Investigating The First Peoples, The Clovis Child Burial

A Curriculum Guide for Grades 8-12

Montana Office of Public Instruction Indian Education Division
and Project Archaeology

Published by the Montana Office of Public Instruction 2014

Indian Education
Montana Office of Public Instruction
Elsie Arntzen, Superintendent

PROJECT ARCHAEOLOGY
Discover the past-shape the future

Project Archaeology

Investigating
The First Peoples, The Clovis Child Burial

A Curriculum Guide for Grades 8 through 12

By
Courtney L. Agenten
Crystal B. Alegria
Shane Doyle

PROJECT ARCHAEOLOGY

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Project Archaeology: Investigating the First Peoples, the Clovis Child Burial

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Sections adapted from *Project Archaeology: Investigating Shelter* (2012).

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Denise Juneau, Superintendent
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We are grateful for the time, effort, and ideas provided by our advisors and contributors and for their dedication to educating the nation's citizens about the importance of our archaeological heritage.

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Artists and Photographers

Sarah L. Anzick. pp. 11 (All)
Samuel Stockton White. pp. 14.

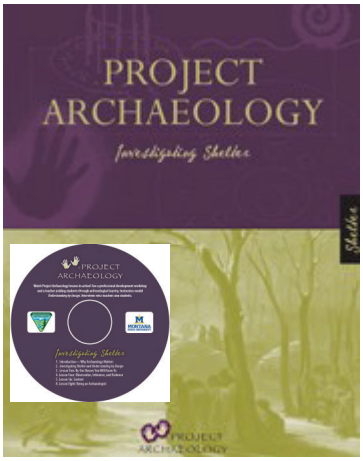
Clovis Chronicle
Sarah L. Anzick. pp. 7, 15.
Dan Boyce, pp. 4.
Jerry Brekke, courtesy of Cayuse Press pp. 21.
Mike Dahms, Homeland: An Archaeologists View of Yellowstone Country's Past by Larry Lahren. pp. 11
Matthew C. Green, Anthro Research, Inc. Livingston, Montana. pp.10
Shawn Rasecke. pp. 8, 9 (All).
Robert L. Walker. pp. 1.
Mike Waters, pp. 14.
Samuel Stockton White. pp. 6, 22.

Lending Institutions

Montana Archaeological Society. pp. 13.
Montana Office of Public Instruction. *Clovis Chronicle* pp. 3

Other Publications by Project Archaeology

available at www.projectarchaeology.org



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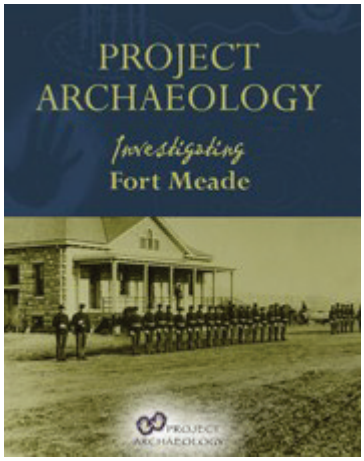

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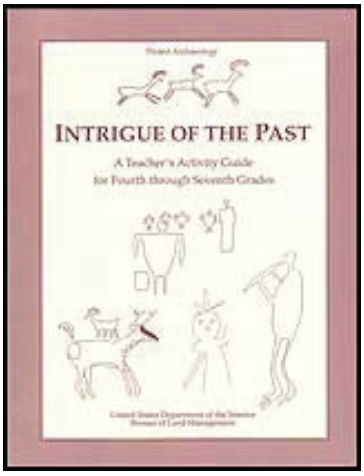

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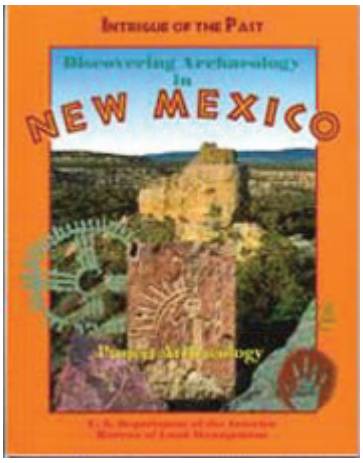

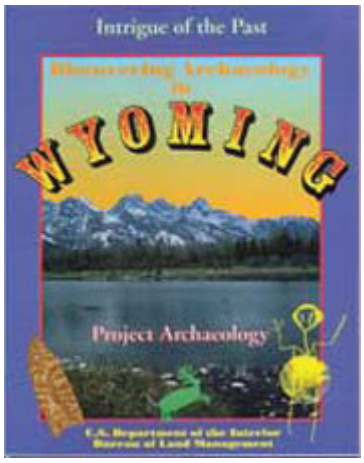

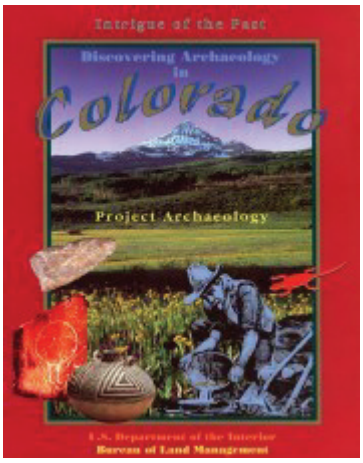

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Project Archaeology: Investigating Yellowstone. Grades 5 - 6th.

Introduction

Discover the Past—Shape the Future

To understand the present, we must know the past. The world is a complicated place—the sum of untold years of human sweat and toil, building and destroying, war and peace, laughter and tears. Unique cultures arose, flourished for a time, and then vanished. Other cultures endured, little changed for centuries, while others have adapted to accommodate changing climates, technologies, or social conditions. At the dawn of the 21st century, while we may seem to be forming a global society through technology and trade, vast cultural differences still exist. How did we get here? Why is the world like it is now? Why are cultures different? How are they similar? How can we learn from each other and share our complex world? How can we use lessons from the past to make the world a better place to live now and for children yet to come?

Archaeology is one way to learn about the past, both the past of thousands of years ago and more recent historic times. Archaeology is one of the few ways that we have to learn about people who left no written records; in North America this includes approximately 97 percent of human occupation and for the rest of the world, the percentage is even higher. While archaeology provides an engaging way to learn about the past, it also informs the present and the future.

Archaeology is everywhere. We marvel at the ancient pyramids of Egypt. How were they constructed without large machinery? Machu Picchu, the ancient city of the Inca, makes us wonder why people would build such a beautiful place so high in the Andes Mountains of South America. In the United States, the ancestors of today's Puebloan peoples built "palaces" in alcoves of the sandstone cliffs. Were they for protection or to take advantage of the warming winter sunshine? Archaeological sites offer a way to travel in time: to imagine what it might have been like to hunt mammoths on the High Plains of North America at the close of the Pleistocene epoch; to abandon hunting and rely primarily on agriculture for food; to see the pyramids of Egypt under construction; or to live in a slave cabin in the United States before the Civil War. Archaeology is the record of the past and our database for learning about environments, cultures, and lifeways that came before us. In America we are fortunate—everyone has the opportunity to touch the past by visiting archaeological sites, but the archaeological record is also fragile, vulnerable, irreplaceable, and in need of protection so that everyone may benefit from it now and in the future.

This curriculum guide is for eighth through twelfth grade teachers and their students studying U.S. History. Recently, there has been DNA analysis of the ancient skeletal remains of a child buried near Wilsall, Montana. The investigation of the child's DNA revealed surprising new information about the First Peoples in America and their relationship with modern American Indians. Students will evaluate key ideas and evidence from news reports and examine ethical questions raised in the articles. In two lessons and a Final Performance of Understanding students will learn that the ancient burial reveals how ancient

people expressed their love and grief as well as how studying ancient American Indian remains has ethical implications for people living today.

Knowing the Past: Archaeology and History

Archaeology and history share the same goal of seeking to reconstruct and understand the human past. The two disciplines differ in some important ways (Kosso 2001, 29-33). Of the two, history is the more familiar way to know about the past. History relies on written evidence such as diaries, letters, public documents like treaties or laws, legal documents, or literature. These documents can range from something as important as the Declaration of Independence or as humble as a grocery store ledger. For the most part, these documents were written intentionally to relay a particular piece of information, and for this reason they are inherently biased. Historical documents might record a special event or a narrative about a person's experiences or provide information about individuals, their character, or experiences.

Archaeology uses material evidence such as artifacts, buildings, stone walls, fire hearths, foundations, butchered animal bones, charred seeds, or even altered landscapes to reconstruct the past. An archaeological site might comprise an entire city or a small scatter of stone artifacts on the surface of the ground. Archaeological data are rarely produced intentionally; rather they are the unintentional evidence of human activities. For example, people who killed and butchered Persian gazelles on the banks of the Euphrates River in what is now Syria were just getting something to eat and probably not trying to communicate anything to anyone. In this sense, archaeological remains do not carry the same bias as written records, which were produced intentionally. The archaeological record rarely records the lives of individuals, but is instead a result of collective activity. Similarly, with the exception of sites like Pompeii, which was buried in volcanic ash in AD 79, archaeologists rarely find evidence of a single event. Most archaeological sites are the accumulation of physical materials from many events over some period of time.

> Historical evidence may seem the more direct, in light of the difficulties in making sense of the archaeological record. A written account of what happened, after all, is pretty close to just telling us the answer. Archaeologists may struggle for example, with their inscrutable pot sherds to figure out patterns of Athenian colonization, but Thucydides plainly says that there was a colony at Mytiline, that part of the case seems closed. Now we know. But, of course, the case of an Athenian colony at Mytiline is not closed any more than the testimony of eye witness is sufficient to make the courtroom case. The jury needs more than just the words of the testimony; they must also know some background on the credibility of the witness (Kosso 2001, 31-32).

Each discipline has both strengths and weaknesses. Despite the limitations of each, they both have a powerful role to play in knowing the past (Kosso 2001: 33). When used together, they can complement one another to give us a deeper, richer picture of the past.

Archaeology in the Classroom

Archaeology is usually not an academic subject in pre-collegiate classrooms, but teachers in most states are required to teach history beginning with prehistoric times—a period known largely through archaeology. Because of its interdisciplinary nature, many upper elementary and secondary educators find

archaeology an engaging way to teach social studies, history, and science (Smardz and Smith 2000). Archaeology in the classroom requires many skills in language arts, mathematics, and visual arts. Teachers can also use archaeology to teach citizenship and character (Moe et al. 2002) and science inquiry and the Nature of Science (Moe 2011).

Teaching Citizenship with Archaeology

Although it may not be readily apparent, archaeology can be used to teach personal character and ethics. Most people do not associate archaeology with ethics, but the average archaeologist makes ethical decisions on a regular basis (Lynott and Wylie 1995). Archaeologists wrestle with a variety of issues including the needs of living descendants whose ancestors are the subject of research, the handling and disposition of human remains encountered during excavations, and the relevant laws when deciding the fate of archaeological resources on land slated for development. These ethical issues can be woven throughout the study of archaeology and help educators impart character and basic citizenship skills to students of all ages (Moe 2000; Moe et al. 2002).

Knowing and understanding the past is a prerequisite for participating effectively in a pluralistic democracy. Keith Barton and Linda Levstik (2004, 36-40) define three elements of history education for democratic participation: (1) promote reasoned judgment, (2) promote an expanded view of humanity, and (3) involve deliberation about the common good. The study of archaeology can contribute to all three elements.

Inquiry of any type provides some of the knowledge and skills necessary for discussions in a pluralistic democracy. Archaeology combines elements of both scientific and historical inquiry and requires rigorous adherence to the rules of evidence to build good interpretations of the past. Students can use the fundamentals of archaeological inquiry to study and evaluate the problems of a pluralistic democracy.

Archaeology provides an effective viewpoint for teaching cultural understanding because it allows students to step back in time and view cultural differences from a safe distance (Moe et al. 2002). By examining how other people meet basic human needs such as food and shelter in creative ways, students realize that people are far more similar than they are different. Archaeology is one of the few ways we have to know about people who do not have much written history and it can help us see our own ancestors in a very human light.

The practice of archaeology in the United States almost always involves deliberation over the common good. Archaeologists must continually wrestle with many issues such as protecting archaeological sites from theft, looting, and destruction; conducting research on human remains; and ensuring the maintenance of museum collections over long periods of time for all to learn from and enjoy. Because of this, issues of historic preservation can serve as an introduction to American civic life.

Unit Overview - *Project Archaeology: Investigating the First Peoples, The Clovis Child Burial*

Research and Design

Project Archaeology is a comprehensive education program primarily for upper elementary through high school teachers and their students. The program as a whole teaches four overarching enduring understandings:

Understanding the past is essential for understanding the present and shaping the future.

Learning about cultures, past and present, is essential for living in a pluralistic society and world.

Archaeology is a systematic way to learn about past cultures.

Stewardship of archaeological sites and artifacts is everyone's responsibility.

Project Archaeology used two well-researched learning models to develop this curriculum unit on the archaeological study of food and culture: Understanding by Design, a backwards design model by Grant Wiggins and Jay McTighe (1998, 1999), and a concept-based model by H. Lynn Erickson (2001). Both models emphasize teaching for deep understanding of big ideas or broad concepts rather than acquisition of isolated facts. For Wiggins and McTighe (1998: 10), *enduring understandings* are, ". . . the big ideas, the important understandings, that we want students to 'get inside of' and retain after they've forgotten many of the details." Similarly, Erickson (2001) emphasizes the selection of universal generalizations or enduring understandings to organize and facilitate student learning rather than memorizing facts or focusing on topics. This curriculum is designed to help the students master the enduring understandings.

This curriculum unit teaches three enduring understandings specific to the theme of ancient burials. These enduring understandings are derived from and support the four overarching enduring understandings for Project Archaeology:

1. Burial sites provide a human connection to the past and can reveal the culture of ancient people.
2. The Clovis child burial from the Anzick site provides a human connection to the past and reveals how ancient people expressed their love and grief.
3. Studying ancient human remains has ethical implications.

Essential questions facilitate thinking by engaging students in uncovering the enduring understandings at the heart of each lesson (Wiggins and McTighe 1998; Erickson 2001). Rather than simply covering content, students uncover big ideas through asking and investigating important questions—questions that cannot be answered with yes or no or in a single sentence. In this unit, essential questions guide each phase of learning.

Assessments are an integral part of each instructional event and the unit as a whole and are designed to determine if students have grasped the enduring understandings (Wiggins and McTighe1998:

63). All learning activities are designed to enable students to complete the assessment successfully. In most cases, assessments are authentic—simulations of problems, issues, or challenges that a professional archaeologist might face. They are usually performance based, allowing students to ". . . relate learning to real-life contexts and situations" (Erickson 2001: 160). Assessment in this unit is primarily formative, to check and refine understanding as learning progresses, and a summative assessment (the Final Performance of Understanding) allows students to demonstrate their understanding of the entire unit.

True understanding is multi-dimensional. Wiggins and McTighe define six facets of understanding: explanation, application, interpretation, perspective, empathy, and self-knowledge (1998, 44-45, in Appendix A). To achieve a mature understanding, students need to master all six facets at some level. Lessons and learning activities in this guide address one or more of the six facets of understanding.

Benjamin Bloom (1956) developed a classification of levels of intellectual behavior important in learning; the classification system is now commonly known as "Bloom's Taxonomy." The taxonomy was revised in 2001 and is described in Appendix B (Anderson and Krathwohl 2001). Lessons in this curriculum address one or more of the levels.

Multiple Intelligences

The curriculum requires students to use most of the intelligences as defined by Howard Gardner (1983). Reading news reports, editorials, opinion pieces and writing reports help foster the linguistic intelligence. Partner and group work promote the interpersonal intelligence, and as students reflect on their newly acquired knowledge, they develop intrapersonal intelligence.

Common Core State Standards

Project Archaeology: Investigating the First Peoples, the Clovis Child Burial provides many opportunities for students to practice English Language Learning per the Common Core State Standards with social studies and science content. Inherently interdisciplinary, archaeological inquiry allows students to seamlessly integrate knowledge across subjects: social studies, science, art, and literacy. The lessons engage students in discussion, collaborative work, and learning and using domain specific words in context. Students read non-fiction texts for content, perspective, and key ideas and employ the graphics provided to enhance their understanding of the text. Students are required to write routinely throughout the unit, to report their findings both orally and in writing, and to write arguments to support claims in an analysis of the ethical implications of studying ancient burials. Students use their knowledge to develop new products to communicate their understanding of archaeology to the class and to the larger world. The entire curriculum guide teaches a deep cultural understanding for past cultures and those that are still intimately connected to ancient burial sites.

The Learning Cycle

Following constructivist theory (Brooks and Brooks 1993), lessons are designed using a learning cycle: Uncover Prior Knowledge, Discover New Knowledge, Reflect on New Knowledge, and Assessment (Figure 1). Not only is the cycle of learning important in and of itself for student learning, but students also need to understand where they are in the learning process and what each step means. Research shows that teaching students the purpose for each element of the cycle of learning helps them become independent learners who are more able to direct their own learning processes.

- When students UNCOVER PRIOR KNOWLEDGE, they understand that you are checking in to see what they might already know about content of the lesson, and that they are not expected to know the answers. They understand that they are preparing to learn more.
- When students DISCOVER NEW KNOWLEDGE, they understand that they are learning new concepts and understandings.
- When students REFLECT ON NEW KNOWLEDGE, they understand that they are thinking about how and what they learned and how it connects to other things they know. They understand that this part of the learning cycle helps them more firmly grasp the enduring understanding and retain it.
- When students perform the ASSESSMENT, they understand that they are showing themselves and their teacher their mastery of the enduring understanding. In some lessons, Reflect on New Knowledge and the Assessment may be reversed if the Assessment advances instruction and contributes to uncovering the Enduring Understanding.

