

RESOURCES



Archeologist Profiles



Archeologist. For many, this word arouses colorful mages of an Indiana Jones character who unearths items of beauty and value in ancient, exotic ruins. But these popular, glamorous portrayals are rarely lived by true archeologists. As the following biographies and interviews with archeologists who have worked at Aztec Ruins suggest, making a career in archeology requires hard work, perseverance, and love – love not for fame and fortune, but for answering questions about the past.

For nearly a century, archeologists have sought answers at Aztec Ruins. Pioneer archeologist Earl Morris, sent by the American Museum of Natural History, led the first systematic exploration in the early 1900s. He was as interested in retrieving beautiful artifacts for display in his sponsoring museum as he was piecing together a story about the people who made them. For many years following Morris, archeologists worked at Aztec Ruins in association with stabilization projects – excavating areas alongside the walls that they repaired. In addition, they excavated individual mounds, rooms, and areas to “beautify” the area and make way for a museum, restrooms, trails, and picnic area for visitors.

Through recent archeological research, archeologists have broadened the Aztec Ruins story. Peter McKenna and John Stein surveyed and recorded archeological remains in the extended community surrounding the West Ruin, and suggested the role and importance of Aztec Ruins in a wider region. Tom Windes’ primary interest is in the wood that the prehistoric builders used, and how it can provide answers to questions about the dates of construction; building sequence and repair; community organization; and wood procurement, harvesting, and stockpiling. Dabney Ford and James Trott are among a growing number of conservation archeologists – those who work to preserve sites through documenting, backfilling, and treating walls. They remind us that archeologists not only excavate sites to help answer questions about the past, they also play an important role in their long term care.

Earl Morris

Pioneer Archeologist



University Museum
University of Colorado, Boulder

Earl Morris was a pioneer in Southwestern archeology. Although his work today would fall far short of the discipline's rigors, during his time, when the science of archeology was walking infant steps, Morris was at the forefront. He helped define archeological concepts and techniques, and contributed to the knowledge and interpretation of sites across the Southwest and Mexico. He earned admiration and notoriety for his work at Aztec Ruins, Canyon de Chelly, Bandelier, Mesa Verde, the La Plata Valley, and the Yucatan Peninsula in Mexico. The findings and interpretations he made at Aztec Ruins enrich the breadth and details of the stories told at the monument to thousands of visitors yearly.

Born in Chama, New Mexico, in 1889, Morris moved with his family to Farmington when he was two years old. His interest in uncovering the past began at the young age of three. No federal laws at that time protected archeological sites, and many people considered artifacts free for the taking. Morris' father collected and sold pottery he found in the area. During a collecting excursion, young Earl's father sent him to dig where his father had worked the previous day. With the first stroke of his pick, Earl uncovered a complete black and white dipper. He later wrote that the incident was "... the clinching event that was to make of me an ardent pot hunter, who later on was to acquire the more creditable, and I hope earned, classification as an archeologist."

After graduating from Farmington High School in 1907, he attended the University of Colorado, where he earned a degree in psychology. His interest in the Southwest's prehistoric inhabitants remained keen, however, and scholars of the time influenced him to turn from a pot collector into a scientist. He experienced his first excavation at Puye – an ancestral site for the people of Santa Clara Pueblo. There he attended the first Southwestern archeological field school established by Edgar Hewett.

His excavation experience broadened when, in 1915, Morris apprenticed to Nels C. Nelson, an employee of the American Museum of Natural History who was excavating in the Rio Grande area. Nelson took a special interest in Morris, training him in the relatively new techniques of stratigraphy and cross-dating that helped establish sequential dates in sites. During this project Morris frequently wandered off to dig in other areas, justifying this activity on the basis of his experience and training in archeology. Although he gave his pottery finds to the University of Colorado Museum, he rarely documented or organized these digs, contradicting professional standards. He continued this questionable pattern of digging pots for recreation while excavating another site on a museum's payroll throughout much of his life. However, he developed traits of determination and patience that served him well in later excavations. Working long hours with brush and sifter, he would search through tons of dirt to locate all the pieces of a pot or piece of jewelry.

The American Museum of Natural History presented Morris with the opportunity of a lifetime when it selected him in 1916 to lead the excavation of the West Ruin at Aztec Ruins. Excited by the prospect, Morris and his crew began clearing the site which he had visited as a boy.

During the seven-year project sponsored by the museum, Morris uncovered many rooms and kivas in the West Ruin, trenched and tested the plaza and middens, and explored the group of structures on the west side of the building called the West Annex. As he proceeded, he used cement to repair many of the unstable walls. He unearthed burials and

funerary items; pottery; stone tools; woven items; wood objects; bones and bone tools; items made from shell, cotton, and feather; leather fragments; plant and animal remains; building materials; and raw materials such as potter's clay. Because of the protection afforded by deep room fill and original roofs, items that would have otherwise perished survived the centuries.

Early in the excavation, he used his knowledge of stratigraphy to infer two sequential occupations of the building. Comparing the architecture to other sites and analyzing the styles of pottery and their location in the fill of the site, Morris conjectured an earlier occupation of people related to Chaco Canyon to the south, and a later occupation of people related to the Mesa Verde region to the north.

Morris uncovered and wrote about the great kiva at Aztec in 1921 – the first Southwestern archeologist to do so. Later, in 1934, he returned to Aztec to reconstruct this impressive building, drawing upon his earlier excavations and knowledge of other Southwestern kivas. Although the reconstruction is controversial in some aspects, it is the only building of its kind.

The many timbers used by the aboriginal builders provided material to support the science of *dendrochronology*– the study of dating through tree rings. Morris collected specimens from Aztec and throughout the Southwest, helping scientists establish the area's cultural chronology.

Morris' hopes of completely excavating the West Ruin dissolved when the American Museum failed to fund the project after 1923.

