

TRACES OF THE PAST

ARCHAEOLOGY AT THE GRAY FARM SITE A PRECONTACT SITE IN KENT COUNTY DELAWARE





Federal Highway Administration



Delaware Department of Transportation



www.archaeology.deldot.gov

The Federal Highway Administration and the Delaware Department of Transportation sponsored the excavations and analysis of the Gray Farm Site (Site 7K-F-11), in consultation with the Delaware Division of Historical and Cultural Affairs. Archaeological & Historical Consultants, Inc. conducted the research. This booklet was written by Melissa Diamanti, with illustrations by Jeffrey Mathison, Scott Padamonsky, and Daniel Griffith.

The report of the final excavation at the Gray Farm Site can be accessed at **www.deldot.gov/archaeology/north_frederica/GrayFarmSite/phaseII_III/index.shtml**. Additional reports on the project can be accessed at **www.deldot.gov/archaeology/north_frederica/index.shtml**

The cover illustration is a reconstruction of life in a Late Archaic camp (2200-1500 B.C.) by artist Jeffrey Mathison. It shows a pit house covered with bark, and surrounding activity areas including a cooking hearth, deer butchering, and hide curing.

Traces of Delaware's Past

The Gray Farm Site is an archaeological site located north of Frederica, in Kent County, Delaware. It is a Precontact site, meaning that Native Americans lived here before the time of contact with Europeans. This site provides an excellent example of archaeological research in Delaware. The work conducted at the site shows why and how archaeologists investigate a site. The findings from this investigation are helping us to understand how people lived in the past.

The evidence of Delaware's recent history can be seen in old towns, abandoned farm houses, and monuments dedicated to important people or events. You can study the past by reading old documents such as wills, deeds, and family histories in a library or at the state archives. Traces of our past are also found in the ground. An archaeological site is any location where evidence of past human activity survives intact in the ground.



The Gray Farm Site, at lower left, is located north of the town of Frederica and Spring Creek, which is bordered by marshes.

Native Americans lived on these lands for thousands of years before the first settlers arrived from Europe. Their houses are no longer standing, and they relied on oral traditions, not written records, to pass down their stories. But evidence of the Precontact period can be found in the ground. Anyone who has found an arrowhead when walking in a field has seen evidence of these past lives. Archaeologists gather information from excavations and artifact studies, from comparisons with other cultures, from written records and from the cultural traditions of Native American descendants. They use these many lines of evidence to build a picture of what life was like in the past.

Reading the Landscape

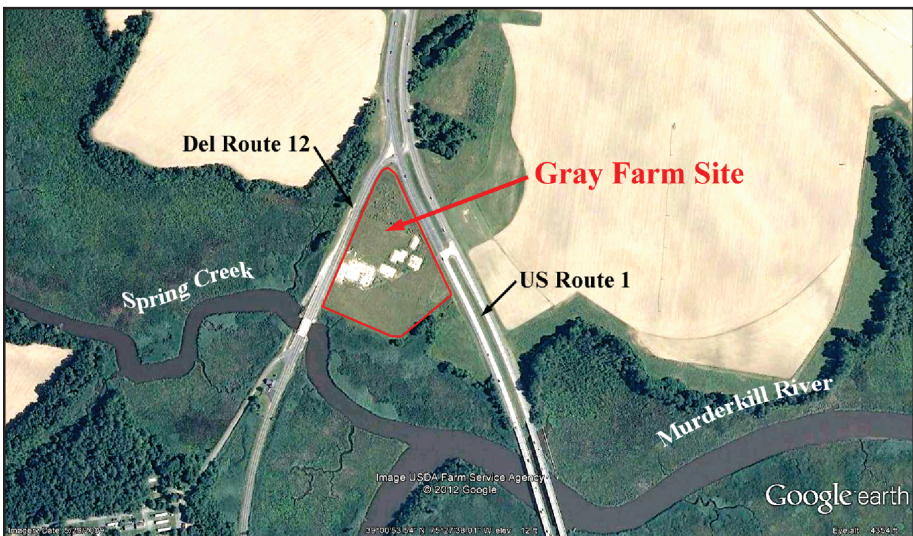
The landscape that you see today, looking across Delaware's towns, roads, and farms, is very different from the landscape that Native Americans traveled across hundreds or thousands of years ago. Forests and meadows have been

replaced with crop lands, roads, and urban development. Some key elements of the landscape remain, such as hills, streams, and marshes. Recognizing these features of the landscape help us to understand how Native Americans used the natural resources around them, and why they chose to live where they did. For example, small streams and springs were important sources of fresh water, while rivers were routes for travel by canoe. People hunted, fished, and gathered wild foods in streams and marshes.

The Gray Farm Site is located near the confluence of Spring Creek and the Murderkill River. The people who lived there probably used both streams. Broad tidal marshes cover the low lying ground on either side of these streams. The site is on higher ground to the north, which would have provided a place to camp. The Native Americans who stayed there probably got their fresh drinking water from a small, unnamed tributary that flows into Spring Creek near the west side of the site.