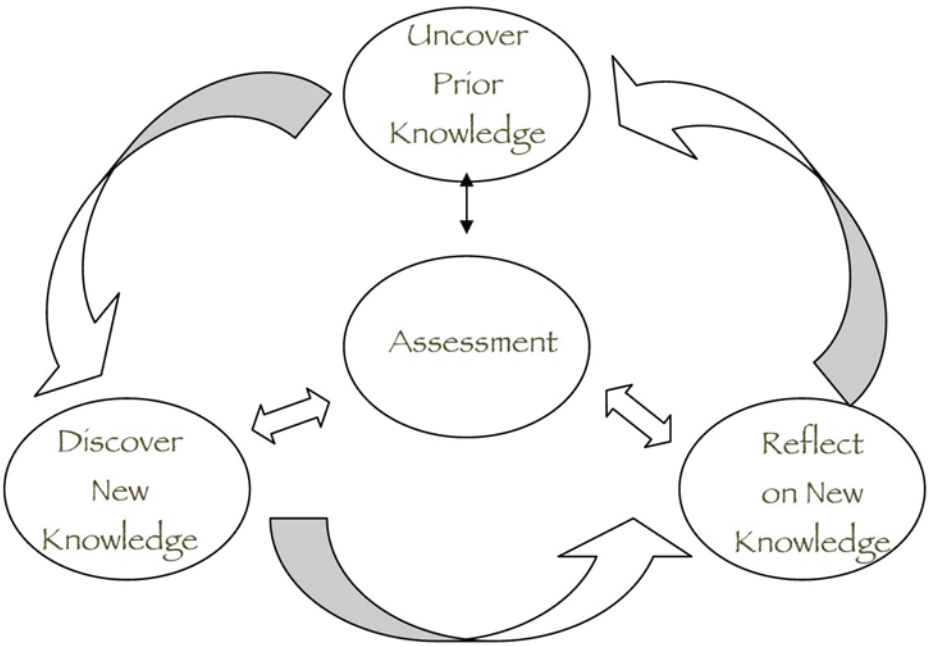


Figure 1. The *Project Archaeology: Investigating the First Peoples* Learning Cycle

Unit Organization

The Unit Overview Chart (Table 1) outlines the enduring understandings, essential questions, what students will do, what students will learn, and the assessment for the teacher.

The Common Core State Standards (located in Appendix C, page 36) shows how the unit fulfills standards in English Language Arts and Literacy, social studies, history, civics, science, and life skills.

LESSON ONE: ***Archaeology Discovery Report*** **–** Students learn what archaeology is, how archaeological mortuary data can tell us how people mourned their dead, and how archaeological studies can impact the world.

LESSON TWO: ***Ethics*** **–** Students learn about the ethical implications of archaeological discoveries for people today, by examining the Native American Graves Repatriation and Protection Act (NAGPRA) and the different perspectives that people have toward studying ancient American Indian remains.

FINAL PERFORMANCE OF UNDERSTANDING: Students create a memorial or testament to the Clovis child buried at the Anzick site.

Table 1. ***Project Archaeology: Investigating the First Peoples, the Clovis Child Burial*** **Unit Overview Chart**

Unit Enduring Understandings & Essential Questions	*What Students Will Learn*	*What Students Will Do*	*Assessment*
Lesson One: Burial sites provide a human connection to the past and can reveal the culture of ancient people. The Clovis child burial from the Anzick site provides a human connection to the past and reveals how ancient people expressed their love and grief. 1. How did ancient people express their love and grief when a member of their family passed away?	• Archaeologists are scientists who study past cultures by analyzing and interpreting the objects and archaeological sites that those cultures left behind. • Evidence found and studied at burial sites can tell us something about how people mourned their dead. • Archaeological discoveries impact communities, nations, and the world.	Read, watch, and listen to reports of an archaeological discovery of an ancient burial from multiple print and digital sources, determine the key ideas, evidence to support their claims, and the ethical implications found in the sources, and provide an accurate summary of one article and write about the impact and significance of the burial.	Select an article and complete the "Archaeology Discovery Report" worksheet.
Lesson Two: Studying ancient human remains has ethical implications. 1. What are the ethical implications of studying ancient American Indian remains?	• Archaeological discoveries have ethical implications for people living today. • Laws protect American Indian burial sites. • People have different perspectives when it comes to studying ancient American Indian remains.	Evaluate differing viewpoints on studying American Indian remains from genetic scientists, archaeologists, and American Indians, analyze the NAGPRA law, engage effectively in a discussion of the ethical implications surrounding the Clovis child burial, and write arguments to support claims with clear reasons and relevant evidence.	Respond to an ethical question with a persuasive essay.

Lesson Organization

Teacher Preparation

Each lesson is organized in two main parts: (1) information for the teacher to prepare and teach the lesson, and (2) the cycle of learning. Lessons contain some or all of the following key components.

Enduring Understanding – The key idea that students will acquire.

Essential Question(s) – The questions that guide the lesson.

What Students Will Learn – A list of concepts and skills that students will learn.

What Students Will Do – A list of activities students will engage in to learn the concepts and grasp the enduring understandings.

Assessment – Method for students to demonstrate their grasp of the concepts and enduring understandings. The assessment is described at the beginning of the lesson so you will know how the students will demonstrate their comprehension of the content and the enduring understanding.

Key Box – A brief description of the facets of understandings from *Understanding by Design* (Appendix A), skills from Bloom's Taxonomy (Appendix B), strategies for instruction, approximate duration of the lesson, and appropriate class size.

Materials – Items needed to complete the lesson, divided into items needed for each student, for the class as a whole, and for teacher-led instruction. Most materials are provided in this book. Other materials are inexpensive and easy to find and prepare.

Background Information – Information on the direction of the lesson, how to plan for it, and content to be shared with students.

Misconception Alerts – Insets designed to help teachers detect and correct common misconceptions about archaeology. Guidelines for using the misconception alerts are imbedded in the cycle of learning.

Preparing to Teach – Step-by-step procedures to prepare to teach the lesson and coordinate all activities. In some cases, materials need to be prepared or student assignments made a few days in advance of actually teaching the lesson.

Word Bank – A place for students to collect vocabulary words for reference and use in writing assignments.

The Cycle of Learning

Uncover Prior Knowledge – A brief activity to discover what students already know about the concept(s) to be taught.

Discover New Knowledge – An activity or activities designed to teach new concepts and understandings

Reflect on New Knowledge – Reflection on the content and concepts taught to reinforce the new knowledge

Assessment – Method for students to demonstrate their grasp of the concepts and enduring understandings. The assessment is also part of the learning process because students are required to apply information to a new situation, synthesize information and concepts into a new whole, or use knowledge to solve new problems.

Background Information

The Anzick site is located near Wilsall, Montana in the Shields Valley lying between the Crazy Mountains and the Bridger Mountain Range (Figure 1). Flathead Creek flows through the valley, soon joining the Shields River that flows into the Yellowstone River. The site is located on the land of Melvyn and Helen Anzick.

In 1968, two construction workers, Hargis and Sarver, were digging fill dirt with a backhoe for a nearby building project (Peacock 2000). After removing about 90 yards of talus, the backhoe operator uncovered some finer soil. As he was pulling a bucket load of this fine dirt out of the embankment with the backhoe, he noticed a large, shiny, different colored rock fall out of the bank at about his eye level. He recognized the rock as a stone tool. He immediately stopped digging with the backhoe in that particular area and alerted his partner to the find. After work that night, the two construction workers and their wives came back to the site and began to remove artifacts by hand. At the end of the evening, they had collected eight fluted projectile points, two end scrapers, two side scrapers, three flake tools, 69 large heat-treated chert bifaces, and at least six complete and partial bone (non-human) foreshafts.

Figure 1. Location of the Anzick Site, near Willsal, Montana

View from the top of the hill over the site. The Crazy Mountains are visible in the background, and Flathead Creek is in the foreground. (Photo courtesy of Sarah Anzick.)

The group removed ninety artifacts from the site that evening. Along with the artifacts, the group found skeletal fragments of two humans. Little did this small group know, but they had just discovered one of the oldest human burials in the Americas and the largest assemblage of Clovis artifacts found to date (Owsley and Hunt 2001). Hargis and Sarver were not the first to find Clovis era artifacts in this valley. In 1961 Bill Bray found a projectile point while fishing along the confluence of Flathead Creek and the Shields River on the Anzick property, very close to the area where Hargis and Sarver made their discovery. According to Bray, the projectile point was in the back dirt of a marmot or badger hole. He also noticed bones covered in red ochre protruding from the back dirt pile, Bray thought they looked like "knuckle bones."

Although the context was badly disturbed, the site was studied by several professional and avocational archaeologists between 1968 and 1999. All told, the original removal of artifacts by the construction workers and archaeological investigations yielded 125 artifacts and the skeletal remains of two children.

In 2001, the human remains were dated by scientists at the National Museum of Natural History at the Smithsonian Institution. They determined that the bones found at the site were from two different individuals. The red ochre-stained bones found at the bottom of the cache of artifacts belonged to a 1-2 year old child, while the bleached bones found closer to the surface were from a 7-8 year old child. The dates on the two sets of bones were also different. The bleached bones were from between 7920-7894 BC (8600 +/- 90 radiocarbon years before the present [RCYBP]) (Owsley and Hunt 2001).

Chipped stone artifacts from the Anzick site. (Photo courtesy of Sarah Anzick)

The ochre-stained bones were even older, dating between 10,765-10,615 BC (10,680 +/- 50 RCYBP). These dates were computed in 1983 and 1988. Technology rapidly changes and better dating techniques became available in the early 1990's, so in 1997 the bones of the 1-2 year old were dated again and came in between 11,540-11,316 BC(11,550 +/- 60 RCYBP), which is almost 1,000 years older than the first date! However, according to Stafford, the technician who ran the tests, the age of 11,540 BC is tantalizing but needs further corroboration for definite confirmation (Owsley and Hunt 2001).

Both sets of bones are fragmentary at best. The 1-2 year old child is represented by twenty-eight cranial fragments, the left clavicle, the left fourth rib, and the right third and fourth ribs. The 7-8 year old child is represented by "four articulating pieces of the posterior left and right parietals and the occipital squamous." The remains of the children are very incomplete and Owsley and Hunt came to no conclusion concerning their lives or their cause of death.

By the late 1980s, interest in the Anzick site began to grow. In 1988 and 1989, a good part of the collection was loaned to the Montana Historical Society in Helena, MT for a permanent exhibit called, "Montana Homeland." In 2001, the Anzick collection became front page news across the state when Montana House Bill 165, or The Montana Repatriation Act was introduced into the Montana Legislature. The bill called for

> Providing a mechanism for the return of human skeletal remains or funerary objects taken from burial sites prior to July 1, 1991, to a tribal group, next of kin, or descendant able to establish cultural affiliation; exempting lithic material and other artifacts of nonhuman derivation removed from the Anzick site on or before July 1, 1991, from the provisions of this act. Requiring a hearing pursuant to the Montana Administrative Procedure act; providing for an appeal of any burial preservation board decision to district court; staying a board decision regarding repatriation or study during an appeal; providing for payment of testing and reimbursement of court costs and reasonable attorney fees; providing procedural rulemaking authority to the board; and providing an immediate effective date (HB 165).

While it was mandated that other mortuary objects needed to be returned to tribes, the Anzick lithic materials were exempted from the bill by an amendment, and will always belong to the Anzick family and to the families of the construction workers, unless they decide to sell the artifacts to another party.

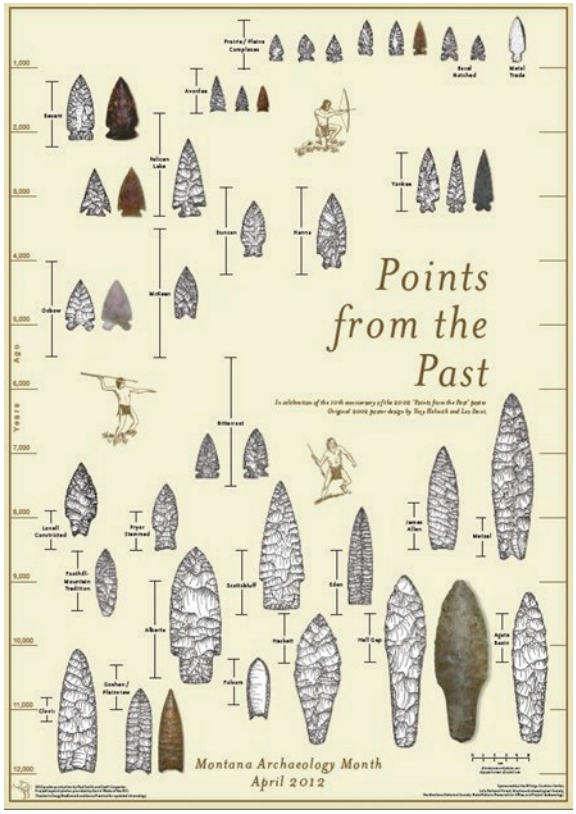
Clovis Culture

Clovis is the name given to the group of people who lived in the Americas approximately 13,500 to 12, 500 years ago. The name Clovis comes from the first Clovis-era archaeological site found and excavated near Clovis, New Mexico in 1932. Clovis culture is also called Paleoindian culture by archaeologists. The origins of these people living such a long time ago are still under dispute.

Some American Indian people reject the archaeological reconstructions (e.g. Deloria 1995). Vine Deloria Jr., an American Indian scholar, finds the idea of "trans-Beringian migrations to be absurd and unacceptable" (Haynes 2002: 10). Some Native Americans feel the scientific explanation does not

correspond with their oral traditions and religious belief. They feel their people originated in America, and they have been here forever, which is much longer than 13,000 years ago.

Clovis people were hunters and gatherers. They hunted large game including mammoth, mastodons, and bison. They were living in a "megamammal landscape" (Haynes 2002:110). The majority of Clovis sites excavated to date represent kill sites, where hunting events took place. Many Clovis sites have Clovis points interspersed with mammoth and other large mammal bones.



A chronology of projectile points from the Mountain region. (Courtesy of MAS)

Clovis Technology

Clovis technology is very distinctive, and easily recognized by archaeologists. Clovis points are usually large, about seven to twelve centimeters long and up to three to four centimeters wide. They have a concave base and a longitudinal groove, or flute, running about halfway up the point from the base. Clovis projectile points were made of stone and manufactured by stone flaking or knapping. The piece of stone is gradually diminished in size through percussion flaking and pressure flaking, until it has the desired shape. The projectile points were used for hunting, they would be attached to a stick, forming a spear or atlatl dart that would penetrate and kill large or small animals.

Why this site is significant?

The Anzick site is significant for many reasons. This site represents the "oldest human burial in North America and the only known burial associated with Clovis Culture" according to archaeologist Michael Waters. Jack Fisher, an archaeologist and professor of anthropology at Montana State University stated that the burial of the young child is highly unusual.

This child was buried ceremonially which is indicated by the red ochre accompanying the burial. The child is also buried with a very specialized toolkit or learning kit. This burial has all the markings of a high status burial, but children were not commonly given high status in hunter-gatherer societies for the obvious reasons relating to high infant mortality rates (Than 2014; Jack Fisher, personal communication, 6 December 2005). Nowhere in the past or present is their evidence of children in small hunter-gatherer societies having as much status as this child seems to have been given. Because red ochre is very symbolic and represents many different things for many different people, it is impossible to know why it was used

to cover this child and the artifacts associated with this child. We can only guess as to the meanings. Researchers have few clues about how he died.

Over the past 46 years there have been many research projects focusing on the Anzick materials. More recently, there has been DNA analysis of the skeletal remains of the two children buried at the Anzick Site. The more recent DNA analysis is the topic of this curriculum.

What lessons does Shane Doyle, member of the Crow tribe, want schoolchildren to learn from the Clovis child burial? He said that the burial shows how American Indians have always cared for their children:

> One of the most important things is how we treated our children. The kind of care that we always have had for our children…We don't skimp on our kids and that's the reason we have survived all these years. People will look into that [Clovis child] burial and they will see that this was a 2-year old boy. He wasn't a chief. He wasn't a great hunter. He wasn't a great warrior. He had never really contributed any economic benefits to his tribe. But the respect and love that was shown for him was really beyond measure and would probably go beyond anything people do today. I guess the grief that those people expressed in that burial is timeless in my mind. And I think it is a story people everywhere around the world should know. How again, those values have survived for 12,600 years into today.

Array of stone and bone tool artifacts from the Anzick site. (Courtesy of Samuel Stockton White)

Archaeology Discovery Report

SUBJECTS: social studies, language arts, science
IEFA EU: 1, 2, 3, 6
CCSS: RI.1, RI.2, RI. 6, RI.7, RI.10; W.8, W.9, W.10; SL.1, SL.2. SL.3; L.4, L.6 (see Appendix C, page 36)
SKILLS:
Bloom's Taxonomy: create, evaluate, analyze, apply, understand
Facets of Understanding: Explanation, Interpretation, Application
DURATION: 45-60 minutes
CLASS SIZE: Any

Enduring Understanding

Burial sites provide a human connection to the past and can reveal the culture of ancient people. The Clovis child burial from the Anzick site provides a human connection to the past and reveals how ancient people expressed their love and grief.

Essential Questions

How did ancient people express their love and grief when a member of their family passed away?

What Students Will Learn

- Archaeologists are scientists who study past cultures by analyzing and interpreting the objects and archaeological sites that those cultures left behind.
- Evidence found and studied at burial sites can tell us something about how people mourned their dead.
- Archaeological discoveries impact communities, nations, and the world.

What Students Will Do

- Read, watch, and listen to reports of an archaeological discovery of an ancient burial from multiple print and digital sources.
- Determine the key ideas, evidence to support claims, and the ethical implications found in the sources.
- Assess the credibility and accuracy of each source.
- Provide an accurate summary of one article and contemplate the impact and significance of the burial in writing.

Assessment

Students will select an article and complete the "Archaeology Discovery Report" worksheet.

