



Theme
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ANCIENT SHELTER
Coming In from the Cold

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John H. Brumley is an archaeologist who studies ancient forms of shelter.

LESSON 5A—NARRATIVE: WHAT SHELTER WAS MOST POPULAR AMONG ANCIENT PEOPLE?

The tipi was the most popular form of shelter among ancient people.

Think about the home in which you live. It may be a modular home or one built of frame construction. Your family may have built the house, or it may have been built by someone else. Many people purchase a home from a former owner. That way, the house is ready for you and your family to move into with a minimal amount of work. Your home provides shelter, safety, and warmth.

Montana's weather is very unpredictable, presenting extreme and dangerous conditions. Winter in our state has periods of severe cold, with strong winds. Summer's weather can be very hot and often dry, increasing the risk of wildfires. Rain, hail, or snow may fall most any season of the year. Extreme weather usually finds most families safe in their homes. Sometimes a family is camping or traveling when severe weather arises. But if the weather gets too bad, you can always return to the safety of your vehicle, or pack up and go home.

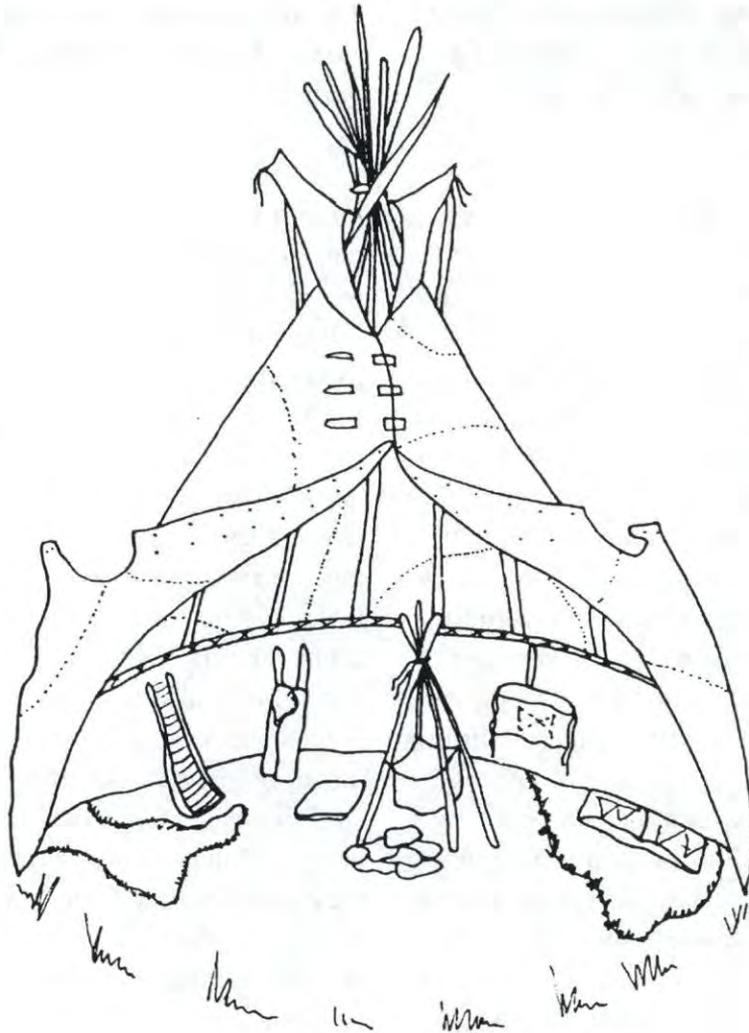
Montana's ancient people did not have the choices we have today. They were **nomadic** hunters and gatherers, tracking animals and collecting plants. Prehistoric people migrated with the animals' search for better forage. They moved as plants matured with the seasons. They lived year-round in a fashion similar to camping, and they chose different campsites at different times of the year. The natural elements of the past were as varied as they are today, and frequently more severe.

Having the right type of shelter was critical for survival in the unpredictable weather of Montana's past.

For nomadic people, a shelter had to be light and easy to transport. During most of Montana's prehistory, people had no horses to haul their belongings. They would use a **dog travois** to haul some of their belongings and carry the rest on their backs. Because ancient people moved often, their shelters also had to be easy to assemble and disassemble. They did build some more permanent shelters in locations they visited every year on a seasonal basis. But usually they had to bring or build their shelter each time they made a new camp. Like today's homes, ancient shelters needed to provide warmth in winter and stay cool in summer.

