

Hunters and Gatherers of the Green River Valley



By

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For Aunt Margie

Few places in the world provide as detailed a picture of prehistoric hunters and gatherers as Kentucky's Green River valley. Deep shell heaps along the river have preserved evidence of this culture, which flourished between 4,000 and 1,000 B.C. This booklet describes what archaeologists currently know about these people's way of life, drawing on decades of research by scores of scientists, supported by the good will of local landowners who continue to protect these significant sites.

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David McBride took the photographs on pages 12-14, 16, 19, 20, 22, 24, 25, and 28-30; all other photographs used courtesy of the William S. Webb Museum of Anthropology. Map on page 2 by William H. Marquardt. Drawing on page 11 by Jimmy A. Railey; on page 15 by William M. Melvin. Drawing on page 18 is taken from William S. Webb's 1957 Development of the Spearthrower. Burial line drawings by Patrick Wallace on pages 12 and 25 used with permission from Richard W. Jefferies. Artist reconstructions on pages 6 and 17 by Sarah Jane Gray.

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On the Cover: Detail of Archaic women and their children collecting mussels.

“DOWN BY THE GREEN RIVER . . .”

Many Kentuckians are familiar with John Prine’s popular song of west-central Kentucky. In it, a boy wants his daddy to take him back to Muhlenberg County, the Green River, and the town of Paradise. Fewer Kentuckians know about

In a state rich with prehistoric mounds and earthworks, villages and camps, rockshelters and rock art, archaeologists have recorded more than 1,700 prehistoric sites in Butler, Ohio, Henderson, McLean, and Muhlenberg counties. There are



Excavating a Green River shell midden site in Butler County during the Depression.

the prehistoric people, who, like the citizens of Paradise, also once lived along the Green River.

In the song, “Mr. Peabody’s coal train” hauled Paradise away. But many of the places these ancient people lived still remain, protected by landowners who take their role as stewards of Kentucky’s past seriously.

undoubtedly hundreds of others that have yet to be recorded.

Fifty of these prehistoric Green River sites are truly exceptional. Some of the larger examples cover more than four acres, and some contain more than six feet of deposits. Others measure less than half an acre and are barely visible on the landscape.

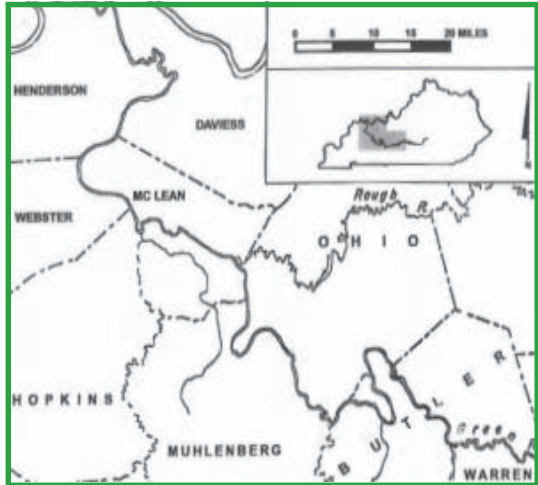
Many, but not all these sites, contain enormous amounts of freshwater mussel shell. Over centuries, the day-to-day activities of prehistoric hunters and gatherers built up these shell heaps or shell *middens* (deposits of organic debris and other materials).

Archaeologists refer to the people who lived at these sites as the Green River Archaic Culture. Their way of life flourished from 6,000 to 3,000 years ago. This booklet presents a snapshot of what archaeologists currently know about the Green River Archaic people from around 5,000 years ago.

People have studied the Green River Archaic Culture for



Depression-era Works Progress Administration (WPA) crews found a way to shade themselves from the hot summer sun at this McLean County site.



The Green River Archaic region in west-central Kentucky.

nearly a century. Clarence B. Moore, an independently wealthy man, was the first. From 1915 to 1916, Moore traveled up the Green River in a stern-wheel boat, interviewing local farmers about shell midden sites. He spent nine weeks studying ten sites and focused most of his efforts on Indian Knoll, one of the largest.

Scientific research targeted the Green River's shell midden sites from 1937 until the Second World War began in



One of more than fifteen dog burials excavated at Indian Knoll in the 1930s.

1941. Hundreds of local men, as part of the Depression era's make-work projects, excavated portions of seven shell midden sites and three non-shell midden sites. University of Kentucky professor William S. Webb and his young supervisors fresh from the nation's few archaeology graduate programs, directed the crews.

These men moved enormous amounts of earth. They recovered tens of thousands of artifacts and more than three thousand burials of both humans and dogs. The information they recorded laid the foundation for all later Archaic research in the region. Archaeologists in the 1940s and 1950s also used information from Kentucky's Green River sites to help define Archaic lifeways for

the entire Southeastern US.

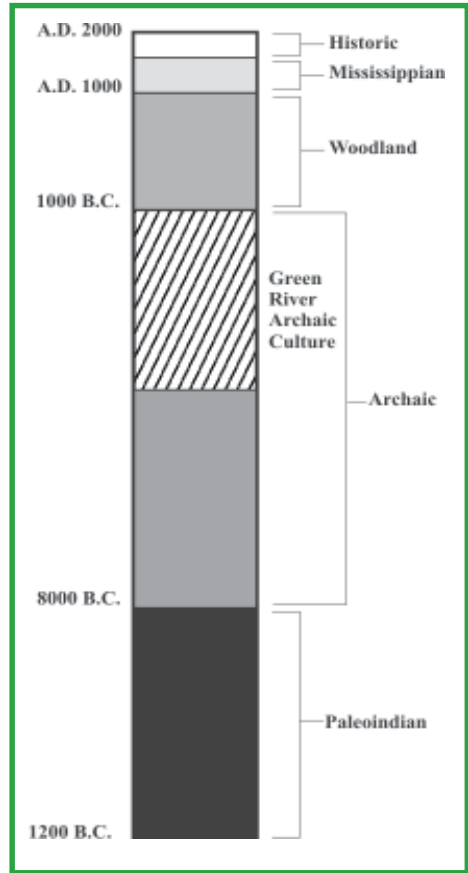
In the 1970s, archaeologists William H. Marquardt and Patty Jo Watson from Washington University at St. Louis returned to investigate certain Green River shell midden sites. They wanted to know when prehistoric agriculture began in the Eastern US. Their work, and that of their students and colleagues in the late 1980s and 1990s, has revealed much about the Green River Archaic sites and their prehistoric inhabitants.