Materials

For Each Student

- "Archaeology Discovery Report" worksheet (page 20), copy for each student
- Word Bank (page 19) one copy for each student for the entire unit
- A printed article for each student. Two options: 1) Print the *Clovis Chronicle* newspaper, a collection of news articles, in the Resources section (page 45), for each student. Students can read the newspaper and choose one article to write a report on; 2) Choose from the links below and print articles:
  - Nature Magazine: Ancient Genome Stirs Ethics Debate
  - NPR: Ancient DNA ties Native Americans from two continents to Clovis
  - Indian Country Today: DNA Politics: Anzick Child Casts Doubt on Bering Strait Theory
  - Montana State University News: Shane Doyle links Montana tribes, international researchers over prehistoric boy.
  - LA Times: Ancient Toddler whose DNA helped science will now be reburied
  - Livingston Enterprise: Research Team says most Native Americans are related to the Anzick boy

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- Montana Public Radio: Ancient human remains from Montana ancestor of most Native Americans
- Guest Editorial: What do we owe the Clovis child? - Not available **online**

For the Teacher

- Projector with access to internet
- Video Clip: Prehistoric Connections with Shane Doyle, Ed.D. or Montana State University article regarding Shane Doyle
- Audio radio broadcast: Prehistoric Remains Reveal Roots of American Indians

Background Information

There is a lot we can learn from the people who first lived here. A profound story. A story of family. A story of love, loss, and grief.

Archaeological discoveries have a way of igniting our curiosity and connecting us to our own humanity. The discovery of an 18 – 24 month old boy buried by his family thousands of years ago near Wilsall, MT provides a connection, a human connection, to the past. For contemporary American Indian peoples this boy is a direct ancestor, as evidenced by recent scientific research. He and his family's expression of love and grief, burying him with 125 stone tools and objects including an heirloom elk antler, have given us insight into this ancient family. We learned one tangible way they expressed their love and grief when they poured their possessions into his grave: a testament, a memorial to their way of life.

Who is this boy? He is called the Clovis Child. His is the only known Clovis age burial in the Western Hemisphere. (Clovis is a Paleoindian culture characterized by a signature, fluted projectile point). There are many Clovis archaeological sites but this is the only Clovis site with an associated burial. The stone tools and bones found with him are the largest and most complete assemblage of Clovis artifacts ever found. Recently, new information has emerged about this boy as a result of extracting his DNA and producing a complete genome of the ancient child, which answers the question: "Who were the first people"? This child's genome revealed that today's American Indian people share 80 percent of the child's genome; therefore, 80 percent of all living American Indians are descended directly from this child's extended family.

To help students understand this discovery and the importance of archaeology have them read news articles on the Clovis child burial and reflect on the implications for their family and community as well as explore the significance of the scientific, cultural discovery for the future. The "Archaeology Discovery Report" will enable students to discover the significance of artifacts, sites and human remains as they summarize the key points of the story, cite their source, and reflect on how discoveries of the past shape the future.

Preparing to Teach

1. Make a copy of the "Archaeology Discovery Report" for each student. Make a copy of the "Word Bank" for each student.
2. Print the *Clovis Chronicle* newspaper and make copies, or print all eight articles and make 3 - 4 copies of each article; enough for each student.
3. Set up a projector and download the video and audio report onto a computer.
4. Prepare to share the background information.
5. Post the essential question: "How did ancient people express their love and grief when a member of their family passed away?"
6. Post the Word Bank words.

Word Bank

archaeological site: a place where people lived and left objects behind

archaeologist: a scientist who studies past human cultures by analyzing and interpreting the objects and sites that those cultures left behind

artifact: an object made or used by people

Clovis: a Paleo-Indian culture characterized by a distinctive fluted projectile point first found in Clovis, NM. The Clovis culture, which dates to older than 8,000 years ago, represents one of the first

peoples to live in what we now call North America.
DNA: a thin, chainlike molecule found in every living cell on earth. It directs the formation, growth, and reproduction of cells and organisms. Short sections of DNA called *genes* determine *heredity*
ethics: the study of standards of right and wrong; that part of philosophy dealing with moral conduct, duty, and judgment
mitochondrial genome sequencing: Determining the order of the genes on the DNA found in the cellular structures called mitochondria
prehistory: The human past before written record

Uncovering Prior Knowledge

How did ancient people express their love and grief when a member of their family passed away? Inform students that this question will guide their learning. Indicate the Word Bank words (prehistory, archaeologist, archaeological site, artifact, prehistory, Clovis, ethics, mitochondrial genome sequencing, and DNA) and inform students that they will use these words as tools and define them during the lesson.

1. Ask students: Can you name an ancient civilization you have learned about before? Answers could include, Egyptians, Assyrians, Babylonians, Greeks, Mayans, and Aztecs.
2. Ask students: Let's go back even further. Who was living in North America even before the Aztecs and the Mayans?
3. Ask students: Who studies the human past?
4. Archaeology is one of the few ways that we have to learn about people who left no written records; in North America this includes approximately 97 percent of human occupation. If we were to start the clock of human occupation of America at midnight (12:01 am) and each hour represents 500 years (multiplied by 24 equals 12,000 years), history would have begun at 11:00 pm.
5. Ask students: How do archaeologists investigate the human past? What tools do they use? What does an archaeological site look like? How does an archaeologist study an archaeological site? What are the clues they find to help them understand the past?
6. Introduce students to the Word Bank and distribute a copy of the Word Bank to each student. Assist students with defining **prehistory, archaeologist**, **archaeological site**, and **artifact**. Write definitions on the board so the students can copy these to their Word Bank.
7. Ask students: When someone you know dies how does your family express their grief? How do they show love for them even after they are gone?
8. Ask students: Do you think ancient people expressed their love and grief differently than we do today or in similar ways?
9. Share the background information on this amazing archaeological discovery in Montana and how they will learn more about the culture and prehistory of the first peoples in North America as well as how it connects to their lives.

Discovering New Knowledge

1. Watch a video of a news report on the recent findings on the Clovis Child: http://vimeo.com/86520041 or http://www.montana.edu/news/12421/shane-doyle-links-montana-tribes-international-researchers-over-prehistoric-boy.
2. Listen to a radio broadcast reporting the most recent research on the Clovis Child: http://hereandnow.wbur.org/2014/02/26/montana-native-genome.
3. As a whole class integrate and evaluate the content presented in these two formats in a chart on the board. List the key ideas and the evidence that supports the claims, along with any information that is a person or authors opinion:

Key Ideas	Evidence	Opinions and Perspectives

4. Assist students with defining **Clovis**, **mitochondrial genome sequencing**, and **DNA.**
5. Distribute a news article to each student. Have students read an article individually noting key ideas, evidence, ethical questions, and adding vocabulary to the word bank.
6. Have students share new key ideas, evidence and opinions and perspectives that they learned in their article with a partner. They can ask their partner to help them define vocabulary using the discussion prompts:
   - The word is _____. The context is _____. I think it means _____.
   - I agree with you because _____. OR I think the word means _____ because _____.

Reflect on New Knowledge

Once the students have finished reading their news article and sharing what they learned with a partner, ask whether they can add information to any of the columns. Tell students to say the title of the article they read, the news source, and date. Did any new facts come to light? Was a different perspective presented?

Any more ideas on how this is relevant for our world today? How did the first people in North America express their love and grief when the Clovis child died? Does your family express love or grief in a similar way to the Clovis child's family?

Assessment

Have students choose an article on the Clovis child discovery they would like to write an "Archaeology Discovery Report" on. They can use the article they read in class, another article in the *Clovis Chronicle* or pick from a list of article links. Have them complete the Archaeology Discovery Report worksheet in class or as homework. Tell students that two "articles" in the *Clovis Chronicle* are American Indian perspective pieces used in Lesson Two and are not options for the "Archaeology Discovery Report".

Ask for volunteers to present their "Archaeology Discovery Report" to the class.

Ask students after they have finished their report: What are your impressions of this discovery? Would you feel differently if you knew this was an ancestor of yours?

Name: _____ Date: _____ Period: _____

Word Bank for *Investigating the First Peoples, the Clovis Child Burial*

New Words and Ideas	Definitions

Name: _____ Date: _____ Period: _____

Archaeology Discovery Report

Read a news article on the Clovis child archaeological discovery and complete the report.

WHO is this article about? (culture, group of people, one person)_____

WHAT was discovered? _____

HOW old is the artifact/site? _____

WHERE were the artifacts, site, or remains discovered? _____

What is the SOURCE of information for this report? Author (Last, First): _____;
Article Title: _____;
Publication (e.g. *Nature*): _____; Publication Date: _____;
Pages: _____: URL: _____

In your own words, write an accurate SUMMARY of the article (The summary should restate the key ideas and provide details that give a clear, detailed description of each key idea. The summary should include your evaluation of the article, including what you thought of the articles conclusions):

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

How do you think this discovery impacts you? Your community? Our nation? The world?

_____

_____

_____

If you could ask the people from the Clovis culture a question about the artifacts/site/remains what would it be?

_____

Ethics

Enduring Understanding

Studying ancient human remains has ethical implications.

Essential Questions

What are the ethical implications of studying ancient American Indian remains?

What Students Will Learn

- Archaeological discoveries have ethical implications for people living today.
- The Native American Graves Repatriation and Protection Act (NAGPRA) protects American Indian burial sites.
- People have different perspectives when it comes to studying ancient American Indian remains.

What Students Will Do

- Evaluate differing viewpoints on studying American Indian remains from genetic scientists, archaeologists, and American Indians.
- Read an overview of the NAGPRA law and apply it to the Clovis child burial.
- Engage effectively in a discussion of the ethical implications surrounding the Clovis child burial.
- Write arguments to support claims with clear reasons and relevant evidence.

Assessment

Students will respond to an ethical question with a persuasive essay.

Materials

For Each Student

- Copies of the "Persuasive Writing Instructions" and "Persuasive Map" for each student (28, 29)
- Copies of the "Native American Graves Protection and Repatriation Act" (NAGPRA) for each student (page 26).

SUBJECTS: social studies, language arts
IEFA EU: 1, 2, 3, 5, 6, 7
CCSS: RI.1, RI.2, RI. 6, RI.7, RI.10; W.8, W.9, W.10; SL.1, SL.2. SL.3; L.4, L.6 (see Appendix C, page 36)
SKILLS:
Bloom's Taxonomy: create, evaluate, analyze, understand, remember
Facets of Understanding: Explanation, Interpretation, Application, Perspective, Self-Knowledge
DURATION: One to three 45-60 minutes class periods (depending on how much writing time is provided in class)
CLASS SIZE: Any

- A role card on card stock, cut out, for each student (page 27)
- Copies of "American Indian Perspectives on Ancient Burials" (pages 19-20) from the *Clovis Chronicle* if students do not have their own copy from Lesson One.

Background Information

Montana Human Skeletal Remains and Burial Site Protection Act (1999)

The Human Skeletal Remains and Burial Site Protection Act is the result of years of work by Montana Tribes and state agencies interested in assuring that all graves within the State of Montana are adequately protected.

The law passed in 1991 provides legal protection to all unmarked burial sites regardless of age, ethnic origin or religious affiliation by preventing unnecessary disturbance and prohibiting unregulated display of human skeletal remains. Anyone who discovers human skeletal remains on public or private lands should immediately contact the county coroner.

The Act created a thirteen-member Burial Preservation Board that determines the treatment and final disposition of any discovered human

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remains and associated burial materials. The Act establishes the preference that human remains be left undisturbed where they are found (Reference: 22-3-801, MCA). (Overview from the Montana Historical Society Website)

Montana Repatriation Act
2001 Montana Legislature – House Bill No. 165
An act establishing the Montana Repatriation Act; providing a mechanism for the return of human skeletal remains or funerary objects taken from burial sites prior to July 1, 1991, to a tribal group, next of kin, or descendant able to establish cultural affiliation; exempting lithic material and other artifacts of nonhuman derivation removed from the Anzick site on or before July 1, 1991, from the provisions of this Act; requiring a hearing pursuant to the Montana administration procedure act; providing for an appeal of any burial preservation board decision to district court; staying a board decision regarding repatriation or study during an appeal; providing for payment of testing and reimbursement of court costs and reasonable attorney fees; providing procedural rulemaking authority to the board; and providing an immediate effective date. (Excerpt from House Bill No. 165)

The Native American Graves Protection and Repatriation Act is a Federal law passed in 1990. NAGPRA provides a process for museums and Federal agencies to return certain Native American cultural items -- human remains, funerary objects, sacred objects, or objects of cultural patrimony -- to lineal descendants, and culturally affiliated Indian tribes and Native Hawaiian organizations. NAGPRA includes provisions for unclaimed and culturally unidentifiable Native American cultural items, intentional and inadvertent discovery of Native American cultural items on Federal and tribal lands, and penalties for noncompliance and illegal trafficking. In addition, NAGPRA authorizes Federal grants to Indian tribes, Native Hawaiian organizations, and museums to assist with the documentation and repatriation of Native American cultural items, and establishes the Native American Graves Protection and Repatriation Review Committee to monitor the NAGPRA process and facilitate the resolution of disputes that may arise concerning repatriation under NAGPRA. (Excerpt from the National Park Service National NAGPRA website)

Preparing to Teach

1. Make a copy of the "Persuasive Writing Instructions," "Persuasive Map," "NAGPRA by Dr. Shane Doyle," and "American Indian Perspectives on Ancient Burials" for each student.
2. Make enough copies of the "Role Cards" on card stock.
3. Post the Word Bank words
4. Write the essential question on the board: What are the ethical implications of studying ancient American Indian remains?
5. Write the Uncovering Prior Knowledge prompt on the board: "Think about a time when you had to make a decision about doing the right thing. What did you choose to do? Do you think you made a good decision? Why or why not?"

Word Bank

ethics: the study of standards of right and wrong; that part of philosophy dealing with moral conduct, duty, and judgment
NAGPRA: Native American Graves Protection and Repatriation Act is a law passed in 1990 that provides for the repatriation of Indian remains and ceremonial and mortuary artifacts to tribes
persuasive: write arguments to support claims in an analysis of texts, using valid reasoning and relevant and sufficient evidence
repatriation: returning human remains and grave items to Native Americans who can prove their "cultural affiliation" with the remains

Uncover Prior Knowledge

1. Indicate the words repatriation, ethics, NAGPRA, and persuasive and tell students they will learn the meaning of these words throughout the lesson.

2. Ask the prompt question to the students. Give them time to think and write their answer down. If students are having a hard time getting started, you might give the following two scenarios: a time a classmate was being teased by others, an argument with a friend (how was it settled?), a secret that you were asked to keep (did you keep the secret? Why or why not?), a time you witnessed someone else doing something you thought was wrong (did you try to stop them, or did you report it?)?
3. Ask students who are willing to share their examples with the class. Discuss the decisions that the students made in their various scenarios, focusing on the following questions:
   - Why do you think (student's name) made this decision?
   - Why does this student think this was a good or a bad decision?
   - What do you think about when you're making these kinds of decisions? What in your life influences the way you make decisions like this?
   - Would everyone agree that this was the right or wrong decision? What might make people disagree about this?
4. Explain to students that they have been discussing questions of ethics, and whether their classmates made ethical decisions. Tell them that an ethical decision is one that might also be called the right decision, but that (as they may have seen in their discussion), it's not always easy to know what the right thing to do is.
5. Assist students with defining the word **ethics** on their Word Bank
6. Tell the class that many news stories raise ethical questions, like the articles we read on the Clovis child burial from the Anzick site.

Discover New Knowledge

What are the ethical implications of studying ancient American Indian remains?

Inform students that this question will guide their learning.

1. Tell students: As we watched, listened to, and read news reports on the Clovis child burial we noticed that some of the people have different opinions involving the ethical implications of studying and reburying the remains. What were some of the ethical questions raised in the articles? Write the students answers on the board. Are there any viewpoints not addressed in the articles?
2. List the ethical questions on the board/chart paper:
   a. Should the remains of ancient American Indians (Paleoindian) be studied?
      - Claim: The remains of ancient American Indians should be studied.
      - Counterclaim: The remains of ancient American Indians should not be studied.
   b. Should the Clovis Child be reburied?
      - Claim: The Clovis Child should be reburied.
      - Counterclaim: The Clovis Child should not be reburied.
   c. Should the artifacts be reburied with the Clovis Child?
      - Claim: The artifacts found with the Clovis Child should be reburied with him.
      - Counterclaim: The artifacts should not be reburied with the Clovis Child.
3. As you read news articles the word repatriation was prominent. What is going to happen to the Clovis Child's remains? The Clovis Child is going to be reburied, but not returned to a tribe affiliated with the boy. Assist students in defining the word **repatriation**.
4. Have students read the overview of the NAGPRA law. Go over the questions on the overview with the class. What would you do if you found buried human remains? Assist students in defining **NAGPRA**.
5. Have students read the two "American Indian Perspectives on Ancient Burials" on page 19 and 20 of the *Clovis Chronicle*.
6. What makes an effective persuasive text? Have students conduct a brainstorm through quick writing to see what students know about the

elements of argumentation. Write down the essential elements of an argumentative speech to prepare them for when they write their own persuasive text. Give students two minutes. Put the ideas under three elements: ideas, organization, and language. Inform students that they will write a persuasive essay about the Clovis Child burial.

6. Role Play. Assign the role of genetic scientist, archaeologist, or American Indian to students by distributing a role card randomly to each student. Do not allow students to choose their role.
7. Have students examine in groups each ethical question and the perspective of the role they were assigned. First have students meet in groups of scientists, archaeologists, and American Indians. Have each group share their values with the rest of the class and write them on the board. Directions to guide their discussion
    a. Introduce yourself (role) to the group.
    b. Have one person read the first ethical question to the group.
        - What was your initial reaction to the question?
        - What might someone with the opposite view say?
        - How would you answer the question? What evidence do you have?
        - Every student should write down the answers on a piece of paper so they can take the information with them to the next group discussion.
    c. Repeat for each ethical question.
    d. As a group decide on three values that represent what your group cares about.
8. Now have students switch and form groups of a mixture of genetic scientists, archaeologists, and American Indians. The students will represent their perspective in the group and discuss the ethical questions. Assign one ethical question to each group to discuss. Have a spokesperson from the group share their answer to the question with the whole class. Did the whole group agree? Directions to guide their discussion
    a. Introduce yourself (role) to the group. Answer the question and tell your evidence in one sentence.
    b. As a group, try to come up with consensus of what should be done.
9. If time permits have students rotate roles and repeat the process, so they have an opportunity to consider the issue from yet another perspective; this will also prevent them from identifying solely with one role.

