BAYOU JASMINE

800 B.C.- A.D. 1400 -



Archaeologists usually work on dry land and sometimes work under water, but it is rare for them to explore a wet site that is on land. This was the case at the Bayou Jasmine site in southeast Louisiana. Indians lived there for thousands of years, when the ground was high. Later, the land gradually sank, so the low-er levels of the site were below water. The wet conditions led to preservation of artifacts that normally would have been lost to decay. However, the water made the site very hard to excavate. Archaeologists used special techniques to learn about life at Bayou Jasmine.

(Left) Archaeologists had to find a way to dig at the site even though it was mostly under water. Water pumps and a cofferdam were needed. Credit: LSU Museum of Natural Science.

(Below) Archaeologists found lots of artifacts at the Bayou Jasmine site that do not normally preserve well, like the bone fishhooks seen here. Credit: R. Christopher Goodwin and Associates.



Time and Place

The Bayou Jasmine site is in St. John the Baptist Parish on the west side of Lake Pontchartrain. Archaeologists named the site after the bayou that flows along the site's southern edge. The site is on the natural levee, which was high, dry ground at the time people lived there. The location also provided easy access to the bayou for food and travel.

American Indians used the site from 800 B.C. to A.D. 1400. That is a span of 2,200 years! The main use of the site, though, was during the Early Woodland period, from 800 B.C. to A.D. 1. The people who lived during that time in Louisiana are called the Tchefuncte culture. These Indians were the first in the area to make lots of pottery. They used some types of stone artifacts like those from the earlier Late Archaic period. However, groups were less active in long-distance trade and earthwork construction than before.

During the Early Woodland period, people left behind a lot of food waste, broken tools and other trash. The name for this kind of built-up deposit of household trash is a midden. The midden at Bayou Jasmine extends over an area nearly as big as a football field. Its contents show that people at the site relied on food like fish and clams from the nearby water. South Louisiana has other midden sites from this period. However, not one is as rich in perishable artifacts as Bayou Jasmine.



What else was going on in the world while the Tchefuncte people lived at Bayou Jasmine? About 800 B.C., the ancestors of modern Polynesians first settled on islands in the Pacific. Around 500 B.C., people built the Parthenon in Greece. By A.D. 1, the Roman Empire was in power.

| 11,000 B.C. | 10,000 B.C. I | 9000 B.C. | 8000 B.C. | 7000 B.C. | 6000 B.C. | 5000 B.C. | 4000 B.C. | 3000 B.C. | 2000 B.C. | 1000 B.C | C. A.D. 1 | A.D. 1000 | A.D | . 200 |
|-------------|------------------|-----------|-----------|------------|-----------|-----------|------------|-----------|-----------|--------------|-----------|-----------|-------------|----------|
| | Paleoi | ndian | Ea | arly Archa | ic | M | iddle Arcl | naic | L Ar | ate chaic | Wood | lland | Mississippi | Historic |

Trade and Travel

Bayou Jasmine lies near Lake Pontchartrain, Lake Maurepas and the Mississippi River. These bodies of water provided routes for trade and travel, as well as sources of food. Trade may have been important to the people at Bayou Jasmine. There is no stone available near the site, and all of the stone used for tools was from other places. Many of these places were nearby in Louisiana and Mississippi, but some stone came from farther away. People also brought at least a few ceramic pots from other places to the site. The people who lived at Bayou Jasmine may have relied heavily on waterways for trade, travel and food. They probably used dugout canoes to get around on the water. Making a dugout canoe is not easy. After felling a big tree, it was left to dry and then the inside was burned to make it easy to scrape out. This process may have looked much like the depiction in the engraving below. Engraving by Theodor de Bry after watercolor by John White. Courtesy of the Library of Congress, LC-USZ62-52443.



Food

The bayou next to the site was a rich source of fish and clams for the people. Most of the animal food remains archaeologists found at the site came from the bayou. In the earlier part of the Early Woodland period, people ate plants, deer, alligator and turtle, but nothing was more popular than fish. The only bones found in the human coprolites from the site were from fish.

By studying food remains from the site, archaeologists found out that people lived there at different times of the year. They worked this out by looking at three things: otoliths, clamshells and animal bones. Otoliths, small bones found inside the heads of fish, are like clam shells in one way. Both otoliths and shells grow a little each season, gaining a new ring. Knowing this, archaeologists could tell when people harvested the fish and clams by counting these rings. The animal bones researchers found at the site were another good clue about when people lived there. Once archaeologists identified the bones, they figured out which kinds of species were caught the most. Based on the behavior of these animals, archaeologists have a good idea when they were easiest to catch.

