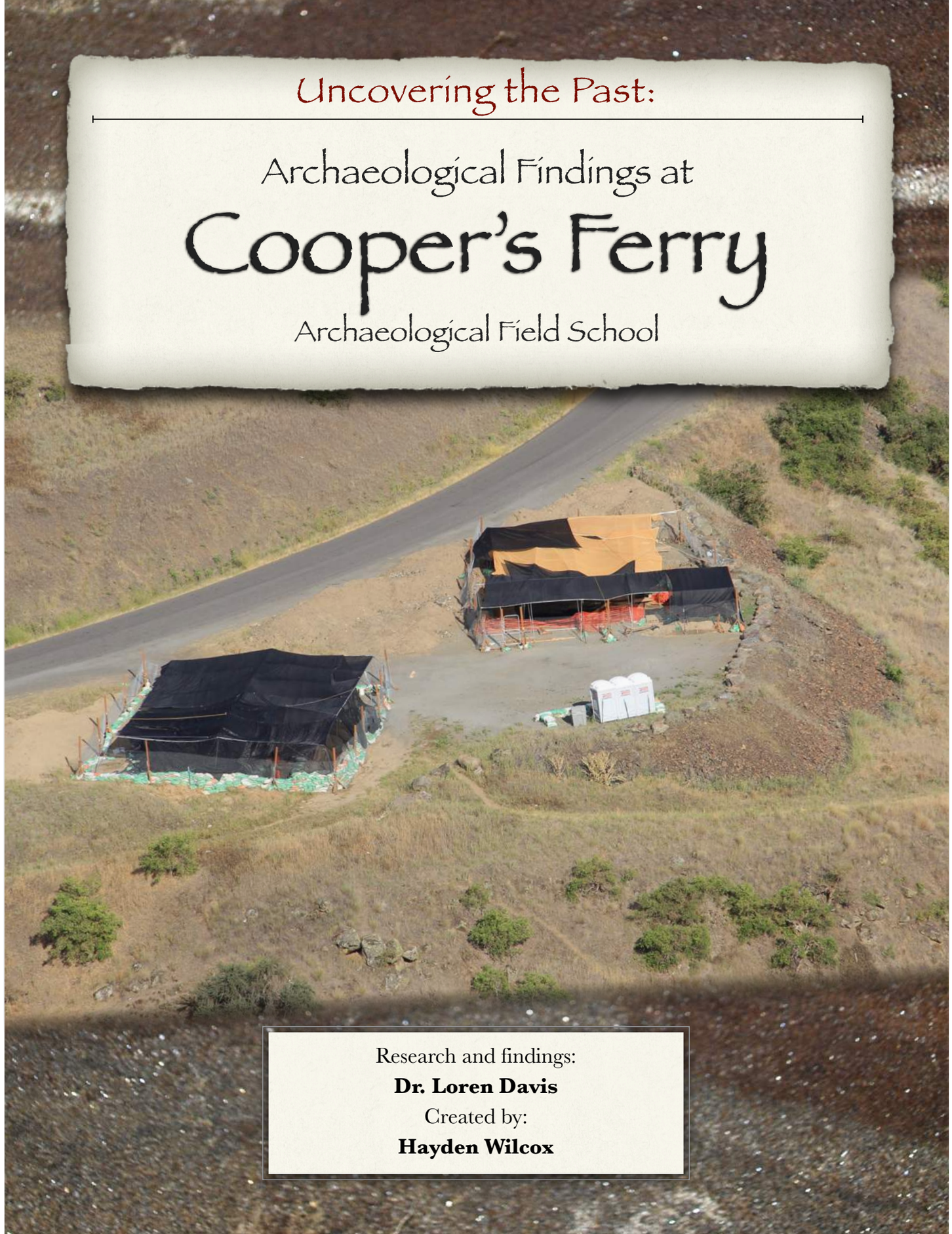
Uncovering the Past:

# Archaeological Findings at Cooper's Ferry Archaeological Field School




Research and findings:

**Dr. Loren Davis**

Created by:

**Hayden Wilcox**

*Chapter 1*

# SITE SUMMARY

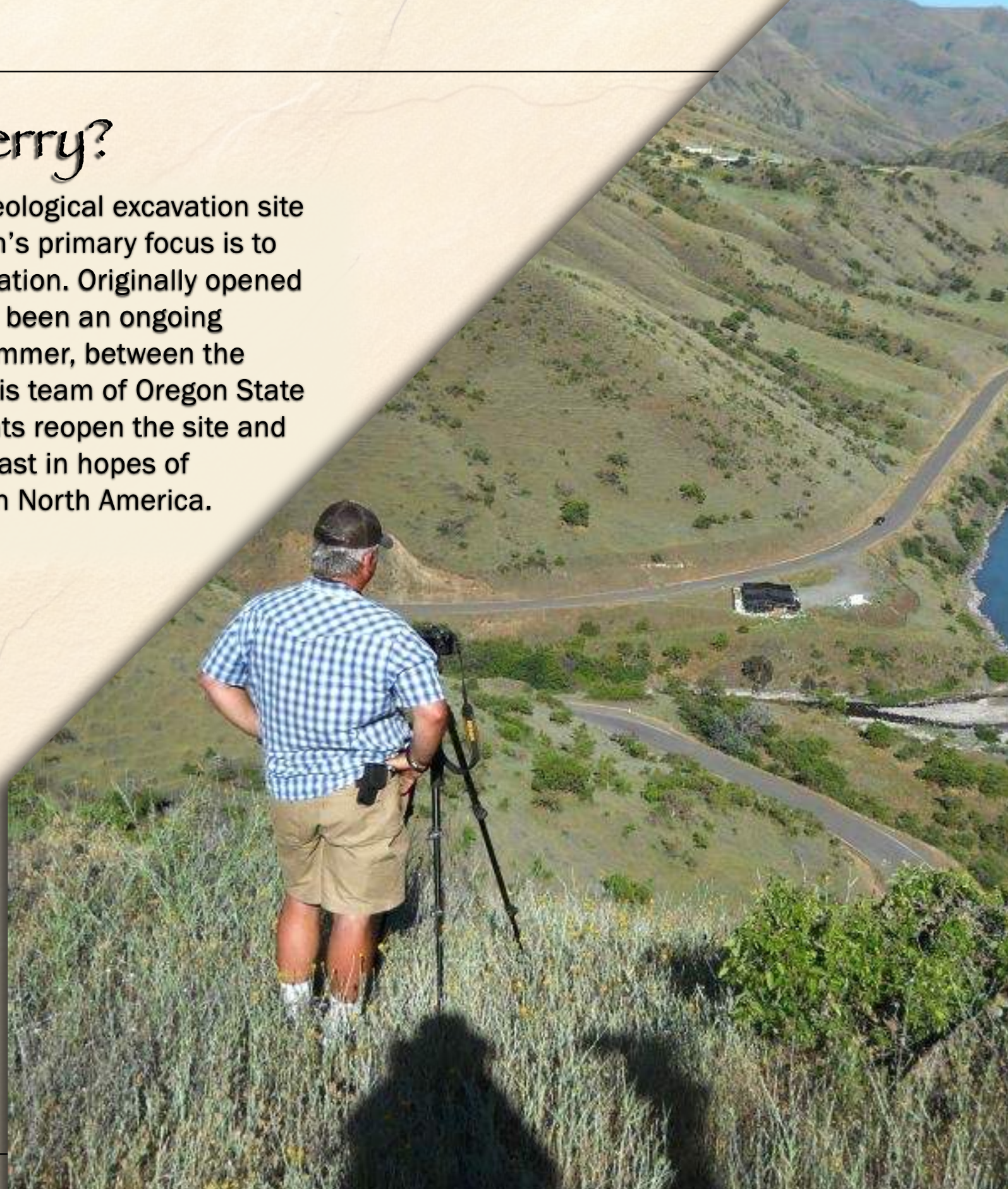
Have you ever wondered about how humans first came to North America? Have you ever thought about what life would have been like as a hunter or gatherer in the times of **Mammoths**, **Mastodons**, and 12 foot tall **Giant Ground Sloths**? What was life like back in the days where the ice caps were finally receding from their icy hold over most of the northern United States?

Cooper's Ferry is a **prehistoric**, **pre-contact archaeological** site that may help researchers determine what life was like at the end of the last ice age, determine how humans may have interacted with their environment, and even answer the question: who were the first people to step foot on North American soil?

# What is Cooper's Ferry?

Cooper's Ferry is an active prehistorical archaeological excavation site located along the Salmon River. The excavation's primary focus is to find evidence of human occupation at this location. Originally opened in 1997 by Dr. Loren Davis, Cooper's Ferry has been an ongoing seasonal excavation site since 2008. Every summer, between the month of June through August, Dr. Davis and his team of Oregon State University graduate and undergraduate students reopen the site and continue digging deeper and deeper into the past in hopes of finding evidence of the first humans to settle in North America.

*The excavation site is open Wednesday through Sunday for visitor and public tours.*



# Why are researchers interested?

Cooper's Ferry is one of only a handful of sites in the Pacific Northwest that has not only yielded stone tools of a very unique style and design, but data also suggests that these tools are found in a time period previously thought to be uninhabited by man.

These stone tools found at the site are unlike other stone tools of similar nature found anywhere else east of the Rocky Mountains and may represent an entirely different tribe of early humans that migrated from Asia to North America during the Ice Age.

The nature of where these stone tools are being found, along with other features that are indicative of human habitation - such as fire pits, "trash piles", and other clues indicate that these early peoples or "Paleo Indians" may have been among the first people to inhabit what is now modern day Oregon, Idaho, and Washington.

# Where is Cooper's Ferry?

Cooper's Ferry is located in Northern Idaho, close to the Idaho - Oregon - Washington border. Specifically the Cooper's Ferry excavation site is located alongside the Salmon River in the Lower Salmon River Canyon region.

Cooper's Ferry can be found just 15 miles west of the town of Cottonwood Idaho, directly at the intersection of Graves Creek and the Salmon River.

SECTION 4

# Who funds the site?

The Cooper's Ferry excavation site and the Cooper's Ferry Archaeological Field school are directly supported by two major entities: Oregon State University and the United States Bureau of Land Management.

The site is also supported by several private supporters such as the Keystone Archaeological Research Fund, the Bernice Peltier Huber Charitable Trust, and the National Geographic Society

Dr. Loren Davis, professor of Anthropology at Oregon State University, is the lead archaeologist of the Cooper's Ferry excavation site and the director and instructor of the field school.

David Sisson is the head archaeologist for the Bureau of Land Management Coeur d'Alene district, and oversees the BLM interest of the Cooper's Ferry site.

Chapter 2

# HISTORY

The most commonly asked question by visitors to the Cooper's Ferry site is:

"*How do you know where to dig?*"

To answer that question we not only have to look at the artifacts that we're finding at the site, but how and what ancient peoples would have been doing here in the Lower Salmon River Canyon thousands of years ago.

In order to figure out why we should excavate here, we need to imagine what the environment would have looked like thousands of years ago, and work towards the present day.

# Geologic History of Lower Salmon River

The Salmon River Canyon wasn't always shaped the way we see it today. Over the course of many thousands of years many forces have transformed the landscape through erosion and deposition.

Researchers at the Cooper's Ferry site need to under stand how the environment at the Cooper's Ferry loca tion was formed in order to understand what the environ ment looked like near the end of the last Ice Age, and determine if the landscape was hospitable for human living spaces.

Dr. Davis believes that Paleo Indians of this time period would have returned to this particular site seasonally to escape from harsh heat from the prairie during the sum mer time. He also believes that the intersection of the Salmon River and Rock Creek would have provided an excellent "highway" to and from the prairie to the river. This is one of the reasons why researchers chose this site to excavate.

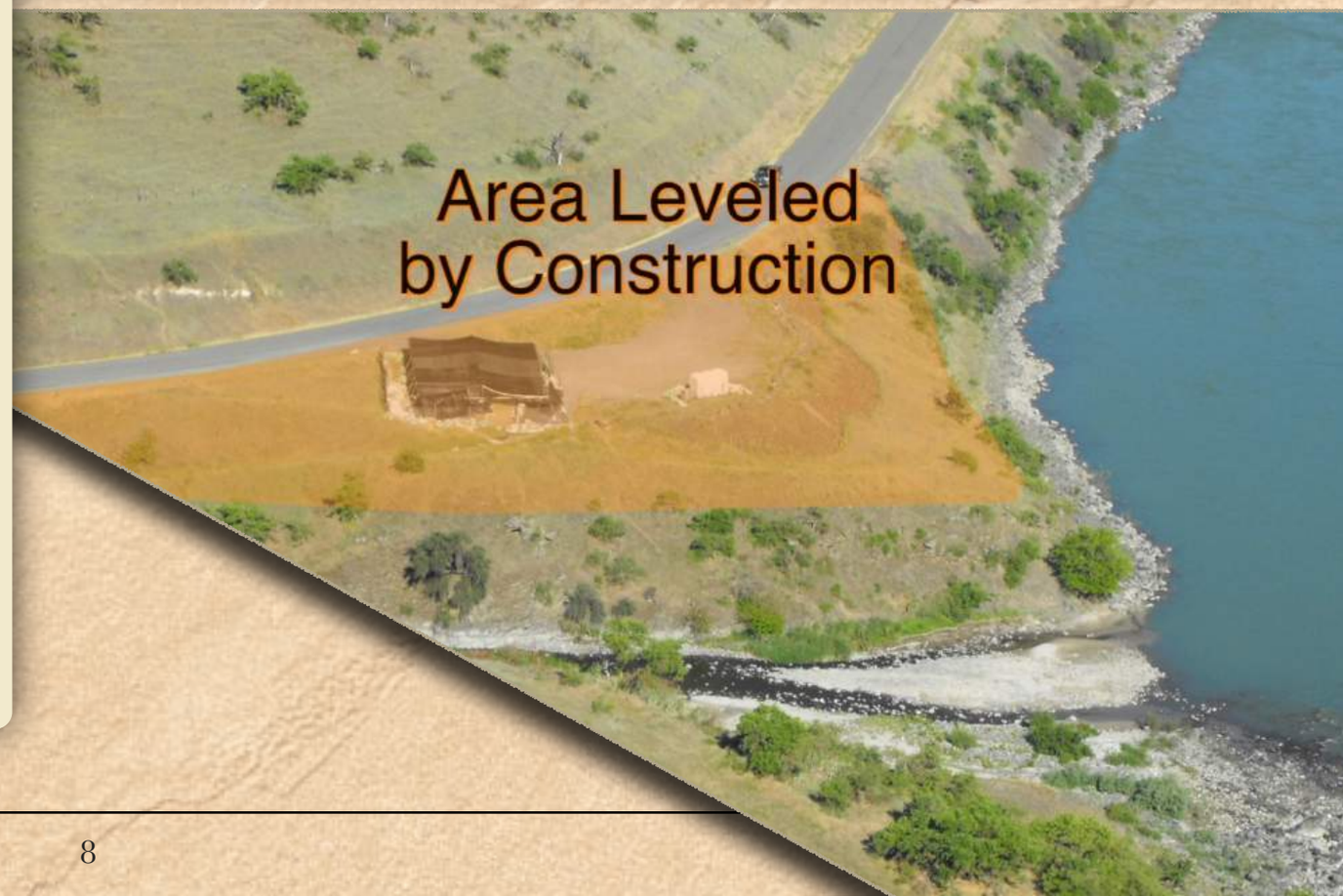
# 1930:
# Works Progress Administration

Scroll:

During the early 20th Century, the Cooper's Ferry Locality as we know it today would have been indistinguishable from the surrounding canyon landscape: steep, sloping hills cascaded into the rushing Salmon River.