Although disappointed, he sporadically excavated in and around the site for several years, and also conducted work in Colorado, Arizona, and Mexico. He maintained other ties to Aztec. He and his mother occupied a house at Aztec Ruins, which grew into the present visitor center. When President Harding declared the site a national monument in 1923, Morris became the first custodian, at a

salary of \$12 per year. By 1933, he and his wife Ann, who was also an archeologist, moved to Colorado, where he continued excavations. During the final years before his death in 1956, he spent time as a writer and speaker, and occasionally as a consultant to other archeologists.

Before his death, Morris' peers recognized his contributions to Southwestern and Mexican archeology by awarding him the Alfred Vincent Kidder Award in 1953. Humbly accepting the award, Morris summed up his accomplishments:

"When I measure the little that I have accomplished against the goals that danced before me when I was young, I find myself more worthy of censure than of commendation. The years have sped and the long shelf that one day was to be filled with my writings remains largely empty. Meanwhile, others with the training in scientific methods of approach which was denied to me, have gone far toward raising Southwestern archeology into the imposing historical edifice it is destined to become."

Despite Morris' words, his contributions were substantial and long-lived, paving the way for a field that would capture the interest and imagination of students and the public alike.



Morris and his wife, Ann

Peter McKenna

A rcheologist Profile

Student interview by Kerry Morris, Tracy Reynold, Demsey Smith and Steven Brown – Donna Burns' fourth-grade class, Park Avenue Elementary School, Aztec, New Mexico



Peter McKenna lives in Albuquerque, New Mexico. He is an archeologist who works for the Bureau of Indian Affairs (B.I.A.). Peter was born in East Orange, New Jersey and was raised in Albuquerque, New Mexico. Peter went to school at Jefferson Middle School and Menaul High

School in Albuquerque. He earned two bachelor's degrees and one master's degree.

How did you become interested in archeology?

I took a wide variety of classes at the University of New Mexico. I enjoyed anthropology classes the most, particularly archeology which covered ancient ruins and peoples. I was interested in digging and learning about the past through archeology.

When did you decide to be an archeologist?

I decided to be an archeologist when I was taking classes in my junior year of college. It was a hard decision to figure out what kind of archeologist I wanted to be and I didn't want to make the wrong decision. I wanted to be an archeological survey worker first to get the hang of everything and to watch other people work on all the different archeology jobs.

What kinds of archeology jobs have you had?

I have had tons of jobs and have enjoyed every one of them. First, I worked as a survey worker. Then, I decided to do the digging part and I really loved working in the dirt. Since working for the B.I.A. I have excavated and surveyed at all the pueblos, for the Ramah Navajo, and the Utes in Southern Colorado.

What do you like about being an archeologist?

I especially like the thrill of digging in the dirt and making discoveries about the past.

What do you dislike about being an archeologist?

I do not like people digging without a degree and without permission. It shows that people do not respect their past and its legacy on the land. I also do not enjoy the general lack of job security.

Have you made any important discoveries?

In Chaco Canyon I worked with a team of archeologists who made important discoveries about life in Chaco and kept alive discussions about the past for Southwestern archeology. I found lots of neat stuff – pots, fetishes, ornaments, and other tools – and was absolutely thrilled with all the exciting artifacts.

What advice would you give a person considering a career?

Choose wisely and be careful about your choice to be an archeologist.

What else would you like to tell people about archeology?

Archeology is adventurous and I really love it. I hope more people get interested in archeology so they can experience the adventures of archeology. I encourage children to get into archeology and just see what it's like.

EDITOR'S NOTE:

Peter's experience with archeology is extensive. He has surveyed and excavated sites in Chaco Canyon and throughout New Mexico, Arizona, and Texas. Peter's

passionate and continuing interest in Aztec Ruins has resulted from his survey work, limited excavations, documentation of walls and wood, and tree-ring sampling at the site. Peter helped locate and describe the community of smaller sites associated with the early portion of Aztec Ruins. He notes that the organization and symmetrical arrangement of the Aztec Ruins and community indicates a high order of planning. He advances the idea that much of the important functions of Chaco Canyon may have been moved to Aztec Ruins through colonization. He was interested to find that tree-ring dating in the East Ruin revealed that many of the dates were more recent than expected (AD 1200s) while the structure itself shows a continuation of building style and dates with the West Ruin.

Although Peter says the digging and surveying is fun, that's really the easy part. The real work and excitement come through analysis and writing and putting together the pieces of the past puzzle. Even though he enjoys the work, he cautions young students wondering about pursuing archeology as a career. It's a lot of work, and it's not a way to get rich easily, quickly, or at all. Peter said archeology could be very satisfying as a career but it calls for ability, luck, dedication, and persistence, usually without great financial rewards.

Peter earned bachelor's degrees in history and anthropology from University of New Mexico, and a master's degree in anthropology from Eastern New Mexico University.

Tom Windes

A rcheologist Profile

Student interview by Marc Johnson, Cassidy Nec and Krista Martinez – Donna Burns' fourth-grade class at Park Avenue Elementary, Aztec, New Mexico



Tom lives in Albuquerque, New Mexico. He was born in Takoma Park, Maryland. Silver Spring, Maryland is where he grew up and attended high school. He got a bachelor's degree in anthropology from the University of North Carolina. At the University of New Mexico he earned a master's degree.

What kinds of archeology jobs have you had?

I have had archeology jobs in the U.S. Forest Service, contract agencies, and National Park Service.

What do you like about being an archeologist?

I enjoy archeology because I like being outdoors, working with friends, and being a detective.

What do you dislike about being an archeologist?

I dislike working for bureaucracy which is part of the U.S. government.

Have you made any important discoveries?

While studying the use of turquoise among prehistoric people, I found that ants seem to like the color blue in the stones they place as solar shields over their nests. I think they absorb heat just right for them.

