

Tracing the Past

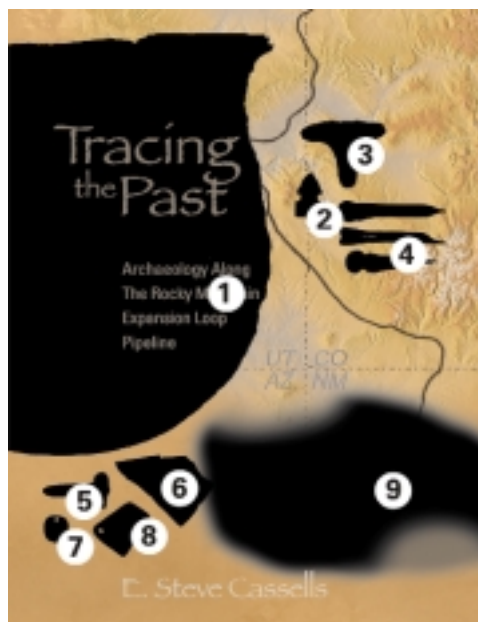
Archaeology Along
The Rocky Mountain
Expansion Loop
Pipeline

UT CO
AZ NM



E. Steve Cassells

On the cover:



- 1 Anasazi corrugated ceramic vessel, site 5MT5498, p.19
- 2 Red jasper Archaic side-notched projectile point, site LA79076, p. 13
- 3 Anasazi tri-stemmed ceramic pipe, site LA27092, p. 25
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- 5 Archaic chipped stone drill, site LA81172
- 6 Gobernador Polychrome (Navajo) pot sherd, site LA81175, p. 28
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- 8 Navajo stone pendant, site LA80319, p. 28
- 9 Archaeologists excavating an Anasazi Pueblo I pithouse, site 5LP203

Note: Artifacts shown on cover are not to scale.

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E. Steve Cassells

Alpine Archaeological Consultants, Inc., Publisher

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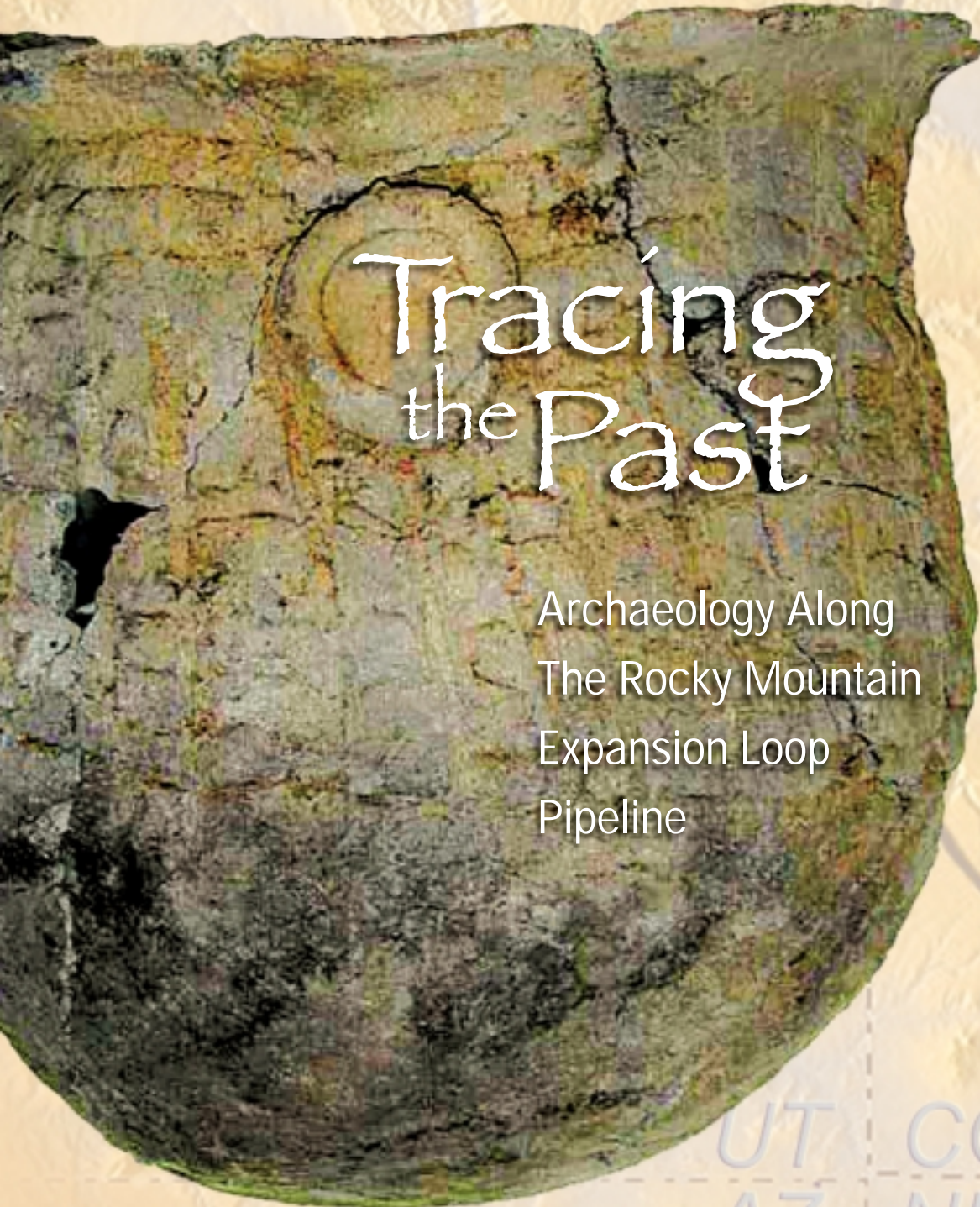
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Pottery photo, next page is from site 5MT5498, as shown on map on page 16.



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What Is Archaeology?

Goals

Archaeology is a sub-field of anthropology, the broadest of all the social sciences. Some critics might say that the founding fathers of anthropology bit off more than they could chew. They staked a claim to study *everything* (including the kitchen sink) associated with humanity – biological, social and cultural.

One of the fields, cultural anthropology (or, more properly, ethnology), concentrates on the present, attempting to identify and compare cultural traits of living peoples, and then figure out how these groups have adapted to their surroundings. Another field, archaeology, seeks to acquire similar data about cultures, except that the cultures they study existed in the past.


The primary difference between these two fields of study is that archaeology lacks the *living* informants from those cultures who can best answer the researchers' questions. Archaeologists do not have the luxury of learning about a culture by living with a group of people, observing their daily lives, and participating in activities with them. Instead, archaeologists operate more like Sherlock Holmes would, getting to examine the scene only after all the people have gone away. They must then deduce the story of what happened there from only the meager clues left behind.

An archaeologist may concentrate on cultures of the past that have been observed and described by literate witnesses, such as Pawnee Indians on the Central Plains written about by the first fur traders or missionaries they met. Archaeologists who study cultures depicted in such early written accounts practice *historical archaeology*. The other area of concentration in archaeology is on those cultures that existed before there were any literate witnesses. Relying only on the artifacts and other evidence left behind by the early peoples, these archaeologists practice *prehistoric archaeology*, studying the archaeological record from the time before history.

Some would say that American archaeology began in 1784 with the earliest promises of the discipline glimmering at the end of Thomas Jefferson's shovel. Many European-Americans of the time thought that Indians were less than human, and thus could not possibly have been descendants of the sophisticated builders of ancient burial mounds and cities dotting the eastern landscape. Jefferson's discoveries in the mounds soon dispelled that notion and opened the door to a better understanding of the true first Americans.

Since then, American archaeology has gone through several stages of development. It started with wanting only to

Opposite:
Archaeologists
excavate site
5MT5498 located on
page 16 map. Pottery
sherd is from the
same site.

An aerial photograph showing a dirt road or pipeline route winding through a desert landscape. The terrain is covered with dense green shrubs and small trees. In the upper left, there is a small blue water tank and some construction equipment. In the upper right, a yellow excavator and other vehicles are visible on the dirt road. The overall scene depicts a construction site in a natural, arid environment.

A view overlooking
pipeline construction
along the route in
northwestern
Colorado.

identify who had been here, and when they were here. This was called ***culture history***. Since the 1960s, with the development of more sophisticated methods of field and laboratory analysis, more interest arose in identifying the processes of culture change. This effort includes the formulating and testing of hypotheses about how past cultures developed, an approach called ***processual archaeology***. Most recently, some archaeologists are focusing on the mental (or non-material) aspects of culture, attempting to deduce what the early people were thinking, a perspective called ***post-processual archaeology***.

Brian Fagan once said that archaeologists are storytellers. They seek knowledge about earlier cultures in order to weave that information into stories about those lifeways. The questions asked today are

perhaps more sophisticated than the ones asked during Jefferson's day, but the goals remain somewhat similar. Unlike the Hollywood character Indiana Jones, who only sought out artifacts to add to a collection, archaeologists today are after the information about the ***makers*** of the artifacts — the Indians ***behind*** the arrowheads.

Cultural Resource Management

In addition to the academic archaeologist who teaches at a university during the school year and then spends summers working on archaeological field projects of personal interest, there is a branch of American archaeology known as cultural resource management (CRM). Rather than being purely ***academic archaeology***, it is considered a form of ***applied archaeology***. Today it is the largest employer of archaeologists in the nation. CRM archae-



ologists work hand-in-hand with government and industry, attempting to conserve our nation's dwindling historic and prehistoric resources that are threatened by land development or other ground-disturbing activities.

When impacts are anticipated on federal land (or even on private land if the development project is paid for with government money), then a CRM firm will be hired to complete the necessary archaeological work. The CRM firm actually serves as the intermediary between those planning to do the development work and the particular governmental agency in charge of making sure all cultural resource regulations are followed.

The size of a typical CRM project can vary between a few acres to tens of thousands of acres. What dictates project size is the area that will likely be disturbed by the project. Typical damage to sites in the ground might happen during trenching, road construction, logging, or oil well drilling, to name a few.

This book you hold in your hands illustrates cultural resource management in action. Alpine Archaeological Consultants, Inc. of Montrose, Colorado, and their principal subcontractor, Woods Canyon Archaeological Consultants, Inc. of Yellow Jacket, Colorado, were hired by

Williams of Tulsa, Oklahoma to undertake a massive CRM project. Their job was to find, document, interpret and minimize damage to significant sites along a 412-mile natural gas liquids pipeline designed to connect northeastern Utah with northwestern New Mexico.