In the 1930's, the Works Progress Administration (WPA) and Idaho state officials noticed that the naturally occurring  passage from the Idaho plains to the canyon depths was the perfect spot for the new "Highway 99", which would cut across Idaho's landscape to connect neighboring towns.

For several years, bulldozers, trucks and dynamite blasted away at the slopes of the canyon; creating a



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The Cooper's Ferry site would almost never have been found if it weren't for the curiosity of one man.

In the early 1960s, a professor, B. Robert Butler of University of Idaho, was passing through the town of Cottonwood, Idaho when he noticed strange artifacts he had never seen before. These artifacts were on display in a local grocery store.

When he asked the shop owner where they had found the "arrowheads", the locals showed him a small terrace near the river where they had been gathering sand for their gardens. This was the same terrace that the WPA had cleared nearly 30 years before to make way for the road.

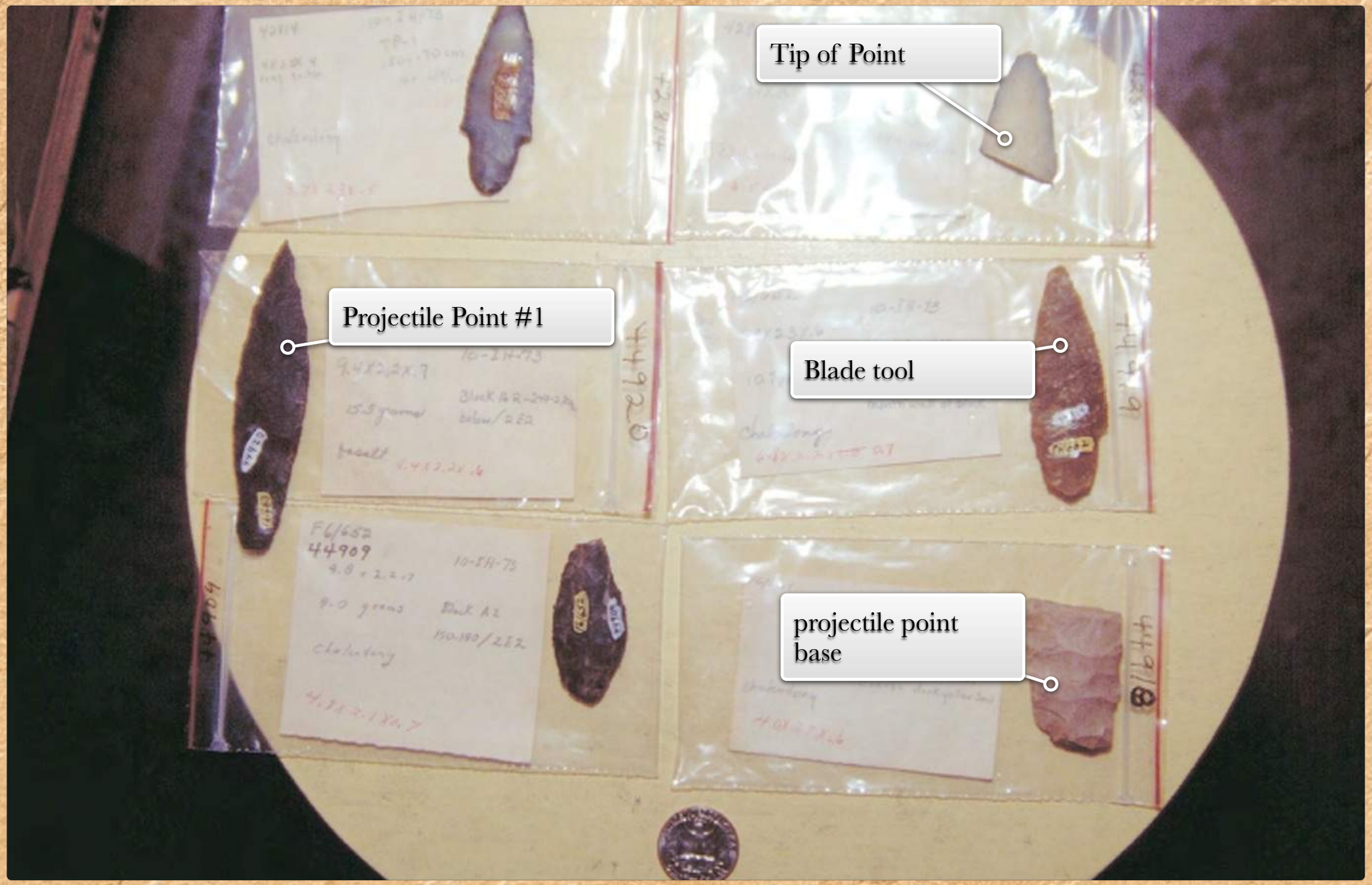
Intrigued by what he found after an initial look at the site, Butler began excavating the site the following summer. Using backhoes, spades and hours upon hours of man hours, B. Robert Butler and his team found many artifacts that looked completely different to those seen anywhere else

# 1960: B. Robert. Butler

*Breaking Ground*

*Shots taken from the initial excavation of the Cooper's Ferry location by Dr. B. Robert Butler (University of Idaho) in the early 1960s*

Tap to learn more about Butler's "weapons cache"



Weapons Cache Found in 1997

This collection of rocks are actually a series of primitive tools from the age of early man. There are three 'stemmed points' [Lower Left], two 'Blades' [ Botton Right], and three projectile points bases[ Top]

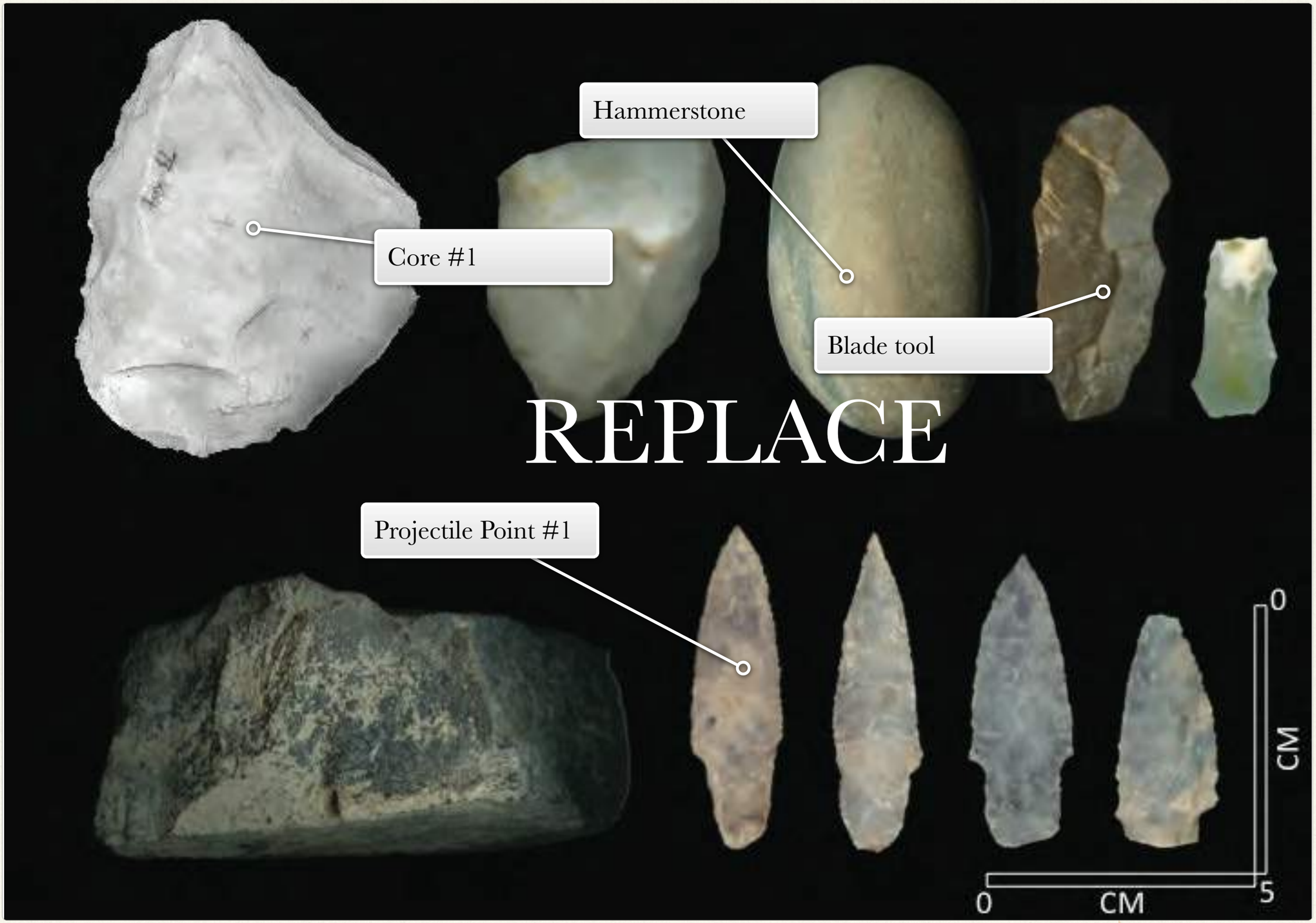
# 1997: Dr. Loren Davis

Scroll:

Years later, Loren Davis, then working on his **Master's Thesis** for his **dissertation**, took an interest in Butler's research. By matching old photos, gathering testimonies from local residents, and with support from the Bureau of Land Management (BLM), Dr. Davis made an educated guess at where he believed the old site to be, and in 1997, dug a "test pit" to see if there was any more evidence of early peoples at the location.

At 3 meters deep ( 9feet) Dr. Davis' discovered a 'weapon's cache' made up of several stone tools that, under analysis, showed evidence of use at some point.

Tap to learn more about Dr. Davis' "weapons cache"



# Time for a test!

*What did you learn?*

**Question 1 of 4**

Who was the first person to investigate the Cooper's Ferry Site?

- **A.** A. Robert Butler
- **B.** Dr. Loren Davis
- **C.** B. Robert Bachelor
- ✓ **D.** B. Robert Butler

Check Answer

Chapter 3

# BIG PICTURE

Cooper's Ferry may represent one of the oldest archaeological sites in the Pacific Northwest.

Many archaeologists believe that the first people to come to North America migrated over to North American from Siberia via an ice bridge during the end of the last Ice Age. The commonly held theory about how people came to the new world is largely in part due to a prehistoric site in northern Montana. The site in Montana suggests humans migrated to North America nearly 12,500 calendar years ago.

Evidence found at Cooper's Ferry suggests that at least one band of people was in the Salmon River Canyon nearly 1,500 years prior to the people found in northern Montana.

# The First People in North America

Most of us are familiar with the concept that early man started in Africa, and spread outwards. Some of the last continents to be inhabited by people include North and South America, but the EurAsian continent (Europe, Asia) and the Americas lie on the opposite ends of huge bodies of water. So how did people get to the Americas thousands of years before Columbus?
This is one of the most important questions for archaeologists and anthropologists in the American continents: *how did people get here?*

To answer that question, many different archaeologists have come up with a variety of different theories that explain the populating of the New World.

# Migration Theories

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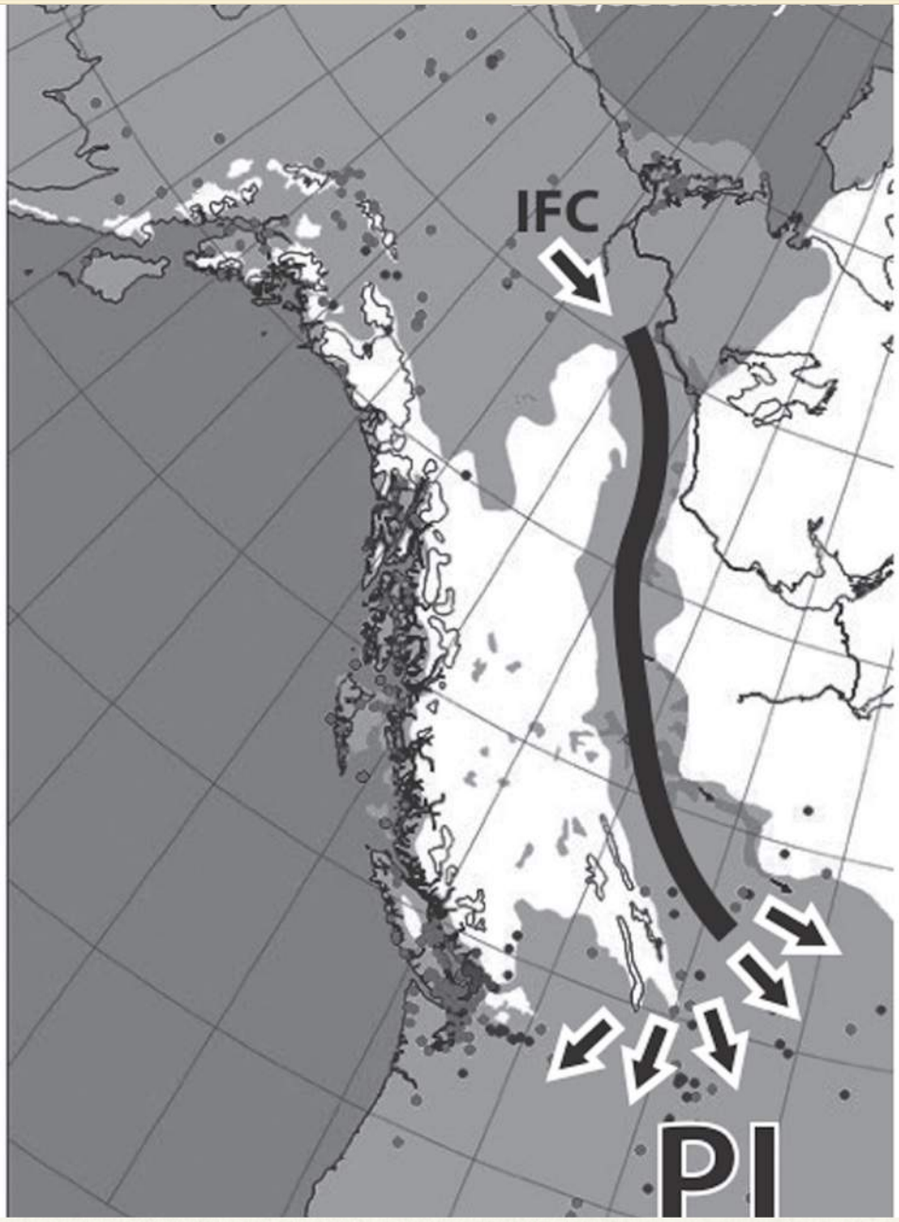
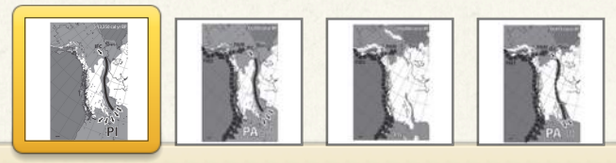
The 'peopling' of the **New World** is a highly contested issue in the American archaeologist community. Not only may it tell us more about the origin of Native Americans as we know them today, but studying the peoples of the past gives anthropologists and archaeologist an better understanding of how early man interacted with his environment.

