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Hidden in Stone Identifying Use-wear Traces on Lithic Tools Anson Kritsch

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In this poster, I present results of ongoing research that seeks to identify detailed information on **plant working activities** and related technologies **hidden** in **wear patterns** preserved on the edges of **stone tools**.

We examined several polish and wear traces left behind by silica rich plants known to have been harvested by ancient Iowans in order to see the similarities and differences among them.



Tool A

Contact Material: Cattails
Duration of Use: 3hrs 15min.

Tool A was in contact with a woody material, which is reflected in the wood like polish left on the stone surface.



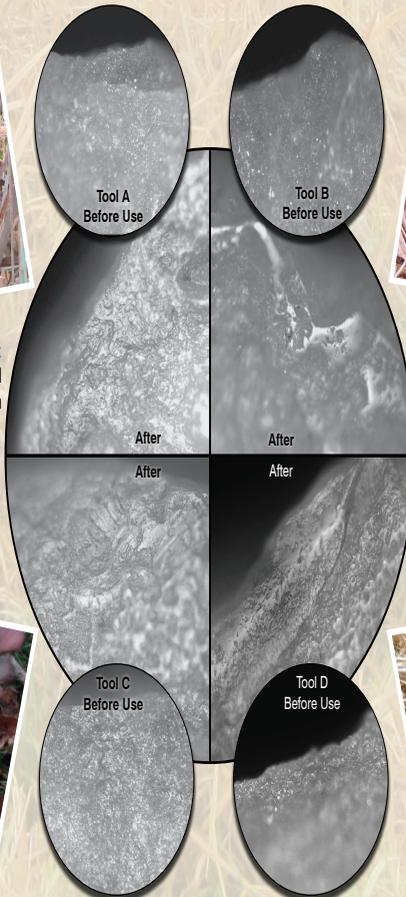
Tool A Wear Comparison:
Bright Dense Domed
Non-fluid Polish



Tool B

Contact Material: River Rushes
Duration of Use: 3hr 15min.

Tool B Wear Comparison:
Bright Smooth Fluid
Domed Polish



Tool C Wear Comparison:
Dense Flat Striated Polish

Tool D Wear Comparison:
Bright Domed Polish

Tool C has a flat striated polish due to the flat scraping motion of the tool.



Tool C

Contact Material: Cattail Tubers
Duration of Use: 2hrs



Tool D

Contact Material: Canary Reed Grass
Duration of Use: 2hrs

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Findings

The aim of the project was to identify subtle variation in microwear features that may be exclusive to certain plants that can act as **discriminant attributes**. The consistent factor within all of the polish formations was brightness, which may be an attribute of silica polish. We found that the differences in polish formation could be attributed to both the composition of the plant material and motion of the tool.

Future research will involve comparisons between experimental tools and archaeological samples.

Report on the Second Biennial Lithic Raw Material Workshop

by Mark Anderson

On Friday and Saturday, February 24th and 25th, the Office of the State Archaeologist, Iowa Archeological Society, and the University of Iowa's Museum of Natural History sponsored a lithic raw material workshop. This was the second biennial workshop with the inaugural event taking place at the Minnesota Historical Society in 2010.

The event was designed to afford lithic researchers an opportunity to meet in a small, informal venue in order to report on recent research, discuss problem issues of lithic identification, exchange physical samples of lithic raw materials, and generally collaborate on the development of a better understanding of Upper Midwest lithic resources.



Photo: Mark Anderson

Participants look over the many displays brought to the Lithic Material Workshop.

This year's conference was held primarily at the Old Capitol Museum on the Pentacrest of the University of Iowa. Friday's session took place entirely at the museum, opening in the morning with display tables of artifacts and raw material samples from seven participants. Five posters were also on display featuring information on Knife Lake Siltstone from Northern Minnesota, use wear experiments on the processing of cattails and other marsh plants, and the OSA's lithic raw material web site. Approximately 45 participants signed in for the Friday sessions coming from Minnesota, Wisconsin, Illinois, Iowa, and Nebraska.

The afternoon paper session began with an OSA Brown Bag series presentation focusing on the historical background of the Rummells-Maske Clovis Cache, 13CD15, and leading to a new idea of the correct location of this important site. Three presenters covered such varied topics as predictive models for lithic resources, geographic distribution of Knife Lake Siltstone in Minnesota, and discussions of the ongoing research on the Palace Site, 13PK966, located within the city limits of Des Moines, in

Polk County. With the addition of many students and other walk-in guests, total attendance for the paper presentations ranged from 55–70. The choice in location was to encourage students to drop in and see what a professional meeting was like. We were pleased to see the many students who did just that.