Indian Knoll, the best known and most extensively studied Kentucky shell midden site, was made a National Historic Landmark in 1964.

Twenty-two years later, 23 other

shell midden sites received a similar designation. Archaeological sites become landmarks if they have made nationally significant contributions to our understanding of prehistory.

Because of its size and excellent state of preservation, no other collection in the world provides as rich an opportunity to learn about the health and lives of ancient hunters and gatherers as does that of Indian Knoll and the other Green River shell midden sites. Today, researchers from all over the world visit the William S. Webb Museum of Anthropology at the University of Kentucky to study the materials from these important sites.



Time periods in Kentucky history, showing when the Green River Archaic Culture flourished.



Archaeologist Patty Jo Watson processes a soil sample in search of prehistoric plant food remains.

WHY THEN? WHY THERE? WHY SO IMPORTANT?

Before the Green River Archaic Culture began, Paleoindian and earlier Archaic period hunters and gatherers had inhabited the Green River valley for thousands of years.

These people lived in very small families. They moved widely and often across a Green River valley that looked like Canada's does today. So, why did the Green River Archaic Culture occur when it did?

Around 8,500 years ago, the climate began to change all across the Midwestern US, including the Green River valley. Temperatures rose. It rained and snowed less in the winter, and each year the valley experienced long, dry spells. Scientists call this period the *Hypsithermal*. It was in full swing between 7,000 and 5,500 years ago.

Plant communities, the river, and people adapted to these climatic changes. Stands of dryness-loving deciduous trees

expanded at the expense of evergreens and trees that preferred a wetter climate. The Green River became shallower. Less snow meant fewer spring-time floods. People began to move less often and within smaller areas. Thus, a new hunting and gathering way of life developed in the Green River valley: the Green River Archaic Culture.

The climate began to change again about 3,000 years ago. Rainfall became more evenly distributed throughout the year. Temperatures became slightly cooler and more like today's. People developed new ways to live.



At this Butler County site, WPA crews use wheelbarrows, shovels, and "elbow grease" to recover information.



Green River Archaic women and their children collect freshwater mussels in one of the river's many shoals.

Descendants of the Green River Archaic people, the Woodland period gardeners, came to camp on the shell midden sites. Later, their descendants, the Mississippian period farmers, built villages in the region. Now we are the people who live in the Green River valley.

Why did this distinctive hunting, gathering, and shell fishing way of life develop in the Green River valley?

Five thousand years ago, meeting basic needs was not a particularly difficult task for people. They were surrounded

by abundant and reliable natural resources.

Research at the shell midden sites gives us some idea about what the valley might have looked like back then. Cottonwood, sycamore, river birch, and willow lined the lower riverbanks. In some bottoms, cane grew in large stands. Grapes and other viney plants created a tangle of vegetation. The slopes leading from the bottoms to the uplands were forested with beech, sugar maple, chestnut, and several species of oak. An oak-hickory-tulip tree forest covered the uplands.

In the middle Green River valley, the river flowed across ancient lake deposits. At certain spots, it flowed across sandstone bedrock. In these locations, before modern dams disrupted its natural flow, the river formed shallow, fast-flowing riffles or shoals. Deeper pools of water, slowed by rocks and logs, occurred alongside the riffles. Along the mudbanks, smaller rocks and riverside plants created a quiet riverine environment. All these factors created good conditions for thriving communities of diverse freshwater mussel species.

The mussel beds were an important natural resource (see

Focus on Shell Fishing), but not the only one that made these places attractive campsites. Fish, deer, and nuts also were readily available there.

The shoals also provided perfect river crossings. People could move easily across the river, and therefore move within the valley more freely than had their ancestors. For all these reasons, the Green River Archaic people returned to these places year after year after year, for 3,000 years.

One final question needs to be answered before we turn to a description of the Green River Archaic way of life. What makes



The men carefully excavate in a trench at Indian Knoll.

Focus on Shell Fishing

We can offer educated guesses about how the Green River Archaic people collected and processed freshwater mussels. This is based on studies of hunters and gatherers whose lives have not been greatly affected by modern technology.

Women and older children mainly waded in the riffles, collecting the mussels by hand. Men more often collected mussels by diving under water. Everyone used baskets made of cane or bark, or bags made from some type of plant fiber.

They prepared the mussels immediately after collecting them. They could have eaten the mussels on the spot, cooked or raw. Most likely, though, they steamed them. They could have done this by arranging them on the ground and building a fire around them. Another way would have been to put them into boiling hot water made by heating stones in a fire.

The mussels also could have been smoked or dried for eating later. For this, the cooks would have put the mussels briefly on hot coals to open the shell, making it easier to remove the animal. Then they would have scraped it out of the shell with a stone knife. Finally, they would have hung the meat over a fire to smoke it or dried it in the sun. Once dried, the meat would have been skewered like shish kabobs or strung on strings.

What did they do with all the mussel shells? Sometimes they used them to prop-up cooking, drying, or smoking racks. They made ornaments, such as beads, from fragments of shell. But usually, the people just threw the shells away in natural depressions near their camps. Little did they know that, thousands of years later, these shells would help tell the stories of their daily life.

the shell midden sites so important?

It's not because they are shell middens. Hunting and gathering peoples left behind large heaps of freshwater mussel shell and debris in other regions of Eastern North America. The Green River shell

midden sites are not the biggest examples, or the only examples found in Kentucky. However, nowhere else are shell midden sites as densely concentrated as in Kentucky's Green River valley.

It is possible that, prehistorically, the Green River had a



Excavation at the shell midden sites went on year-round: note the oil drum "heater" in the trench at this McLean County site.

greater density of stable, productive mussel shoals than other rivers. This could account for the large number of shell midden sites located along its banks.

Perhaps their importance has something to do with site preservation. The Green River has flowed in its present position for thousands of years. Therefore, many of the places these prehistoric people lived have not been destroyed by flooding and erosion. This stability may have helped preserve the shell midden campsites.

Clearly, part of their importance stems from the rich inven-

tory of artifacts and human and animal remains they contain. The shells the Archaic people threw away in such great numbers made the soils at these sites less acidic. Therefore, bone and shell objects, which otherwise would have decayed,

are preserved. This has given us a much wider window on the Archaic past than is often possible at other kinds of sites.