Through studying ideas about how people came to the New World archaeologists have uncovered fascinating insights into how early man developed stone tool technology, and how that technology was adapted through time to adjust for changes in game, environment and through interaction with other humans.

The most commonly held hypothesis of how people came to the New World includes the use of a land bridge that connected Siberia to Alaska during the




*This is the traditionally held hypothesis. ~13,000 years ago, PaleoIndians (PI) traveled through the Ice Free Corridor (IFC) and established settlements - shown as dots on the map - in Montana and the Pacific Northwest.*



# Clovis and Western Stemmed Tradition

How do we know there were multiple types of people populating North America? What is the difference between PaleoIndians and PaleoArchaic people? The answer is in their respective technologies.

Before you you will notice two arrowheads, but seeing as though bows and arrows weren't seen in the Americas until only 4,000 years ago, we will refer to these objects as "projectile points".

It's obvious to note that these projectile points look very different from each other.

On the left you'll see that a point is shaped like an isosceles triangle.This is known as a "Clovis" point and was found in Montana.

On the right, the projectile point is shaped more like a christmas tree. This is known as a "Western Stemmed Tradition" point, and was found right here in Cooper's Ferry.

These differences in shape may seem unimportant, but show a completely different way of thinking about how to make tools in differ ent environment, and, most importantly, are indicative of completely separate tribes of people. This difference in shape may be one of the biggest clues in determining who was in North America first.

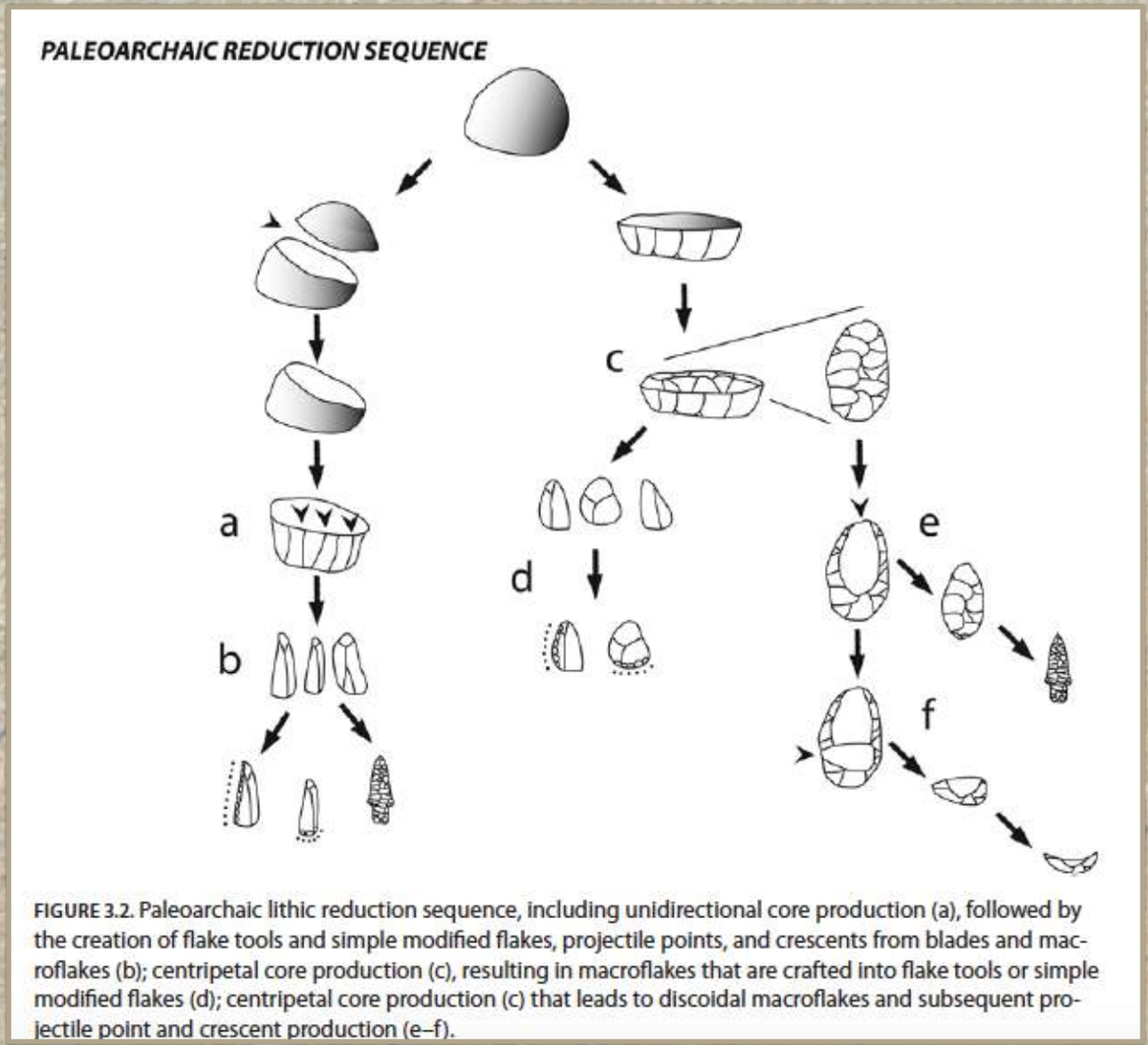



FIGURE 3.2. Paleoarchaic lithic reduction sequence, including unidirectional core production (a), followed by the creation of flake tools and simple modified flakes, projectile points, and crescents from blades and macroflakes (b); centripetal core production (c), resulting in macroflakes that are crafted into flake tools or simple modified flakes (d); centripetal core production (c) that leads to discoidal macroflakes and subsequent projectile point and crescent production (e–f).

PaleoArchaic = Western Stemmed Tradition tool making procedure.

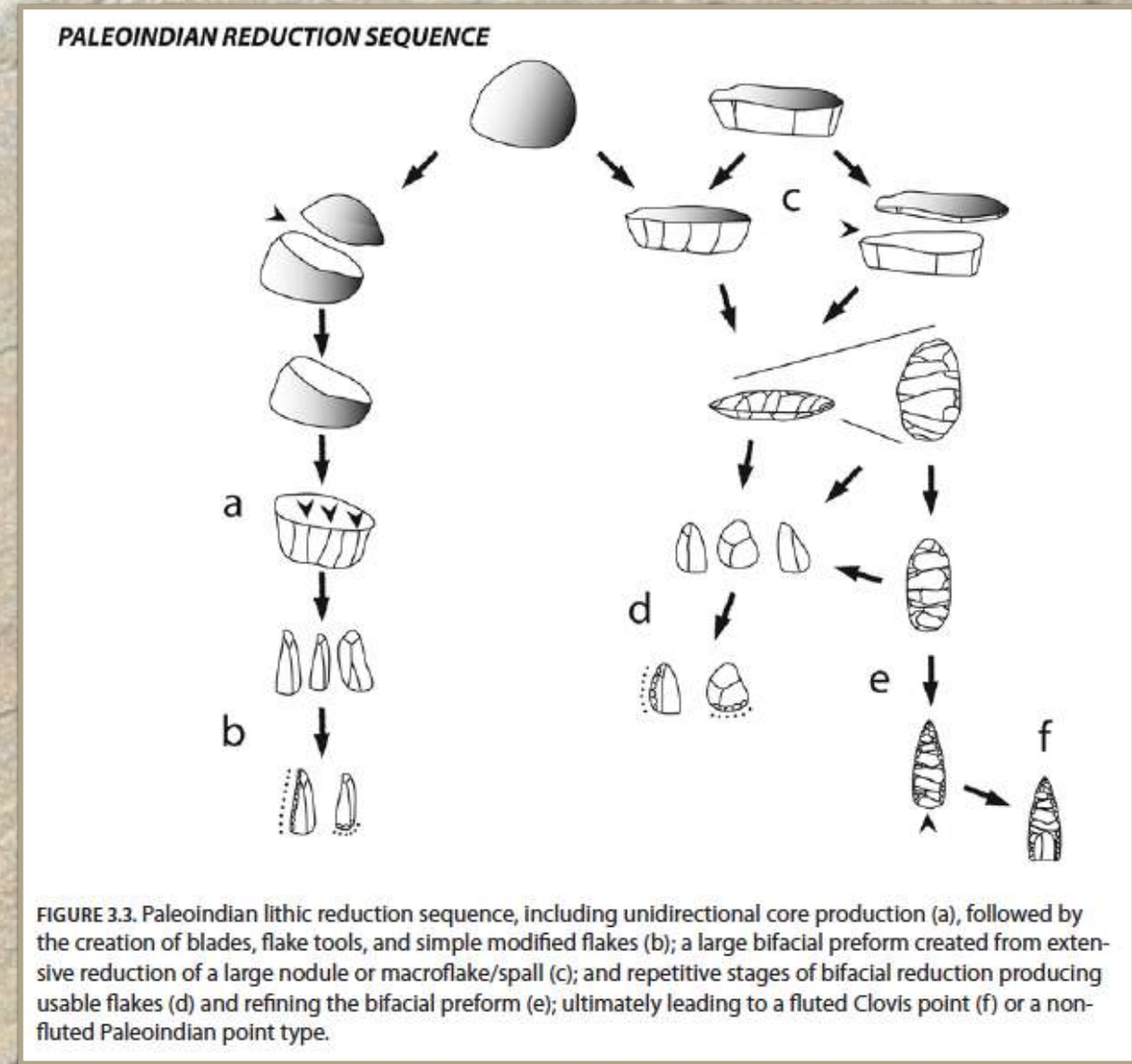



FIGURE 3.3. Paleoindian lithic reduction sequence, including unidirectional core production (a), followed by the creation of blades, flake tools, and simple modified flakes (b); a large bifacial preform created from extensive reduction of a large nodule or macroflake/spall (c); and repetitive stages of bifacial reduction producing usable flakes (d) and refining the bifacial preform (e); ultimately leading to a fluted Clovis point (f) or a non-fluted Paleoindian point type.

PaleoIndian = Clovis tool making procedure.

Above you can see the different processes for making stone tools, respective to each "tribe" of people. You'll notice that the Western Stemmed Tradition (PaleoArchaic) and the Clovis (PaleoIndian) are very similar in nature, but create completely different looking projectile points at the end of the process. This may be due to differences in environment, prey or access to optimal toolstone. In the great plains area, where Clovis is prevalent, projectile points are larger. This may be due to PaleoIndians hunting **megafauna** like Mammoth. West of the Rocky Mountains, Western Stemmed points are smaller, as toolstone was not as prevalent, and game was usually no bigger than moose or deer.

# PaleoArchaic, or, Western Stemmed Tradition Projectile Point Collection.

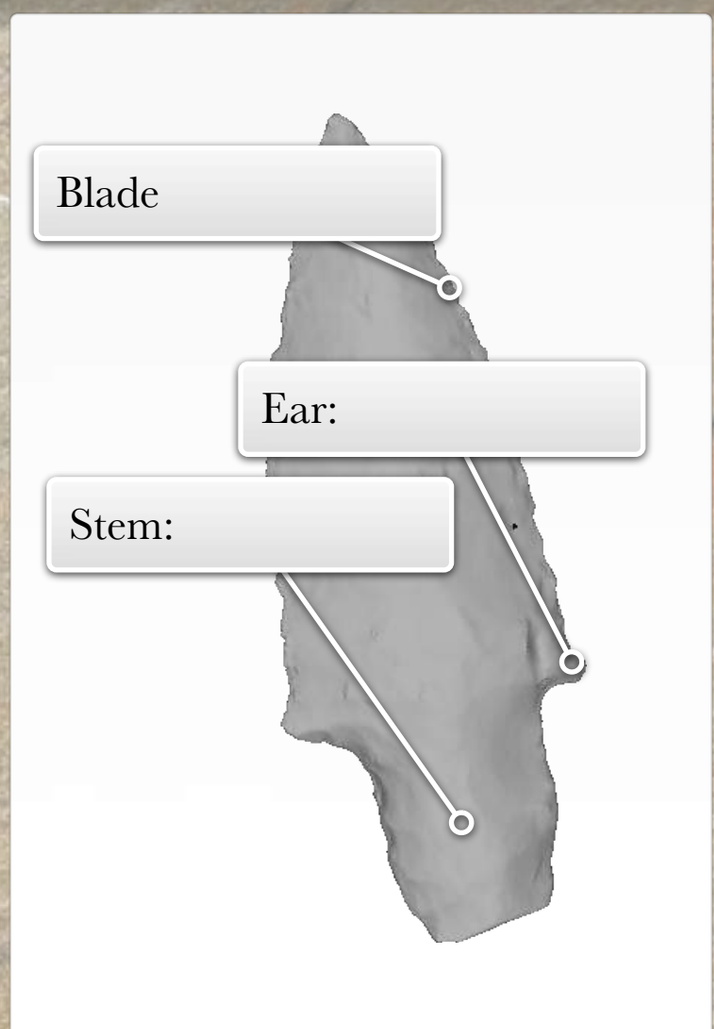
These projectile points were found together in a '**pit feature**' or 'weapons cache' that was found in Area B in 2012. These projectile points were found within inches of each other, which suggests that they were placed in the pit feature purposefully. Dr. Davis and the Cooper's Ferry team believe that these points would have been part of a larger toolkit that a hunter would have used over 10,000 years ago. Perhaps the hunter placed the points in a pit that he dug to hide the points from being stolen or broken, but he never returned to unearth his cache, which is how we found it thousands of years later.

