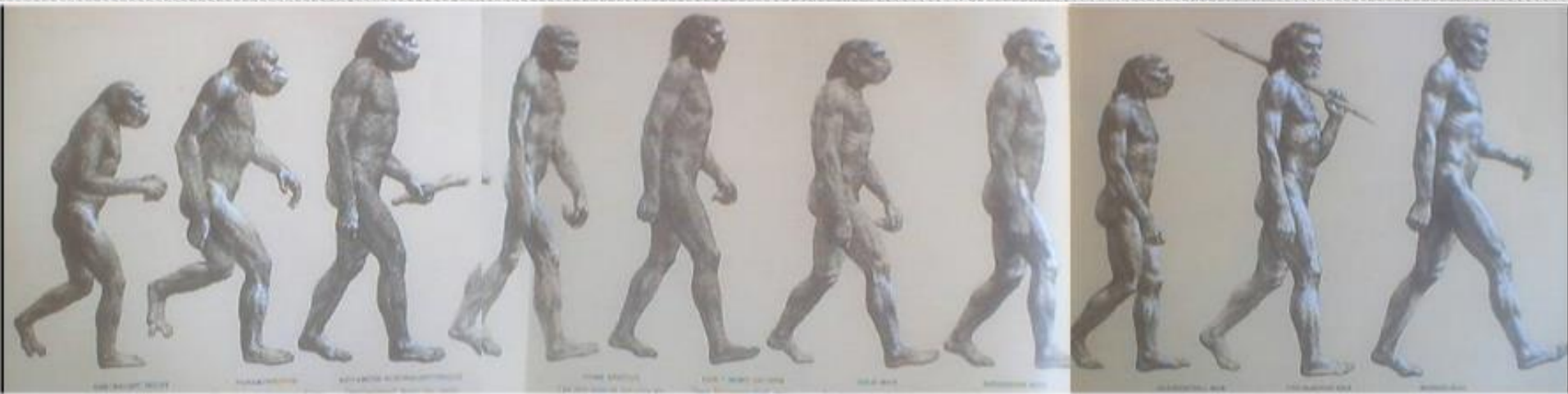


# Chapter 1

# Toward Civilization

(Prehistory–3500 B.C.)



- **How do anthropologists and archaeologists find out about early peoples?**
- **How do historians try to reconstruct the past?**





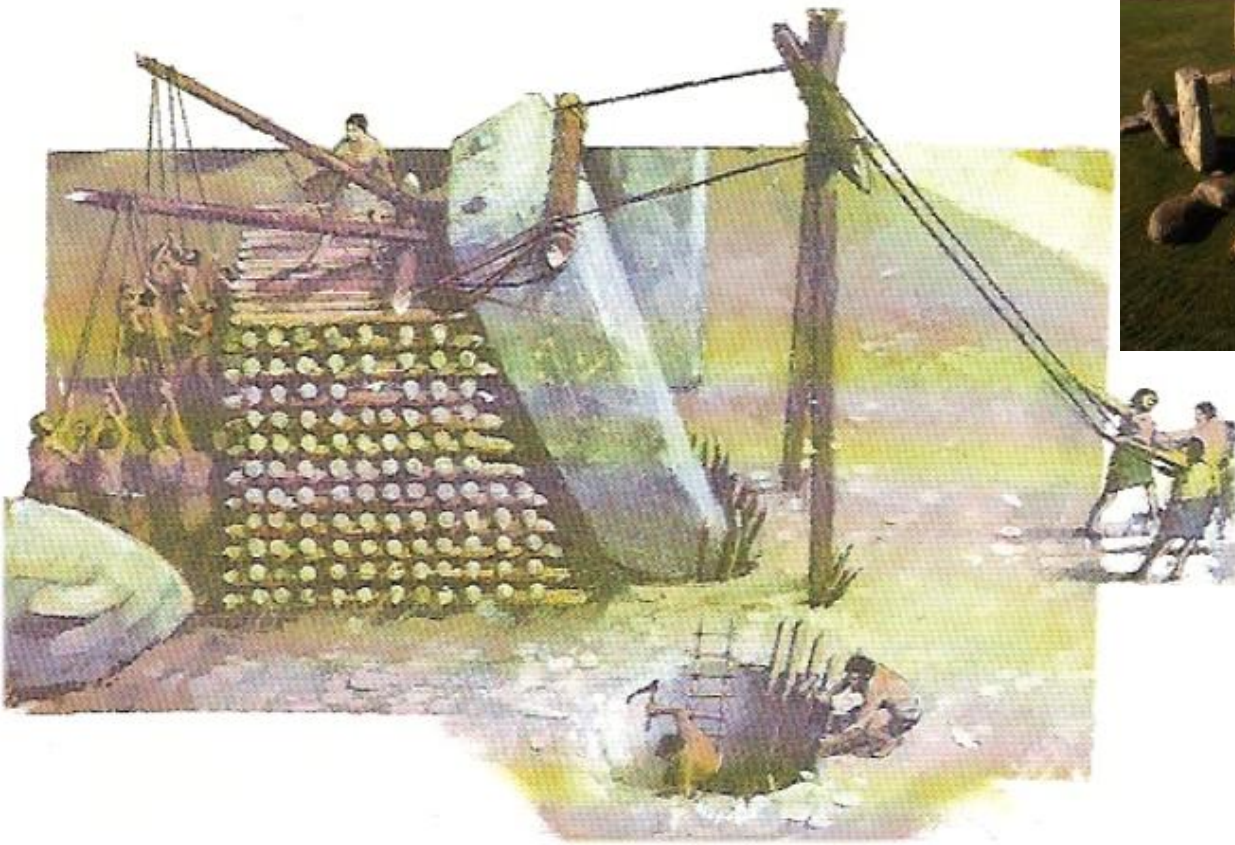
The so-called "Valdaro Lovers," are a pair of human [skeletons](#) locked in an eternal embrace discovered by archaeologists at a [Neolithic tomb](#) in S.Giorgio near [Mantova, Italy](#), in [2007](#).

Archaeologist Elena Maria Menotti led the excavation.<sup>3</sup> Scientists believe that the pair is a man and woman no older than 20 years old and approximately 5'2" in height. They were removed from the ground intact and sent to Musei Civici in Como where they are undergoing tests.

- Archaeologists said that they won't split up the remains of a couple found with their arms wrapped around each other for as long as 6,000 years since their burial in Italy.
- The scientists said they plan to remove and preserve the skeletons together in the surrounding earth, as opposed to removing their bones one by one for reassembly. That way, the archaeologists can study their ancient remains and ultimately exhibit them in an Italian museum. It will be a record of the longest known hug, the scientists said.
- "We want to keep them just as they have been all this time--together," archaeologist Elena Menotti said

# Anthropologists & Archaeologists

**Anthropology** is the study of the origins and development of human life (behaviors) and their cultures.



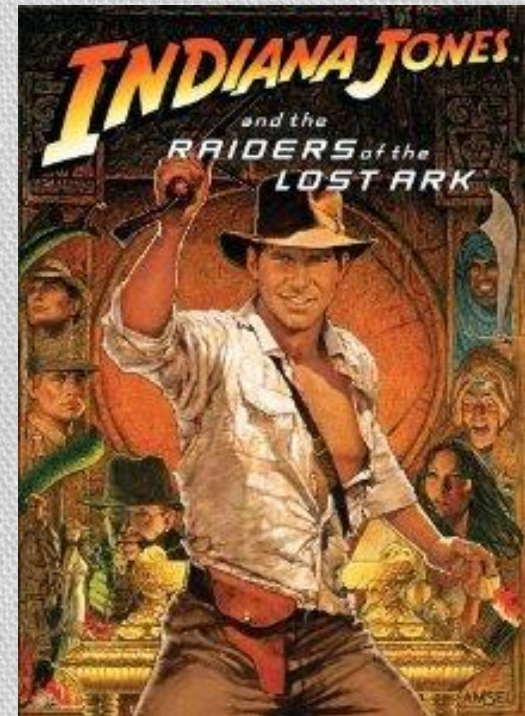
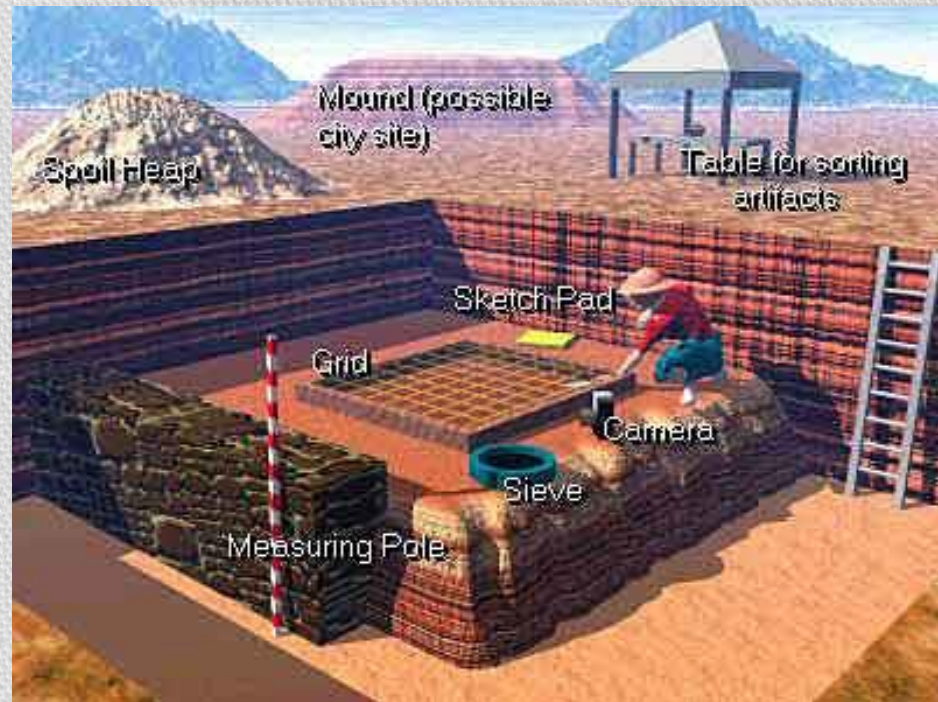
Men of a Neolithic age culture constructing Stonehenge: a megalithic monument to their Sun and Moon Gods?

**Archaeology** is a specialized branch of anthropology. They study past societies and what they left behind.



Archaeologists study **artifacts**, objects made by human beings. By looking at artifacts they can see how people developed **technology**, the skills and tools people use to meet their basic needs.





# How Do Historians Reconstruct the Past?

- **Historians** rely primarily on written evidence to determine how people lived in the past.
- Recorded history began about 5,500 years ago, when people began to keep written records at first on clay tablets.
- **Prehistory** is defined as the time before writing appeared in Sumer around 3500BC
- Historians are like detectives. Sometimes they come to different conclusions. Like Scientists they keep testing theories to get closer to accepted truth about the past.