Saturday morning opened with more discussions, more display table viewing, and the presentation of two more papers, one on lithic raw material choice in Aurignacian blades from the French Paleolithic and the other on the recent archaeological surveys of Lake Vermilion State Park, the newest in the Minnesota state park system. After a brief lunch break, the afternoon session reconvened at the OSA lab for a lithic exchange. Roughly 30 people met at the lab to examine the OSA facilities, see the lithic raw material assemblage, and exchange physical samples.

The focus was on Upper Midwest lithic samples, but there were also exchanges of materials from Indiana to Montana and from Ontario to Missouri. Discussions were lively and engaging, covering a wide range of topics from geologic context to geographic distribution to knapping quality and frequency of use based on the archaeological record.

The day wrapped up by about 3:30 p.m with participants heading back home with new samples, new information, and hopefully new friendships as well as the renewal of old ones.

We would like to thank the people who attended this event, the Old Capitol Museum and their staff for being wonderful hosts, the OSA, the Iowa Archeological Society and the Museum of Natural History for sponsoring this event.

We look forward to the Third Biennial Lithic Raw Material Workshop in February 2014. We hope to see you there!

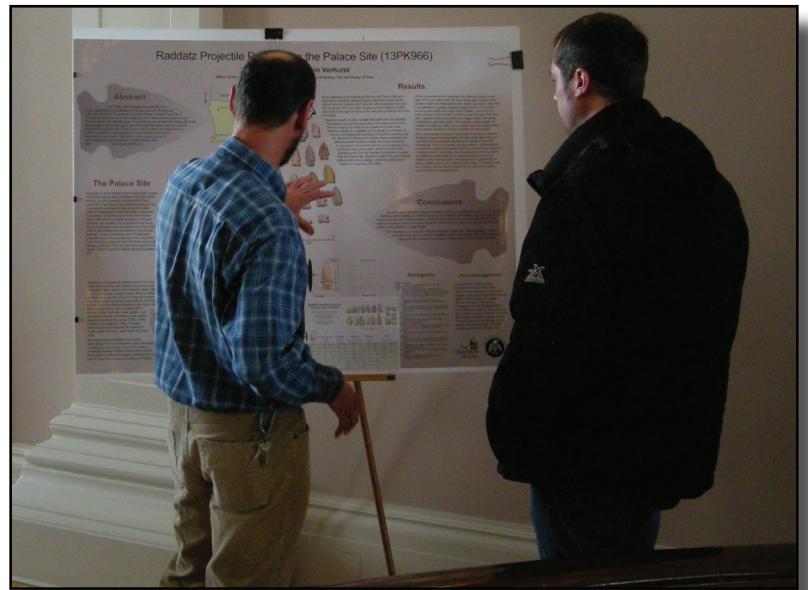


Photo: Mark Anderson

Kevin Verhulst of the OSA illustrates data on the projectile points from the Palace Site, 13PK966.

Raddatz Projectile Points from the Palace Site (13PK966)
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Office of the State Archaeologist, College of Liberal Arts and Sciences, The University of Iowa

Abstract

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.

The Palace Site

Excavations at the Middle Archaic Palace Site, located on the Des Moines River floodplain in the city of Des Moines, occurred between November 2010 and June 2011. The Office of the State Archaeologist was contracted to excavate the site along the western edge of a wastewater treatment facility in southeast Des Moines. Cultural remains recovered from the Palace Site include possible remnants of "houses" furnished with hearths, and a Middle Archaic burial. The archaeological crew recovered more than 6,000 artifacts associated with the Middle Archaic cultural deposits. Among the artifacts were 33 diagnostic projectile points. The absolute age of the occupation is anchored by a series of nine AMS dates that range between 8000 and 7200 BP, with short absolute time spans (100-200 years) for Middle Archaic occupational locs.

Methodology

We chose to compare the Raddatz points from the Palace Site with similar points recovered from the Raddatz and Durd rockshelters in Wisconsin, Richardson Site in Illinois, and Cherokee Sewer Site in North Western Iowa to encompass a range of sites within the Midwest. Simple descriptive statistics were used to compare formal size dimensions among and between the samples. We compared metric data for the Palace Site Raddatz points to those from four Midwest Middle Archaic sites. Data was not available for the Cherokee Sewer site to include within our stem length and stem width graphs. Our typological analysis was based on the metrics previously recorded by Justice (1987), Witly (1959a), and Anderson (1980). For each Raddatz point we measured the maximum length, width, thickness, stem length and stem width.