Finally, these sites are important because research at them has contributed enormously to our understanding of hunter and gatherer lifeways. The Green River Archaic sites were the first examples in Kentucky (and in fact, among the first in the entire Southeastern US) where archaeologists focused their work on hunting and gathering cultures. Even today, these sites represent some of Kentucky's most thoroughly studied archaeological sites.

HUNTERS AND GATHERERS OF THE GREEN RIVER VALLEY

Describing prehistoric life in the Green River valley would be easier to do if these Archaic hunters and gatherers had kept written records. People living in Egypt at the same time were writing about their lives on stone tomb walls that we can read today.

If people still told the Green River Archaic people's stories, we'd know about important events in their history and aspects of their daily lives. We'd know the names of their important leaders and their gods.

But they did not write, and no one tells their stories any

longer. We must learn about them indirectly.

Archaeologists do this by piecing together the fragments of these people's past from the places they lived, the objects they left behind, and the patterns of those objects. They also do this by studying the lives of modern and prehistoric hunters and gatherers in other places in the world. So despite these problems, we *do* know or can infer much about the daily lives of the Green River Archaic people.



It's all in a day's work at this Muhlenberg County site: digging out the dirt and cleaning up the trench walls.

SOCIETY

Life 5,000 years ago in the Green River valley would have revolved around the family. Between 15 and 20 people probably made up a family. This would have consisted of a man and a woman and their unmarried children; their married children, their spouses and children; and perhaps a few other close kin.

Membership in families was flexible. Families could adopt outsiders as members. People chose their spouses from families other than their own. Archaeologists think that, once married, a woman may have left her own family to live with her husband and his family.



Shell midden sites are known for their artifact caches, like this one of chipped stone knives from Indian Knoll.



Women wove plants, like cane they collected near their camps, into baskets.

Leaders could have been men who were the most successful hunters or whom others respected for their common sense or intelligence. These men did not hold their leadership positions permanently, however. They led when the need arose, like when several families came together at certain times of the year and ceremonies had to be organized.

Sharing would have been a basic rule of Green River Archaic life. Everything belonged to the family. No single person owned food or natural resources or land. This way, everyone had equal access to all the necessities of life.

Differences in age and gender also created rules by which families lived. It is likely that men were the hunters,

while women collected plants and mussels and took care of children. Older men and women probably served as religious leaders.

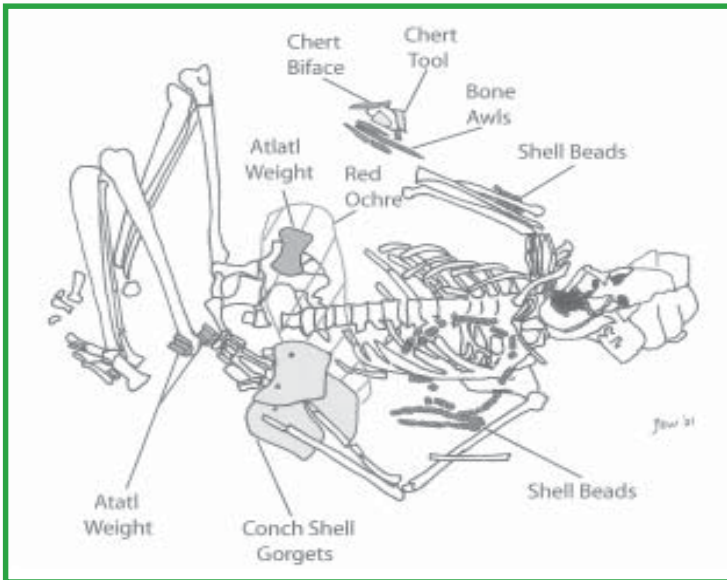
Personal accomplishments set some people or families apart. Archaeologists base this suggestion on the fact that Archaic people buried a few men, women, and children with rare and valuable objects. These included engraved marine shell pendants, marine shell bead and stone bead necklaces, copper pins and beads, and decorated bone pins (see *Focus on Bone Pins*).



Sometimes they engraved their bone pins with geometric designs.

These objects were valuable because it took a long time to make them and because some were manufactured from non-local materials. Their value also may have stemmed from important symbolic or ritual meanings they held.

By identifying the sources of the non-local materials, archaeologists can trace the general routes by which they made their way into the Green River valley. The copper came from the Great Lakes, and



The flexed burial of an eighteen-year old woman recorded in Butler County shows the kinds of items her family placed in her grave.

Focus on Bone Pins

The Green River Archaic people made bone pins from the long bones of white-tailed deer. They split the bone lengthwise into thin pieces and ground down each one until it was smooth.

The styles of Green River Archaic bone pins were different from those made by Archaic peoples living in other regions. These bone pin makers let the bone's natural contours guide them in shaping the pin's final form.

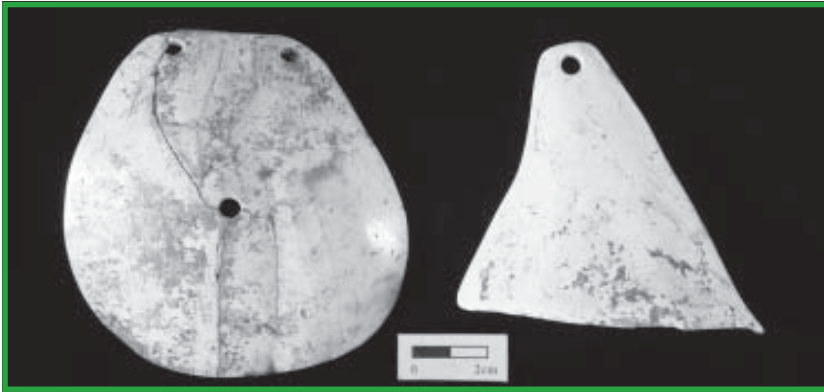
They did not commonly carve the pin tops into different shapes. Instead, like the example on the far right, the makers might attach pieces of shell to the top of the pin with *asphaltum*, a natural, asphalt-like substance found at oil seeps.

Bone pins may have held a person's hair in place. Pins with drilled holes, like the engraved example on page 12, may have been strung on a cord and worn as pendants around the neck. They also could have used these pins to fasten clothing together, like a button or a safety pin.

A bone pin's shape, style, and decoration also may have been linked to family membership or ancestry. Bone pins may have had important symbolic or ritual meaning. Since Green River Archaic people did not bury everyone with decorated bone pins, perhaps only the most important people in their society could own them.