For prehistoric people of Montana, the most familiar type of dwelling, and the most recent, was the **tipi**. A tipi is **conical** in shape, with long, narrow lodgepole pine or fir poles placed upright and leaning together, lending support to each other. Animal hides sewn together formed the outer **covering**. Most likely, buffalo hides were the preferred covering. Between ten and fifteen buffalo hides were needed for a tipi cover. If buffalo hide was not available, the people sewed smaller hides together. According to historic accounts from Plains tribes, each cover probably lasted for only one to three years before it had to be replaced. The exteriors of tipis—also

The tipi provided ancient people living on the open plains of Montana with warmth and comfort. *Courtesy Montana Historical Society.*



judging from early accounts—were sometimes, but not always, painted with various symbols and designs. With the arrival of Euro-Americans, Indian people also began to use canvas for tipi covers.

Tipi rings, or stone circles, are believed to be archaeological sites where prehistoric tipis were set up. A tipi ring is made up of the rocks placed around the bottom of a tipi to hold the hide cover down. This kept out small animals, insects, and cold drafts. People also used pegs to hold the covering on the ground. Prehistoric people also probably lined their tipis

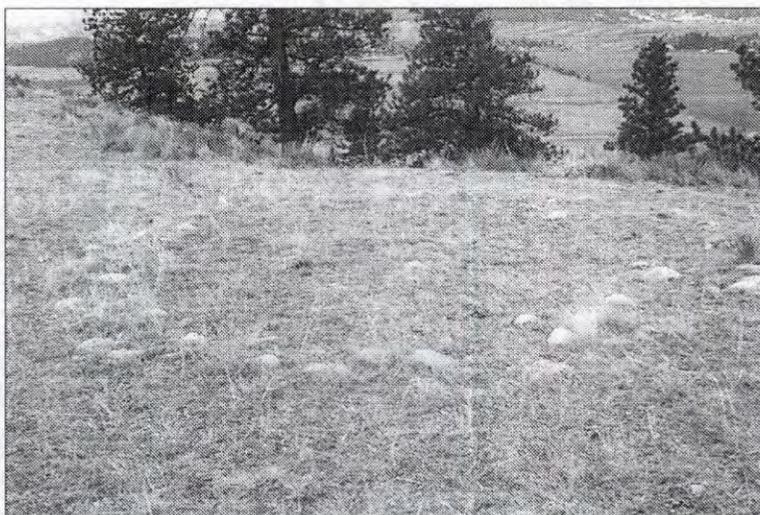
with a second hide covering that they hung from the tipi interior as added insulation from cold weather. The earliest evidence of tipi rings in Montana dates to more than five thousand years ago, but most of those we see today are probably less than one thousand years old.

Archaeologists find tipi rings throughout Montana, especially on the northern plains or Hi-Line. They usually find tipi rings near water, firewood, and other resources that people needed to camp. In the plains area, campsites are often located on terraces above river drainages. Occasionally, the people

used mountain locations on or near ridges, possibly to avoid snowdrifts. Some tipi rings may actually be look-outs or defense sites. Prehistoric people used some locations repeatedly for campsites, as indicated by many stone circles, the varying depths of the stones of different rings, and evidence of rings touching or overlapping each other.

Some archaeologists believe that, during the **"Dog Days"**—in the time before horses when dogs pulled the travois—tipi size was smaller. When horses arrived in Montana during the 1700s, the people could take larger loads, and so tipi size became larger. The size of ancient tipis—based on the size of the tipi rings—varied from only four feet in diameter to eighteen feet across.

Because large animal hides were easily available to make coverings, the tipi form of shelter was common in Montana and used by many different prehistoric groups. Hides could be readily replaced as they wore out or were ruined. Tipis could also be assembled and disassembled very quickly. One **ethnographer**—an



anthropologist who studies living societies—has observed that a single Kootenai woman could set up or take down a tipi in fifteen minutes. A rapid move was required if a buffalo herd was sighted, or enemies were approaching. The tipi was a perfect tent for the nomads of Montana, suited to the mobile **lifeway** of Montana's prehistoric people. It is likely that most groups used tipis as shelter during all seasons of the year, at least after four thousand years ago. Some bands, however, may have chosen alternate shelters during different seasons.