The first Tchefuncte people visited the site numerous times during all seasons of the year. They caught most of the freshwater drum fish during the summer and fall, while they hunted turtle and other animals in the spring. The shells left by later Indians show they were harvesting clams in the spring.



(Above) Enlarged image of an otolith taken with a microscope camera. Otoliths are very small, but vary in size depending on species of fish. The one seen here is from a drum fish and measures about 5/8 inch in length. Credit: Louisiana State University Department of Oceanography and Coastal Sciences.

(Below) Historical depiction of American Indians preserving fish on a rack over an open fire. The people at Bayou Jasmine may have smoked their food in a similar way. Engraving by Theodor de Bry after watercolor by John White. Courtesy of the Library of Congress, LC-USZ62-53339.



Digging at Wet Sites

The Bayou Jasmine site is now 18 feet deep, but only the upper portion of the site is above water. The ground in this part of Louisiana slowly has sunk, submerging most of the site below water. The Louisiana Department of Highways funded a study of Bayou Jasmine in 1975, after construction disturbed the site. In order to work there, archaeologists needed a way to keep water from filling the area where they dug. The Department of Highways built a box, called a cofferdam, to enclose the excavation space. The cofferdam had sheet metal walls that went 26 feet into the ground! The enclosure was 50 feet long by 7 feet wide. The cofferdam was only partly successful, and water continually seeped into the excavation units. The site also received heavy rains during the field season. Archaeologists used a 1,500-gallonan-hour pump to keep the area dry enough to work. They also caulked the joints of the cofferdam panels to slow water leaks. Even so, water was a big problem for the archaeologists. Wet spots made it hard for them to see patterns in the soil. The dampness also caused the thin walls of earth between the cofferdam and the excavation to fall down.

The photograph shows how close the excavation was to the highway bridge and the bayou. Credit: LSU Museum of Natural Science.



The field team used a special technique to recover small artifacts, bones and plant remains from the wet dirt they dug out of the site. Using a hose, they sprayed water on the soil, trapping the artifacts, bones and shells in a series of mesh screens. The screens were 1/4 inch, 1/8 inch and 1/16 inch, with the biggest grid screen at the top and the finest at the bottom. This system caught artifacts of all sizes. For example, the biggest screen held larger shells and pieces of pottery, while small bits passed through. The finest screen trapped tiny plant remains and fish bones. The careful water screening of the soil was slow, but it led to recovery of far more bones and artifacts than expected.

Because of the wet conditions, the archaeologists were not able to excavate as much as they planned. They were only able to dig down about 9 feet below the surface by the end of the season. They did not reach the bottom of the site. Today, the site is preserved below the water next to the highway.





Water screening using multiple screens of varying sizes has become a common technique for recovering artifacts at some archaeological sites. Credit: LSU Museum of Natural Science.

Artifact Preservation

In spite of the challenges of working at a wet site, the water was very beneficial, because it helped preserve bone and plant artifacts. First, it blocked oxygen from reaching the artifacts. Without oxygen, bacteria and other microbes that usually cause decay could not live. Second, the Bayou Jasmine artifacts probably stayed continually wet. Organic remains are preserved well only at sites that stay very dry or that stay very wet. Most sites get wet and then dry out many times each year. When moisture changes, the artifacts swell and shrink, and they become weaker and more fragile. The subsidence at Bayou Jasmine kept the artifacts always wet, so they did not break down.

Prehistoric people made lots of things out of animals and plants. At most sites, these types of artifacts rot away quickly. At Bayou Jasmine, however, some of them lasted for thousands of years. Bayou Jasmine gives a glimpse of certain artifacts that once were common, but that archaeologists rarely see.

Some of the most remarkable artifacts from the site were thin cords that people braided from plant fibers. The Indians may have used these to make fishing lines or to tie things together. Cords are not often found at archaeological sites in Louisiana.

Other uncommon artifacts were bone fishhooks, bone projectile points and bone flutes. Bone artifacts do not often survive the passage of time. These "everyday" things may not seem important, but they are very important to archaeologists. Bone artifacts show that the people who lived at the site did not waste their resources. They turned leftover bone into valuable hunting and fishing tools.



Credit: R. Christopher Goodwin and Associates

Many of the artifacts found at Bayou Jasmine would not have survived at other sites. Artifacts like the bone fishhook, bone projectile point and alligator tooth seen above are prone to decay when exposed to oxygen and the elements.