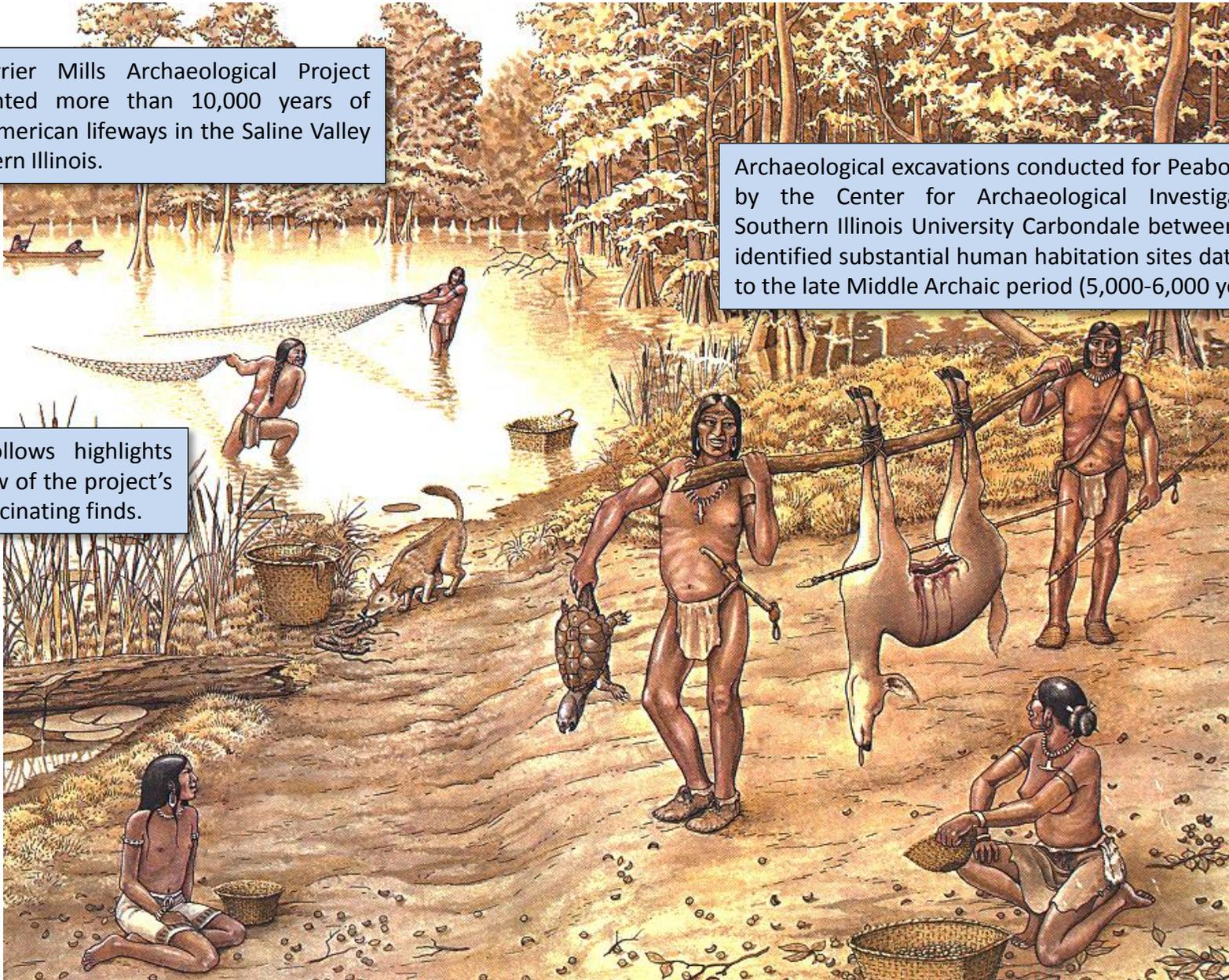


The Carrier Mills Archaeological Project: Fascinating Finds

The Carrier Mills Archaeological Project documented more than 10,000 years of Native American lifeways in the Saline Valley in southern Illinois.

Archaeological excavations conducted for Peabody Energy by the Center for Archaeological Investigations at Southern Illinois University Carbondale between 1978-79 identified substantial human habitation sites dated largely to the late Middle Archaic period (5,000-6,000 years ago).

What follows highlights just a few of the project's many fascinating finds.