Tipi rings are the archaeological evidence of ancient tipis. Prehistoric people used the circle of stones to hold down the tipi's hide cover. *Tim Urbaniak, photographer.*

LESSON 5A—VOCABULARY: WHAT SHELTER WAS MOST POPULAR AMONG ANCIENT PEOPLE?

conical _____

covering _____

dog days _____

dog travois _____

ethnographer _____

lifeway _____

nomadic _____

tipi _____

tipi rings _____

LESSON 5A—ARCH ACTIVITY: MAKE A TIPI

Grades: 3–8

Time: 60 minutes

Content Area: math and arts

Who: small groups

Materials (per group/tipi):

double sheet or old blanket, string, marker, scissors, paint, 3 wooden poles (8 feet long), smaller sticks (9 inches long), thick twine or rope, several mid-sized rocks

OBJECTIVE AND OUTCOME

- Students will gain knowledge of how a tipi was constructed, using modern materials.
- Students will design and construct a tipi.

ACTIVITY

1. Determine the size of a group. Each group will build a tipi.

2. Cut a piece of string 20 inches shorter than the poles. Hold one end of the string in the center of the long side of the sheet or old blanket. Tie a marker to the other end. Use the string as a compass and swing the pencil end of the string on the sheet, drawing a semicircle. Cut off the excess material.

3. Paint the cover. Use sticks as brushes.

4. Hold the three wooden poles in a tripod position. Intertwine one end of the long rope back and forth where the three poles meet to lash them together. The remainder of the rope should hang down the middle and be wrapped around one of the rocks. This serves as a weight to secure the frame.

5. Wrap the cover carefully around the poles. Hold in place, making sure the overlap is between poles. Where the cover overlaps, place wooden pegs (as described below) to hold the cover in position. From the top, at the

overlap, measure down every 6 inches and mark. Do this about halfway down. Cut 2 small vertical slits, 4 inches apart, through both layers of fabric at each measurement. Thread a wooden peg, 9 inches long, through the two slits.

6. Place the remaining rocks around the outer edge of the tipi, as a tipi ring.

EXTENSIONS

3–5:

- Research vocabulary.

See: Lesson 5A—Vocabulary

- Write stories about fictional events in an Indian tipi village.
- Research Indian symbols.

6–8:

- Apply math to the calculation of living space (area and volume) of a tipi as a circle and a cone.

**LESSON 5B—NARRATIVE:
BESIDES TIPIS, WHAT OTHER
TYPES OF SHELTERS DID
ANCIENT PEOPLE USE?**

Prehistoric people relied on forms of shelter other than the tipi. Geological formations offered natural shelters in the form of **caves** and **rockshelters**. Ancient people had used these forms of shelter since the close of the Ice Age some twelve thousand years ago. The best locations were along cliff faces near water sources. Daily life took place at the front of a cave or rockshelter where there was warmth and light. The people used the back of a cave or rockshelter to store supplies and equipment. During colder months, they may have placed animal hides and brush at the front of the cave or rockshelter to keep out wind and cold. Family groups used these natural shelters repeatedly, as did hunting parties traveling through the region.

In many caves and rockshelters, people left behind artifacts they no longer used. The artifacts left by one prehistoric group would be covered with wind-blown soil, and then another group would occupy the cave or rockshelter. Over time, layers of artifacts and soil built up inside the shelters. These **stratigraphic layers** are a record of prehistoric use of caves and rockshelters over time. Caves and rockshelters also sometimes preserve fragile, **perishable** artifacts of hide and vegetal material. These artifacts usually decay quickly in open campsites, and so caves and rockshelters, where organic materials are more