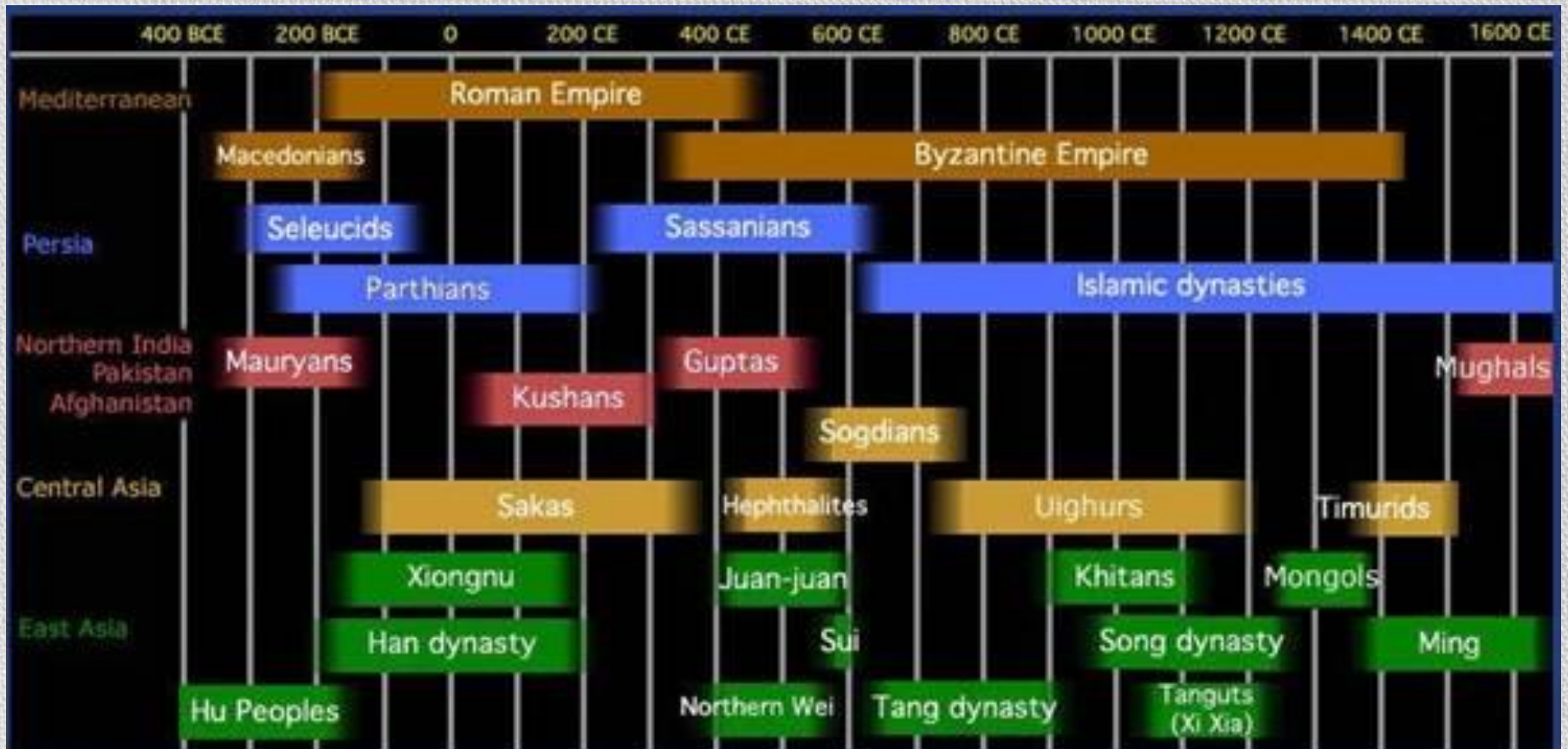




Recently a more secular system has  
come into use

BCE - Before the common era

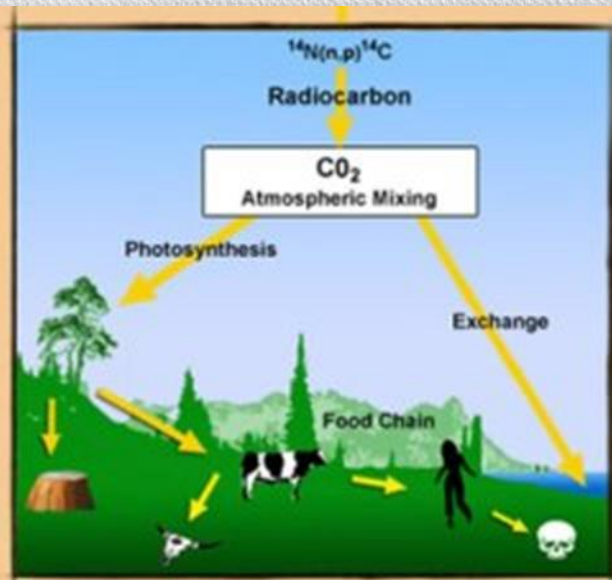
CE: - The common era.



# Three methods that Archaeologists use to determine how old fossils and artifacts are.

## Radio Carbon dating:

Measures the deterioration of carbon<sup>14</sup> in things that were once alive. Accurate for up to 50,000 years old.



**Conversion**  
(a) Plants contribute carbon, some of it radiocarbon, to animals that feed upon it. The radiocarbon is "stored" in the bones and tissue.

**Carbon**  
( $\text{C}^{14}/\text{C}^{12}$ )

**Decay**  
Radiocarbon ( $\text{C}^{14}$ ) decays back into Nitrogen ( $\text{N}^{14}$ ) at a fixed rate. Ordinary carbon ( $\text{C}^{12}$ ) remains unchanged.

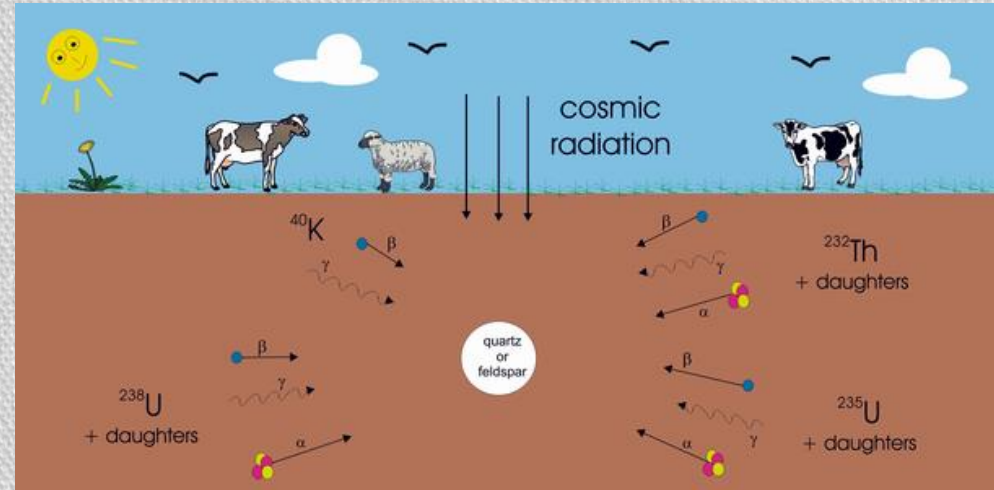
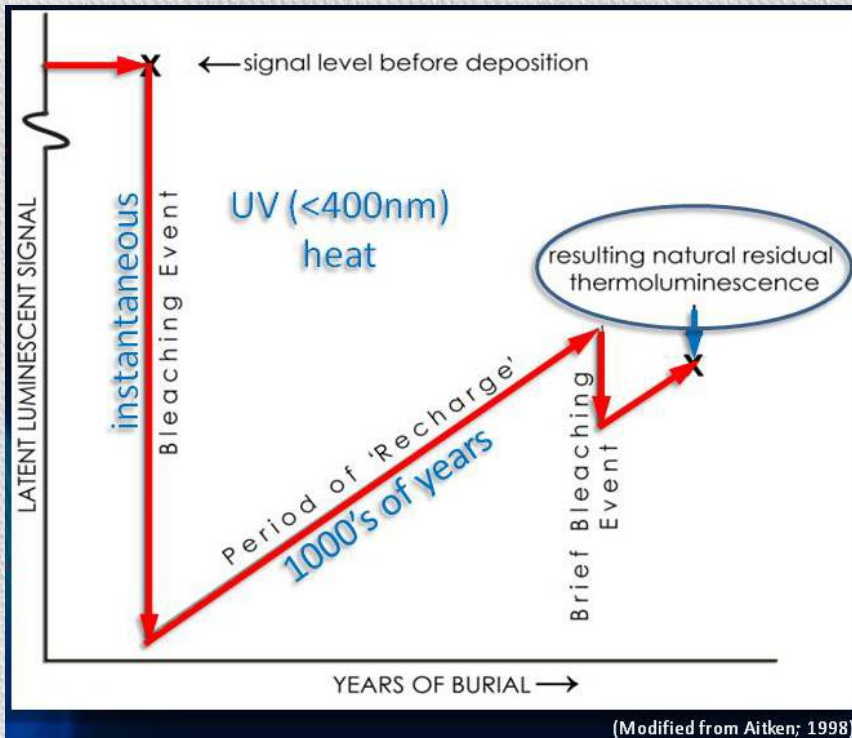
(a) One Half-Life — (1/2 of  $\text{C}^{14}$  has reverted to  $\text{N}^{14}$ ) Fossils are about 6,000 years old

(b) Two Half-Lives — (3/4 of  $\text{C}^{14}$  has reverted to  $\text{N}^{14}$ ) Fossils are about 12,000 years old

(c) Three Half-Lives — (7/8 of  $\text{C}^{14}$  has reverted to  $\text{N}^{14}$ ) Fossils are about 18,000 years old

(b) Upon death, radiocarbon intake ceases, and radiocarbon decay begins.

- Thermoluminescence:
- Measures the energy released from ancient sites. Accurate for up to 200,000 years old.

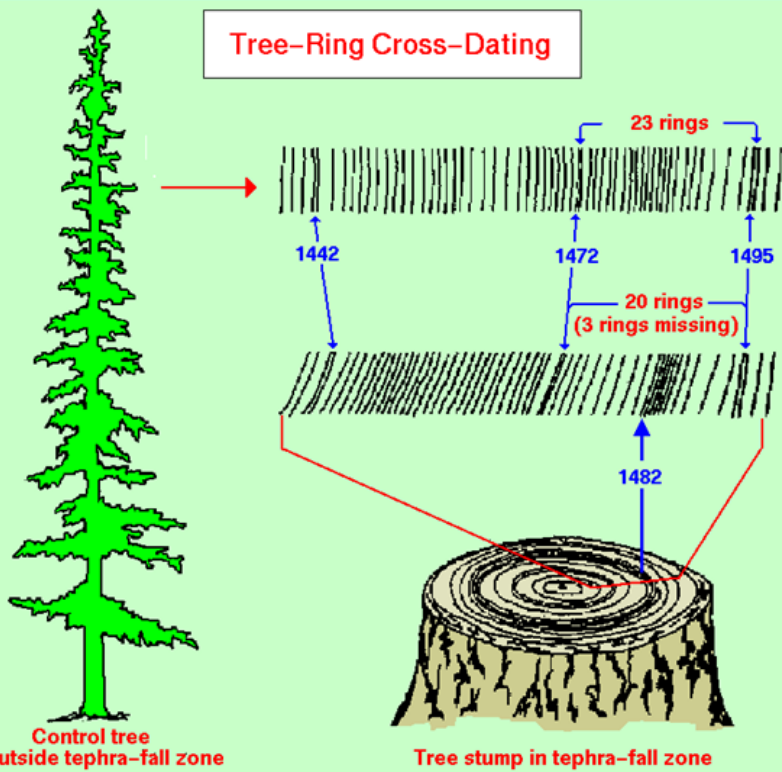


# Dendrochronology

- Dendrochronology or tree ring dating is a method of dating which makes use of the annual growth of a tree. Each year trees such as oak, put on a layer of new wood under the bark.
- Conditions favorable to growth will result in a wide ring; unfavorable ones will produce a narrow one.
- Trees growing at the same time will show similar patterns of tree-rings. This can be seen best by measuring the widths of the tree-rings and plotting them as graphs.