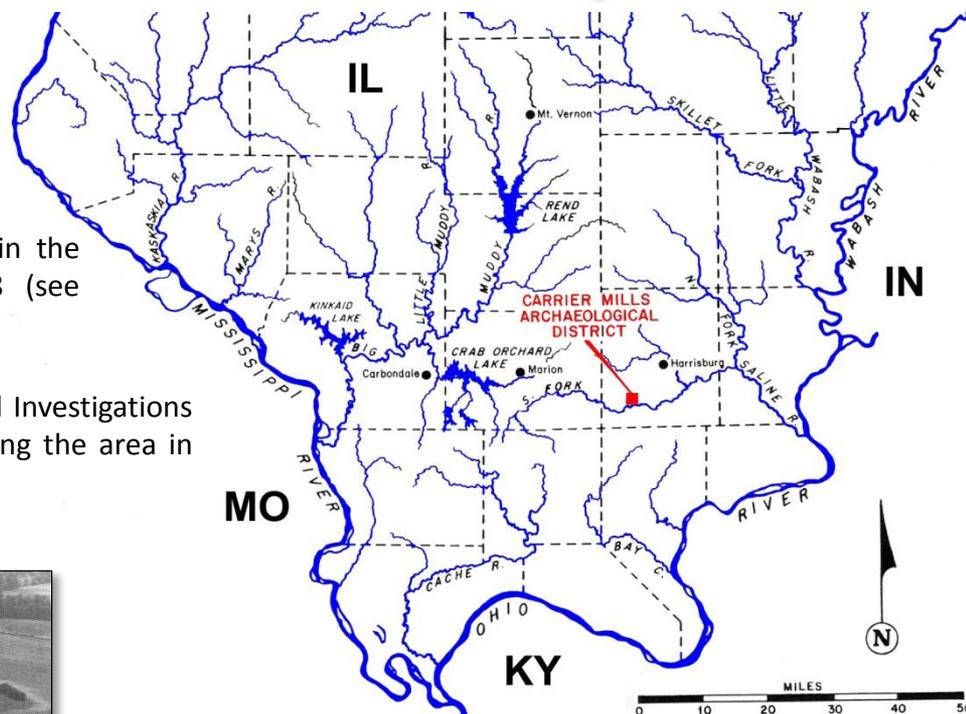


Archaeology at Carrier Mills • The Carrier Mills Archaeological Project

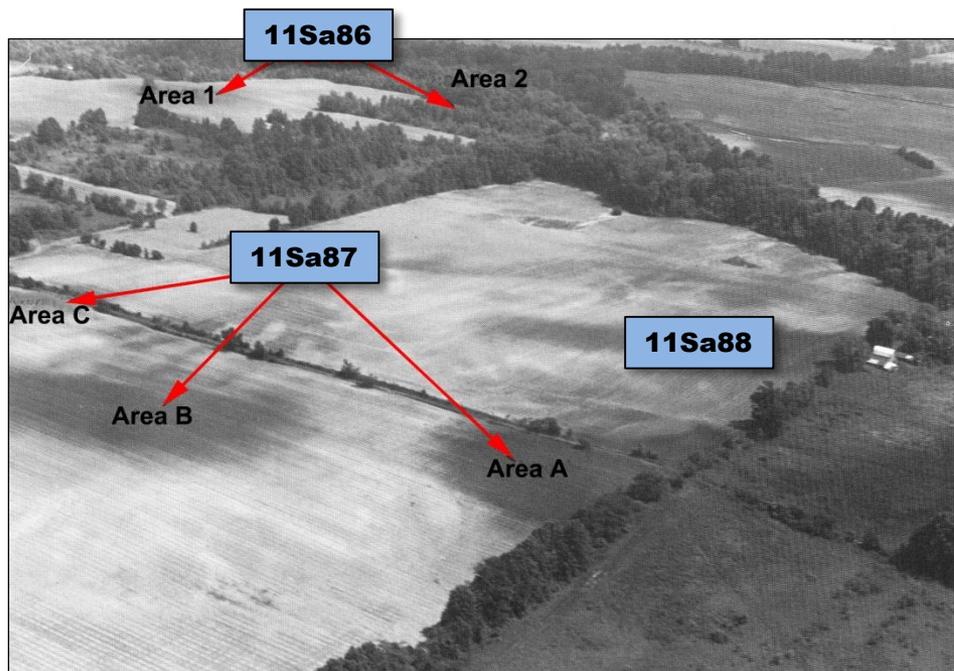
- The Carrier Mills Archaeological District (CMAD) is located on the South Fork of the Saline River in Saline County in southern Illinois, close to the town of Carrier Mills, as indicated by the red text in the map on the right.

- Archaeologists identified three main archaeological sites within the CMAD, which were designated 11Sa86, 11Sa87, and 11Sa88 (see photograph below).