Reflect on New Knowledge

How has studying the ethical implications influenced how you would answer the question on the "Archaeology Discovery Report": What are the impacts of the archaeological discovery on you? Your family? The nation? The world? How do you think the Clovis Child burial will affect future archaeological discoveries?

Assessment

Have students address one ethical question in a persuasive essay.

1. Complete the "Persuasive Writing Map". Check the map before the student proceeds with writing the essay.
2. Students will write a short essay with an introduction, body, and conclusion.
    a. Introduction: State one of the ethical questions. Write a summary of the Clovis Child burial archaeological discovery. Then state your position by answering one of the ethical questions.
    b. Body:
        - State three reasons to support your claim and explain reasons with facts and information from sources.
        - Cite evidence from news articles and NAGPRA to support your claim.
        - Evaluate different people's point of view, reasoning, and use of evidence and rhetoric.

- Delineate and evaluate the argument and specific claims in an article, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.
- Analyze how two or more articles address the topic in order to compare approaches the reporter takes.

c. Conclusion: What is the significance of the Clovis Child burial? How does the discovery impact the future handling and study of ancient American Indian remains? How might it impact relationships between Native people and scientists?

The Native American Graves Protection and Repatriation Act (NAGPRA)

by Dr. Shane Doyle, Apsáalooke

The Native American Graves Protection and Repatriation Act, also known as "NAGPRA" is a federal law that was passed by the U.S. Congress in 1990 to protect the burials, both ancient and recent, of American Indian people. NAGPRA is officially known as U.S. Public Law 101-601; 25 U.S.C. 3001-3013, and it has several sections which describe what the law is supposed to do. The law was created in 1990 because many American Indian people urged the federal government to reverse its 150 year-old policy of collecting and storing Native American skeletons and other sacred funerary objects. Before the NAGPRA law was passed, museums were allowed to keep the remains of Native American people – both those bones discovered by archaeologists or taken by the U.S. Army for study. Along with the bones in their collections, museums also owned other sacred objects that were included in tribal burial sites. But many things changed for museums and archaeologists, and also tribal people, when NAGPRA became the law of the land. NAGPRA forced all federal agencies and all museums receiving federal funding, including the Smithsonian Institution, to make a full record of all of their human remains and work to return those remains to tribal agencies who make requests for specific items.

NAGPRA changed the law in America for the better because it required scientists and museums to give greater respect towards the ancestral bones and sacred funerary objects of Native Americans. The Native American Graves Protection and Repatriation Act was a landmark law that has achieved a great amount, but the law is limited because it does not apply to human remains and other funerary objects that are privately owned. Individual people and private museums such as the Buffalo Bill Cody Museum of the West in Cody, Wyoming, are not required to return any objects that may be considered sacred in their collection to tribal communities. NAGPRA is also limited in its ability to protect objects that tribes are unable to make a specific claim towards; which means that even though a sacred object might have belonged to tribal people thousands of years ago, modern Native American people aren't able to request for them back from federal museums because they don't have adequate documented proof.

In the year 2015, NAGPRA will celebrate its 25th anniversary, which offers an opportunity to reflect on the strengths and weaknesses of the law. It's time to look back on what NAGPRA has helped society achieve, and also where the law has fallen short and how it can be improved. The Anzick child's DNA has shown that all tribal people are directly related to the Clovis people of 13,000 years ago, so now there is definitive proof that modern Native Americans have an authentic claim to all of the bones and other sacred funerary objects that may be in the ground. Should this new discovery be utilized to improve the law? This is just one of many things to consider about NAGPRA on its 25th anniversary.

1. How can the Clovis Child discovery be utilized to improve NAGPRA?
2. According to NAGPRA, if the Clovis Child burial was found today, how would the burial be treated?

Role Cards

Genetic Scientist Eske Wilerslev "As a scientist, I have mixed feelings as the remains may well still hold information to be gained, however, I do respect this wish from the tribes, and I know they feel deeply about why it has to take place. Had it been my child, I would have wished it to be reburied too. As scientists, we have a lot to learn from the tribes." "This was a heart blow, because being a scientist, reburying probably the most important skeleton in the history of the Americas, it's hard. I realized that if scientists and Native Americans want to pursue their past together, there needs to be compromises on both sides. Therefore, we need to respect that they feel very strongly about this issue."	**Genetic Scientist** Sarah Anzick "I feel a moral obligation for the reburial and yes, as technology advances, we can always learn more. Had these remains been reburied just 10 years ago, they wouldn't have revealed what we know today, and I'm certain we can learn even more…However, out of respect for the Native American communities and the parents of this child, a reburial is an important part of the equation…It is my hope through open communications, dialogue and Native American involvement we can collaborate toward a working model which leads ultimately to a respectful reburial."
American Indian (Apsáalooke/Crow) Shane Doyle "We will be putting scientific data back into the ground, we will be putting conclusions or future research back into the ground. But, this boy is not meant to be put on somebody's shelf and taken off when you feel like it. That's not what his parents put him in the ground for." "It's one thing to believe and sense that your people have been here for thousands and thousands of years. It's another thing to have scientific evidence and proof that those Paleoindians were us and we were them."	**American Indian (A'aninin/Gros Ventre)** Wabusk Ragged Robe "Native Americans rarely gain anything from scientific and genetic research that is conducted on ancient site and remains…I do not believe that remains of native Americans should be studied, or any remains for that matter…Artifacts that are found at burial sites should remain intact with the remains they were discovered with."
American Indian (Neh-iy-aw/Chippewa-Cree) Tara Top Sky "I actually do not think anything could be gained from scientific or genetic research of burial sites. In the Native American culture a burial site is meant to be the final resting place of the deceased…Objects of ancient American Indians can be studied if they are not from the burial site…We are told not to take what is left with the deceased because it is a part of them and we do not want to disturb their final resting place."	**Archaeologist** Richard Jantz "If a pattern of returning these remains without study develops, the loss to science will be incalculable and we will never have the data required to understand the earliest populations in America." A quote in reference to another skeleton called the Kennewick Man.
Archaeologist Larry Lahren "What about the funerary items associated with the child? The burial of "replicas" has been suggested. I wondered what message has been sent to the people who buried the child; to those that are genetically related to them; to this and the next generation of archaeologists; and to humanity? Do colonial attitudes and science's "need to know" override ethics, law and respect for Native American values?"	

Persuasive Writing Map Instructions

Ethical Question: State the question you are going to answer.

Thesis Statement: State your position by answering the question and your three main points:

Reason 1: Counter Argument, address opponent's claim and your reasoning against it.

Reasoning: Explain the flaws in the opposition's argument

Evidence: Support your claim with facts (cite the article your evidence is from)

Reason 2: Expand your main point

Evidence: Support your reason with facts (cite the article your evidence is from)

Reason 3: Expand your main point

Evidence: Support your reason with facts (cite the article your evidence is from)

Conclusion: Remind readers of the importance of your topic. How will this discovery impact future study of ancient American Indian remains? Provide a call to action of what you want people to do.

Persuasive Essay Instructions

Introduction:

- State one of the ethical questions.
- Write a summary of the Clovis Child burial archaeological discovery.
- Thesis Statement: State your position by answering one of the ethical questions and your three main reasons

Body:

- State three reasons to support your claim and explain reasons with facts and information from sources.
- Cite evidence from news articles and NAGPRA to support your claim.
- Evaluate different people's point of view, reasoning, and use of evidence and rhetoric.
- Delineate and evaluate the argument and specific claims in an article, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.
- Analyze how two or more articles address the topic in order to compare approaches the reporter takes.

Conclusion:

What is the significance of the Clovis Child burial? How does the discovery impact the future handling and study of ancient American Indian remains? How might it impact relationships between Native people and scientists? Provide a call to action of what you want people to do.

Persuasive Writing Map

By: _____

Ethical Question: _____

Thesis Statement

Reason 1	Reason 2	Reason 3

Evidence/Facts/	Evidence/Facts/	Evidence/Facts/

Conclusion

Notes:

Rest in Peace

The Final Performance of Understanding is the culmination of students' investigation of the Clovis Child burial. The Clovis child burial provides a human connection to the past and reveals how ancient people and families expressed their love and grief. Students can express their connection to the Clovis child burial and be part of the reburial and healing process by designing a memorial or creating a testament to the child. Working individually or in groups students will create a memorial or testament to the child.

SUBJECTS: social studies, language arts
IEFA EU: 3
SKILLS:
Bloom's Taxonomy: create, apply, understand, remember
Facets of Understanding: Interpretation, Application, Empathy
DURATION: 45-60 minutes
CLASS SIZE: Any

Materials

For Each Student

- Copies of the "Final Performance of Understanding" for each student
- Project materials: paint, clay, paper, posters, card stock, and other art supplies to create memorials

Preparing to Teach

1. Make a copy of the "Final Performance of Understanding" (page 31) for each student or project it on the board for students to write instructions down.
2. Gather project materials.

Final Performance of Understanding

1. Have the class discuss different memorials they have seen. What memorials are in their area? This can be as simple as a gravestone or crosses on the side of the road to monuments. Show pictures of memorials/monuments, such as Indian Memorial at Little Bighorn, Pretty Shield Grave, or Little Bighorn National Monument. What do the memorials represent or commemorate? Have students compare the styles of the memorials. What are the different ways memorials convey their message?
2. Ask the question: What are other ways people commemorate the lives of people. For example, leaving flowers and other items at gravestones or memorials is one example.
3. Inform students that the Clovis Child was re-buried on June 28, 2014. Listen to a news report on the reburial ceremony: Here & Now: Remains of Clovis Boy Reburied in Montana (http://hereandnow.wbur.org/2014/07/22/clovis-boy-reburied). The report includes a traditional Cheyenne honor song sung by Dr. Shane Doyle.
4. Distribute the "Final Performance of Understanding" to students. Tell them that they have the opportunity along with many other students across the state (and nation) to design a memorial or create a testament to the Clovis Child.
5. Summarize the Final Performance of Understanding.
5. Go over the examples and performance standards for the Final Performance of Understanding with the students.
6. Students can decide to work in groups, pairs or individually.
7. Allow students time to brainstorm their ideas for a memorial or testament and pick one idea.
8. Have students design their memorial or create a testament to commemorate the Clovis Child in class and finish the project either at home or during an in-class work day if time permits. They can request materials from the teacher or bring materials to class to continue working.
9. Establish a due date for the projects and offer an opportunity for students to present their creations and/or persuasive essays.

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Final Performance of Understanding

Rest in Peace

We have learned how the family of the Clovis Child expressed their love and grief for their loss by placing artifacts into the grave and burying him in a prominent land feature. The Clovis Child burial provides a human connection to the past and reveals how ancient people and families expressed their love and grief. You can express your connection to the Clovis Child burial and be part of the reburial and healing process by designing a memorial or creating a testament to the child.

Your Task: Create a memorial or testament to the Clovis Child to express your connection through writing and/or art.

Examples:

- Write a poem
- Design a commemorative plaque
- Design a grave stone
- Create a museum exhibit
- Draw or paint a picture
- Create a sculpture
- Create a photo collage
- Write a story about the child and his family
- Design an interpretive panel to be placed at the burial site
- Create a gift for the child: beading, quilting, woodwork, flowers, etc.
- Sing a song or play a musical instrument in honor of the child.
- Write and perform a skit

Performance Standards

- **Creativity** – My project is original, well-crafted, striking, designed with a distinct style, but still appropriate to the purpose.
- **Relevance** – My project is related to the Clovis Child and draws from information I learned in the articles. The key ideas are supported with evidence.
- **Conventions** – If my project includes writing the topic is well-defined and supported; the piece has correct spelling, punctuation, capitalization, usage, paragraph structure, and grammar; my ideas are organized and I use a strong voice and word choice; the writing flows smoothly together.
- **Presentation** – My project is neat and the overall appearance is pleasing to the eye.

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Appendix A

The Six Facets of Understanding

The six facets of understanding are defined in terms of what the student can do (Wiggins and McTighe 1998: 44).

Explanation – The student can provide thorough, supported, and justifiable accounts of phenomena, facts, and data.

Interpretation – The student can tell meaningful stories, offer apt translations, or provide a revealing historical or personal dimension to ideas or events.

Application – The student can effectively use and adapt what he or she knows in diverse contexts.

Perspective – The student can see and hear different points of view through critical eyes and ears; see the big picture.

Empathy – The student can perceive personal style, prejudices, or habits of mind that impede or promote understanding; aware of what one does not understand.

Self-knowledge – the student perceives the personal style, prejudices, projections, and habits of mind that shape and impede his or her own understanding.

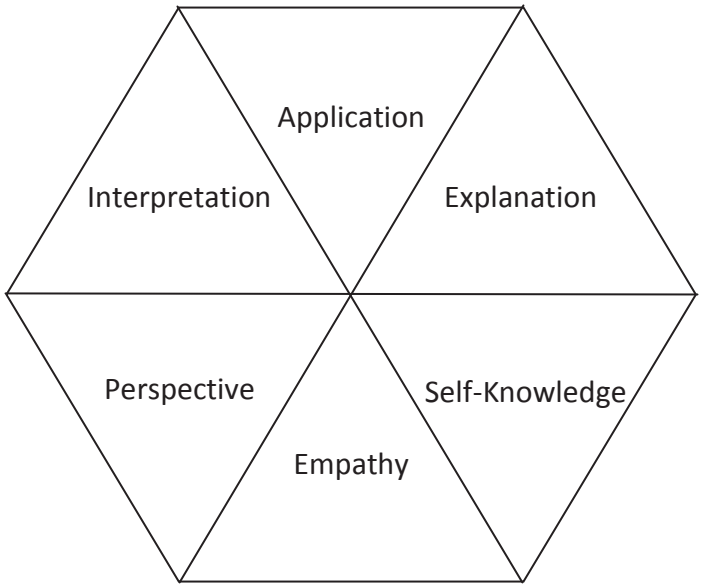

Figure 1. The Six Facets of Understanding

Appendix B

Bloom's Taxonomy

Original Taxonomy (Bloom 1956)

Evaluation	The judgment and evaluation of characters, actions, outcome, etc., for personal reflection and understanding.
Synthesis	Organizing parts together into a new whole.
Analysis	Breaking down information into parts and making comparisons.
Application	Using skills or understandings in new situations.
Comprehension	An understanding of what was read or learned.
Knowledge	Remembering or recognizing previously learned information.

Revised Taxonomy (Anderson and Krathwohl 2001)

Create (Synthesis)	Organizing parts together into a new whole.
Evaluate (Evaluation)	The judgment and evaluation of characters, actions, outcome, etc., for personal reflection and understanding.
Analyze (Analysis)	Breaking down information into parts and making comparisons.
Apply (Application)	Using skills or understandings in new situations.
Understanding (Comprehension)	An understanding of what was read or learned.
Remember (Knowledge)	Remembering or recognizing previously learned information.

Appendix C

Correlation to National Common Core Standards
Alignment to College and Career Readiness Anchor Standards 6-12

College and Career Readiness Anchor Standards for Reading

1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.
6. Assess how point of view or purpose shapes the content and style of a text.
7. Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.
8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.
9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.
10. Read and comprehend complex literary and informational texts independently and proficiently.

College and Career Readiness Anchor Standards for Writing

1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.
9. Draw evidence from literary or informational texts to support analysis, reflection, and research.
10. Write routinely over extended time frame (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

College and Career Readiness Anchor Standards for Speaking and Listening

1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.
3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric.
4. Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style appropriate to task, purpose and audience.

College and Career Readiness Anchor Standards for Language

4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.
6. Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Appendix D

Rules for Brainstorming

(Bouchard 1977)

1. Criticism is ruled out.

Judgment of positive and negative ideas must be withheld. No one should criticize anyone else's ideas.

2. Freewheeling is welcome–the wilder the better.

It is easier to tame down than to think up ideas. Don't be afraid to say anything that comes to your mind—the farther out the idea the better. This complete freedom stimulates more and better ideas.

3. Quantity is wanted.

The greater the number of ideas, the more likelihood of winners. Come up with as many ideas as you can.

4. Try piggybacking ideas–combination and improvement.

In addition to contributing ideas of your own, suggest how ideas of others can be turned into better ideas, or how two or more ideas can be joined into still a better one.

Appendix E

Word Bank

archaeological site: a place where people lived and left objects behind

archaeologist: a scientist who studies past human cultures by analyzing and interpreting the objects and sites that those cultures left behind

artifact: an object made or used by people

Clovis: a Paleo-Indian culture characterized by a distinctive fluted projectile point first found in Clovis, NM. The Clovis culture, which dates to older than 8,000 years ago, represents one of the first peoples to enter North America

DNA: a thin, chainlike molecule found in every living cell on earth. It directs the formation, growth, and reproduction of cells and organisms. Short sections of DNA called *genes* determine *heredity*

ethics: the study of standards of right and wrong; that part of philosophy dealing with moral conduct, duty, and judgment

mitochondrial genome sequencing: determining the order of the genes on the DNA found in the cellular structures called mitochondria

NAGPRA: Native American Graves Protection and Repatriation Act is a law passed in 1990 that provides for the repatriation to tribes of Indian remains and ceremonial and mortuary artifacts

persuasive: write arguments to support claims in an analysis of texts, using valid reasoning and relevant and sufficient evidence

prehistory: the human past before written record

repatriation: returning human remains and grave items to Native Americans who can prove their "cultural affiliation" with the remains

Appendix F

Essential Understandings Regarding Montana Indians

Essential Understanding 1

There is great diversity among the 12 tribal Nations of Montana in their languages, cultures, histories and governments. Each Nation has a distinct and unique cultural heritage that contributes to modern Montana.