# The Western Stemmed Tradition

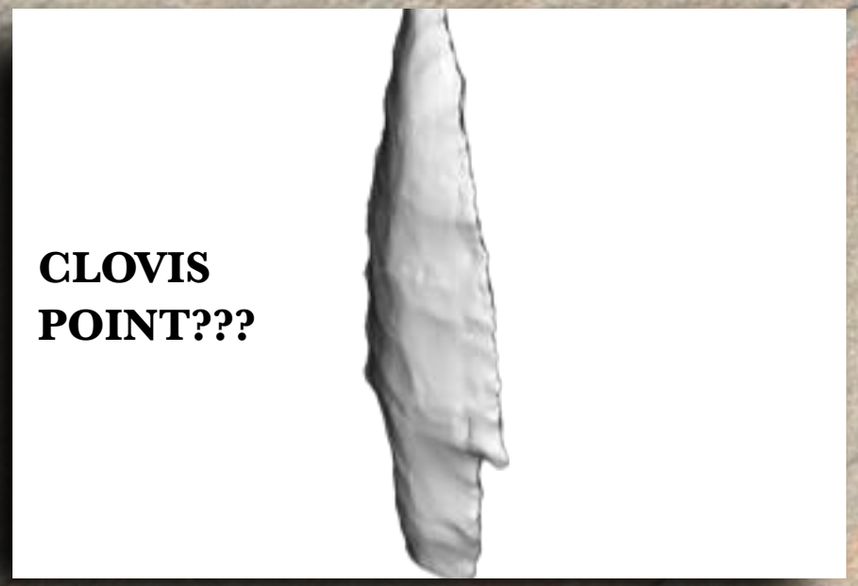
The Western Stemmed Tradition way of making projectile points differs greatly than any other **lithic** technique in the New World. Archaeologists and anthropologists conclude that people wouldn't have forgotten their old techniques completely when they crossed over into America, nor would they have changed their technology so drastically so quickly. Therefore, we can assume that the people who cre ated Western Stemmed points were not the same people as those who created Clovis points.

What makes this discovery so interesting is that the oldest known Clovis point found in North America was found in a settlement in Montana, close to where the IFC (Ice Free Corridor) would have opened into the great plains. Using **carbon dating** methods archaeologists determined that the oldest Clovis point is approximately 12,000 years old. The Clovis tradition was long believed to be the first people to inhabit North America

However, evidence found at the Cooper's Ferry site indi cates that people were living in the Lower Salmon River Canyon approximately 13,500 years ago; 1,500 years be fore the 'Clovis' tribe passed through the IFC!



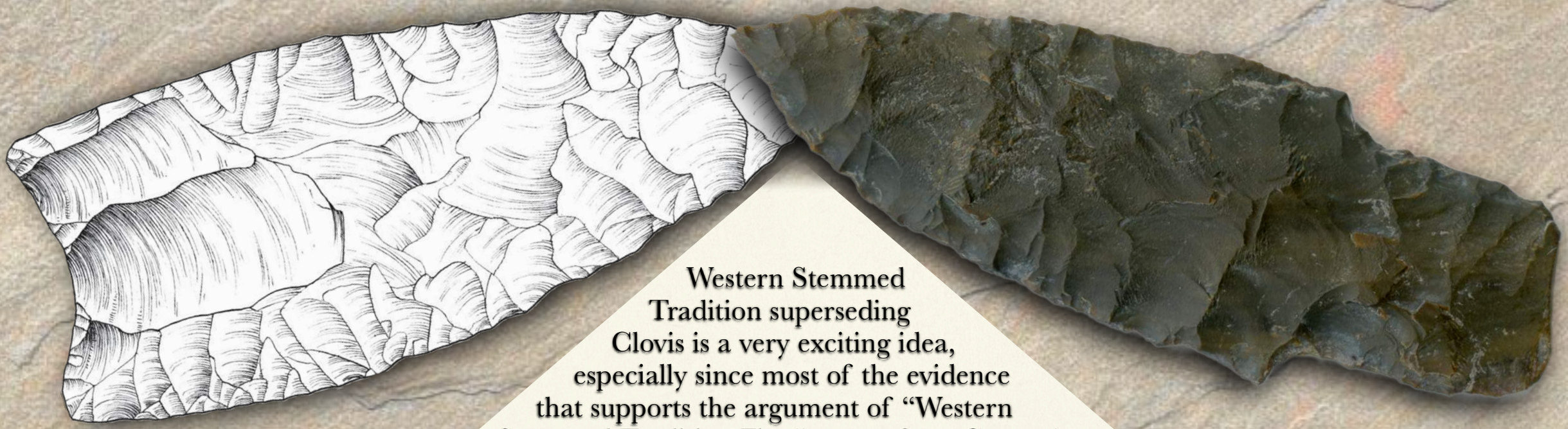
# Touch Me



*Interactive: Western Stemmed Point Scan*

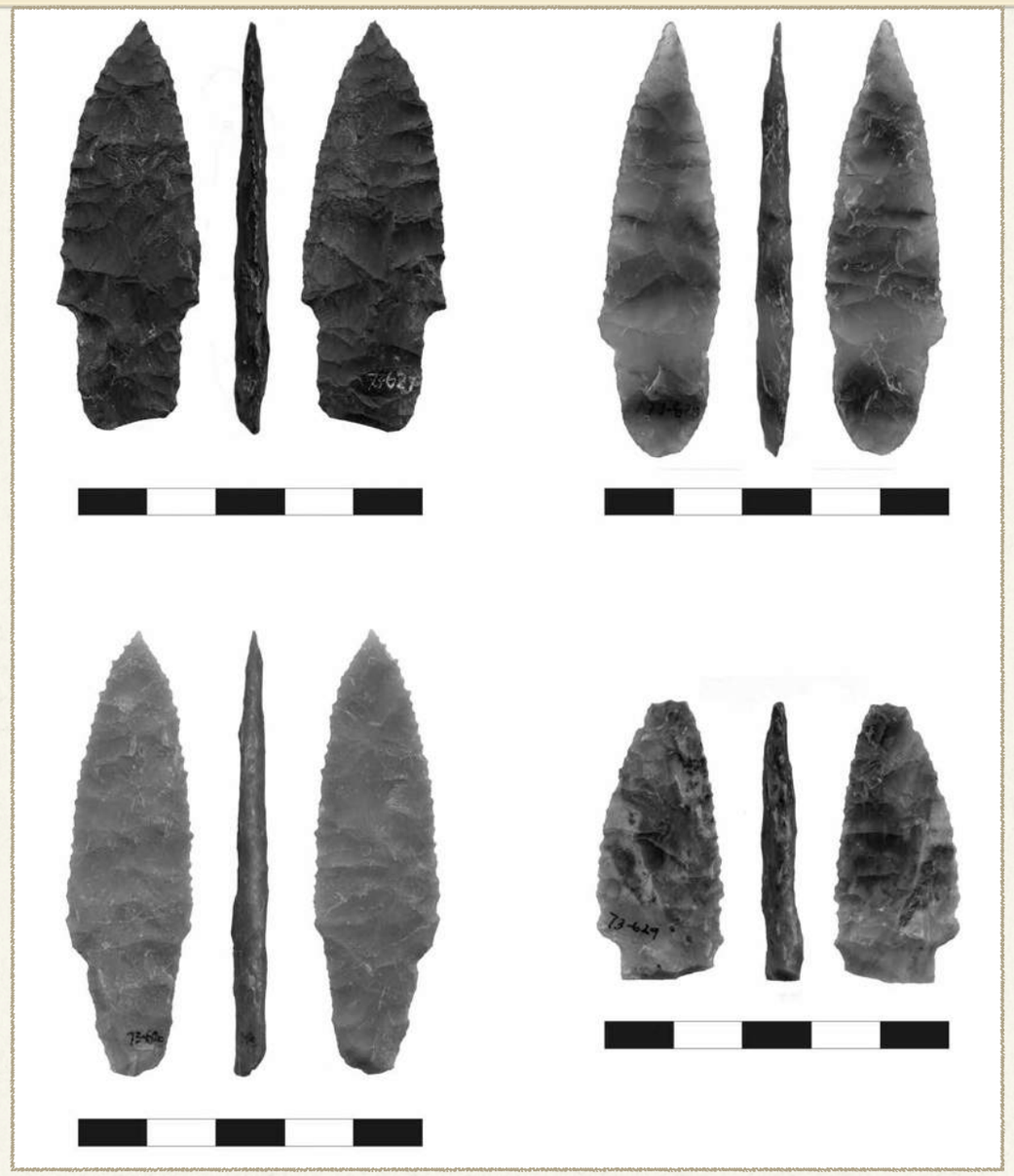
*This projectile Point is a 3D scan of a point found in Dr. Davis' 1997 Weapons cache. Touch to spin it around. Pinch out to make full screen.*

# The Debate



Western Stemmed Tradition superseding Clovis is a very exciting idea, especially since most of the evidence that supports the argument of "Western Stemmed Tradition First" comes from Cooper's Ferry.

Radiocarbon dates on artifacts in the deepest part of the Cooper's Ferry site are very convincing in proving that there was in fact a separate migration of people that traveled along the Pacific coastline, thousands of years before Clovis. Archaeologists at the Cooper's Ferry site have found artifacts and evidence of human occupation at this particular site ranging back to approximately 13,000 years ago. We know this because the Cooper's Ferry team is finding artifacts laid in a particular sediment layer created by wind-blown glacial dust. This fine, flour like sediment is indicative of glaciers eroding away the landscape far upstream. This same sediment is not found, or is beneath Clovis sites in North America, meaning that the dust was laid there before, not during, Clovis occupation.



STEMMED POINT EXAMPLES

- *During the 8 years excavating at the Cooper's Ferry site, the Cooper's Ferry team has found more than 30 intact stemmed projectile points.*

# What does it mean?

Cooper's Ferry is a groundbreaking site not only for its methodologies, but for the significance of the evidence found in certain levels of the site.

This new evidence challenges long held ideas and theories about how people came to the new world. In short, Cooper's Ferry is rewriting the history books.

Western Stemmed Tradition projectile points were originally identified by B. Robert Butler in the 1960s. Butler's original hypothesis that these "stemmed" points were older than the traditional model was unable to be supported by his sub-par research and excavation methods. Little did he know that his original hypothesis would be nearly spot on, and that it would take nearly 50 years for his idea to take root as a very plausible answer to the question of: *who was here first?*

While the Cooper's Ferry site has more research and excavation to continue, the staggering amount of evidence, matched with the precision data catalogue methods make this site an ideal model for excavation sites in the future.

# Time for a test!

*What did you learn?*

**Question 1 of 4**

Besides 'Western Stemmed Tradition', what is the other name for the people who make these projectile points?

- **A.** PaleoIndians
- **B.** Native Americans
- ✓ **C.** PaleoArchaic
- **D.** PaleoNatives

◀ Check Answer ▶

Chapter 4

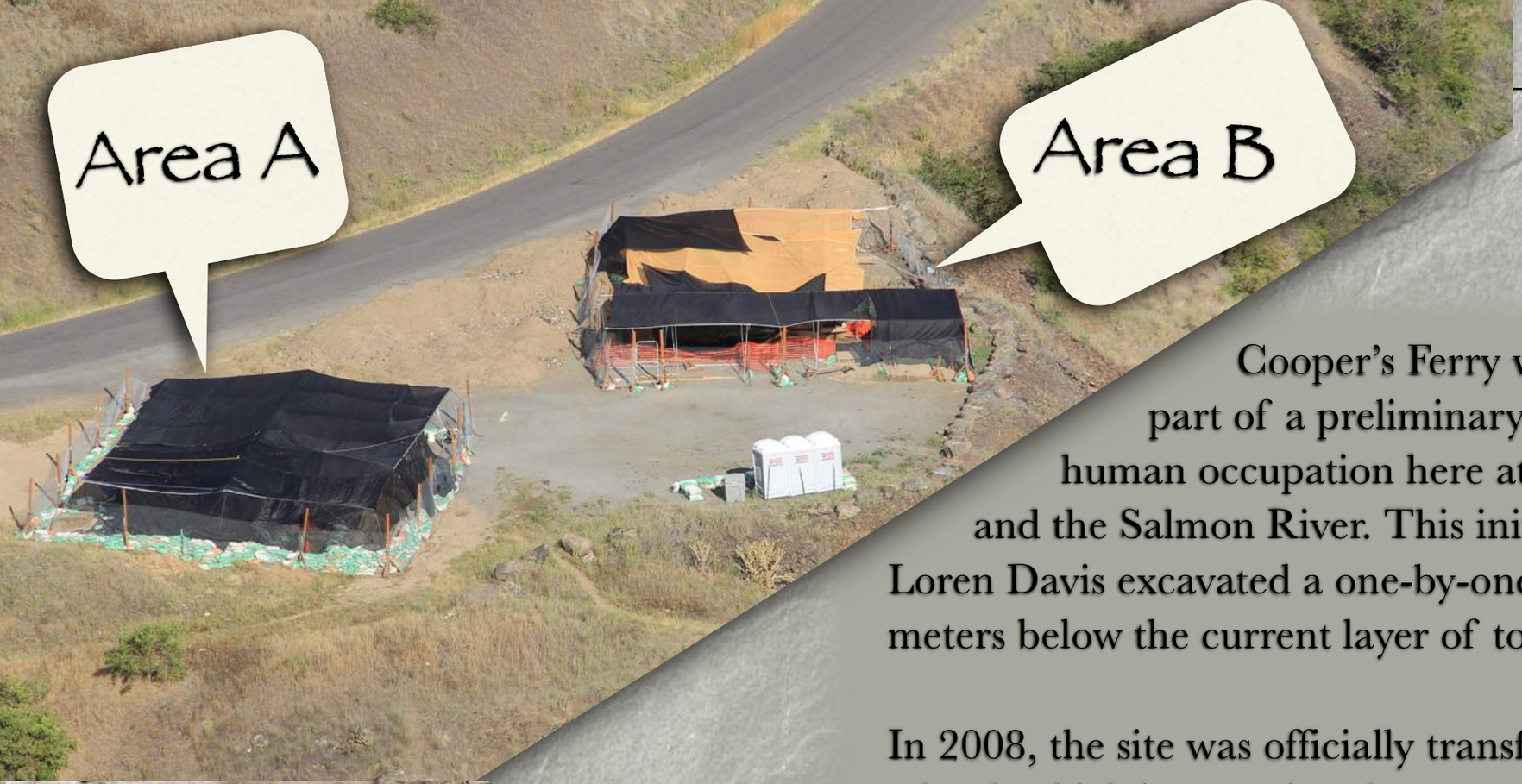
# EXCAVATION and DISCOVERIES

Cooper's Ferry is an active archaeological excavation site and is one of the largest and most technologically complex sites in North America.