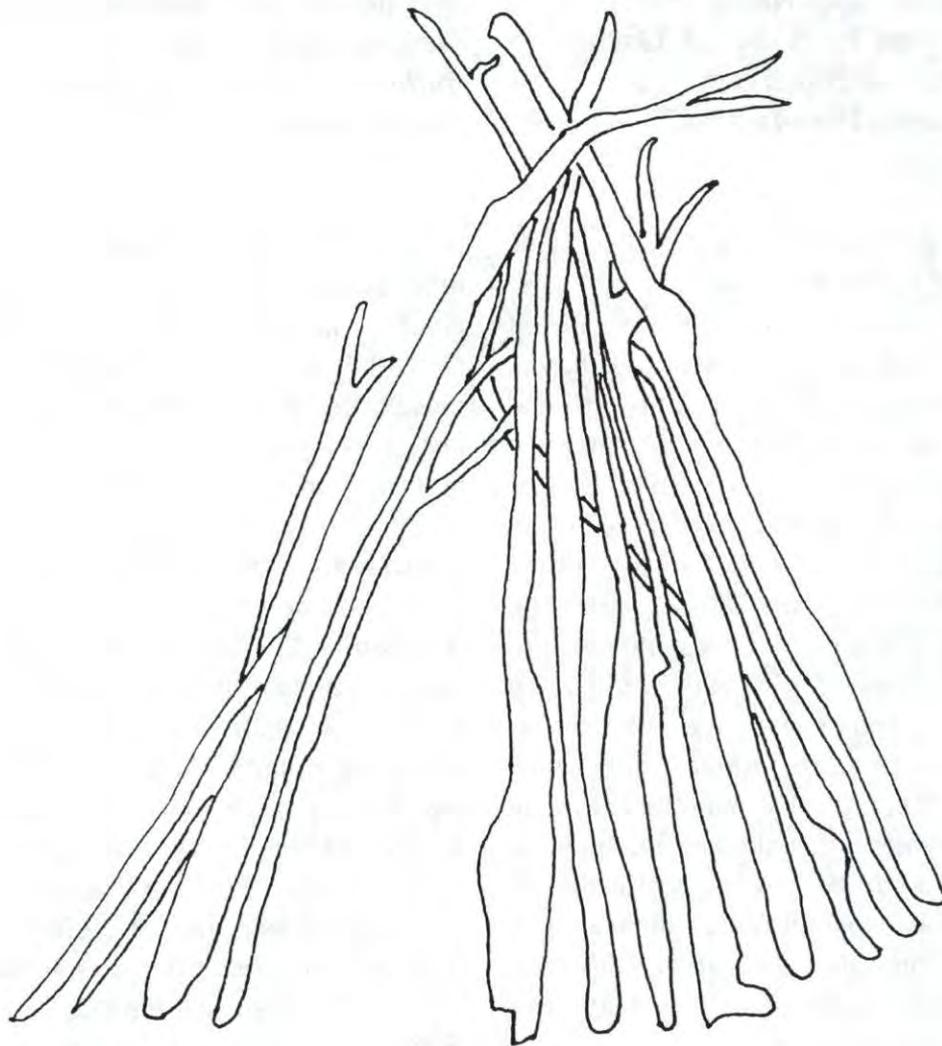
Besides tipis, ancient people also used caves, rockshelters, pithouses, wickiups, and cribbed log structures as shelters.

protected from the elements, are very important to archaeologists. A good example is the Pictograph Cave site near Billings. Unfortunately, many of these sites have been **looted** by artifact collectors who know the value of artifacts found in these sites.

Another type of ancient shelter was a **pithouse**. A pithouse was made by digging a wide, shallow hole—a pit—in the ground. The builders then placed log posts around the hole to support a roof. The walls and roof were made of dirt, brush, or animal hides. Because of the pit, part of the house was underground. These pithouses were smoky, dark, and drafty, but an internal hearth fire provided warmth, helping prehistoric people survive the long winter season. For quite some time, archaeologists believed that there were only recent pithouses in Montana. New discoveries indicate ancient Montanans used pithouses around four thousand years ago, particularly in southeastern Montana. Pithouse sites are still very rare, indicating that few prehistoric Indian groups in Montana used this type of structure. But more pithouses may be discovered in the future, and this could change archaeologists' theories on how much pithouses were used.

Archaeologists know that prehistoric groups used wood and brush in their dwellings. **Wickiup** is the name given to one type of shelter created with these raw materials. A wickiup was made of timbers stacked together

Wickiups resembled tipis, but they were probably not covered with hides. *Courtesy Montana Historical Society.*



in a cone shape. Prehistoric people then placed shorter sticks, pine boughs, and brush over and between the timbers as the covering. Sometimes they stacked rocks around the base. A wickiup looks much like a tipi without the hide covering. Some archaeologists call wickiups "conical timbered lodges."