Contrary to popular belief, the discovery of archaeological sites within a project area will not stop development there. Options available can include: 1) avoiding the particular site (such as by changing the route of the pipeline or road); 2) simply documenting the site (through photography, mapping, collecting materials); or 3) recovering data from the site through excavation. Beyond these three options, it is quite common for the site to be deemed unimportant, and 4) nothing is done to the site before the project proceeds.

Archaeologists undertaking a project like the Rocky Mountain Expansion Loop have to follow fairly rigid procedures that were monitored by the lead agency for the project, the Utah State Office of the Bureau of Land Management. They do this in order to assure that federal requirements are met and thus properly deal with the cultural resources found.

Once a CRM firm has been hired for a project, the initial phase of the process begins by identifying the project bound-

Above:
Archaeologists
excavating a col-
lapsed pueblo along
the pipeline.

**Above, left: Rubble
mound of collapsed
Anasazi pueblo
before excavation.**

aries. In the Rocky Mountain Expansion Loop Project, that required Alpine to obtain maps of the entire 412-mile route, and then do a search of the site files of the State Archaeologists in Colorado, Utah, and New Mexico, as well as the site files of other land-managing agencies, like the Bureau of Land Management and the U.S. Forest Service. Those searches yielded critical information about all the

More rarely, they may discover house remnants, such as collapsed ancient pueblos or historic log cabin ruins.

Upon locating sites, they map and photograph them, and then make preliminary conclusions about them. They may do some minor subsurface exploration to see if any of the site remains buried. Ultimately they will evaluate each site's significance (to judge whether a site is eligible to the National Register of Historic Places) and, if it turns out to be an important site, decide if the project will harm it.

After the survey is completed and all cultural resources evaluated, the next phase of the project begins as the CRM firm writes an inventory report for the appropriate governmental agencies to review. The agencies read and comment on the reports, and decide if they agree with the CRM firm's conclusions.

The next phase of work entails producing a treatment plan for the project area. In the case of the Rocky Mountain Expansion Loop Project, this included selecting the sites to be subjected to limited data recovery and the sites for extensive data recovery. This two-tiered approach is not typical in CRM projects, but in this case, it allowed for a greater than average intensive examination of some significant sites, while allowing others to be less intensively explored and documented. It was a compromise that streamlined the project for the pipeline company while allowing a great deal of in-depth work at important sites, even in areas outside the immediate impact zone of the project.

Once the treatment plan is approved by the agencies, the next phase begins as the archaeologists implement the treatment plan. For this pipeline project, sites selected for limited data recovery were subjected to photographic documentation, trenching, augering, small

The National Register Of Historic Places

The National Historic Preservation Act (NHPA) was passed in 1966. It was designed to help protect important sites by having eligible sites placed on a list called the National Register of Historic Places (NRHP). Once on the list, sites on federal land cannot be disturbed unless good alternatives can be found. The Act has largely been responsible for the growth of the CRM industry and has created a nationwide network of federal and state agencies working toward the same goal of conserving America's cultural heritage.

sites that had already been discovered and recorded in or near the pipeline route. In addition, any pertinent literature that existed relating to the archaeology of the region was read for critical information about the known cultures there.

Following the initial review of known sites, the next phase involves archaeologists looking for sites on the ground surface of the project area. This is commonly known as a pedestrian survey. In this step, archaeologists, armed with proper equipment (notebooks, flagging, maps, compasses, GPS units, cameras) walk in the designated areas looking for surface indications of previous human use. They will even revisit sites previously recorded in the area. They may find scattered pot sherds, broken stone tools, stone flakes, animal bones or other debris left behind, perhaps recently exposed by erosion.

**Opposite, bottom:
Archaeologists
examining ash and
charcoal stains discovered in the wall
after the pipeline
trench was opened.
This site, LA82288,
had been occupied
by several Archaic
groups between
4460 and 1400 BC.**



Excavators working "indoors" in a Basketmaker III pithouse at 5DL310.

area excavations or test pits, excavations of known features, the monitoring of the ground-disturbing activity (such as laying pipeline), including inspection of open trenches. Sites chosen for extensive data recovery were excavated on a large scale and documented photographically.

The final phase of the archaeological data recovery process involves the total analysis of all data, and the preparation of a



Archaeologist conducting an analysis of stone tools in the lab.

final report. This includes assimilating the contributions of various other scientists who assisted in the project, preparing detailed maps of the sites, producing photographs, illustrating artifacts, and writing a full description of the findings. The final report should include a synthesis of all site data and a formulation of conclusions on a regional level. In addition, a popular report should be prepared to communicate the results of the work to the general public.



Map of pipeline route, nearby communities, and significant topographic features.



The Rocky Mountain Expansion Loop Pipeline Project

Who, Where and Why?

The archeological work for the Rocky Mountain Expansion Loop Pipeline Project began in 1998. At that time, Alpine Archaeological Consultants, and its primary subcontractor, Woods Canyon Archaeological Consultants, began gathering data related to the pipeline alignment that was to extend from northeastern Utah to northwestern New Mexico. Woods Canyon was given the job of covering the prehistoric sites along the southern portion of the line from New Mexico north into Colorado. They stopped at the Colorado-Utah border near the community of Dove Creek, and Alpine was responsible for all the work from there to the connection north of Jensen, Utah, as well as historic Euroamerican sites throughout

the project area. In the northern portion, the line snaked back and forth several times between Utah and Colorado.

The entire pipeline extends 412 miles and crosses many different environmental zones. Because successful cultures adapt to particular environmental conditions, the archaeologists knew there would be a lot of variation in the lifestyles of the inhabitants who had once lived there. Along its length, the archaeologists found 381 sites. Of those, 233 were felt to be significant ones meriting additional study. All significant sites had some level of work done on them, including excavation, but only 40 saw extensive excavation. The remaining 148 sites were either considered insignificant or were avoided by construction activities.

Marching Through Time Along The Pipeline Route

Coming into the Country

The Paleoindians

Humans have been on the North American continent for well over twelve thousand years, having entered a vast uninhabited landscape by crossing the newly-exposed land bridge between Alaska and Siberia. This “bridge” seemingly rose out of the waters of the frigid Bering Sea when land ice accumulated up to two miles thick during the Pleistocene (Ice Age). There is only a limited amount of water available on Earth, so as ice built up on land the sea levels naturally fell, making the sea floor of the Bering Strait a veritable thousand-mile-wide highway for Asian peoples looking for new real estate to occupy while following eastbound mammoths and other big game.

Glaciologists believe that there was a narrow ice-free corridor through the Canadian ice sheet that linked the interior of Alaska with the Northern Plains after the time of human entrance. This provided a land route south for the newcomers as the last Ice Age (known as the Wisconsin glaciation) began to wane 12,000 to 13,000 years ago. There is also the possibility that Paleoindians could have used small boats to migrate south along the Pacific coast.

These earliest Asian immigrants are called Paleoindians (*paleo* means old). Their numbers were relatively small, and thus it is not surprising that these earliest sites in the New World today are very rare. Archaeologists on the pipeline project were perhaps fortunate to find any evidence at all from that time period.



The sole Paleoindian site located along the project route was 42GR1547, about 10 miles northeast of Cisco, Utah in the I-70 corridor. The site, discovered during an earlier survey, was thought to be a Middle Archaic camp (three to five thousand years old). Trenching for the Rocky Mountain Expansion Loop pipeline in 1999 revealed a basin-shaped firepit deep in a trench wall. Charcoal from the pit was dated between 9,500 and 10,100 years ago, and a geomorphologist (landform geologist) looked at the site and confirmed it was an old landscape. Previously archaeologists had recovered four Paleoindian projectile point bases of the Foothills-Mountains style. A concentration of broken bases sug-

gests a camp where they replaced broken spear tips with whole ones. Excavations during the pipeline project added a number of flaked scrapers and graters to the total artifact count.

The palynologist and paleobotanist who studied the old pollen and plant materials say that, although this early camp is located in the arid Cisco Desert, when Paleoindians were living there it was cooler and moister. This conclusion is based on the many types of cool climate forest trees such as elder, birch, alder and chestnut that were growing along the stream near their camp. Today these tree species are only found in much cooler regions.

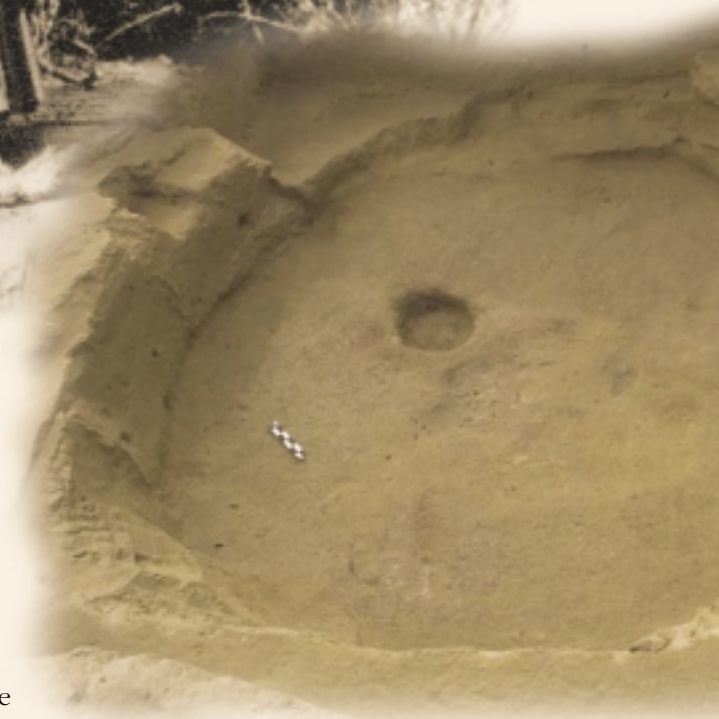


Five Foothills-Mountains point bases found at 42GR1547.



Ute brush shelter from the late 1800s, similar to Archaic styles.

—Courtesy of Western History Collections, Denver Public Library



Spreading Out And Eating Everything

Archaic Foragers

As the land dried and warmed up in the wake of the last Ice Age, some large game—like mammoths, ground sloths and camels—became extinct. The hunters were forced to concentrate on smaller animals and apparently also spent more time gathering wild edible plants. This period has been named the Archaic, a time known for great regional differences across the continent, the result of groups settling into different environments and adapting in different ways. Although the Archaic Period generally is thought to extend from seven thousand to two thousand years ago, some people actually fol-

lowed the hunting and gathering lifestyle right up until their cultures were changed by European contact after Columbus. Clearly not all American Indians found farming to be the preferred lifestyle.