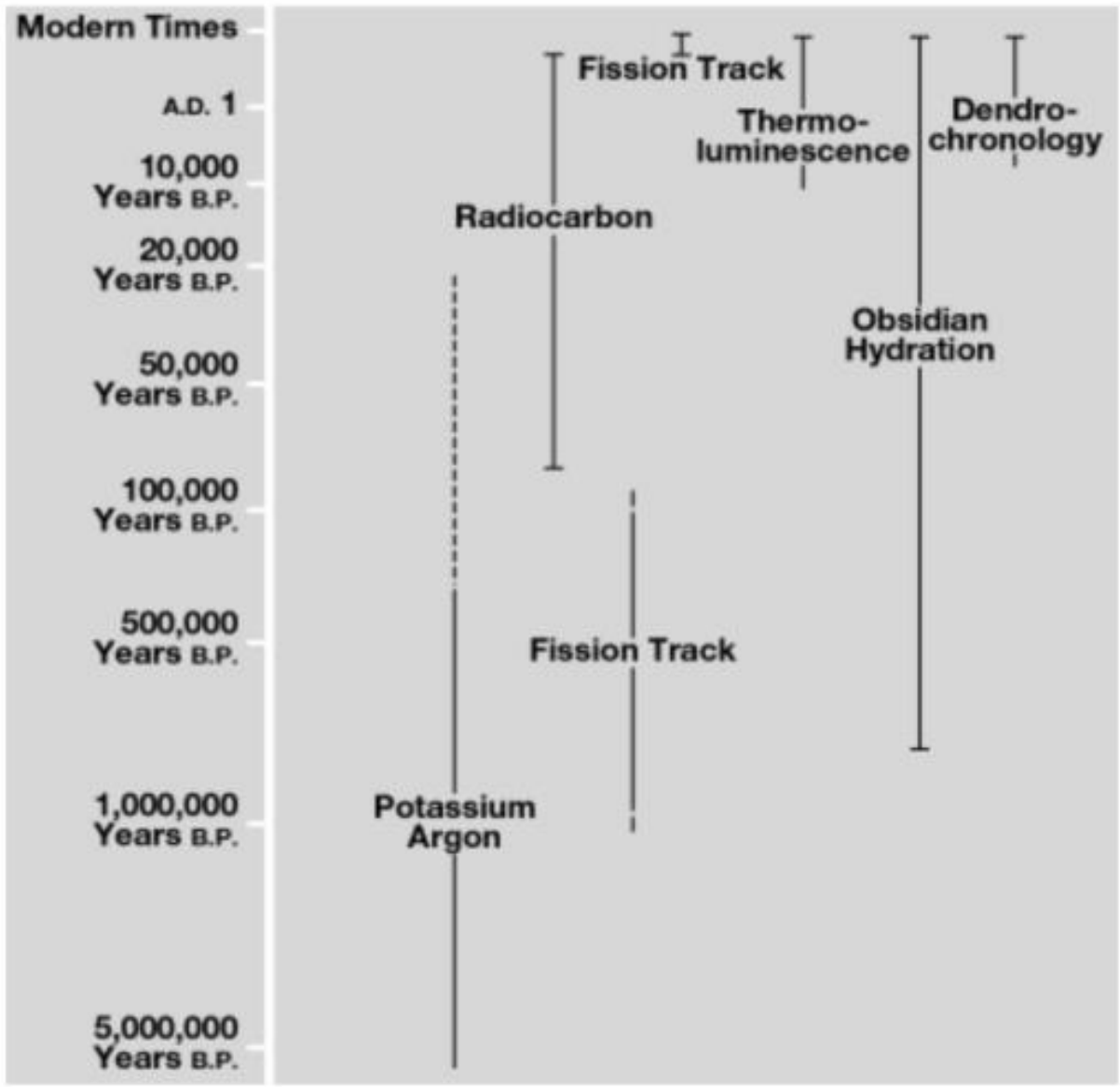


## Tree-Ring Cross-Dating

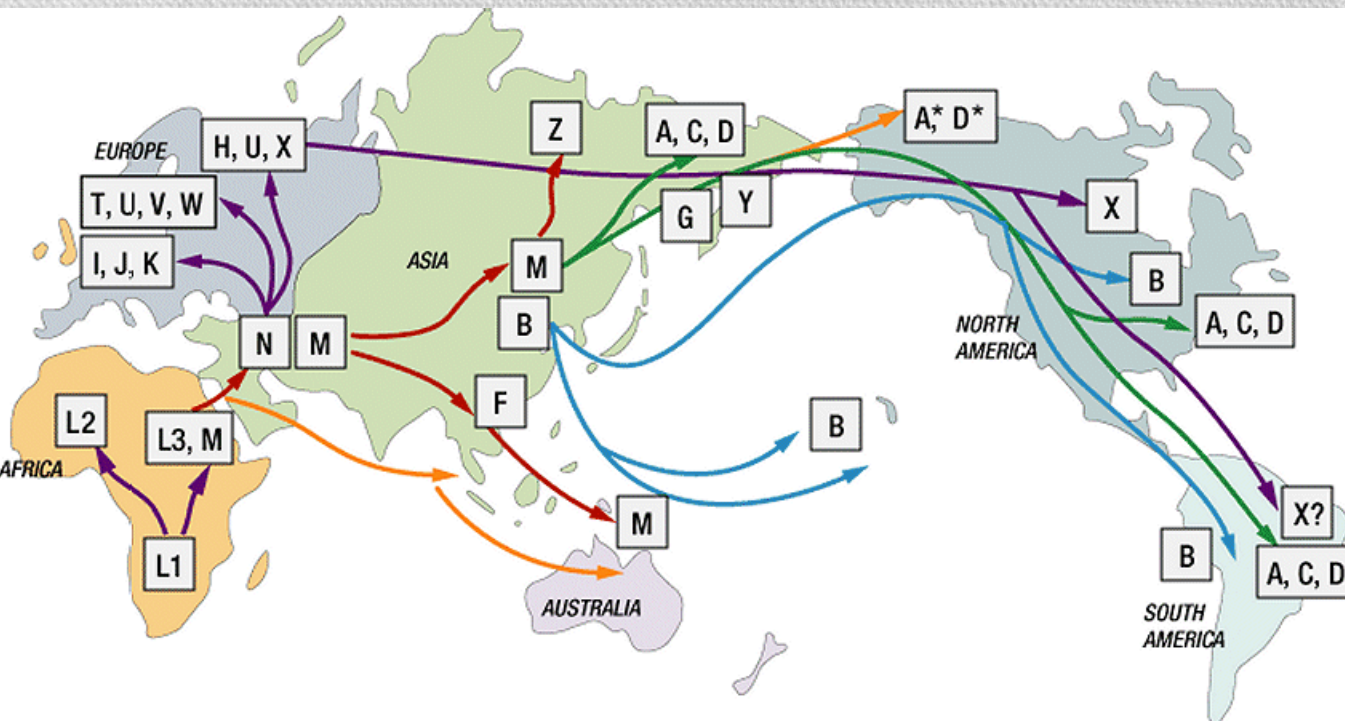


- In order to make use of the information contained in the tree-rings, long ring patterns, known as tree-ring chronologies, have to be constructed for use as reference data. These are produced by overlapping ring patterns from successively older timbers, starting with living trees, then buildings, and finally samples from archaeological sites and peat bogs. The Sheffield Laboratory now has a continuous master sequence for England going back to about 5000 BC.



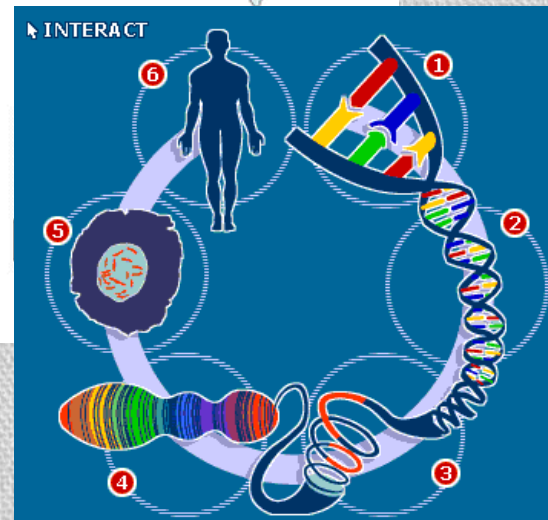


# DNA: Deoxyribo Nucleic Acid Helps to determine how long groups have intermixed genetically



EXPANSION TIMES (years ago)	
Africa	120,000 - 150,000
Out of Africa	55,000 - 75,000
Asia	40,000 - 70,000
Australia/PNG	40,000 - 60,000
Europe	35,000 - 50,000
Americas	15,000 - 35,000
Na-Dene/Esk/Aleuts	8,000 - 10,000

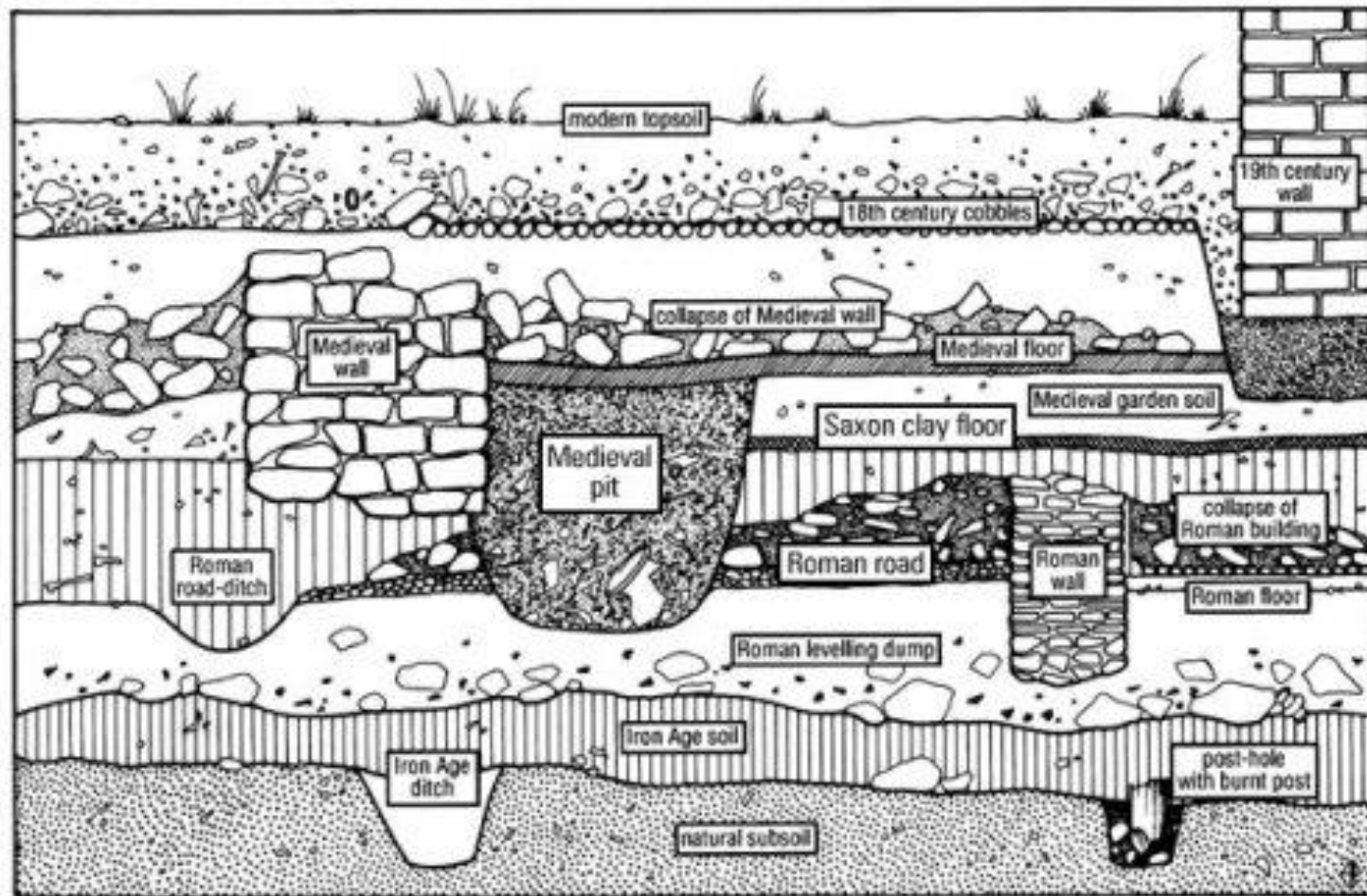
© Copyright 2004 - Genealogy by Genetics, Ltd., Family Tree DNA. All Rights Reserved.  
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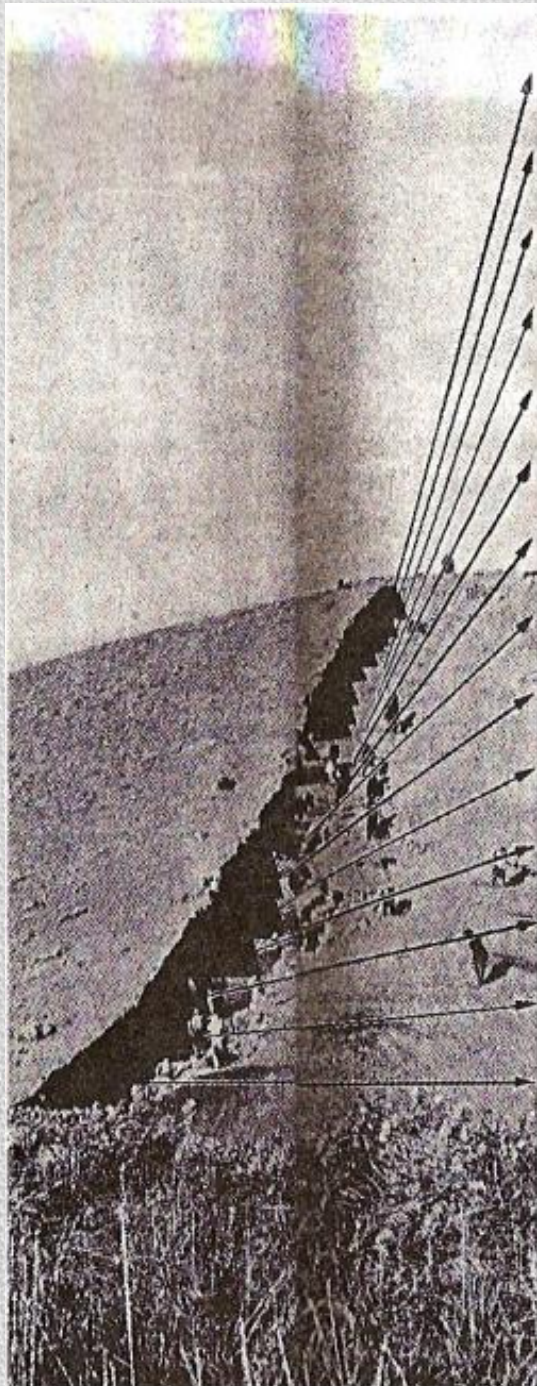
- **DNA, or mtDNA for short, is the DNA found in mitochondria, the part of your body's cells that turns food back into life. Mitochondrial DNA is different than nuclear DNA (nuDNA), the kind at the centre of your cells, in at least three ways:**
- **All of it comes from your mother, none of it from your father.**
- **It is very short, making only 16 different proteins.**
- **It has no way to proofread itself to check for copy errors.**
- **The last one means that mtDNA mutates or changes a hundred times faster than nuclear DNA. Mt mutations are harmful and do not get passed on. But some are harmless and a few are even helpful. In mtDNA a harmless mutation takes place about once every 3,000 years.**
- **In the late 1980s geneticist Allan Wilson tested the mtDNA of 137 people from different parts of the world. With that he built a family tree of mankind by assuming that those with fewer mutations between them were more closely related.**
- **He was able to tell not only how man spread across the earth, but when (pictured above according to the latest numbers). By assuming one mutation every 3,000 years, mtDNA becomes like a clock that keeps time over tens of thousands of years.**
- **In the 1980s many scientists believed in multiregional evolution: that humans, *Homo sapiens*, came from earlier manlike creatures not in one particular place but slowly all over the world. So the Chinese, for example, came from Peking Man (*Homo erectus*).**
- **Wilson's work overturned that. He showed that humans started in just one place: East Africa. From there they spread slowly across Africa and then across the whole earth – at the speed of one mile (1.6 km) a generation. This is called the Out of Africa hypothesis.**
- **When humans got to Europe they did not mate with the earlier Neanderthals: they either wiped them out or pushed them aside. There is no known mtDNA from Neanderthals in any one alive. The Neanderthal, Peking Man and all the rest were dead ends, not our ancestors.**
- **By looking at people's mtDNA and working backwards you can tell that everyone alive today came from a single woman who lived in Africa about 200,000 years ago: Mitochondrial Eve.**
- **A branch of the human family tree where everyone has roughly the same mtDNA is called a haplogroup. They are given letters: L, N, M, X, etc. The dark-skinned people in southern India, Australia, New Guinea and Melanesia, for example, belong to haplogroup M.**
- **Most black Africans belong to haplogroup L, the same as Eve herself. There are seven main branches of it within Africa, named L0 through L6.**
- **About half the people in Europe belong to haplogroup H. Its Eve has been called Helena. She lived in the Middle East 30,000 years ago. By 28,000 years ago her descendents were already in Europe. That is not good guesswork but a fact: we have the remains of a person called Paglicci 23 who lived in Italy 28,000 years ago that we can date and test.**



- Stratigraphy is the fundamental concept of the process of excavation and understanding archaeology. Layers of soil or other materials are deposited in the past in chronological order, with the oldest layer at the bottom. The principals of stratigraphy are used to demonstrate the relationships between different actions in the past that are revealed during excavation.



nnn



**PERIOD I**  
600-300 A.D.

The level of an early Christian church, with its chapel and close. Byzantine coins and bronze crosses of the crosses.