Essential Understanding 2

There is great diversity among individual American Indians as identity is developed, defined and redefined by entities, organizations and people. A continuum of Indian identity, unique to each individual, ranges from assimilated to traditional. There is no generic American Indian.

Essential Understanding 3

The ideologies of Native traditional beliefs and spirituality persist into modern day life as tribal cultures, traditions, and languages are still practiced by many American Indian people and are incorporated into how tribes govern and manage their affairs. Additionally, each tribe has its own oral histories, which are as valid as written histories. These histories pre-date the "discovery" of North America.

Essential Understanding 4

Reservations are lands that have been reserved by the tribes for their own use through treaties, statutes, and executive orders and were not "given" to them. The principle that land should be acquired from the Indians only through their consent with treaties involved three assumptions:

I. Both parties to treaties were sovereign powers.
II. Indian tribes had some form of transferable title to the land.
III. Acquisition of Indian lands was solely a government matter not to be left to individual colonists.

Essential Understanding 5

There were many federal policies put into place throughout American history that have affected Indian people and still shape who they are today. Many of these policies conflicted with one another. Much of Indian history can be related through several major federal policy periods:

Colonization/Colonial Period 1492 – 1800s
Treaty Period 1789 - 1871
Assimilation Period - Allotment and Boarding School 1879 - 1934
Tribal Reorganization Period 1934 - 1958
Termination and Relocation Period 1953 - 1971
Self-determination Period 1968 – Present

Essential Understanding 6

History is a story most often related through the subjective experience of the teller. With the inclusion of more and varied voices, histories are being rediscovered and revised. History told

from an Indian perspective frequently conflicts with the stories mainstream historians tell.

Essential Understanding 7

Under the American legal system, Indian tribes have sovereign powers, separate and independent from the federal and state governments. However, the extent and breadth of tribal sovereignty is not the same for each tribe.

The Essential Understandings have been updated. To view these go to http://opi.mt.gov/Portals/182/Page%20Files/Indian%20Education/Indian%20Education%20101/essentialunderstandings.pdf?ver=2018-09-21-121920-993

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Resources

Clovis Chronicle

—To the Point—

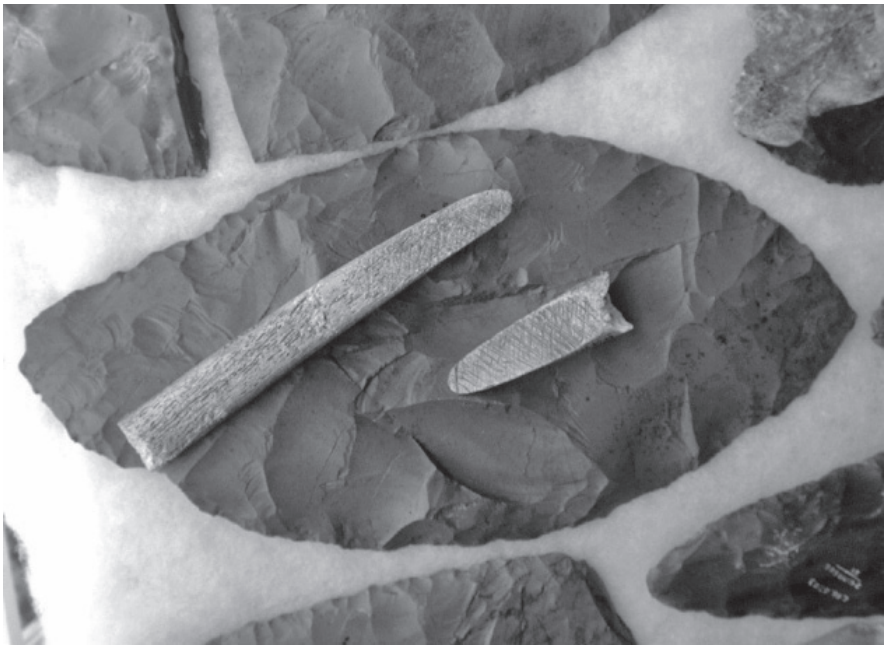
A collection of articles on the Clovis Child burial

Clovis Chronicle

—TO THE POINT—

Project Archaeology **June 30, 2014**

Ancient Genome Stirs Ethics Debate



Stone and bone tools used by the Clovis culture **Photo: Robert L. Walker**

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Sequencing of DNA from Native American 'Clovis boy' forces researchers to rethink handling of tribal remains.

Nature
Ewen Callaway
February12, 2014

The remains of a young boy, ceremonially buried some 12,600 years ago in Montana, have revealed the ancestry of one of the earliest populations in the Americas, known as the Clovis culture.

Published in this issue of Nature, the boy's genome sequence shows that today's indigenous groups spanning North and South America are all descended from a single population that trekked across the Bering land bridge from Asia (M. Rasmussen et al. *Nature* 506, 225–229; 2014). The analysis also points to an early split between the ancestors of the Clovis people and a second group, whose DNA lives on in populations in Canada and Greenland (see page 162).

But the research underscores the ethical minefield of studying ancient Native American remains, and rekindles memories of a bruising legal fight over a different human skeleton in the 1990s.

To avoid such a controversy, Eske Willerslev, a palaeobiologist at the University of Copenhagen who led the latest study, attempted to involve Native American communities.

Continued on page 2

And so he embarked on a tour of Montana's Indian reservations last year, talking to community members to explain his work and seek their support. "I didn't want a situation where the first time they heard about this study was when it's published," he says.

Construction workers discovered the Clovis burial site on a private ranch near the small town of Wilsall in May 1968 (see 'Ancient origins'). About 100 stone and bone artefacts, as well as bone fragments from a male child aged under two, were subsequently recovered.

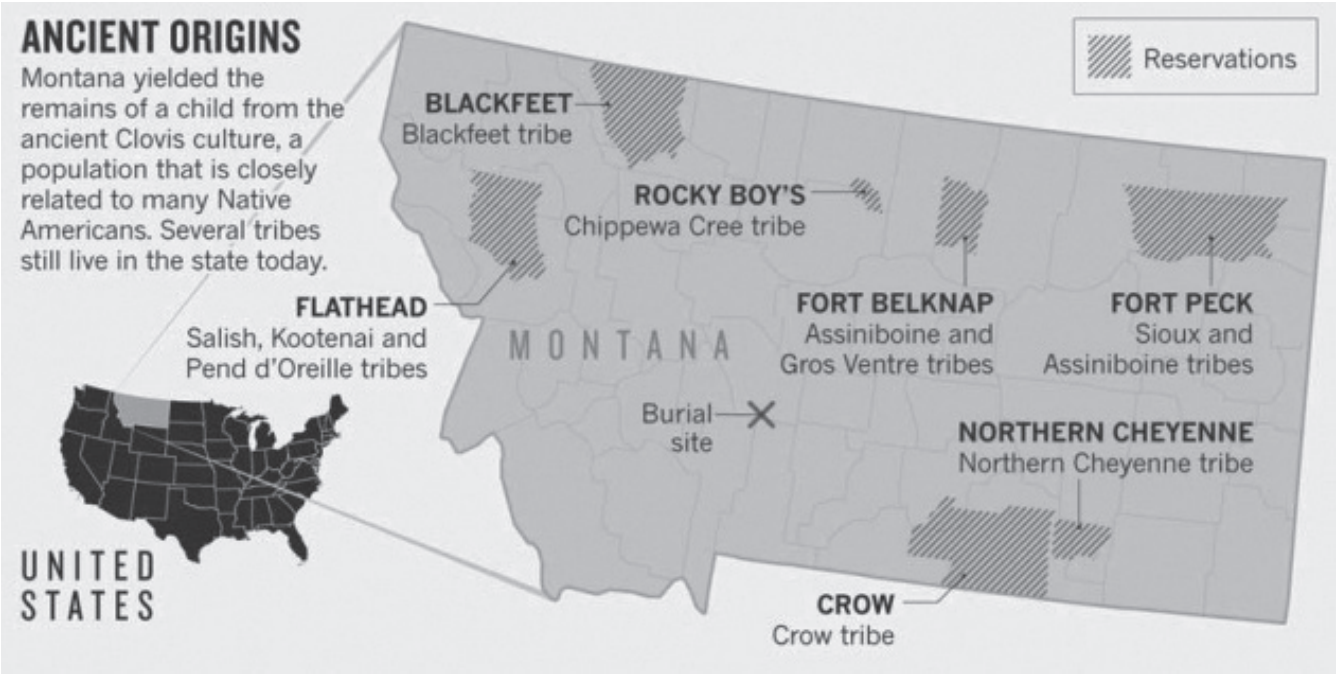
The boy's bones were found to date to the end of the Clovis culture, which flourished in the central and western United States between about 13,000 and 12,600 years ago. Carved elk bones found with the boy's remains were hundreds of years older, suggesting that they were heirlooms. The ranch, owned by Melvyn and Helen Anzick, is the only site yet discovered at which Clovis objects exist alongside human bones. Most of the artefacts now reside in a museum, but researchers returned the human remains to the Anzick family in the late 1990s.

At that time, the Anzicks' daughter, Sarah, was conducting cancer and genome research at the National Institutes of Health in Bethesda, Maryland, and thought about sequencing genetic material from the bones. But she was wary of stoking a similar debate to the one surrounding Kennewick Man, a human skeleton found on the banks of the Columbia River in Kennewick, Washington, in July 1996. Its discovery sparked an eight-year legal battle between Native American tribes, who claimed that they were culturally connected to the individual, and researchers, who said that the roughly 9,000-year-old remains pre-dated the tribes.

The US government sided with the tribes, citing the federal Native American Graves Protection and Repatriation Act (NAGPRA). The act requires that human remains discovered on federal lands—as Kennewick Man was—are returned to affiliated tribes for reburial. But a court ruled that the law did not apply, largely because of the age of the remains, and ordered that Kennewick Man be stored away from public view in a museum.

Sarah Anzick sought the advice of local tribes over the Clovis boy, but she could not reach a consensus with the tribes on what to do. She gave up on the idea, stored the bones in a safe location and got on with her other research.

In 2009, archaeologist Michael Waters, of Texas A&M University in College Station, contacted



Map of Montana including reservations and burial site **Montana Office of Public Instruction**

Anzick with the idea of sending the remains to Willerslev's lab. (In early 2010, the lab published one of the first genome sequences of an ancient human, a 4,000-year-old resident of Greenland; see M. Rasmussen et al. Nature 463, 757–762; 2010.) "I said, 'I will allow you guys to do this, but I want to be involved,'" recalls Anzick, who has published more than a dozen papers in leading journals.

In Copenhagen, she extracted DNA from fragments of the boy's skull ready for mitochondrial genome sequencing, which offers a snapshot of a person's maternal ancestry. Back in Montana months later, she received the sequencing data and discovered that the genome's closest match was to present-day Native Americans. "My heart just stopped," she says.

Right to Remains

After Willerslev's team confirmed the link by sequencing the boy's nuclear genome (a more detailed indicator of ancestry), Willerslev sought advice from an agency that handles reburial issues. He was told that, because the remains were found on private land, NAGPRA did not apply and no consultation was needed. Despite this, Willerslev made his own attempt to consult local tribes. This led to a meeting in September at the burial site, with Anzick, Willerslev and their co-author Shane Doyle, who works in Native American studies at Montana State University in Bozeman, and is a member of the Crow tribe.

"That place is very special to me, that's my ancestral homeland," says Doyle. He told Willerslev and Anzick that they should rebury the child where he was found. "I think you need to put the little boy back where his parents left him," Doyle recalls telling them.

Doyle and Willerslev then set off on a 1,500-kilometre road trip to meet representatives of four Montana tribes; Doyle later consulted another five. Many of the people they talked to had few problems with the research, Doyle says, but some would have preferred to have been consulted before the study started, and not years after.

Willerslev says that researchers studying early American remains should assume that they are related to contemporary groups, and involve them as early as possible. But it is not always clear whom to contact, he adds, particularly when remains are related to groups spread across the Americas. "We have to engage with Native Americans, but how you deal with that question in practice is not an easy thing," he says.

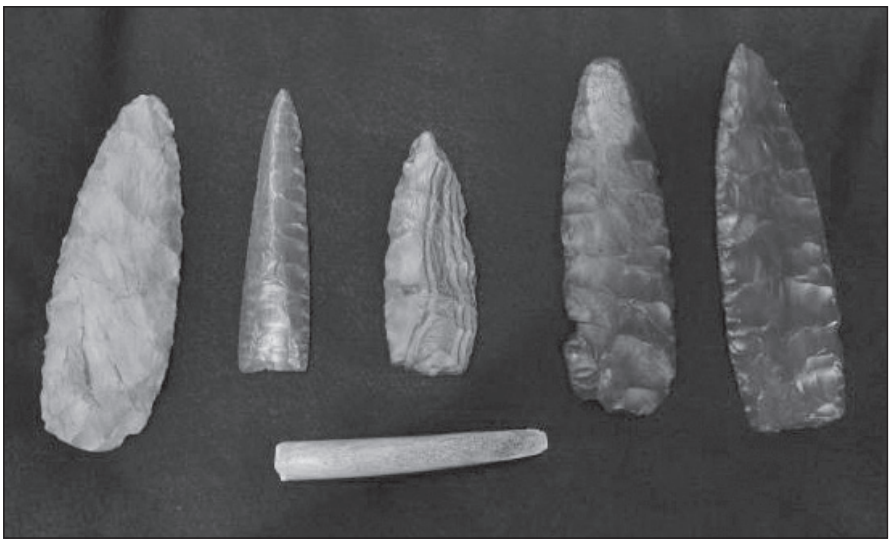
Hank Greely, a legal scholar at Stanford University in California who is interested in the legal and ethical issues of human genetics, commends the approach of Willerslev's team. But he says that there is no single solution to involving Native American communities in such research. "You're looking to try to talk to the people who might be most invested in, or connected with, particular sets of remains," he advises.

Dennis O'Rourke, a geneticist at the University of Utah in Salt Lake City, who studies ancient DNA from populations native to the islands around Alaska, notes that indigenous groups have varying concerns: some want remains reburied, others do not, for instance.

The Montana Tribes overwhelmingly wanted the Clovis boy's bones interred. Plans for a reburial ceremony, possibly at an undisclosed site, are now being hashed out, with the Crow Nation playing a lead role. It is expected to take place in the spring, after the ground thaws.

Ancient human remains from Montana ancestor of most Native Americans

Montana Public Radio
By Dan Boyce
February 12, 2014



Replicas of artifacts found at the Anzick site **Photo: Dan Boyce**

DNA evidence recovered from ancient human remains found in Montana is providing definitive answers to the origin of Native Americans.

Scientists unveiled the new research published in the journal *Nature* at the Montana Historical Society in Helena on Wednesday. Remains of the so-called "Anzick boy" show a direct lineage with most native peoples in North, Central and South America.

It's the story of a burial, putting to rest a two-year-old boy north of present-day Livingston.

State Archeologist Stan Wilmoth says it was a Montana very different than what we see today; an area not far removed from receding glaciers about 12,600 years ago.

"We imagine they probably were in small extended family groups, following the mammoth herds" Wilmoth said of the people in the area at the time of the burial. That young boy is now providing a lot of answers.

"I was just a small child in 1968 when the only Clovis burial site ever identified was accidentally discovered on my parents' property in Wilsall, Montana" said Stephanie Anzick, now a molecular biologist who has been studying the remains of the bones found on her parents' place for years.

It's the oldest human burial discovered in the U.S. and the only specimen ever found of the Clovis people. The Clovis are named for an archeological site in New Mexico and are defined by their use of distinctive sharpened stone tools, like scrapers and spearheads.

This last fall Dr. Anzick and an international team of scientists took this discovery to a much deeper level. They were able to produce the boy's genome.

"The genome shows without any doubt that this child is (more) closely related to all Native American groups in both North America and South America than to any other group of human beings in the world," said *Nature* study co-author Professor Eske Willerslev, who works with the Center for Geo Genetics at the University of Copenhagen, Denmark.

The genome shows 80 percent of all Native Americans alive today are direct descendants of this boy's family.

"That is just incredible," Willerslev said. "You can say a direct relative, not only a relative, but a direct relative, so to speak, to so many contemporary people. So I think that's extremely important."

The research also confirms theories that Native Americans are of Asian descent, likely crossing into North America through a land bridge that has long since disappeared.

Montana State University Native American Studies Professor Shane Doyle says to tribes in the state, what's just as important as the scientific discoveries, if not more-so, are the cultural discoveries made here. The Anzick boy was buried with about 120 of the sharpened stones tools for which the Clovis people are known. Some of these tools are hundreds of years older than the young child, indicating

they were heirlooms given to the boy in death.

"This was a two-year old boy, he wasn't a chief, he wasn't a great hunter, he wasn't a great warrior, but the respect and love that was shown for him was really beyond measure," Doyle said.

This is why Montana tribes plan to make this a re-burial story too. Plans are to bury the bones as nearly as possible to their original location this Spring or Summer.

"We will be putting scientific data back in the ground, we will be putting conclusions or future research back in the ground. But, this boy is not meant to be put on somebody's shelf and taken off when you feel like it" Doyle said.

"That's not what his parents put him in the ground for."

Shane Doyle Links Montana Tribes, International Researchers over Prehistoric Boy

MSU News Service
By Evelyn Boswell
February 12, 2014
BOZEMAN

On a beautiful fall day, Shane Doyle sang a somber song for a young boy who was buried some 12,600 years ago south of present-day Wilsall.

"I wanted to honor the spirit of the boy. There was a disturbance there. I felt like there needed to be some healing," said the enrolled member of the Crow tribe and an instructor in the Native American Studies program at Montana State University.