The ultimate goal of Cooper's Ferry is simple: to excavate and map everything in place to gather data towards identifying and confirming human occupation in this region of the Lower Salmon River Canyon from 7,000 years to 13,500 calendar years in the past.

Every artifact found at the Cooper's Ferry site, regardless of how small, is important in helping archaeologists find and understand clues regarding how people would have lived in this environment at the end of the last Ice Age.

# The Site




Cooper's Ferry was officially opened in 1997 as part of a preliminary investigation to find evidence of human occupation here at the intersection of Rock Creek and the Salmon River. This initial investigation team, lead by Dr. Loren Davis excavated a one-by-one meter square unit down three meters below the current layer of top soil.

In 2008, the site was officially transformed into an archaeological field school, which is an active classroom eight hours per day, five days per week, Wednesday through Sunday.

Over the course of five years, students and staff members helped gradually expand Cooper's Ferry from a 1 x 1 meter square unit into a 4 x10 meter rectangle that contains 10 active excavation units.

In 2012 a second excavation site was added to the project, this is known as "Area B" and was originally 3 x 3 meters. In 2014 Area B was expanded to 12 x 12 meters, which is it's current size.

# Opening the Site

Opening the site is the first task that must be accom plished in order to start excavating the site.

During the off season - Late August - Mid June, the Coo per's Ferry site is completely buried and is nearly indis tinguishable from the original landscape. Archaeologists bury the site every year to rebuild the local fishing spot, and to deter looters who might otherwise dig into the site illegally.

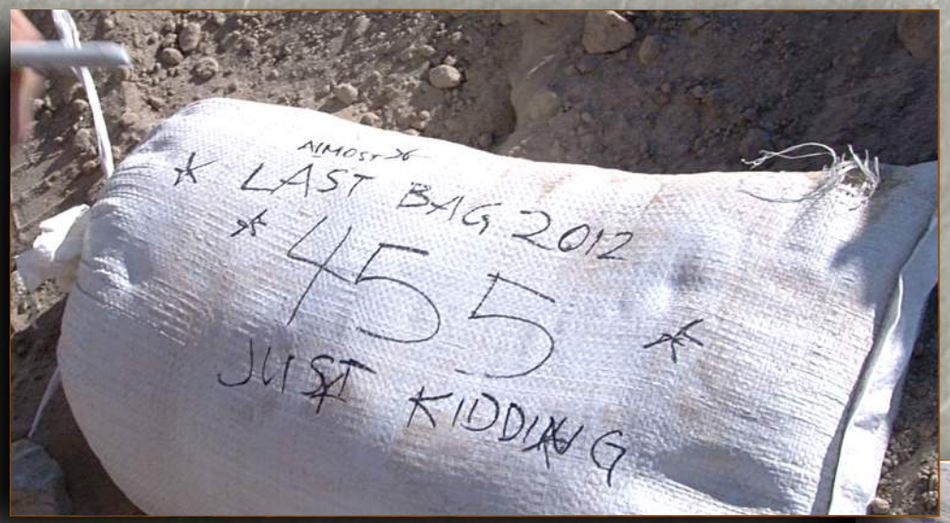
Before the site can be uncovered, the Cooper's Ferry team builds a sun shelter, to protect against UV rays. This shelter provides some shade and allows wind to pass through the site. This makes the excavation area drastically cooler than the surrounding environment.

Instead of filling the site with dirt after the field season, the Cooper's Ferry team uses sandbags to fill in the site. All of the dirt that was excavated in the dig season is put into sandbags and these sandbags go back into the hole to replace the volume taken out. Each full sandbag can weigh up to 50lbs.

*The aluminum pole structure is lightweight so it can be easily torn down and rebuilt at the beginning and end of each field season.*

Over eight years of excavation, the Cooper's Ferry team has filled nearly 14,000 sandbags for both Area A and Area B. That means at the beginning and end of the field school, the students and staff at Cooper's Ferry have to remove nearly 700,000lbs. of dirt in and out of the site.

Once students reach the bottom of the sandbags, they will find notes and diagrams leftover from the previous excavation year that they can use to pick up where the last student left off.

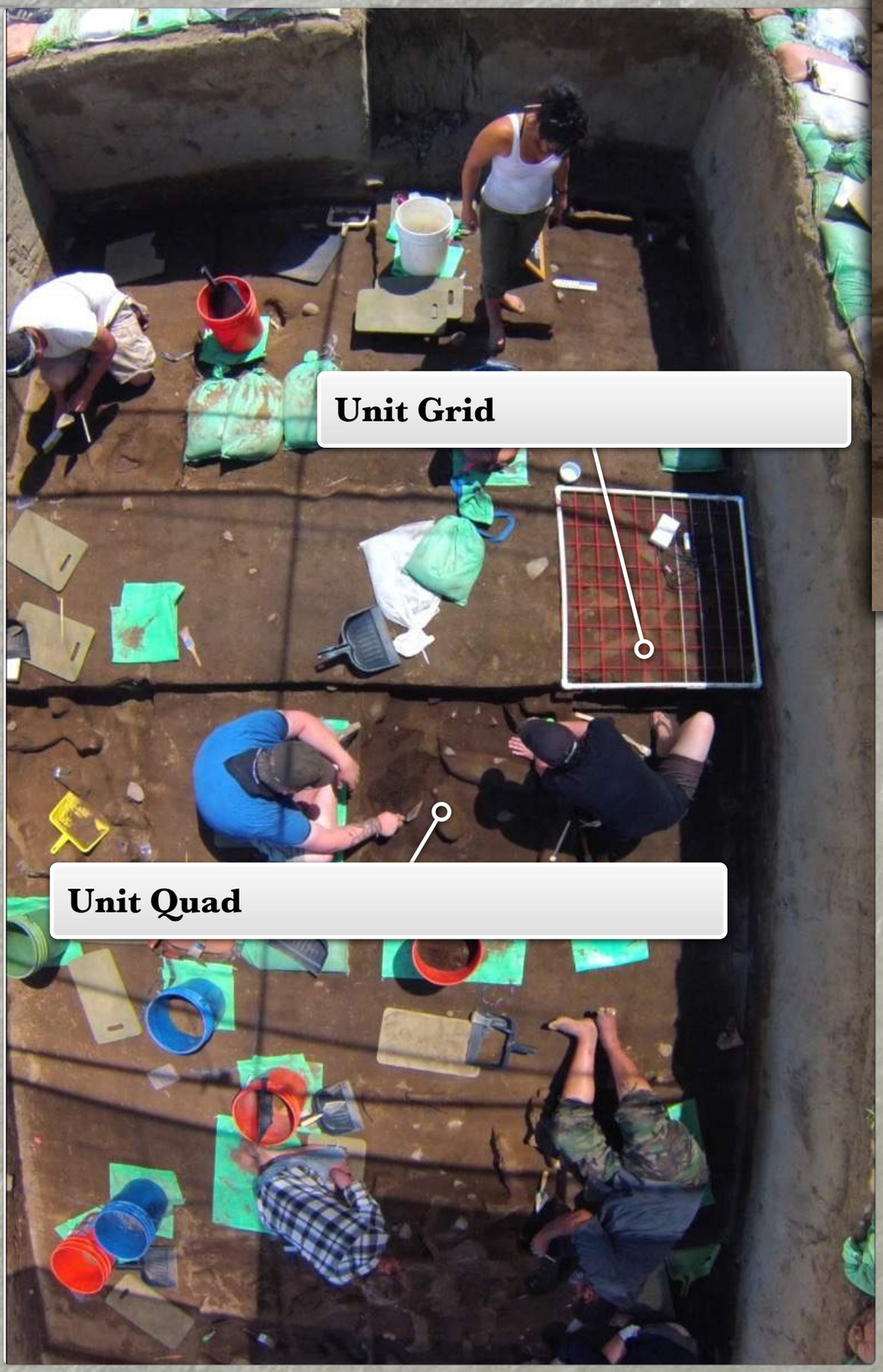


# The Current State of Excavation

One of the more common questions we are asked at the Cooper's Ferry site is "Why don't you just use a big machine to dig into the ground and pull everything up? Why do you have to dig everything out so carefully?"

Archaeology is a scientific process that involves understanding artifacts in context -- which means that researchers need to col lect as much data as possible to correctly understand and identify artifacts and patterns in a site.

Taking a backhoe to the site and digging a big hole in the ground would tell us what we already know: that there were humans here in the past. However, without finding artifacts in sediment layers in which they were originally placed, everything we would find would be essentially useless because we wouldn't know where things were through time.



During excavation, it is essential to know exactly where an artifact comes from in space. Archaeologists carefully excavate **sediment** centimeters at a time with a trowel to be as accurate as possible.

Both excavation sites at Cooper's Ferry are cut into a grid pattern. Each square in the grid is 1 x 1 meters square. This square is called a "unit" and is given a recognition letter such as "A" or "B".

The unit is commonly split into four equal squares, called 'quads', which are excavated one at a time.

Archaeologists will trowel away the sediment in a quad ten centimeters at a time, and will bring it down to a flat surface, known as a 'level'. If they find anything while excavating they carefully note where it is in the unit.

# The Tools

## Tools of the Trade

- *Context is key:*
  *Archaeologists have to find objects next to each other to gather clues about how the objects relate to each other.*
- *Every little piece helps:*
  *Everything larger than a dime found at the site is recorded by a special data collection program called 'Archie'. Anything smaller than a dime is put in a tiny bag to be looked at later.*

Excavating an archaeological site is a destructive process, which means that once sediment or artifacts are moved or removed from a site, they can never be put back exactly as it was before.

Imagine building a sandcastle, then knocking it over and then trying to rebuild it exactly as it was, sand grain by sand grain. It would be impossible to do!

Since excavation is a destructive process archaeologists need to be extremely careful about what and how they excavate around artifacts. Instead of using big shovels to carve out holes in the landscape, archaeologists use small tools like trowels, brushes, skim shovels, and wooden skew ers that don't damage artifacts.

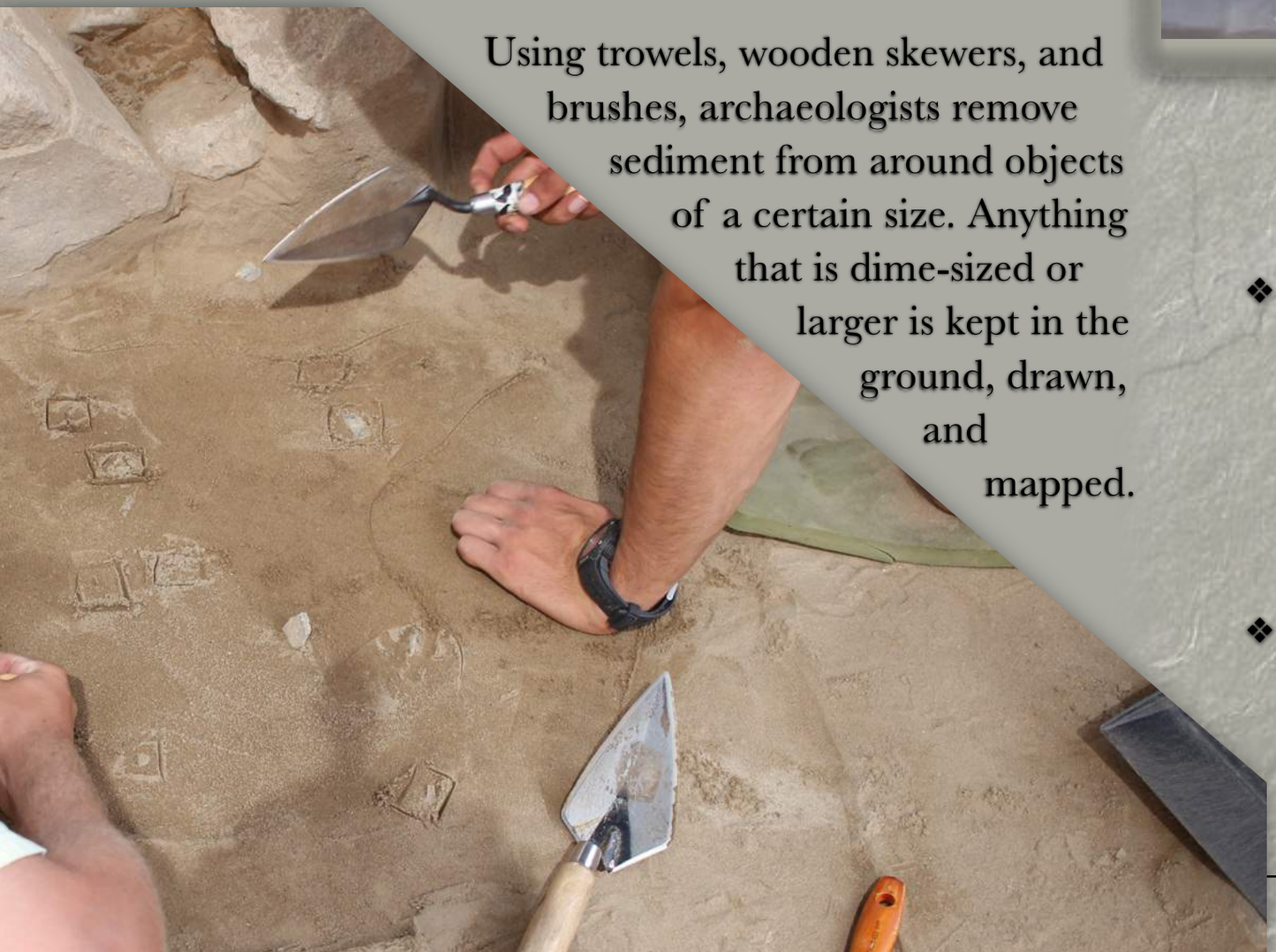
Excavation is a very slow process, and taking a single quad down ten centimeters can take an experienced archaeolo gist anywhere from 20 mins to 2 hours to excavate depend ing upon what they find along the way.