**PERIOD II**  
300 A.D.-64 B.C.

A village partly contemporary with St. Paul and early Christian missionary activity in Antioch. Coins of the Caesars and Roman lamps.



**PERIOD III**  
64 B.C.-500 B.C.

An occupation of the period of the Persian Empire, showing also traces of the Hellenization of the Orient under Alexander the Great.



**PERIOD IV**  
500 B.C.-1000 B.C.

Layers of the Syrian Hittite kingdom, contemporary with the later Assyrian Empire and the Babylonian Nebuchadnezzar. Hittite hieroglyphs.



**PERIOD V**  
1600 B.C.-1200 B.C.

Ceramic traces of the "Peoples of the Sea," some of whom are known as the Philistines, others as the Achaeans who sacked Troy.



**PERIOD VI**  
1200 B.C.-1600 B.C.

A period of ethnic movements and extensive pottery importation. Infiltration of *Habiru* into Palestine and Joshua's capture of Jericho.



**PERIOD VII**  
1600 B.C.-1800 B.C.

Evidence of cultural relations with the east, attested by cylinder seals of the Hurrian peoples of northern Mesopotamia, identified as the Horites of the Bible.



**PERIOD VIII**  
1800 B.C.-2000 B.C.

Small painted bowls related to the pottery of the Hyksos or "Shepherd Kings" of Egypt. Time of the Patriarchs.



**PERIOD IX**  
2000 B.C.-2400 B.C.

The beginning of a series of clay figurines of the "Mother Goddess" type, which are remarkable for their intentional grotesqueness.



**PERIOD X**  
2400 B.C.-2600 B.C.

An occupation by the makers of goblets with fork-scratched decoration: an evidence of trade with northern Mesopotamia and central Syria.



**PERIOD XI**  
2600 B.C.-3100 B.C.

Importation of cylinder seals from Abraham's city, Ur of the Chaldees; and fine red and black polished pottery from Asia Minor and the Balkans.



**PERIOD XII**  
3100 B.C.-3400 B.C.

Earliest general use of metal, rapid mastery of the technique of casting figures in copper. Decline of flint and bone tools.



**PERIOD XIII**  
3400 B.C.-3800 B.C.

Painted hand-made pottery as fine as any subsequent painted style. Flint and bone implements, with earliest traces of copper.



**PERIOD XIV**  
3800 B.C.-4500 B.C.

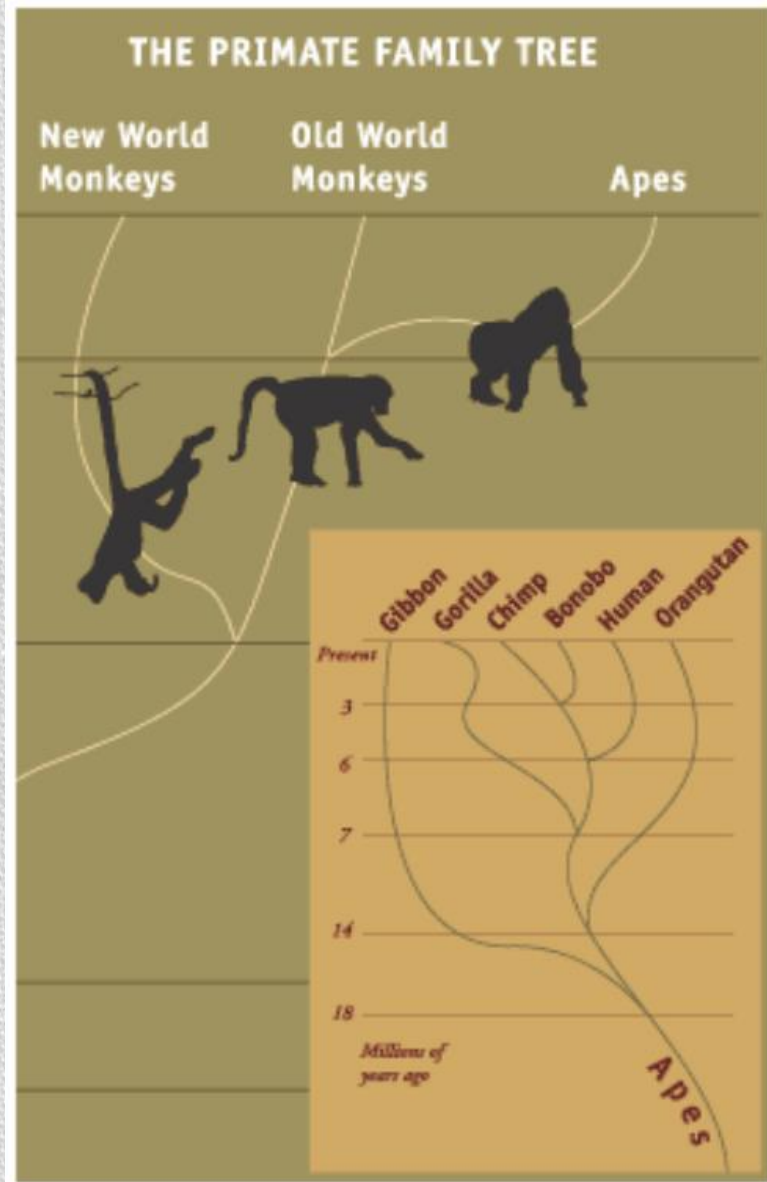
The earliest Syrian village life, with the same material culture as found in near-by caves. Hand-made pottery, bone and flint tools, no traces of metal.



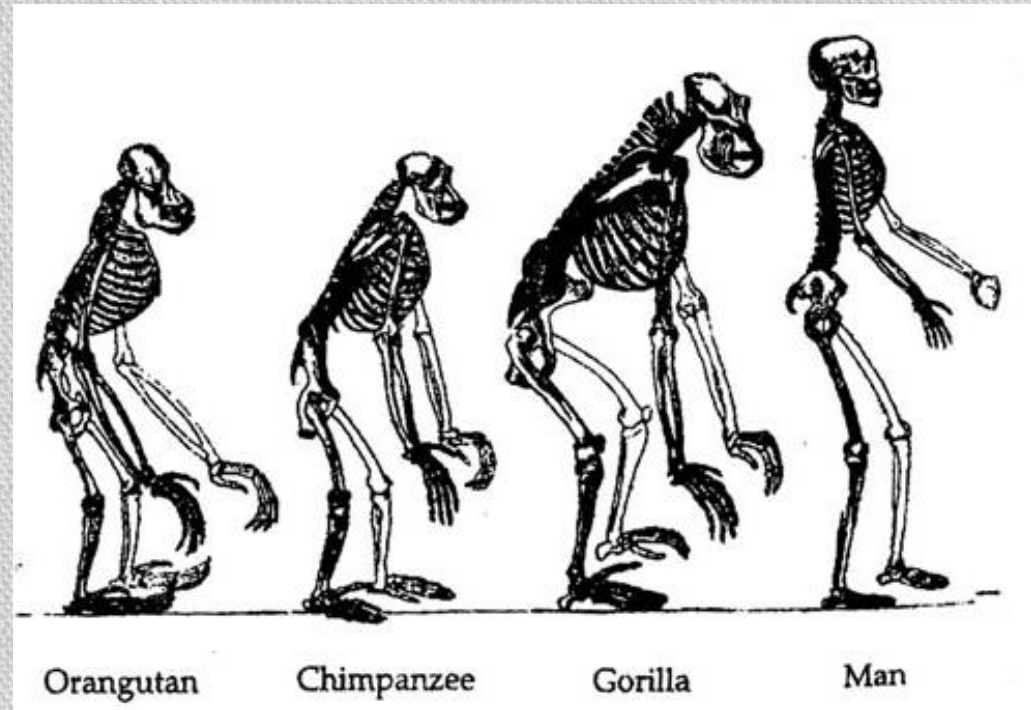
**VIRGIN SOIL: SIX FEET UNDER THE PRESENT WATER LEVEL.**

Here, layer by layer, are five thousand years of history. Each "period" i.e., the duration of one particular culture, may contain several levels of occupation. The sketches show objects which are typical for their period, and occur only sporadically, if at all, in any other period. Thus by careful check of the objects from a given floor, the archaeologist can establish their sequence, just as one might differentiate between the "buggy wheel" and the "automobile tire" periods in American history by digging through a city dump. The step-trench shown above enabled the Institute's Syrian Expedition to establish, for the first time, a complete chronology for North Syria.

# Prehistoric Hominids



- Hominids walk upright
- They are also called the Great Apes.
- Includes Humans, Chimpanzees, Gorillas, and Orangutans



# Classification of *Homo sapiens* within the order Primates

**species**  
*sapiens*



**contained forms:**

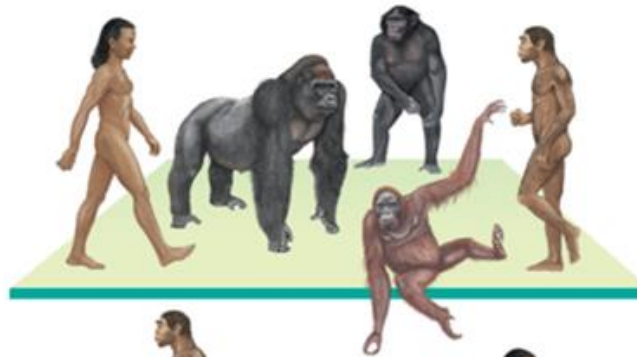
modern humans

**genus**  
*Homo*



modern and  
archaic humans

**family**  
Hominidae



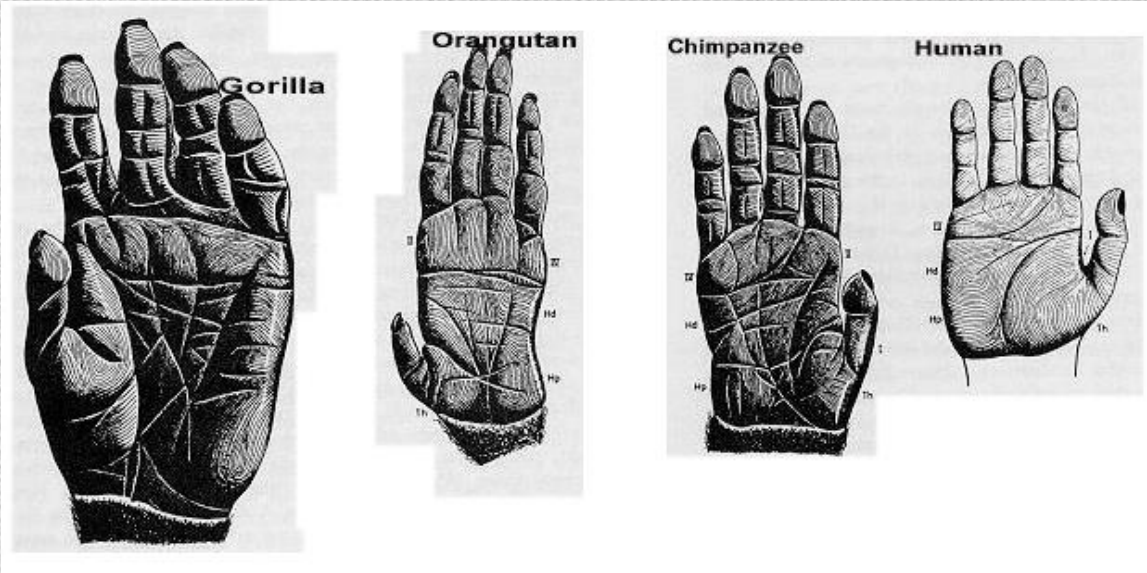
humans and  
great apes

**superfamily**  
Hominoidea



humans and  
all apes  
(great apes  
and gibbons)

- Walking upright helps hominids travel long distances easily
- Mary Leakey discovered prehistoric footprints in Laetoli Tanzania in 1978 proving that they were made by **hominids**; bipedal creatures that walk upright.
- Early hominids also develop opposable thumbs to grasp branches and tools with.



