Feder Chapter 7

Expanding Geographic Horizons
New Worlds
The focus of this chapter is the spread of human beings into the previously unoccupied territories of Greater Australia, the New World, and the Pacific islands.

During glacial maxima, Java, Sumatra, Bali, Flores, and Borneo were a single land mass called Sunda.

During glacial maxima, Australia, New Guinea, and Tasmania were a single land mass called Sahul.

The road to Sahul

During this period of lowered sea level the trip by watercraft would have been easier than it is today. Birdsell has calculated that during glacial maxima that gradually people migrated via:

- Route 1: Southeast Asians could have migrated to Australia by island hopping. The mean distance of the eight gaps between islands in Birdsell's view was fewer than 20 miles. Or…
- Route 2: he suggests the southern route to Java, then Timor, and then Australia.

The discovery of Greater Australia

The earliest settlement of New Guinea dates to 50 kya.

On the Huon Peninsula, SE side of the island, 7 sites date to 49-43 kya.

Also at Borongara, Huon Peninsula (40 kya) is evidence of waisted axes.
The discovery of Australia proper
- Australian habitation dates remain debated.
- Recent DNA verifies that all modern Australians separated from the Eurasians about 62-75 kya.
- Archaeologically, Australians are from the same migration at 50 kya.
- **Lake Mungo** is the earliest of the sites in Australia and is in the Southeast.
  - At 50 kya we see archaeological sites in Australia at Lake Mungo.
  - The hominin remains from Lake Mungo date to 40 kya and all are modern humans.
  - Footprints at Mungo date to 20 kya.
- Oldest radiocarbon dates for human occupation of **Australia proper**:
  - Upper Swan Bridge, Australia: 39.5 kya
  - Devil’s Lair, Australia: 38 kya
  - Mammoth Cave: 37 kya
  - Keilor, Australia: 37 kya
- **MAJOR Update** (May, 2017): A 50 kya site was found in **Northwest** Australia.
- **MAJOR Update 2**: Another find (July, 2017) dates to a **65 kya** site at **Madjedbebe** (N. Australia).
• The spread through Australia
  • *The Australian Interior*
    • After the initial settlement of Australia, people next spread throughout the country along the coast and later into the interior.
    • The harsh, dry interior of Australia was first inhabited between 20-25 kya.
  • *Tasmania*
    • Tasmania is the island situated to the SE of Australia.
    • Oldest radiocarbon dates for modern human occupation of Tasmania:
      • Wareen Cave: 35 kya
      • ORS7 and Acheron: 30 kya
      • Bone Cave, Bluff, and Nunamira: 30 kya
      • Beginner’s Luck and Kutikina: 20 kya
      • At Kutikina had > 75 thousand stone flakes (from a 1% sample of site)
        • Faunal assemblage was dominated by the large wallaby and wombats.
      • The larger, now extinct species are missing, suggesting humans did not encounter them.
The geographic area covered by the Pacific is 1/3 of the Earth surface and the 25,000 islands that are <1% of the total area.

In spite of this, most Americans view this region as a ‘flyover’ zone.

This ignores the skills needed to navigate this huge region.

- The Pac Islanders migrated here without the use of quadrants, sextants, or compasses.
- Instead they used their memories and understanding of the environment.
- When I entered anthropology, some still thought the discovery of most islands was accidental, which may have happened occasionally.
- For the most part, the discoveries were intentional. At least 5-10 men and 5-10 women would be needed for success.

Pacific geography

Westerners broke the Pacific into 3 regions:

- **Micronesia** (“little islands”): Guam, Commonwealth of the Northern Mariana Islands (CNMI), Republic of the Marshall Islands, Kirabati, Nauru, Federated States Of Micronesia (FSM), and Palau
- **Polynesia** (“many islands”): Fiji, Territory of Wallis and Futuna Islands, Tuvalu, Independent State of Samoa (Formerly German Samoa). American Samoa, Cook Islands, Niue, Kingdom of Tonga, French Polynesia, Pitcairn Islands, and New Zealand.
Pacific archaeology

Large islands in northeast PNSG, such as New Britain and New Ireland, may have been settled by 35 kya. Buka, Solomon Islands dates to 28 kya.