Wickiup structures are fragile and do not survive for very long. None of the wickiups surviving today are more than three hundred years old. Some archaeologists believe that these shelters are a recent innovation developed during historic times. Others argue

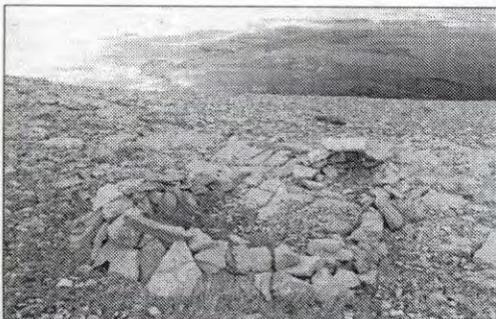
that wickiups were used by prehistoric people, but that, being made of wood, they simply decayed and disappeared. Many wickiups found today are well concealed in remote, dense stands of timber. They may have been built by war parties as protection against musket balls and rifle bullets in historic times. Hunting parties may have used other wickiups. Wickiups containing household artifacts indicate that some were used more permanently as family shelters, probably during the winter months. Most wickiups are found in southwestern and south-central Montana. Many were probably made

by Shoshone groups who inhabited this region at the end of the Late Prehistoric Period and in early historic times. A good example of a wickiup is in Wickiup Cave near Lima, Montana. Other preserved wickiups were made by the Blackfeet, Crow, and other groups. Lewis and Clark describe seeing unoccupied wickiups along the Missouri River during their explorations in 1805–1806.

Ancient shelters similar to wickiups are **cribbed log structures**. These were lodges made of logs and poles laid horizontally and stacked three or four feet high. They are most often **pentagonal**, having five sides. They resemble the modern Navajo hogans found in Arizona. Their builders used sticks, brush, and sandstone slabs to fill the space between logs and around the base. How their roofs were constructed is unknown. Poles may have been placed across the cribbed log walls, with brush or animal hides placed on top as the roof. Because few artifacts have been discovered in cribbed log structures, archaeologists believe that they were used as short-term dwellings. When lots of artifacts and maybe a fire hearth are found in a structure, these indicate longer use, most likely during the cold seasons of the year. Cribbed log structures are found mostly in the

Yellowstone River area of south-central Montana. One example is Coyote House, which is located on a prominent sandstone bluff on the Custer National Forest.

Archaeologists have also found a variety of **lean-to's** and possible shelters made of partially stacked stones and sticks. Some of these were probably temporary shelters used by people caught in bad weather, and some were probably built by hunters and war parties. Today, these very impermanent prehistoric shelters are easy to confuse with shelters built by fur trappers, sheepherders, and modern-day hikers and campers. The presence of a stone tool or the absence of historic or modern trash may be the best indicators that a shelter is ancient.



Some prehistoric structures that look like shelters were probably used for other purposes. This small, U-shaped stack of rocks is thought to be a vision quest structure. *Tim Urbaniak, photographer.*

LESSON 5B—VOCABULARY: BESIDES TIPIS, WHAT OTHER TYPES OF SHELTERS DID ANCIENT PEOPLE USE?

caves _____

cribbed log structure _____

lean-to _____

pentagonal _____

perishable _____

pithouse _____

rockshelters _____

stratigraphic layers _____

wickiup _____

LESSON 5B—ARCH ACTIVITY: CONSTRUCT A CAVE

Grades: 3–8

Time: 2 sessions, 60 minutes+ each

Content Area: arts

Who: small group

Materials (per group):

fine chicken wire (3' x 4')

newspaper

paints and brushes

flour-and-water paste

OBJECTIVE AND OUTCOME

- Students will gain understanding of an early shelter, the cave.
- Students will create a papier maché cave wall.

ACTIVITY

1. Determine the group size. Each group will build a section of a cave. Tear strips of newspaper for papier-maché.

2. Shape the chicken wire to resemble a cave wall. Turn bottom edge under and in, about 1 foot. Work the wire to create a slightly uneven surface.

3. Place the wall on several layers of newspaper, extended some distance out. Mix the flour and water paste to a medium consistency. Cover the wire with two layers of papier-maché on each side. Leave to dry.

4. When dry, paint the surface gray, mixed with some earth-tone rock colors. Cave sides may be placed side by side to form a larger enclosure.

Alternative (3–4): Use large sheets of paper. Spray with different shades of dark paint. Crumple sheets and staple them to wall to give wall texture. Use chalk to draw pictographs.

EXTENSIONS

3–6:

- Research vocabulary.