Green River Archaic-style bone pins.



Marine shell from the Atlantic and Gulf coasts furnished the raw materials for ornaments like these pendants.

the stone came from the Appalachian Mountains. These materials most likely moved thousands of miles from their sources by being passed between many individuals through face-to-face exchanges.

Families followed sharing, age, gender, and personal accomplishment rules when interacting with other families. Perhaps as many as six to ten

different families might regularly interact with each other during a year.

Because they were related by birth or through marriage, these groups of families could ask each other for help, like when food was scarce. In this way, kinship ties knitted families together into larger groups.

SETTLEMENTS



The Green River valley in the 1930s, showing a shell midden site (the gentle rise in the background) in McLean County.

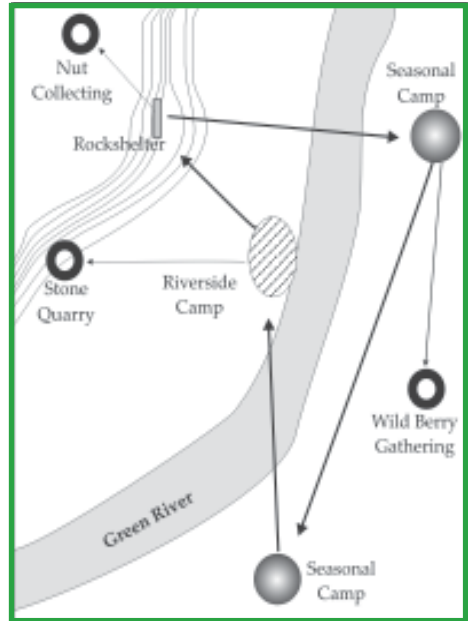
The Green River Archaic people were *mobile* hunters and gatherers. This means they did not live in a single spot all year. Instead, they moved with the seasons across the Green River valley and into its surrounding uplands.

A family's hypothetical yearly movements within a fifty-mile section of the Green River valley.

Their life was not one of aimless wandering, though. Families planned their moves carefully. They drew on their deep knowledge of the life cycles of the local plants and animals, and on where they could find certain resources. Moving most often as families, they might travel perhaps as far as 50 miles in a year. However, hunters could have traveled over a hundred miles from camp before returning.

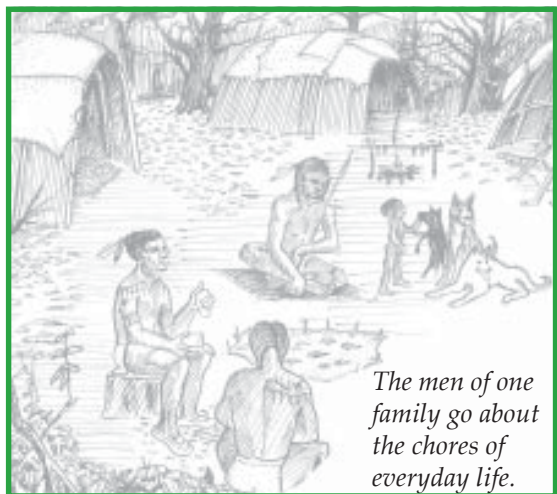
Families lived in the open near streams. They also lived within upland rockshelters in the sandstone bluffs away from the Green River. Most of their camps were small.

Families might stay at a camp for as long as a month or two before moving on. This may have been particularly true during the cold winter months and in late summer and early fall, when many plant foods would have been ready to collect. They did not necessarily return to the same campsite every year.

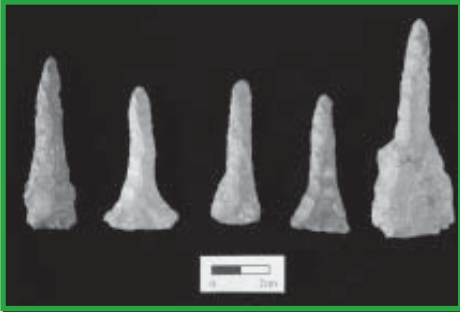


Sometimes they camped briefly in certain spots for very specific reasons. These may have been places where they collected nuts or *chert* (a stone like flint used to make tools).

Even with their mobile lifestyle, though, families would



The men of one family go about the chores of everyday life.



Chipped stone drills could punch holes in wood and shell.

return year after year to certain places. These larger campsites often were located near particularly rich natural resources. Many camps overlooked the Green River's rich mussel beds. They stayed at these riverside camps mainly in the summer and fall.

Archaeologists don't know much about what Archaic houses looked like or how people arranged them at any of their camps. They could have lived in hide or mat-covered tents, or brush-covered lean-tos. Information also is lacking

about the kinds of activities they carried out at the smaller camps and short-term campsites.

The amount and identity of discarded materials at their riverside camps, however, clearly show the kinds of domestic activities these prehistoric people carried out at these places. They discarded fire-cracked sandstone rocks they could no longer use for hot-rock cooking. They also threw away the animal bones and charred fragments of nuts that were the leftovers from their meals. Women cleaned out ash and burned wood from fire hearths, and threw away mussel shells once they had scraped out the animals from inside. After making and resharpening stone tools, men tossed away the

broken fragments. If a bone or antler tool broke during use, or if a child lost or misplaced his father's spearpoint or drill, it became a part of the midden.



Excavating an Archaic rockshelter campsite in Butler County during the 1930s.



A Green River Archaic man and his dog prepare to leave on a hunting trip. In his left hand, he holds his atlatl and spear. His squirrel-skin medicine bag hangs from his sash, which is decorated with tiny shell beads. A rigid deerskin container filled with spear foreshafts is tied to his sash, too.

Certain riverside campsites also served as burial grounds. At some, the graves are concentrated in one spot, and at others, the graves are widely distributed. The larger riverside sites can contain hundreds of burials. Rare and valuable objects made from non-local materials are buried with the dead at only some of these larger sites.