Islands in Melanesia that were smaller and more distant were settled in a second wave, as were Micronesia and Polynesia.

The settling of Polynesia was accomplished by a single culture group, often referred to by the pottery style: Lapita.

- They were fisher people, very skillful navigators.
- They also farmed and brought many of their foods with them, including pigs.

<table>
<thead>
<tr>
<th>Island Group</th>
<th>Radiocarbon Dates</th>
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<tbody>
<tr>
<td>Society Islands</td>
<td>1025-1121 C.E.</td>
</tr>
<tr>
<td>Rapa Nui</td>
<td>1200-1253 C.E.</td>
</tr>
<tr>
<td>Marquesas</td>
<td>1200-1277 C.E.</td>
</tr>
<tr>
<td>Hawaii</td>
<td>1219-1266 C.E.</td>
</tr>
<tr>
<td>New Zealand</td>
<td>1230-1280 C.E.</td>
</tr>
<tr>
<td>Southern Cook Islands</td>
<td>1250-1281 C.E.</td>
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Lapita pottery
Jesuit Missionary Joseph de Acosta deduced that the native people of the New World must have come from northeast Asia via some sort of land connection.

During the Pleistocene, the New World was intermittently connected to the Old World by a vast land bridge, making it possible for:
- Interior-dwelling people in northeast Asia to travel through the interior of the land bridge into the interior of northwestern America.
- Coastal people in northeast Asia to travel along the southern Beringian coast onto the coast of northwestern North America and from there south.

**The genetic evidence for an Asian origin**
- Since the late sixteenth century, people have argued for an Asian origin for Native Americans.
- Physical traits support this (such as shovel-shaped incisors), but the best evidence is DNA analysis.
- Mitochondrial DNA suggests there are 5 haplogroups (A, B, C, D, X).
  - A, B, C, D are all NE Asian origin, X is also found in Europe
  - Did NE Asians migrate to Europe at some time?
  - Two Y-chromosome mutations support a NE Asian origin.

**How many migrations?**
- There was a single source of the DNA markers in Siberia and may be a single migration event.
- Update: Latest genetic data supports a previously proposed migration model that there were several “waves of migration” into the New World.
- New data suggests that the initial founders were isolated from other populations in the Bering Straits, probably from 28 kya to 18 kya.
Timing of arrival

When was the Bering Land Bridge (Beringia) available?

- Beringia was passable a number of times during the Pleistocene (35-11 kya).
- At its peak 28-18 kya.
  - During the height of the Pleistocene, the Beringia was about how 1500 km wide.
  - At its peak, the area of Beringia was comparable to that of twice that of the state of Texas.

The land bridge consisted of steppes and tundra. This environment would have been the same as that in northern Asia, allowing for similar cultural adaptations on both sides of the bridge.

- Steppes: Dry treeless plains characterized by temperature extremes.
- Tundra: Treeless plains characterized by permafrost conditions that support the growth of shallow-rooted vegetation such as grasses and mosses.

This environment supported herds of grazing animals.

When was eastern Siberia first inhabited?

- The SK Mammoth site in north-central Siberia dates to about 45 kya.
- The oldest archaeological sites in eastern Siberia, Yana RHS, is the most likely source area for the first Americans (33.5-31.5 kya); stone tools, horn, ivory spear foreshafts were found.
- A list of other sites is found on the next slide and also in the textbook. Many are on the examination.