Sites are Non-Renewable Resources

Archaeological sites and historic buildings are cultural resources, which help us learn about and respect the past. Like natural resources, they are



Aerial photograph showing the extensive marshes along the Murderkill River and Spring Creek (from Google Earth). Excavations at the Gray Farm Site in 2009 can be seen as open squares between US Route 1 and Delaware Route 12.

part of the environment, and can be threatened by construction or other development. But unlike natural resources, each archaeological site is unique and irreplaceable. A new wetland can be created to provide habitat for wild species, but a new archaeological site cannot replace one that is destroyed. Activities that disturb the ground, such as laying a sewer line or building a mall, could destroy an archaeological site without even knowing it was there. This is why it is important to retrieve the information a site contains, before it is destroyed.

For over 30 years, the Delaware Department of Transportation (DelDOT) has worked to protect both cultural and natural resources. DelDOT must undertake certain activities to maintain and upgrade the road system that is vital to our modern way of life. In the planning stages of each project, the department works to discover and evaluate archaeological sites, as well as other resources that would be impacted by construction.

The Gray Farm Site was identified through surveys for a DelDOT project in 2004-2006. The site was determined to be eligible for listing in the National Register of Historic Places, for its potential to yield significant information about the region's history. DelDOT developed plans to build a new grade separated interchange between US Route 1 and Delaware Route 12, but the project could not be designed to avoid damage to the site. Therefore, DelDOT oversaw excavation and analysis of the site in 2009-2012, to recover information from the portion of the site that was later destroyed by the construction of the new interchange.



Archaeologists excavating storage pit features at the Gray Farm Site in 2009

An archaeological excavation, like any soil disturbance, is a form of site destruction. The difference is that archaeologists meticulously document their excavations, being careful to record the context in which artifacts are found and the associations between artifacts and features such as hearths or storage pits. In this way, they recover not only objects, but information from a site as they

excavate it. In contrast, relic collectors are interested in specific objects, such as a whole bottle or an unbroken stone spear tip (called a projectile point), because these are the most beautiful items to collect or the most valuable ones to sell. Such collectors pay little attention to the broken pieces found with these objects, and do not usually record the associations between them. In this sense, an archaeologist is more like a detective or crime scene investigator, gathering all the lines of evidence to reconstruct what happened in the past.

Delaware before European Contact

Archaeologists have built up knowledge of the past from the excavation of many sites, both in Delaware and elsewhere. This history has been divided into arbitrary periods with dates. These periods are commonly described in terms of representative artifacts and the main characteristics of how people lived, as in the summary below. This gives a false impression that there were abrupt changes between one period and the next. Instead, past lifeways changed gradually over time, with new ideas being tried in different places, and new technologies being adopted more quickly by one group than by another.

We cannot know what people who lived thousands of years ago called themselves or their surroundings. Archaeologists have assigned names to these periods, places, and artifacts. The names of projectile points or pottery styles are often based on the place where a type was first identified. For example, Clovis projectile points were first found at a site near Clovis, New Mexico. But large stone projectile points manufactured with similar channels or “flutes” have been found all across the United States.

PaleoIndian Period (12,000-8000 B.C.)

The oldest known site in Delaware dates to 9500 B.C., but people may have been here even earlier. The great ice sheet that covered parts of North America in the last Ice Age did not extend south into Delaware, but the climate was colder and wetter than it is today. Studies of ancient plant pollen preserved in bogs have shown that there were broad expanses of grasslands and stands of forest, mostly made up of spruce, pine, and hemlock trees. The sea level was lower, exposing a broad coastal plain that is now covered by the Delaware Bay.

PaleoIndian people traveled across the entire landscape, hunting and gathering wild foods. They often camped in places that attracted the animals

they hunted, such as fresh water swamps and bays. Their most distinctive tools were the Clovis-style and other large stone points they used as spear tips. They likely also used other tools made of stone, bone, and wood, but few PaleoIndian sites have survived. There was no evidence that people camped at the Gray Farm Site during this period.

Archaic Period (8000-1200 B.C.)

The Archaic Period covers a long time span marked by gradual cultural changes. It is commonly divided by archaeologists into three smaller periods. In the *Early Archaic Period* (8000-6500 B.C.), the climate warmed and spruce forests became more extensive, covering much of Delaware. There was little change in lifestyle, except for the disappearance of Ice Age animals. Early Archaic people continued to move across the landscape in small groups, probably made up of one or two families. They camped in different settings to take advantage of wild plants that ripened in different seasons.

This projectile point from the Gray Farm Site has small corner notches, characteristic of the Early Archaic Kirk/Palmer style.



The major change during this period was in hunting technology. The use of the spear thrower or “atlatl” was widely adopted, making it possible to throw a spear further and with greater force. Throwing spears would have been lighter weight, a change that was reflected in a change to smaller projectile

points. Most of the projectile point styles of this period had notches in the side or base for hafting onto a spear shaft. A single projectile point was the only evidence that people had camped at the Gray Farm Site during this period.

The *Middle Archaic Period* (6500-3000 B.C.) is less well understood than the Early Archaic, because few sites have been dated to this period. Pollen studies have shown that oak and hickory gradually replaced spruce and pine as the dominant forest species. These trees were important because they bear a rich harvest of nuts, which provided food for both humans and animals, especially deer. Grinding stones, which are found at Middle Archaic and later sites, were used to grind nuts and seeds for cooking. Chemical studies have



A pair of stream cobbles were used as grinding stones at the Gray Farm Site.