See: Lesson 5B—Vocabulary

- Add pictographs to the cave walls.
- Create a camp scene to go along with the cave wall.

4–8:

- Have students create dioramas/models of a prehistoric settlement.

LESSON 5C—NARRATIVE: WHAT DO SHELTERS TELL US ABOUT ANCIENT PEOPLE?

Ancient shelters and their contents provide much information for archaeologists and help them learn about prehistoric cultures. The types of dwellings and the artifacts found at **habitation** sites tell us about the lifeways of the people who lived in our region during prehistoric times, just as different houses, towns, and cities across the world today tell about the people who live in them. Archaeologists are able to estimate the **size** and **composition** of the prehistoric groups who inhabited these shelters and sites by the numbers and kinds of different structures. Structures made of wood can sometimes be dated through **dendrochronology**. (See **Lesson 3F—Narrative: How Do Archaeologists Analyze and Date Ancient Technology?** for an explanation of dendrochronology.) When hearths are found inside structures, they can be aged by **radiocarbon dating**. Archaeologists can even use the amount of **lichen** growth on tipi ring stones, and on stones used in other structures, to estimate the relative age of a site. By studying the placement of doorways away from the prevailing wind, archaeologists are sometimes able to determine the season of the year when a structure was used.

Artifacts discarded inside a structure allow scientists to determine what foods ancient people ate and what **household** activities they performed. The picture of prehistoric life is often

Shelters provide important evidence about the lifeways of ancient people.

enriched by the **perishable** artifacts found at habitation sites. Caves, rock-shelters, pithouses, and sometimes wickiups and cribbed log structures often provide abundant artifacts made of bone, antler, and stone. Finding and analyzing these artifacts greatly increases the ability of archaeologists to interpret shelter sites. Unlike other early shelters, tipi rings frequently yield few artifacts. This may be because they were occupied for only short periods.

From their study of shelters, archaeologists have concluded that ancient Montanans were **adaptable** and **flexible**. These early people adapted their style of living to the resources available at a given time and place for use in shelter, subsistence, and technology. Although the tipi may have been their preferred shelter, they made use of many other types of shelter. Sometimes they found tipi hides or poles difficult to obtain. This was especially so in difficult climates or among groups far from wooded areas. Sometimes their tipis burned or were stolen by enemies. When Lewis and Clark met the Shoshone Indians in southwestern Montana in 1805, the Shoshone had only one tipi! The rest had been stolen by an enemy war party. This kind of situation probably occurred in the prehistoric past. Montana's weather was harsh, ever-changing, and unpredictable. Prehistoric groups included not only young men and women, but also children, elders, and sick and crippled people. The continued survival of the

band was only possible through the group's ability to adjust to situations and to use a wide range of short- and long-term shelter types.

Montana's ancient people were nomadic hunters and gatherers, moving regularly in search of food and other resources. They often left only a few traces of their existence on the landscape. Habitation sites with shelter structures reflect ancient homes and are extremely important to archaeologists in their efforts to solve the mystery of the past. All prehistoric shelters are fragile and rare. Their preservation is of the utmost concern. Unfortunately, many caves, rockshelters, pithouses, wickiups, and tipi rings

have been disturbed by **pothunters** digging to find ancient "treasures." Seldom do pothunters find any treasures. Pothunting is not only often illegal, but it also destroys irreplaceable information, making it more difficult for future generations to enjoy, and learn about, the past.

You can assist in the preservation of the past by reporting any archaeological find to your local Forest Service or Bureau of Land Management office or the State Historic Preservation Office (SHPO) in Helena. At these offices, professional archaeologists are available to help preserve and protect ancient sites.

LESSON 5C—VOCABULARY: WHAT DO SHELTERS TELL US ABOUT ANCIENT PEOPLE?

adaptable _____

composition _____

dendrochronology _____

flexible _____

habitation _____

household _____

lichen _____

perishable artifacts _____

pothunters _____

radiocarbon dating _____

size _____

LESSON 5D—NARRATIVE: WHO IS AN ARCHAEOLOGIST WHO STUDIES ANCIENT SHELTER?

John H. Brumley is an archaeologist who studies ancient forms of shelter.