Age of earliest New World sites

- This is highly debated, but more evidence all the time.
- When people first arrived in the New World is tied up with where they arrived.
# Some Russian Sites

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Location</th>
<th>Age</th>
<th>Artifacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berelekh</td>
<td>Lower Indigirka Valley</td>
<td>12,000–13,000 years ago</td>
<td>Bifaces</td>
</tr>
<tr>
<td>Ushki Lake</td>
<td>Kamchatka</td>
<td>11,300 years ago</td>
<td>Bifaces, burins, microblades, unifaces</td>
</tr>
<tr>
<td>Ust’-Mil II</td>
<td>Central Siberia</td>
<td>11,500–35,000 years ago</td>
<td>Wedge-shaped cores</td>
</tr>
<tr>
<td>Dyuktai Cave</td>
<td>Central Siberia</td>
<td>After 18,000 years ago</td>
<td>Wedge-shaped cores, bifaces</td>
</tr>
<tr>
<td>Ikhine</td>
<td>Southern Siberia</td>
<td>31,000–34,000 years ago</td>
<td>Burins, cores</td>
</tr>
<tr>
<td>Ezhantsy</td>
<td>Central Siberia</td>
<td>35,000 years ago</td>
<td>Wedge-shaped cores, biface fragments</td>
</tr>
<tr>
<td>Mamontovaya Kurya</td>
<td>Arctic Russia, Ural Mountains</td>
<td>40,000 years ago</td>
<td>Mammoth, horse, reindeer, and wolf bones; unmodified flakes; bifaces</td>
</tr>
<tr>
<td>Yana RHS</td>
<td>Yana River</td>
<td>32,000 years ago</td>
<td>Stone flakes, rhino horn</td>
</tr>
</tbody>
</table>
Archaeologists rely on biological, geographical, and linguistic data to help sort out this question.

Three competing hypotheses:

- **Bering Land Bridge**: By way of the Bering land bridge that connected Asia and North America several times during the late Pleistocene.
- **Pacific coastal route**: Along the coast of the northern Pacific Rim
- **North Atlantic ice-edge corridor**: By following the ice edge across the northern Atlantic from western Europe.
  - Omitted from the book, but we will cover.
  - This was never a strongly supported hypothesis, but I think it still has some potential merit.

It is important to keep a few concepts in mind:

- These hypotheses are not mutually exclusive (First Peoples could have migrated using both or all three pathways, at different times).
- Ignore all the media hype that suggests that anyone who suggested Pre-Clovis was harassed. They WERE challenged, but this is because it is good science but because of some “conspiracy” to cover up the truth.
- Migration over Beringia first is called “Clovis-First” after the tool tradition linked to this migration of peoples
- We will also discuss another hypothesis called “Pre-Clovis” which, based on the name, obviously means there were people in the New World before the Bering Land bridge was open.
First Settlement of America 2

- One if by land
  - Two sites:
    - **Bluefish Caves** in western Canada represents a very early habitation of settlers who traveled through the interior of Beringia into the New World more than 12,000 and as much as 15,000 years ago.
    - **Swan Point Site**, located on the eastern margin of Beringia, dates to 14 kya and is seen as the oldest firmly dated site in Alaska.
  - These dates fit with the model of arrival 28 kya and settling in place on Beringia until 18 kya. Arrival in Alaska by 15 kya or even earlier.
  - Most of the early sites are further south, given the presence of glacial sheets.
    - **Laurentian**: Pleistocene ice sheet centered in the Hudson Bay region and extending across much of eastern Canada and the northern United States
    - **Cordilleran**: Pleistocene ice sheet originating in mountains of western North America.
  - It is suggested these sheets may have joined at times, blocking the path of migrants.
  - Dated to 14 kya, a retraction of the ice sheets occurred and is labeled the **McKenzie corridor**.
  - Dates further south are earlier.
    - **Debra L. Friedkin site** (central Texas, 15.5-13.2 kya)
      - Over 15,500 artifacts found at this site, pre-Clovis
      - Oldest firm date in North America.
    - **Manis Mastodon** site, near Olympic Peninsula, Washington is a likely pre-Clovis site (13.8 kya).
    - **Meadowcroft** (Pennsylvania, >13.5 kya)
      - North American site which is increasingly accepted as a valid example of pre-Clovis presence of humans in North America
      - This indicates big-game hunters and gatherers were present in North America before Clovis.
    - **Cactus Hill** (Virginia, 15 kya)
      - Unusual stone assemblages and tools found well below the typical Paleo-Indian components
      - Dates concur with stratigraphy, but not yet accepted.
**First Settlement of America 3**