# The Paleolithic Age

- **"Paleolithic" --> "Old Stone" Age**
- **3,00,000 BC - 8,000 BC**
- **Made tools**



- 
- **hunting (men) & gathering (women)**  
→ **small bands of 20-30 humans**
  - **NOMADIC (moving from place to place)**

# • Australopithicines

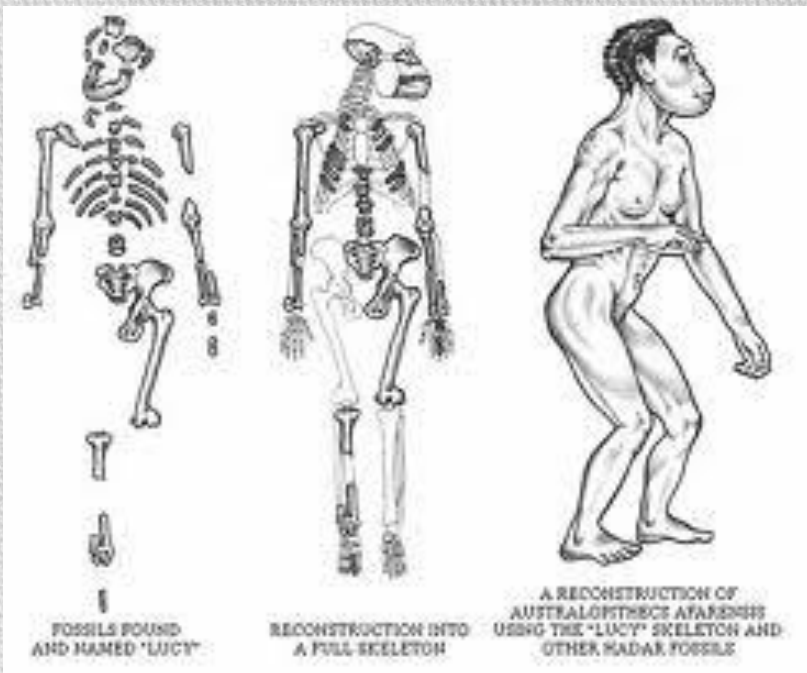
Lived between 4 million and 1 million years ago.

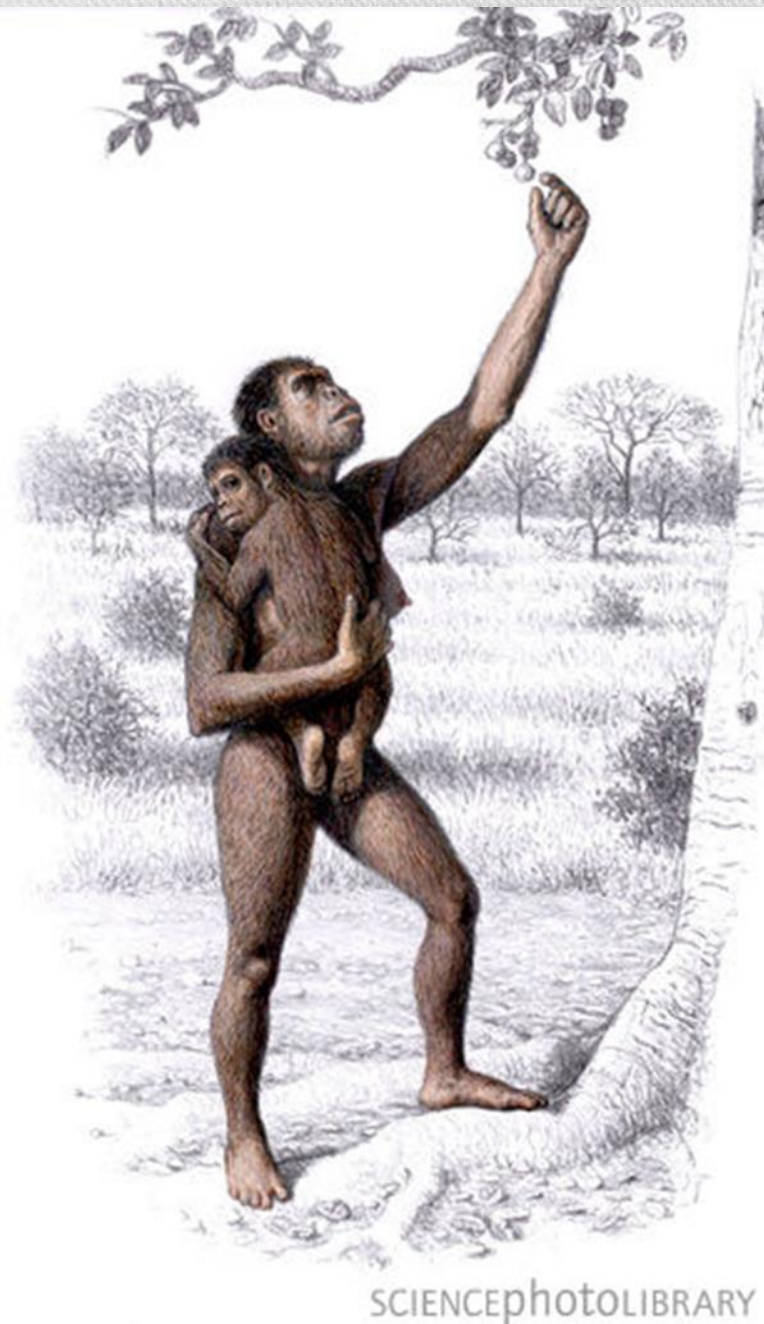
Small 3-5 feet tall.

Brain size 1/3 of modern humans.

Discovered in Ethiopia.

“Lucy”!





## The Discovery of “Lucy”

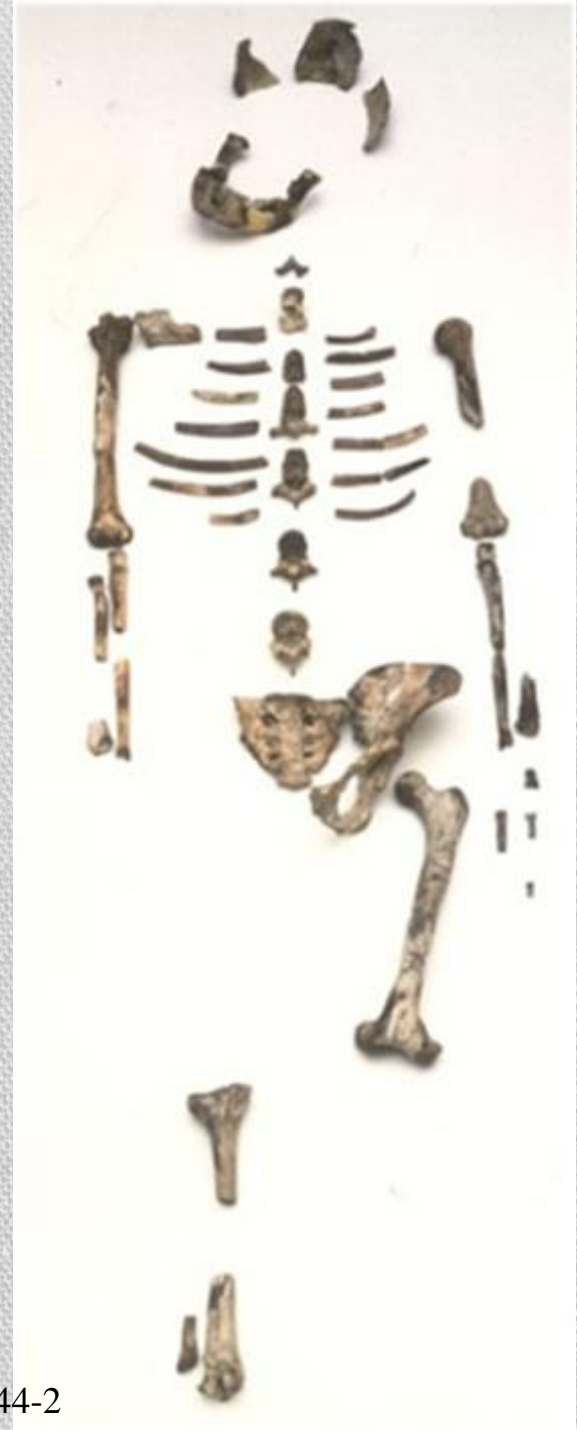
Donald Johanson’s team found a female hominid in Ethiopia in 1974

He nicknamed the 3.5 million-year-old skeleton “Lucy”

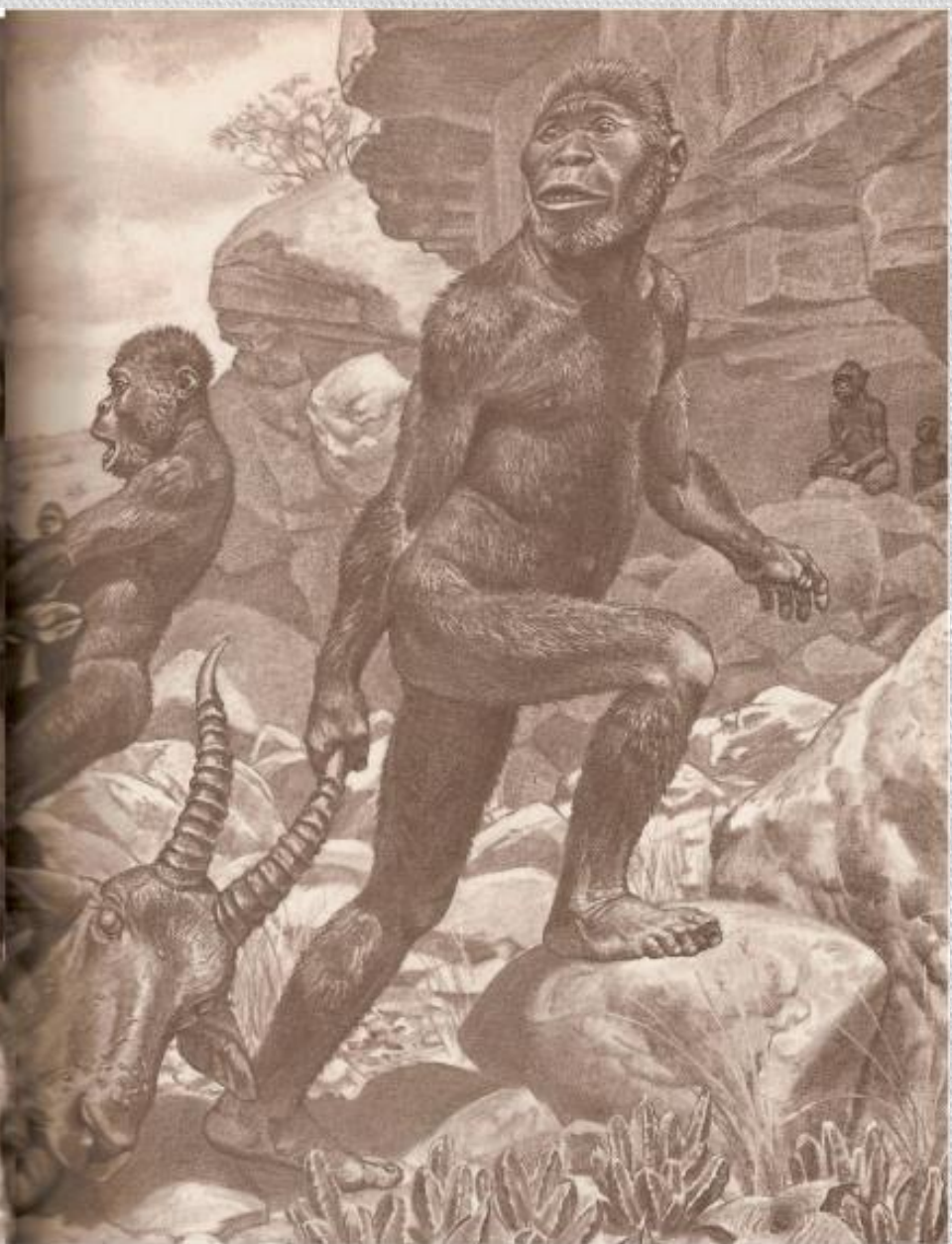
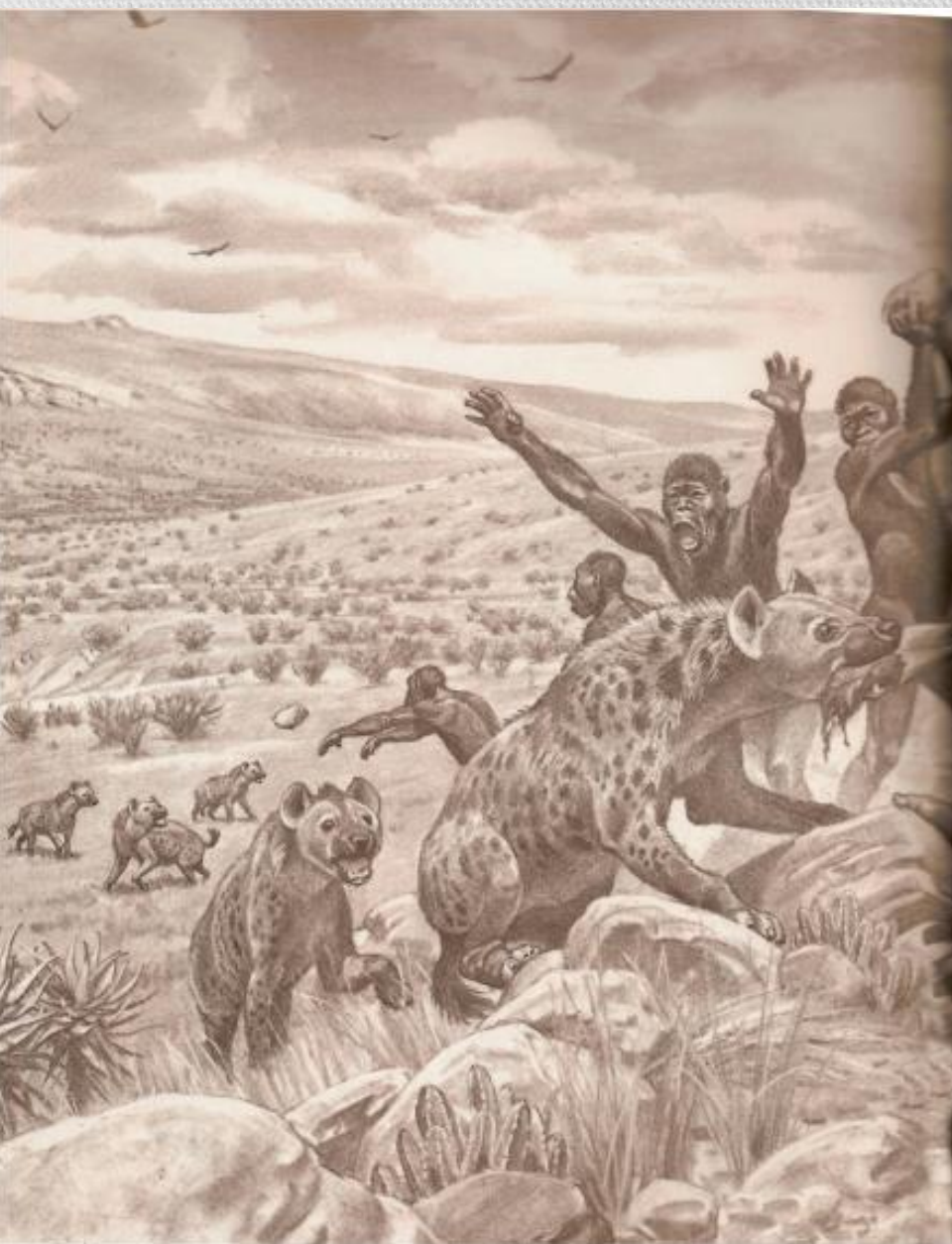
Early hominids, like Lucy, are a species of Australopithecines

