Transactions of the Illinois State Academy of Science
(2003), Volume 96, #3, pp. 163-175

received 2/17/03
accepted 6/4/03

Prehistoric Man-created Bedrock Holes of the Eastern Shawnee Hills, Southern Illinois

John E. Schwegman
3626 Riverpoint Lane, Metropolis, IL 62960

ABSTRACT

Seven prehistoric bedrock hole or mortar sites in the Shawnee Hills of Pope and Johnson Counties, IL were examined for size, shape, and number of holes, method of construction, and associated cultural materials and features. The holes are called "Pot Rocks" by local residents and all are in sandstone. One hole is in a rock shelter, but the others are in unprotected bedrock outcrops. The studied hole sites are determined to be of three types. Five were of round holes with mostly smooth rounded bottoms, one was of very large rough holes possibly used as storage pits, and the hole in the rock shelter tapers evenly from top to a smaller bottom. All of the sites are presumed to be of late Archaic age.

BACKGROUND

Man-created prehistoric, utilitarian rock holes are widespread in eastern North America where bedrock outcrops occur, although little has apparently been published about them. While I have found no published accounts of them in Illinois, Webb and Funkhouser (1929) describe such holes, called "hominy holes" by them, in the Green River basin of Kentucky and Ison, (personal communication, 2001) has found many such holes in rock shelters along the western escarpment of the Cumberland Plateau of eastern Kentucky. Gremillion (personal communication, 2001) notes such holes in southeastern Ohio and Franklin (personal communication, 2001) reports them from the Cumberland Plateau of eastern Tennessee.

The presence of such archaeological features in southern Illinois was first brought to my attention with the publication of a tourist attraction map for Johnson County, IL by Outdoor Illinois Magazine (Anonymous 1966) that listed a locality that had "Indian Kettles". Although knowing of the existence of this site for decades, I did not visit the site until late spring of 1999. I was impressed with the site and when the local resident who showed it to me advised that he had found a similar but even larger site nearby, my search for and study of these features began.

In addition to the first site found on the Outdoor Illinois map, two additional prehistoric hole sites (Mortar Cave and Footprint Rock) were also listed there. I found three sites by word of mouth from local residents and another while surveying a natural area for preser-

vation. These seven sites serve as the basis for this paper. Four of the sites are in Johnson County and three are in Pope County.

Most local people in the region, who are aware of these features, call them Pot Rocks. However, the recreation map termed the holes at one site Indian Kettles and one former owner of the site with the largest holes called them Indian Churns. The hole at Mortar Cave is locally known as a Mortar. No one in the study area was aware of the name Hominy Hole, by which somewhat similar features are known in western Kentucky.

All of these sites are located in the Shawnee Hills Natural Division of Illinois (Schwegman et. al. 1973). These unglaciated hills form a 30 mile wide band across southernmost Illinois and reach a maximum height of 1,060 feet and an average crest maximum height of about 800 feet above mean sea level. Sandstones underlie the higher elevations and frequently form outcrops and rock shelters. At European contact these hills supported a forest dominated by Oak (*Quercus ssp.*) and Hickory (*Carya ssp.*) trees on the uplands with a mesophytic forest including Beech (*Fagus grandifolia*) and Tulip Tree (*Liriodendron tulipifera*) in the ravines. Remnant prairie communities on steep dry slopes indicate that prairie vegetation may have occurred in these hills during the Hypsithermal climatic period, but plant materials gathered by the people who made the "Pot Rocks" was probably of forest origin.

Two of the sites are in outcrops within the beds of intermittent streams so that determining that the holes were of human origin and not simply "mill" holes created by running water and the gravel within them was an issue. Human origin for the holes at these sites was based on the evidence of rough pecked bottoms of some holes and the presence of some holes away from the stream channel. Bedrock holes at Bulge Hole five miles north of Vienna were determined to be of natural "mill" origin and were excluded from study.

The geologic terms Spoon Formation and Abbott Formation for units of the Pennsylvanian System, used in current surface geology maps of the study area, are replaced here by the recently accepted term Tradewater Formation.

The purpose of this paper is to describe the seven known sites and provide some interpretation of their method of construction, probable cultural affiliation, and function.