They were used for food or medicine, to build shelters, or to make containers, and other goods. Looking at the technology of other hunting and gathering cultures, archaeologists can see that people throughout the Archaic period would have used plant fibers to make baskets, nets, woven mats, animal traps, and other tools, as well as shafts for spears. Because these tools are made of perishable materials, they have not been preserved in most archaeological sites.

The **Late Archaic Period** (3000-1200 B.C.) was a time of population increase. More archaeological sites date to the Late Archaic than to other periods. This suggests that there were more people living in the region. Late Archaic people still lived in small family groups, but were probably organized into local bands that shared a territory. Families had a seasonal routine, traveling from one campsite in the territory to another to harvest wild foods, as they had in earlier periods. By the Late Archaic Period, these family groups were also coming together at a larger base camp for part of the year. Archaeologists can distinguish base camps from seasonal camps not only because they are often large sites, but also because these sites had features such as pits, where foods could be stored to last through the



Sunflowers were one of the first plants to be domesticated, because their seeds were an important food.

been used to find traces of the wild foods that were processed in this way.

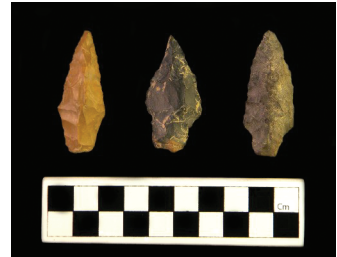
Native Americans used a wide range of plants and animals. They hunted large game such as deer with atlatls and used traps or snares to catch smaller animals. In streams and bays they caught fish and collected mussels, oysters, and other shellfish. Nuts, seeds, and other wild plants were collected in

winter. As populations grew, the size of each band territory shrank. People adapted to having a smaller territory by learning to extract more resources from their environment.

People relied more heavily on wild plants, gradually transforming some into domesticated plants. In the northeastern United States, sunflowers and gourds were the first plants to be domesticated. Sunflowers were important because their seeds were rich in oils and nutrients, while gourds could be dried and used as containers. By about 1200 B.C., sea level rise had stabilized, leading to increases in fish and shellfish in rivers and estuaries. The marshlands found along streams developed at this time, providing marsh grasses and other edible plants, as well as a home for ducks and other waterfowl.

Spears and atlatls continued to be the main hunting technology. The shape of projectile points changed over time, from ones with corner notches to ones with narrow stems, suggesting that the method of attachment may have changed. Stemmed projectile points in a variety of styles continued to be made over a long time span, extending into the Middle Woodland Period. At the Gray Farm Site, many of these points were found in features that dated between 2300 B.C. and 1300 B.C., indicating that the site was heavily used during the Late Archaic Period.

Other tools found in the Late Archaic tool kits included ground stone axes, celts, and gouges, tools that were used for working wood. Native Americans would have used such tools to build their houses, carve dugout canoes, make frames for stretching and drying animal hides, and many other items. They also used bone and antler to make delicate tools such as fish hooks, needles, and awls.



*Piney Island projectile points
from the Gray Farm Site*



*Bare Island projectile points
from the Gray Farm Site*



*Rossville projectile points
from the Gray Farm Site*



Reconstructed portion of a carved steatite bowl found at the Gray Farm Site, which was used to cook wild grains or other food plants

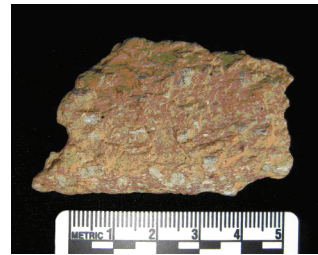
Artifacts made of exotic (non-local) stone are found on sites dating to the end of the Late Archaic Period. Such materials provide evidence that Native Americans were developing a network of long distance trade relationships between bands living in different regions. People living in southeast Pennsylvania and northern Maryland made bowls of steatite, a soft stone that was easy to carve. In an era before

the use of pottery, the bowls were used to cook foods such as nuts and seeds. Local people also traded for stone from other regions to make some of their projectile points, using materials such as rhyolite from south central Pennsylvania or argillite from further north in the Delaware River Valley.

The first traces of houses are found in Late Archaic sites. Postmolds are the pattern of holes left by poles that were driven into the ground. They show that Native Americans built houses of bent saplings. They may have used bark, grasses, hides, or woven mats to cover these frames. At some sites, archaeologists have found evidence of pit houses, with earthen floors that were dug about one foot into the ground to provide greater warmth and shelter.

Woodland Period (1200 B.C. - A.D. 1600)

The Woodland Period includes the more recent past, up to the time of contact with Europeans. The *Early Woodland Period* (1200-0 B.C.) was marked by the first use of pottery, a technology that was introduced from the south or west. The earliest ceramic vessels found in Delaware include Marcey Creek and Selden Island types, which included ground steatite to temper the clay, and Dames Quarter, which used black stone temper. Projectile points continued to be made in the same stemmed and notched styles, indicating that people continued to use spears and atlatls.



Marcey Creek ceramic sherd from the Gray Farm Site

Native Americans continued a hunting and gathering way of life during this period, with little change. Bands came together seasonally, then separated into smaller family groups the rest of the year. People continued to rely heavily on fish and shellfish, as well as using various wild seeds, nuts, and roots. They adopted domesticated crops and the knowledge of cultivation practices from other groups to the south and west, gradually incorporating these new foods into their diet.

