In Search of the First Americas

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Who were the first Americans?

When did they arrive in the New World?

Where did they come from?

How did they travel to the Americas & settle the continent?
A Brief History of Paleoamerican Archaeology

Prior to 1927  People arrived late to the Americas  
ca. 6000 B.P.

1927  **Folsom Site** Discovery, New Mexico  
Geological Estimate in 1927  
10,000 to 20,000 B.P.

Today--12,000 cal yr B.P.
Blackwater Draw (Clovis), New Mexico

1934 Clovis Discovery

Folsom (Bison)

Clovis (Mammoth)

Ernst Antevs
Geological estimate
13,000 to 14,000 B.P.

Today 13,000 cal yr B.P.
Search continued for sites older than Clovis.

Most sites did not stand up to scientific scrutiny.

More Clovis sites were found across North America

The Clovis First Model became entrenched.

1935-1990

Calico Hills

Pedra Furada

Tule Springs
Clovis were the first people to enter the Americas

- Originated from Northeast Asia

- Entered the Americas by crossing the Bering Land Bridge and passing through the Ice Free Corridor around 13,600 cal yr B.P. (11,500 $^{14}$C yr B.P.)

- Clovis technology originated south of the Ice Sheets

- Distinctive tools that are widespread

- Within 800 years reached the southern tip of South America

- Big game hunters that killed off the Megafauna

Does this model still work?
What is Clovis?

- Culture
- Era
- Complex

Clovis is an assemblage of distinctive tools that were made in a very prescribed way.
Gault Site, Texas 2000-2001

Clovis workshop (Biface & Blade Technologies)
Gravel Bar

Paleosol (8500 B.P.)

Angostura Midland Folsom

Archaic

Overbank Clays (3b) Clovis

Pond Clays (3a) Clovis

Gravel Bar

\[ 12,920 \pm 700 \text{ B.P. (UIC-981)} \]
\[ 12,930 \pm 730 \text{ B.P. (UIC-1015)} \]
\[ 13,220 \pm 740 \text{ B.P. (UIC-1004)} \]
\[ 13,230 \pm 760 \text{ B.P. (UIC-1249)} \]
1. Clovis Biface Technology

Discarding worn-out points

Biface reduction through overshot flaking & ent thinning

Making new points & knives
Hogeye Site, Texas
2010  75 miles east of Gault

Clovis Cache
52 Bifaces
5 Thin knives
2. Clovis Blade Technology

Blade Core  
Blades  
End Scrapers  
Serrated knife
3. Clovis Osseous Technology
Bone, antler, and ivory

Points

Rods & Foreshafts
What is the Geographic Distribution of Clovis?
How old is Clovis?

Old Dating
11,500 – 10,900 $^{14}$C yr B.P.
13,400 – 12,700 cal yr B.P. (700 yr)

New Dating
11,100 – 10,700 $^{14}$C yr B.P.
13,000 – 12,600 cal yr B.P. (400 yr)
(12,700-12,900 cal yr B.P.)

Dated Clovis Sites
(n = 13)
Is Clovis found in Siberia or Alaska?
Serpentine Hot Springs and Raven Bluff Sites, Alaska

Fluted Spear Points--12,000 cal yr B.P.
--Not Clovis
--Made differently
Are there Clovis-age sites in South America and are they Clovis?

Quebrada Jaguay
ca. 13,000 cal yr B.P.

Quebrada Santa Julia
13,000 cal yr B.P.

Piedra Museo 12,900 cal yr B.P.

Cerro Tres Tatas 12,900 cal yr B.P.

Cuevo Casa del Minero 12,900 cal yr B.P.

Fishtail Points

or

Unifacial flake tools
What Does this all Mean?

Evidence

--North and South America were both occupied at the same time.

--Alaskan fluted points 1000 years later than Clovis.

Conclusion

--Clovis does not represent the earliest occupation of the Americas.

--Need a new model to explain the peopling of the Americas

--Rethink Clovis

Clovis
13,000 – 12,600 cal yr B.P.

Quebrada Jaguay
ca. 13,000 cal yr B.P.
(ca. 11,000 14C yr B.P.)

Quebrada Santa Julia
13,000 cal yr B.P.
(11,025 ± 45 14C yr B.P.)

Piedra Museo 12,900 cal yr B.P.
(10,960 ± 45 14C yr B.P.)

Cerro Tres Tatas 12,900 cal yr B.P. (10,935 ± 35 14C yr B.P.)

Cuevo Casa del Minero 12,900 cal yr B.P.
(10,985 ± 40 14C yr B.P.)

Evidence

--Alaskan Fluted Point Sites 11,900 cal yr B.P.
(10,150 14C yr B.P.)

Evidence

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--North and South America were both occupied at the same time.

--Alaskan fluted points 1000 years later than Clovis.

Conclusion

--Clovis does not represent the earliest occupation of the Americas.