Since the 1980s, archaeologists in the area have been discovering the subtle outlines of Archaic houses, a previously unreported occurrence. Twenty-seven Archaic structures were found during the pipeline project. They all consisted of small round shallow basins, some with interior

**Center right:
Photo of structure 11,
an Archaic brush
structure basin from
site LA80316.**

**Diagram, facing page:
Map of Structure 11,
an Archaic brush
structure from
LA80316.**




Locations of selected
Paleoindian and
Archaic sites along the
pipeline route.



42GR1547

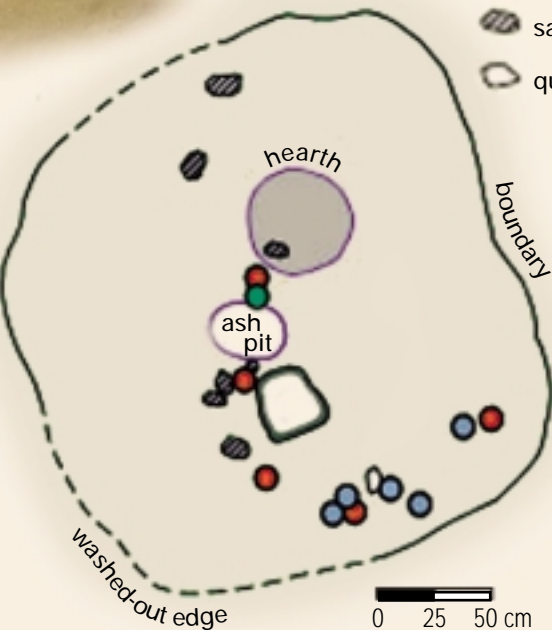
UT CO
AZ NM

LA80316

LA79076

-  ground stone
-  non-human bone
-  flaked stone

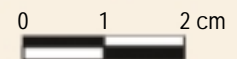
-  sandstone
-  quartzite



hearth and postholes. These basins mark the outline of temporary brush-covered huts, an architectural style that persisted even into historic times with the Paiute and Ute of the region. From Early Archaic through Upper Late Archaic there is a steady increase in floor area of the huts. The archaeologists have speculated that this enlargement of their houses over time indicates a gradual population increase.

Keeping Them Down On The Farm

In America, prehistoric farming cultures have been included in the Formative stage. The uniqueness of the pipeline route is demonstrated by the fact that three distinct farming cultures appear somewhere along its length. All three likely share an Archaic ancestry, but due



Archaic projectile
points: red point from
LA79076; others from
LA80316

**Chenopodium, or
goosefoot**

—David M. Brenner,
NCRPIS, Agronomy,
Iowa State University

Useful Wild Plants

Once farming developed in the region slightly before AD 1, some Indians abandoned their nomadic lifestyle, settled down and relied a great deal on corn, beans and squash for food. However, wild plants did not lose importance. Piñon nuts, and the tiny seeds of goosefoot (chenopodium) and pigweed (amaranth) were still commonly collected and eaten. Yucca leaves provided the raw material for the construction of cords, sandals and baskets. Willow was also used in basketry and to make mats.

**Amaranth, or
pigweed**

—David M. Brenner,
NCRPIS, Agronomy, Iowa
State University



perhaps to the climatic and geographic differences they experienced, they all took slightly different paths. These cultures include (from south to north) the Anasazi from the Four Corners area, the Gateway on the Uncompahgre Plateau, and the Fremont on the northern Uncompahgre Plateau and farther north past the Colorado River.

Today native farming cultures still flourish in parts of the Southwest. Along the Rio Grande are many distinctive pueblo vil-

lages that date back to Anasazi times. The same can be said for a number of Hopi pueblo villages in east-central Arizona along the southern edge of Black Mesa. It is undeniable that these modern farmers are the descendants of the prehistoric Anasazi. They have developed regional differences in architecture, religion, and a multitude of other cultural practices. Today those who live along the Rio Grande are called Eastern Pueblos, while the Hopi of the Arizona mesas are called Western Pueblos.

An Anasazi yucca
sandal as it was
exposed in place
at 5LP379



Yucca
—John W. Snell

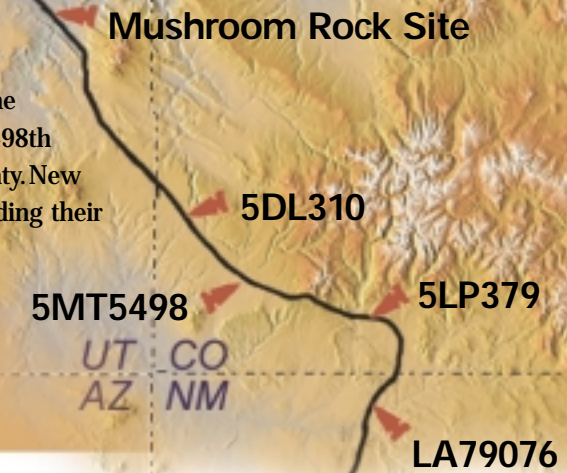
You Are What You Eat

Anthropologists have long recognized that the kind of food members of a society eat will generally dictate whether they are nomads or dwell year-round in the same place. A typical hunting and gathering society concentrates on wild plants and animals and has to move when food supplies run low. As a result, their populations are usually quite small, and they accumulate very little in the way of personal possessions. Over time, the people have figured out what plants grow at what times and where animals are during particular times of the year. These foragers then migrate in a way that lets them effectively collect wild plants and hunt wild animals during all seasons.

On the other hand, a typical farming society has its backyard food source stored in silos or corrals. Farmers can control, to a degree, the food supply, and don't have to travel to get it. Provided they are doing well at farming, they probably couldn't move if they wanted to, because the accumulation of stored food, pottery, and other possessions is very difficult to transport. They also would have invested much labor in preparing their farmland and houses, and wouldn't want to walk away from them without a really good reason (such as extended droughts or war).

What's In A Number?

In the U.S., sites are recorded in order of their discovery and by location. This is called the Smithsonian system, and it helps to organize the many sites now known nationwide. For example, in the case of site 5MT5498, the 5 stands for Colorado, the fifth state in alphabetical order (two exceptions are Alaska and Hawaii, admitted to the Union long after the system was in place, and so they don't fit alphabetically), the MT stands for Montezuma County, and 5498 stands for the 5,498th site recorded in the State Archaeologist's Office from that county. New Mexico did not adopt the Smithsonian system, instead recording their sites in the files of the Laboratory of Anthropology in Santa Fe. There are no county designations, and thus each site discovered in the state gets a number in the order of its discovery, preceded by the letters LA for the Laboratory of Anthropology, as in the Basketmaker II stockade at LA79076.



The Anasazi

The southern portion of the pipeline cuts through the heartland of the Anasazi, the makers of the now-famous cliff dwellings at Mesa Verde National Park. With the introduction of Mexican corn, beans and squash into the region as early as Middle Archaic times (3,000-5,000 years ago), the stage was set for a major cultural transformation. They slowly became more dependent on the domestic crops until, by AD 1, they had begun to settle down in one place year-round. The early Anasazi are called Basketmakers (due to their use of baskets instead of pottery). They farmed and foraged, but the crops did allow them to begin to stay in one place. Known as the Agricultural Revolution, this pattern of settling down has been repeated throughout the world over the last 10,000 years once domestic crops and animals were developed or introduced. This apparent stability gained by the native groups allowing them to

become sedentary should not be taken as evidence that the Anasazi became relatively static during more than a thousand years of residence in the region. In fact, populations of these early farmers were quite dynamic, moving across the landscape to settle into new niches as the vagaries of climate dictated. Droughts and premature freezes served to make farming a precarious venture on the dry uplands of the Colorado Plateau.

The Anasazi culture eventually evolved out of the Basketmaker Periods II and III into more sophisticated forms known as Pueblo I, II and III, named for the apartment house arrangement they favored. They also lost their Basketmaker name by adding pottery to their cultural practices. Their villages started out small, having a deep central residential pithouse and adjacent muddled storage rooms.

Pueblo I settlements usually contained one or a few deep pithouses that served

as residences. Behind them were small square wattle and daub storage rooms (adobe mud plastered over a tight covering of branches and grasses) that were connected together in a line.

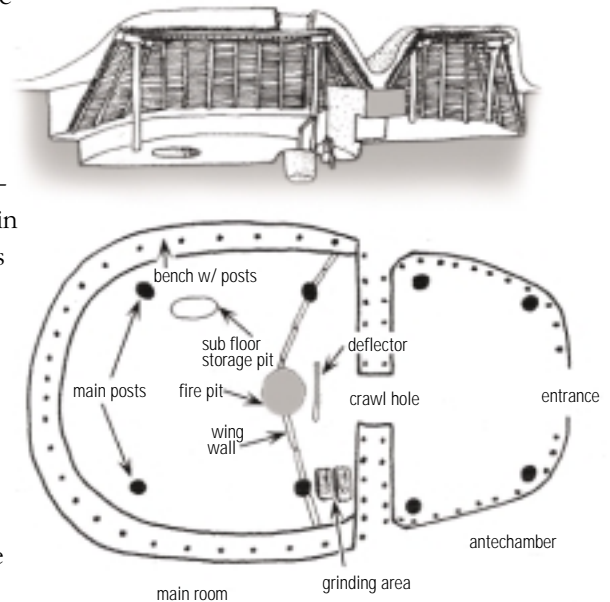
Then, in Pueblo II times they moved out of the pithouse and into the connected roomblocks, now made more substantial with masonry walls and beamed roofs. The central pithouse was transformed into a kiva, a subterranean ceremonial structure for men that continues to be used today in modern Southwestern Puebloan societies. By Pueblo III in Colorado, the populations were apparently increasing, and it was about then that many moved into the cliffs around Mesa Verde, although Pueblo III villages continued to exist across the open landscape. By about AD 1300 this well-established way of life had drawn to a close in the Four Corners. As their multi-storied pueblos were abandoned, population centers began to grow in areas with more

water to the south (such as the Rio Grande River valley of New Mexico and the southern Black Mesa of east-central Arizona), indicating a major migration of the Four Corners Anasazi to places better suited to agriculture. The descendants of the Four Corners Anasazi exist today as the Rio Grande Pueblos and the Hopi.