DESCRIPTION OF SITES

Site #1 is the Indian Kettle Site. It is located on Shawnee National Forest land in northwestern Pope County about 1.5 miles south-southeast of Stonefort, Illinois. It is located on a small 5.5 meter long by 1.7 meter wide sandstone outcrop along a small intermittent drainage way. The site is near the top of a rounded hill at elevation 545 feet. It is in a narrow a band of hardwood forest in a pine plantation. The relatively coarse and soft bedrock is the Golden Sandstone of the Tradewater Formation of the Pennsylvanian System. The site consists of four pot-like holes, six shallow, elongate "grinding" surfaces and one shallow round "grinding" surface that occupy an area of 4.5 meters by .95 meter. One of the holes and associated elongate grinding surfaces is shown in Figure 1.

All four of the pot or kettle holes have smooth rounded bottoms with no indication of how they were cut or dug. All hold water. The features are somewhat clustered at either end of the outcrop with three holes and the circular grinding surface at one end and one hole and the elongate grinding surfaces at the other. The largest hole has an average diameter of 69.5 cm and a depth of 45 cm. It has a broad groove or trough 13 cm wide worn in its side and mouth on its deepest side. The other holes have average diameters of about 30cm and depths of 7.5, 11.5, and 25cms. The largest of the elongate grinding surfaces is 34 cm long by 12 cm wide. Depth of the grinding surfaces range from one to 3.5 cm. This is the only one of the seven study sites to have elongate grinding surfaces. The circular grinding depression, has an iron oxide coating about 5 mm thick over much of its bottom. This may be natural or may have resulted from past use.

Because of the forested surroundings and leafy ground cover no evidence was seen of a prehistoric camp or village near this site. The nearest permanent water is the Little Saline River about a quarter mile to the south. There is a possible three-toed animal track petroglyph measuring nine cm long by six cm wide carved in the rock near the southernmost elongate grinding feature. Historic carvings on the adjacent outcrop across the branch indicate that this place was known and visited in historic times as early as 1902.

Site #2 is the Al Appel site (Figure 2), which is named for its owner. This site is three quarters of a mile to the east-northeast of the Indian Kettle Site in Pope County, just an eighth of a mile south of the Pope-Saline county line. It occupies most of a nearly circular four meter diameter outcrop of sandstone on the east side of a northward draining intermittent drainage way at elevation 520 feet. The site is in second growth deciduous forest today, but was in a wheat field when Mr. Appel's grandfather purchased the area about 1917. The site is midway between the top and base of a gentle north-sloping hill. Like the Indian Kettle Site, this site is also developed in the Golden Sandstone, of the Tradewater Formation of the Pennsylvanian System, which is relatively coarse and soft. With 19 holes as deep as wide or deeper and 10 depressions shallower than wide this site has the largest number of hole features of any of our study sites. It is possible that additional holes occur to the north of the present exposure where the rock is now covered by a thin layer of soil. This site has prehistoric rock art associated with it.

The holes and associated prehistoric rock art occupy all but the steepest northwest slope of the exposure (Figure 2). The holes and other depressions have smooth rounded bottoms with little evidence of how they were constructed. They are more or less straight sided or only gently sloping to the rounded bottom. One hole has two depressions at the bottom indicating that it may have been cut as two holes that were joined into a larger hole and several deep holes are paired with a shallow hole that is joined by a low divide (Figure 3). Most of the deeper holes have a sharp margin around the top either indicating that the surface of the outcrop is harder than the interior of the rock or that the initial size of the hole was cut into the surface leaving a sharp edge. In either case the sharp margins would probably have been rounded if poles or other means of pounding materials in the holes had been employed. The largest of the holes is elliptic and measures 77 by 29 cm at the opening and 33 cm deep. There are eight holes in the 21 to 33 cm deep range and nine more measuring 11 to 20 cm deep.

The prehistoric rock art associated with the pots consists of petroglyphs of one 13.5 cm long turkey or bird track, one 26 cm long "stick" human form, and two sets of what appear to be "finger holes". The latter were brought to our attention by Al Appel. They consist of an arc of four circular depressions about the diameter of a finger tip with a fifth at just the point where your thumb lands if you place your finger tips in the four depressions. These are clearly man made. Historic carvings are present and include a date that appears to be 1868, the initials AAA (Al Appel's grandfather) a large letter B, the letter E, and the initials JKW. Moss covers much of the rock and could be hiding other carvings.