The ***Middle Woodland Period*** (A.D. 0-1000) was characterized by improvements in ceramics that made the pottery stronger. Archaeologists find ceramic sherds useful in dating sites, because methods of ceramic manufacture and decoration changed relatively rapidly. Mockley ceramics, with crushed rock temper and simple cord-marked surface decorations, were most common in the Middle Woodland, although Coulbourn, Hell Island, and Accokeek types have also been found in Delaware sites.

During this period, Native Americans in Delaware continued to form bands and separate into family groups. They combined hunting and gathering with growing domesticated crops. There was also continued evidence of long-distance trade networks bringing exotic goods into the region. People used much the same range of tools as in previous periods, with the addition of new projectile point styles such as Jacks Reef and Fox Creek.



*Fox Creek projectile point
from the Gray Farm Site*

During the ***Late Woodland Period*** (A.D. 1000-1600) people in much of the mid-Atlantic region settled into permanent villages. Domesticated crops, especially the combination of corn, beans, and squash, provided most of the food, making it possible for people to live in the same place year round. Native Americans still made short excursions to camps for hunting, fishing, or other activities. Archaeologists have not found evidence of such permanent village sites in Delaware. Instead, people in Delaware continued a lifestyle similar to that of the Middle Woodland period. They relied on a combination of hunting and gathering with part-time agriculture. They continued to move seasonally between large camps where they came together as a band and smaller camps where they lived as family groups.

During the Late Woodland period, ceramics were made in a variety of shapes. They were often decorated in elaborate patterns, which may have been used to indicate different tribal affiliations. Styles commonly found in Delaware include Townsend, Killens, Keyser Farm, and Potomac Creek ceramics. The ceramics found at the Gray Farm Site were all small sherds. No whole pots were found.



*Killens ceramic sherd
from the Gray Farm Site*

A notable technological change was the use of the bow and arrow, which may have been introduced as early as A.D. 500 in the eastern United States. Arrows were made with thinner wooden shafts and were tipped with small triangular projectile points. By the Late Woodland Period, the bow had replaced the atlatl and triangles were the only type of projectile points being made.

The **Contact Period** (A.D. 1600-1750) was a period of transition for Native American cultures. The Lenape and the Nanticoke were the principal tribes living in Delaware at that time. Dutch and Swedish explorers made contact with the local tribes and established colonies, making conflicting claims to the Delaware Bay area. After the English took control, the rate of European immigration increased. Early settlers engaged in trade with



*Triangular projectile point from
the Gray Farm Site, likely used
on arrows*

Native Americans and learned to grow native crops such as corn and beans, as well as learning to grow and smoke tobacco. They in turn introduced Native Americans to new technologies such as guns, knives, and metal kettles. Such trade goods were first accommodated in Native American cultures, but rapidly led to additional changes such as adopting European styles of clothing and house building. By the end of this period, Native Americans had been reduced in number, absorbed into the Colonial culture, or relocated to the Midwest. Their traditional hunting, gathering and gardening way of life no longer survived in Delaware.

Archaeology at the Gray Farm Site

Field Excavations

The Gray Farm Site covers an area of approximately 11 acres on the north side of Spring Creek. The western edge of the site has been disturbed by Delaware Route 12 and the eastern edge by US Route 1. Archaeological & Historical Consultants, Inc. conducted excavations in 2009 under the direction of DelDOT, in the portion of the site that was scheduled to be destroyed by construction of the new grade separated interchange. This area was approximately 1.7 acres, or 15% of the archaeological site.

