

Initial Settlement of the Americas

State of the Evidence



Data from genetics and linguistics can help clarify the archaeological data – or make it more controversial

There is a high degree of diversity among Native Americans not easily explained by a single migration

Left: Broad genetic groups in pre-contact America based on DNA analysis

The peopling of the Americas is a field riddled with controversy. Brian Fagan goes so far as to describe it as “hazardous academic seas, beset on every side by passionate emotions and contradictory scientific information” (2005:71). This essay will describe the basic known facts about the initial settlement and explore reasons for some of the disagreements in the field.

An overview of issues and population models will provide some orientation to the field. The nature of archaeological evidence follows in some detail, with a summary of genetic and linguistic evidence. Due to the diversity of Native Americans, it seems far likelier that American settlement took place at different times from different areas than at a single point in time.

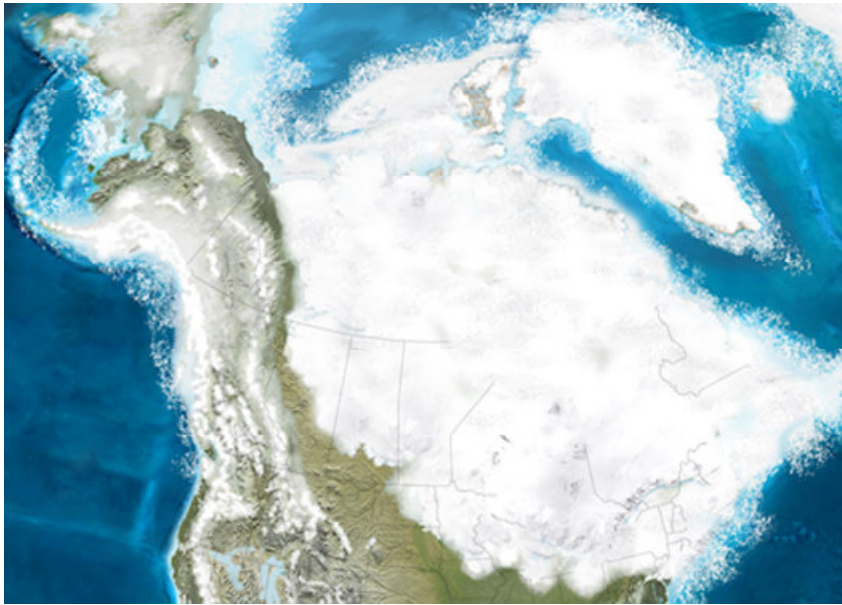
Models of population movements

1. Why did the people move rather than stay where they were?
2. Why did they move where they did rather than elsewhere?
3. Why did they move when they did rather than at some other time?
4. Why did this particular group move rather than some other group?
5. How did they carry out the move, especially if other people already occupied the new territory?

Ruth Gruhn maintains that viable models are important to understanding human population dynamics. We must understand that humans move for reasons; languages, genes and artifacts do not move around on their own. Thus, we should ask a number of questions about any population movement, as Grover Krantz proposed in 1977 (Gruhn 2006:365-366).

These questions can help explore, for example, why initial settlers of North America may have favored a coastal route over an icy corridor and why they may have ended up in extreme South America at an early date.

Land bridge and ice-free corridor



Bering land bridge joined Alaska to Siberia (upper left); alleged “ice-free corridor” led from Alaska to the contiguous U.S.

At the height of glacial cold spells, two large ice sheets—the Laurentide and Cordilleran—fused across Canada and blocked off habitable land to the south (Fagan 2005:82). Geologist Carole Mandryk thinks the ice-free corridor was inaccessible between 30,000 and 12,000 years ago. If this is true, early migrants to the Americas must have used an alternate route, possibly “an aboriginal Pacific Coast Highway” (Thomas 2000:168). It is also becoming clear that the alleged ice-free corridor “is a geological myth.” At best, there was only a partial corridor between the two ice sheets, a very inhospitable one. Crumbling rocks, mazes of meltwater lakes and rugged terrain with very little vegetation made up this “corridor.” Few game animals would have roamed it, and ice age hunters would have had little incentive to traverse it. This opens up the possibility of an “island-hopping” route that may have stretched in a broad arc from Japan to the Aleutian Islands to California. Unfortunately, most sites along this route would be buried underwater (Fagan 2005:82-83).