- At the request of Peabody Energy, the Center for Archaeological Investigations at Southern Illinois University Carbondale began survey and testing the area in 1977 to assess the significance of its archaeological resources.



Map of southern Illinois.



Aerial view of the archaeological sites.

- Full-scale excavation of the sites, which began in 1978 and continued in 1979, identified human occupations ranging as far back as 10,000 years ago up through the mid-1800s.

- The vast majority of materials recovered date 5,000-6,000 years ago to the late Middle Archaic period.

- The most intensively occupied areas contained trash middens that were more than 5 feet deep. These middens are visible as dark stained soils in the aerial photograph to the left.

Hunting with Atlatls • The Carrier Mills Archaeological Project

- The atlatl is a tool that allows a spear to be thrown greater distances at a higher speed, thus improving a hunter's proficiency.
- Several parts of this type of tool have been found at Carrier Mills in Archaic period contexts.
- The most iconic of these items is the stone projectile point (1) that served as the head of the spear.

(1)



- The atlatl itself is composed of a wooden shaft that extended the hunter's arm.
- On one end, a bone or antler hook (2) was attached to the shaft to hold the spear.
- Below this hook was a weight or bannerstone (3) to help balance the hunting implement.



Activities in Everyday Life • The Carrier Mills Archaeological Project

- Tools, as a vital part of everyday life, provide important insights into the technologies and subsistence strategies of ancient cultures.

- A large variety of flaked stone tools, shown on the right, were found at Carrier Mills.

Flaked stone tools are often grouped based on function; projectile points for hunting, drills for craft production, and large bifaces for cutting. Variety within these groups provide further information about the function of the artifact and the time period during which they were in use.

- Bone fishhooks, pictured below, are rare finds during the Middle Archaic period at Carrier Mills, although fish remains are somewhat more common, leading archaeologists to suggest that hook and line fishing was only one of the strategies employed.



- Bone awls and needles, shown on the right, were part of the tool kit used to manufacture important items made from animal skins, such as clothing and footwear.

These items were often made from deer and turkey bones, shaped by grinding the bones on rough stones.



- Axes, pictured to the left, were used to fell trees and shape canoes, along with other tasks. The grooved end of the tool near the butt of the axe was attached to a wooden handle, making it an effective cutting tool.

A miniature axe (lower left) was found in a burial with other tools. This small axe, as well as the other items, likely held a symbolic, rather than functional, purpose.

Ancient Social Networking • The Carrier Mills Archaeological Project



- During the Archaic period, communities settled for longer periods of time in resource rich locations decreasing the movement of people.

- With annual movements more restricted, Archaic peoples had to find new ways to maintain the flow of non-local resources and information, so they began to interact more with other communities, forming comprehensive social and economic networks.

- Excavations at Carrier Mills uncovered more than two dozen bone pins, some of which are pictured above. These pins, many carved with intricate designs, were used in a variety of ways, to secure clothing, tie back hair, as well as other functional and ornamental purposes.

- Archaeologists believe these pins were important to prehistoric social networks, because they conveyed information about the social identity and group affiliation of the person wearing it, similar to what a Gucci handbag or a baseball cap with a Cardinals logo on it may reveal about a person today.

- Bone pins are found on sites along the Ohio and Mississippi Rivers in southern Illinois. The similarity of styles and decorative designs across this broad geographic area shows the extent to which regional social networks developed during the Archaic period.



Pathologies and Trauma • The Carrier Mills Archaeological Project

- Trauma, especially the fracture of bones, is a common pathological condition noted in human skeletons, both ancient and modern.



- The two femora (upper leg bones) shown here provide an example of a healthy bone on the left and a bone with an incorrectly healed fracture (noted by the red arrow) on the right.

- The femora belong to a woman about 45 years of age who lived at Carrier Mills more than 5,000 years ago.



- The healing pattern of the right femur suggests the break was a spiral fracture, caused by a twisting of the bone, as shown in the adjacent illustration.

- A spiral fracture usually causes the bone to move out of its correct anatomical position, which the X-ray below clearly demonstrates.

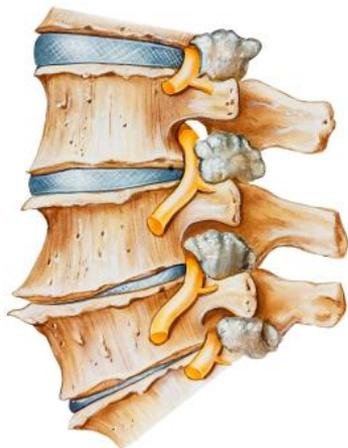
- Therefore, it is important for the bone to be set back in its proper place before it starts to heal.