Let's take a look at some of the tools used at the site.

Rubbermaid
2in
50.8mm

# The Process of Excavation

The process of excavation is delicate but simple. At Cooper's Ferry the goal is to find everything in the ground exactly as it was placed, as much as possible.



Using trowels, wooden skewers, and brushes, archaeologists remove sediment from around objects of a certain size. Anything that is dime-sized or larger is kept in the ground, drawn, and mapped.

## All Things in their Place

- *When archaeologists remove artifacts they want to be very careful that they don't alter them or damage them in any way. The trowel is used to move sediment like a brush, but is not typically used to remove an artifact from the ground. For that, archaeologists will use a wooden skewer.*
- *Commonly archaeologists at the Cooper's Ferry site will draw boxes in the dirt around artifacts larger than a dime so that they can avoid them until the artifacts are ready to be mapped.*

Buckets of sediment excavated in a unit are taken to a screening station.

At the screening station archaeologists send buckets of sediment through two different sized metal screens to find any small artifacts they might have missed.

Fish bones, tiny pieces of animal bone, charcoal bits and tiny flakes of stone are commonly found in the screen. Once the tiny pieces of sediment are pushed through the screen, only the artifacts remain. These artifacts are sorted by type of material and put into small plastic bags to be examined later.

Things larger than a dime are mapped in with a Total Station -- a laser mounted distance measuring tool that can give the exact X,Y and Z coordinates in space of that artifact.

Once the object, it's location in space, and it's material have been documented, the artifact is ready to be removed and put into an appropriate container to be observed later.

This excavation process procedure continues until the unit is "at level" -- meaning the unit has been excavated 10 cm (about 4 inches) straight down on all sides.

# Your Turn to Excavate!

Ready to test what you've learned? The next few pages contain levels for you to excavate, but you won't need your trowel. Just simply swipe over the photo with your finger to excavate the level.

Jim

Look what you found!

# Excavation WIDGET! With Krotovina

Look what you found!

# Artifacts Collected

# Artifacts: What We've Found

Cooper's Ferry is a classroom, but it's also a live excavation site, which means that every day there's a chance of finding something amazing while excavating.

Imagine if you buried your house under ten feet of sediment, and someone tried to rebuild what your house looked like by only digging straight down in squares. This is what excavating the Cooper's Ferry site is like.

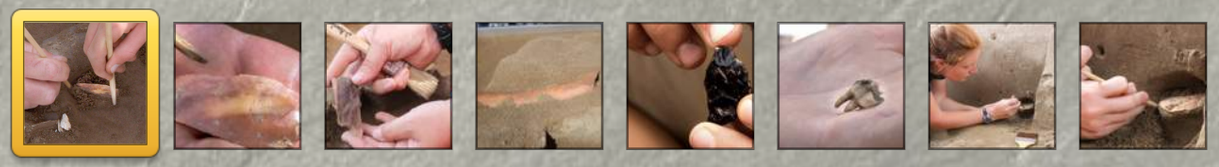
The Cooper's Ferry team is finding pieces of these people's toolbox, trashcan, and remnants of their dwellings every day.

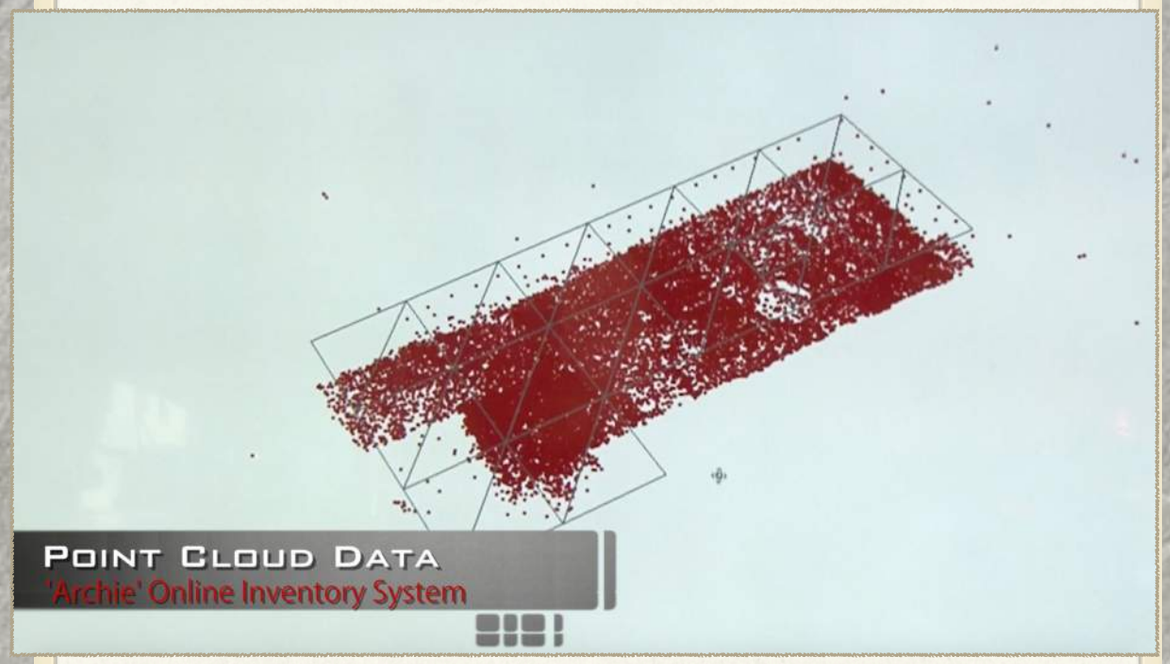
It's one thing to read about archaeological findings, or to view pictures of them in a book, but students at the Cooper's Ferry Archaeological Field School actually get to discover and hold objects that haven't seen the light of day for thousands of years.

*Projectile points, like the one seen here, are only found in this part of the world -- making them a unique marker to the culture that lived in the Northwest thousands of years ago.*

## *Artifact Gallery*

*Students use wooden skewers to excavate so that they don't damage the artifact*






LOREM IPSUM

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# Putting it all together

USE Archie Point cloud data
Whole site
Just Shells
Just FCR
Just Debitage
Each per page
Last page "educated guess" of what the site once looked like overly. ***5 more pages go here***

# Time for a test!

*What did you learn?*

**Question 1 of 4**

What objects are NOT normally mapped with the Laser Total Station?

- ✓ **A.** Things smaller than a dime.
- **B.** Bone
- **C.** Stone Tools
- **D.** Things larger than a dime

◀ Check Answer ▶

Chapter 5

# Cooper's Ferry Archaeological Field School

After deciding that the Cooper's Ferry site was going to be an extensive project -- and too much for a single person to handle, Dr. Davis decided to use the site as a teaching tool and founded the "Cooper's Ferry Archeological Field School; sponsored by OSU" . Here, students from all over the country who have an interest in archaeological pursuits, can come and get their hands dirty and directly apply their studies on a real excavation site. 2015 marks the 7th consecutive season of the field school that takes place over 8 weeks during the summer.

# What is a field school?

A field school is an outdoor classroom where students directly apply their knowledge of archaeology techniques from class and experience a live excavation site first hand.

In order to be fully certified as an archaeologist, archaeology students must have completed at least one field school to earn their degree.

Cooper's Ferry is one of the most advanced field schools in the United States in regards to diversity of subject matter, use of progressive technology, and groundbreaking evidence of early American archaeology.

## ACTIVE EXPERIENCE

- *Cooper's Ferry Archaeological Field school is held every year from June 18th to August 14th*
- *Students from all across the United States can participate in the program, and several students have traveled to Cooper's Ferry from as far away as Vermont.*

The Cooper's Ferry field school is led by Dr. Loren Davis and focuses mostly on the environment in the Lower Salmon River Canyon and how it relates to the formation and preservation of sites such as the one found at Cooper's Ferry.

Students study the geologic processes of erosion and sedimentation to gather clues as to how the Cooper's Ferry site was formed, but also to gain an idea of how other sites would have been formed.

Dr. Davis uses the environment around him to demonstrate to students how wind, water, geologic formations and man made changes to the landscape have changed the way the Salmon River evolved over time.

# What is field school like?

Scroll:

At Cooper's Ferry archaeological field school, students receive a hands-on learning experience and get to apply their knowledge of archaeology first hand.

The field school is meant to give students a fully immersive experience into the life of a field archaeologist, so that they can be certified as an archaeologist after graduation.

In order to obtain the full experience of being a field archaeologist, students at the Cooper's

# Life at Camp

The field camp is located just three minutes away from the excavation site, on a piece of ranch land commonly referred to as "Bug slope".

For the most part, the students are provided with the basic amenities of home. The students are given propane powered stoves and fridges, along with pantries to store food.

The kitchen tent is used as the common area, and students use this as a general hangout place to eat, play games and socialize.

# Free time activities

The typical work day at Cooper's Ferry lasts from 8am to 3pm. After the excavation is done, students are free to do a wide variety of different activities, including swimming in the river, or heading back to the local town for a bite to eat.

The field camp is home for approximately 20-25 students and staff every year. Typically people bring board games, sports equipment or books to pass the time.

Check out our favorite activities!

# Meet the Students

Students from all across the United States come to participate at Cooper's Ferry. The site is open to Undergraduates and Graduate students alike and caters to different skill levels. The site is even open to non-archaeology students, those looking to volunteer, or just looking to try something new.

During the course of the field school these students learn about Pacific Northwest Archaeology, Early American Archaeology, Geology, Anthropology and attempt to synthesize these ideas and techniques into a hybrid way of looking at archaeology sites all over the world.

Students of all ages have come to participate. Some think of it as a "summer camp for adults".

# Meet the Staff

The Cooper's Ferry staff is comprised of graduate students or students who were personally asked to return to the site. These students oversee and manage parts of the excavation site to form a sort of hierarchy at the site. This organizational structure allows for students to help other students and allow the site director to focus on research projects.

Some staff members have been working at the Cooper's Ferry site for several seasons, and have chosen an aspect of of the site to focus on and research for their Graduate Thesis project.

# Meet the Director:
# Dr. Loren Davis

Scrolling Box:::

Loren Davis bio

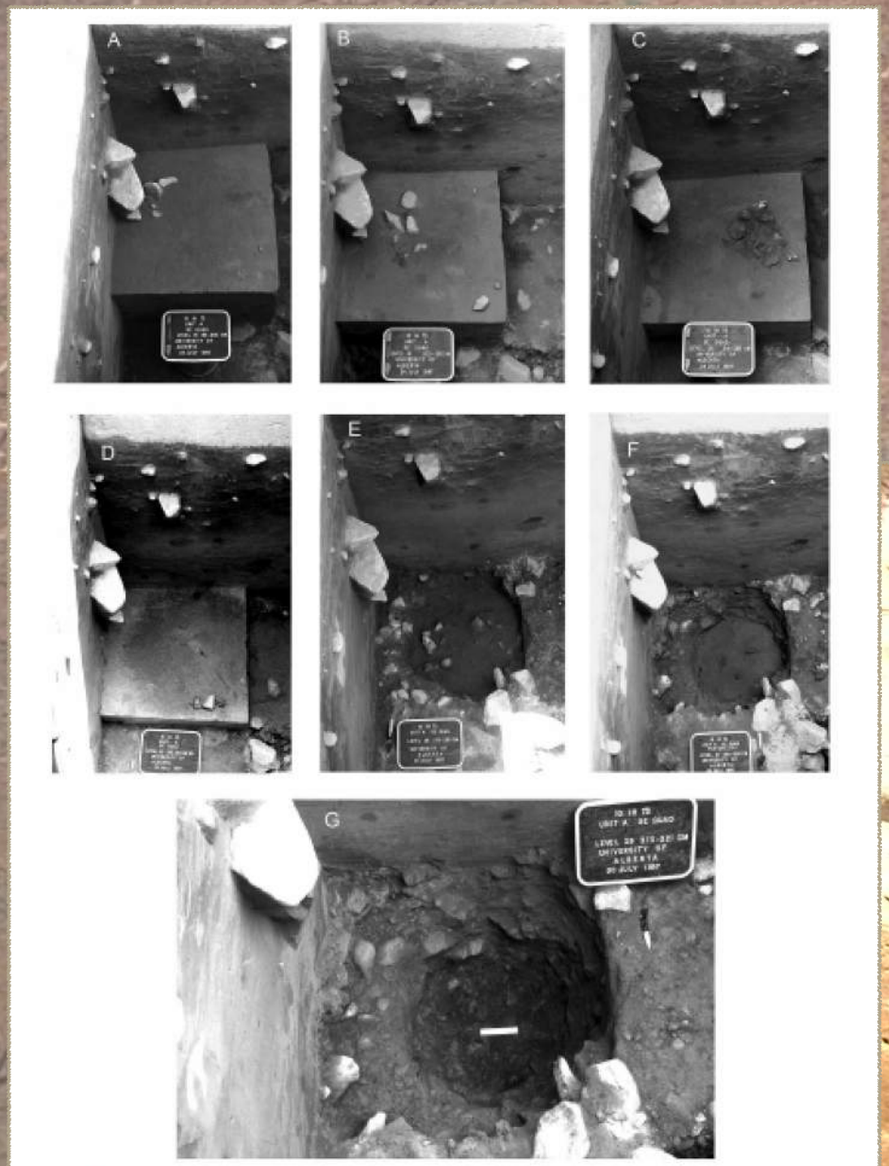



Figure 3. Photo sequence showing the emergence of PFA2 in the southeastern 1 × 1-m excavation quadrant in Unit A.

# Time for a test!

*What have you learned?*

**Question 1 of 4**

How long is the Cooper's Ferry Field School?