Sarah Anzick said the honor song Doyle sang last September was beautiful, touching and a fitting tribute for the child she has known about since she was two years old, approximately the same age the boy was when he died from unknown causes. Anzick's parents own the property where his skull and bone fragments were discovered in 1968. His are among the oldest human remains found in North America and the only Late Pleistocene human from a Clovis burial site.

Doyle's song also helped confirm that he was the right person to serve as liaison between Montana tribes and an international team of scientists who conducted a genetic study that led to major findings that will be published in the Feb. 13 issue of the journal, Nature, said Anzick, a co-author and molecular biologist on the project.

"We were so fortunate that he was willing to join our team and facilitate the connections with the Native American communities,,Äù Anzick said. "This is something I had tried to do many years ago, but was unsuccessful. "

A press release from *Nature* said the team of scientists reported the first complete genome sequence of an ancient North American human—the boy whose skeletal fragments were discovered near Wilsall, in association with dozens of ochre-covered stone tools.

The scientists found that the boy belonged to a population from which many contemporary Native Americans descended ,Äì including Doyle—and is closely related to all indigenous American populations.

The study showed very early division within Native Americans, but all groups from which scientists have DNA show a close relationship to the Anzick child. The scientists said their study also presents one of the strongest challenges so far to the hypothesis about the origin of the Clovis culture.

It was generally believed that the Clovis people originally came from Asia and were directly related to contemporary Native Americans, but an alternative theory suggests that the Clovis predecessors emigrated from southwestern Europe. Clovis, with its distinctive stone tools, is the oldest widespread archaeological complex in North America. It dates to around 12,600-13,000 years ago.

Doyle, who is one of 42 co-authors of the Nature paper, said he isn't a geneticist, but he has experience bringing MSU and the Montana tribes together. He, for one, is the link between MSU nursing students and tribal clinics. Doyle grew up on the Crow Indian Reservation and earned his bachelor's, master's and doctoral degrees at MSU. For his doctorate in education, he studied the Absaroka Agency archaeological

Continued on page 6

Shane Doyle, member of the Crow tribe, sings an honor song for the Clovis child. He is with scientists Eske Willerslev and Sarah Anzick.
Photo: Sarah L. Anzick

excavation, specifically how tribes and archaeologists can best collaborate. He currently teaches Native American belief and philosophy at MSU. He has been a member of the Bobcat Singers drum group since 1989.

He first met Eske Willerslev, principal investigator for the Anzick project, in September when Willerslev came to Montana, Doyle said. Willerslev is a world-renowned ancient DNA researcher at the Center for GeoGenetics at the University of Copenhagen in Denmark. Willerslev became involved in the Montana study through Anzick and archaeologist Mike Waters, director of the Center for the Study of the First Americans at Texas A & M University. Waters' predecessor conducted research on Kennewick Man, a prehistoric man found on the banks of the Columbia River in 1996.

Besides singing a Northern Cheyenne honor song at the boy's burial site, Doyle drove Willerslev to the Crow, Northern Cheyenne, Blackfeet and Flathead Indian Reservations to meet with the tribal historic preservation officers and other Native Americans to explain the genetic study and consult with the tribes about the boy's reburial. Doyle said he would have taken Willerslev to more reservations, but they didn't have enough time. Willerslev said he understands the many feelings that are involved when scientists study ancient human remains. He understands why members of the tribes hold strong feelings about the past.

From his Montana trip, he said, "I learned that all the cultural representatives I met in the tribes of Montana are clever peoples with a deep cultural and historical insight, and I was very well received by them all. A great experience. Shane guided me through this process. Without him, I would have been lost."

In December, Doyle flew to Denmark where he spoke to Willerslev's graduate students and met Waters for the first time.

Earlier this week, as the Nature publication neared, Doyle, Willerslev, Waters and Anzick spoke at two Montana press conferences about their genetic findings, plans for a respectful reburial, the project's history, and implications for archaeology in the future. The first press conference was held Feb. 11 at Little Big Horn College in Crow Agency. The second was held Feb. 12 at the Montana Historical Society in Helena, where all the artifacts from the Anzick site will be displayed.

"This is truly a state treasure to be shared and enjoyed by all," Anzick said.

Doyle said it's obvious from the large number of artifacts that were found with the boy that he was loved.

Livingston archaeologist Larry Lahren, an MSU graduate who has studied the Anzick site for 40 years, said in a recent lecture at MSU's Museum of the Rockies, that "You would be overwhelmed to look at the collection to see the size and quantity of the materials."

He added that the site south of Wilsall wasn't a cache, but definitely an ancient burial site. In addition to the skull and bone fragments that yielded significant genetic information were the remains of another boy. That boy was six to eight years old when he died. He was buried about 9,000 years ago.

Doyle, the father of five children from ages 1 through 9, said he

feels for the anguished parents who lost their sons so long ago. He added that normal parental feelings and Native American traditions indicate that it's time to rebury the boy whose genome is discussed in *Nature*.

The reburial will occur as soon as this spring and will be as close as possible to the original burial site, Doyle said. One of the major players will likely be Larson Medicinehorse of Crow Agency, who was involved in the reburial of Chief Pretty Eagle almost 20 years ago.

"You feel like it's morally the right thing to do. It's the reason why I agreed to help," Doyle said of the upcoming reburial. Willerslev, Waters and Anzick agreed.

"As a scientist, I have mixed feelings as the remains may well still hold information to be gained," Willerslev said. "However, I do respect this wish from the tribes, and I know they feel deeply about why it has to take place. Had it been my child, I would have wished it to be reburied too. As scientists, we have a lot to learn from the tribes."

Anzick said, "I feel a moral obligation for the reburial and yes, as technology advances, we can always learn more. Had these remains been reburied just 10 years ago, they wouldn't have revealed what we know today, and I'm certain we can learn even more.

"However, out of respect for the Native American communities and the parents of this child, a reburial is an important part of the equation," Anzick said. "It is my hope through open communications, dialogue and Native American involvement, we can collaborate toward a working model which leads ultimately to a respectful reburial."

Waters said, "This was a prehistoric tragedy. Someone lost their child. They lovingly buried this child with artifacts and red ochre. Like Shane pointed out, they would have been valuable and important things to people who were hunters and gathers. They clearly showed the emotions of these early people.

"I appreciate the way Shane has been doing an outstanding job of shepherding us through the process of talking to various Native American groups and finding the path to the proper reburial of these remains,,Äù Waters said.

Doyle said he is impressed with all the scientists on the project.

"They didn't have to bring me in," he said.

He added that his life hasn't been the same since he joined their team. Not only has it led to new interactions and opportunities for future collaborations, but the genetic findings proved what he has always believed.

"It's one thing to believe and sense that your people have been here for thousands and thousands of years," Doyle explained. "It's another thing to have scientific evidence and proof that those paleo-Indians were us and we are them."

The genetic study led to a rush of profound emotions, Doyle said. It made him proud of his ancestors and the way they cared for the land. It gave him new appreciation for family. He was shocked when he realized that the land where the boy was buried is part of the area included in an 1851 treaty signed by his great-great-great-great-grandfather Mountain Tail.

"All my family comes from this place and so did this little boy," Doyle said. "We are not only connected by geography, but by blood. It was so moving for me.,"

Location on the Clovis child burial from the Anzick site is marked by a pole
Photo: Sarah L. Anzick

Research Team Says Most Native Americans Related to Anzick Boy

Livingston Enterprise
By Natalie Store
February 12, 2014

Some have dubbed him Montana's King Tut.

In 1968, when contractors digging for loose rock in a Shields Valley bluff accidentally unearthed the remains of a 2-year-old boy whose bones were stained with red ocher, they had no idea they'd found one of North America's most significant archaeological sites.

No one suspected that the boy would eventually help tell the story of how the first Americans got here or from where they came.

But this week, a team of researchers who have been conducting genetic testing on the boy's 12,600-year-old bones announced they've run a complete genome sequence that verifies the boy found at the Anzick Site is related to most Native Americans in North and South America.

They've also determined the boy is of Eurasian descent, making it likely his ancestors traveled from Siberia to Alaska and then down into Montana.

The paper, titled "The Genome of a Late Pleistocene Human From a Clovis Burial Site in Western Montana," will be published this week in the scientific journal *Nature*. The paper is co-authored by Eske Willerslev, a geneticist at the University of Copenhagen in Denmark; Sarah Anzick, the daughter of Mel and Helen Anzick on whose property the site was found and a research specialist at the Rocky Mountain Labs in Hamilton; Michael Waters, an early American archeologist at Texas A&M University; and Shane Doyle, a Native American studies professor at Montana State University.

Enterprise photos by Shawn Raecke

Sarah Anzick, the daughter of Mel and Helen Anzick and a research specialist at Rocky Mountain Labs in Hamilton, talks Tuesday about results of genetic testing on the Anzick boy's bones.

"The Anzick child is a direct ancestor to many Native Americans today," Willerslev said during a Nature telephone press conference on Tuesday. "As such, our study is in agreement with the truth that present-day Native Americans are direct descendants of the first Americans."

Doyle said that although tribal oral traditions have long confirmed the scientific findings, the paper would force a paradigm shift in archeology.

"You cannot overstate the importance," Doyle said in a recent interview. "This is one of the most significant scientific revelations in the Americas. We know for sure, without any argument, that the same people have been here for 12,000 years. All the archaeology that comes from this point forward is seen in a new context."

The Anzick site was discovered on the property of Mel and Helen Anzick near Wilsall. Along with the remains of the child, the discoverers found more than 100 red paleolithic points, bifaces, unifaces and foreshafts. It is the only known Clovis-period burial and the earliest cultural affiliation of human remains and artifacts in the Northern Hemisphere.

The Anzick site is also likely the first evidence of religion in North

Shane Doyle, a Native American studies professor at Montana State University, talks about the importance of discoveries related to the Anzick boy's bones, at Mel and Helen Anzick's home on Old Clyde Park Road, Tuesday.

American archeology.

Doyle, a member of the Crow Tribe who is working as a consultant to the researchers studying the Anzick child, said he was startled by the profound love the Clovis people must have had for the child because they were a hunter-gather society who buried him with so many valuable tools. The tools might represent what the boy would have needed to hunt in the afterlife.

"It would be like putting everything you valued most—your cell phone, your laptop, your big screen TV, everything—in the coffin with your child," Doyle said.

The First Americans

The Clovis people are the earliest documented culture in North America accepted by most archaeologists. They lived at the end of the last ice age, at about the same time that several large mammals such as the woolly mammoth and the short-faced bear were going extinct. The culture got its name from the first site associated with the people, which was found near Clovis, New Mexico, in 1932.

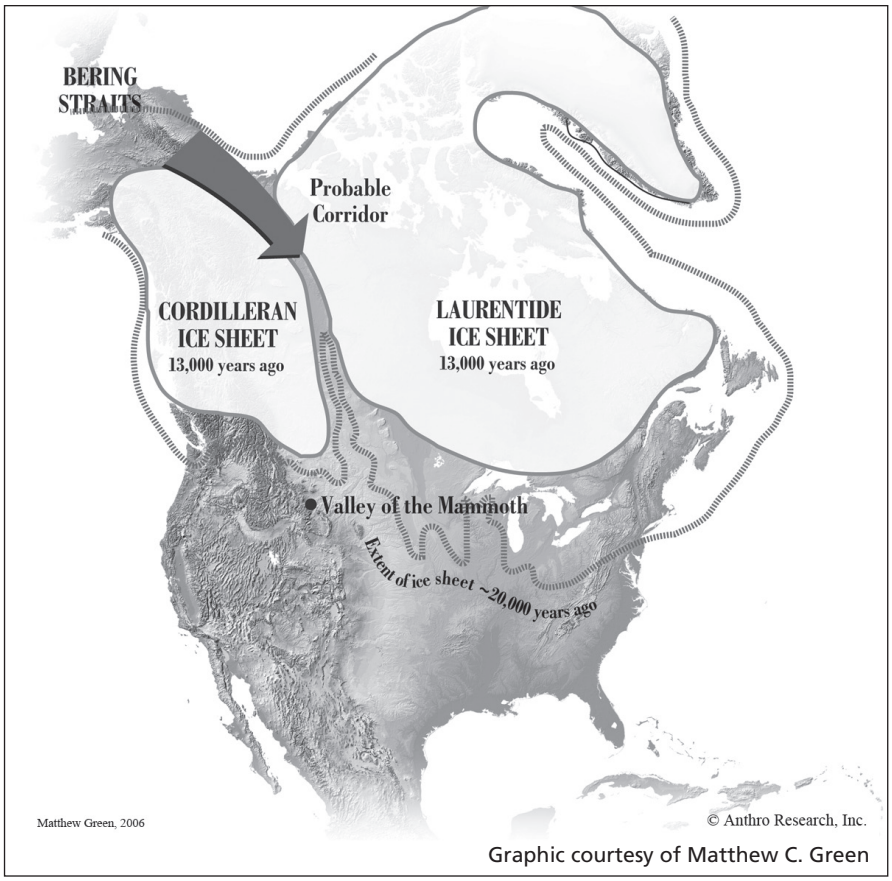
Early American archeology has long debated the origin of Native Americans. Some have surmised Native Americans are descended from a group of East Asians who crossed the Bering Sea via a land bridge. When Kennewick Man was discovered in Washington in 1996, some said he looked "European" which seemed to verify theories of a European origin for Native Americans. But the sequencing of the genome from the Anzick child puts other theories about the origins of the first Americans to rest, the researchers said.

Willerslev, an expert in ancient DNA, has also studied the remains of a 24,000-year-old Siberian boy from a site near the shores of Lake Baikal. Genes found in that 3-year-old boy match some genes found today in Eurasians in the Middle East and Europe and in Native Americans, he said.

Willerslev said the Mal'ta people from Siberia contributed genes to modern Europeans, Asians and Native Americans. Native Americans and the Mal'ta people share about one-third of their genes.

The genetic analysis in the paper

Eske Willerslev, a geneticist at the University of Copenhagen in Denmark, answers questions about the research on the Anzick boy's bones.



Graphic courtesy of Matthew C. Green

This graphic depicts the possible migration route through an ice-free corridor during the last ice age that humans might have followed to populate North America.

will also report a gene diversion, Willerslev said. Although the Clovis people appear to have been related to people who came from Siberia, once people reached the Americas, one of the last continents to be populated, they apparently diverged into two groups.

Although the Anzick child is closely related to at least 80 percent of all Native Americans, Willerslev said he is a direct descendant of some and more like a cousin to others, such as some tribes in Canada. He cautioned genetic information isn't available for all tribes in North and South America.

Consulting the Tribes

Although the scientists' findings are groundbreaking, some questions remain about who has control of the remains and how the studies were conducted.

Larry Lahren, a Livingston archeologist and longtime caretaker of the Anzick Site, said he removed himself from the team studying the boy's remains when he learned some researchers wanted to conduct genetic testing.

He said he believed the tribes had not given their permission to study the boy's remains.

Lahren believes the boy belongs to the tribes under an expansion to Montana's Human Skeletal Remains and Burial Site Protection Act approved in 2001.

"I don't think I have the colonial right to study the known ancestors of living people without their permission," Lahren said.

Lahren has been the caretaker of the site since the 1970s, yet few attempts were made to contact tribes until recently, Sarah Anzick said. She said she contacted several tribes in 2000 to determine how they might view genetic testing and that it was "very clear" at that time there was no consensus among tribes in Montana about the testing. She decided to move forward after the conversations.

Willerslev said researchers made their best attempts to get tribes involved as soon as they learned the boy was related to nearly all Native Americans. He said there was no model for a process for scientists to follow in working with tribes and that it wasn't a given that the Anzick child was related to Native Americans when they started the studies.

He said he and Doyle visited tribes before the Nature paper was published because of a "real desire" to make sure Montana's tribes had a say. People were impressed that he'd come from Denmark to tell them about his studies, Willerslev said, and visiting Montana's reservations deeply affected him.

"By taking that trip, we put everything at risk," Willerslev said. "There was a genuine and real possibility for them to respond. It was the right thing to do and I'm proud we did it."

The researchers performed two extractions of DNA from the Anzick child's skeleton, Willerslev said. Each time, a bone the size of "the joint on your littlest finger" was used. During the extraction process, chemicals that ultimately dissolve the bone matter separate out the DNA, he said.

Continued on page 8

Sarah Anzick said she personally delivered the marbled-sized samples of bone to Willerslev's lab in Denmark. Anzick, who has also worked on the Human Genome Project, performed the DNA extractions. She said during her work on the Genome Project, she became aware that sequencing technology had improved and that she was uniquely positioned to help with the genetic analysis of the boy. She said she wanted to participate because of scientific interest, but also to make sure the boy was safeguarded.

Several tribal historic preservation officers in Montana said they were briefed on the genetic testing in the fall of 2013, when Doyle and Willerslev began visiting most of Montana's seven reservations. Although it was disappointing they weren't informed until so late in the process, they were glad to be involved now, several tribal historic preservation officers said. They said their priority now was to make sure the boy was put back where he was found. (See related story.)

Conrad Fisher, tribal historic preservation officer for the Northern Cheyenne, said the studies had "put Montana on the map" in archaeology and that although tribes could have been contacted earlier, the Northern Cheyenne appreciate the opportunity to participate now.

"The wheel moves real slow," Fisher said. "We didn't have a lot of cultural resource law 30 years ago. But maybe this is the time for (more communication) to happen. I'm really glad and really happy that all the participants have agreed that the boy should be placed back in the ground."

Although Doyle said some tribal representatives weren't "overjoyed" about the genetic testing, he said many also wanted access to the knowledge that scientists are providing through research of the boy's remains. He said he personally isn't opposed to genetic testing as long as it's done in a respectful way, although he also noted that before federal legislation in 1990s, tribes didn't have control over their graves.

Tribes were seen as "subject to science not contributing partners," Doyle said. Yet he said he sees the Anzick discoveries as part of a new era in relationships between tribes and researchers.