How did you become interested in archeology?

I became interested in archeology because I always enjoyed old things.

When did you decide to be an archeologist?

I thought about becoming an archeologist in 1967, and became an archeologist in 1970.

What advice would you give a person considering a career in archeology?

I would say that you have to like being a detective; you have to know math and computers, and you have to be curious and want to read if you want to be an archeologist.

What else would you like to tell people about archeology?

Archeology can be fun or boring. You learn about history, people, and nature. Along with other archeologists, I collect wood samples and date the tree rings in them.

EDITOR'S NOTE:

Tom Windes works for the National Park Service as a research archeologist. He spends much of his time writing archeological reports about the work done at Chaco Culture National Historical Park in past years. His interest in Aztec Ruins has focused on the wood used by the original builders in the structures. There are about 5,000 pieces of original wood at Aztec, and Tom hopes he can obtain samples from every piece that will allow him to get tree ring dates. As of 1998 he and volunteer workers have collected about 2,000 samples. Through his work, Tom has refined the chronology of the buildings at Aztec, determining when sections of the buildings were initially constructed and/or remodeled. He has also ascertained the proportions of species of wood that the builders used throughout the 200-year occupation, which tells us how far the builders traveled to obtain wood at different times. Tom and crew have also taken wood samples from the visitor center, where he found that early archeologist Earl Morris used salvaged wood from the site on the front portico and in the lobby.

Dabney Ford

A rcheologist Profile



Dabney Ford lives in La Plata, New Mexico. She commutes to Chaco Culture National Historical Park every week where she is the Chief of Resources Management and Archeologist. She was born in Pullman, Washington, but grew up on her grandparents' ranch in Catron County, New Mexico. She earned a bachelor's degree in anthropology and general agriculture from New Mexico State University.

How did you become interested in archeology?

I grew up on a ranch with my grandparents. There were more prehistoric than modern sites there and I wondered what they were. I wanted to know how the land supported more people in the past than it does today.

When did you decide to become an archeologist?

When I was in college. I was only going to work archeology for a few years and then pursue agriculture.

What kind of archeology jobs have you had?

Excavations for the state, some private and federal jobs, inventory surveys and preservation.

What do you enjoy about being an archeologist?

I am more interested in history and the past than in the present or the future. Being an archeologist allows me to study the past. You never really know the truth or reality.

What do you dislike about being an archeologist?

Having to work in a bureaucracy with the paperwork.

Have you made any important discoveries?

Yes – that we cannot understand the complexity of the prehistoric cultures of the Southwest.

What experiences have you had working at Aztec Ruins National Monument?

My experiences at Aztec include architectural documentation, mapping, and wood sampling for dating. Additionally, I have worked with the preservation staff.

What advice would you give a young person considering a career in archeology?

To consider preservation disciplines such as chemistry and architectural engineering as a focus. The research is easy compared to the challenge of preservation.

What else would you like to tell people about archeology?

Archeology is multidisciplinary. The more disciplines involved, such as astronomy, engineering, agriculture, and architecture, the better the study. You are studying people who were multidimensional. The more knowledge you can bring the more accurate the study.

Joseph James Trott

A rcheologist Profile



Jim Trott lives in Santa Fe, New Mexico where he is a Supervisory Archeologist for the Intermountain Region of the National Park Service. He was born and grew up in Colorado. He earned an associate's degree in 1968 from Trinidad State Junior College, a bachelor's degree from University of Colorado in 1970, and a master's degree in anthropology, specializing in archeology, from Colorado State University.

How did you become interested in archeology?

The area in Colorado where I grew up was rich in fossils, including the remains of dinosaurs and ancient sea life. As a child I collected fossils until

about age 10 or 11. Then I visited relatives in Arizona who introduced me to archeological sites. That summer I visited Mesa Verde National Park and became interested in man's history and the history of other animals.

When did you decide to become an archeologist?

I decided to become an archeologist around the age of 14 or 15.

What kind of archeology jobs have you had?

The types of jobs I have had include working as a student on numerous archeological excavations and surveys from Arizona to North Dakota. I have worked as a seasonal park ranger at Mesa Verde National Park, Project Archeologist at the Museum of Northern Arizona, Park Archeologist for Chaco Canyon National Historical Park and Salinas Pueblo Missions National Monument, and as the Supervisory Archeologist for the Architectural Conservation Program in Santa Fe. These positions have involved historic and prehistoric archeology.

What do you enjoy about being an archeologist?

I enjoy archeological excavation and survey, the sense of discovery, and trying to make sense of the remaining evidence of the past. I enjoy the aspect of archeology where I realize that something has been around for several hundred years, such as the rooms at Aztec. I have always enjoyed the people involved in this field; they are frequently interesting and unique individuals.

What do you dislike about being an archeologist?

Paperwork!! There can be an immense amount of paperwork associated with the job.

Have you made any important discoveries?

All discoveries are significant as they add evidence to man's past.

What experiences have you had working at Aztec Ruins National Monument?

I have worked several projects at Aztec beginning with the Ruins Stabilization Training Course in 1978. Since that time I have worked closely with the staff at Aztec in numerous stabilization projects. I have also participated in other past projects that included reburial of various excavations, construction of the handicapped trail, and repatriation of remains. Recently I worked on the Backfilling Scope of Work for the West

Ruin and documentation of the West Ruin.

What advice would you give a young person considering a career in archeology?

Try it first and see if you like it. Volunteer for a park or archeological business to get experience, or join the state amateur society and see if it is something you would enjoy doing. There are many different aspects of archeology from field research to laboratory analysis and archeological theory. No archeologist can be competent in all fields of archeology that allows him/her to participate in archeology beyond the field work level. You may not like excavation but enjoy analysis of artifacts, evidence of past climates, or dating the past. It is a diverse field. If you enjoy working in archeology stick with it. It can be rewarding. You will probably never get rich in archeology, but people do make a reasonable living doing something they enjoy.