--Need a new model to explain the peopling of the Americas

--Rethink Clovis
Pre-13,000 cal yr B.P. Sites

Meadowcroft Rockshelter, PA
13,400 to 15,200 cal yr B.P.

Monte Verde, Chile
14,600 cal yr B.P.

Page-Ladson, FL
14,400 cal yr B.P.

Schaefer & Hebior, WI
14,200 & 14,800 cal yr B.P.

Paisley Caves, OR
14,100 cal yr B.P.

Evidence is limited
Pre-13,000 cal yr B.P. Sites

- Debra L. Friedkin Site, TX
  15,500 cal yr B.P.

- Meadowcroft Rockshelter, PA
  13,400 to 15,200 cal yr B.P.

- Monte Verde, Chile
  14,600 cal yr B.P.

- Paisley Caves, OR
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- Schaefer & Hebior, WI
  14,200 & 14,800 cal yr B.P.

- Page-Ladson, FL
  14,400 cal yr B.P.
Block A
Floodplain (T-2)

2006-present
65 m²
Camp and activity areas
Buttermilk Creek Complex

16,000 Artifacts

54 tools

Bifaces
Discoidal core
Expedient tools
Hematite
Blades
Bladelets
Radially broken tools
Burins

13,200 to 15,500 cal yr B.P.
Is the age secure?

Luminescence Dating

Dr. Steve Forman
University of Illinois
8070 ± 520 BP
8490 ± 560 BP
9215 ± 620 BP
9250 ± 600 BP
10,480 ± 675 BP
12,240 ± 800 BP/
12,925 ± 845 BP
14,350 ± 910 BP
15,270 ± 960 BP
15,210 ± 960 BP
16,400 ± 1040 BP/
15,800 ± 1080 BP
16,170 ± 1030 BP

7160 ± 470 BP/
7030 ± 470 BP
8160 ± 540 BP
7600 ± 500 BP
9405 ± 610 BP
9930 ± 640 BP
11,870 ± 760 BP
12,000 ± 770 BP/
12,100 ± 860 BP
14,070 ± 910 BP
15,730 ± 1010 BP
14,710 ± 940 BP
18,930 ± 1210 BP
20,565 ± 1325 BP/
20,490 ± 1305 BP
22,710 ± 1450 BP/
23,150 ± 1600 BP
25,185 ± 1640 BP
26,090 ± 1670 BP/
27,650 ± 1800 BP

14,080 ± 920 BP
14,370 ± 930 BP
14,000 ± 890 BP
14,480 ± 920 BP
14,580 ± 1030 BP
17,530 ± 1140 BP
16,270 ± 1040 BP
16,515 ± 1075 BP
32,720 ± 2110 BP

60 OSL Ages

Aeolian quartz & feldspar
Late Prehistoric
1000 ± 70 B.P.

Late Archaic

Middle Archaic

Late Paleoindian--Early Archaic
(Wells-Angostura)
7030 ± 470 B.P.
7160 ± 470 B.P.
7600 ± 500 B.P.
8070 ± 520 B.P.
8160 ± 540 B.P.
8490 ± 560 B.P.
9215 ± 620 B.P.
9250 ± 600 B.P.

Folsom/Midland

Late Paleoindian
(Golondrina/Dalton)
9405 ± 610 B.P.
9930 ± 640 B.P.
10,480 ± 675 B.P.

Folsom/Midland

Buttermilk Creek Complex
14,000 ± 890 B.P.
14,070 ± 910 B.P.
14,080 ± 920 B.P.
14,350 ± 910 B.P.
14,370 ± 930 B.P.
14,480 ± 920 B.P.
14,710 ± 940 B.P.
14,580 ± 1030 B.P.
15,110 ± 960 B.P.

Clovis
13,090 ± 830 B.P.
13,780 ± 885 B.P.

No Artifacts
20,330 ± 1320 B.P.
to 32,720 ± 2110 B.P. (n=11)

OSL Dating

- 60 ages in correct stratigraphic order
- Ages agree with age of diagnostic artifacts
Are the pre-13,000 year old artifacts in a secure geological context?

Site Formation Processes

Floodplain clays with no clear stratigraphy and vertic properties

Trampling
Late Prehistoric

1000 ± 70 B.P.

Late Archaic

Middle Archaic

Late Paleoindian--Early Archaic
(Wells-Angostura)

7030 ± 470 B.P.
7160 ± 470 B.P.
7600 ± 500 B.P.
8070 ± 520 B.P.
8160 ± 540 B.P.
8490 ± 560 B.P.
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Folsom/Midland

11,870 ± 760 B.P.
12,000 ± 770 B.P.
12,100 ± 860 B.P.
12,240 ± 800 B.P.
12,925 ± 845 B.P.

Clovis

13,090 ± 830 B.P.
13,780 ± 885 B.P.

