

THE ORIGIN AND SPREAD OF MODERN HUMANS

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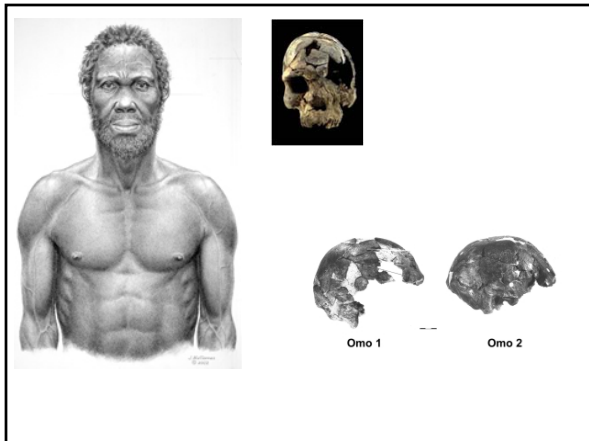
1. MODERN HUMANS

Anatomically modern humans (AMHs) evolved from an archaic *Homo sapiens* African ancestor

- Eventually AMHs spread to other areas, including western Europe, where they replaced, or interbred with, Neandertals

Out of Africa II

- Accumulating to support African origin for AMHs
 - White and Asfaw: finds near village of **Herto** are generally anatomically modern
 - Leakey: Omo Kibish remains from 195,000 B.P. appear to be earliest AMH fossils yet found
 - Sites in South Africa of early African AMHs



- Anatomically modern specimens, including skull found at Skhūl, date to 100,000 B.P.

- Early AMHs in Western Europe often referred to as **Cro Magnons**, after earliest fossil find of an anatomically modern human in France

- AMHs may have inhabited Middle East before the Neandertals



FIGURE 10.1 Skhūl V
This anatomically modern human with some archaic features dates to 100,000 BP. This is one of several fossils found at Skhūl, Israel.



GENETIC EVIDENCE FOR OUT OF AFRICA II

- Researchers from Berkeley generated a computerized model of *Homo* evolution
 - Based upon the average rate of mutation in known samples of mtDNA
 - Only the mother contributes mtDNA
 - Everyone alive today has mtDNA that descends from a woman (dubbed Eve) who lived in sub-Saharan Africa around 200,000 years ago

GENETIC EVIDENCE FOR OUT OF AFRICA II

- In 1997, mtDNA extracted showed that the Neandertals differed significantly from modern humans
 - 27 differences between modern humans and Neandertal
 - Samples of DNA from modern populations worldwide show only 5 to 8 differences
 - Neandertals may or may not have coexisted with modern humans in the Middle East for thousands of years

THE DENISOVANS

- 2010- Pääbo: 2.5% of Neandertal genome more similar to the DNA of living Europeans and Asians than to African DNA
 - Suggests Neandertals interbred with AMHs soon after the latter emerged from Africa around 50,000 years ago
 - Diverged from common ancestor 600,000
- Denisova Cave, Siberia
 - Denisovan/Neandertal split ~400,000 ya

THE DENISOVANS

- Denisovans distant cousins to Neandertals
 - Lived in Asia from 400,000 to 50,000 years ago
 - Split between ancestral Neandertals and Denisovans around 400,000 years ago

2. THE ADVENT OF BEHAVIORAL MODERNITY

- Scientists agree on the following:
 - 6 m.y.a., hominin ancestors originated in Africa and became habitual bipeds
 - By 2.6 m.y.a., hominins were making crude stone tools
 - By 1.7 m.y.a., hominins had spread from Africa to Asia and eventually Europe
 - Around 200,000 years ago, AMHs evolved from ancestors who had remained in Africa

THE ADVENT OF BEHAVIORAL MODERNITY

- Disagreement on when AMHs achieved **behavioral modernity**: fully human behavior based on symbolic thought and cultural creativity



THE ADVENT OF BEHAVIORAL MODERNITY

- Klein: human creativity dawned suddenly around 45,000 years ago
 - Neurological hypothesis
- Gamble: rise of modern human behavior a result of increasing social competition
- White: personal adornment in Africa and the Middle East shows that human creative capacity existed among AMHs long before they reached Europe

ADVANCES IN TECHNOLOGY

- **Upper Paleolithic** toolmaking has been traditionally associated with AMHs in Europe and emphasized blade tools
 - **Blade tools**: the basic Upper Paleolithic tool, hammered off a prepared core
 - Blades modified to produce a variety of special-purpose tools

Figure 10.2: Upper Paleolithic Blade-Tool-Making

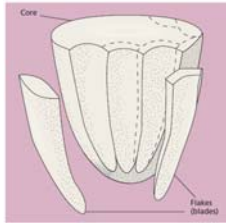


FIGURE 10.2 Upper Paleolithic Blade-Toolmaking
Blades are flakes that are detached from a specially prepared core. A punch (usually a piece of bone or antler) and a hammerstone (not shown here) were used to knock the blades off the core.