We approached the Middle Archaic point assemblage with some hesitation when attempting to classify our point types. Due to the physical similarities between Middle Archaic side-notched point types it is difficult to assign a single point to a specific type. We are assuming that our Raddatz points are genuinely contemporary based on site stratigraphy and absolute dates. Our Raddatz typology is based upon the original description laid out by Witly for the Raddatz Rockshelter SPS in Wisconsin. We used various resources to help classify our other point types within the Palace Site assemblage (Justice 1980, Toby 1984, Cook 1976, Wilby 1959b).

The projectile points from the Palace Site were manufactured principally using locally available raw materials. We defined locally available raw materials as stone readily accessible within the local drainage basin and the surrounding riparian environment.

Key Materials from Palace Site

- Illinoite
- Waynes Creek
- Burlington
- Waltham Falls
- Waynes Member
- Clinton Chert

Results

Metric attributes of the Raddatz points from the Palace Site were examined to test their statistical fitness. Maximum length has the highest standard deviation and variance while maximum thickness has the lowest within our suite of measurements. Maximum width, stem width and length all share similar standard deviations and levels of variance.

Maximum length is highly variable with points from the Raddatz Rockshelter being at the larger end of our scale and the points from the Palace site being on the smaller end of the scale. Maximum length of a projectile point is going to be affected by the use and subsequent reworking of a point to extend its use life. Maximum thickness also shares formal similarities and differences with maximum length due to the mechanics of manufacture and parent material. As a projectile point is thinned it becomes smaller. Maximum width of the Raddatz points from the Raddatz Rockshelter is greater than the Palace Site. Maximum width is the least variable attribute likely due to design constraints, particularly in relation to overall size and hafting.

Conclusions

We were able to identify a range of variation based on our statistical analysis of our metric attributes used to define our Raddatz typology we created for the Palace Site. We suggest that maximum length and thickness share a similar range of variation due to manufacturing and raw material constraints and raw material. Maximum width and stem width show the least amount of variation likely related to design factors.

The next step in our study will combine functional, spatial, and contextual data to better understand the use and use-life of Raddatz points at the Palace Site. In the future we would also like to expand the study to include other Middle Archaic assemblages.

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Future Archaeologist Digs OSA Internship

by Aimee Roberts



OSA Intern, Aimee Roberts

Cornell College senior Aimee Roberts recently completed an internship at the Office of the State Archaeologist as part of her classwork in anthropology. Excerpts from her report of the experience follow.

For my archaeology capstone experience I chose to do an internship with the Office of the State Archaeologist in Iowa City, Iowa. Because archaeology is the career path I have chosen, I felt an internship at the OSA would be the best way to gain a better understanding of the profession.

My first task at the OSA was float picking. While I had heard of flotation from the field school I had participated in, I had no experience with the process. I learned that water is used to process soil and feature fill in order to recover tiny artifacts. My job was to pick through the material remaining from floating in order to recover these artifacts. Using a microscope and tweezers, I searched through the collections of

float samples for fish scales, bones, seeds, chert, rock, charcoal, and shells. Everything left over was considered residuum. After sorting these artifacts and placing them in test tubes, they were weighed. Certain artifacts recovered from a site help to interpret that site. After weighing, the artifacts were then tagged and bagged. After doing this multiple times I was able to develop an eye for spotting these artifacts. The more I did it, the easier it became to spot bone, chert, fish scales, etc.

On the third day of my internship I was introduced to Mr. Michael Perry. Michael asked for my help in sorting a collection of artifacts for the purpose of creating an inventory of the items. The artifacts were collected by Ellison Orr in the 1920s from the High Bank site (47-CR-146) in Wisconsin. Working on this collection with Michael was a great learning experience for me. It provided me with experience that will be very useful in my future. Learning how to identify artifacts and being able to put this into practice over and over again is helping me to develop skills necessary for a career in archaeology. I was also glad for the chance to learn about the history of the site and the collection.

I was also granted other learning opportunities while at the OSA. I feel very fortunate to have been able to listen to the Brown Bag lectures that were given on Fridays during my first and second weeks. The first week was a lecture about the Iowaville site by Cindy Peterson. The lecture described bone specimens found at the site. The bones found included mammalian, avian, fish, and reptilian bones. Deer made up one-third of the assemblage. What I found interesting was the presence of dogs — some pets and some eaten. I learned that these kinds of artifacts reflect patterns of hunting and resource use. It was very interesting for me to learn about the history of wildlife in the area and the way the people living there used the resources. The following week was a presentation by John Hedden about smoking pipes in Iowa. The lecture also included Mississippian mythology which I found especially interesting.