What else would you like to tell people about archeology?

Archeology is fun if you enjoy it. However, there is an increasing amount of destruction and loss of archeological sites due to vandalism (pot hunting) and construction. It is increasingly important people appreciate these resources and save them for future archeology and the public. Only the public can protect archeological resources and in the end it is the public that benefits from archeology.

John Stein

A rcheologist Profile



John Stein lives near Gallup, New Mexico. He is the program manager of the Chaco Protection Sites Program in the Historic Preservation Department of the Navajo Nation. Born in Chandler, Oklahoma, John and his family settled in New Mexico when he was six. He attended New Mexico State University.

How did you become interested in archeology?

I really like trucks. And bits and pieces of machinery and nuts and bolts and anything iron. I especially like this stuff if it is rusty and abandoned. I am also attracted like a magnet to weathered wood, and again especially if it still clings to the frame of an old building. If I could

describe this attraction in a way that made it understandable, then I would be a famous author and not an archeologist. The moral of this paragraph is that if I had more artistic talent I would be painting water colors of windmills and barns and mine tipples and locomotives. But I am not a talented artist, I am a materialist, the kind of guy that collects bottle caps and rusty nails, and that makes me an archeologist.

When did you decide to become an archeologist?

I never did actually decide to become an archeologist. In 1970 and 1971 I had worked with Dr. Florence Ellis, and had done some salvage excavation at Bandelier. Dr. Ellis finally took me by the ear to Dr. Lister, Director of the Chaco Center and said, "Give this young man a job."

What kind of archeology jobs have you had?

Much of my experience is what they call inventory or survey. I specialize in finding and recording stuff on regional scales such as thematic reconnaissance for certain types of remains such as precolumbian roadways or intensive surveys of reservoirs, parks,

pipelines or land exchanges. I have worked for everybody in the Southwest, including the National Park Service, the Bureau of Land Management, the University of New Mexico, the New Mexico State Historic Preservation Office, the Museum of New Mexico, and the Bureau of Indian Affairs. I have done excavation work at the pueblo of Tsama, Bandelier, Monte Alban in Mexico, areas of the Rio Grande Valley, Hopi, Canyon de Chelly, and Keet Seel. I was the Roads Archeologist at the Navajo Area Bureau of Indian Affairs.

What do you enjoy about being an archeologist?

The best thing about being an archeologist is still the idea that archeological stuff is out of doors.

What do you dislike about being an archeologist?

Archeology is a legislated profession. Most archeologists working in the United States are doing so because of federal preservation legislation. Unless you are working for a federal, state, or tribal government, employment is likely to be on a contract basis. Jobs and job security are hard to find in archeology.

Have you made any important discoveries?

A bunch actually, but it depends on what is meant by "important." Since the middle 1970s I have been fortunate to have worked regionally on a series of projects aimed at finding great kivas, great houses, and precolumbian roads. This has enabled us to model the evolution of Anasazi communities and the relationship of these communities to Chaco Canyon and Aztec. Some of my most important and exciting "discoveries" have been made by learning to see things I thought I already knew everything there was to know about, from a different perspective. An example is my current work at the Newcomb, Skunk Springs, and Crumbled House Chaco Protection Sites. I have worked for these locations for 20 years and yet by using information from Navajo Medicine Men and new computer imaging technology, what we are finding is so new to me that it is as if I had never worked there at all.

What experiences have you had working at Aztec Ruins National Monument?

Actually I was fortunate to make an important discovery at Aztec. In January, 1987, I was sent to Aztec to perform a reconnaissance of the boundary area. We flew over Aztec, and wow – there it all was: great houses and great kivas and precolumbian roads that for some unexplained reason we had known nothing about. It was one of the great mysteries of Southwestern archeology! There it was, right under our noses all these years.

What advice would you give a young person considering a career in archeology?

My advice is do not consider a career in archeology. If you plan to attend college and think you may someday be an archeologist, you can gain a great advantage by first getting a degree in hard science, business administration, architecture, or some discipline where you have a fighting chance for employment and pay off your student loans. Whatever you do, learn how to think, not what to think, and how to think for yourself.

Get as much practical experience as you can. Many members of my generation became archeologists because it was a clean industry that did not hurt anybody. This was a false impression. Archeology is becoming more and more controversial and political. It is my impression that it is going to be harder and harder and less and less fun to be a field-oriented archeologist.

What else would you like to tell people about archeology?

If you see someone wandering around in the middle of nowhere stooping and bending over in what sometimes has been called the "silly bent-knee running around behavior," they are either hiding Easter eggs or they are an archeologist. Do not shoot, they are harmless and they are probably deep in thought over a sherd or some little bit of something that they have found. Maybe they have not found anything and they are just walking back and forth and thinking about hot chocolate or iced tea. Eventually they will go away. But they are often the harbingers of an "undertaking" and they will be followed by pipelines, strip mines, puie ponds, and national parks.

GLOSSARY

Anasazi: originating from a Navajo word variously meaning “enemy ancestors,” “alien ancestors,” “ancient ancestors”; adopted by archeologists to refer to people who once lived across the Colorado Plateau.

Ancestral Pueblo people: recently adopted term to refer to people who once lived throughout the Colorado Plateau and Southwest and who are ancestors of many Southwestern American Indians today.

Archeological site: a place where human activity occurred and material remains were left.

Archeology: a method for studying past human cultures and analyzing material evidence (artifacts and sites).

Artifact: any object made or used by humans.

Atlatl: a short rigid stick used to propel spears, eventually replaced by the bow and arrow.

Awl: animal bone sharpened at one end, used to punch holes in hides and basketry.