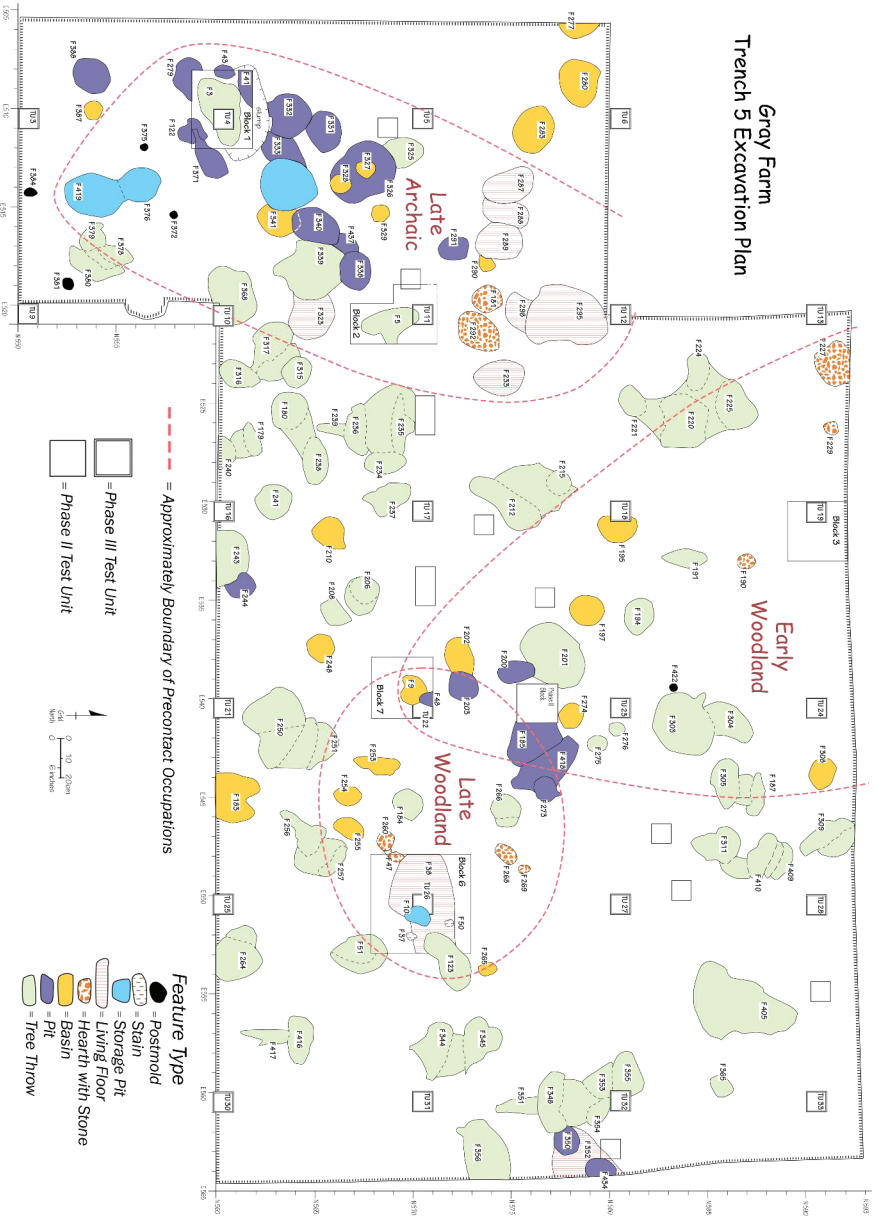
The archaeologists planned the Gray Farm Site excavations carefully, first asking what they hoped to learn from the site, and then how to go about collecting that information. They developed a plan to excavate in three stages, so that the information collected in each stage could be used to help plan the next stage. In the first stage, the team excavated single test squares, spacing them evenly across the zone of planned construction. They sifted the excavated soil through screens with a 1/4-inch wire mesh, collecting the artifacts from each excavation level separately. The archaeologists used the results of this first stage to answer the first questions about the site, comparing information about the types of artifacts found in different parts of the site. Where were the most or the fewest artifacts found? Where were the oldest artifacts or artifacts from later periods found?

Over the centuries, plowing has mixed the topsoil. Below this, excavators could see stains in the surface of the subsoil, the traces of past activities. They examined these stains to identify which ones resulted from natural activities such as an animal burrow or tree fall, and which ones were cultural features resulting from past human activities. Native Americans dug into the ground for many purposes. Examples include shallow pits for cooking or heating fires, deeper pits for



Block excavation exposing a large pit feature at the Gray Farm Site, protected by a shelter in 2009

Gray Farm
Trench 5 Excavation Plan



Map of excavations in part of the Gray Farm Site, showing the storage pits, hearths, and other features left by people who camped here during three major Precontact periods.

food storage, roasting, or other activities, and sunken floors or postmolds from the houses they built.

Many of the features found at the Gray Farm Site were too large to be examined in a single test square. Therefore, archaeologists opened up bigger blocks of adjoining squares in the second stage of excavations. In this way, archaeologists were able to uncover enough of a feature to identify its function.

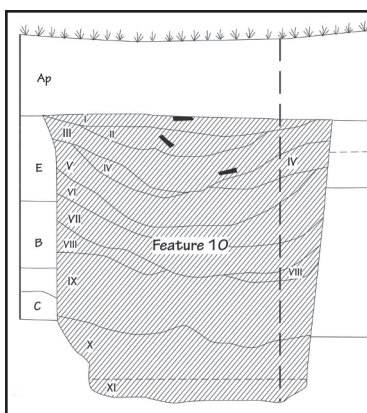
In the third stage of the excavations, archaeologists planned to study as many cultural features as possible, focusing their work on parts of the site where features had been found. They used a backhoe to strip off the topsoil in five large blocks, making it possible to map features and study the relationships between them. Cultural features were carefully excavated by a team of archaeologists, who screened the fill to recover artifacts and made detailed notes, drawings, and photographs about the layers of soil and other characteristics of each feature. In some cases, part of the soil was bagged and saved for further analysis in the laboratory.



Identifying features after stripping topsoil from portions of the Gray Farm Site

Laboratory Analysis

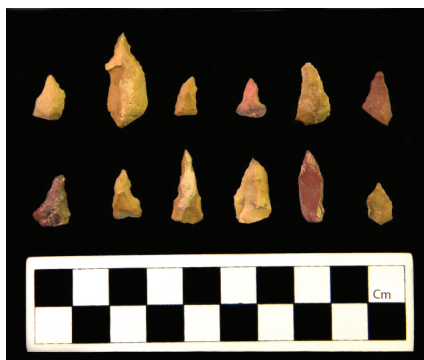
Laboratory personnel began processing artifacts and samples from the Gray Farm Site as soon as excavations began, and continued long after the excavations ended. They first washed, sorted, and identified the artifacts that were brought from the excavations, creating a catalogue in which information about each artifact was linked with information about where it was found in the site. The catalogue included information on what material each artifact was made of, its shape and condition, and what it was used for, if that could be determined. The laboratory processed approximately 38,000 artifacts from the Gray Farm Site, preparing them for long-term storage at the State Conservation Facility, where they will be available for others to study in the future.



