projectile points can be associated with specific time and culture periods. These well-placed point types are coupled with associated finds and surface finds to create a relative chronology for projectile points. This projectile point display represents the typological and chronological variability of Iowa points for the past 13,000 years with 53 different point types included.

Raddatz Projectile Points from the Palace Site (13PK966)

Kurtis H. Kettler and Kevin Verhulst – University of Iowa, Office of the State Archaeologist, Iowa City

One of the most characteristic projectile point styles originating from the Middle Archaic time period in the Midwest is the Raddatz point. The recently excavated Middle Archaic Palace Site in Des Moines, Iowa has produced a large sample of side-notched points that are similar in form to the Raddatz type. In our analysis we compare the Palace site point assemblage to the Raddatz point type from four Midwestern sites including the Raddatz Rock Shelter Site in Wisconsin. In this analysis we expand on and build from previous characterizations of the Raddatz point type by exploring a suite of metric attributes in order to gain a sense of morphological variations between Raddatz points within their midcontinent distribution.

Hidden in Stone: Plant Processing with Chert Implements

Melody K. Pope and Anson Kritsch – University of Iowa, Office of the State Archaeologist, Iowa City

As part of a larger on-going study aimed at exploring relationships between subsistence and sedentism in the Neolithic Near East and Archaic Midwest, this poster introduces the results of an experimental microwear study of stone tool plant processing. Midwest researchers typically study plant remains but chert plant processing implements have received little attention. Researchers working in the Old World typically focus on both plants and plant working technologies. If lithic data are to be integrated into studies of past economies it is necessary

to differentiate between tools used for manufacturing and those used in subsistence tasks. To this end, our poster introduces the results of experimental work on silica-accumulating plants including cattails, rushes, reeds, grasses, and cattail tubers. As the findings demonstrate, chert implements are effective for procuring and processing woody stemmed plants and tubers, work that leaves behind key microwear attributes observable with high power optical microscopy.

Knife Lake Siltstone: Squeezing Meaning from Shades of Gray

Dan Wendt – Minnesota State Historical Society Volunteer Program, St. Paul, MN

Knife Lake Siltstone is a lithic material that was intensively utilized during the late Paleo-Indian Period and outcrops in the Boundary Waters Region between Minnesota and Ontario. Secondary glacial till sources were utilized in a much broader geography including northern Minnesota and northwestern Wisconsin. The lithic material profile of Late Paleo-Indian sites in Northern Minnesota are often almost exclusively siltstone. Laboratory methods are being developed and assessed with the hope of gleaning useful information out of the variation that occurs in siltstone attributes. These attributes include: color, texture, translucency, bedding pattern, metamorphic deformation and brecciation. These features qualitatively distinguish some source locations and seem to relate to material selection bias. A set of consistent methods to characterize siltstone variation is the goal of this first phase of work.

The UI-OSA Lithic Raw Material Assemblage: An Online Resource for Archaeological Studies of Debitage and Chipped Stone Tools.

Mark L. Anderson and Daniel G. Horgen – University of Iowa, Office of the State Archaeologist, Iowa City

Most Iowa archaeological assemblages are dominated by lithic materials. Geologic identification of these lithic materials and their source location is one of the few ways of making cultural inferences regarding prehistoric raw material procurement, reduction strategies, and other social interactions. The University of Iowa's Office of the State Archaeologist (OSA) has an expansive lithic raw material assemblage with a 25 year compilation history. Our in-state assemblage holds 580 samples representing 75 different lithic types; our out of state assemblage holds 320 samples representing 144 different lithic types. The in-state assemblage is aligned with the geologic column of Iowa, representing geo-physical regions, and affords a more systematic and consistent geologic approach to macroscopic lithic identification. This data is available through a UI-OSA web-based lithic resource page. This poster summarizes analytical tools, in addition to the existing macroscopic identification key, that are being applied to the assemblage for improved future use.

11:30 – 1:30 Lunch Break

At 12 noon, Brown Bag presentation

Where is that Confounded Site? Historic Background of the Rummells-Maske Clovis Cache, 13CD15.

Mark L. Anderson – University of Iowa, Office of the State Archaeologist, Iowa City

The Rummells-Maske Clovis Cache site, 13CD15, is a nationally recognized archaeological site famous for the recovery of 21 Clovis projectile points, one blade tool, and several pieces of debitage. The site was discovered in 1964 by Wayne Rummells and Richard Maske. Unfortunately, solid site location data was not clearly captured leaving some doubt as to the exact placement of this important cache. However, during the spring of 2011 the original property containing the cache was being parceled up for sale and this lead to the opportunity to access the property for a surface survey and GPS data collection. About the same time, the field notes of one of the two original investigators were recovered in the OSA archives. This presentation provides a review of the

historic background behind the property containing the Rummells-Maske Clovis point cache and defines the probable actual location of the find.