Black-on-white: pottery with an overall white or sometimes gray surface on which a black painted design has been applied.

Chinks: small stones stuffed into the mortar of the walls, sometimes placed in decorative patterns.

Chronological order: an arrangement of events in the order in which they occurred.

Classification: systematic arrangement in groups or categories according to established criteria.

Compass: an instrument for determining directions, consisting of a freely moving needle indicating magnetic north.

Context: the relationship artifacts have to each other and the situation in which they are found.

Cordage: rope or string made from plant fibers twisted together.

Core and veneer: a wall using a central core of mud and stones, sandwiched by outer facings of stones in mud mortar.

Corn or maize: a cultivated food important to Ancestral Pueblo people.

Corrugated: unpainted pottery that has coils still visible on its exterior surface.

Cultivated plants: plants that are planted and cared for by people; the Ancestral Pueblo people cultivated corn, beans, squash, and in some areas, cotton.

Culture: the set of learned beliefs, values, behaviors, and tools shared by members of a society.

Data: information, especially information organized for analysis.

Deflector: vertical stone slab or masonry wall between the fire and ventilator shaft that deflected incoming air and reflected heat and light.

Dendrochronology: determining the age of a tree by counting its rings; the study of tree ring dating.

Digging stick: sturdy stick pointed at one end, used for digging holes for the planting of seeds.

Ethnobotany: the study of the use of plants by people.

Feature: something made by humans but not easily picked up or transported, such as a wall, firepit, concentration of artifacts, or doorway.

Fire drill: artifact used to start fires where a wooden stick was rotated briskly on another piece of wood, creating friction and heat.

Firepit/hearth: a stone or plaster-lined pit used for containing fire.

Graffiti: images or crude writing placed on a wall or public place.

Great house: large pre-planned multi-room structure surrounding a plaza.

Great kiva: large semi-subterranean rooms with special floor features such as paired vaults, a raised firebox, and massive roof supports, used for community-wide events.

Hypothesis: a proposed explanation accounting for a set of facts that can be tested by further investigation.

Inference: a conclusion derived from observations.

Juniper splints: thin layers of juniper placed above the latillas and below the dirt layer in a roof.

Kiva: room with distinctive features, usually underground, probably for ceremonial use; similar structures are still used by Pueblo people today.

Latilla: cottonwood or aspen pole placed above the vigas and below the juniper splints in a roof.

Maize or corn: a cultivated food important to the Ancestral Pueblo people.

Mano: small stone held in the hand used to grind corn and other substances by rubbing on a larger stone called a metate.

Masonry: walls made of stone.

Maul: large hammer-like stone used to shape rocks for building.

Mealing bin: a pit, usually rectangular and slab-lined, in which metates were set for use.

Metate: large stone used to grind corn and other substances by rubbing with a smaller stone (mano).

Midden: an area where discarded items were deposited.

Mortar: the mud used around stones in walls.

Native plants: plants that naturally occur, or are native to a given area and not introduced from other areas by humans or animals.

Niche: a rectangular or irregular recess on a wall face.

Observation: recognizing or noting a fact or occurrence.

Obsidian: shiny, dark-colored volcanic glass that chips into very sharp edges, used for making sharp tools.

Petroglyph: an image scratched, incised, or pecked on stone.

Pictograph: an image painted on a rock surface.

Pilaster: low masonry-encased horizontal log or upright masonry pier on a kiva bench.

Piñon: a type of pine tree valued for its nutritious nuts.

Pithouse: dwelling excavated in the earth.

Plaza: open flat area surrounded by the rooms of the structure.

Polychrome: a vessel with two or more colors.

Pottery: a container or object made from clay and fired for durability.

Projectile points: objects chipped from stone and attached to the ends of arrows and spears.

Replica: a copy of an object, made to look as much as like the original as possible.

Sherd: a piece of broken pottery.

Time capsule: a collection of artifacts specifically placed in a container to be opened in the future.

Tradeware: pottery not native to a given area.

Vandalism: willfully or maliciously defacing or destroying public or private property.

Vault: rectangular sub-floor pit found in kivas; large stone-lined vaults occur in great kivas.

Vent: small rectangular opening in a wall, usually placed just below the roof, that allowed passage of air.

Ventilator shaft: a tunnel running from the exterior of a kiva to the area of the firepit that allowed fresh air to enter.

Vessel: a hollow or concave utensil for holding something.

Viga: a log of spruce, Douglas fir, ponderosa pine, or juniper used as the primary support beam for a roof.

Yucca: native plant with pointed, fibrous, stiff leaves, used in many ways by the Ancestral Puebloans.

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Ortiz, Alfonso, *Handbook of North American Indians Southwest, Vol 10*, Smithsonian Institution, Washington, 1979. Gives an encyclopedic summary of what is known about the prehistory, history, and cultures of the aboriginal peoples of North America who lived north of the urban civilizations of central Mexico.

Prehistoric Cultures of the Southwest, Southwest Parks and Monuments Association, Tucson, 1992. A series of 16-page handbooks, each with color photographs, giving a concise introduction and interpretation of a particular culture of the Southwest, including Hohokom, Mogollon, Anasazi, Sinagua, and Salado.

Walker, Steven L., *The Southwest: A Pictorial History of the Land and its People*, Southwest Parks and Monuments Association, Tucson, 1993. Beautiful photographs enhance the succinct interpretation of the history and prehistory of Southwestern cultures, including the Spanish and Anglo-American influence.

Stein, Sari, NPS, Pueblo Time-Line. Poster showing the cultural periods and major cultural events from prehistoric to historic Pueblo period in the Bandelier National Monument region. ∅AZRU

ARCHITECTURE

Lekson, Steve, et al., "The Chaco Canyon Community," *Scientific American*, Vol. 259, No. 1, pp. 100-109, July, 1988. Discusses Chacoan road system and architecture of Chacoan-style buildings. How and why were they built? Who lived in them?