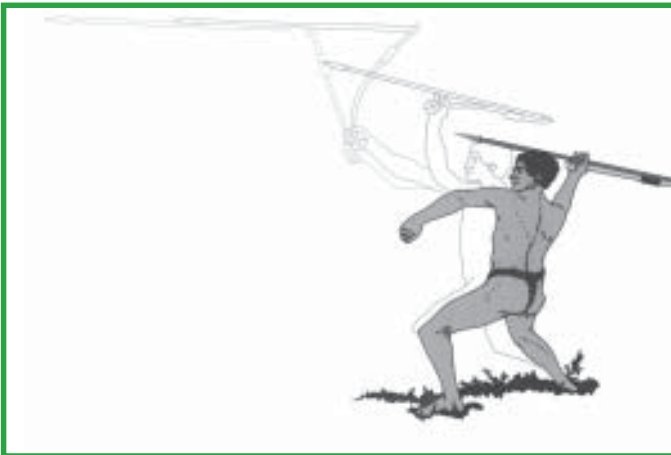
It appears, then, that not all the large riverside camps were the same. Archaeologists can document differences in site size, and differences in the intensity and diversity of activities Archaic peoples carried out at these sites. Perhaps the larger riverside camps were the spots where several families gathered seasonally. Maybe they carried out more intensive ceremonies and rituals at these camps.

FOOD

Archaic peoples of the Green River valley hunted many different kinds of animals. Based on analyses of their food remains, archaeologists know that these people depended most on white-tailed deer, grey squirrel, rabbit, and raccoon. Green River Archaic hunters used the *atlatl*, or spearthrower, to hunt the larger animals. To capture the smaller ones, they may have used snares, traps, and possibly hunting dogs.

They probably hunted wild turkey only during times when food was scarce. Because turkeys are fast runners, these Archaic hunters would have speared, trapped, or netted them using ambush tactics or turkey calls.

We know that river resources played an important role in their diet. That's because archaeologists have recovered large quantities of freshwater mus-



The atlatl extended the range and accuracy of the human arm.

sel shells, as well as fish bones and aquatic turtle shells and bones, from the midden deposits at the riverside sites.

Collecting shellfish in large quantities set the Green River Archaic people apart from their contemporaries in other parts of Kentucky. Five thousand years ago, many different kinds of freshwater mussels lived in the shallow shoals and riffle areas of the Green River. The mussels were a good, predictable, protein-rich source of food. They were abundant, easily gathered, and easy to prepare. Unlike many other foods, they could have harvested mussels in any season. Mussels also were a storable and portable food, once separated from their shells, and then smoked or dried.

The fish these people caught most commonly were freshwater drumfish and catfish. They also ate snapping turtles, mud turtles, and softshell turtles. Hunters would have netted or trapped the

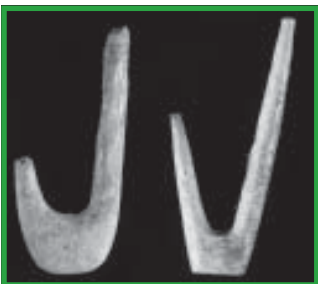
snapping and mud turtles. However, they likely caught drumfish, catfish, and softshell turtles with a bone fishhook and plant-fiber line.

Besides gathering mussels, these Archaic people also collected a variety of plant foods. Acorns and hickory nuts were their favorites. They also ate many different wild fruits, such as blackberry, grape, strawberry, and persimmon; and the seeds of weedy plants like knotweed and goosefoot. They undoubtedly stored nuts and seeds for use in the winter, when such foods would not have been available.

TOOLS AND EQUIPMENT

The Green River Archaic people used plants and animals in more ways than just as sources of food. They worked them into a host of items they needed for their hunting and gathering way of life. Wood and stone also were necessary raw materials.

These people used plant fibers and animal sinew to make twine or cord. In turn, they would have made fishing nets,



Archaeologists have found many bone fishhooks, like these examples, at shell midden sites.

They used sharp bone instruments, called awls, for a variety of piercing tasks.



net bags, clothing, and foot gear. Animal skins and furs served as the raw material for clothing and bags.

Dyes from plants could have been used to decorate baskets and nets. Plants with medicinal properties would have eased a variety of ailments, such as stomach ache, fever, and toothache.

The Green River Archaic people did not make ceramic jars and bowls. Women cooked food using hot rocks in animal skin-lined pits they dug into the ground. For food storage or serving, they likely used skin or

net bags, gourds, or turtle shells. Wooden containers also may have been used for some of these tasks. Gourds may have provided floats for their nets.

Flutes or whistles were fashioned from animal long bones. Box turtle shells and gourds filled with small pebbles made excellent rattles. They probably also had drums made from skin and wood.

Animal bone, animal teeth, and antler provided the raw materials for ornaments like bone pins and beads. Beads and pendants also were made from freshwater and marine shell.

Bone and antler served more functional purposes, too. Many flat, needle-like bone tools have been found at Green River Archaic sites. Stone tool makers used deer antler to form or resharpen spearpoints and scrapers. Sometimes hunters used drilled antler tips as spearpoints.



Stemmed and notched Green River Archaic spearpoints were made in many different styles.

The atlatl was the Archaic hunter's weapon of choice. It required skill to make and to use. A two-part tool, it consisted of a wooden spear fitted with a spearpoint of antler or chert, and the atlatl itself: a handle and a hook made of wood, bone, or antler, and often a drilled counterweight or bannerstone (see *Focus on Bannerstones*).

These people used locally available stone as the raw material for a variety of tools and ornaments. Making chipped stone tools required collecting chert from sources in the Green River valley. Using a hard rock called a *hammerstone*, the toolmaker would roughly chip out the tool. Then he would use a piece of antler to carefully shape and finish it.

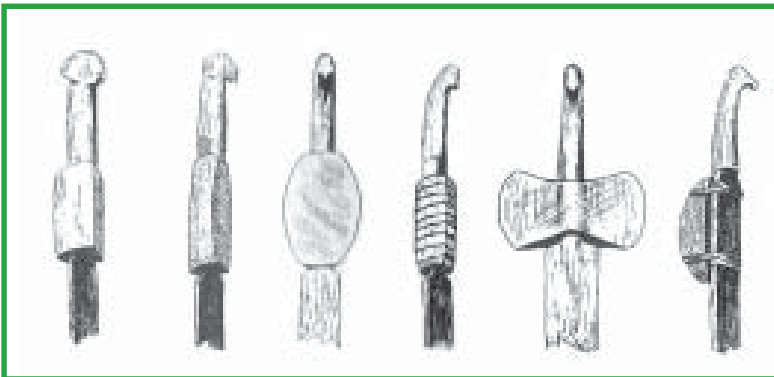
Scrapers and hafted endscrapers were used to pro-

cess meat and hides. Large spearpoints also could have served as knives, but small blade tools would have worked just as well.

