Oneota Ceramics

Experimental Archaeology

Honors Senior Thesis (HONRS 499)

By: Abby J. Schori

22 April 2006

Thesis Advisor: Beth McCord

Ball State University
Muncie, Indiana

Graduation Date: 6 May 2006
Abstract:

Experimental archaeology allows researchers to better understand their subject matter by actively participating in one or more aspects of their culture. This could take the form of flint knapping, building tools or structures in their fashion, cooking as they did, and/or constructing ceramic vessels in their specific style. Ceramics are a major defining point of any culture and certainly for those living in North America 500-1000 years ago. The Oneota are a prehistoric Midwestern Native culture well-known for their shell tempered ceramics. By studying their ceramics; shape, form, decoration, and temper, I was able to replicate four ceramic vessels. With four pots I was able to try different forms of decoration and handle shape. The process involved to successfully construct these pots was slightly lengthy. The paper gives a brief overview of the Oneota culture before concentrating heavily on their ceramics and then my process and methods for building, decorating, and firing the four pots.
Acknowledgements:

I would like to thank Beth McCord for her advice and open mind as I researched the Oneota people and then constructed the ceramic vessels. Her pointers were helpful and allowed me to be creative with the final outcome of the pots.

I am also very appreciative of all the encouraging comments from those who work in the Archaeological Resource Management Lab in the Anthropology Department. It was great to hear and see positive reactions and for others to show an interest in what I was doing.

I would also like to thank Don Cochran for sparking my interest last semester in experimental archaeology and for allowing me to do a ceramic project for him.
The past is an ever present force whispering to all who will listen. Many scholars have a fascination with the historical events that occurred before them and they research, excavate, and write to further their understanding. To better learn about the cultures that existed before the current one, it is best to replicate what they did. Experimental archaeology engages the researcher in a way no book ever will. Imitating Oneota ceramics gave tangible meaning to my exploration of their culture. A specific aspect of this Midwestern culture was chosen and then exemplified. Their methods were replicated as closely as possible to imitate their ceramic forms. Their culture was examined and also portrayed through their ceramics, while multiple details about their lives were given alongside the descriptions of decoration and vessel shape. The methods employed in this project and the results which follow all contribute to the knowledge of the researcher and also promote the memory of past Midwestern life-ways.

It is a necessary first step to gain a general understanding of the culture being studied. The Oneota people lived from AD 900-1650 in the current Midwestern states of Illinois, Wisconsin, Indiana, Iowa, Minnesota, and Missouri (Oneota 2002). Their settlements are commonly found along bodies of water; lakes, rivers, and marshes, and range in size from twenty acres to only a few dozen houses (Overstreet 1997; 25, 252). The houses they built were single-family pit houses, mat and pole wigwam-style or long houses with multiple families (Overstreet 1997; 252). The width measurement of the single family dwellings was fifteen feet and the long houses could be fifteen by fifty feet (Jeske 2003). The Oneota culture is said to be a subdivision of the Upper Mississippian culture. One of the distinguishing factors is the simplified tradition of agriculture (Brown 1990; 145). There is evidence of trade with the Mississippian people such as those from Cahokia and it has been suggested the Oneota were migratory Mississippians (Oneota 2002).
As far as subsistence goes, they hunted, farmed, gathered, and collected aquatic resources. They hunted animals such as elk, deer, beaver, raccoon, squirrel, and multiple bird and fish species. Land resources consisted of corn, squash, beans, berries, nuts, pigweed, and lambsquarter (Brown 1990; 254, 260, 261, 272). Copper artifacts like tubular beads, wire coils, hammered pieces, flecks of and rolled bits have pointed to the Oneota use of this metal. They also used their animal resources completely as they made hoes out of bison scapulas, turned deer mandibles into sickles or corn shellers, and made awls and needles out of thin bones (Brown 1990; 251, 352). The Oneota, however, are best known for their shell-tempered, globular shaped ceramics (Brown 1990; 145) The remains of their pumpkin-shaped vessels are a strong artifact identifier in Midwestern archaeology. The ceramic sherds are very thin and will have decoration if it is a shoulder, lip or rim piece. The vessels were used for many different purposes: storage, cooking, carrying, and as burial goods.