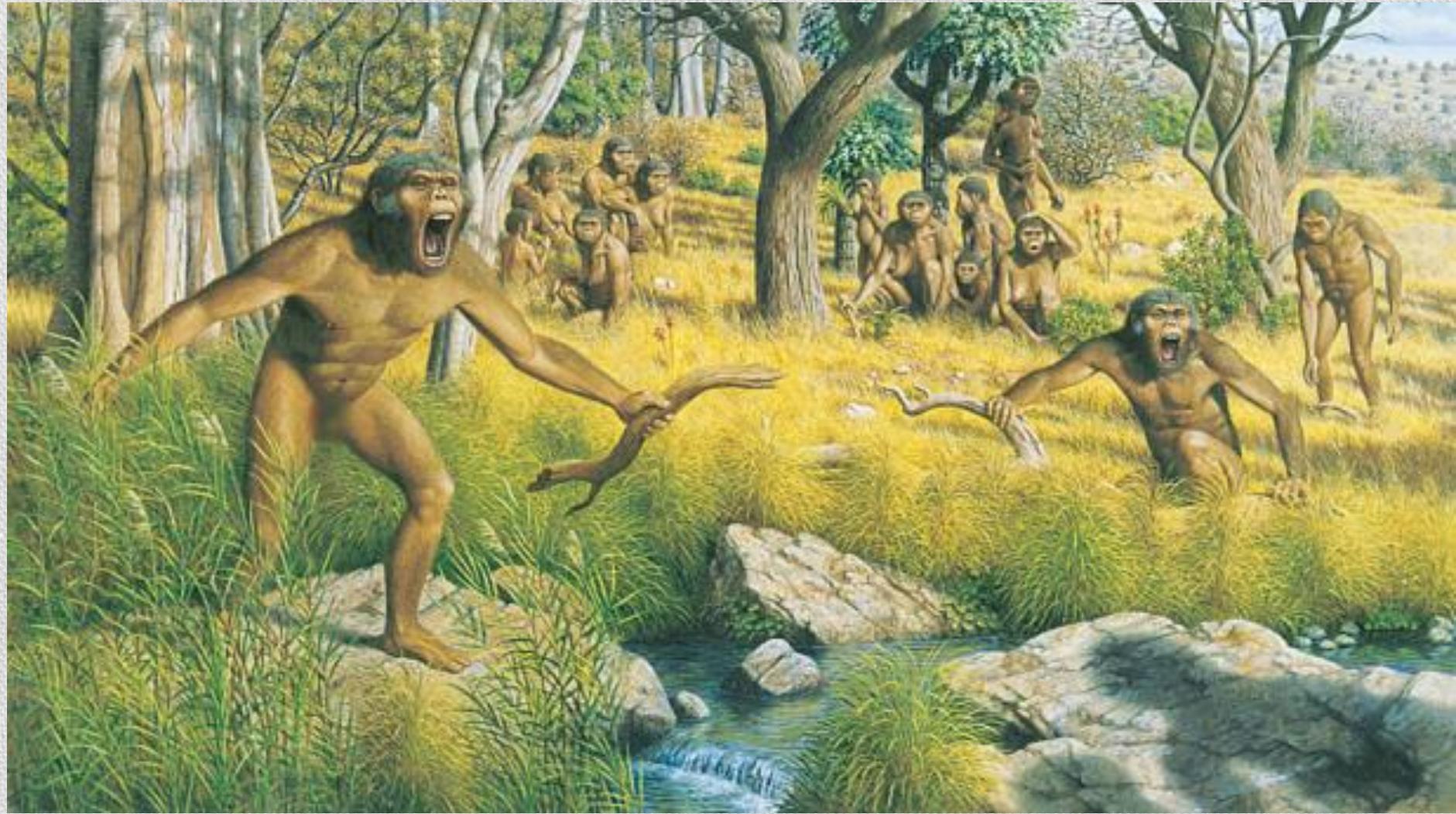
3D Australopithecine Skull

<http://humanorigins.si.edu/evidence/3d-collection/f-al-444-2>

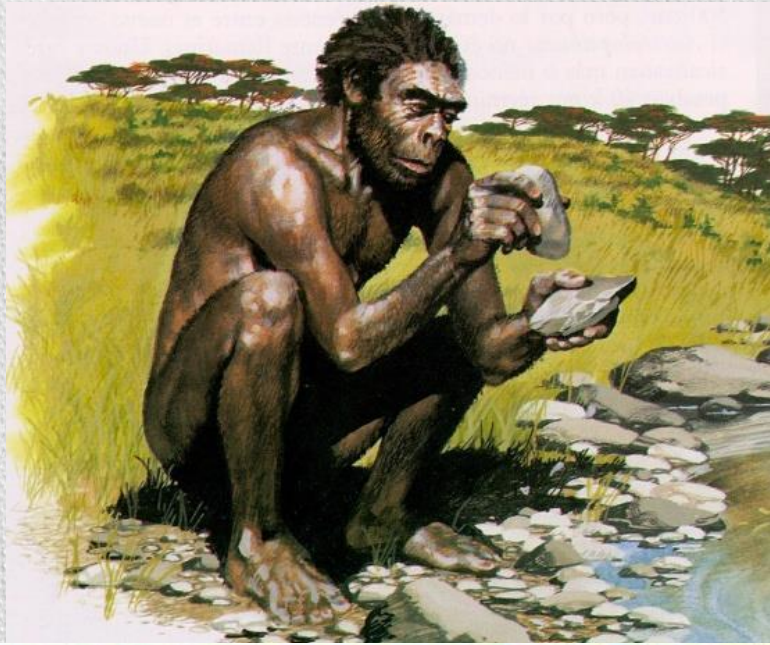




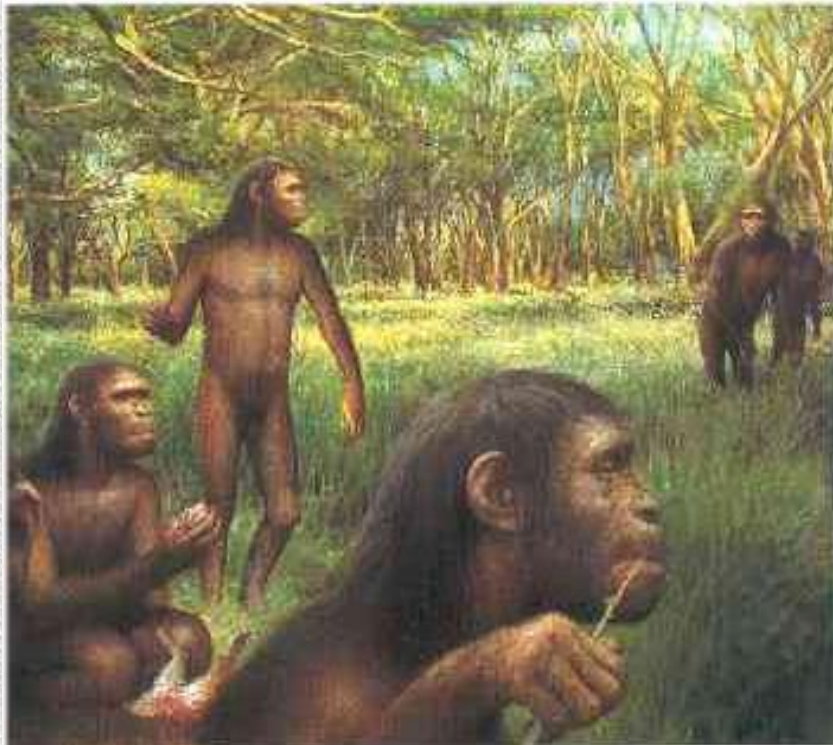




# Homo Habilis



- Lived between 2.5 and 2.0 million years ago.
- Brain size 50% larger than Australopithicines.
- Ability to make tools.
- Discovered in the Olduvai Gorge in Tanzania by Louis and Mary Leakey in 1962