Profile drawing of a deep storage pit at the Gray Farm Site

Archaeologists classified the features in terms of their size, shape, and contents, creating categories that represented different activities. Deep cylindrical features with relatively straight vertical sides were most likely used to store food for later use. They may have been lined with bark and covered with bark or wood. Once they removed the food, people either intentionally filled the pits with trash from the site, or they were filled gradually by soil washing in. Shallow pits that had traces of charcoal and rocks that had been split by heating were hearths, used for cooking as well as providing heat and light. Large irregular pits were probably earth ovens, where food was baked by wrapping it in leaves, burying it in the ground, and building a fire on top. Other pits may have been dug for a number of purposes such as preparing food or storing personal belongings, but they were commonly filled with trash when they were abandoned. Wide shallow pits with hardened earth floors were possibly the floors of pit houses. Since these floors had few artifacts, Native Americans used them mainly for sleeping, but did most of their activities outside.

Some of the artifacts from the site were selected for detailed study by specialists. A microwear study of 33 stone tools, including projectile points, scrapers, drills, and other tools, examined evidence of how they had been used. Microscopic scratches and traces of polish can show whether a stone tool was used in a cutting, drilling, or scraping motion, and whether it was used on soft materials such as plants or meat, or harder materials such as bone or stone. Microtools are very small, shaped stone tools, most of which are triangular. Although a few of these have been found in other sites, they were found in unusually high numbers in a few of the features at the Gray Farm Site. The microwear study showed that microtools were not only used as drills, but for a



Microtools from the Gray Farm Site

variety of activities, including perforating hides, scraping soft material such as meat, and scraping and piercing various plant materials.

In a second study, 23 stone tools were tested for residue of plant and animal proteins. This is similar to the testing for blood residue and other trace materials by a modern forensic laboratory. However, the only positive results were traces of rabbit protein found on a projectile point, a scraper, and a drill. The site is located in well-drained sandy soils, and these conditions may have destroyed residues on most of the artifacts.

Evidence of the use of plants at the site came from two studies. Soil flotation was used to recover small plant remains, by dissolving the soil in water and collecting the materials such as nuts, seeds, and charcoal that float to the surface. Flotation samples from 28 features were analyzed. Wood charcoal was common in the features, indicating that they had been used for fires. Samples of charcoal were later used for radiocarbon dating, which helped date when people had used various features at the site. Hickory nuts were common at this site, being found in 70% of the features. A few charred seeds were found in six features, including raspberry or blackberry, wild grape, and grass seeds. In addition to showing what foods were eaten by those camping at the site, these plant remains also indicated that the site was used during the late summer or fall, when these foods ripened. Nuts may also have been gathered in the fall and stored for winter use.



Processing soil flotation samples, which contained fragments of nuts and seeds that had been used at the Gray Farm Site

A second source of information about the plants used by Native Americans at the site was the analysis of microscopic plant remains, including starch grains and plant phytoliths. Fifteen artifacts were analyzed, including ceramic sherds, steatite bowl fragments, grinding stones, and a microtool. The study found evidence that a variety of plants had been used during different periods at the site, including little barley and bristlegrass (both wild grasses), and sunflower or marshelder seeds.

Traces of wetlands plants were also found, showing that people used the edible roots of bulrushes and wapato (also known as Indian potato).

In their analysis of the site, the archaeologists not only studied individual artifacts, but also looked at the relationships between artifacts: What artifact types are found together, and what do they tell us about past activities? They conducted a statistical analysis, focusing on the associations between artifacts, which identified patterns and relationships that resulted from human activities, not random chance.

After completion of all the specialized analyses, the artifacts from the Gray Farm Site were added to the permanent collection of the Delaware Division of Historical and Cultural Affairs, where they are available for study by others in the future. A full report of the excavation and analysis was prepared. Websites where you can learn more about these findings are listed on the front cover.

Reconstructing Past Lifeways at the Gray Farm Site

Archaeologists draw together many lines of evidence to interpret a site. At the Gray Farm Site, they have created a picture of when Native Americans lived there and what they did at the site. This study provided details about life during three major periods, and less information about other periods. It also revealed some surprises, contributing new information to our understanding of the past.

Early and Middle Archaic Period

The Gray Farm Site, or at least the portion excavated in this study, was not heavily used until the Late Archaic period. Archaeologists found one Kirk/Palmer projectile point, marking the presence of people at the site in the Early Archaic period. They left no other evidence of their activities, which suggests that they may not have stayed long. Stemmed projectile points like those found at the Gray Farm Site were being made from the Middle Archaic through the Middle Woodland period. So it is possible that people were camping at the site during the Middle Archaic. However, the stemmed projectile points found at the Gray Farm Site were considered to date to the Late Archaic period, because they were found with features that dated to that period.