I saw no evidence of a prehistoric habitation in the immediate vicinity, but the forest cover made searching difficult. With Mr. Appel's permission, some shovel testing was done up the ridge to the east of the exposure without finding any cultural material.

Site #3, the Bill Hill Hollow Site, is the last Pope County site. It is developed in a sandstone bedrock exposure in the bed of a small intermittent tributary to Bill Hill Hollow. This site is three and a half miles east of the Al Appel Site on U. S. Forest Service land in the Burden Falls Wilderness Area. It is about 2.5 miles west-northwest of Delwood and is just northwest of the southeast corner of Section two of Township 11 South, Range five East. The site is less than a mile south of the Pope-Saline County line and like the previous two sites is in a drainage that drains north off of the Shawnee Hills. It was brought to my attention by Mr. Jack Deaton, whose mother lived on the farm where this site is located before it sold to the Forest Service. She told him of the "Pot Rocks" there.

This site consists of three holes developed in the Murray Bluff Sandstone of the Tradewater Formation of the Pennsylvanian System at the elevation of 490 feet. The holes range from 34 cm to seven cm in diameter and from 29 cm to four cm in depth. The largest is 34 cm in diameter and 29 cm in depth. All have smooth rounded bottoms not unlike the previous two sites and all have a shallow "lip" or depression around the straight-sided hole. The largest hole is alone while the other two holes are near one another and 3.65 and 3.23 meters from it. No additional archaeological features or historic carvings were found at the site.

Site #4 is Footprint Rock, a long-known prehistoric petroglyph site that also has three bedrock holes. This and all of the following sites are in watersheds that drain south off of the Shawnee Hills. It is located about 5.5 miles south-southeast of Vienna, Johnson County, in a weedy abandoned pasture on the farm of Everett Evans. The site is a gently sloping hilltop exposure of Cypress Sandstone of the Mississippian System at elevation 510 feet. This is the same bedrock strata that most of the Hominy Holes of the Green River region of Kentucky are developed in. This is a harder sandstone than the Golden Sandstone that the Indian Kettle and Al Appel sites are developed in. The outcrop measures 8.7 meters north-south by 5.8 meters east-west. Most of the surface is taken up by petroglyphs, with the three holes being along the south and southeast edge of the outcrop where they do not impinge on the rock art.

Two of the holes, 15 and 16 cm in diameter and 8 and 13.2 cm deep, are just 8 cm apart on the southeast side of the outcrop. The third hole is 2.1 meters to the southwest of the paired holes and measures 19 cm in diameter and 12 cm deep. These holes are essentially

straight sided with smooth rounded bottoms. Remarkable features of two of the holes are the remnants of drilled holes that show how the holes were made. Numerous 3 cm diameter holes were drilled in the rock (Figure 4) and then the remaining rock was broken out and the sides and bottom were smoothed.

The site is notable for its large number of petroglyphs. There are five pair and 18 unpaired human footprints carved in the outcrop. There are also six turkey or bird tracks, seven deer tracks, three paired or bisected circles, one possible ogee, and one circle with a cross in it.

Site #5 is the Heron Pond Site southwest of the Heron Pond Swamp in the Heron Pond-Wildcat Bluff Nature Preserve. It is situated about two and a quarter miles northeast of Belknap, Johnson County. The site is a low sandstone exposure in deep forest of this State-owned preserve. It consists of a series of five holes in an outcrop of Cypress Sandstone of the Mississippian System in the bed of an intermittent drainage at elevation 365 feet. The bedrock exposure measures 4.2 meters wide and 12 meters long upstream to the base of a three meter high "falls" of this wet weather branch. The site was first discovered in the 1970s after purchase of the area by the State of Illinois.

The holes range from 25 to 28 cm in diameter with two of them eight cm deep and the other three measuring 13, 15, and 16 cm deep. All are essentially straight sided and round bottomed. Two have well developed "lips" or shallow depressions encircling the hole while one has a slight lip. Two holes have smooth rounded bottoms possibly used for grinding or processing something, but the other holes have rough pitted bottoms as though still under construction or for some other use. Two holes, one smooth bottomed and one pitted, lie near each other and are connected by a shallow groove.