3D Homo Habilis Skull

<http://humanorigins.si.edu/evidence/3d-collection/f-knm-er-1813>

**FROM APE TO HUMAN**  
Early people gradually became less like apes and more like humans.

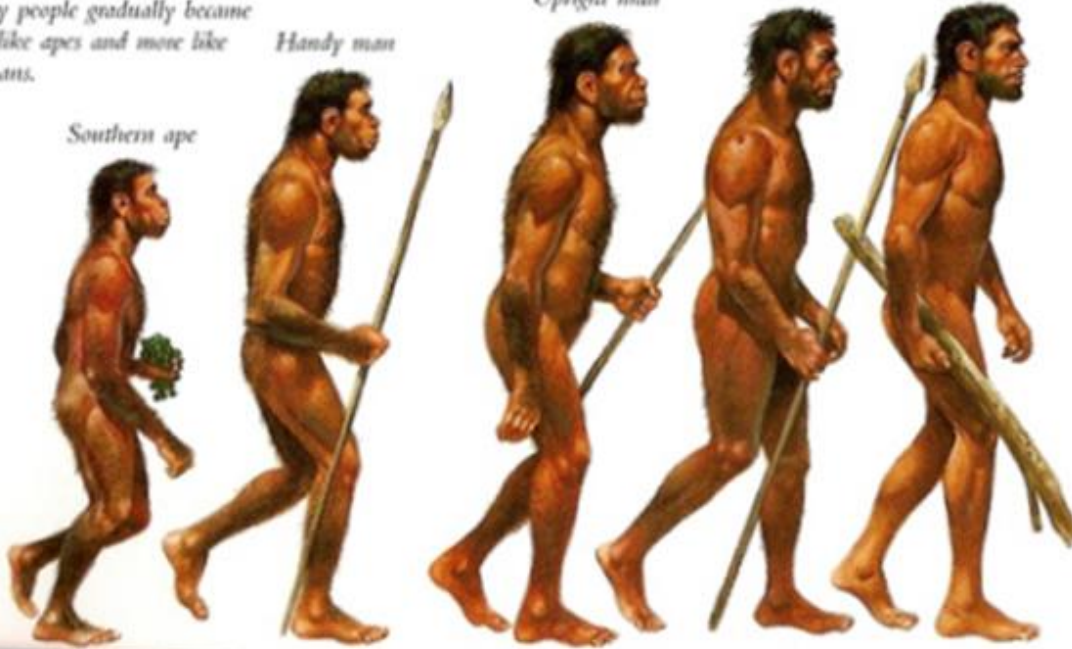
Handy man

Upright man

Neanderthal man

Modern man

Southern ape



**The human lineage**

*Australopithecus afarensis*

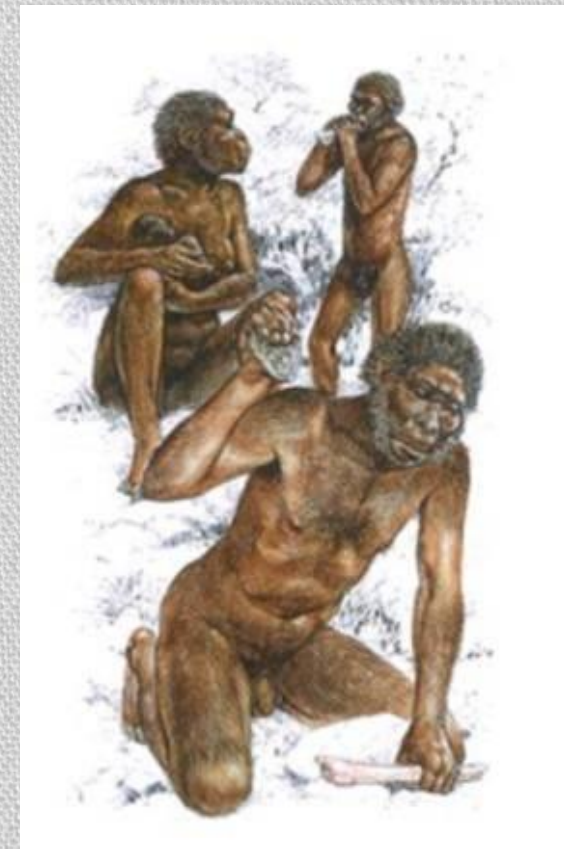
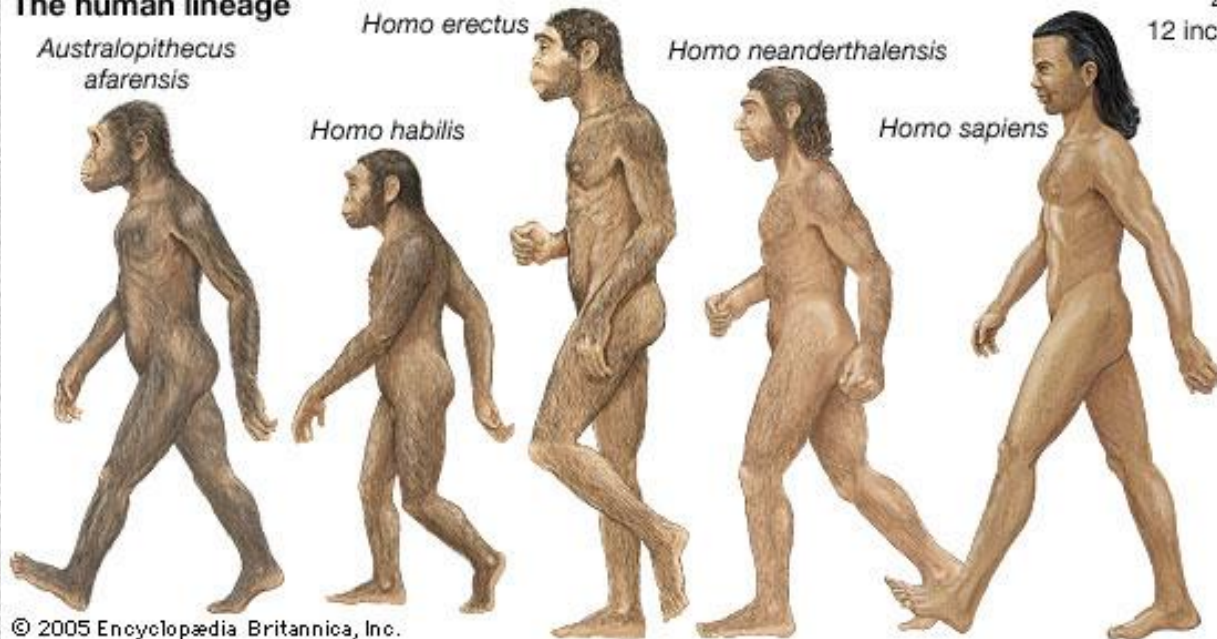
*Homo erectus*

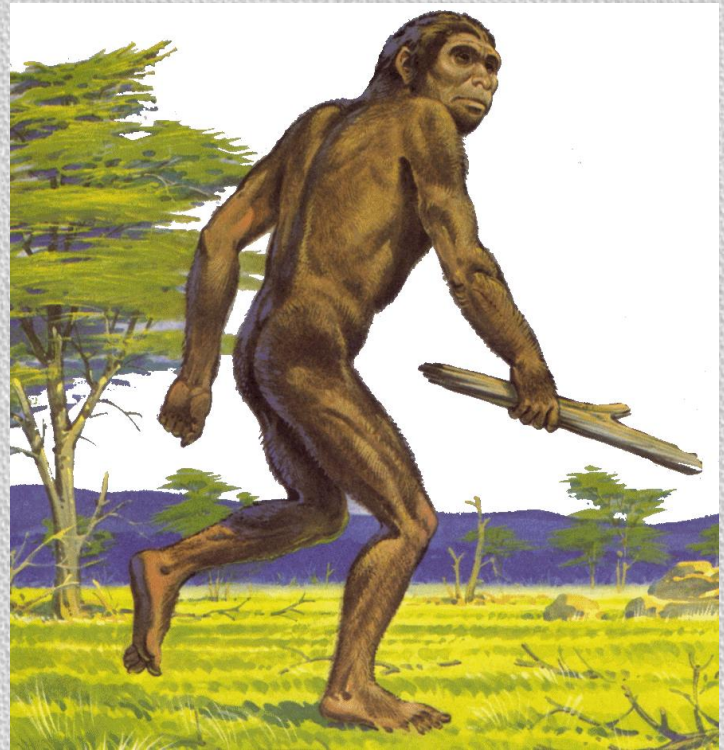
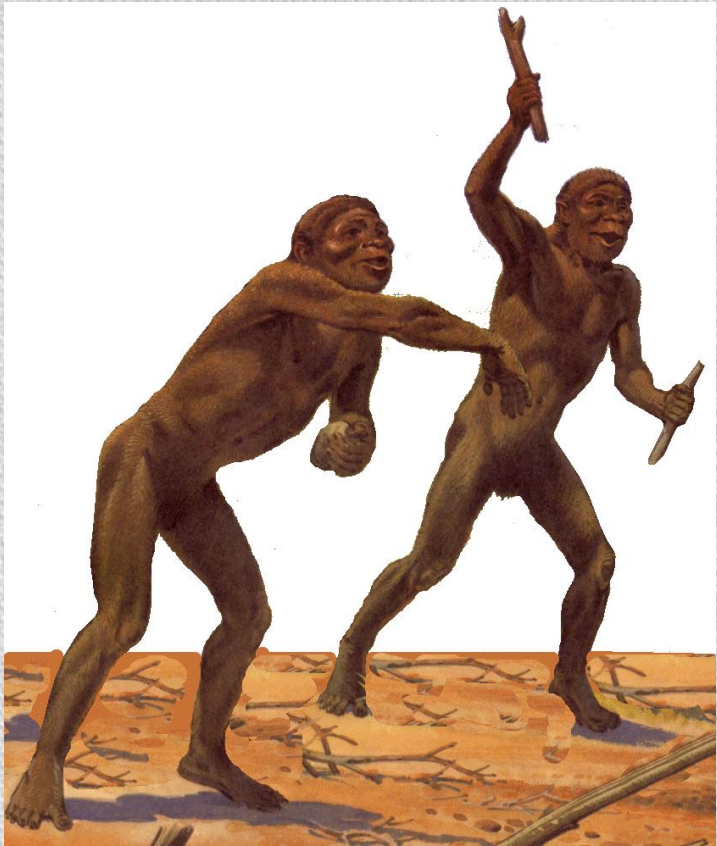
*Homo neanderthalensis*

*Homo habilis*

*Homo sapiens*

40 cm  
12 inches

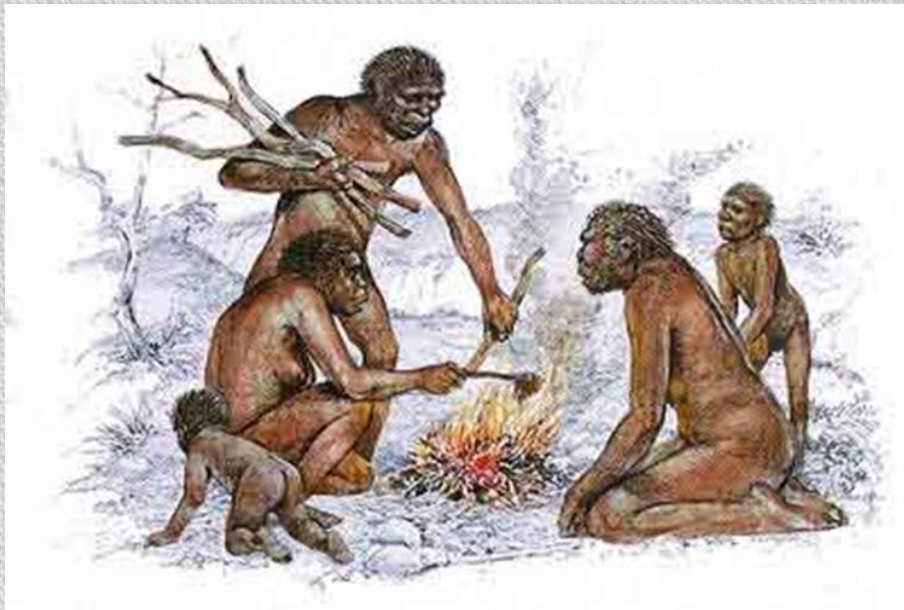






## Homo Erectus

- Lived from 1.6 million to 300,000 years ago.
- Stood about 6 feet tall.
- Brain was  $\frac{3}{4}$  the size of humans today.
- They were nomadic hunters who made tools out of stones, bones, and wood.
- They also discovered how to use fire around 500,000 years ago



First they used burning sticks from volcanoes and wildfires.

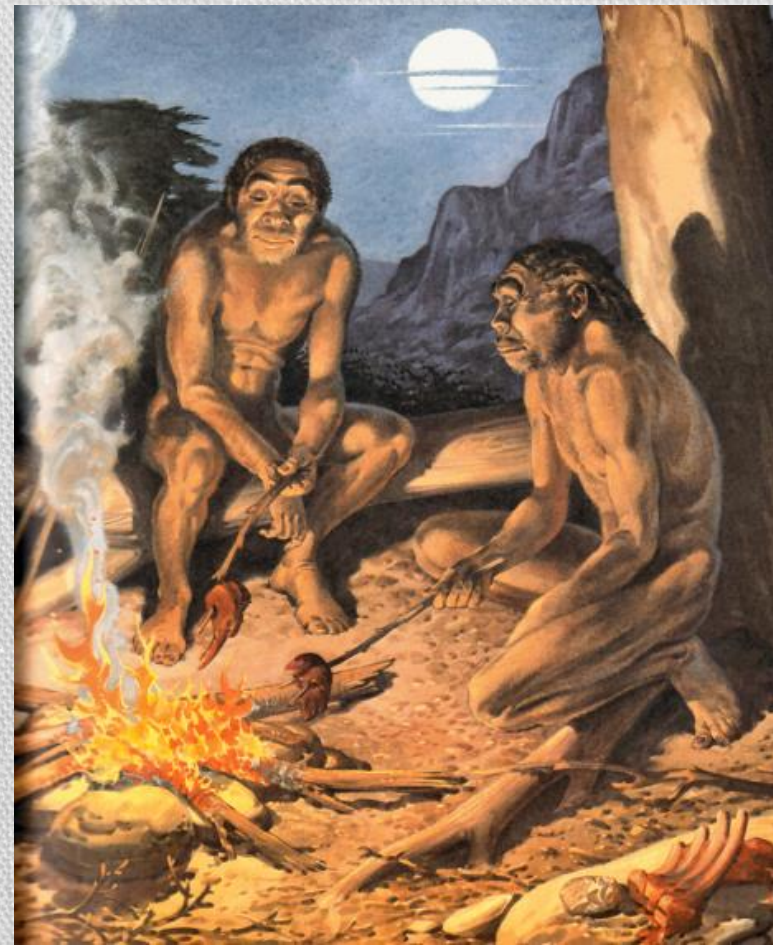


Later they learned to rub sticks together to start a fire.