Late Archaic Period

During the Late Archaic Period, two areas of the site were heavily used, either by a small group camping repeatedly at the same location, or possibly by a larger group that came less often. The larger area of their camp (shown in the map on page 12), included pit house floors and hearths to the north and a collection of deep storage pits and other pits to the south, which suggests that the camp had an organized layout. The features overlapped, showing that the same type of feature tended to be dug in the same part of the site each time people returned to camp there. There was a smaller, outlying camp area that may have been used at a separate time or for separate activities away from the main camp. Radiocarbon dating results showed that Late Archaic people camped here repeatedly between about 2200 and 1500 B.C.

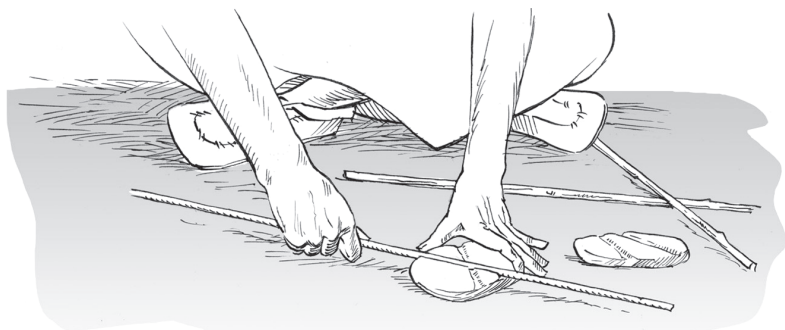
People camped at the site in the fall, collecting hickory nuts. They also collected wild grass seeds and the seeds of other plants, such as sunflowers. They dug some pits to roast nuts or game, and other pits to store food, especially nuts. They also built pit houses, which suggests that they may have stayed at the camp through the winter, relying on the foods they had stored.

The artifacts left by these Late Archaic people show that they made and used a variety of stemmed projectile points, from both local cherts and imported materials such as argillite and rhyolite. Their tool kits also included microtools and grooved abraders, two types of tools that are relatively rare on most sites. At the Gray Farm Site, these tools were common and were found together with stemmed projectile points in the Late Archaic camp.



Broken abraders from Late Archaic features at the Gray Farm Site

Abraders are sandstone cobbles that were used like sand paper, to smooth down or abrade something. Grooves have been worn into the surfaces of these abraders, showing that they were used to shape narrow wooden shafts, such as spears. Smooth straight shafts were also used for bow drills, fire-starting drills, and mat weaving. The large number of grooved abraders found in the Late Archaic camp indicated that shaft smoothing was a major activity of people at the Gray Farm Site.



Abraders were used like sandpaper to smooth wooden shafts

Microtools are small stone flakes that have been shaped by very fine chipping into points or triangular shapes. Studies showed that they were used for a range of actions, including drilling and cutting. Since they were found with grooved abraders, they may have been used in the process of manufacturing spears or other wooden shafts. On the other hand, the microtools could have been part of the spear shafts that were being made. For example, they could have been barbs added to the shafts of fishing spears. If future studies confirm the presence of fish protein on microtools, perhaps this theory can be confirmed.

Early Woodland Period

During the Early Woodland Period, people camped in several different parts of the Gray Farm Site. In an area east of the Late Archaic camp (see map, page 12), they dug hearths and shallow pits that may have been used for cooking. They did not build pit houses or dig deep pits, indicating that they may not have camped here for long. They also left traces in two outlying areas. The people who camped here during the Early Woodland period may have come less often, and therefore started a new camp rather than re-occupying the same clearing they had used before.

Native Americans camping at the site during the Early Woodland period had a simpler tool kit. They used many of the same stemmed projectile point types that were made during the previous period, but did not use microtools or grooved abraders. They also had early types of pottery. These Early Woodland ceramic sherds were found across a wide portion of the site, confirming that people may have camped in various locations during this period. Selden Island ceramics are a type that had been identified in Delaware sites, but had not previously been dated. Radiocarbon dating of

features that included Selden Island sherds at the Gray Farm Site yielded dates between 1190 and 110 B.C., confirming that this type dates to the Early Woodland period.

The Early Woodland people did not rely heavily on hickory nuts. Instead, they gathered plants from the marshes that bordered the site, as well as wild grass seeds. Traces of two wetland plants that produce edible tubers were found, bulrushes and wapato, also known as Indian potato. People may have come to the site in the summer or fall, camping for short periods to process wild plants from the marshes, and perhaps to fish.



The roots and tubers of marsh plants such as these bulrushes were gathered for food at the Gray Farm Site.

Middle Woodland Period

There was little evidence of Native Americans camping at the Gray Farm Site during the Middle Woodland Period. Archaeologists did not find any features that dated to this period, although a few ceramic sherds of Middle Woodland types were found scattered across the site. These included sherds of the Coulbourn, Mockley, and Hell Island types. During the Middle Woodland Period, people may have camped in a different part of the site, which has not been investigated, or may have camped here for brief periods, without leaving pits or other features.