Site #6 is Mortar Cave, a small rock shelter on the west side of Dutchman Creek about three and a half miles southeast of Goreville, Johnson County. This site has long been known to outdoor recreationists of southern Illinois but to my knowledge has not been evaluated by archaeologists. Outdoor Illinois Magazine's 1966 recreation map for Johnson County gives its location as about half a mile upstream from its actual location, which is in the northeast part of Section one. The shelter and the boulder in which the mortar exists are of Battery Rock Sandstone of the Caseyville Formation of the Pennsylvanian System. The elevation of the site is 530 feet. Mortar Cave is privately owned and situated in an upland forest in a wild and remote area.

The east-facing shelter is 14 meters long and only five meters deep. Near its deepest point, an elongate boulder four meters long by one meter wide and 60 cm high lies perpendicular to the back of the shelter and sticks out slightly beyond the sheltered area. Near the west or more sheltered end of this boulder a vertical "mortar" hole has been drilled in its top (Figure 5). The hole is slightly elliptical at 18 cm by 20 cm across at the top and is 25 cm deep. The hole tapers to a much smaller bottom diameter. Allen (1936) reports that local tradition has it that a stone pestle was present in the hole when it was first discovered but that it was gone by 1936.

Though small, the shelter has a deep dark midden that has been extensively dug and disturbed by relic hunters in the past. Flint chips are common on the floor of this disturbed

midden and one thick shard of grit tempered pottery was seen. No petroglyphs or pictographs were found. Other than the mortar, the only other possible prehistoric bedrock feature observed was a series of four holes in the end of the boulder opposite the mortar. These ranged from six cm across and two cm deep to three cm across and one cm deep. They may be of human origin, but it is possible that they have been formed by dripping water from above.

Site #7 is the Indian Churn Site. It is located about two miles east-southeast of the Village of Tunnel Hill on top of and near the edge of a low cliff-forming outcrop of Cedar Creek Sandstone of the Tradewater Formation of the Pennsylvanian System. The site is at about 660 feet elevation and overlooks the headwaters of Cedar Creek It is located eight miles southwest of the Indian Kettles Site on private property.

This group of 13 holes cut into the rock is unlike any of the previous sites. The much larger holes range up to 84 cm wide and up to 184 cm deep and resemble storage pits cut in rock. A six foot tall man can get in one and hide below the surface. None of the holes that we emptied had smooth rounded bottoms. Two of the smaller holes, with average diameters of 31 cm and 40 cm and depths of 66 cm and 46 cm respectively, are incompletely dug and reveal how they were constructed. The first was constructed by drilling a nine cm diameter central hole and then breaking out the surrounding sandstone. The second was cut around the outside edge with a sharp object and had a three cm hole drilled down through the middle. After the cutting and drilling the central high part was apparently broken out (Figure 6). The latter method may have been used to cut the larger holes as a large rock found near the largest hole has a curved, cut edge and appears to be a piece of the rock cut from that hole. When we reached the bottom of the largest hole it had a high center consistent with being cut around the outside edge. The larger holes are all rough on the inside indicating that once started, they were enlarged by chipping or hammering.

The holes range from circular to elliptic in cross section. Five of the 13 holes hold water while the others do not. It is not clear how the dry holes drain. The largest hole (Figure 7) holds water and was completely emptied out. It is slightly elliptic with a long axis of 84 cm and a short axis of 70 cm for an average diameter of 77 cm. When emptied it had a depth of 154 cm for a capacity of approximately 717 liters or 189 gallons. We removed water and leaves to reach the top of the sediment fill which was 44 cm deep. The sediment was a mixture of silt from nearby loess soils, sand eroded from the sandstone and chunks of sandstone that had been thrown in it over the years. The waterlogged sandstone at the bottom was soft from soaking. No artifacts were found in the hole or elsewhere in the area. A large rock shelter one quarter mile to the east may be associated with the site. It contains several mortar surfaces on a boulder within it but no holes.

DISCUSSION

It appears that the seven bedrock hole sites described in this paper have holes of three distinct types. These are possibly related to different uses, different construction methods, and different cultural affiliations. The types include Type One: mostly smooth round-bottomed holes of various sizes with nearly vertical sides, Type Two: a deep narrowly funnel-shaped hole that once was apparently used to process seeds with a tapered stone

pestle, and Type Three: very large roughly cut holes that appear to have been cut and broken from stone, The single example of Type Two occurs in a rock shelter but all of the others are in open upland bedrock exposures. All are in sandstone.