The Basketmaker III site of 5DL310 contains a classic residential pithouse with a small antechamber on the south, a narrow connecting passage to the main room, and wingwalls radiating out from the fireplace. A bench encircled both rooms. The roof was supported by four main posts, and the walls were composed of smaller beams leaning in toward the

Plan and cutaway view of an example of a Basketmaker III pithouse style.

(Drawing by Steve Cassells)



Basketmaker III pithouse from 5DL310 after excavation



central posts. The entire structure would have been covered with wattle and daub.

In addition to three Basketmaker III villages found along the pipeline that were surrounded by log stockades, a stockade of Pueblo I age was found at LA79076. These substantial barracades may have performed a number of functions, including simply identifying the village boundary, as well as serving as a device to keep their children and animals from wandering off. In addition, the stockades could have functioned as windbreaks, as well as fortifications to protect them from enemies.

Although the reasons for it are not known, work on the pipeline has clearly revealed significant regional differences in their architecture as early as Pueblo I times, with a dividing line near modern Durango, Colorado. The eastern Pueblo I peoples (Durango CO south to Aztec, NM) built deep circular pithouses with benches around the perimeters and had adobe storage pits, while the western Pueblo I groups (Dove Creek, CO east to Dolores, CO) favored rectangular pithouses that lacked benches, but had wingwalls radiating out from the central firepits. It is quite possible that these dis-

**Postmolds of the
Pueblo I stockade
at the Cat Head site,
LA79076**

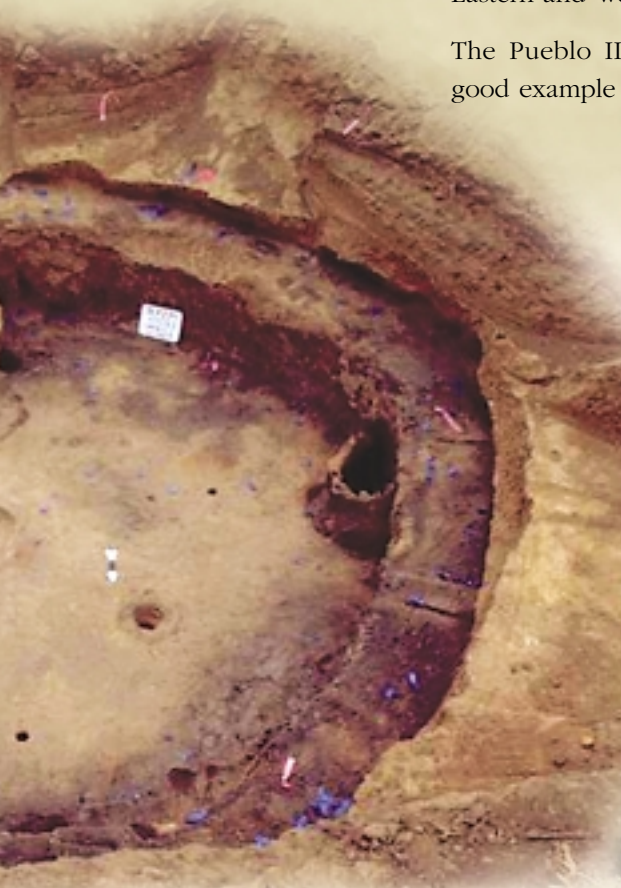


**Roomblock from 5MT5498,
a Pueblo II village**

tinctions that seem to have developed between AD 600 and 850 were the earliest indications of what today are clear cultural differences between the modern Eastern and Western Pueblos.

The Pueblo II village at 5MT5498 is a good example of a more advanced stage

of Anasazi cultural development. The deep residential pithouse of Pueblo I times had evolved into the classic ceremonial kiva (though kivas may have continued as residences, especially in winter). At 5MT5498 the excavations of the kiva revealed extraordinary preservation of painted plaster walls. Behind the kiva were the substantial masonry roomblocks that served as their dwellings. A true apartment-style housing pattern had developed by this time.



A Pueblo I pithouse (eastern style) from 5LP379



**A painted Pueblo II
kiva from 5MT5498**

How Old Is It?

Tree-ring dating (dendrochronology) is a well-established technique in the American Southwest, allowing the scientists to know the year a particular tree was cut. The best prehistoric wood samples available are usually roof beams or support posts from houses.



A wooden support post still standing in an excavated Pueblo I pithouse at LA27092. The outer rings were missing, so the most recent ring of AD 805 unfortunately does not reflect an actual cutting date.

Carbon-14 dating measures how long a particular item (wood, pine needles, bone) has been dead. Living things absorb Carbon-14 from the atmosphere. Once dead, absorption stops. By knowing the rate of decay of Carbon-14, scientists can estimate the time of death.

Archaeomagnetism uses the alignment of iron particles in clay-rich firepits to point to the position of the North Pole at the time the fire was active. Many people do not know that the Magnetic North Pole is not permanently fixed beneath Santa's house, but instead slowly migrates around the Arctic region. By knowing the pole's position at a given time, the scientist can

figure out the age of the firepit. This is because the little iron particles in the clay firepit were freed up to move when the fire made the iron-rich clay hot. They froze in place when the fire cooled and now point to a place where the pole was at the time of the heating event.

Thermoluminescence measures the amount of light given off by a ceramic object when rapidly heated. The results tell the scientist how long it has been since it was last heated.

Typological dating uses artifacts that have distinctive styles that are well-known and previously dated. When one of these artifacts is found in a site, the archaeologist already knows the time range it falls in, and by inference, can determine an age for the new site. We all use this technique when looking at a particular style of automobile (such as a Model A Ford) or a house (such as an original Victorian style). Stone tools and pottery discovered along the pipeline and described throughout this book were very useful for typological dating.

Relative dating cannot provide an actual age of a site, but can tell the archaeologist if it is older or younger than another one. For example, we know that layers of strata accumulate over time, and that in an undisturbed sequence the lowest layer is the oldest and the highest layer the youngest. This principle is known as the Law of Superposition. Thus, sites, features or other artifacts found in deeper strata will generally be older than those found in the higher and younger zones.

Historical records can be used to shed light on the ages of more recent sites, such as the age of the Cowling homestead discovered during this project. Old maps, deeds and other documents often describe who was there and when.

Fremont

Both the Fremont and the Gateway cultures remain much more enigmatic than the Anasazi. Fewer sites exist, and they have not been studied to the same extent. However, there are things we can say about them. They lived at about the same time as the Anasazi, they supplemented their diet with corn, beans and squash, made pottery, and had permanent dwellings. The climate north of the Four Corners was not the best for raising crops, so they continued to forage for wild plants and animals as well. Many Fremont sites appear as short-term hunting camps.

The Fremont culture was first named for sites found near Utah's Fremont River, and they appear to have spread across most of Utah and into far northwest Colorado. Although best known for their dramatic artistic representations on rock walls, they also produced distinctive figurines.

A number of true Fremont sites were recorded prior to the project in adjacent areas, and several Fremont-age sites were investigated along the route that might have been occupied by Fremont people. Because none contained definitive evidence, little can be added to our knowledge about their lifeway within the pipeline corridor.

Bone Tools

Nature has provided many useful materials that can be turned into tools. Animal bone is soft enough to be shaped into many objects. Awls were used to puncture thick animal hides, and then bone needles would be used with sinew (tendon) thread to sew them together.

Gateway

The Gateway culture has only recently been named. This new cultural tradition was born out of frustration. Those working around the Uncompahgre Plateau were not satisfied with lumping sites on this major upwarp with either the Fremont to the north or the Anasazi to the south. The culture that developed there between roughly 500 BC and AD 1250 undoubtedly blended traits from both its northern and southern neighbors, but also maintained traits uniquely its own.

The earliest corn in the state (around 270 BC) came from an early Gateway site. Squash is known there about AD 1. House structures on the Uncompahgre Plateau include masonry pueblo-like construction, but lack kivas, and the layouts are different from the Anasazi and the Fremont. Gateway did not apparently produce ceramics themselves, but traded for small amounts of both Fremont and Anasazi wares.



Bone awls



Mushroom Rock

42GR2866 - The Mushroom Rock Site

Mushroom Rock is an interesting geological phenomenon created when less resistant rock beneath is partially eroded, leaving the more resistant overlying rock supported on a small base, much like a mushroom cap held up by its stem.

As interesting as such a rock is to modern visitors, it apparently also held an attraction to prehistoric people as well. The caprock would have provided relief from both the direct sun and inclement weather. During the archaeological survey portion of the pipeline project, archaeologists were drawn to this rock, as it appeared to contain evidence of prehistoric camping. Unfortunately, it had also had previously attracted the attention of looters, who damaged the site.

tween the Anasazi to the south and the Fremont to the north. Both groups were known to penetrate the region somewhat, but not intensively inhabit it. Instead, the Gateway tradition is likely what was responsible for the cultural remains at Mushroom Rock. Small amounts of both Anasazi and Fremont ceramics were present. The site didn't contain the more dramatic Gateway masonry pueblo traits. However, in this dry landscape there was an unusual wall and pit structure built there presumably to catch drinking water. The site was likely a temporary camp for mobile hunters who were replenishing their stone tool kits with toolstone available here. Carbon-14 dating showed it was occupied between AD 1000 and 1240.



Anasazi Side-notched (top), Rosegate (middle) and Cottonwood Triangular (bottom) points from Mushroom Rock

Located in a cultural no-man's land north of Moab, Utah, Mushroom Rock is be-

Features

Features are special kinds of artifacts. They are constructed by humans, but are immovable. An arrowhead can be carried around and used, but features like a firepit, storage cist or house depression cannot be without being destroyed.