- **Two if by sea**
  - The second scenario also has the first migrants coming from Asia.
  - They would move along the Pacific Rim from Asia to North America.
  - This is a water route along which people could have arrived earlier as the coast was less daunting then the interior.
    - There was a diverse marine and terrestrial ecosystem in place.
    - Among the resources were kelp forests, fishes, mammals and birds.
  - Would these populations have watercraft with which to travel the “Pacific Rim Highway”?
    - There is evidence of use of watercraft had been used to reach Australia by at least 50,000 years ago.
    - This means it might be feasible, but no direct data for a boat or raft yet found.
  - Many like this idea as it explains the finds in South America that predate the glacial recessions. There are problems with this view:
    - The archaeological data that would support this view is submerged.
    - There is little evidence of a marine-adapted population on the coast of northeastern Asia.
    - One computer simulation suggests that the coastal route is not enough to explain all the data.
  - **Paisley 5 Miles Point Caves** site in Oregon is best candidate to date for North American pre-Clovis site.
    - They found 65 coprolites, with definite human DNA from haplogroup A.
    - Organic material dates to around 14.3 kya
    - Stone tools at this site (13.25 kya) support that Clovis was not the only tool tradition in place. Archaeologists call this second tool tradition “Western Stemmed Projectile spearpoints.”
  - **On Your Knees Cave**, Alaska (10.5 kya) held a human skeleton, a young male with DNA from haplogroup D.
  - **Channel Islands**, California (12.2-11.2 kya) see evidence of human occupation as there were many stone tools present.
Two if by sea (continued)

Monte Verde, Chile

- Pre-Clovis camp site in southern South. Monte Verde is about 16,000 km from the Beringian entry point for human migrants.
- May represent a very early habitation of the descendants of settlers who traveled along the coast of Beringia into the New World more than 12,000 and as much as 18,500 years ago.
- The ancestors of the people who lived at Monte Verde likely arrived there from Beringia by a coastal route.
- According to archaeologist David Meltzer, with Monte Verde's age in mind, the ancestors of this site have entered the New World via Beringia about 20 kya.

First skeletons

- Oldest skeleton found to date is 13 kya at Santa Rosa Island, California.
- A cranium, nicknamed Luzia, in Brazil is also 13 kya.
- Midland, Texas is where Midland Man was found (11.6 kya) – actually a woman.
- Kennewick Man, (9.3 kya) a mid-40s man was discovered in 1996 at the end of the Columbia River, in Kennewick, Washington.
- The US government invoked NAGPRA (Native American Graves Protection and Repatriation Act) -- The federal law that puts restrictions on the study of ancient American skeletal remains and authorizes their return to modern tribes.
- Other skeletons have been dated to 11.5-10.5 kya.
- After decades of court battles, re-buried in 2017.
• Genetic echoes
  • Two skeletons help archaeologists understand American settlement.
    1. Mal’ta on Lake Baikal, Siberia
      • A 4 year-old boy was found; dates to 24 kya.
      • His DNA indicates a contribution from west Asia, and his population formed a 1/3 contribution to modern Native Americans.
      • For modern Native Americans 2/3 of DNA is from eastern Siberia.
    2. A one-year old child was discovered on the Anzick farm in Montana.
      • Dates to 12.5 kya,
      • DNA very similar to the Mal’ta skeleton.
      • Based on rates of change in mtDNA, northeast Asian and Native American populations separated about 23-20 kya.
      • Variability within Native American mtDNA lineages suggests a dispersal through the Americas about 16 kya,
  • Alaska
    • In northeast Asia, Alaska, and northwestern Canada, before 11 kya, there was a tradition of wedge-shaped cores and microblade assemblages.
      • One of these tool traditions is called the Denali Complex (~ 10kya) and is characterized by use of wedge-shaped cores, bifacial knives, burins and microblades. Cores same as seen at Dyutkai site in Siberia.
      • Another tool tradition, the Nenana Complex (~11.8-11 kya) is older and contains bifacially flaked, unfluted spear points. Similar to tools at Ushki, Kamchatka, Asia.
First Settlement of America 6