John H. Brumley is an archaeologist who studies ancient shelter, or the types of homes ancient people used. John specializes in the study of tipi rings, or circles of stones commonly found on the plains. He became seriously interested in tipi rings while directing a research program near Medicine Hat, Alberta, Canada. The majority of the 890 sites the program inventoried consisted of tipi rings. John has since worked to improve the techniques for excavating tipi rings. He has also developed new methods of recording tipi rings and procedures to interpret and understand what is found at tipi ring sites.

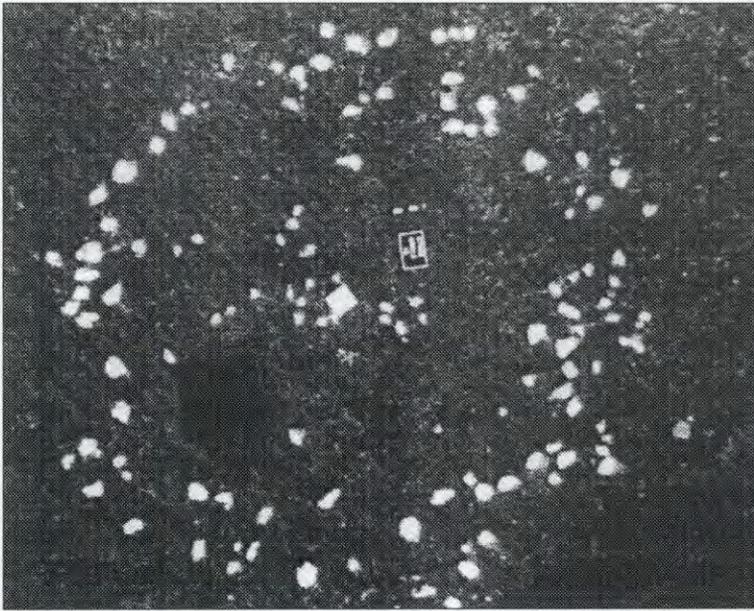
John's interest in archaeology began at age eleven when he joined the Milk River Archaeological Society in his hometown of Havre, Montana. The adult members encouraged his interest and helped him obtain his first professional archaeological work with the Smithsonian Institution, River Basin Surveys, in South Dakota. John attended Northern Montana College, Havre, and the University of Calgary, Alberta, Canada, receiving his Master's degree in 1976.

John has worked as an assistant director, crew chief, field director, project director, and contractor on archaeological projects throughout the plains of Montana and Canada. His Canadian projects include the Fort Laird Archaeological Project, Northwest Territories, and in Alberta, the Waterton Park Archaeological Project and Suffield

Archaeological Project. In 1985, John established his own archaeological business in Havre, Ethos Consultants Inc. He manages and oversees all company activities. John has also taught archaeological classes, and he has authored, and co-authored, nearly three hundred publications and reports, including articles in the journal, *Archaeology in Montana*.

John finds challenge in studying prehistoric Native American archaeology because less is known about that period. He also enjoys historic research. He finds that historical documentation and written accounts relate to prehistoric Indian cultures and help him in interpreting the past. The harsh conditions described by early travelers in Montana impress John. He is most intrigued to understand how historic, and by analogy prehistoric, people managed to survive in such conditions. The hardiness and resilience of these people inspires him!

John's favorite Montana site is Wahkpa Chu'gn, near Havre. Wahkpa Chu'gn is a major buffalo kill and campsite. It was used extensively by Indian people from approximately two thousand years ago to six hundred years ago. It is the most thoroughly studied bison kill site in Montana. John is credited with discovering the site when he was twelve years old! At Wahkpa Chu'gn, he has assisted with excavations, directed several research efforts, and published the results. John and his wife, Anna, direct the public



John Brumley developed and built his own method for taking accurate pictures of tipi rings. As shown here, he uses a remote camera on a photo boom attached to his truck to take photos from above. He has whitewashed the stones in the circle with flour to make them show up better. *John Brumley, photographer.*

interpretive program at the site, which is open to visitors. The exhibits within the campsite and kill site display massive quantities of buffalo bones and artifacts, illustrate past Indian life-ways, and show methods of archaeology. Also present at Wahkpa Chu'gn are dioramas including life-sized human and bison figures; these dioramas further interpret prehistoric use.

John says that the easiest part of his job is the field work, going out and looking for sites or excavating them. He enjoys the physical work that gets him outdoors. The most difficult, and most important, part of his work is back in the office. John must describe on paper what he did in the field, what he found, and what a particular site tells about the past so others can clearly understand it.