The burial goods can be placed in their own category and will be mentioned briefly because of the immense quantity found at the Gentleman Farm site. A salvage excavation was completed for the site and the excavators focused their energies on a 100 foot mound. It is likely there were over 200 burials for the entire site with a range of ages and the presence of both sexes (Brown 1967; 1, 4). Most of the burials contained ceramics used for grave goods. For example, a thirty-seven year old male had an Adam’s tradition jar, a twenty-eight year old female was buried with a Langford plain pot, and a six year old child was found with a Langford trailed pot (Brown 1967; 9). All ages were buried with grave goods, from infants up to a seventy year old man. After the excavation, when the numbers had been tallied, it was found that thirteen of the burials contained fourteen whole or restorable pots, ten had whole vessels and worked shell spoons, seven pots had spoons inside of them, three spoons were situated between the individual
and the vessel, and two cases had a spoon in the mouth of the pot, which was probably filled with food upon burial (Brown 1967; 16, 17). Food is an important part of any culture and the Oneota certainly followed this ideology as well. It is likely their society was egalitarian in nature as all individuals buried within this mound had an equal chance of having ceramics buried with them.

State and country boundaries are often viewed as dividing lines between cultures, when in fact they are usually arbitrary, man-made ‘cultural separators’. The Oneota lived in hundreds of locations throughout the Midwest and each area had a specific signature for their ceramics. Every region had a distinct style that changed with time. Details on the ceramics may have differed between certain regions and stylistic features changed during the centuries, but the overall shape did not deviate from the globular, rounded-base form. The ceramic types found in this area of the United States have been given names to better identify and classify the artifacts. In Northwestern Indiana, Huber ceramics are common; they are shell tempered, have a plain, smooth surface, and minimal if any decoration. When decoration is present it is incised lines made by either a finger, an antler tine or a sharp pointed tool. Each of these objects creates a different width size from wide to fine (Brown 1990; 24, 25). Huber ceramics have notched rims and the widths are measured in the same way as the incising: wide, medium, and fine (Brown 1990; 26).

The discovery of whole vessels is a rarity and therefore significant because so much information can be gleaned from it. For example, a Fifield Bold vessel was discovered at a Hoxie or Huber site and this is what researchers were able to take away; evidence of cord-marking on the vessel’s exterior, wide shallow fluting on the shoulder, three to four lines at the bases of the four strap handles, five flutes between the handles, an un-notched rim, an 11.5 cm
diameter, and a height of 12.5 cm (Brown 1990; 31, 32). With this kind of information, a ceramic chronology of Huber phase sites has been developed. It was noted that the proportion of notched rims, width of lines, and surface treatments increased with time. The width of the incising however, decreased with time. The line decoration became more detailed since the lines were thinner. This might have given the vessel a more polished appearance (Brown 1990; 152).

Another type of Oneota pottery is called Adams Traditional Ceramics. This has a smooth surface, small reed punctates on top of the flattened lip and on the interior of the rim. It was discovered on the Gentleman Farm site with a date of AD 1450 (Brown 1967; 29). Two other examples of ceramic types determined by their decorative characteristics are Blue Earth and Orr. For ceramics to be considered Blue Earth they need to have inner-lip notching, shoulder motifs with punctates, and handles attached at the lip. Orr has lip-top notching, punctate filled zones, and handles attached below the lip (Overstreet 1994; 186, 187). Blue Earth ceramics have been found at Brice Prairie and Jim Braun sites with dates of AD 1300. Pammel Creek and Sand Lake both contain Blue Earth and Orr style ceramics and have been dubbed transitional with a date of AD 1400. The last phase consisting entirely of Orr ceramics is Valley View and State Road Coulee. It dates from AD 1530-1600. The attributes for the first phase include: shell tempering, inner lip decoration, shoulder motifs, which usually include punctate borders, handles that are either plain loop or narrow straps attached at the lip. There can be nested chevrons or panels of horizontal tool trails separated by vertical tool markings (Overstreet 1994; 194-196). The middle period has shoulder designs characterized by punctate borders, punctate-filled zones, and boldly impressed lips. The notching from fingers or tools is greater than 1.25 cm. Inner rim and lip notching is not seen, and if there are handles they are wide, decorated, and are joined to the vessel below the lip (Overstreet 1994; 200-201).
The Valley View phase is the last Oneota occupation at La Crosse, Wisconsin. These examples have fine lip-top notching, wide handles below the lip, vertical tool trails, an increase in average rim height, decrease in line width, and shoulder motifs remnant of the transitional phase (Overstreet 1994; 206-207).