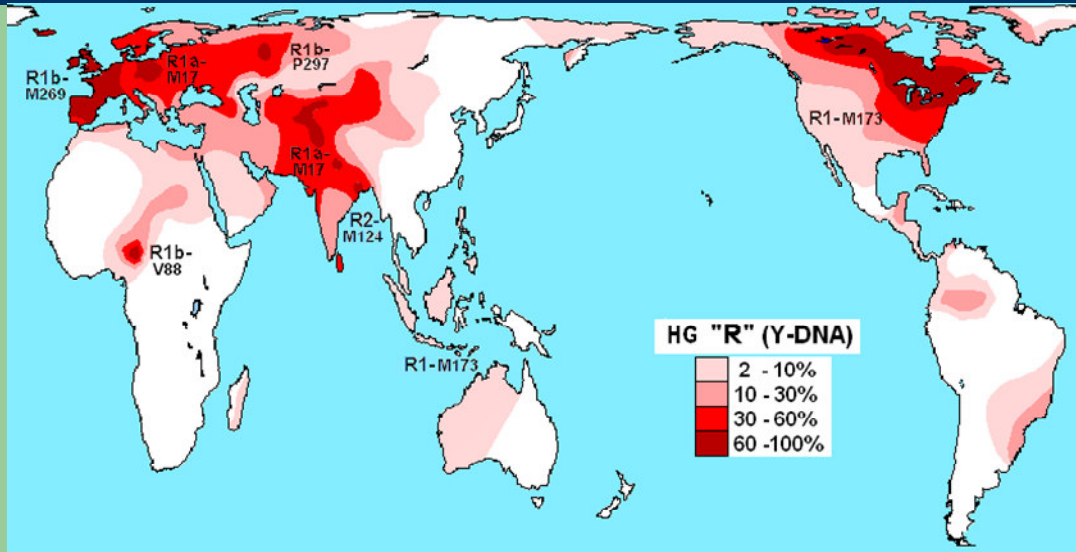
Early sites

<i>Site</i>	<i>Location</i>	<i>Possible age</i>
Channel Islands	California	12,200 ya
Dutchess Quarry	Orange County, NY	12,500 ya
Boqueirão da Pedra Furada rockshelter	Northeastern Brazil	30,000 ya (disputed)
Meadowcroft Rockshelter	Western Pennsylvania	14,500 ya, possibly 30,000 ya (disputed)
Saltville	Western Virginia	13,500 ya
Monte Verde	Chile	14,500 ya
Mexico City	Mexico	13,000 ya

Though some dates are debatable, several early American sites pre-date Clovis.

Meadowcroft Rockshelter in western Pennsylvania yielded radiocarbon dates as early as 30,000 BC. Those dates are controversial enough, though resampling seems to confirm the early carbon dates were accurate and contamination-free (Goldberg and Arpin 1999:325). One concern was whether runoff from a coal plant or human activity had contaminated this layer, but Goldberg and Arpin found no evidence of that. This layer did not yield any human artifacts, though it contained bone and burned eggshells. This may represent natural activity, though it typically indicates human activity. The researchers find “downward reworking from overlying deposits” to be “remote because there is no evidence of bioturbation” (333-334). On the other hand, the researchers considered dates from the stratum above (IIa) potentially contaminated with old carbon. This layer yielded dates ranging from 21,000 to 3200 years ago (334). An averaging of the six deepest dates associated with cultural materials suggests a human occupation between 14,500 and 13,950 radiocarbon years ago (Fagan 2005:86).