Buttermilk Creek Complex

14,000 ± 890 B.P. 15,210 ± 960 B.P.
14,070 ± 910 B.P. 15,270 ± 960 B.P.
14,080 ± 920 B.P. 15,730 ± 1010 B.P.
14,350 ± 910 B.P. 15,800 ± 1080 B.P.
14,370 ± 930 B.P. 16,170 ± 1030 B.P.
14,480 ± 920 B.P. 16,270 ± 1040 B.P.
14,710 ± 940 B.P. 16,515 ± 1075 B.P.
14,580 ± 1030 B.P. 16,400 ± 1040 B.P.
15,110 ± 960 B.P. 17,530 ± 1140 B.P.

• Diagnostic artifacts and technologies are in stratigraphic order

• Dates in stratigraphic order & correlate over distance

• Dates correlate with known age of Archaic and Paleoindian periods

• Technological Refits

• Magnetic studies

• Soil properties

• Nanodiamond marker horizon

• Correlation of geology

• No in situ artifacts in the 20,000 to 32,000 yr old deposits
Pre-13,000 cal yr B.P. Sites

- Debra L. Friedkin Site, TX
  - 15,500 cal yr B.P.
- Manis, WA
  - 13,800 cal yr B.P.
- Paisley Caves, OR
  - 14,100 cal yr B.P.
- Meadowcroft Rockshelter, PA
  - 13,400 to 15,200 cal yr B.P.
- Schaefer & Hebior, WI
  - 14,200 & 14,800 cal yr B.P.
- Monte Verde, Chile
  - 14,600 cal yr B.P.
- Page-Ladson, FL
  - 14,400 cal yr B.P.
Manis Site, Washington

Carl Gustafson
Washington State University
Mastodon kill site
1977-1979

11,850 ± 60 14C yr B.P.
12,100 ± 310 14C yr B.P.
Manis Site, WA

Key artifact: **Bone Projectile Point embedded in 14th right rib**

Made of Mastodon bone

13,800 yr B.P.

Bone Point 25-30 cm long
Paisley Caves, OR  
14,100 cal yr B.P.

Pre-13,000 cal yr B.P. Sites

Debra L. Friedkin Site, TX  
15,500 cal yr B.P.

Manis, WA  
13,800 cal yr B.P.

Paisley Caves, OR  
14,100 cal yr B.P.

Meadowcroft Rockshelter, PA  
13,400 to 15,200 cal yr B.P.

Schaefer & Hebior, WI  
14,200 & 14,800 cal yr B.P.

Monte Verde, Chile  
14,600 cal yr B.P.

Page-Ladson, FL  
14,400 cal yr B.P.
Modern and Ancient Genetic Data

First Americans originated from a single source population in central Asia

Migration from this population south of the Ice Sheets ca. 16,000 cal yr B.P.

Towards a New Model

Routes
Interior Ice Free corridor and Coastal Route viable

Anzick, Montana
Clovis
12,700 cal yr B.P.
Towards a New Model—pre-13,000 cal yr B.P. Sites

- Debra L. Friedkin Site, TX
  15,500 cal yr B.P.

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  14,600 cal yr B.P.

- Paisley Caves, OR
  14,100 cal yr B.P. ?

- Meadowcroft Rockshelter, PA
  13,400 to 15,200 cal yr B.P.

- Manis, WA
  13,800 cal yr B.P.

- Schaefer & Hebior, WI
  14,200 & 14,800 cal yr B.P.

- Page-Ladson, FL
  14,400 cal yr B.P.

People were in North America before Clovis by 15,500 cal yr B.P.

Widespread

Biface, Blade, Bladelet, and Osseous Technologies
Towards a New Model—What about Clovis?

- Clovis--Biface, Blade, and Osseous Technologies
- Clovis originated south of the continental Ice Sheets
- Pre-Clovis assemblages with Biface, Blade, Bladelet, and Osseous Technologies
- Clovis originated as a distinctive complex about 13,000 cal yr B.P.

Clovis Fluorescence 12,700 to 12,900 cal yr B.P.

Where did Clovis emerge?
Why did Clovis emerge?
They saw a lot of change
Points transcend function
Towards a New Model—Extinction of Megafauna

- Megafaunal population collapsed starting **14,800 to 13,700 cal yr B.P.**
- Disappeared at **12,700 cal yr B.P.**
- Three pre-Clovis kill sites—Manis (13,800)
  - Schaefer (14,200)
  - Hebior (14,800)
- Hunting pressures began before Clovis (15,500-14,800 cal yr B.P.)
- Weapons

Manis—osseous weapons

Sporormiella (dung fungus)

Clovis lithic weapon 13,000 cal yr B.P.
(12,900-12,700 cal yr B.P.)
Conclusion

Challenges

- Find more sites
- More DNA work
- More Clovis
- South America
- Ice Free Corridor
- Mesh all data sets

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