Morgan, William N., *Ancient Architecture of the Southwest*, University of Texas Press, Austin, 1994. Studies that explore the diverse and remarkable architecture created by American Indian people living in the arid Southwestern United States and Northwestern Mexico between the early centuries of the Christian era and the present day.

Nabokov, Peter and Easton, Robert, *Native American Architecture*, Oxford University Press, New York, 1989. Illustrations and discussions of building techniques of American Indian cultures of North America.

ARTIFACTS

Barnett, Franklin, *Dictionary of Prehistoric Indian Artifacts of the American Southwest*, Northland Printing Company, Flagstaff, 1991. A compendium of terms used by archeologists and collectors with accompanying photographs.

∅AZRU – Copy available from Aztec Ruins resource library

ARCHEOASTRONOMY

Malville, J. McKim and Putnam, Claudia, *Prehistoric Astronomy in the Southwest*, Johnson Publishing Co., Boulder, 1989. Discusses archeoastronomy and astronomical alignments found at well-known sites at Chaco Canyon, Hovenweep, Chimney Rock, and Yellowjacket and theories about their meaning and function.

Williamson, Ray A., *Living the Sky: The Cosmos of the American Indian*, University of Oklahoma Press, Norman and London, 1984. Presents American Indian views of the heavens and the roles and influences of cosmology in their everyday lives and ceremonies.

AZTEC RUINS

A Trailguide to Aztec Ruins, Southwest Parks and Monuments Association, Tucson, 1994. A trailguide to Aztec Ruins with two stories. One is a poetic, personal expression by a resident of Santa Clara Pueblo. The other story conveys information archeologists have retrieved through excavation and research. ∅AZRU

Aztec Ruins National Monument, Southwest Parks and Monuments Association, Tucson, 1992. A 16-page introduction and interpretation of culture and resources at Aztec Ruins National Monument. ∅AZRU

Howe, Sherman, *My Story of the Aztec Ruins*, Times Hustler Press, Farmington, NM, 1947. Howe's recollection of events that took place at Aztec Ruins from the time his family moved into the Animas River valley, during his school boy days, and as a young adult. ∅ AZRU

Lister, Robert H. and Florence C., *Aztec Ruins on the Animas Excavated, Preserved, and Interpreted*, Southwest Parks and Monuments Association, Tucson, 1987 Second Edition. Documents in words and pictures the excavation, preservation, and interpretation of Aztec Ruins. ∅AZRU

McKenna, Peter J., *Early Visitor Inscriptions in the East Ruins*, Aztec Ruins National Monument, National Park Service, Santa Fe, 1990. Documentation of graffiti in the East Ruins dating from 1880. ∅AZRU

Morris, Earl H., *The Aztec Ruins: Anthropological Papers of the American Museum of Natural History*, Volumes 24, Parts I, II, IV, and V, American Museum Press, New York, 1919. The complete excavation notes of Aztec Ruins and a compilation of artifacts found during the work done by Earl Morris for the American Museum of Natural History. ∅ AZRU

∅AZRU – Copy available from Aztec Ruins resource library

CHILDRENS' BOOKS

Trimble, Stephen, *Village of Blue Stone*, Macmillan Publishing Company, New York. 1990. A fictional story set in prehistoric times.

Noble, David Grant, *101 Questions About Ancient Indians of the Southwest*, Southwest Parks and Monuments Association, Tucson, 1998. Interpretive answers to many of the most frequently asked questions about the people of the ancient Southwest.

Swentzell, Rina, *Children of Clay: A Family of Potters*, Lerner Publications, Minneapolis, 1992. A beautifully written and photographed children's book that offers insight into the contemporary Pueblo world as seen through the eyes of a Santa Clara Pueblo family of potters.

CURRICULUM RESOURCES

An Educator's Guide to Mesa Verde National Park, National Park Service. This guide will enhance the educational purposes of field trips to Mesa Verde and supplement instructional materials in the study of social studies, American Indians, and science. øAZRU (You may also obtain a copy from Mesa Verde National Park, CO.)

Caduto, Michael, and Joseph Bruchac, *Keepers of the Earth: Native American Stories and Environmental Activities for Children*, Fulcrum, Inc., Golden, CO, 1988. Features a collection of North American Indian stories and related hands-on activities designed to inspire children ages 5 through 12 and help them to feel a part of their surroundings.

O'Brien, W., Cullen, T., *Archaeology in the Classroom: A Resource Guide for Teachers and Parents*, Archaeological Institute of America, Boston and New York, 1995. Contains information about a wide range of educational materials available in North America: books, magazines, curriculum and resource packets, films, videos, kits of simulated artifacts, computer programs, and games.

Silent Witness: Protecting American Indian Archeological Heritage, Learning Guide, National Park Foundation. An interdisciplinary guide to make students aware of the value of archeological resources. Can be used as a stand-alone teaching tool, or individual activities may be used to supplement instruction in other areas. Companion video, *Silent Witness*. øAZRU (Both video and learning guide.)

Smith, S., Moe, J., Letts, K., Paterson, D., *Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades*, Anasazi Heritage Center, Bureau of Land Management, Dolores, Colorado, 1993. An interdisciplinary curriculum-based guide with an ultimate goal of educating students to take responsible and thoughtful actions towards our archeological heritage.

FLORA

Caduto, Michael J., Bruchac, Joseph, *Native American Gardening: Stories, Projects and Recipes for Families*, Fulcrum Publishing, Golden, 1996. Children's book filled with activities and projects to help students grow plants that have a profound meaning to American Indians, both spiritually and nutritionally.