The different ages of the prominent Oneota sites in Wisconsin have been broken into three phases or horizons. The earliest one is called the Emergent Horizon and is dated AD 950-1150. Most of the vessels lack shoulder decoration and handles. Lip modification is common and so are nested chevrons with punctate filled designs. The percentage of the temper found in all of the vessels is 90% shell and 10% grit (Overstreet 1994; 255-257). The second Horizon is Developmental, which begins when the previous one ends and goes until AD 1350. Non-decorated vessels are frequent, but the shoulder decoration that does appear is of a new variety and seems sloppy compared to the Emergent Horizon (Overstreet 1994; 266). The final Horizon is called Classic Oneota. In contrast to the later forms, 90% of the vessels are decorated. Rim forms are sharply everted for Lake Winnebago Trailed types and Koshkonong Bold have very wide trailed lines (Overstreet 1994; 274, 276). It is interesting to consider why ceramics change over time, especially when the modifications are small details and not found in the overall form. Archaeologists question what factors are involved to have the potters change their procedures.

The main focus of this project was not to tell the life story of the Oneota people, but to experience a small detail of their culture through their ceramics. The replication process of their well-known shell tempered ceramics began after I spent time reading through several books and websites on the subject. The descriptions and photographs of the ceramics were extremely helpful and aided me greatly by providing ideas for the end product. The most active part of the project began last fall when gallons worth of clay was dug from the north bank of the White Schori 5
River. The river had begun to rise and covered the area of clay that was free of grass. Most of the clay had grass growing in it which meant a greater refinement process later on. The clay, wrapped in plastic bags, sat in the garage for months until it was time to begin the building stage of the project.

The process used to make the clay ready for building was completed with the following methods. Warm water was added to the cold, thick clay to turn it into a pudding-like mixture. I stirred it to break-up the large clumps of clay and pick out the pebbles, grass pieces, and twigs. This was rather tedious and messy. After the larger impurities had been removed, the bucket of clay was left to allow excess water to collect on the surface. Sitting over night brought the water to the top and it was then poured off and the process repeated until the clay thickened from pudding to wet dough.

At this stage of the process everything was moved to the archaeology lab and the clay was kneaded and refined. There were still enough small pebbles, twigs, and grass in the clay to be intrusive and the process of removing them was repeated. This time it was done not by swirling my hand around in the slurry, but by flattening small bits of clay and picking the extraneous pieces out. Once a softball sized lump of ‘clean’ clay was collected it was further kneaded to remove any air bubbles. Approximately two tablespoons of crushed fresh water mussel shell was added as temper. This material is added to the clay as a stabilizer before and after firing (Oneota 2005). The shell was crushed in the palm of my hand to an uneven powdery mixture with some pieces 1/4 the size of a dime. The temper was mixed in by kneading and pulling the clay. At this point the clay was weighed. The average lump of clay weighed 385 grams out of a total of 4235 grams. Each pot was constructed from approximately 1058.5 grams of White River clay.
At this time the actual vessel construction began. I looked at many photographs of Oneota ceramics to get an understanding of the typical shape and also sketched several vessels of my own. A paper template was drawn and cut out, but only loosely referred to in the beginning. All of the pots have the same general shape so it was not a matter of choosing which form to replicate. The bases of the vessels were the hardest to duplicate because Oneota vessels do not really have bases; instead they have rounded bottoms.