- **A.** 9 Weeks
- ✓ **B.** 8 Weeks
- **C.** 7 Weeks
- **D.** 6 Weeks

◀ Check Answer ▶

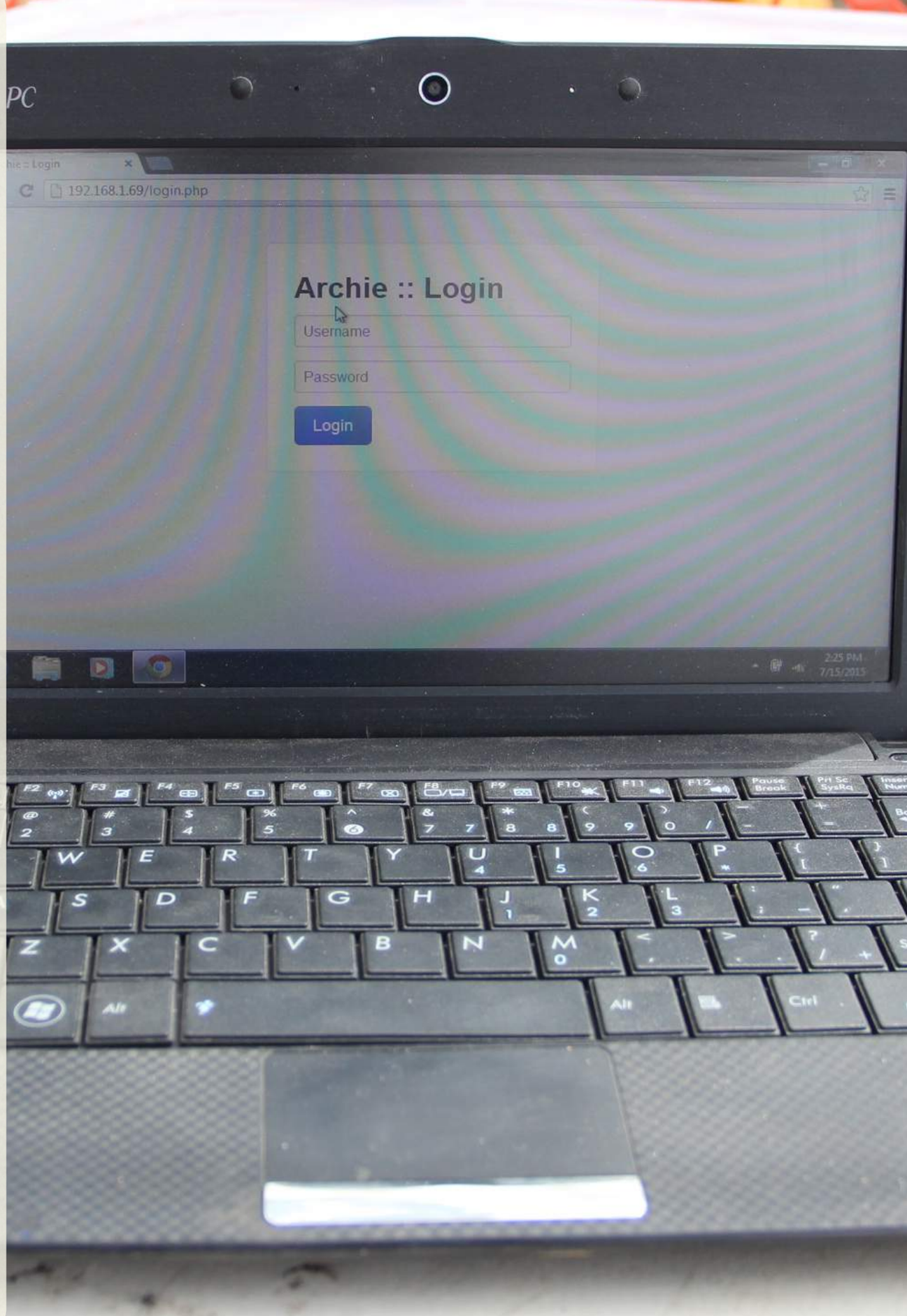
Chapter 6

# Technology at Cooper's Ferry

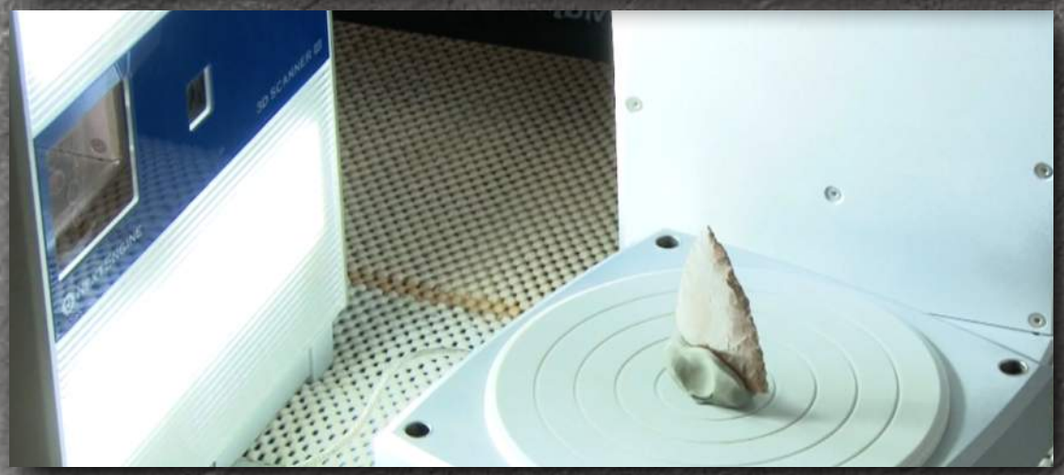
Along with being a flagship excavation site for archaeology in the Pacific Northwest, Cooper's Ferry is best known for its groundbreaking use of progressive technology and methodology.

Dr. Loren Davis and the archaeological team at Cooper's Ferry actively use an extensive array of different data collection and management techniques to record and catalogue hundreds of thousands of unique artifacts.

Many of these methods are pioneered here at Cooper's Ferry and have been greatly admired by members of the archaeological community.



# Groundbreaking Technological Techniques

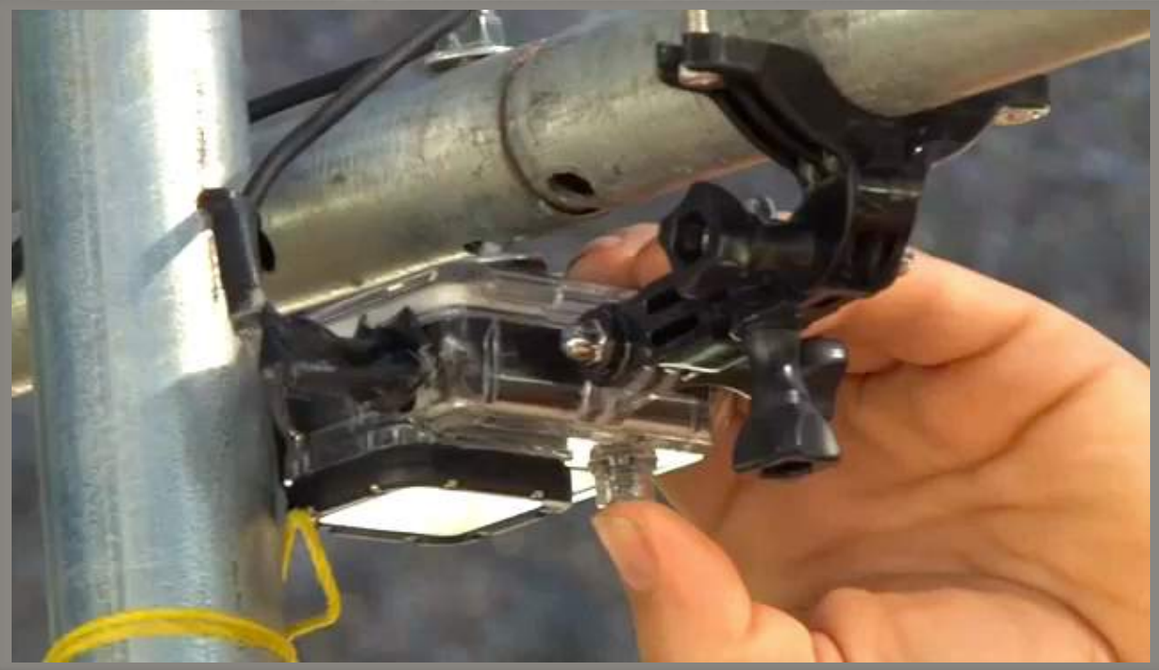


When an artifact is found, several things have to happen be fore that artifact can be packaged away for curation. Whether it's a piece of bone, a stone tool, or piece of rock, all of the artifacts at Cooper's Ferry go through a data catalogue process that help researchers obtain the best understanding of how that piece fits into the larger puzzle.

Over the next few pages we will talk about the technology used on site at Cooper's Ferry and discuss how these tools can help archaeologists with the excavation and curation

WAY OF THE FUTURE

- *Many of the objects used by the Cooper's Ferry team were not originally intended for use in an archaeological context. The technology team saw its potential and became among the first to use such techniques in the field.*
- *Technology at the site has to stand up to the elements. Temperatures at the site can rise to above 110 degrees during the day, which can be troublesome for most electronics.*



# GoPro Cameras

Time lapse cameras are positioned over the excavation site to review and monitor the excavation. These cameras take a photo every ten seconds, and those pictures can be strung together to recreate what happened at the site that day. Back in the lab, after the excavation has closed, the photos can be reviewed to check for excavation accuracy.

*Gallery: Every 10 Seconds*

# Laser Total Station

In order to make sense of all of the clues that we find at the site, archaeologists need to know exactly where something was found. How one piece relates to another is critical in determining its context, which is why the Cooper's Ferry team uses the most accurate piece of measuring equipment available: a Laser Total Station.

The Total Station shoots a laser at a prism, and bounces back to determine the X,Y,Z data; which translates into the known distance between the north wall, the east wall and the actual elevation of the artifact. The artifact is then given an RN, or "Reading Number" so that it can be catalogued and recalled at a later date.

*Utilizing an open source program, Archaeologists at the site use this Xbox Kinect device as a 3D Scanner.*

# Xbox 360 Kinect

When a team excavates a unit level they will commonly find rodent burrows, known as "Krotovina". Occasionally the Cooper's Ferry team will use a Xbox 360 'Kinect' scanner to make a 3D scan of the unit to record exactly where the rodent burrows are.

Cooper's Ferry uses an open source program called "**Blankety Blank need info please**" to overwrite the Kinect's normal functions and refocus them towards capturing elevation and color in it's scan.

Back at the lab, archaeologists can then take this scan and build a 3D model of the site, level by level, for the entire dig site.

# Computer Stations

In the early years of Cooper's Ferry, when students would finish levels or find artifacts, they would write excavation notes and artifact information down on paper. With thousands of artifacts, this process became impractical to use and to manage so the Cooper's Ferry team developed 'Archie' : a web page program that students can use to accurately and consistently catalogue artifacts.

Several 'Chromebooks' are stationed outside each area so that students can enter artifact data by filling out a simple template. A catalogue tag is then printed for the artifact, which can be used to reference the artifact at a later date.

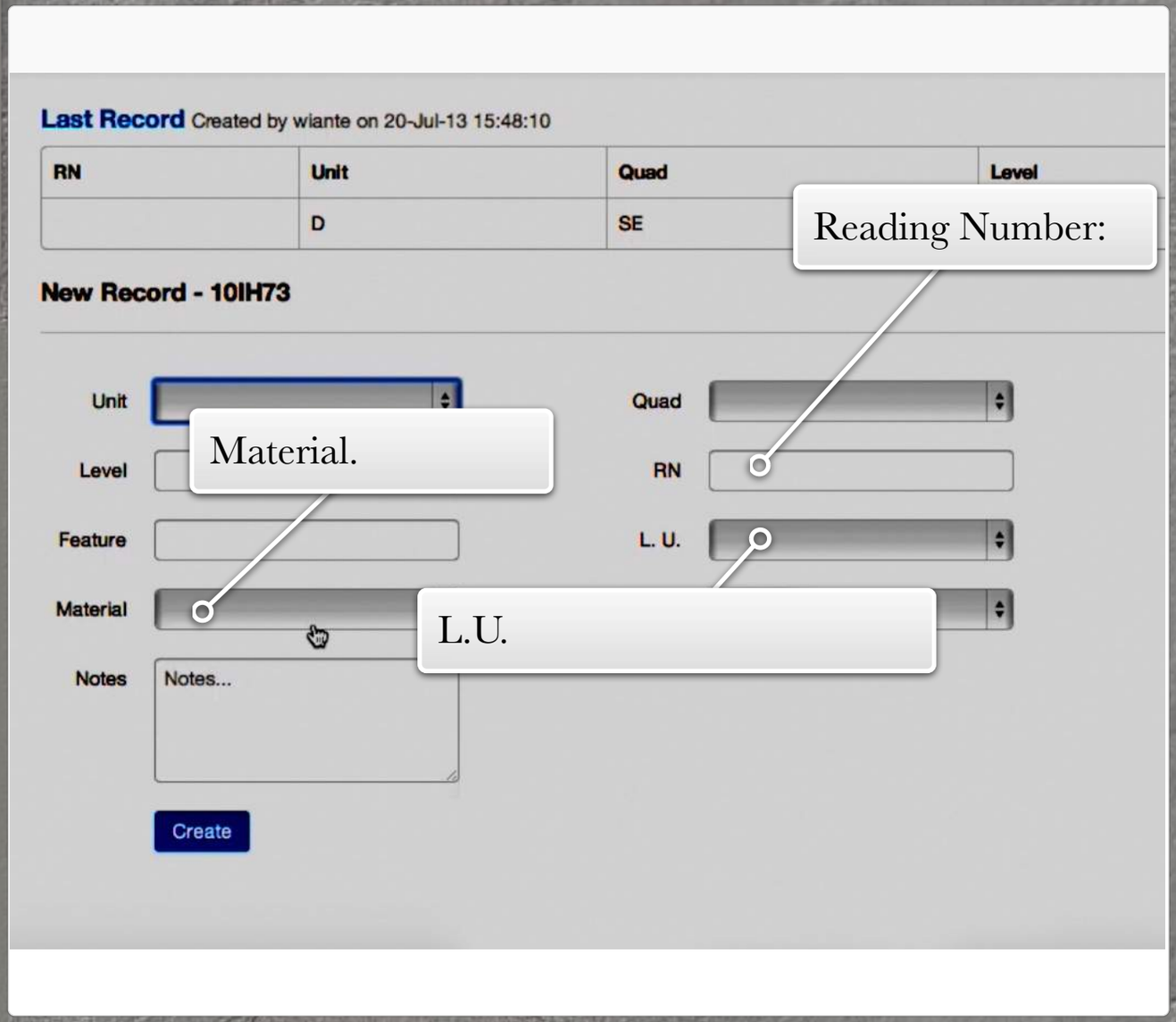
*Students enter data on these small "Chromebooks" which connect to the local intranet in order to send data to the onsite server.*

# 'Archie': Archive System Database

Cooper's Ferry uses a web page based data entry and catalogue system, called 'Archie'. Archie was developed to help prevent errors in data entry from previous methods, such as writing notes down on paper.