Wayne County, Iowa Axes and Celts

by Dale Clark

The axes and celts in the photographs below came from sites along the South Chariton River in Wayne County Iowa (13WE21, 13WE22, 13WE33, 13WE35, 13WE37, 13WE40, 13WE152). These sites were documented by D.E. Pidcock and myself from 1975–2001. The stone artifacts were likely made from local material and exhibit different styles, material, and purpose of usage. The people who lived in the South Chariton River Valley in Wayne County used the same techniques to produce their projectile points. No two points are alike.

The axes and celts from these sites have a personal touch to them, a signature you might say. As you look at these artifacts, they are telling you a story about the person who made it and possibly the purpose of the tool. One cannot help but to wonder what each person was looking for when trying to find a core piece in the local stream bed. Did they know exactly what they needed to create these stone tools? Was this knowledge passed down from generation to generation? If so, why were they made from different materials and in different styles?



I also wonder why these important tools were left at the campsite. I know that if I took the time to hunt for the core material, produce the stone tool, and in some cases polish the stone, I would not lose or leave the tool on the campsite before moving on — unless it was on purpose. Could this be a way of passing material, style and usage down from generation to generation without actually doing it in person?

These stone tools tell me a lot about the people who created them, but it also leaves me with so many unanswered questions.

Photos by Dale Clark

Spring Meeting Schedule:

Saturday, May 12

Hartman Reserve Nature Center
657 Reserve Drive, Cedar Falls, IA

Introduction and Welcome

by Ed Gruenwald (Nature Center Director)
and Donald Gaff (University of Northern Iowa)

From Cornmeal to Cupcakes

by Rita Congdon (Cedar Falls Historical Society)

Contemporary Issues in the Prehistory of Northeastern Iowa

by David Benn (Bear Creek Archeology)

Test Excavations at 13DM999

by Michael J. Perry (OSA)

State Historical Society of Iowa Statewide Preser- vation Plan Update and Input

Lunch

The Distribution and Spatial Change of Identified Archaeological Woodland Sites in Eastern Iowa

by Levi E. Smith (University of Northern Iowa)

2011 Excavations at Cahokia Mounds and 11th Century Pulcher Tradition Washausen

By Fred Gee (Iowa Archeological Society)

Anthropological Research Framing for Archaeological Geophysics

by Jason Thompson (University of Northern Iowa)

On-going GIS Study at the Palace Site, a Middle Ar- chaic Settlement on the Des Moines River

by Melody Pope, William E. Whittaker, Angela R.
Collins, Melanie Riley, Kurtis Kettler, Hannah Scates, and
Anson Kritsch (OSA)

The Biggest Movers of Earth: The Iowa Department of Transportation and Archaeology

by Matt Donovan (Iowa Department of Transportation)

“Traditional Resource Usage” Hike and Demonstrations

by Chris
Anderson (Hartman Reserve)

What's The Point?

By Daniel G. Horgen

Identify the artifact shown here:



This point was discovered in Webster County, Iowa. The point measures 1½ inches in length with a maximum width of ¾ of an inch. This small side-notched point is typically very well made. The small side notches are placed very low on the blade and the base is predominantly concave. These points are usually considered to be Canadian.

Send your responses to Daniel G. Horgen at daniel-horgen@uiowa.edu. Answers will be listed in the next issue of the Newsletter.

Find last edition's answer on page 7!



Iowa Archeological Society

Answer



The projectile point illustrated in the last issue of the *Newsletter* is classified as a Mankier corner-notched. Two varieties of Mankier points have been classified, Mankier corner-notched and Mankier stemmed. These points are associated with the Middle Woodland period dating between (100 BC – AD 300). Larry Van Gorden, Bill Green, Gary Stam, Jimmie Thompson, and Fay Vittetoe submitted correct responses.

Mankier corner-notched points exhibit the characteristic haft morphology and manufacturing of Snyders projectile points. However, they have a narrower stem, smaller total width, and the blade is not as large and less refined. Mankier reflects a more utilitarian function found commonly on habitation sites in southeast Iowa. Mankier can be interpreted as contemporaneous with Snyders, but perhaps a localized manifestation. The chert type is classified as heat-treated Burlington. Burlington chert is common in southern Louisa and Des Moines counties in southeast Iowa and is one of the most widespread lithic materials found on archaeological sites within the state.