Pitted stones, sometimes called *nutting stones*, were used to process nuts. Bell-shaped, conical, and cylindrical sandstone pestles and grinding stones also were used to prepare plant foods and dyes.

Among the stone tools used to work wood were grooved axes and adzes. Toolmakers formed these "pecked stone" tools by pecking or tapping a larger rock with a smaller one until the former was the desired shape.

Adzes are smaller than axes. Craftspeople probably used these tools for detailed woodworking tasks, like shaping wood for bowls or cradleboards.



The diversity of styles in atlatl hooks and bannerstones is illustrated in this drawing from William S. Webb's 1957 study of the spearthrower.

Focus on Bannerstones

Archaic hunters usually made their bannerstones from bone, antler, or local stone. Sometimes they used banded slate and marine shell. These raw materials did not occur in the Green River valley. Archaic hunters would have traded for them, gotten them as gifts from visiting kin, or traveled to distant places to get them.

They made their bannerstones in a variety of sizes, shapes, and styles. In most cases, a simple rock attached to the atlatl functioned well as a counterweight.

But Archaic hunters also spent a great deal of time and effort making some very decorative bannerstones. Around 5,000 years ago, the most common decorative types of bannerstones were humped and double-notched butterfly.

The shape and style of a hunter's bannerstone apparently reflected where he came from. For example, hunters living in the Green River valley used humped bannerstones of marine shell. Men living in south-central Indiana along the Ohio River, however, were partial to the double-notched butterfly type made of banded slate.

Not every hunter owned a bannerstone. Even fewer owned highly decorative ones made from non-local materials. Decorative bannerstones would have worked just as well as the simpler ones, but they may have held some symbolic meaning. Perhaps having a decorative bannerstone recognized a hunter's skills or his leadership within his kin group.



Three styles of bannerstones: left, composite (made of marine shell and

HEALTH, DISEASE, AND DEATH

The prehistoric hunters and gatherers of the Green River valley experienced the same important life events as all humans - birth, coming of age, marriage, children, maturity, and death. Without the benefits of modern medicine, though, they experienced all these events during much shorter lives. Archaeologists who specialize in the study of human bones have given us valuable insights into their lives.

Those fortunate enough to reach the age of 15 could expect to live into their mid-30s. Only a few people lived past 65. Infant mortality was very high: twenty percent of infants died before reaching their first birthday.

These statistics are comparable to those for groups still pursuing a hunting and gathering way of life. They are very different from those of twenty-first century Americans. We can expect to live to be about 78 years old, and less than one percent of infants die before they are one-year old.

Broken bones were a standard event: nearly one out of every two people broke at least one bone sometime during their

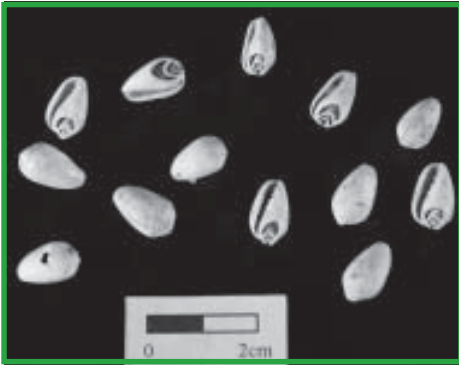
life. Apparently, these mainly occurred due to accidents.

Because most fractures healed (broken bones did not often result in death), injured people clearly were well taken care of. However, these Archaic hunters and gatherers apparently did not set broken bones. Many people's bones healed in crooked ways.

Dental problems were another issue altogether. These problems were not due to cavities. They resulted from worn-down teeth. In fact, poor dental health likely contributed to some people's deaths.

Tooth wear is a natural process. Eating nuts and certain kinds of plants may have helped wear down their teeth. But the small angular grit particles in the foods they ate were more likely the culprits. This grit could have come from the tools they used to process and prepare their food, like sandstone pestles and nutting stones. Or it could have come from the flesh of freshwater mussels, which also contains grit.

Grit is extremely destructive to teeth. It wears down the tooth enamel and exposes the



Marginella (marine) shell beads, part of a necklace (?) from a site in Butler County.

pulp. Over time, this leads to infection and inflammation of the bone, bone marrow, and soft tissues of the mouth and face. Everyone older than 35 had at least one active tooth abscess when they died. If someone survived to be 35-40 years old, they usually had only their front teeth. In time, they would have lost these, too.

Many diseases leave behind traces on bones, and so we know that the Green River Archaic people suffered from both osteoarthritis and rheumatoid arthritis. An ailment more common for men than women was a chronic, localized inflammation of the ear. It resulted in smooth, rounded, boney growths in the ear canal, and led to deafness in varying degrees. It was caused by putting one's head completely under the surface of cold water.

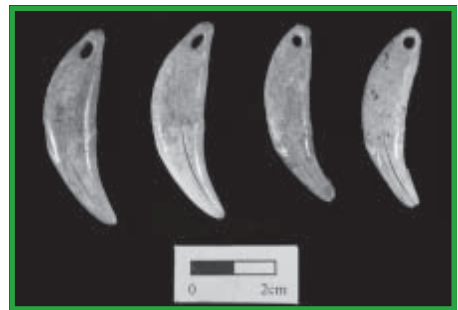
Death can occur due to many things: natural events

brought on by disease, or accidents caused by a careless step that leads to a severe fall.

People also can be the cause of death. This was just as true in the Archaic world of the Green River valley as it is in our own. Between five and 11 percent of adults died violently due to ritualized warfare.

When someone died, their family buried them in a simple pit dug into the ground, or they laid them on the ground surface and then covered the body with soil. Sometimes they dug pits into the shell midden; at other times, they dug pits into the soil below the midden.

Most people were buried separately in a *flexed* or fetal position. Sometimes, their loved ones buried them with objects that held some personal,



Drilled animal canine teeth, part of a necklace from an Ohio County site.