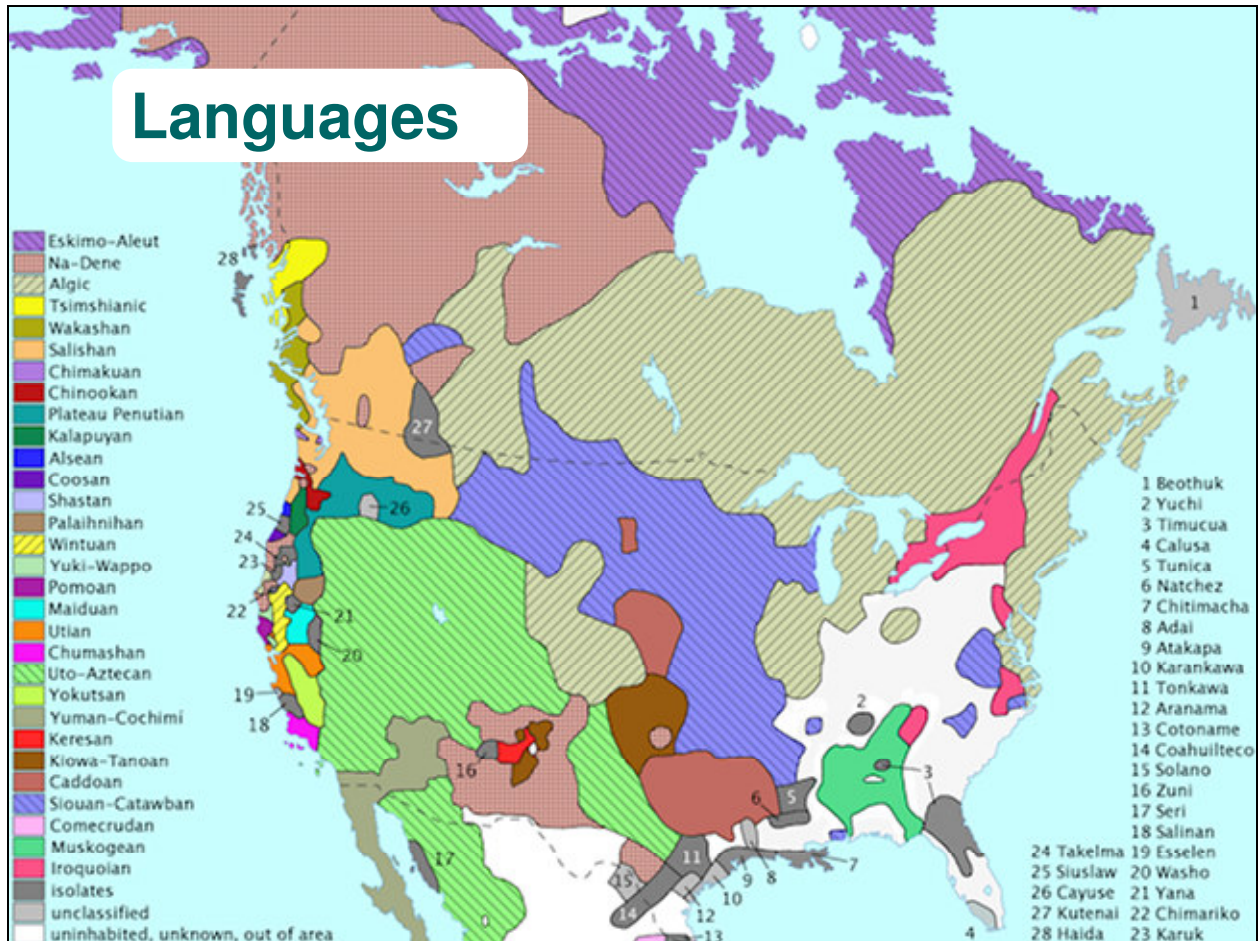
Genetics



Y-chromosome DNA haplogroup R occurs in high frequencies only in NE America, Western Europe and India. The separate branches are diverse enough to predate the arrival of modern Europeans.

Geneticists use primarily two types of data: mitochondrial DNA (mtDNA) which descends from mothers to their children. This type of DNA has a fast mutation rate, which allows geneticists to time human ancestry and genetic divergence. Another type of DNA from the Y chromosome (Y-DNA or NRY) passes from fathers to their sons. The evidence from both branches is rather contradictory. The mtDNA data indicate at least five founding lineages shared by both ancient and modern Native Americans. Estimates based on mtDNA place the first settlement earlier than 20,000 years ago. The Y-DNA data suggest at least two founding lineages, though likely there were more. Y-DNA estimates date the first settlement to around 18,000 to 15,000 years ago. In both cases, the data suggest more than one movement of people into the Americas. One geneticist revises the settlement dates to between 19,000 and 11,000 years ago, which would agree with the archaeological evidence (Fagan 2005:75).

Languages



Before European contact, Native Americans spoke more than a thousand languages. These fall into roughly 150 separate language families, many of which greatly differ from one another. Linguist Joseph Greenberg grouped most of North and South American native languages into one large “Amerind” family, though many linguists contest this overgeneralization. Greenberg proposes two other language families in the Americas: Aleut-Eskimo and Na-Dene. According to him, the Amerind languages arrived before 9000 BC. The Na-Dene languages arrived around 7000 BC and the Aleut-Eskimo languages about 2000 BC. Although these groups and dates are contentious, several things are clear about Native American languages:

- They have a high level of diversity,
- They do not have close ties to languages elsewhere in the world, and
- They have developed in the Americas for quite a long time.

Conclusion

Native American diversity is hard to account for without multiple migrations at different times.



There is no clear agreement on the initial settlement of the Americas. However, it is just a matter of time before we start to clear up these questions. Eventually, we will find human remains at a site like Monte Verde. Advances in genetic technology will allow us to extract ancient DNA from such remains and compare it to DNA from other remains both ancient and modern. By this method, we should be able to tell whether answer complex migratory questions. It seems highly unlikely that we can account for the vast and dynamic diversity of Native Americans—the great number of cultural, linguistic and genetic distinctions—by presuming there was a single or minimal influx of initial settlers from one area in Siberia a mere 15,000 years ago. There is less diversity in Europe, which largely has a single language family with only a few exceptions on the fringes. However, the genetic date leaves no doubt that multiple waves of migrants settled Europe from various directions at various times. Considering the known data, such a multi-wave scenario seems more than likely for the settlement of the Americas as well.

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