Late Woodland Period

During the Late Woodland period, Native Americans camped in an area east of the earlier camps (see map, page 12). The Late Woodland camp at the Gray Farm Site was smaller than those of previous periods. The people who lived here built one pit house and several hearth features. A cylindrical storage pit was cut through the floor of the pit house, indicating that it had been dug after the house was abandoned, as part of a later camp on the same location. Late Woodland artifacts were also found scattered across the site, indicating that people camped in several different locations during this period. But no evidence of features was found in these other locations.

Charcoal from the cylindrical pit dated to A.D. 1460-1560, near the end of the Late Woodland period. The feature contained a lot of charred hickory

nut, which showed that collecting and processing nuts had again become important. The growing of corn and beans had been introduced to the northeast by this time, but there was no evidence of such crops at the Gray Farm Site. The traces of grass seeds found on artifacts appear to have been from wild grasses such as little barley and bristlegrass instead.

Several types of Late Woodland ceramics were found at the site, including Townsend, Killens, and Minguannan. The range of types indicated that people camped here repeatedly. In addition to ceramic pottery, they had a simplified tool kit. They used the bow and arrow with small triangular projectile points, but did not use specialized stone tools like the microtools and grooved abraders found in the Late Archaic tool kit.

Contributions to Understanding the Past

The Gray Farm Site was determined to be eligible for listing in the National Register of Historic Places because the site had the potential to yield significant information about the past. The excavation and analysis undertaken at the site confirmed this evaluation, producing new information about our past, and showing the value of scientific studies.

The excavation methods made it possible not only to excavate and study a large number of cultural features. They also made it possible for archaeologists to see spatial patterns within the site. The Late Archaic camp provided the clearest example, with its overlapping pit house floors in the north end and overlapping deep pits in the south. The overlapping of one storage pit onto another showed that people came back to camp in the same place, and that they arranged their camp in the same way each time.

The site analysis showed the importance of obtaining multiple radiocarbon dates. Since the Gray Farm Site was used by Native Americans throughout most of the Precontact era, dating helped to determine which features were associated with each period. This made it possible to identify associations between features, leading to the identification of separate camp areas from different periods. Dating also contributed to the understanding of artifact types, which will aid the interpretation of other sites. The Selden Island ceramic type had not been previously dated in Delaware, but dates from the Gray Farm Site placed the type securely in the Early Woodland period. A specialized tool kit including microtools and grooved abraders was identified and dated to the Late Archaic period. Further study may help to identify the function of these tools. This will likely include studies of microwear, plant

and animal residues, and experiments in which modern copies are made and used in various tasks.

The interpretation of past lifeways illustrated the value of specialized scientific studies. The study of residues on artifacts provided evidence of the use of plants that would not otherwise have been detected in an archaeological site. Plants such as nuts and seeds often leave hard shells that are preserved. But plants such as roots and tubers have no hard outer shell, and are only preserved as microscopic traces embedded in the surface of artifacts. Residues from the Gray Farm Site showed that marsh plants were being used. Further research is needed to evaluate the extent to which Native Americans were relying on wetland resources.

Archaeologists were able to gain information about Delaware's Native Americans and how they lived by bringing together information from the excavation and analysis of the Gray Farm Site. This information will help archaeologists in the interpretation of other sites in the future. It also helps us understand our shared past.

Reaching Out to the Public

Excavations at the Gray Farm Site provided many opportunities to interact with the public and explain archaeology to visitors. School groups were invited to participate in the excavation, incorporating archaeology into their curriculum. They enjoyed the hands-on excitement of discovering ancient artifacts, and learned how to interpret what they found. The site was opened to the media, which provided coverage of the excavations in print and on television.

Native American descendant communities expressed interest in the archaeologists' work at the site. They were welcomed and given tours during the excavations. At the end of the excavations, a public visit day was arranged. The archaeologists showed some of the artifacts that had been found and discussed their findings.



Students from the Frederica Elementary School visited the Gray Farm Site and participated in the excavations

What You Can Do to Participate in Archaeology

Join a local archaeological society. You can learn about identifying sites, collecting artifacts, volunteering at digs or museums. Archaeological Society of Delaware: www.delawarearchaeology.org

Record a site. If you collect artifacts, or know someone who does, please keep records of where items are found. To get an official site number or to donate your collection, contact the Delaware Division of Historical and Cultural Affairs, 21 The Green, Dover, DE 19901, phone (302) 736-7400.

Protect archaeological sites. If you see anyone metal detecting or digging on public lands, please report it to the police. If you see a site being destroyed by private development, you can ask the owner for permission to investigate it, or contact the archaeological society.

Learn about archaeology and Native American history. You can find information at the websites listed below, as well as links to other sources.

The Society for American Archaeology has many resources for teachers and others: www.saa.org/publicftp/PUBLIC/home/home.html

DelDOT's *Public Outreach* page has booklets and presentations about many of their projects: www.deldot.gov/archaeology/brochures.shtml

Learn to *identify projectile points* using Delaware's on-line guide: <http://history.delaware.gov/archaeology/points/start.shtml>

Learn to *identify Precontact ceramics* from Maryland's on-line guide: www.jefpat.org/diagnostic/Prehistoric_Ceramic_Web_Page/Prehistoric_Main.htm

Learn about historic preservation in Delaware at the Division of Historical and Cultural Affairs, which is the State Historic Preservation Office: <http://history.delaware.gov/preservatio/default.shtml>



Stone ax and drills from the Gray Farm Site