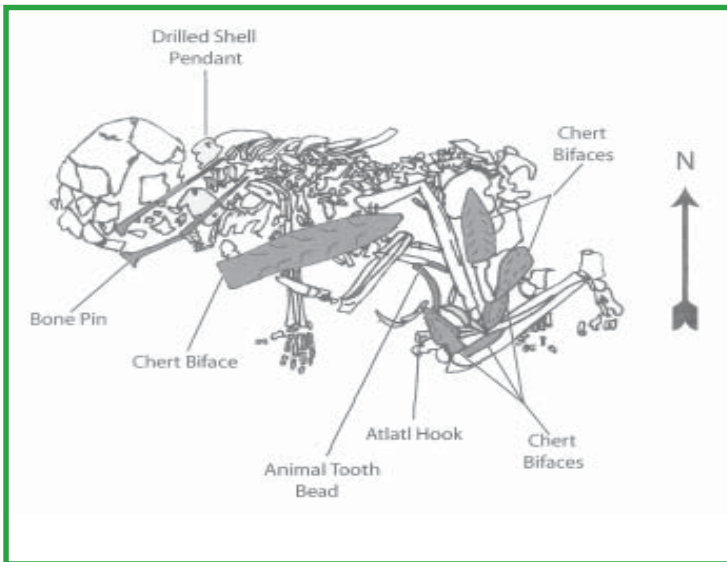
Barrel-shaped marine shell beads found at a Butler County site.



religious, or social meaning for the deceased, or for their family and kin. These included spears, atlatls, stone or bone tools, animal tooth ornaments, turtle shell rattles, and lumps of red ochre. A few people were buried with their dogs (see *Focus on Dog Burials*) or with rare and very valuable items made from marine shell or non-local stone.

It is very difficult to identify today exactly what these items symbolized to these people and how they used them in their rituals and ceremonies. The placement of these objects in their graves, however, clearly shows that the Green River

Archaic people believed in an afterlife. Because of the similarities of burial practices throughout the Green River valley, archaeologists infer that everyone had the same belief system. This system may have been related to worshipping their ancestors.



Flexed burial of a three-year old boy in Ohio County, showing the many different kinds of items his family placed in his grave.

Focus on Dog Burials

Archaeologists have found a total of 182 dog burials at the Green River Archaic shell midden sites. This is one of the largest samples of dog burials in the Southeastern and Midwestern US for any time in prehistory. What was it about dogs that led people to bury them on purpose?

Archaic dogs were medium-sized and stood about 14-18 inches tall at the shoulder. Archaeologists think they may have been long-haired and may have looked a little like their cousin, the wolf. Research shows that at least a part of a dog's diet was the same as that of humans. This may mean that people fed dogs. It also could mean that dogs scavenged the food remains people threw away.

People buried both male and female dogs on purpose: in pits, alone, usually lying on their sides. At several shell midden sites, however, they buried adult male dogs with men, women, or children. Clearly, these dogs were particularly important in some way to these people.



Dogs were an important part of life in the Green River valley 5,000 years ago.

We may never know exactly what kind of relationship existed between humans and dogs in the Green River valley. However, dogs clearly were special. Archaic people did not treat any other animal the way they treated dogs. They may have thought of dogs as just trainable beasts of burden that made hunting and movement from camp to camp easier. Or, they could have been pets, companions, and protectors. Apparently, even 5,000 years ago, dogs were “a man's best friend.”

RELATIONS WITHIN THE VALLEY

The larger shell midden sites next to the Green River may have served as the focal points for gatherings of several families. These likely happened more commonly between spring and late fall, before each family moved to its winter locations.

When these families met up with each other, it was like family reunions are today. People visited with old friends and made new ones. They talked about what had happened since their last meeting: babies that had been born, how much the children had grown, and who had died. As they shared these and other stories, they passed to the next generation family histories of who they were and how they believed they should live.



Green River Archaic people wore shell necklaces, like this one made from hundreds of round, flat beads.

This visiting and socializing apparently included huge feasts. Archaeologists have found large, bathtub-sized pits filled with debris at some of these large riverside camps. They have documented distinct areas where people cooked massive quantities of mussel and discarded the shells, dense concentrations of deer bone, and large numbers of food processing tools.

Along with the feasting, they may have held ceremonies, singing and dancing to celebrate the passing of the seasons. After performing the appropriate rituals, these families may have worshipped their ancestors and buried their dead at these large riverside camps.

Also during these visits, some couples might have married. Studies suggest that hunting and gathering families from different areas within the Green River valley did, in fact, intermarry.

Before the families parted, they likely exchanged information with their closest friends and relatives. Topics could have included where to find the

best raw materials for stone tools and the most suitable campsites. They might have shared information about the locations of good hunting or fishing places, and where to find certain plants. Like hunters and gatherers today, they probably exchanged gifts such as spearpoints, food, and clothing as symbols of sharing and of their relationships.

Over time, these large, riverside shell midden sites became places steeped in history. They became fixed in people's memories and described in stories much like those told about family farms today. In these ways, kin relationships became stronger and family ties expanded.

The Green River valley was home to many groups of families, and so the valley was a patchwork of different home-



Double-notched butterfly bannerstone of banded slate.

An engraved bone pendant.



lands. As families moved within the rich Green River valley, they would have encountered families from their own group and those from neighboring groups.

Ceremonies and rituals helped maintain good relationships among families and between neighboring groups. But sometimes, peaceful relations broke down and conflicts resulted.

A personal misunderstanding may have started some conflicts. Evidence for this kind of conflict may come in the form of shallow, round to elliptical depressions on the skulls of some Green River people. These skull depressions occur twice as frequently on men's skulls than on women's. Most did not lead to the person's death.

These depressions were caused by a blow to the head with a blunt object. Individuals could have suffered these injuries during a fight, or, alternatively, during violent social games and contests, in much the

This large, complete marine shell conch was found at site in Ohio County.



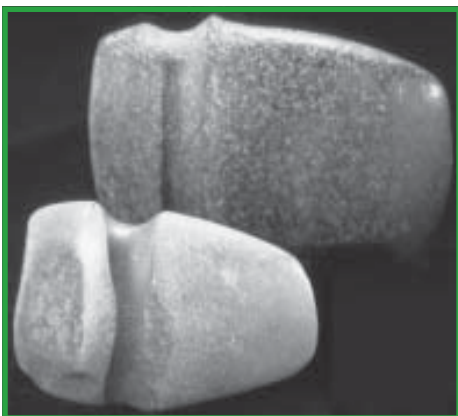
same way football or ice hockey players sustain injuries today.

Other, more serious conflicts probably turned into feuds. A feud usually starts with a serious grudge that involves members of two different groups.

Feuding groups usually raid each other. A raiding party consists of a small group of related men. During a raid, the men from one group approach unnoticed, ambush and kill at least one member of the other group, and then leave as

quickly as possible. The goal is not to engage the enemy in battle. A counter raid eventually takes place. In this way, a feud can go on for years.