I made the bases by rolling a quarter size lump of clay and then flattening it into a disc. The coiling method was used after this to build the rest of the pot. Small lumps of clay, the same size as the bases, were rolled into pencil thin coils. Before the coils were placed onto the base and then on each other, a metal pick was used to make scratch or score marks in the previous piece. Water was smoothed onto the scoring as a kind of glue and then the coil was attached. It was gently pushed onto the preceding piece and then smoothed into the other coil with a curved wooden tool. The joining of the coils was an aesthetic as well as structural task. It made the pot continuous instead of layered. Rolling coils, scoring the tops of them, water glazing them, and then smoothing them together was how the vessel went from an ugly brown saucer to a complete, globular Oneota replication. This took time as it was best to allow the coils to firm up before adding too many. I built the pots two at a time (with a total of four pots) and found it was most successful to add two coils on each pot before stopping to allow them to dry slightly. I frequently checked the books to assure the form of the vessels was consistent with the originals. The coils were made by rolling a lump of clay into a ball in the palms of my hands, then elongating the shape before rolling it ever longer on the table’s surface. It was best to roll the coils first with the palm of my hand and then with my fingers. As the coils thinned, less pressure was needed to lengthen them out and spread fingers can be quite light.
It was always my goal to keep the coil in one piece as it was rolled and then placed on the pot, but this frequently did not happen. Cracks would appear and larger pieces of the temper would separate the coil. The breaks were easily repaired and the coil process was repeated for the entire pot.

One of my major concerns was having the pots dry out too quickly. Each night they were placed in plastic zip lock bags and sealed. Sometimes wet paper towels were laid on the pots or placed inside of the bag. This ensured enough moisture would be present to keep the pots from drying too much, especially over weekends. From morning to afternoon or day to day, the pots were placed in plastic bags, but the bags were not always sealed. Keeping them open allows air to stiffen them so they will be strong enough to hold the weight of the upcoming coils.

After the globular shape was achieved, I added the rims. I completed this by the same coil method, but with a little more precision. There was a greater chance for the rims to pull away from the vessel and crack along the inside joint. When the rims became tough, handles were added. Two of the four pots have handles of different variation. One pot has loop handles while the other one has lug handles. The loops were made with a 1½ inch long coil. The rim and shoulder were scored and dampened for attachment, and then three loops were added as handles. The lug handles were fashioned by rolling a bit of clay into a thick disc about the size of a quarter. Two of them were attached to the crevice where the outside rim joins with the shoulder. This area was scored and wetted before the ‘lug’ was gently pressed in. The two lug handles were allowed to dry briefly before the blunt end of the pick tool was pushed through to make holes through their centers. Both types of handles do not appear to be entirely functional and it is difficult to know what purpose they served.
There is an unbelievable amount of decoration types found on Oneota vessels. This made it difficult to choose a style to imitate, but also provided an equal amount of lenience. I examined more photos and made sketches of their designs. The decoration mainly consists of groupings of straight lines, which are made into chevrons, verticals, horizontals, and surrounded by punctates. Most of this decoration occurs on the shoulder of the vessel, but the rims and lips can be patterned as well. The first vessel decoration consists of four parallel horizontal lines with a row of wedge-shaped punctates above and below the lines. There was no inside or outside rim decoration or lip notching. The second pot has three loop handles evenly spaced around the vessel with a three deep chevron pattern circling the pot. At each bottom point of the chevron is a grouping of three punctates and there is also a line of punctates on the lower part of the outside rim. Vessel number three has a more complicated pattern of decoration. There is a single chevron pattern running around the pot and on the inside and outside of each chevron shape are three angles lines. Within the three angled line groupings is a pattern of punctates. Each section is different and may have two, three or four punctate marks. The lip of the vessel is wavy and has a pie crust look to it. The fourth vessel has lug handles. The decoration is a single chevron pattern with two open V’s on the inside of each section. The V’s are filled with half-moon punctates made by my fingernails. The other part of the chevron has five vertical lines. The inner rim surface has two rows of wedge-shaped punctates. All of the decoration was made by a metal pick, a curved wooden tool, and my fingernails.

The vessels had to dry completely before they could be fired, which took two to three days. To achieve a smooth outside appearance for the third and fourth pots, I wetted my fingers and ran them along the outsides of the vessels. Once dry, the vessels were fired two at a time in the kiln. The kiln has six heating coils and three were used.
Every other coil was turned on and slowly heated. An hour later the kiln was at 250 degrees Fahrenheit and the dials were turned to the #2 setting. The next hour the kiln had risen 100 degrees and the dials were increased to the #3 setting. Two hours later the kiln was at 600 degrees and the dial setting remained at #3. After three hours passed the kiln temperature was again checked and had risen only 25 degrees. The temperature stayed at 625 degrees until the timer turned the kiln off and allowed it to slowly cool. By 9:00am the next morning the kiln had cooled completely and two whole pots emerged. The firing process for the next two pots occurred in a similar manner, but with different degrees of change. At 9:30am the 1st, 3rd, and 5th dials were turned to the #1 setting. By 11:00am the kiln was at 300 degrees and I turned the dials to setting #2. An hour and a half later the temperature had risen 150 degrees and the dial was increased another step. At 1:30pm the kiln was at 600 degrees and the three dials were turned to setting 3.5. And by 2:45pm the kiln had increased another 100 degrees and the dials stayed at the 3.5 setting for the remainder of the firing. The timer went off and the kiln cooled. The results were the same as before; two unbroken pots. I felt incredible relief when I opened the kiln and saw the pale, orange-grey pots sitting there intact.