- **Clovis**
  - These fluted projectile points allowed these settlers to expand across two continents.
    - These Clovis people may not have been the first arrivals; some sites in both North and South America may be older.
    - But Clovis represents the first broadly successful occupation of the New World.
  - **Technology**
    - Each face of a fluted point typically displays a groove (or “flute”) resulting from the removal of a long channel flake, possibly to make it easier to use a special hafting technique for mounting the point on a shaft.
    - The distinctive ***fluted point*** is the period’s hallmark artifact. One of the striking findings about Clovis is that it was found in so many places across both continents at nearly the same time in all the places.
      - Rare in Alaska, absent from Siberia. Origin of this tool tradition, in the Americas, is still unclear.
      - Distribution of points cross-cuts many environments.
      - This suggests that the peoples were of recent introduction to the New World or that the idea of Clovis spread very fast (it was a great idea).
    - These fluted Clovis spear points were hafted to bone fore-shafts, making for more efficient hunting
      - This means that when a point was thrown it became detachable from the spear shaft
      - This may be the first example of a ‘semi-automatic’ weapon.
• Clovis (continued)
  • Subsistence
    • The stereotype for Paleoindians is as megafauna hunters. There is a reevaluation of the megafauna hunter scenario (animals over 100 pounds) as explaining all Paleo-Indian cultures. But, they also utilized roots, seeds, and smaller mammals. There are thus called generalist foragers.
    • A recent analysis of 62 Paleo-Indian sites from US negates this scenario. Other animals were being eaten, such as caribou, deer, smaller animals, and fish (depending on region).
    • Lower Amazon, in northern Brazil evidence of carbonized seeds, nuts, fishing.
    • Several other sites indicate much of the meat was not from megafauna.
    • While Clovis hunters (13,200 – 12,800) did hunt megafauna it was likely a very rare event.
      • Some association with megafauna (mammoths and mastodons) but usually involving single individuals in locations that suggests chance encounter (associated with water).
      • At many of these kill sites, knives, scrapers, and finely flaked and fluted projectile points are directly associated with the animal bones, all of which are evidence that the megafauna were human prey.
  • Clovis tradition was repeatedly replaced as cultural traditions shifted:
    • The Clovis point gave way to the Folsom point (c. 12,500) Late Pleistocene hunter-gatherers who hunted now-extinct giant long-horned bison in the American Southwest.
    • Next came the Plano tradition (11,000 – 9,000) Hunter-gatherers of the Great Plains; their unfluted spear or dart points are associated only with modern fauna.
    • Finally, the Dalton variety (10-8,000) Late or transitional Paleo-Indian projectile type seen in the eastern US. See great site for lists of point types.
Megafauna extinctions --- North America and Australia
- In both locations the extinctions are timed to arrival of humans. Number of large animal groups that became extinct in world regions newly settled by human beings in the late Pleistocene: Australia: 23 genera; Tasmania: 7 species, North America: 34 genera.
- Several hypotheses have been advanced by scientists to explain the disappearance of North and South American megafauna from the fossil record at the end of the Pleistocene epoch.
  - **Pleistocene overkill hypothesis** (Martin and Wright) was the idea that humans killed the megafauna from overuse.
    - Paleo-Indians presence may be sufficient as an explanation, but not yet convinced required.
    - Some archaeologists suggest that humans took advantage of the vulnerability of animals drawn to shrinking water holes during this time and helped hasten their extinction.
    - Exception may be the disappearance of the proboscideans (**mammoths, mastodons**, elephants and related species).
  - **Climate change hypothesis** is supported by work several studies.
    - Gill et al. determined that *Sporomella* fungus that is linked to herbivore dung, disappeared around 14.8 kya.
    - The **Younger Dryas** (13.5-11.5kya) was a climatic event where the climate of higher latitudes became colder and drier but did not mark a full return to glacial conditions.
- Compare *B. antiquus* with *B. bison* (American buffalo)
  - Average weight 2200 pounds versus 1610 pounds.
  - Shoulder height: 7 feet versus 5-6 feet
  - Body length: 15.6 feet versus 11.5 feet.