Sometimes, the conflicts between neighboring Green River Archaic groups got worse. Archaeologists know this because people in some graves are missing body parts, and other graves contain extra body parts. They infer from these burials that these people raided each other as part of ritualized warfare. During a raid, victorious warriors cut off parts of their enemy's body and brought them back to their camp. This proved how brave the warrior was and increased his social standing. Burying someone with trophies probably showed that the person was a warrior of some note.



They likely used heavy grooved axes, like these, to cut firewood.

Thanks to the work of countless individuals over many decades, we have learned much about how prehistoric peoples lived in the Green River valley 5,000 years ago. We know something about their tools and settlements, and their health and diet.

There is still much we do not know, though, and many questions remain unanswered. What did their houses look like? Where were the best places to collect stone for spearpoints? What kinds of ceremonies did they hold? The list goes on and on.

Paradise, Kentucky is gone, but a song helps keep it alive in our memories. Gone, too, are the people of the Green River Archaic Culture who once lived around "Muhlenberg County,

Marine shell earrings.

down by the Green River where Paradise lay." The places they lived and the objects they left behind celebrate their way of life and keep it alive in our memories.

People were hunters and gatherers throughout much of human history. By learning about how the Green River Archaic people may have met their everyday challenges and arranged their lives, we learn more about ourselves.



Collecting invaluable information about the past at an Ohio County site.

YOUR ROLE IN PRESERVING AND PROTECTING THEIR LEGACY

The people of the Green River Archaic Culture did not write down their history. They purposefully or coincidentally left it behind in the places they once lived. They actively shared it through stories.

Their stories have not been passed down to us. The patterns of objects that remain in the ground at their campsites are the only record of their culture.

Their campsites, then, are their legacy. Because we live in their homeland, we have a responsibility to preserve and protect that legacy. We are the stewards of their heritage.

Their campsites are fragile places, unique and irreplaceable. The growth of towns and cities threatens these sites. So, too, does the construction of roads and bridges, and farming. These disturbances will continue to take place as modern people follow their own lives.

The willful actions of looters, however, also threaten their campsites. These people mine the shell middens for the artifacts and human bones they contain. Then they sell them.

These people can destroy several hundred years of prehistory in one afternoon.

Many Green River Archaic sites have been owned by the same families for several generations. They renew their stewardship responsibilities as the land passes from parent to child.

But, is there something you can do?

There is. Start by deciding that these sites are important. Then put that decision to work.

If you discover a prehistoric campsite or village, don't disturb the ground. Record what kinds of artifacts you see. Then report your findings to the Kentucky Heritage Council, the Kentucky Archaeological Survey, or the Office of State Archaeology at the University of Kentucky. To protect the sites, these organizations keep information on site location confidential.

If someone asks to dig for artifacts on your land, make sure he or she is a professional archaeologist. Ask them why they want to dig and what they hope to discover. Ask for their

business card and check on them. Insist they give you a copy of the report they write once they have finished their research.

Discourage looting by reporting instances that you know of to the state police or to an organization listed on the inside back cover of this booklet. Speak out against the buying and selling of artifacts. Encourage lawmakers to pass stiffer penalties. The market in prehistoric artifacts encourages looting and leads to the destruction of archaeological sites.

Once these sites are destroyed, they can never be replaced. Then the history of these people's ancient ways of life is gone forever. Each of us has a responsibility to make sure that these long-ago campsites and the history they contain endure for another 3,000 years. You can make a difference.

IF YOU WANT TO LEARN MORE

If you are interested in learning more about the Green River Archaic sites and Archaic lifeways in Kentucky, go to the William S. Webb Museum of Anthropology's website:

www.as.uky.edu/Anthropology/museum_of_anthropology.htm. There you'll find an entire section devoted to the Green River Archaic, with photos of the WPA excavations and the artifacts collected as a result.

A companion guide for teachers, with lessons referencing this booklet and the Museum's website, also is available through the Museum or the Kentucky Archaeological Survey (www.heritage.ky.gov/kas.htm). So, too, is a unit for middle school students that targets Archaic lifeways in south-central Kentucky.

You also may wish to read Kentucky Archaeology, edited by R. Barry Lewis and published in 1996 by The University Press of Kentucky. It discusses Kentucky's Green River Archaic sites, the Archaic period, and other topics.



During the Depression, men from all walks of life found work at the Green River Archaic sites.

Kentucky Archaeological Survey

The Kentucky Archaeological Survey is jointly administered by the Kentucky Heritage Council (State Historic Preservation Office) and the University of Kentucky Department of Anthropology. Its mission is to provide a service to other state agencies, to work with private landowners to protect archaeological sites, and to educate the public about Kentucky's rich archaeological heritage. For more information write: Kentucky Archaeological Survey, 1020-A Export Street, University of Kentucky, Lexington, KY 40506-9854; or go to www.heritage.ky.gov/kas.htm

The Kentucky Heritage Council

The mandate of the Kentucky Heritage Council is to identify, preserve, and protect the cultural resources of Kentucky. The Council also maintains continually-updated inventories of historic structures and archaeological sites and nominates properties to the National Register of Historic Places. By working with other state and federal agencies, local communities, and interested citizens, the Council seeks to build a greater awareness of Kentucky's past and to encourage the long-term preservation of Kentucky's significant cultural resources. Through its various programs (e.g., Main Street, Grants, Publications, Rural Preservation, Civil War Initiative, and Conferences), the Council strives to show how historic resources contribute to the heritage, economy, and quality of life of all Kentuckians. For more information write: Kentucky Heritage Council, 300 Washington Street, Frankfort, KY 40601; or go to www.heritage.ky.gov

University of Kentucky Department of Anthropology William S. Webb Museum of Anthropology

The University of Kentucky Department of Anthropology has a mission to educate students and promote scholarly research in the field of archaeology. The Department also is charged by state law with enforcing and administering the State Antiquities Act, which prohibits the destruction of archaeological sites on state and municipal lands. It maintains comprehensive inventory files and records on archaeological sites in the Commonwealth through the Office of State Archaeology, and supports the major state curation repository for archeological collections, the William S. Webb Museum of Anthropology. For more information write: Department of Anthropology, University of Kentucky, 211 Lafferty Hall, Lexington, KY 40506-0024 or go to www.as.uky.edu/Anthropology/museum_of_anthropology.htm



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To purchase a booklet, contact the Kentucky Archaeological Survey. Discounts are available to teachers on orders of 20 or more.