With Archie, archaeologists at Cooper's Ferry can link relevant data to artifacts and levels to help best recreate the excavation process back in the lab in Corvallis, Oregon. 'Archie' allows users to link photos and field notes to accompany standardized data entry across the site.

With the information stored and collected from Archie, Dr Davis and his research team can revisit artifacts and learn more about the space in which something was found, without the hindrance of reading through hundreds of pages of field notes.



# 3D Scanning and Printing

Many of the artifacts uncovered at Cooper's Ferry are fragile, priceless and wind up archived in a box or museum where they cannot be accessed. This was the case at least until Dr. Loren Davis purchased a 3D scanner and 3D printer to transform priceless artifacts into universal teaching tools.

Today, the most interesting artifacts are catalogued, scanned and printed to use as teaching tools for classrooms all over the United States.

# The Video Production Team.

Many of the artifacts uncovered at Cooper's Ferry are fragile, priceless and wind up archived in a box or museum where they cannot be accessed. This was the case at least until Dr. Loren Davis purchased a 3D scanner and 3D printer to transform priceless artifacts into universal teaching tools.

Today, the most interesting artifacts are catalogued, scanned and printed to use as teaching tools for classrooms all over the United States.

LOREM IPSUM

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# Technology and Interpretaton

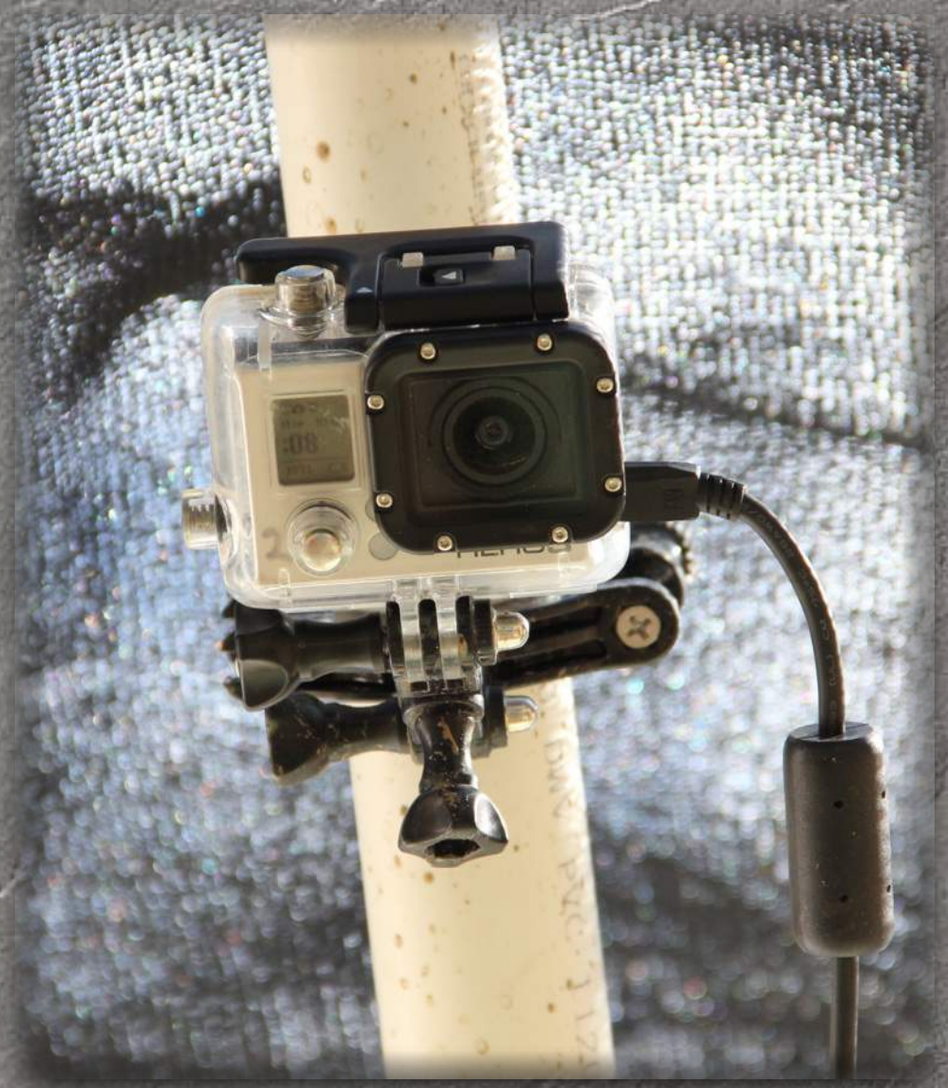
Archie Point cloud data:

Show 3D model of site with/ without shell/FCR/ Deb/ etc

Hypothesis of living conditions

**5 more pages go here!!!!**

# Time for a test!



*What did you learn?*

**Question 1 of 4**

What is the 'Archie' computer program used for at Cooper's Ferry?

- **A.** Web browsing
- ✓ **B.** Data catalogue entry
- **C.** Data archive access
- **D.** Daily journal updates

Check Answer

Chapter 7

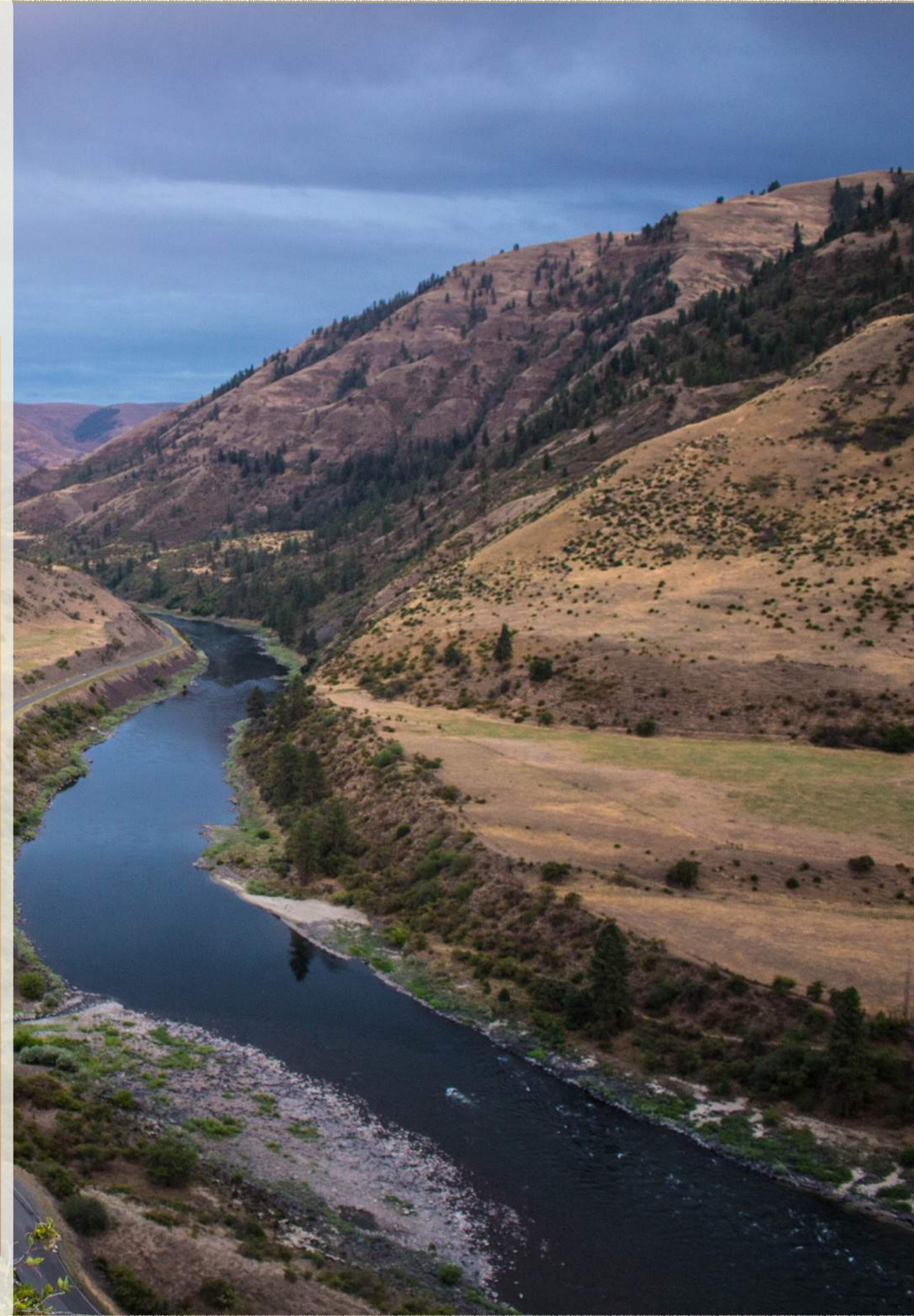
Cooper's Ferry

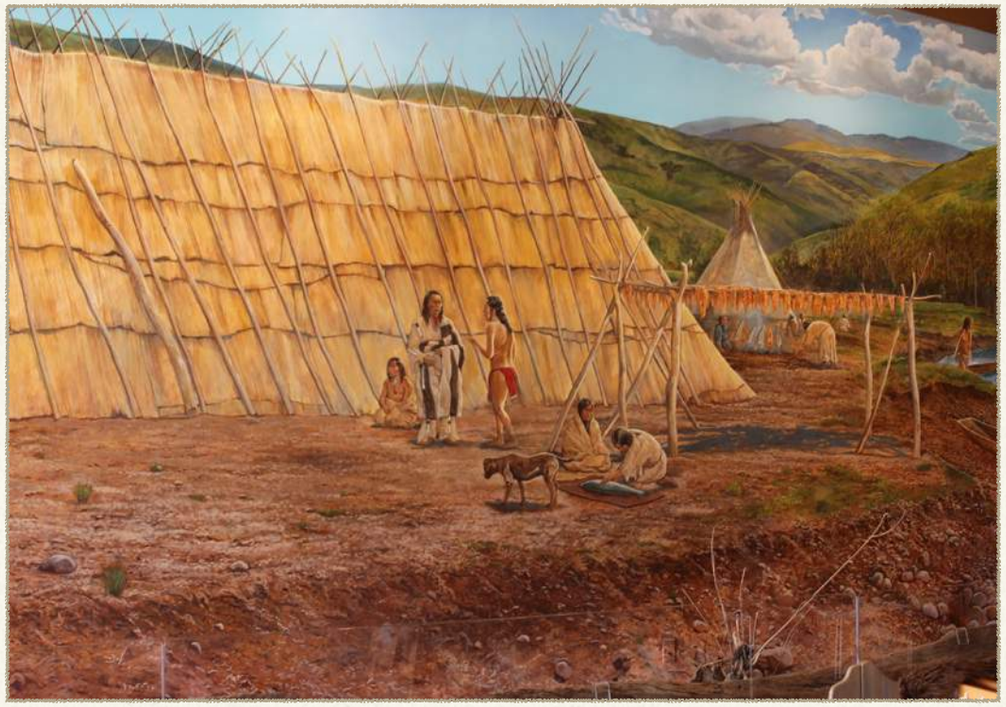
# In Summary

The evidence and methodologies used at the Cooper's Ferry site make this excavation extraordinary and potentially revolutionary in how archaeologists excavate, as well as how people understand how the Americas were populated.

Artifacts found at this site are rapidly giving credit to the idea that the Western Stemmed Tradition peoples, AKA PaleoArchaic people, were here at least 1,000 years before any other tribe of humans stepped foot in North America.

The next few pages will review why Cooper's Ferry is among the top "flagship" sites for Early American archaeology and cultural significance in the Pacific Northwest.





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# First Americans

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# A new hypothesis

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# Field School Impact

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- *Suspen disse aliquet odio ut nisl dapibus nec vulputate risus. Nam id risus velit.*

# Cutting Edge Site

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# GOODBYE THANKS FOR READING

## Archaeology

Archaeology, or archeology, is the study of human activity in the past, primarily through the recovery and analysis of the material culture and environmental data that they have left behind, which includes artifacts, architecture, biofacts (also known as eco-facts) and cultural landscapes (the archaeological record). Because archaeology employs a wide range of different procedures, it can be considered to be both a science and a humanity, and in the United States it is thought of as a branch of anthropology, although in Europe it is viewed as a separate discipline.

---

**Related Glossary Terms**

Drag related terms here

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**Index** Find Term

# DISSERTATION

A long essay on a particular subject, esp. one written as a requirement for the Doctor of Philosophy degree.

---

**Related Glossary Terms**

Drag related terms here

---

**Index** Find Term

DR. LOREN DAVIS

Ph.D.

Anthropology, University of Alberta,

Edmonton, Canada

2001

M.A.I.S.

Anthropology, Geography, Soil Science,

Oregon State University

1995

B.Sc.

Anthropology, Oregon State University

1991

---

**Related Glossary Terms**

Drag related terms here

---

**Index** Find Term

# SEDIMENT

Particulate matter that is carried by water or wind and deposited on the surface of the land or the bottom of a body of water, and may in time become consolidated into rock. May be classed by size as either Sand, Silt, or Clay.

---

**Related Glossary Terms**

Drag related terms here

---

**Index** Find Term

## WORKS PROGRESS ADMINISTRATION

The Works Progress Administration (renamed in 1939 as the Work Projects Administration; WPA) was the largest and most ambitious New Deal agency, employing millions of unemployed people (mostly unskilled men) to carry out public works projects, including the construction of public buildings and roads. In much smaller but more famous projects the WPA employed musicians, artists, writers, actors and directors in large arts, drama, media, and literacy projects.

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**Related Glossary Terms**

Drag related terms here

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**Index** Find Term