Dunmire, William W. & Tierney, Gail D., *Wild Plants and Native Peoples of the Four Corners*, Museum of New Mexico Press, Santa Fe, 1997. A valuable book for anyone interested in the plants, people, and cultures of the Colorado Plateau. An excellent guide to the plants and their cultural and scientific context.

Dunmire, William W. & Tierney, Gail D., *Wild Plants of the Pueblo Province*, Museum of New Mexico Press, Santa Fe, 1995.

Elting, Mary & Folsom, Michael, *The Mysterious Grain: Science in Search of the Origin of Corn*, M. Evans and Company, Inc., New York, 1967. A book that combines mystery, adventure, and biography: the search for ancestors of a valuable plant, the trials of scientists in the wilds of Mexico, and the day-to-day planning of investigations.

Fagan, Brian, Summer, "Maize: The Staff of Life," *American Archaeology*, Vol. 1 #2, The Archaeological Conservancy, Albuquerque, 1997. Latest archaeological finds of Mexico and South America, and the interpretations of these finds in relation to historic and prehistoric evidence of the progenitor of modern day corn. ∅AZRU

Flowers, Shrubs and Trees of the Southwest, Southwest Parks and Monuments Association, Tucson. A four-book collection with drawings of most common flowers, shrubs, and trees of the Southwest deserts and uplands.

Niethammer, Carolyn, *American Indian Food and Lore*, Collier Books, New York, 1974. More than 50 plants of the desert are listed alphabetically, along with their habitats, common and botanical names, descriptions, seasons of flowering, historical significance, and descriptions of the different tribal rituals surrounding each.

PETROGLYPHS/PICTOGRAPHS

Cole, Sally J., *Legacy on Stone: Rock Art of the Colorado Plateau and Four Corners Region*, Johnson Books, Boulder, 1995. A study focused on petroglyphs and pictographs in western Colorado and neighboring areas of the Colorado Plateau and Rocky Mountains.

Schaafsma, Polly, *Indian Rock Art of the Southwest*, University of New Mexico Press, Albuquerque, 1980. Describes and traces the known rock art styles of the Southwest from their earliest examples at about 2000 BC up to and including the historic period.

POTTERY

Breternitz, David, Rohn, A., and Morris, E., *Prehistoric Ceramics of the Mesa Verde Region*, Museum of Northern Arizona Ceramic Series #5, Interpark, Cortez, CO, 1974. Pottery types from 400 AD to 1300 AD.

Colton, Harold S., *Potsherds: An Introduction to the Study of Prehistoric Southwestern Ceramics and Their Use in Historic Reconstruction*, Museum of Northern Arizona Bulletin #25, Northern Arizona Society of Science and Art, Flagstaff, 1953. An introduction to techniques, technology, design, and analysis of pottery found and manufactured in the Southwest.

Hayes, Allen & Blom, John, *Southwestern Pottery: Anasazi to Zuni*, Northland Publishing, Arizona, 1997. Organizes and explains the techniques and development of Southwestern pottery from its prehistoric beginnings, telling who those early people were, where they migrated, what happened to them, who their descendants were, and what they made.

Peckham, Stewart, 1990, *From This Earth: The Ancient Art of Pueblo Pottery*, Museum of New Mexico Press, Santa Fe, NM, 1990.

Trimble, Stephen, *Talking with the Clay*, School of American Research Press, New Mexico, 1987. Focuses on the pottery-making process among Pueblo potters today and conveys the relationship they feel with the clay as they work with it.

TURQUOISE

Branson, Oscar T., *Turquoise: The Gem of the Centuries*, Treasure Chest Publications, Santa Fe, 1975. This book shows examples of historic and modern turquoise and silver jewelry and a source map for raw turquoise.

VIDEOS

Silent Witness: Protecting American Indian Archeological Heritage, National Park Foundation. Narrated by Robert Redford, this video explores the alarming destruction and desecration of American Indian archeological sites on public lands. Pueblo Indians, archeologists, and national park rangers examine this crisis and the loss it represents.
øAZRU (Both video and learning guide.)

øAZRU – Copy available from Aztec Ruins resource library

Green Gold From the Maya to the Moon, College of Agriculture and Home Economics, New Mexico State University, 1992. The story of exploration, discovery, life, and death. It traces the phenomenal influence of three New World treasures – corn, potatoes, and chile peppers – on the lives of our ancestors, on ourselves, and on the generations to come. It poses the perplexing question: Can we survive if we lose forever the genetically diverse, wild, and weedy ancestors of our valuable food crops? ∅AZRU

Maria: Pottery of San Ildefonso, VHS, Interpark, Cortez. Maria Martinez, noted American Indian pottery maker demonstrates traditional pottery methods, beginning with the spreading of sacred corn before clay is gathered. Also shown are the mixing of clay, construction of pottery, hand decorating and building of the firing mound. ∅AZRU

Ancient America: The Southwest, VHS, Camera One. A Video guide to Indian American in the Southwest, both past and present. Documents the art, artifacts, and extensive ruins left behind by the Ancient Puebloans, Hohokam, and other peoples who once lived in the Southwest. Includes Mesa Verde and Chaco Canyon. ∅AZRU

Hisatsinom: The Ancient Ones, VHS, National Park Service. This 24-minute video explores the Ancestral Pueblo presence in several sites in the Southwest. Includes an American Indian perspective. ∅AZRU

CD-ROM

The People of the Past: The Ancient Puebloan Farmers of Southwest Colorado, Classroom Activities, Grades 4 through 12, Bureau of Land Management, Anasazi Heritage Center, Dolores, CO, 1997. Outstanding multimedia interactive CD-ROM computer program that allows users to take a self-directed walking tour through Lowry Pueblo in southwest Colorado. Program presents archeological and Puebloan cultural perspectives on the past using photographs, audio, animation, and computer-generated imagery. ∅AZRU

Four Corners: The Past Meets the Present, Santa Fe Indian School & New Mexico Bureau of Land Management. Contains text and over 500 images pertaining to American Indian peoples of the Four Corners region, and the "Hupovi Heritage Project," a multimedia interactive program that interprets an ancestral Tewa site in northern New Mexico. The accompanying teacher's guide contains sample curriculum units using the CD. ∅AZRU (For your own free copy, contact the State Archeologist, New Mexico BLM, PO Box 27115, Santa Fe, NM 87502-7115.)