Sites one to five are of Type One holes. All Type One sites have at least some of their holes with smooth rounded bottoms and nearly vertical sides. Some holes, such as at Site Five, are rounded in shape but are rough or pitted in the bottom which may indicate that they were constructed by pecking and that these rough holes were never completed and smoothed by use or grinding. At Site Four it is clear that the holes were constructed by drilling holes in the rock, then breaking out the remaining rock, and finally smoothing the bottom (Figure 4). It is not clear how the other Type One holes were constructed, though the sharp edge of the holes at site two hint that these were cut into the rock with harder stone. The smooth rounded bottoms of some holes at all sites indicate that pounding or grinding with poles or stone played a part in smoothing, and possibly deepening, the holes. The broader depression around the mouths of holes at sites one, three, and five seems consistent with processing materials in the holes with poles that struck the edge of the hole creating flaring mouths of some of the holes. All Type one holes hold water.

The possible uses of Type One holes is hinted at by associated features. The presence of elongate, shallow grinding or mortar depressions in association with the deeper holes at Site One indicate that seed grinding was probably done in the shallow elongate mortars and that the deeper round holes were for another purpose. This purpose was most probably cooking or possibly rendering nut oil or leaching acorns. Paired holes at Sites Two through Five may have functioned as paired processing and storage vessels. At Site Five a groove connects the pair of holes and could have been used to render nut oil in one and skim it off into the other via the groove. Large holes at Sites One and Two could have been used to store water.

The only diagnostic cultural features associated with Type One holes are the petroglyphs at Sites One, Two and Four. Large bird tracks or “turkey tracks” are found at each site. However, the predominant petroglyph images at Site Four are human foot prints. Several images probably made by Mississippian people are present, but the other art seems consistent with late Archaic or early Woodland times. The possession of ceramics by Woodland and Mississippian peoples makes it seem unlikely that they would have expended the work to create these stone “vessels”. I think it is most likely that the Type One holes were made by late Archaic peoples. The absence of tilled ground near any of the sites made the location of prehistoric village or camp sites associated with the hole sites impractical. I suggest the name Pot Rock for this type of hole in Illinois.

The second or Type Two rock hole is represented by Site Six, Mortar Cave. This type of rock hole differs from Type Two by being conical and tapering from a large hole at the opening to a much smaller hole at the bottom and by being in a rock shelter. The one representative of this type historically held a pestle that was surely used to grind or pulverize seeds (Allen 1936). Holes similar to this in rock shelters of the Green River basin in Kentucky were called “Hominy Holes” by Webb and Funkhouser (1929) and similar holes in eastern Kentucky are attributed to the late Archaic by Ison (personal communication, 2001).

Rock shelters are common across the Shawnee Hills of southern Illinois, but no other shelters with mortars of this type are known to me. Easily carried flat slabs of sandstone with shallow circular grinding depressions were once common in these shelters but mostly have been taken by collectors. These locally called "grind stones" do not appear to have served the same function as the Type Two hole. Although early to middle woodland pottery was found in Mortar Cave, I speculate that the Type Two hole is contemporaneous with similar features in Kentucky and probably dates to the late Archaic. I suggest the name Hominy Hole for this type in Illinois.

The third and final type of bedrock hole in this study is the very large excavations in rock at Site Seven, the Indian Churn Site. Five of the 13 holes of this type hold water and the remainder do not. They all have more or less rough interiors and show no evidence of grinding and apparently were constructed by cutting and pecking with hard stone as discussed in the description of the site. Those with drainage from the bottom could have been used for food storage or for leaching acorns. Those that hold water may have been used to cook, soak, or otherwise process food stuffs and may have been for water storage. The two smaller incomplete holes at this site could have been used for cooking as well. These holes could be called Rock Pits and seem to be associated with a hunter- gatherer lifeway.

In conclusion, the bedrock holes I studied in southern Illinois can be divided into three types, and all of them may be from the same time period, the late Archaic.