- Because the two ends of the broken bone were not pulled apart and reset in the correct anatomical position, the woman's femur healed in an irregular shape.

- This misalignment shortened the woman's right leg and resulted in a visible limp, one easily observed by her friends and neighbors at Carrier Mills.



Pathologies and Disease • The Carrier Mills Archaeological Project



- Degenerative Disc Disease (DDD), also known as Spondylosis, is a disease that plagued ancient humans as much as it affects us today in contemporary societies. Chronic back pain, due to injury or age, seems to be universal.
- The soft, spongy discs located between the vertebra in our spinal column act like shock absorbers as we work and play, helping to buffer our movements and allowing us to move comfortably with ease.
- The illustration to the left shows spinal discs in progressive stages of degeneration, from a thick, healthy, fluid-filled disc at the top to a thin, unhealthy disc at the bottom.

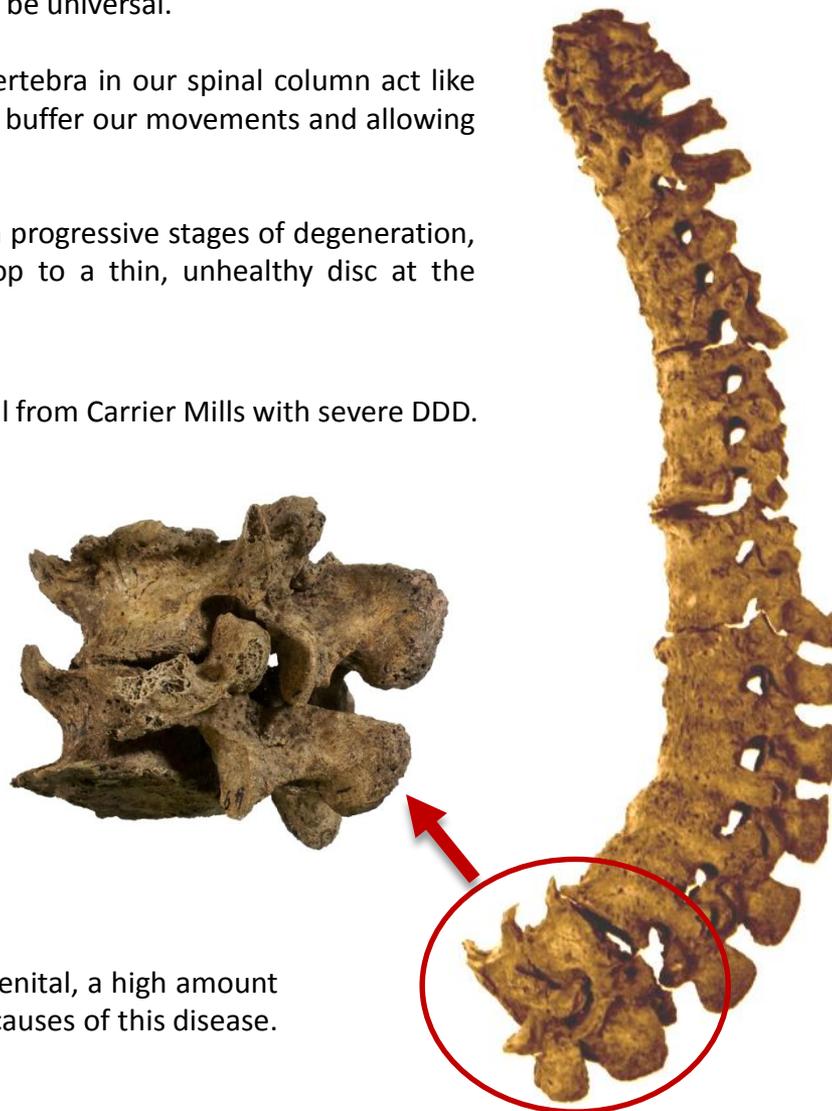
- The vertebra column pictured on the right shows an individual from Carrier Mills with severe DDD.

- These bones belong to a man in his late 40s, who exhibits an extreme and severely debilitating case of DDD. His entire spinal column is fused together into one continuous line.

- The fusion of vertebra usually results from degenerative changes that occur in the intervertebral spinal discs, as seen in the illustration above.

- Among ancient populations, DDD is commonly observed in persons older than 35 years of age.

- Though DDD can result from multiple factors, some of which are congenital, a high amount of manual labor and certain kinds of physical strain are two of the main causes of this disease.



Long Distance Trade • The Carrier Mills Archaeological Project



- Shell pendants and beads found at Carrier Mills represent the remains of necklaces and other ornaments worn in prehistoric times.