"This is the time when we need to sort of seize the opportunity and change culture," Doyle said.

Doyle visited Willerslev's lab in Denmark last year, which he said gave him a sense of peace about how the boy's remains were being handled.

Willerslev, who said he's always dreamed of working on Native American genetics, has worked on genomes of native peoples across the globe and said experiences like working with aboriginal Australians have made him sensitive to the issues inherent in handling remains of ancestors of living people. He said people with well-preserved oral histories can often reach further back into history than scientists.

"It's really a delicate matter and really a very important matter," Willerslev said. "If someone came to me and said, ,"I'm sorry, Eske but you are descended from the Vikings,' I would be pretty unhappy about that."

He added, "If science wants to move on really in any matter with these topics, we need to do it hand in hand with indigenous peoples."

Lahren, who has worked on the site since the beginning of his career, has become a pessimistic observer of the academics who have been involved with the Anzick site over the years. Dozens

Anzick site over the years

Source: *Homeland: An Archaeologist's View of Yellowstone Country's Past* by Larry Lahren and Sarah Anzick.

12,600 years ago
The Anzick child dies from unknown causes and is buried in a bluff in the Shields River Valley.

1961
Bill Bray finds a stone biface covered with "red stuff" in a dirt pile while hunting on Mel and Helen Anzick's property in the Shields Valley.

1968
While removing loose rock with a front-end loader, workers Ben Hargis and Calvin Sarver discover more than 100 red-ochre stained stone and antler artifacts and the remains of a 2-year-old child. The discoverers wash the artifacts and the remains. The artifacts are split four ways between the Anzicks, Hargis and Sarver. The 2-year-old child remains with the Anzicks.

1968
The first archaelogists visit the site, including Larry Lahren and University of Montana archaelogist Dee Taylor. Taylor keeps the remains of the child.

1979
The Anzick site materials make the cover of *National Geographic Magazine*.

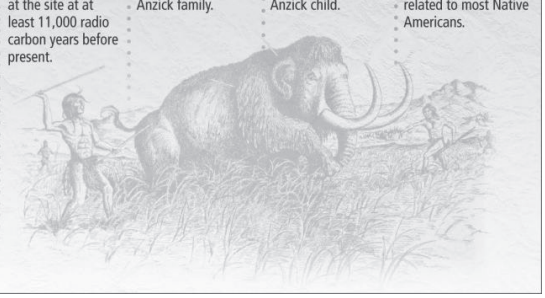
1988
The collection of artifacts is placed on loan to the Montana Historical Society.

1994
Researchers date the antler foreshafts found at the site at at least 11,000 radio carbon years before present.

2000
The remains of the Anzick child are returned to the Anzick family.

2009
Genetic testing begins on the remains of the Anzick child.

2014
A paper is published in *Nature* establishing that the Anzick child is related to most Native Americans.



Enterprise graphic by Mike Dahms

of archaeologists and amateurs have studied or tried to study the assemblage and the remains.

"There's never been a complete, comprehensive study," Lahren said. "It's always been a rip and run, get some stuff for your resume, get your tenure type of thing."

The Anzicks have had possession of the child since he was returned to them in 2000, they said. Lahren said he learned the bones had traveled to Arizona in the late 1990s, where they ended up after University of Montana archaeologist Dee Taylor, one of the first to study the remains, gave the bones to his son.

He advised the Anzicks on getting the remains returned to Montana, Lahren said. Since then, Sarah Anzick, who was 2 years old when the site was discovered, said she's kept the boy closely guarded and safe. Only the researchers from the current team have had access to the child.

"He's not just a sample," she said. "I feel he was discovered for a reason and he had a story to tell."

Researchers Plan to Rebury Anzick Child

Livingston Enterprise
By Natalie Storey
February 12, 2014

The remains of a 2-year-old boy discovered in a Shields Valley archeological site that is 12,600 years old will soon be reburied, according to researchers studying his remains.

Sarah Anzick, the daughter of the landowners on whose property the boy was discovered, and Shane Doyle, a member of the Crow Tribe working with Anzick Site researchers, initiated talks with tribal historical preservation officers at a Montana Department of Natural Resources and Conservation meeting in October to rebury the bones.

Doyle said he hopes the remains of the boy will be put back into the ground this spring or summer, although there are many details that still need to be worked out, such as who will pay for the reburial.

"The main thing we need right now is some funding," Doyle said. "We have the medicine man and the support from the other tribes. All the pieces are in place."

The boy will be reburied in the bluff in the Shields Valley between the Crazy Mountains and the Bangtail Range where he was accidentally discovered more than 40 years ago. The site is marked with a diamond sign that states, "The location where it was found May 1968."

Although Doyle and Sarah Anzick approached Montana's Burial Preservation Board, the group responsible for dealing with Native American remains found in Montana after 1991, the board said they had no jurisdiction and could only advise the Anzick family in dealing with the child's remains, according to a statement provided by Sheryl Olson, chief program and information officer.

Doyle said Montana tribes are strapped for cash, but is hopeful some other funding source can be found.

Eske Willerslev, the Danish geneticist who has been studying the boy's genome, said the researchers agreed reburying the remains was their moral obligation.

"As a scientist, I can't say that it doesn't hurt my heart a little bit that this is going back into the ground, but as a human being I completely understand and appreciate that these people want it reburied and that they feel strongly about it." From here on out, the researchers said, all archeologists working on paleolithic remains in the Americas will have to assume they are related to Native Americans. They said they hope researchers who follow will also work with tribes.

"The study shows that you must assume any remains in the Americas are Native American until it's proven differently," Willerslev said.

Tribal historic preservation officers in the state, most of whom say visits from Doyle in 2013 were the first time they'd been informed about what was happening at the site, say they understand that a number of issues are at play in the reburial, but still hope the boy can be returned to the ground in a respectful manner.

"I think they should be reburied," said Emerson Bull Chief, tribal historic preservation officer for the Crow Tribe. "But it's really hard for anyone to lay claim to it. From what they were saying, the DNA has a

connection to almost every tribe in North and South America. (The remains) are over 10,000 years old. There is no way anyone can actually lay claim to it."

Conrad Fisher, historic preservation officer for the Northern Cheyenne, said tribes in Montana have never questioned that the boy is related to them. The child found at the Anzick site has been through enough, Fisher said, and deserves to be buried.

"We know where this boy came from. He came from a tribe here in native North America and this is where he belongs," Fisher said. "We've known that. We are more interested in doing the right thing. And that is having a proper burial and honoring that boy."

Fisher also said the value of the remains to scientists and collectors could become issues in the reburial of the boy.

"We know that this is an old specimen and for whatever reason, people still have a fascination for Native American stuff," Fisher said. "There's no guarantee that the reburial will safeguard the remains."

There have been several reburials of Native American remains in Montana following the passage of national and state laws protecting burial sites. Notably, In 1994, Chief Pretty Eagle was reburied at Crow Agency. Pretty Eagle, who died in 1903, was among 60 tribal members who were removed from burial sites along the Bighorn River in the early 1900s by Bighorn County Sanitarian Dr. W. A Russell, according to the National Park Service website. Russell sold the remains to museums, some for less than $500. Pretty Eagle's skull eventually ended up in the Museum of Natural History in New York.

The researchers stress that science's relationship with tribes has come a long way since then.

"I've always felt that they needed to be returned to the ground," said Sarah Anzick. "It's just the right thing to do. As a scientist, I also think everybody has a right to know who this individual is."

Ancient Toddler Whose DNA Helped Science Will Now Be Reburied

LA Times
By Monte Morin
February 12, 2014

The skeletal remains of an infant who lived in what is now Montana about 12,600 years ago will be reburied in a formal ceremony now that scientists have sequenced its genome, researchers say.

The fragments of the young boy's skeleton are the sole human remains directly associated with the short-lived Clovis culture, according to scientists. The relics were accidentally discovered by a construction worker in 1968, at the so-called Anzick burial site in western Montana.

The fragments, as well as 125 stone and antler tools, were covered in red ochre, a powdered mineral that was probably used during a burial ceremony, scientists believe.

In a study published Wednesday in Nature, scientists sequenced the genome of the boy, age 1 to 1 1/2, and said their findings shed new light on the complex human colonization of North America.

It had generally been believed that the Clovis people's predecessors had come from Asia, via an ancient land bridge. However, a competing proposal—the Solutrean hypothesis—held that they were actually descended from people who had emigrated from southwestern Europe.

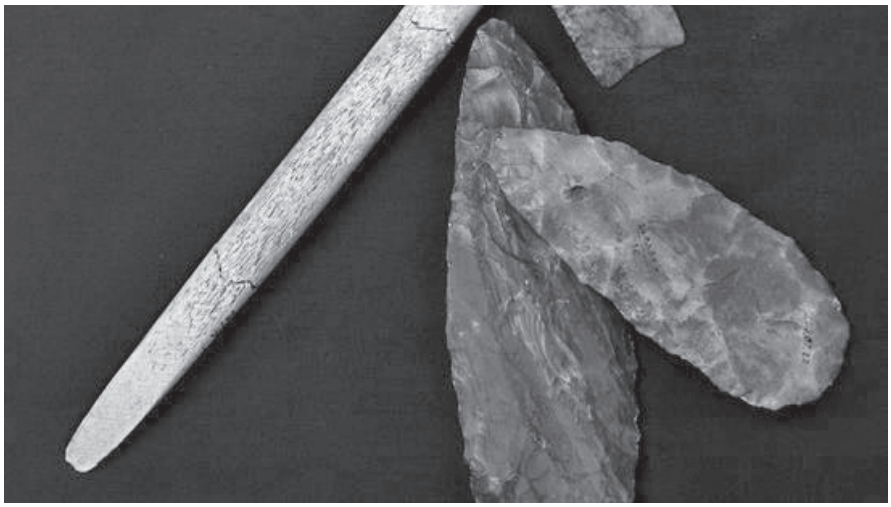
The new research argued strongly against that possibility, scientists said.

"The ancestors of this boy originated from Asia. The study does not support the idea that the first Americans originated from Europe, as proposed by the Solutrean hypothesis," said study coauthor Michael Waters, an archaeologist at Texas A&M University.

Waters said the evidence showed the boy's remains were genetically related to most modern Native Americans, especially those in Central and South America.

"This indicates that a single migration of humans introduced the majority of the founding population of the Americas ... at the close of the last ice age," Waters said. "These genetic findings are consistent with the archaeological evidence that shows the American continent was first explored and settled around 15,000 years ago, with Clovis emerging 2,000 years later."

Continued on page 14



Artifacts, stone and bone tools from the Anzick site

Photo by Mike Waters

While conducting research, senior study author Eske Willerslev, an evolutionary biologist at the University of Copenhagen, met with a number of Native American tribes in Montana to discuss the research. He said scientists and Native American groups haven't always gotten along well, so he wasn't sure what to expect at first.
"They showed a lot of interest in the study, but all of them said that now is the time for the skeleton to go back into the ground," Willerslev told a documentary film crew. "This was a heart blow, because being a scientist, reburying probably the most important skeleton in the history of the Americas, it's hard."
But Willerslev said it was a sacrifice that science had to make.

"I realized that if scientists and Native Americans want to pursue their past together, there needs to be compromises on both sides. Therefore, we need to respect that they feel very strongly about this issue."

The Clovis culture is so named because its first remnants were found in 1932 in Clovis, N.M. To archaeologists, the culture is characterized by the distinctive fluted stone spear points it left behind. The points feature a groove that allows them to be secured to a shaft.

Waters said the Clovis culture ended about 12,600 years ago, or around the same time the boy was buried. He said some of the tools buried with the boy were made of elk antlers—a rare commodity at the time—and dated to the beginning of the culture about 13,000 years ago.

The difference in age, Waters said, suggested the antler tools were ritual or heirloom objects that had been kept for generations. "They were something special," he said.

Study coauthor Shane Doyle, an enrolled member of the Crow tribe and a Native American studies instructor at Montana State University, acted as the liaison between researchers and local Native Americans during the study.

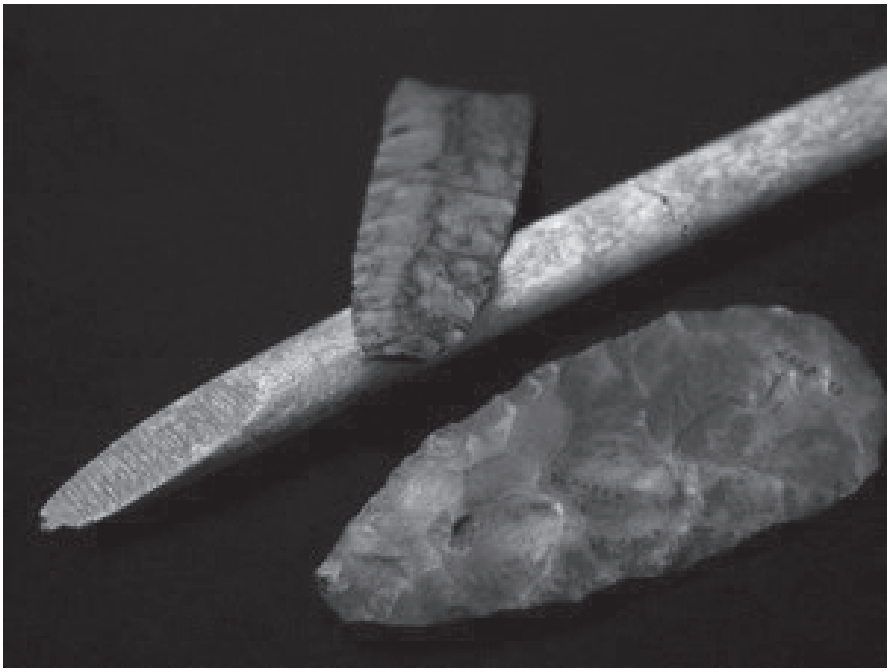
At a news briefing, Doyle told reporters the child's remains would be reburied this spring or summer. He also thanked the researchers for involving Native American tribes.

"I feel like this discovery basically confirms what tribes have really never doubted, that we,Äôve been here since time immemorial, and that all the artifacts, objects in the ground are remnants of our direct ancestors," Doyle said.

Ancient DNA Ties Native Americans from Two Continents to Clovis

NPR Transcript
By Richard Harris
February 13, 2014

Bones and artifacts have told the story of the people who migrated to the Americas from Siberia about 15,000 years ago. These ancient migrants are believed to be the distant ancestors of the people who spread across North and South America in the millennia before Europeans arrived, from the Inuit to the Cherokee to the Maya and many more. Now that story is bolstered with some dramatic ancient DNA. Scientists say they have decoded the genome of a baby who died in present-day Montana more than 12,000 years ago. NPR's Richard Harris reports.



Artifacts, stone and bone tools, from the Anzick site

Photo: Sarah L. Anzick

MICHAEL WATERS: Clovis is what we like to refer to as an archeological complex.

HARRIS: Michael Waters at Texas A&M says that complex is a set of tools made of bone and stone. Those artifacts were common for about 400 years, starting about 13,000 years ago. There is only one set of human remains associated with those tools—an infant who was buried along with more than 100 artifacts in present day Montana. Now scientists have been able to read the DNA taken from that precious discovery.

WATERS: So this genetic study actually provides us with a look at who these people were.

HARRIS: The most obvious conclusion from the study, reported in Nature magazine, is that the Clovis people who lived on the Anzick site in Montana were genetically very much like Native Americans throughout the western hemisphere.

ESKE WILLERSLEV: The Anzick family is directly ancestral to so many peoples in the Americas. I mean, that's astonishing.

HARRIS: Eske Willerslev led the effort to read that genome from his lab in Copenhagen. The genes reveal that early Americans are the product of two lineages that most likely met and interbred in Asia before making the trek across the Bering land bridge. Michael Waters says this helps clarify the relationship among Native Americans.

WATERS: So this strongly suggests that there was a single migration of people into the Americas. And these people were probably the people who eventually gave rise to Clovis.

HARRIS: This finding contradicts a long-shot hypothesis that that Clovis's ancestors actually came from Europe, not Asia. But it leaves many other questions about Clovis unresolved. The artifacts from this culture are found from Washington State to Florida and many places in between. But the culture also disappeared suddenly, around

12,600 years ago. Waters doesn't find that too mysterious.

WATERS: People change all the time and cultures change all the time and technologies change. And they change because people are adapting to new environments and changes in climate. And at the end of the Clovis time period, around 12,600 years ago, when this child was buried, you know, the climate was changing. It was the beginning of the Younger Dryas cold snap. This is when you start seeing a lot of cultural differentiation taking place.

HARRIS: The DNA now makes it clear that the people who used Clovis tools lived on, even though they left their old technology behind. But Eske Willerslev says the Clovis genes give only a broad-brush view of how and when migrations throughout the Americas took place.

WILLERSLEV: We have no idea exactly where the U.S. fits in this pattern, and to be completely honest, we have no idea how they actually moved through time, these different groups across the continent. In order to answer that question, there's only one way to go, and that is actually sequencing more genomes from ancient remains.

HARRIS: That will require, among other things, cooperation with native peoples. In the case of the Clovis child, the archeologists worked closely with modern tribes to make sure they were treating the remains appropriately. They say the Clovis infant will be reburied on the property where he was unearthed later this year.

DNA Politics: Anzick Child Casts Doubt on Bering Strait Theory

Indian Country Today
By Alex Ewen
March 11, 2014

Scientists from the University of Copenhagen and Texas A&M have analyzed the DNA of the remains of a young boy ceremonially buried some 12,600 years ago in Montana. Their new data sheds light on the ancestry of one of the earliest populations in the Americas, known as the Clovis culture, but also rekindles the debate over the ethics of handling ancient remains and the political consequences of scientific studies of Indian peoples. It also undercuts recent attempts by archaeologists to deny the antiquity of Indians and thus avoid the political and legal repercussions of disturbing ancient burial sites or mistreating ancient human remains.