Feature 1, a slab-lined storage cist from 42GR2866, the Mushroom Rock site

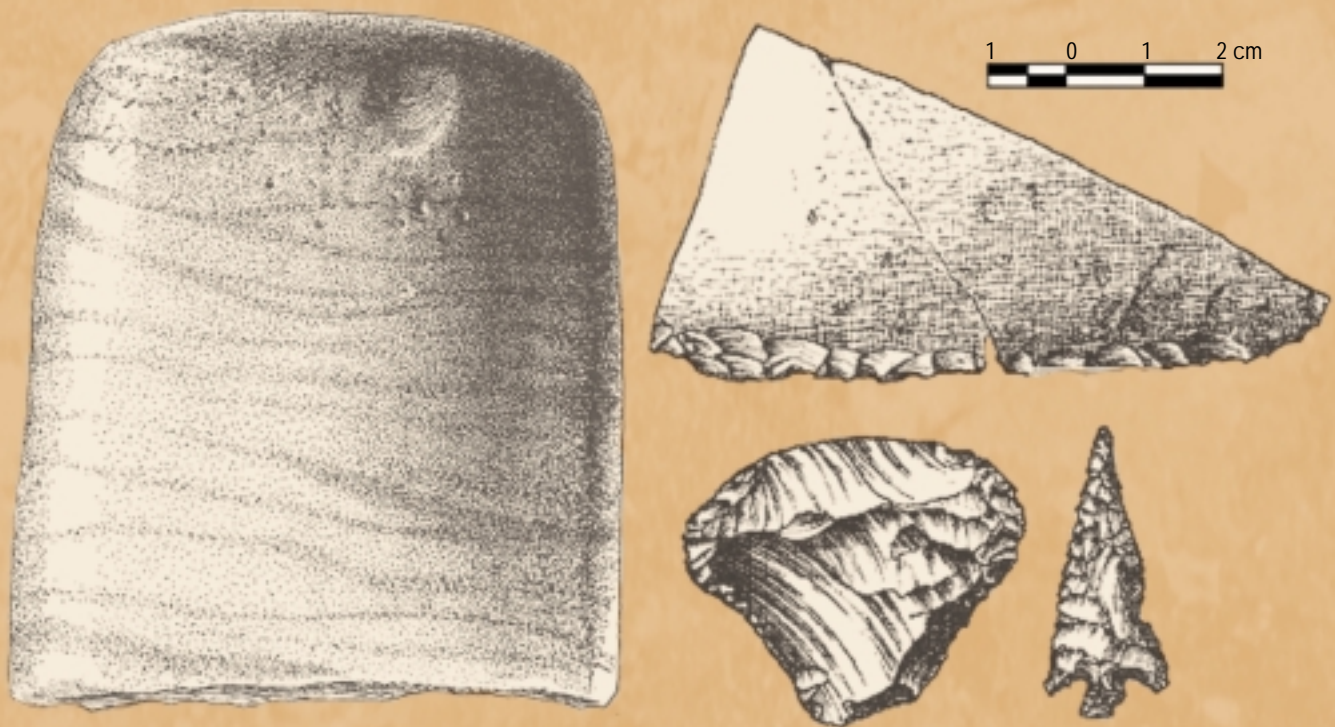


Stone Age Technology: Chipped Stone v. Ground Stone Tools

There are two principal categories of stone tools in North America. These are chipped stone tools and ground or pecked stone tools. They are used for different tasks and there are different types of rocks used for each.

Chipped stone tools have sharp edges and include projectile points that would be attached to the tips of spears or arrows, as well as hand-held hide scrapers and knives, to name a few. In order for a rock to chip predictably, the raw material must

Knife (top right),
scraper (center), and
projectile point
(lower right)

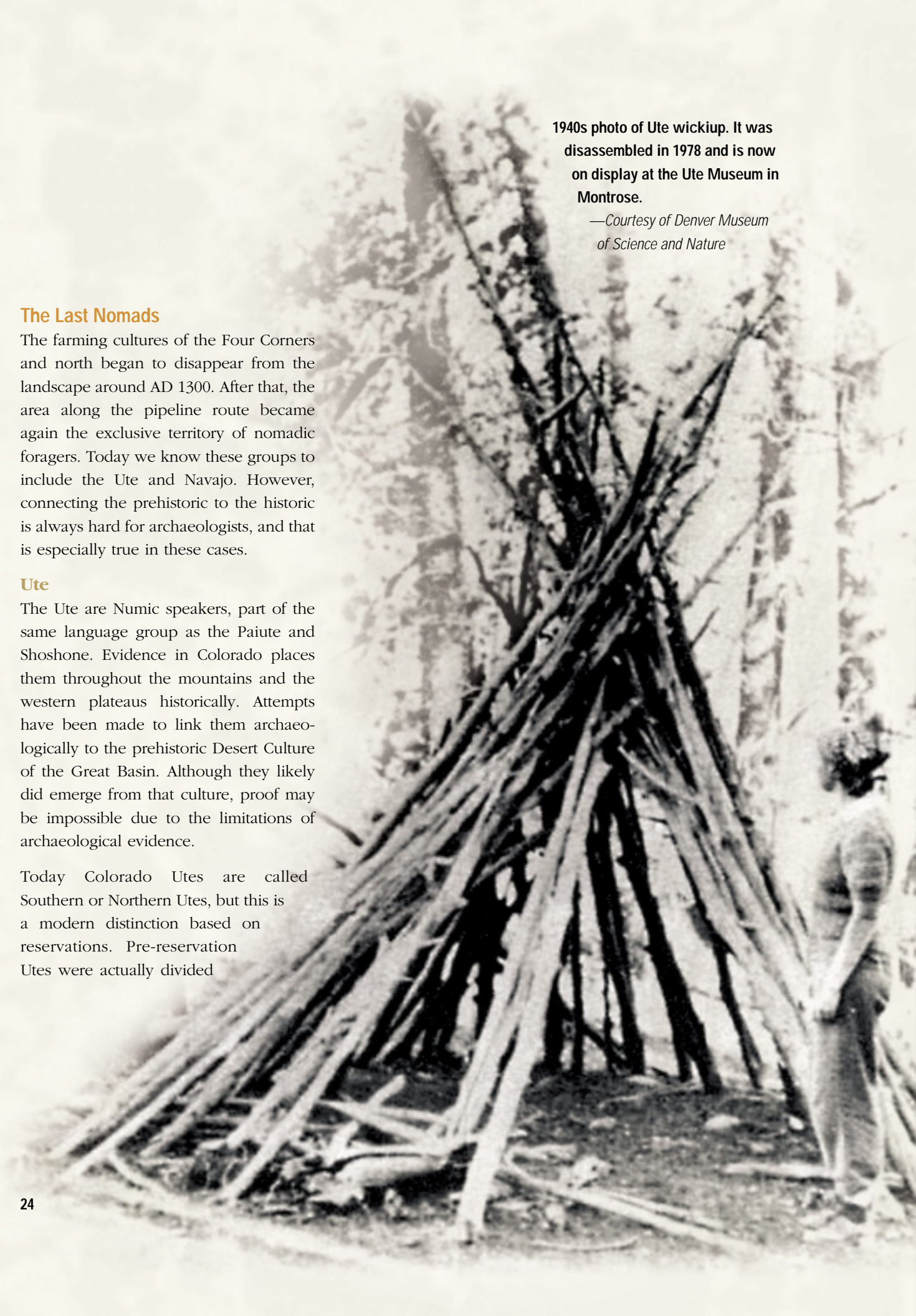


Fragment of mano used
for grinding seeds

be fine grained and include silica dioxide (SiO_2). Typical rocks include obsidian (volcanic glass), petrified wood, chert, agate, jasper, chalcedony or quartzite. These types of tools can be very sharp.

Ground stone tools are not sharp. Made from coarse grain rocks such as sandstone or granite, they need to be shaped by grinding or pecking, a much more slow and laborious undertaking than

chipping. Sandstone tools are generally used to grind up plant materials. For example, the mano (handstone) and metate (basin) are used to grind corn. Pecked stone tools are usually used for cutting or hitting objects, such as mauls or axes. Generally made from hard igneous rocks like granite or diorite, grooves may be pecked into their surface to assist in tying to a handle, and with axes, a bit end will be ground down.



1940s photo of Ute wickiup. It was disassembled in 1978 and is now on display at the Ute Museum in Montrose.

—*Courtesy of Denver Museum of Science and Nature*

The Last Nomads

The farming cultures of the Four Corners and north began to disappear from the landscape around AD 1300. After that, the area along the pipeline route became again the exclusive territory of nomadic foragers. Today we know these groups to include the Ute and Navajo. However, connecting the prehistoric to the historic is always hard for archaeologists, and that is especially true in these cases.

Ute

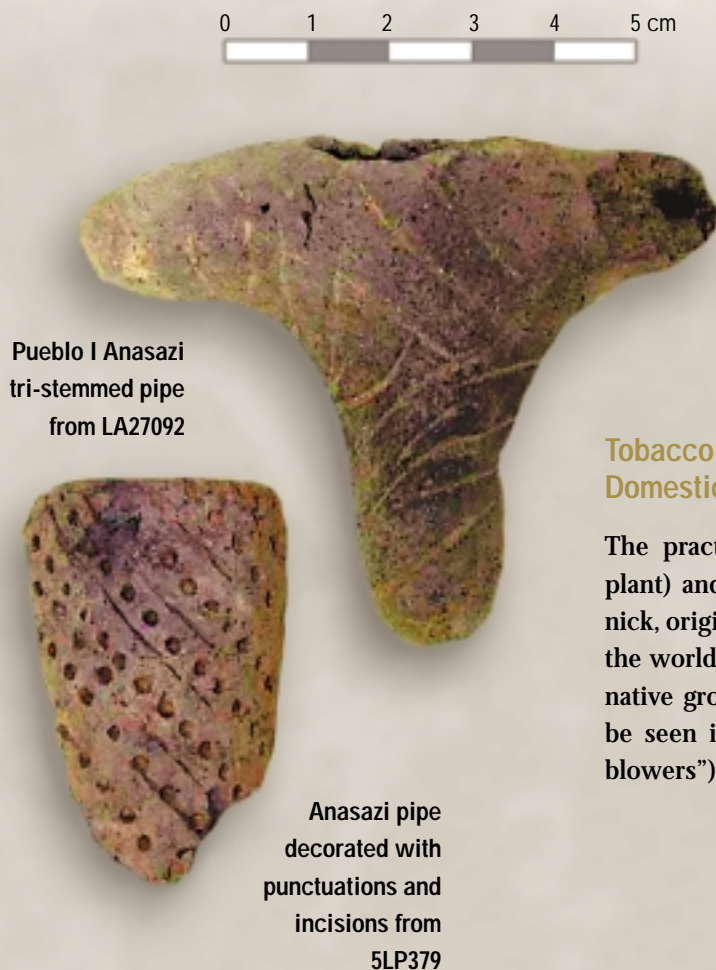
The Ute are Numic speakers, part of the same language group as the Paiute and Shoshone. Evidence in Colorado places them throughout the mountains and the western plateaus historically. Attempts have been made to link them archaeologically to the prehistoric Desert Culture of the Great Basin. Although they likely did emerge from that culture, proof may be impossible due to the limitations of archaeological evidence.

Today Colorado Utes are called Southern or Northern Utes, but this is a modern distinction based on reservations. Pre-reservation Utes were actually divided

into a number of bands that intermixed, but retained some individuality in where and how they lived.