Financial Report for January 2011 to December 2011

Account Balances as of January 1, 2011:

Certificate of Deposit (matures 03/18/2012)	\$1,092.08
Checking	\$4,721.39
Savings	\$2,400.37
	<hr/>
	\$8,213.84

Account Balances as of December 31, 2011:

Certificate of Deposit (matures 3/18/2012)	\$1,138.61	
Checking	\$6,153.89	
Savings	\$3,178.12	
	<hr/>	
	\$10,470.62	Gain or Loss(-)
		\$2,256.78

Income - January 2011 to December 2011:

Archaeology Month 2011	\$2,400.00
Certifications	\$10.00
Interest dividends	\$54.28
Meetings (Spring and Fall 2011)	\$1,947.00
Memberships	\$10,264.25
Research and Education Fund Contribution	\$770.00
Sales (Journals, Patches, Pins, Royalties)	\$401.09
Wickiup Hill Archaeological Project	\$2,047.51
	<hr/>
	\$17,894.13

Expenses - January 2011 to December 2011:

Archaeology Month 2011	\$2,400.00	
<i>Archaeology On The Road</i> Booklet	\$1,430.84	
Journal Volume 57 (2010)	\$4,028.33	
Keyes-Orr Award	\$13.21	
Meetings (Spring and Fall 2011)	\$1,539.77	
Meeting (Spring 2012)	\$60.00	
Newsletters (Winter 2010, Spring 2011, Summer 2011)	\$2,748.16	
Office Supplies	\$222.07	
Postage (Journal, Newsletters, IAM 2011, WHOLC)	\$1,750.53	
Printing	\$417.04	
Secretary of State	\$5.00	
	<hr/>	
Wickiup Hill Archaeological Project	\$1,022.40	Gain or Loss (-)
	<hr/>	\$2,256.78
	\$15,637.35	

Net Gain or Loss (-) since January 1, 2011 \$2,256.78

Respectfully submitted by,
Alan Hawkins, IAS Membership Secretary/Treasurer

Iowa Archeological Society
The University of Iowa
700 Clinton Street Building
Iowa City, IA 52242-1030



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Welcome New Members in 2011!

Joe Agan	Marion, Iowa
Terry Bagley	Bellevue, Iowa
David Brown	Grundy Center, Iowa
Joy and Robert Cummings	Cedar Rapids, Iowa
Mary Deneve	Geneseo, Illinois
Murray Grant	DeWitt, Iowa
Greg and Denette Haines	Muscatine, Iowa
Ronnie Harrison	Revere, Missouri
Bill Hart	Cedar Rapids, Iowa
Darryl Hokanson	Center Point, Iowa
Lisa Johnston	Naperville, Illinois
Carol Kirkpatrick	Hills, Iowa
Laura Nix	Guttenberg, Iowa
Sue Mahler	Ames, Iowa
Jim and Sandy Mallory	Riverside, Iowa
Laura McCullough	Kettle Falls, Washington
Howard Miller	Bellevue, Iowa
Ethan Mitchell	Knoxville, Iowa
Carol Nass	Sabula, Iowa
Karen Pierce	Cedar Rapids, Iowa
Robert Raker	Des Moines, Iowa
Michaela Ray	Cedar Rapids, Iowa
Tom Ryan	Mt. Pleasant, Iowa
Stacie Salsbury	Davenport, Iowa
Rob Simmon	Glenwood, Iowa
Diane Smaby	Cedar Rapids, Iowa
Levi Smith	Cedar Falls, Iowa
Gail Stewart	Cedar Rapids, Iowa
Chet Wildemuth	Iowa City, Iowa

Congratulations to **New 30 Year Honorary Lifetime Members** John Broihahn, Madison, Wisconsin; James Theler, La Crosse, Wisconsin; and John Whittaker, Grinnell, Iowa on achieving the Honorary Lifetime membership status. They have been members since 1982.

About the IAS

The Iowa Archeological Society is a non-profit, scientific society legally organized under the corporate laws of Iowa. Members of the Society share a serious interest in the archaeology of Iowa and the Midwest.

Membership

Contact Alan Hawkins, IAS Membership Secretary, at the University of Iowa, Office of the State Archaeologist, 700 Clinton Street, Iowa City, IA 52242-1030.

Dues Voting

Active	\$25
Household	\$30
Sustaining	\$35

Non-Voting

Student (under 18)	\$14
Institution	\$35

Newsletter Information

The Newsletter of the Iowa Archeological Society is published four times a year. The Newsletter actively seeks short reports and essays on Midwest archaeology, Native Americans, early Iowa history, paleontology, and related topics. All materials for publication should be sent to Editor Lauri Chappell, University of Iowa, Office of the State Archaeologist, 700 Clinton Street, Iowa City, Iowa 52242-1030.

Email: thewillow301@gmail.com

IAS website:

www.uiowa.edu/~osa/IAS

Thank you to Jenna Reynolds, William Whittaker, and Katherine Beydler for their expert design assistance for the Summer 2011, Fall/Winter 2011 and Spring 2012 IAS newsletters!

Lauri Chappell, Editor