INTERNET ADDRESSES

<http://sipapu.ucsb.edu/html/kiva.html>

Great three-dimensional pictures showing reconstruction of a great kiva in Chaco Canyon.

<http://www.swanet.org>

A comprehensive list of archeology-related organizations and subjects. You can search for a specific subject or field of interest.

<http://www.csbs.utsa.edu/research/car/legacy.htm>

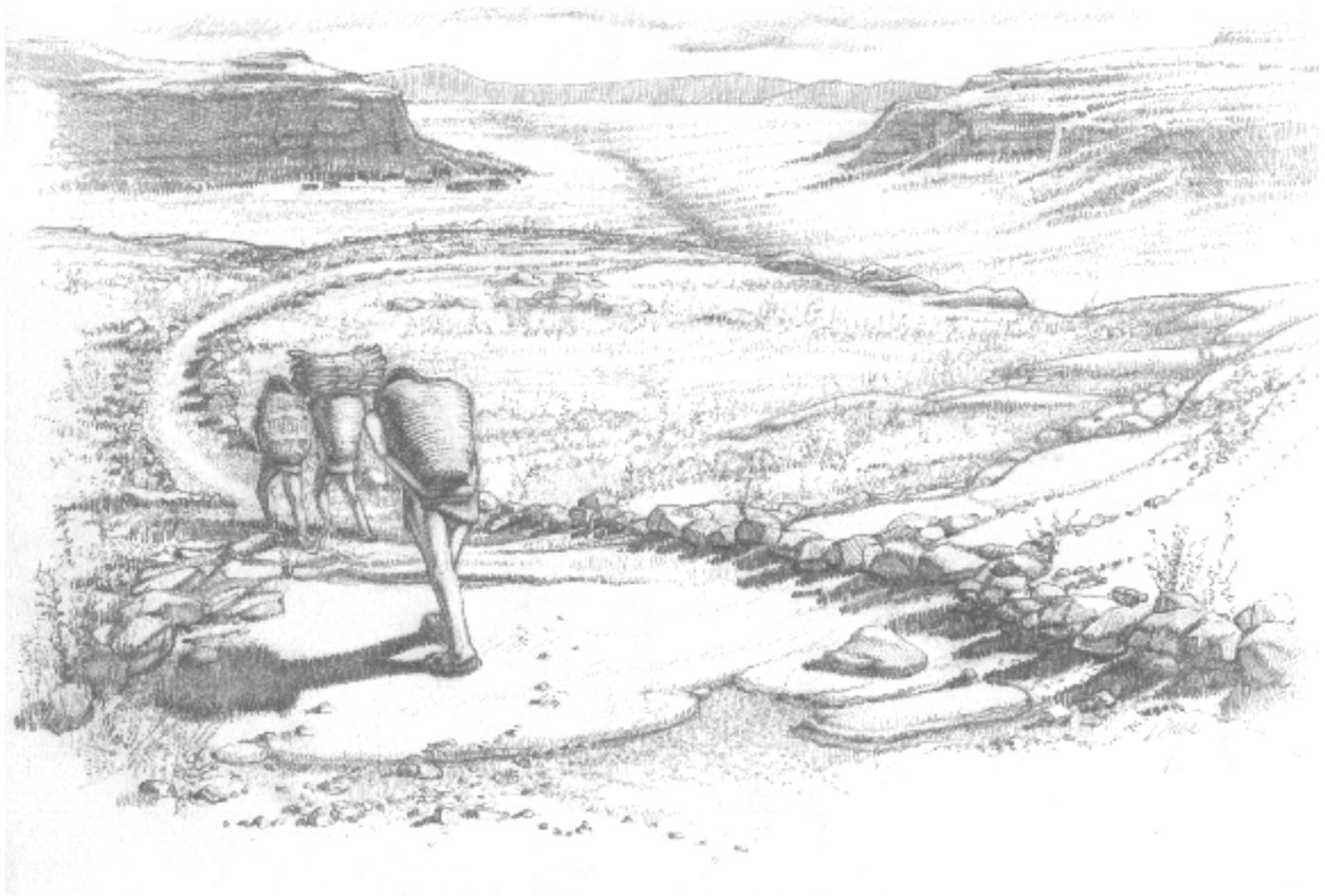
"Legacy: Hands on the Past" web page contains information on archeology and curriculum development, books for young and general readers, magazines for young and general readers, archeology web pages, professional organizations, and organizations with outreach programs.

<http://www.uapress.arizona.edu/online.bks/hohokam/titlhoho.htm>

Hohokam Indians of the Tucson Basin, Linda M. Gregonis & Karl J. Reinhard, University of Arizona Press, Tucson. A complete, on-line version of the original printed book.

<http://www.heard.org/edu/rain/rbowintr.htm>

Developed by the Heard Museum, this web site on-line version is an integrated curriculum for grades K through 3. The curriculum is in the form of traveling kits as well as the on-line version.



TEACHER COMMENT & EVALUATION FORM

TEACHER NAME

SCHOOL

PHONE

Title of Lesson(s) used:

Grade of students who used the lesson(s):

Was the material provided appropriate for your curriculum needs? YES NO
In what ways was it useful to you?

Suggestions to improve lesson(s):

Additional lesson(s) you would like to see added:

Please comments on the introduction and resource sections:

Would you be willing to assist in making future additions and/or changes? YES NO

Thanks for your input!!

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