One rapidly disappearing artifact of the early Utes in the region has been the wooden-pole wickiups that they lived in. It may be surprising to know that the wooden frameworks of their shelters have survived far more than a hundred years. Fragments of many have been found. The Two Ridges site provided the best evidence along the pipeline, although what is left from the structure is

badly deteriorated. In the center of the collapsed branches was a rock-lined hearth, and surrounding it were many pieces of old juniper logs, one of which was still leaning against a tree. The interior hearth suggests a cold season when the people who lived here, perhaps in the 1700s or 1800s. Another hearth was located outside, and in it was evidence of extensive bone grease preparation and other cooking activities. They apparently were gathering pigweed and goosefoot, along with hunting a wide variety of animals while using the site as a base camp.



Tobacco – One of the New World's Domesticated Plant Contributions

The practice of smoking tobacco (a domesticated plant) and a variety of wild plants, including kinninnick, originated in North America and spread around the world. More ceremonial than recreational among native groups, smoking has great time depth, as can be seen in these Anasazi clay pipes (called “cloud-blowers”).



Scarred tree A at the
Target Tree Three
Site, 5LP2345

5LP2345 – The Target Tree Three Site

In addition to disappearing wickiups, another type of Ute site with preservation problems is called a culturally scarred tree. They are pine trees that Utes peeled for bark, and they have been studied intensively in Colorado since the 1970s. The Utes peeled off large strips of bark to eat the nutritious soft inner cambium layer. Some have called this a “starvation diet,” but it apparently was not eaten only during hard times. They may have also been trying to obtain tree sap to use for waterproofing their baskets. The primary target species is the abundant ponderosa pine, also known as western yellow pine (*Pinus ponderosa*).

Kutenai Indians in western Montana have been interviewed about their techniques, and it is assumed (we call this assumption ethnographic analogy) that the Utes had similar practices. They made a horizontal cut near the tree bottom, and then peeled

upward. This created a permanent scar, as no more growth could occur where the bark was removed. This has allowed archaeologists to core the scar and date the event using dendrochronology.

Three scarred trees were discovered along the pipeline just east of Mancos, Colorado. Excavation units were opened around the tree bases to see if peeling tools had been discarded there. None were found, although some ground and chipped stone artifacts nearby suggest that a temporary camp had been there, perhaps at the times the trees were peeled. Each tree had a different peeling date. The oldest was done in 1869. Another was done between August and June of 1884-1885. The least expected date was from the third tree, done sometime between 1930 and 1942, perhaps for some ceremonial purpose, or to imitate the old ways of their ancestors.

Navajo

The Navajo were late arrivals to the Southwest (perhaps by AD 1400), having migrated south as part of a generalized Apachean culture. They are Athapaskans, part of the same language group as the Blood Indians of Canada, and many Northwest Coast villagers like the Tlingit, Chinook and Kwakiutl. As time passed here, the Apache and Navajo separated and became distinct cultures. The Navajo

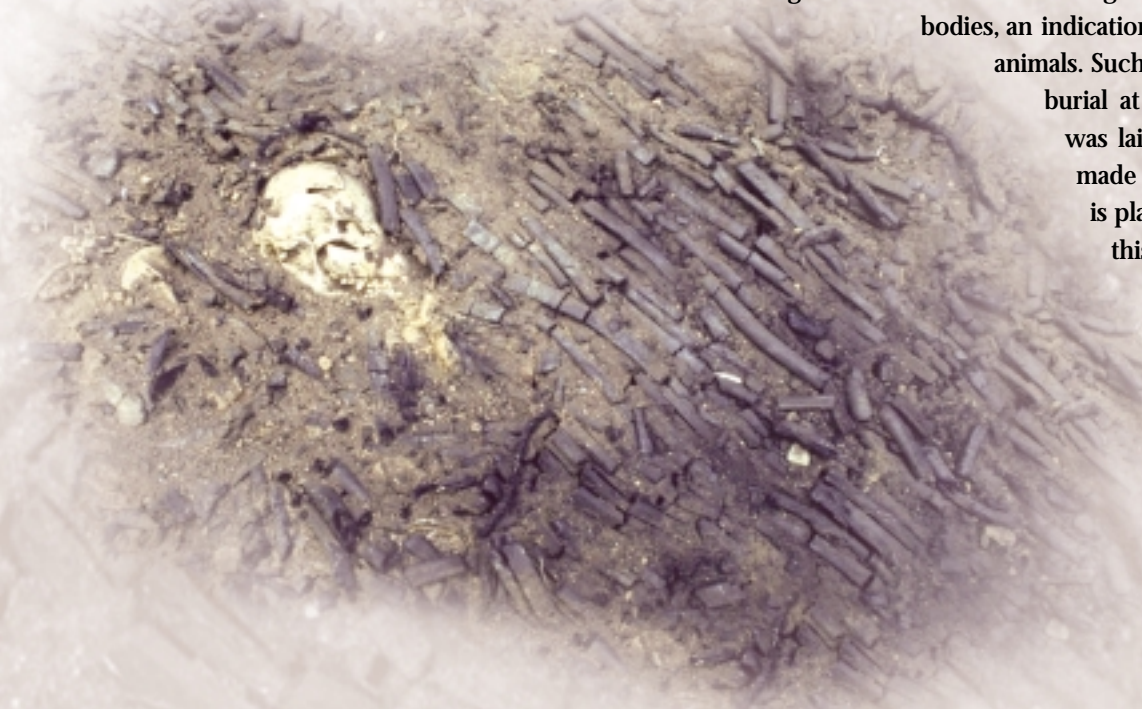
settled in the Four Corners area, where they exist today, while the Apaches eventually took over territory farther south. Two Navajo cultural periods have been identified in the project area. These are the Dineta Phase, approximately from AD 1500 until the Pueblo Revolt of 1680, and the Gobernador Phase, from 1680 until they were pushed south from Colorado by the Utes about 1756.

Pets or Meat?

Domesticated dogs have been a part of cultural life since the earliest presence of humans in the New World. They were useful for hunting, as beasts of burden, as camp scavengers, and sometimes were even eaten by their owners. Occasionally archaeologists find dog burials. The owners took great care to dispose of their

bodies, an indication of their fondness for the animals. Such is the case with the dog burial at 5MT5498. There the dog was laid to rest on top of a mat made from cattail stalks. Seldom is plant preservation as good as this. This unusual discovery allows us a much greater sense of the concern they had for their dog.

Dog burial on top of
cattail mat at
5MT5498



Navajo projectile
point from LA80319



Navajo pendant from LA80319

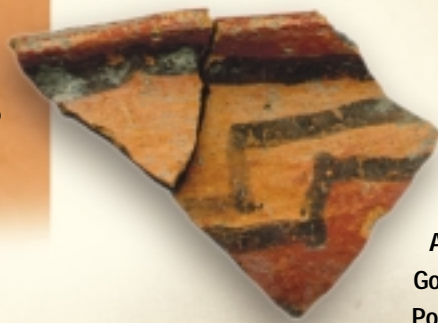


Navajo clay pipe from LA80319



Site LA81175 (Gobernador)

Site LA81175 is a later Navajo camp, occupied during the early Gobernador Phase, based on both thermoluminescence dates and pottery styles. The site included a brush shelter and two fork-stick hogans, along with colorful Gobernador pottery.