ADVANCES IN TECHNOLOGY

- Number of distinct tool types increased
 - Growth in *Homo*'s total population and geographic range and increasing local cultural diversity
 - Scrapers
 - Burins
 - Awls
 - Needles



GLACIAL RETREAT

- As ice retreated between 17,000 and 12,000 years ago in Europe, large herbivores gradually moved north
 - Western Europeans used greater variety of foods
 - Continental shelf created zone for marine life accessible to humans
 - Southwestern European economies less specialized

CAVE ART

- Earliest cave paintings date back some 36,000 years
 - Most cave paintings concentrated in southwestern France and northern Spain
 - Lascaux
 - Various magical or ritual functions
 - Often occur in clusters
 - A kind of pictorial history
 - Coincides with period of glacial retreat

THE SETTLING OF AUSTRALIA

- At times of major glacial advance, such as 50,000 years ago, dry land (Sahul) connected Australia, New Guinea, and Tasmania
 - Separated from Asia by narrow straits
 - Hudjashov: native Australian/New Guinean mtDNA samples fit into one of four branches associated with spread of modern humans out of Africa between 70,000 and 50,000 B.P.

THE SETTLING OF AUSTRALIA

- Australia has provided a few of the oldest modern human skeletons (46,000 B.P.) known outside Africa
 - Mungo III
 - Oldest ritual ochre burial
 - O'Connell and Allen: Australia occupied by 46,000 B.P. but not much earlier

Figure 10.3: Sahul: Australia, New Guinea, and Tasmania



FIGURE 10.3
An area of vast grasslands, until ca. 18,000 years ago, the vast continent of Sahul, New Guinea and Tasmania. Sahul was the largest landmass in the world, extending from the Indian Ocean to the Pacific Ocean. It was the largest landmass in the world, extending from the Indian Ocean to the Pacific Ocean. It was the largest landmass in the world, extending from the Indian Ocean to the Pacific Ocean.

SETTLING THE AMERICAS

- Beringia, the Bering land bridge, once connected North America and Siberia
 - Ancestors of Native Americans moved gradually eastward as hunters
 - Successive generations of hunters followed game through unglaciated corridors and spread by boat down the Pacific coast
 - Paleoindians on North America's grasslands hunted horses, camels, bison, elephants, mammoths, and giant sloths

SETTLING THE AMERICAS

- **Clovis tradition:** sophisticated stone technology based on a sharp point that was fastened to end of a hunting spear
 - Spread throughout North America
 - Clovis people not first or only settlers of Americas
 - Evidence for early occupation of southern South America suggests that first migration(s) of people into Americas may date back 18,000 years
 - Americas settled by more than one **haplogroup**

Figure 10.4: The Ancestors of Native Americans Came to North America as Migrants from Asia



FIGURE 10.4 The Ancestors of Native Americans Came to North America as Migrants from Asia. They followed the open route across Beringia, an interior stretch of land exposed during the ice ages. Was the settlement of the Americas continental? When did humans appear? Other migrants reached North America along the shore by boat, fishing and hunting sea animals.

Figure 10.5: A Clovis Spear Point



FIGURE 10.5 A Clovis Spear Point. Such points were attached to spears used by Paleoindians of the North American plains between 13,200 and 12,800 years ago. Are there sites with comparable ages or older in South America?

THE PEOPLING OF THE PACIFIC

- People reached Australia around 50,000 years ago but did not spread eastward
- Solomon Islands formed eastern edge of inhabited Pacific until 3000 B.P.
 - Deep-sea crossings and colonization linked to rapid spread of earliest pottery found in Oceania
 - Lapita pottery makers
 - Burley: Tongatapu "probably served as the initial staging point for population expansion"

THE PEOPLING OF THE PACIFIC

- Stoneking: DNA evidence shows that ancestors of Polynesians were Austronesians
 - Mixing of newcomers and Melanesians helped Lapita pottery style emerge
 - Kirch: By 2000 B.P., the people of Tonga had developed a double-hull sailing canoe

Figure 10.6: Oceania



FIGURE 10.6 Oceania
Polynesian lands are shaded black. Other Central Pacific languages outside of Polynesian are spoken in the area shaded orange, which includes Fiji.