John feels fortunate to have worked at a number of unusual and fascinating sites. In two of the most interesting projects, John has used ethnographic information—knowledge drawn from existing native cultures—

to interpret prehistoric sites. One such site was a medicine wheel that was radiocarbon dated to about A.D. 1300–1400. A medicine wheel is a ceremonial site made up of a large rock circle or cairn, with several rock alignments. John was able to interpret the medicine wheel in detail by using information recorded for almost identical historic Blackfeet structures. The other site was a prehistoric antelope trap, approximately 3,600 years old. Again, ethnographic Blackfeet information provided details on similar historic structures. John then used this information to interpret the archaeological site.

John made another exciting discovery at a medicine wheel site that also contained a large number of tipi rings. With flour paste, his archaeological team painted the medicine wheel and tipi rings on the ground and then photographed them from the air. The aerial photographs revealed that the people who had lived at this site had arranged many of the tipi rings to form a camp circle. Camp circles are often described in historic ethnographic literature for Plains Indian groups, but they are rarely discovered in the archaeological record.

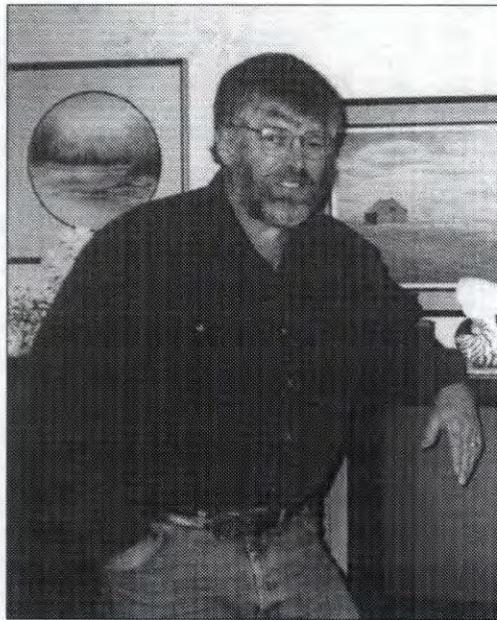
John says that the best sites, including tipi ring sites, are those that contain a number of characteristics. They have good stratigraphy—stacked levels of earth and artifacts—so that materials from different time periods are not mixed together. They also contain organic materials, such as charcoal and bone, which allows them to be radiocarbon dated. At those sites that include well-preserved bone, archaeologists can identify the animals

that the site's prehistoric residents hunted and which time of year people occupied the site. Sites with projectile points or pottery tell which ancient cultures occupied the site. Sites that contain all these characteristics are rare. But they are the ones in which John most likes to work because they have the potential to provide quality information.

John particularly enjoys analyzing faunal, or animal, remains recovered from archaeological sites. Faunal remains frequently present the best view on specific animals hunted and eaten at a site, and they help archaeologists determine which animal parts were most used by prehistoric people. John also likes to use the faunal analysis techniques that help scientists determine what season of the year animals were killed, and he likes to investigate which times of the year a site was occupied.

When asked what he believes the future holds for archaeology, John responded: "I think archaeology is on the verge of a new frontier. Until recently, we had only enough information to make general statements about the prehistoric people of Montana. Now, archaeologists have excavated and reported on enough sites so that we have a more detailed picture of how various prehistoric people lived. We are even beginning to be able to relate prehistoric archaeological cultures to specific historic Indian groups."

John suggests that students interested in archaeology should study science and history. Computer knowledge and math skills, he notes, are critical during site interpretation. Take



John Brumley's interest in archaeology began at the age of eleven. He still lives in his hometown of Havre, Montana, where he operates his privately owned archaeological business known as Ethos Consultants, Inc. Anna Brumley, photographer.

tours of archaeological sites open to the public, and get involved with events and excavations in which you can volunteer. He also suggests joining a archaeology group such as the Montana Archaeological Society.

John's message to you is: "The important thing an archaeological site gives us is not the pretty artifacts or bones it contains. The important thing is the information those items can provide about the past peoples who left them there."

When John is not involved in archaeology, he enjoys time with his wife, Anna, and their children Flint Lachenmeier and Sara Brumley Bennett. John also spends time hiking, canoeing, hunting, and fishing. Students interested in archaeology may contact John at:

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