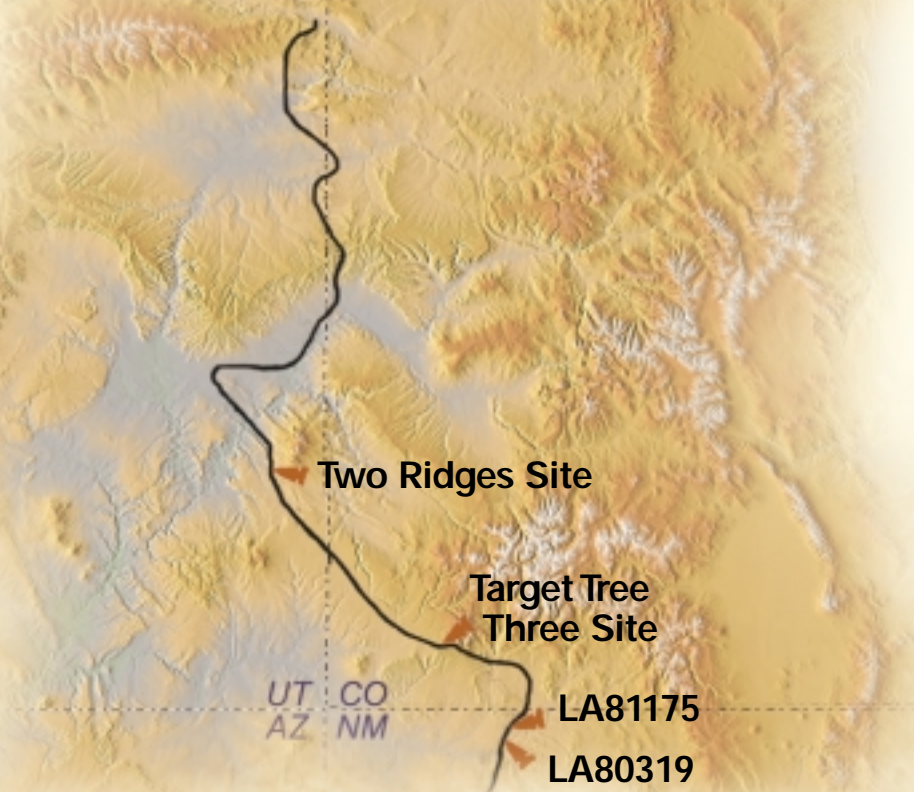


A sherd of
Gobernador
Polychrome
(Navajo) pottery

Navajo fork-stick
hogan from
mid-1800s

—Courtesy of
*Colorado Historical
Society*





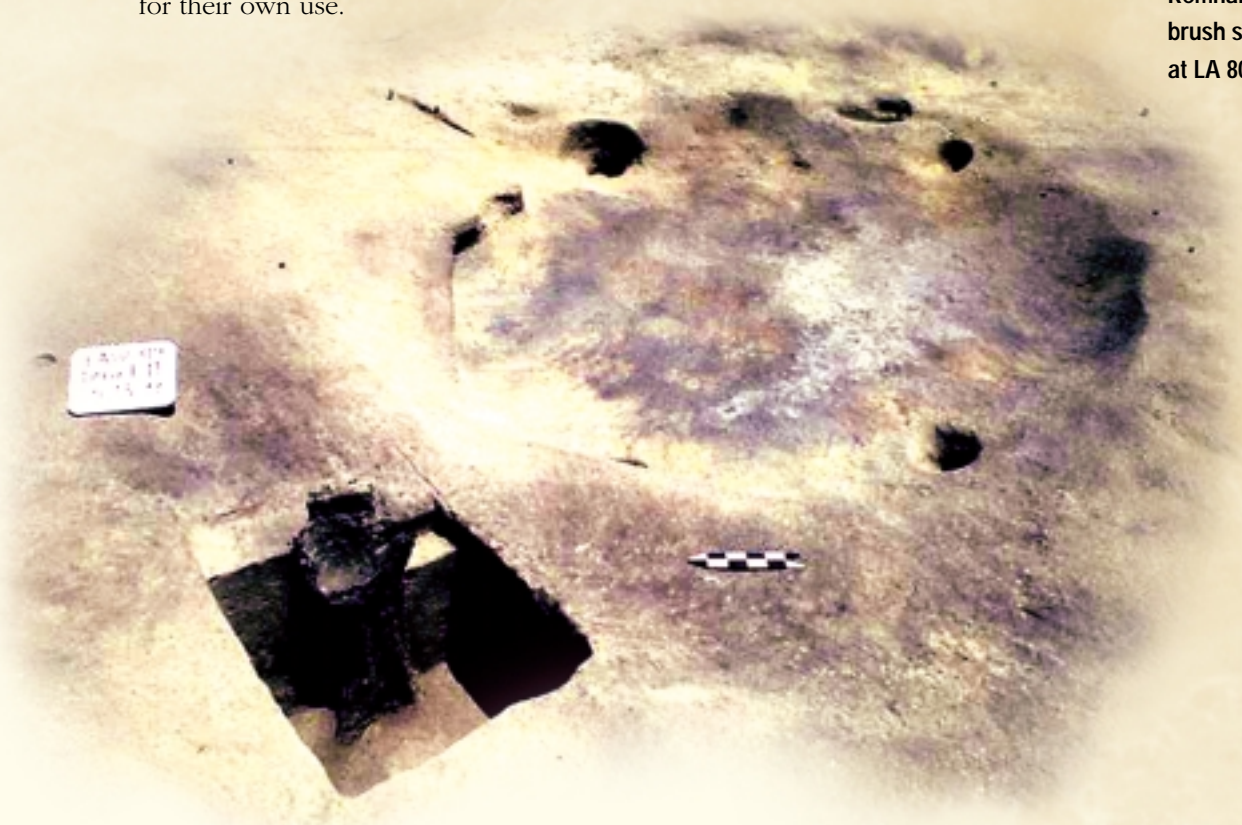
Locations of select-
ed Navajo and Ute
sites along the
pipeline route

Site LA80319 (Dinetah)

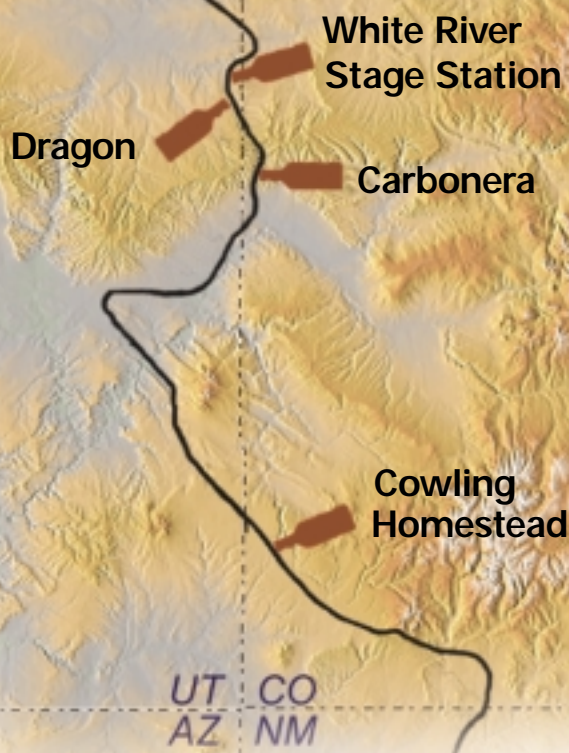
Site LA80319 is located in the midst of pinyon pine and juniper trees above a canyon. The locality was apparently a good one, as it attracted people from Basketmaker and Pueblo times, as well as the later Navajo. There is even a possibility that the Navajo occupants actually salvaged some of the earlier unbroken Anasazi pottery vessels left at the camp for their own use.

The Navajo settlement is associated with the Dinetah Phase (early Navajo), and contained a number of rudimentary brush structures that likely were used to house an extended family of Navajos. In all, seven Navajo activity areas and four of eight Navajo brush structures were excavated.

Remnant of Navajo
brush structure # 11
at LA 80319



Locations of
selected historic
Euroamerican sites
along the pipeline
route



The Modern Invasion: Historic Euroamericans

Europeans have been present in this area at least since the Spanish explorations of Rivera in 1765 and Escalante and Dominguez in 1775-1776. They were followed by a host of others, including early traders, fur trappers and then gold and silver miners in the 1800s. However, no specific material culture from those people was discovered during the pipeline survey. Instead, what was found is much later evidence of Euroamericans from the early 1900s. These historic sites represent a wide range of Anglo activities in the region, including homesteading, farming, mining, and commercial transportation (both railroad and stagecoach).

42UN1802 - Dragon, Utah Townsite

Historical research revealed that the town of Dragon, Utah was founded around 1904 after the opening of the Black Dragon Mine nearby. The mine yielded gilsonite, a mineral used in the manufacture of asphalt. The Uintah Railway constructed a rail line to the town and mine. The mine was owned by the General Asphalt Company (also owners of the Uintah Railway). The only known deposits of gilsonite in the world are in Utah's Uintah Basin. These deposits were off-limits to miners because they were located on Uintah Ute reservation land, creating an obstacle for early miner and railroader Bert Seabolt. He managed to get the U.S. Congress to remove 7,000 acres of that land from Indian ownership in 1888 so that mining could commence, a legislative practice all too common in those days.



Prehistoric gaming pieces from 5LP379

Fun and Games

Life in earlier times was not always nasty and brutish. Archaeologists occasionally find recreational objects, such as these small prehistoric polished and incised bone pieces from 5LP379 and various historic toys, such as marbles and toy wheel from 5GF1561, 5LP1921, and 42UN2558, as well as toy doll arms from 5GF1561



Marbles and toys from historic sites along the pipeline

At its peak, commercial operations there included an electrical power plant, the office of the General Asphalt Company (owners of the Black Dragon Mine and the Uintah Railway), a hotel, boarding houses, saloons, a general store,

hospital, an elementary school, library, movie house, ice house, railway depot, warehouses, freight docks, railway switching yards, and livestock corrals. According to the U.S. Census, 287 people lived there in 1910, and by 1920 the population had grown to 488. Although the town then went into decline in the late 1920s, it managed to exist until 1939. Archaeological work there for the pipeline project led to the identification of 72 structures and 88 other features.



Structure 65, log dugout at Dragon

42UN2558 –

The White River Stage Station

The White River Stage Station was established in 1905 and was economically tied to the town of Dragon, Utah. Historical research revealed that the Uintah Railroad wanted to connect Dragon with the town of Vernal, Utah. To do this, they formed the Uintah Toll Road Company and then built the road north from Dragon. As part of the toll road, they constructed the stage station and a toll bridge to cross the

Structure 1 (stable)
after excavation

Artist's reconstruction
of White River Stage
Station, 1906-1909
(Drawing by Eric Carlson)

White River. It remained in operation from 1905 to 1909. A large earthen berm, 262 feet long and ten feet high, was built on the south bank to protect the station and the bridge from spring ice jams and flooding. In the case of the bridge, the efforts proved unsuccessful, as it washed



**Rock art panel of
F.O.E. and W.O.W.
symbols**

out three times. This ultimately forced them to relocate the bridge a mile downstream, and the new stage station there became the town of Ignatio, named for a Ute leader of the day.

Much about the organization and operation of the stage station was gained from the archaeological work in 1999. After excavations were conducted, it was determined that the original state station had a house and root cellar for the stationmaster and his wife and children, several tent platforms that served as rooms for stage passengers, two stables and an exercise area for the freight horses, a blacksmith shop, and a number of storage structures and trash scatters. On a nearby cliff face there were painted symbols of the Fraternal Order of the Eagles and the Woodmen of the World, indicating an interest (probably the stationmaster) in organizations dealing with improving social conditions and protecting the rights of the common man.



Mediterranean-style bread oven (Feature 5) associated with Greek family at Carbonera

5GF1562 – Carbonera

The townsite of Carbonera, Colorado, provided a glimpse into the lives of railroad workers and miners in the early twentieth century, and another part of the intricate web of social interaction and commerce on the western frontier that tied together Dragon, Utah and the White River Stage Station. Carbonera was built to supply coal to the Uintah Railway for its gilsonite mining operations in the area. Toys and a woman's curlers and waving iron found there indicate some miners or other male workers were accompanied by their families. It was occupied between 1906 and 1939, dying the same year as the town it supported, Dragon, Utah.

Lead security seal used to lock rail cars at Carbonera



5DL318 - The Cowling Homestead, Dove Creek

During the survey, archaeologists found the William Cowling homestead near the community of Dove Creek, Colorado. It is located in the upland flats of what is called the Great Sage Plain, an area proudly proclaimed by residents today as the "Pinto Bean Capitol of the World." The agricultural potential of the area is obvious. The Anasazi recognized this nearly two millennia earlier, demonstrated by the high frequency of their ruins in the vicinity.

**Archaeologist
excavates Structure 6
at the Cowling
homestead.**

The Cowling homestead reflects typical family life in the West in the early 1900s. According to the U.S. Census records of 1920, William A. Cowling, his wife Aristeen and daughter Myrtle all moved to Colorado from Pennsylvania sometime between 1905 and 1908. He filed a homestead claim near Dove Creek and built a house there in July of 1917, eventually accumulating 317 acres of farmland under the Homestead Act. After he presented his "proof" that they lived there and were making a living off the land, he received final title in 1920. Farm income was insufficient to support the family,

and Cowling worked between 1918 and 1919 as a miner in Telluride to make ends meet. Archaeologists found a miner's headlamp at the homestead that he must have brought back from the mine. They also found glass canning jars there, most purchased after World War I, indicating some of Mrs. Cowling's contributions to the family's support. The Cowlings managed to scratch out a living on the high sage plain for over thirty years, raising a variety of dry-land crops and livestock, and practicing commercial blacksmithing and auto repair, before walking away from it in the 1950s.