The analysis, published last month in Nature, shows that today's indigenous groups spanning North and South America are genetically related to the early peoples who roamed this continent, overturning previous, controversial findings by scientists and the courts. Over the past 15 years a subtle shift has occurred in the nomenclature of the oldest period in America's prehistory. Whereas previously the inhabitants of this hemisphere in the period before 8,000 BC were known as Paleoindians (Ancient Indians), starting in 1999 a number of archaeologists began to insist on referring to them as Paleoamericans (Ancient Americans).

Related:

More Reasons to Doubt the Bering Strait Theory

According to these archaeologists, recent scientific studies cast doubt on whether these ancient peoples were related to modern Indians. The change in terminology was needed to "avoid an inference of biological continuity between the current Native American populations and the earliest populations."

There were concerns from some quarters that the change was due less to science and more to politics. It did not go unnoticed that the principle advocates for the term Paleoamerican were the archaeologists Robson Bonnichsen, the director of the Center for the Study of the First Americans at Texas A&M University, and Richard Jantz, director of the Center for Forensic Anthropology at the University of Tennessee, Knoxville. Both had also been lead plaintiffs in the famous suit brought by

archeologists against the federal government, *Bonnichsen, et al. v. United States, et al.*, otherwise known as "Kennewick Man."

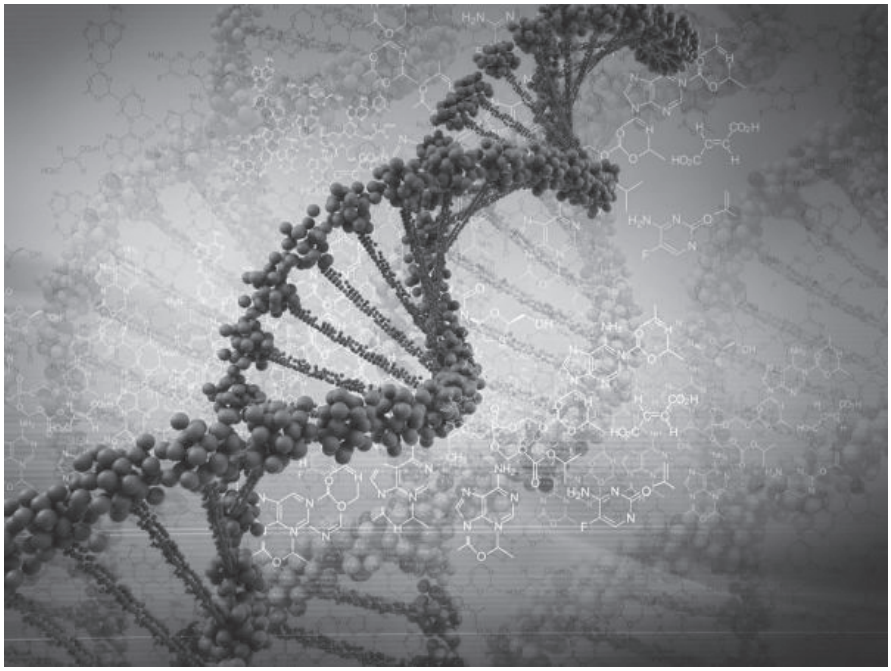
The *Kennewick Man* case brought to the fore simmering animosities between Indigenous Peoples and the archaeological community. The remains of a prehistoric person had been discovered in 1996 on the banks of the Columbia River in Kennewick County, Washington. Over the next eight years, a bitter legal battle ensued between archaeologists, who wished to study the body and store it for posterity, and the federal government, which was enforcing the Native American Graves Protection and Repatriation Act (NAGPRA) on behalf of the Umatilla tribe, which wished to rebury him.

The archaeologists emerged victorious in 2004 when the courts ruled that there was no scientific evidence that the remains were Umatilla or related to any contemporary Indians.

Given the length of time since Kennewick Man's death, more than 9,000 years, and the then state of science, it was virtually impossible for the Umatilla to have scientifically proven a connection to him, and indeed, scientists could only speculate as to who he might or might not have been related to.

Thus the introduction of the new term, Paleo-american, represented a legal coup as well as a political statement. If the most ancient peoples in the Americas were not Indians, then the past belonged to science, both as the arbiter of truth, and as the lawful owners (or legal guardians) of anything they might uncover.

David Hurst Thomas, curator of the Department of Anthropology at the American Museum of Natural History in New York City, had already discussed the threat simple changes in language could pose in his book *Skull Wars: Kennewick Man, Archaeology, and the Battle for Native American Identity*, when he argued that, "The power to name reflected an underlying power to control the land, its indigenous people and its history."



What was very interesting was the Y-chromosome (passed from father to son) results, which was not reported in the press.

The Choctaw anthro-pologist Joe Watkins took this a step further and noted ominously that "If the naming of geographic features carries with it such power, imagine the power of being able to name the culture that used that geography."

The new genetic analysis of the Anzick child–found in Montana in 1968 but only recently was the technology available to retrieve and analyze his DNA–undercuts the idea that ancient Indians were not related to modern Indians and has now removed any reason for using the term Paleoamerican; these ancient people were not Americans, they were Indians.

The Anzick infant, less than two-years old, died about 12,600 years ago. His family stained him with red ochre and he was buried carefully in a grave, likely wrapped in leather which subsequently disappeared over time, along with 115 bone and stone artifacts, all stained with red ochre as well. The child rested undisturbed until his remains were hit by a bulldozer in 1968.

As the naturalist Doug Peacock relates in his book, *In the Shadow of the Sabertooth*:

It's possible that no ancient American human skeleton has been treated more shabbily than the Anzick child. The discoverers, not understanding the significance of their find, took the burial materials home and scrubbed them hard with brushes in the sink, trying to get all that red stuff off. The fragmented human remains have been separated and handled by dozens, maybe

many dozens of modern humans since their discovery. Cranial fragments were glued together with rubber cement. Everybody who came through carried off a few pieces of the child's skeleton.

But in a sign that times are changing, the Anzick family, on whose land the child was found and who own the tiny skeleton, are working with Indian tribes in Montana to rebury the infant. The scientists claim the genetic analysis proved that Indians were originally from Siberia and migrated across the Bering Strait 15,000 years ago. Michael Waters, the co-author of this study, published February 12 in the journal Nature, said to the press:

The genetic data…confirms that the ancestors of this boy originated from Asia…A single migration of humans introduced the majority of the founding population of the Americas south of the ice sheet at the close of the last Ice Age [15,000 years ago].

But this statement is by no means the consensus among those who study American prehistory, nor are his conclusions necessarily born out by the findings. If anything they actually raise more questions than they answer.

Waters and his associates found that the child is a member of one of the five "haplogroups," of Mitochondrial DNA (passed from mother to children) that are commonly found among Indian people, haplogroup D.

This halpogroup is widely found in Asia and Siberia, and there is no question that there are genetic links between the two hemispheres. What was very interesting was the Y-chromosome (passed from father to son) results, which was not reported in the press.

Branches 21 and 25 represent the most recent shared ancestry between Anzick-1 and other members of the sample. Branch 19 is considerably shorter than neighbouring branches, which have had an additional ~12,600 years to accumulate mutations.

In other words, compared to other similar DNA, for example those of certain Mayan Indians (the "neighboring branches"), the Anzick child's DNA was approximately 12,600 years younger. Since the child was already 12,600 years old, it would mean that the Mayan DNA was at least 25,000 years old and imply that the Mayans had left Asia, or genetically separated from Asians (if indeed they actually came that way), more than 10,000 years before the current theory says they should have.

Genetic studies have consistently shown that Indian DNA is very ancient, but since most archaeologists do not accept the idea that Indians have been in the Americas longer than 15,000 years, the discrepancies between the genetic dates and the mainstream archaeological views have yet to be explained to anyone's satisfaction.

The theory that Indians first crossed into the Americas through the Bering Strait 15,000 years ago, although firmly held by archaeologists for more than 100 years, has come under increasing challenge, not simply from genetic evidence, but also from new archaeological discoveries in South America.

An American Indian Perspective on Ancient Burials

Responses to a questionnaire by Wabusk Ragged Robe, Enrolled member of the A'aninin (White Clay People) widely known as the Gros Ventre

One person's archaeological record is another person's final resting place. I think that ancient Native American burial sites should be treated with respect and left alone or quickly re-interred, without being subjected to research. Modern Native landholdings represent a fraction of their former traditional territories. Many burial sites are outside of reservation borders. The Native American Graves Protection and Repatriation Act (NAGPRA) does not apply to private property. Repatriation is another option. Although the Anzick child cannot be clearly identified as Crow, and some members of the Crow tribe as well as other Montana tribes did not want to claim responsibility for reburial, Shane Doyle and other Crows stepped up on behalf of the child because it is located in their (Crow) former traditional and political territory. Because of development, there are more and more remains and artifacts being unearthed unintentionally that need to be left alone, repatriated, or reburied in a safe location.

Native Americans rarely gain anything from scientific and genetic research that is conducted on ancient sites and remains. Kennewick Man comes to mind because tribes were not allowed to claim him at first because of his "scientific importance". In the end, tribes could not claim him because experts determined he was not irrefutably of Native ancestry. The Yanomami of South America were victimized through genetic research because their DNA was patented by researchers. Lately, these types of research have been used to buttress the Bering Strait theory and discredit Native histories. There has been enough collecting, research, and examination of Native People living and dead.

As a Native American person, I do not believe that remains of Native Americans should be studied, or any ancient remains for that matter. When remains are discovered, their being studied often results in their eventual storage or display. Unearthed pioneers, settlers, and colonists rarely suffer the same fate as Native remains. At the courthouse in Bozeman, there are historical display cases. There is no mention of the centuries of Native presence, history, or contributions of Indian people to Bozeman or Montana. There are human remains in the cases. It should not be surprising that the remains are of a Native person. There are no remains of white people, but great attention is paid to their history and "contributions" to the city and state. Native remains are not afforded the same respect as that of non-Indians.

It is a Native American belief, that children are not our own, they are on loan from the Creator for us to take care of. Also, Native people understood death as the final of the four stages of life. Mourning a loved one is a serious task for Native people. In earlier times, among my tribe, when a parent lost a child they would cut their hair, slash their bodies, and wander the hills crying without food and water for days until a relative could convince them to return. When a person dies they are cleaned and dressed in the best clothing available. The deceased's prized possessions are placed with them so they do not return to look for them. There is a journey feast and ceremony four days after they passed, and a memorial feast or ceremony a year after the death. The ceremonies are for both the survivors and the departed to heal and move on. This child [Clovis child from the Anzick site] was obviously beloved, and is a great example of the care and love that Native people utilize in their funerary practices.

Artifacts that are found at burial sites should remain intact with the remains they were discovered with. The artifacts that are found with Native Americans are not there by accident. They were personal effects of the dead, or placed there to satisfy the bereaved relatives' belief in the life cycle which includes an afterlife where the object could or would be needed by the departed. The underlying belief is that possessions are placed with them so they do not return to look for them which allows for their journey and transition into death and beyond. This transition is important to the deceased so the living perform the burial and subsequent ceremonies or observations to do their part to help out the loved one that was lost. Artifacts are somebody's earthly possessions and often are part of the spiritual equipment needed to face death and achieve eternal peace. Ancient people's remains can be found on display with the artifacts they were buried with. What is eternal or peaceful about that?

An American Indian Perspective on Ancient Burials

Responses to a questionnaire
By Tara Top Sky, Enrolled member of the Neh-iy-aw tribe widely known as the Chippewa-Cree

When a burial site is found the first thing to do is to find out which tribal people occupied the area and than to contact the tribe (council, culture committee, Tribal Historic Preservation Officer (THPO), and/or elder(s)) If the region is unknown, tribally, than there is a Culture Committee and THPO office in Rocky Boy, Montana that specifically deals in Native American archaeology sites across the country to survey the sites and offer solutions to resolve such matters.

I actually do not think that anything could be gained from scientific or genetic research of burial sites. In the Native American culture a burial site it meant to be the final resting place of the deceased as is in any other culture. There are other Native American sites that could be scientifically studied for the gain of knowledge of the early people of this continent.

Objects of ancient American Indians could be studied if they are not from a burial site. There is much to be found and studied of the Native American culture in other areas besides a burial site. There are many buffalo jumps and camp sites, and still to this day artifacts are being found in Yellowstone National Park along the rivers and old trails.

The artifacts that are found at a burial site should be treated with the utmost respect. In my own Native culture we smudge ourselves with sage and say a prayer for ourselves and the deceased before and after leaving a burial site. We are told not to take what is left with the deceased because it is a part of them and we do not want to disturb their final resting place. If they do have to be moved they should be reburied with everything that they were buried with.

I know the curiosity that goes along with finding such an old site and wanting to know who these people were and where they came from and all of the other questions that go along with the curiosity. If there was anything that comes from surveying such a site it would be that the Bering Strait Theory is something to be questioned by all people who still believe it. Native Americans are the only ones that were born of this continent from the beginning of time. As told to me by my elders.

I think [the Clovis child burial] shows the love they had for their child by even having a burial site. I think that any parent would feel much grief at the loss of a child. I believe that if there was not any love for the child they would have not even buried the child. In my own Native culture, there are stories of how my people have been here since the beginning of time, the oral stories that have been passed down could not have been done if there was not love for and of the people. They are stories of family and how to be together as one, as well as to get along with everyone in my own culture.

What do we owe the Clovis child?

Last Best News
Guest Editorial
By Larry A. Lahren
March 30, 2014

In May 1968, while removing fill material with a front-end loader on Mel and Helen Anzick's property near Wilsall, equipment operator Ben Hargis saw a prehistoric stone tool fall out of the bucket. Along the edge of a prominent outcrop, where Flathead Creek and the Shields River join, Ben found the gravesite of a 1- to 2-year-old male child, interred with more than 100 stone tools covered with red ochre.

This burial is the most significant Paleoindian site in North America, representing the earliest evidence of religion in the Western Hemisphere and the oldest, most complete assemblage of funerary items left by the Clovis culture that lived here at least 11,000 years ago.

Since I first viewed the burial artifacts and skeletal remains in 1968, my role has been to ensure that this child, and what his parents intended for him, received the respect we all deserve.

An international research team led by Professor Eske Willersev, director of the Center for GeoGenetics at the University of Copenhagen, Denmark, has implied that they followed respectful, legal and ethical guidelines during the course of their recent genetic studies.

But did this happen?

House Bill 165, the Montana Repatriation (Reburial) Act, was introduced to the Montana Legislature in 2001. The act was created at the request of the Law, Justice, and Indian Affairs Committee.

Eddye McClure, staff attorney for the Montana Burial Preservation Board, opined that:
"both common law and legal decisions have consistently recognized that human skeletal remains are not property abandoned when interred. Discoverers, therefore, have no right of ownership, and they cannot confer a right of ownership to another. Neither a private nor public person, other than a descendant of culturally affiliated group, can legally claim ownership of human skeletal remains or funerary objects."

When the political dust settled, Clovis burial funerary items were excluded from the act. However, it still provided the intent and tribal standing for the repatriation of the Clovis skeletal remains. At the time, the location of the skeletal remains, which had been taken out of state, was not even known to tribal representatives.

More than a year ago, I was advised that genetic studies of the Clovis child were complete. Willersev asked me to give the project my after-the-fact blessing and to be one of 42 co-authors on an article to appear in Nature magazine (Feb. 13, 2014). Another request was to arrange for Native contact in Montana. I declined and suggested the researchers contact the state archaeologist, the Montana Burial Board and Montana tribal Leaders.

At a pre-publication meeting on Sept. 21, 2013, Professor Willersev had a problem. Studies were already complete—so how could he show that he followed legal and ethical guidelines and demonstrated proper respect for the child's remains?

Continued on page 22

From left, Shane Doyle, Eske Willerslev, landowner and researcher Sarah Anzick, Larry Lahren and Linus Mørk production crew visit the Anzick Clovis burial site near Wilsall on Sept. 22, 2013.
Photo: Jerry Brekke, courtesy of Cayuse Press

To reduce Willersev's angst, I invited Shane Doyle, Crow tribal member and adjunct professor in Native American studies at Montana State University, along with a teacher and students from Crow Agency to visit the site the next day.

Shane had no knowledge of the genetic studies, or the politics involved. I made it clear to Willersev that Shane was an independent visitor, not a representative of the tribes, the university or any other entity. At the site, I explained the burial context. Willersev then stated that the Clovis child shared genetics with contemporary Native Americans.

"Speaking from the heart, I think you should put him back now," was Shane's long-thought-out response.

He then agreed to be an unofficial liaison with the Montana tribes.

During a whirlwind tour to the Northern Cheyenne, Salish-Kootenai and Blackfeet reservations, tribal leaders asked the Crow to pursue repatriation of the child's ancient remains. Larson Medicine Horse will oversee the ceremony, scheduled for this June.

What about the funerary items associated with the child? The burial of "replicas" has been suggested.

For nearly 50 years, the Clovis burial has been subject to institutional and individual opportunism, aggrandizing and "ownership" by what I call "Clovis carpetbaggers."

Last month, when I visited the Clovis child's funerary items on clinical display at the Montana Historical Society, I was overwhelmed with the same humble, naive feelings I had when I first beheld them.

I wondered what message has been sent to the people who buried the child; to those that are genetically related to them; to this and the next generation of archaeologists; and to humanity?

Do colonial attitudes and science's "need to know" override ethics, law and respect for Native American values?

—Archaeologist Larry A. Lahren, of Livingston, owns Anthro Research Inc., an independent archaeology firm created in 1971. He is author of *Homeland: An archaeologist's view of Yellowstone Country's past.*

Stone and bone tools from the Anzick site **Photo: Samuel Stockton White • www.anzicksite.com**

Indian Education
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Copies of this public document were published at an estimated cost of $. per copy, for a total cost of $ .00, which includes $ .00 for printing and $0.00 for distribution

Cover Design: Ellen Leidl