In this process I discovered the main difference between un-fired and fired ceramics is the color. The clay I used from the White River was dark grey and the colors lightened to a pale burnt orange/grey after firing. If the kiln temperature had been higher for the duration of the firing, the vessels would have been a more vibrant shade of orange. They are fairly lightweight and delicate to touch. The surfaces are un-glazed so they have a coarse texture, rather like an outdoor terracotta flower pot.

The most frequent questions I was asked by my peers were why I did not use store-bought clay and was I going to fire them in an outdoor open air kiln.
The answer to the former is I desired to be as authentic as possible and getting clay from the White River allowed my project to begin as the Oneota would have. Digging clay from the White River added an extra element of amusement to the project as well. It was neat to hear responses when people heard where the clay was from. For the second question, I strongly wanted to end the project with whole vessels and firing them outside would have made this more difficult to achieve. Firing pots in a commercial kiln is a delicate procedure. The challenging task of building a fire big enough to contain all of the vessels and then keeping it at a constant temperature for multiple hours would have been too demanding for my level of expertise.

Building these four pots was an adventure into the unknown. My previous experience with ceramics came from last semester when I constructed four bowls by the interior molding method. With this project I tested three kinds of temper and how each one benefited the structure of the bowls. I do have a little previous experience with coil pots because I took a ceramics class in high school. With this limited amount of hands-on experience, a few details from on-line sources, and the visual help of many photographs, I launched into unfamiliar territory.

I am thoroughly pleased with the results and am very encouraged by the work I completed. This project has truly sparked an interest in ceramic replication, reconstruction, design, and decoration. Ceramics are found the world over and each region boasts a unique product. Building the first two pots taught me a great deal and the newly learned experience contributed to the next two. Each mistake was turned into usable knowledge and I was always looking to better the procedure.
The Oneota people expended a great deal of energy forming, decorating, and firing their vessels. Their ceramics were not crude, lumpy pieces of dried clay, but well-made, thin-walled works of ingenuity. It is incredible to see how delicate their pieces are and to know they were fired in open air kilns. Their culture flourished for centuries and now its remnants are preserved by artifacts. Ceramics are one of the most enduring artifacts unearthed and for this culture they have allowed researchers to showcase one of the most important aspects of the Oneota way of life. Their globular, shell tempered pots are so definitive and wholly impacted Midwestern North America. Like most Native tribes, the Oneota were harshly affected by the European invasion in the 16th and 17th centuries. Their way of life appeared firm, but they were crushed to a thousand pieces when outside forces became too strong. The fragility of life is much like that of a ceramic vessel, seemingly sturdy, but when dropped, easily shattered. As more Oneota sites are discovered and excavated, their way of life will catch a breath of energy and knowledge of these people will spread. The replication of their ceramics furthers their memory and allows archaeologists to connect more closely with the cultures they study.
Bibliography

Blakeslee, Donald J., Peck, Michelle, and Ronald A. Dorsey

Brown, James A.

Brown, James A. and Patricia J. O’Brien (Eds.)
1990 At the Edge of Prehistory, Huber Phase Archeology in the Chicago Area. Illinois Department of Transportation. Center for American Archeology.

Jeske, Robert J. and Christie L. Hunter

Overstreet, David F. (Ed.)
1994 LaCrosse Area Oneota. The Wisconsin Archeologist. 75 (3-4).

Overstreet, David F. (Ed.)
1997 Wisconsin Archaeology. The Wisconsin Archeologist. 78 (1/2).

Overstreet, David F. (Ed.)


Figure 3: Map showing major regions and sites with Ossuna components. The Ossuna region is

identified as a change period manifestation.