ACKNOWLEDGMENTS

I thank Ron Whiting for leading me to two sites, John A. Schwegman, Martha Schwegman, Jack Deaton, and Max Hutchison for help with the field work and Al Appel, Everett Evans, and Bob Harper for permission to study sites on their property.

REFERENCES CITED

Allen, J. W. 1936. Notes of historian John W. Allen in the Allen collection, Morris Library, Southern Illinois University, Carbondale, IL.

Anonymous. 1966. Outdoor Illinois Magazine's Guide Map to Johnson, County, Illinois. Outdoor Illinois Magazine, Benton, IL.

Franklin, J. D. 2001. Personal Communication from Jay D. Franklin, Department of Anthropology, University of Tennessee, Knoxville, TN.

Gremillion, K. S. 2001. Personal Communication from Kristen Gremillion, Department of Anthropology, Ohio State University, Columbus, OH.

Ison, C. R. 2001. Personal Communication from Cecil R. Ison. Daniel Boone National Forest, Winchester, KY.

Schwegman, J. E., G. B. Fell, M. Hutchison, G. Paulson, W. M. Shepherd and J. White. 1973. Comprehensive Plan for the Illinois Nature Preserves System part 2, The Natural Divisions of Illinois. Illinois Nature Preserves Commission, Springfield, 32 pp.

Webb, W. S. and W. D. Funkhouser. 1929. The So-called "Hominy Holes" of Kentucky. American Anthropologist 31:4, pp. 701-709.

Figure 1. View of the north end of the Indian Kettles site showing the elongate grinding surfaces and one round “Pot Rock”. The “Pot” is 30 cm in diameter and 25 cm deep.

Figure 2. View of the Al Appel Site. Petroglyphs are to the right of the holes.

Figure 3. View of the center of the Al Appel "Pots" looking down slope toward the branch. Note the paired "Pots", often with a low connection between a deep and shallow hole.

Figure 4. One of the "Pots" at Footprint Rock showing that it was constructed by drilling numerous 3 cm diameter holes and then breaking out the intervening rock. This hole is 16 cm in diameter and 13 cm deep.

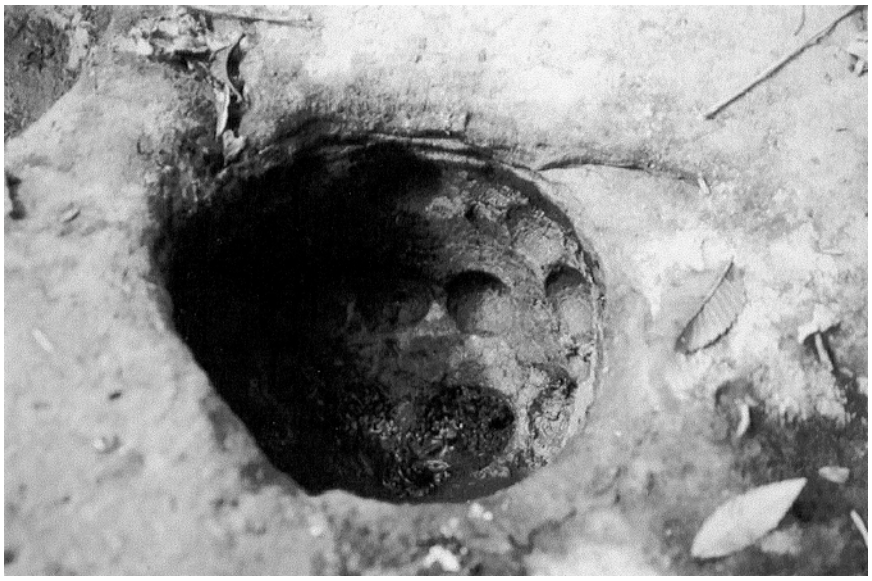

Figure 5. View of Mortar Cave showing the back of the shelter and boulder with the mortar hole. The hole has an average diameter of 19 cm and is 25 cm deep.

Figure 6. The method of construction of holes at the Indian Churn Site. Note the cut groove around the outside and the hole drilled in the center. Apparently as the hole was cut deeper the rock in the center was broken out. It has an average diameter of 49 cm and a depth of 46 cm.

Figure 7. The largest “churn” at the Indian Churn Site. It holds water and has a calculated capacity of 717 liters or 189 gallons. Note the post hole digger at its lower edge and the rough interior.