- Mussel shells were gathered from local rivers, while marine shell originated from the Atlantic and Gulf coasts, a far distance from southern Illinois.

- By studying these extensive trade networks, archaeologists can better understand the social and economic interactions of prehistoric groups.

- The ornaments shown here were made from marine shell.

- Because marine shell had to be transported long distances to reach Carrier Mills, it was only acquired by families who had greater wealth or political clout than the average household.



Human's Best Friend • The Carrier Mills Archaeological Project



- The relationship between humans and dogs in prehistory has long intrigued archaeologists, perhaps because of the special place dogs hold in our lives today as beloved and loyal companions.

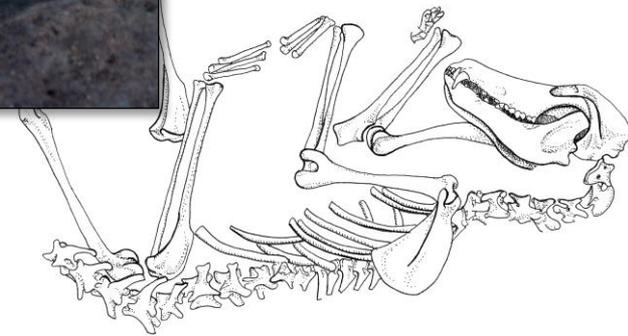
- Archaeologists found several dogs intentionally buried at Carrier Mills, which speaks to the special status they held in the lives of prehistoric peoples.

- The picture and drawing to the right shows one of the dog burials discovered at Carrier Mills.

- The ancient owners of this older adult dog laid her to rest with great care, placing her in a tightly curled position, as she may have once slept in life.

- From the intentional and careful burial, we can conclude this particular dog held a special status in life that not all dogs had achieved.

- Was she a skilled hunter, a loyal companion, a diligent guardian? One can only speculate.



A Human Figurine • The Carrier Mills Archaeological Project

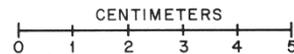


- One of the most unusual objects found at Carrier Mills is a small human figure crafted from clay. This figurine depicts a man wearing a breech cloth sitting in a semi-reclined position.

- Such figurines are rare in southern Illinois, but they are found on archaeological sites associated with Hopewell cultures in southern Indiana and Ohio.

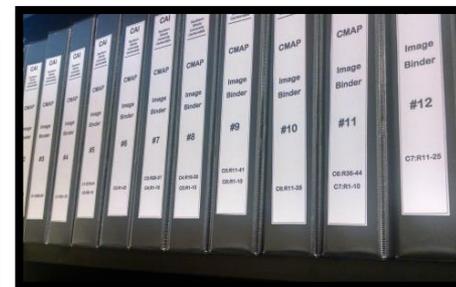
- The term Hopewell refers to a network of economic and political practices that, along with religious beliefs, linked different Native American groups living in the Midwest 1,500 to 2,000 years ago during what archaeologists call the Middle Woodland period.

- Finding this figurine at Carrier Mills reveals that the site's inhabitants were connected to a much larger world that extended far beyond southern Illinois.



Collection Rehabilitation • The Carrier Mills Archaeological Project

- The Carrier Mills Collection Rehabilitation Project began in 2012 to bring the collection up to today's curation standards, further preserving the cultural materials and associated documents from the late 1970s investigations.
- The project team inventoried nearly 850 boxes of artifacts, and transferred the objects from their original brown paper bags into archival containers appropriate for long-term storage (see adjacent photos, top rows).
- Associated documents (including field records, analysis forms, over 150 oversized maps, and more than 10,000 photographs) were organized, inventoried, and rehoused using archival materials (see adjacent photos, bottom rows). In addition, all documents were digitized to preserve them in perpetuity.
- The artifact and associated document inventories also were computerized, so information can be found and accessed easily by researchers.
- The rehabilitation of the collection facilitates continued research and learning about ancient lifeways in southern Illinois. SIU Undergraduate REACH Scholar Rosemary Bolin and Dr. Heather Lapham recently examined the skeletal remains from several domestic dogs (*Canis familiaris*) intentionally buried in graves by the human occupants of the Black Earth site at Carrier Mills. One joint project x-rayed the dogs' lower jaws to study the health of these ancient canines and their relationship with their human companions. To read more about these projects, check out the articles in *Illinois Antiquity* (2015) and *Illinois Archaeology* (2010).



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Prepared by Dr. Heather Lapham, Jessica Bertolozzi, Melissa Litschi, and Gauri Pitale (2012).

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