(There will be time to grab some lunch to eat during the talk and there will be time to eat after as well)

1:30 – 3:30 Paper Presentations

A Predictive Model for Lithic Resources in Iowa: Ten Years Later.

Chad Goings – Rolling Hills Consulting Services, LLC, Washington, IA

Ten years ago I completed my thesis titled "A Predictive Model for Lithic Resources in Iowa" which was subsequently published in *Plains Anthropologist*. This model was created using a 30-meter resolution elevation dataset. Since then, the State of Iowa has acquired more accurate LIDAR surface elevations. Furthermore, the Iowa Geological and Water Survey has created more detailed bedrock and exposure maps. This paper will show an updated model within the previous study area to demonstrate any improvements and also to discuss any uses such a model as this might provide for locating primary and secondary chert sources in Iowa. **1:30pm**

KNIFE LAKE SILTSTONE: NOT JUST FROM BEDROCK ANYMORE

Stephen L. Mulholland and Susan C. Mulholland – Duluth Archaeology Center, Duluth, MN

Recent surveys on the American side of Knife Lake have identified numerous quarry areas containing various qualities of Knife Lake siltstone; previous studies also located many quarries on the Canadian side. It has been assumed that the bedrock quarries were the sources for much of the tool-quality KLS found on archaeological sites in Minnesota. However, research over the last two decades by various investigators has identified abundant KLS deposits in glacial tills extending south to southwest from the bedrock outcrops. These till sources contain the same varieties and qualities of toolstone as found in the bedrock but are more accessible. Archaeological sites in northeastern and central Minnesota show that acquisition of KLS did occur from local till sources. Both Bradbury Brook (near Mille Lacs) and sites at the Reservoir Lakes (near Duluth) demonstrate that Paleoindian groups did not have to travel to Knife Lake to acquire supplies of good quality KLS. Both till and bedrock sources need to be considered when investigating potential travel/trade routes based on toolstone, not only for KLS but for other lithic types as well. **2:10pm**

The 2011 Palace Site Excavations: Exploring Communities of Practice with Fine-scale Data Analyses and GIS-based Approaches

Pope, Melody K. William E. Whittaker, Angela R. Collins, Kurtis Kettler, Anson Kritsch, Sam, Hannah Scates, Mark Anderson, and Daniel Horgen (University of Iowa, Office of the State Archaeologist)

Recent excavations at the Palace Site, a buried multi-component mid-Holocene site has documented evidence for extensive occupational horizons on the Des Moines River floodplain on the outskirts of the modern city of Des Moines. The site deposits are well-preserved and the stratigraphic and chronological sequences provide an opportunity to explore relations between site structure and community practices important to refining ideas about hunter-gatherer mobility and Middle Archaic settlement patterns. Our presentation provides an overview of the site and the different methodological approaches being used in the on-going analyses of lithic and other material categories. **2:50pm**

5 pm UI Old Capitol closes for the evening

Saturday, 25 February

Doors open at 9:30 am for set up and conversations

10:00 – 11:30 Paper Presentations

Lithic Raw Material Selection and Aurignacian Blades from Abri Cellier.

Alexander G. Woods – University of Iowa, Iowa City

This talk represents the culmination of three years of research on the relationship between raw material selection and Aurignacian blade production at the French Paleolithic site of Abri Cellier. This study combines the lithic analysis of blades from the Logan Museum of Anthropology (Beloit, Wisconsin) and Le Musée National de Préhistoire (Les Eyzies, France) with the results of mechanical knapping experiments on French flints. The use of fracture toughness testing and the mechanical fracturing of experimental cores allows for a quantitative comparison of the flaking quality of Perigord raw materials. This research sheds light on the reasons behind exotic raw material acquisition during the French Aurignacian and opens up new avenues for the scientific study of raw material quality. **10:00am**

Fresh perspectives on selected assemblages: application of raw material utility analysis.

Kent Bakken – University of Minnesota, Minneapolis

This presentation re-examines lithic data from a number of sites from the perspective of lithic raw material utility analysis. Utility analysis is a proposed method (Bakken 2011) that evaluates the relative "usefulness" of various raw materials by looking at relative flaking quality compared to package size. These two terms serve as axes of a matrix where regional raw materials -- of greatly varying character -- can be placed. This facilitates the comparison of lithic assemblages from regions with different raw materials, and also provides a structured approach to examining changes in raw material provisioning and use through time. Application of this kind of analysis to a large body of lithic data suggest the existence of only four basic raw material use patterns in Upper Midwestern prehistory. Insights from this analysis and a resulting model are applied to selected lithic assemblages from the region in order to illustrate how utility analysis can contribute to interpretation of site chronology and structure. **10:40am**

11:30 – 1:00 Lunch Break

1:00 – 3:00 Lithic Exchange

The exchange portion of the workshop will be held at the Office of the State Archaeologist laboratory,

700 Clinton Street Building

An easy 6 block walk south of the Old Capitol Museum or a short drive with plenty of free parking

4:00 pm Thank You and Good Bye!