CHAPTER 10

Premodern Humans
Chapter Outline

* Premodern Humans of the Middle Pleistocene
* Middle Pleistocene evolution and culture
* Neandertals: Premodern Humans of the Late Pleistocene
  - Molecular Connections: Genetic Evidence
The Pleistocene

-aka the Ice Age
-marked by advances and retreats of massive continental glaciations.

Europe = >15 major and 50 minor glacial advances documented

**Middle Pleistocene** - 780,000 - 125,000 ya.

**Late Pleistocene** - 125,000 - 10,000 ya.

Hominins were impacted as the climate, flora, and animal life shifted.
Glaciations

**Glaciations** - climatic intervals when continental ice sheets cover much of the northern continents.

Glaciations are associated with colder temperatures in northern latitudes and more arid conditions in southern latitudes, most notably in Africa.

**Interglacials** - Climatic intervals when continental ice sheets are retreating, eventually becoming much reduced in size.

Interglacials in northern latitudes are associated with warmer temperatures, while in southern latitudes the climate becomes wetter.
Changing Pleistocene Environments in Africa

Interglacial period (increased rainfall)

Glacial period (reduced rainfall, increased aridity, expansion of deserts)
Changing Pleistocene Environments in Eurasia

Changing migration routes.
Dispersal of Middle Pleistocene Hominins

Europe becomes more permanently and densely occupied.
Middle Pleistocene hominins mostly remained in areas previously occupied by *Homo erectus*. 
Middle Pleistocene Hominins: Terminology

Premodern humans
- Transitional mix of ancestral and derived characteristics

**Homo heidelbergensis**
- group that likely gave rise to *Homo sapiens* and Neandertals

Widely distributed in Africa, Asia and Europe,
- replaced earlier hominins in previously exploited habitats

Exhibit several *H. erectus* characteristics
  - Large face, projected brows, low forehead, and thick cranial vault
  - Increased brain size, rounded braincase, etc
Figure 10-6
Fossil discoveries and archaeological localities of Middle Pleistocene premodern hominins.
Important sites - *H. heidelbergensis*

**Africa**
Bodo - East Africa; 600 kya
- Earliest evidence of *H. heidelbergensis* in Africa and possible ancestor to *H. sapiens*

Kabwe - South Africa; 130 kya
- Transitional fossil - is it a closer ancestor of early *H. sapiens* in Africa?

**Europe**
Sima de los Huesos - (Atapuerca, Spain); 600-400 kya
- Very early evidence of Neandertal lineage (but still *H. heidelbergensis*)

~28 individuals = represent 80% of all Middle Pleistocene hominin remains in the world
Middle Pleistocene Culture

Premodern human populations lived in caves and open-air sites.

Temporary structures - concentrations of bones, stones, and artifacts at several sites
- Exploited different food sources, fruits, vegetables, fish, seeds, nuts, and bird eggs, each in its own season.
- Exploited marine life, a new innovation in human evolution.

Still little evidence of widely practiced advanced hunting.

-Wood spears found at sites in Germany associate with the bones of horses = probably throwing spears.
Middle Pleistocene Culture

**Acheulian technology** of *H. erectus* carried into the Middle Pleistocene - little change until near the end of the period, when it became slightly more sophisticated.

**Levallois technology** Later premodern humans in Africa and Europe used this technique controlling flake size and shape.

- possible evidence of increased cognitive abilities in later premodern populations.
Neandertals: Late Pleistocene

**Brain Size**: Larger than *H. sapiens* today (1520 cm$^3$ compared to 1300-1400 cm$^3$ (perhaps adapted to cold climate).

**Cranium**: Large, long, low, and bulging at the sides.

**Structure**: Robust, barrel-chested, and powerfully muscled with shorter limbs than modern *H. sapiens.*
Figure 10-12
Fossil discoveries of Neandertals.
Important sites - Neandertal

Tabun, Israel - SW Asia; 110 kya
-Best evidence of early Neandertal morphology in SW Asia

La Chapelle, France - W Europe; 50 kya
-Famous Neandertal find
-Note the occipital bun, projecting face, and low vault.
Upper Paleolithic

A cultural period usually associated with modern humans, but also found with some Neandertals, and distinguished by technological innovation in various stone tool industries.

Best known examples from western Europe, similar industries are also known from central and eastern Europe and Africa.
Chatelperronian

Pertaining to an Upper Paleolithic industry found in France and Spain, containing blade tools and associated with Neandertals. Suggestive of some cultural hybridization
Excavation of the Tabun Cave, Mt. Carmel, Israel
Shanidar Cave

In Shanidar cave, in the Zagros Mountains of northeastern Iraq, fieldworkers found partial skeletons of nine individuals, four of them deliberately buried.

Shanidar 1 is a skeleton of a male who lived to be 30 to 45 years old, a very old age for prehistoric human.

His height is estimated at 5 feet 7 inches, and his cranial capacity is 1,600 cm³.

He had injuries that made it impossible to perform normal activities leading researchers to believe he must have been helped by others.

Shanidar 1
Could he represent Neandertal compassion for the disabled?
Culture of Neandertals

* Neandertals improved previous techniques by inventing a new tool tradition, **Mousterian**.
- They trimmed a flint nodule around the edges to form a disk-shaped core.
- Each time they struck the edge, they produced a flake, continuing until the core became too small and was discarded.
- They then trimmed the flakes into various forms, such as scrapers, points, and knives.
* Pertaining to the stone tool industry associated with Neandertals and some modern *H. sapiens* groups; also called Middle Paleolithic.
* This industry is characterized by a larger proportion of flake tools than is found in Acheulian tool kits.

![Figure 10-21](https://example.com/image.png)  
Examples of the Mousterian tool kit, including (from left to right) a Levallois point, a perforator, and a side scraper.
Subsistence

Remains of animal bones demonstrate that Neandertals were successful hunters. Used close-proximity spears for hunting (spear thrower and bow and arrow weren’t invented until the Upper Paleolithic).

Patterns of trauma in Neandertal remains match those of contemporary rodeo performers, indicating close proximity to prey.
Speech and Symbolic Behavior

Prevailing consensus has been that Neandertals were capable of articulate speech. Even if Neandertals did speak, they did not have the same language capabilities of modern *Homo sapiens*. 
Burials

Neanderthals buried their dead. Their burials included grave goods like animal bones and stone tools. They placed the bodies of their dead in a flexed position.
Molecular Connections: The Genetic Evidence

Tremendous advances in past 15 years in sequencing Neandertal mitochondrial and nuclear DNA

Modern human populations outside of Africa possess 1-4% of distinctive Neandertal DNA

Melanesian populations contain 4-5% of distinctive Denisovan DNA

Suggests interbreeding of premodern and modern populations