So What?

**CRM work knows
no season.
Temporary shelters
like this can allow
excavation during
the winter.**

Why Cultural Resource Studies Are Important

One of the big questions we should ask about anything in life is “So what?” In other words, what’s it all about and why should we care? The fact that you are reading this book is an indication of the attraction that archaeology holds for many of us. The study of our past can be an enriching experience, as well as a useful one. Archaeologists are in the business of trying to understand ancient human behavior. It has been said many times that those who ignore their history are doomed to repeat the mistakes of the past.

Why Cultural Resources Need To Be Protected

If your house was burning down, what items would you most want to save? For many, it would be the family photo albums. In a way, archaeological sites are like our priceless family photos. If an important site is destroyed or badly damaged, so is a bit of our collective cultural memory.

Cultural resources are nonrenewable resources. Unlike forests that can be replanted, once a site is destroyed, it is gone forever. As our country’s population continues to increase and fill in the landscape, the “wide open spaces” diminish proportionately. Find a beautiful twenty-first century home built next to a stream and with a spectacular panoramic view and you can bet that prehistoric hunters or farmers had been

there first. There is no way modern development can totally avoid a collision with remnants of the past.

As far back as 1906, our federal government recognized that America's cultural resources belonged to all the people, so they wrote the first law then to protect them. Policies in the twenty-first century continue to uphold the original intent of Congress.

It is not only bulldozers that can destroy our nation's heritage, but also thoughtless or intentional acts of vandalism and looting. Time travel, accomplished by perhaps standing in a spot where a prehistoric mother once sat and tended a campfire, would become impossible if protections were not given to important remnants of the past. Also, the understanding of the processes of modern cultural change would be much less without a knowledge of how and why such things occurred in the past.

Few cultural resources are as obvious or spectacular as Cliff Palace in Mesa Verde National Park. Sites like that are the exception. The small camp where, two hundred years ago, a Ute family might have boiled bone grease out of bison leg bone fragments is more common, but far more difficult to recognize. Archaeologists have been trained to spot the sub-

tle evidence for these kinds of sites, and how to glean important information from them.

The task of CRM is not to stifle development, but to work as an intermediary between developers and those who hold the nation's cultural resources in trust. Archaeologists are problem-solvers, balancing the needs of both parties while trying to preserve as much of the archaeological record as is practical or reasonable.

What the Rocky Mountain Pipeline Taught Us

All 233 significant sites identified along the pipeline route were monitored, and where appropriate, were subjected to various levels of data recovery. Geomorphological studies helped interpret buried landscapes when sites were not apparent on the modern surface.

As a result of the archeological work along Rocky Mountain Expansion Loop Pipeline route, thousands of artifacts were recovered, along with many pieces of animal bone and a variety of other samples that were analyzed (see box). All of the artifacts from government land now rest in a museum, while artifacts from private land were returned to the land owners.

Specialized Samples Collected During The Pipeline Project

- 169 carbon-14 dating samples
- 802 tree-ring dating samples
- 8 thermoluminescence dating samples (to identify firing date of pottery)
- 536 macrobotanical samples (seeds and other large plant remains)
- 193 palynological samples (to identify climate and plants collected by the pollen types)
- 41 obsidian samples (to identify original obsidian sources)
- 78 ceramic samples (to identify original clay sources)
- 8 instrumental neutron activation analysis samples (to identify rock sources)
- 47 basketry samples (to identify construction technique and raw materials)
- 10 shell samples (to identify species and sources)
- 4 protein residue samples (to identify species of animals killed from blood on tools)

What Does It All Mean?

Ten thousand years of the human past have been traversed by the Rocky Mountain Expansion Loop Project. Along its course we can see the ingenuity of the human mind working to adapt to a wide variety of environmental and social conditions. At times they were successful, and at other times they failed.

The project revealed that Paleoindian and Archaic foragers had taken advantage of the lush resources available along drainages in what is now the barren Cisco Desert. The potential for additional sites like them between the Colorado River and the Book Cliffs to the north will be explored in the future.

Evidence of interaction between groups was seen during many cultural periods.

The Archaic foragers in the southern portion of the project area had trade networks with groups in the Jemez Mountains farther to the southeast in New Mexico, based on abundant quantities of obsidian tools from there. Northern Archaic groups interacted with people in the Great Basin of Utah to the west, a conclusion also supported by obsidian from the west. Navajo sites revealed trade with a number of nearby Pueblo villages, while the Ute apparently did not have similar connections.

Environmental changes included some that were human induced. An example is the dramatically younger age of timbers used in house construction after Pueblo I deforestation, interpreted to mean that too many older trees had already been cut down, forcing the Pueblo II builders to settle for smaller, younger ones.

These early residents, using a Stone Age technology, were much like us in their quest to meet the basic needs for human existence. They captured water in the desert, warmed their huts and apartment rooms during the cold months, hunted animals for their meat and skins, gathered edible seeds, peeled tree bark, traded with their neighbors, raised their families, and when conditions became intolerable, they moved to other places.

Those Euroamericans who followed brought with them a more complex level of technology, but were also faced with the same tasks of capturing water, keeping their homes warm, getting food and clothing, interacting socially with neighbors, and raising their families. When conditions no longer allowed themselves to be supported there, they also moved away.

Technology may change, but not basic human needs. Archaeology continues to reveal that we are all bound together across the generations by our common humanity.

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- Further information about the Rocky Mountain Expansion Loop Pipeline project can be found online at www.woodscanyon.net/mapl.

Glossary

anthropology From the Greek, *anthropos*, meaning humanity. Anthropology is the broad study of humankind, including the four fields of ethnology (modern culture), archaeology (past culture), linguistics (language), and physical anthropology (or biological anthropology—both past and present humans, including evolution).

archaeology The division of anthropology interested in studying past cultures in order to document their histories, to reconstruct their lifeways, and to determine the processes of cultural development.

archaeological survey A systematic attempt, primarily done on foot, to locate archaeological sites, document their contents, and record them, usually for State site files.

artifact Any object made or modified by humans.

chert One of a number of rock types containing SiO_2 that breaks predictably and is sought after for tool manufacture, along with agate, chalcedony, jasper, and quartzite.

cultural resources A general term for any objects or sites from the past that represent human activities. These could include anything from historic communities to prehistoric camps, including the smallest artifacts there.

cultural resource management (CRM) An applied archaeology discipline dedicated to the conservation of prehistoric and historic cultural resources.

culture The lifeway shared by members of a society, including beliefs, values, as well as the agreed-upon solutions to universal human problems.

data (plural) Facts or figures from which conclusions can be drawn. In archaeology, data are the observations made on cultural remains, such as the dimensions (length, width, thickness) of an artifact.

dendrochronology Tree-ring dating, especially applicable on specific tree remains in sites in the dry Southwest.

feature A special kind of artifact that cannot be moved intact, such as a firepit, storage cist, or house.

history The period of the past documented by literate witnesses.

hypothesis A question or theory that can be tested. In archaeology, one might ask the question, “Did people settle down year-round in one place after obtaining domesticated foods?” and then examine the evidence to see.

in situ A term indicating that something is left in place. Archaeologists prefer to find artifacts left undisturbed in their natural resting place in order to best interpret their relationships to other artifacts and features. The uses of kitchen utensils are better interpreted in a kitchen rather than when piled in the street.

mano The abrasive hand-held stone used to grind plant materials, usually of sandstone.

metate The abrasive basin stone used to hold plant materials like kernels of corn, against which the mano is ground, also usually made of sandstone.

midden In archaeology, a garbage dump that has accumulated over time.

obsidian Volcanic glass, a generally black stone with SiO_2 used to make tools.

palynology The study of fossil pollen, especially useful in reconstructing climates or identifying prehistoric diet in archaeological sites.

prehistory The period of the past prior to the presence of literate witnesses.

projectile point General term for any tip of a spear, dart or arrow used to kill animals.

protobistory The transitional period between history and prehistory. Generally, this includes the time when contact between literate newcomers and the aboriginal groups is indirect, as in the westward spread of European trade goods across North America via other Indian groups rather than direct contact with fur traders or other outsiders.

scraper A type of tool with a steep edge often used to remove soft tissue from the inside of animal hides during the tanning process.

site Any location where past human activities can be identified.

About the Author



E. Steve Cassells earned a B.S. in Education at Chadron State College, an M.A. in Anthropology from the University of Arizona, and a Ph.D. in Anthropology from the University of Wisconsin. He has been a U.S. Forest Service archaeologist, the Assistant State Archaeologist for Colorado, owned an archaeological contracting firm, and for over twenty years has been a college anthropology professor, currently at Laramie County Community College in Cheyenne. His writing of ***The Archaeology of Colorado*** earned him the C.T. Hurst Award from the Colorado Archaeological Society. An enthusiastic family man (including being a doting grandfather), he is also an avid canoeist and a member of the Nebraska Rock and Roll Hall of Fame.

Photo by Rob Singer, Ideal Photography



Tracing the Past is an example of how American archaeology is conducted, based on work along the 412-mile Rocky Mountain Expansion Loop Pipeline. This pipeline extends from northeastern Utah, through western Colorado, and terminates in northwestern New Mexico. Along its route it intersects a variety of landscapes. For thousands of years this land supported many different cultures, each adapted to local conditions. Beginning with the earliest occupants discovered along the pipeline, the Paleoindians, the reader is led through a sample of progressively younger cultures, culminating with the final Native American groups, the Utes and Navajo, and then the modern European-Americans who built railroads, farmed and mined the area. This book draws on nearly two thousand pages of unpublished reports written about the excavations along the pipeline route. It provides a brief overview of the cultural development of the area, describes how archaeologists gather and interpret information about the past, and discusses the value of cultural resource management.



Alpine Archaeological Consultants, Inc., is a small business based in Montrose, Colorado. Founded in 1987, Alpine provides a full range of cultural resource services throughout the Rocky Mountain West, Great Basin, and Southwestern states for federal and state agencies and private clients.

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Woods Canyon

Woods Canyon Archaeological Consultants, Inc., has been providing archaeological consulting services to public, private, and corporate clients in the western United States since 1981. They are based in southwestern Colorado, and most of their work focuses on the Four Corners Area.

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