They used fire to cook their food to make it easier to chew.

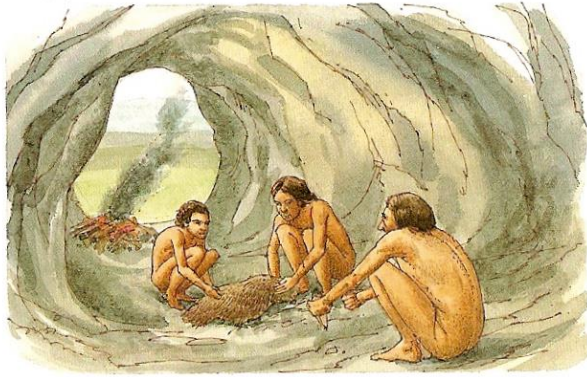
And to harden their spear points.



And of course to keep warm at night in their cave and frighten away dangerous animals like wolves, lions, and cave bears.



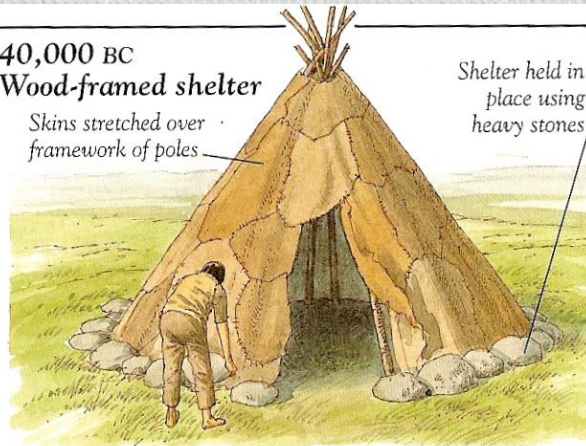
## 750,000 BC Caves



A cave or an overhanging cliff meant “home” for many ancient peoples. The stone roof kept out the weather, and at night a fire in the entrance protected the cave-dwellers from hungry animals. Evidence showing human occupation of caves has been found in France and China.

## 40,000 BC Wood-framed shelter

Skins stretched over framework of poles



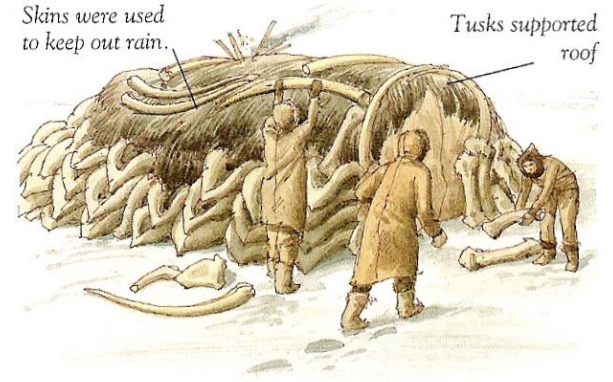
Shelter held in place using heavy stones

Shelters were built using whatever materials were most abundant. In heavily wooded areas, skins and poles were used to build conical, tepee-like homes. Saplings were bent over for dome-shaped shelters. Often all that remains of this type of dwelling is a shallow dent in the ground.

## 18,000 BC Mammoth bone shelter

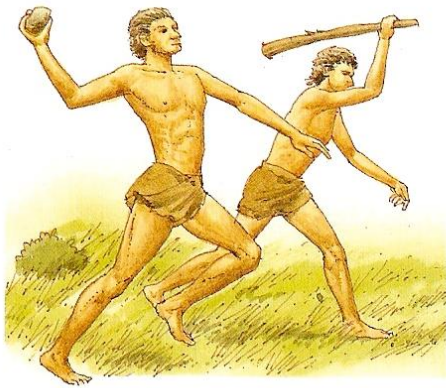
Skins were used to keep out rain.

Tusks supported roof



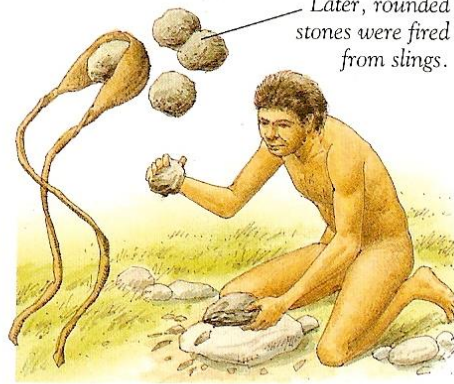
Hunting communities living in parts of what is now Russia built homes by piling the bones of mammoths in high walls around indentations in the ground. Mammoth jaws provided the foundations for these bone-houses, and arching ivory tusks supported the roofs.

## Sticks and stones



Early people hunted using sticks and stones. But these weapons had limited range, forcing hunters to come face-to-face with animals who were keen to eat them.

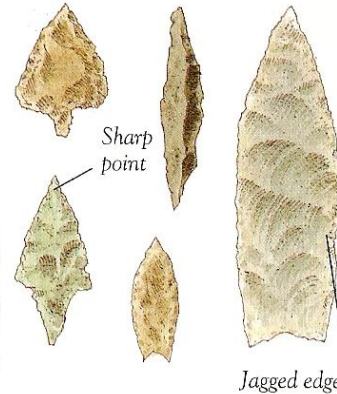
## Flint working



Later, rounded stones were fired from slings.

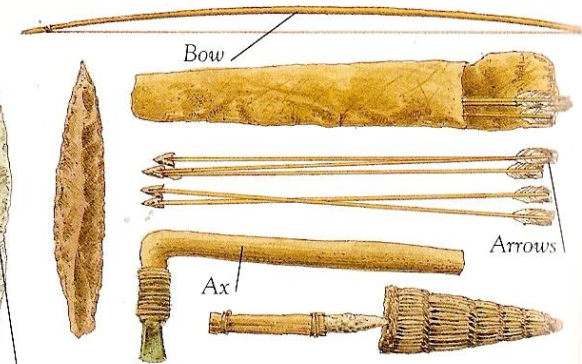
In the Olduvai Gorge in Tanzania, people started to improve their weapons by sharpening the edges. Chipping the edge with a stone left a sharp cutting surface.

## Spearheads



The Clovis people of North America, who flourished between 11,500 and 11,000 years ago, used their expert, deadly weapons to kill woolly mammoths.

## Bow and arrow

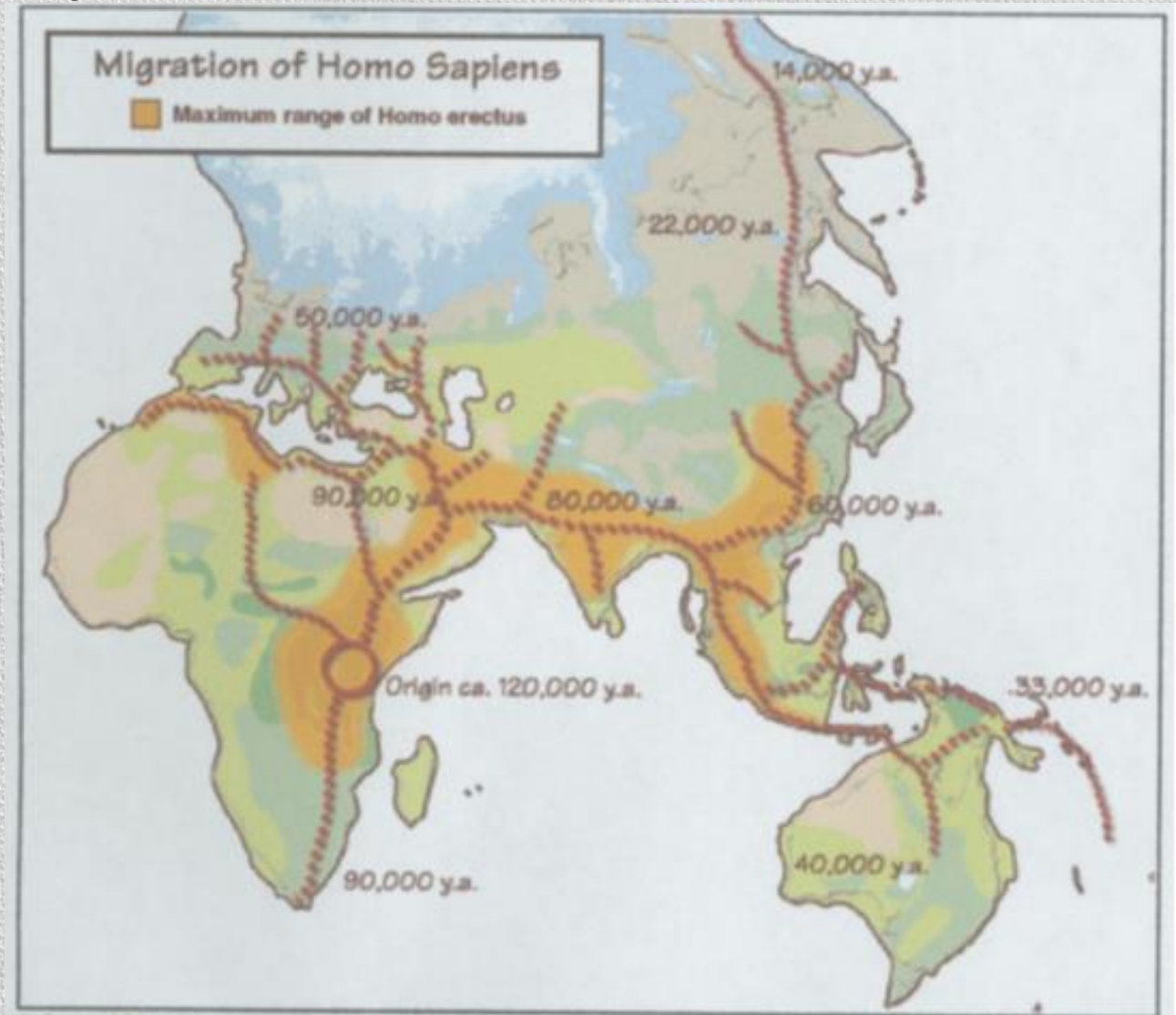


The invention of the bow and arrow, around 10,500 years ago, gave more power to stone points. Hunters could hit game that was out of range of their spears.

- Homo Erectus was the first hominid to migrate from Africa. Some of them migrated to Europe around 1.5 million years ago. They then migrated east to Asia and Australia.



Homo Erectus skeleton



**200,000 BCE - 10,000 BCE**

**HOMO SAPIENS**  
( "Wise Human Being" )

Extinct

**Cro-Magnons**  
( 40,000 BCE - 10,000 BCE )

**Neanderthals**  
( 200,000 BCE - 30,000 BCE )



Cro-Magnon man as shown in Richard Leakey's book "Origins" published in 1977.

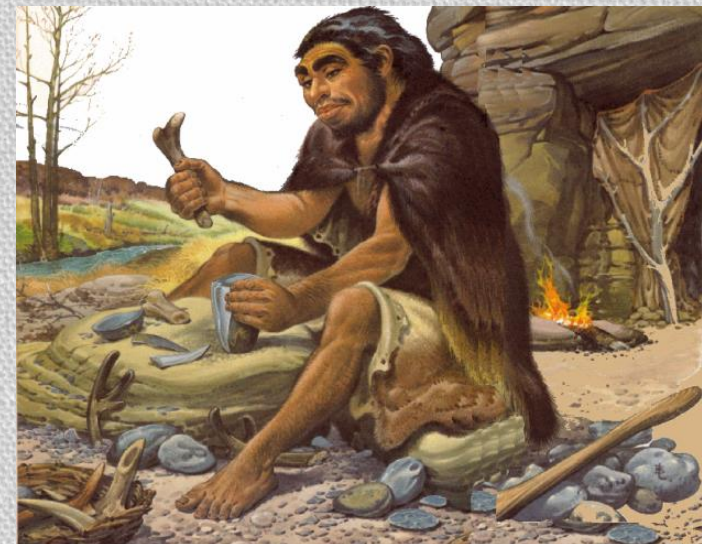
# NEANDERTHALS:

- Neander Valley, Germany (1856)
- First humans to bury their dead.
- Made clothes from animal skins.
- Lived in caves and tents.



# Neanderthal: Homo Sapien

- Lived 200,000-30,000 years ago in Europe and SW Asia
- Discovered in Neander Valley, Germany in 1856
- Higher level thinking.
- Powerful muscles and thick bones.
- First to bury their dead – religion?
- Lived in caves, shelters made of wood and animal hides.



## Robust Bodies Adapted to the Cold



MODERN HUMAN FEMALE

### NEANDERTHAL SKELETON

Neanderthal skulls were long and low, but held brains slightly larger on average than those of living humans.

Wide bodies conserved heat in cold climates, while large, conical rib cages housed big lungs needed for high levels of activity.

Sturdy, heavily muscled limb bones evolved in response to a demanding lifestyle.

Large muscles positioned to maximize leverage resulted in exceptional strength.

Short limbs helped reduce surface area to retain body heat.

### DAILY CALORIC NEEDS

2,200 cal/day

\* USDA recommendation for female of average size (5'4" tall, 138 pounds) who engages in light-to-moderate activity.



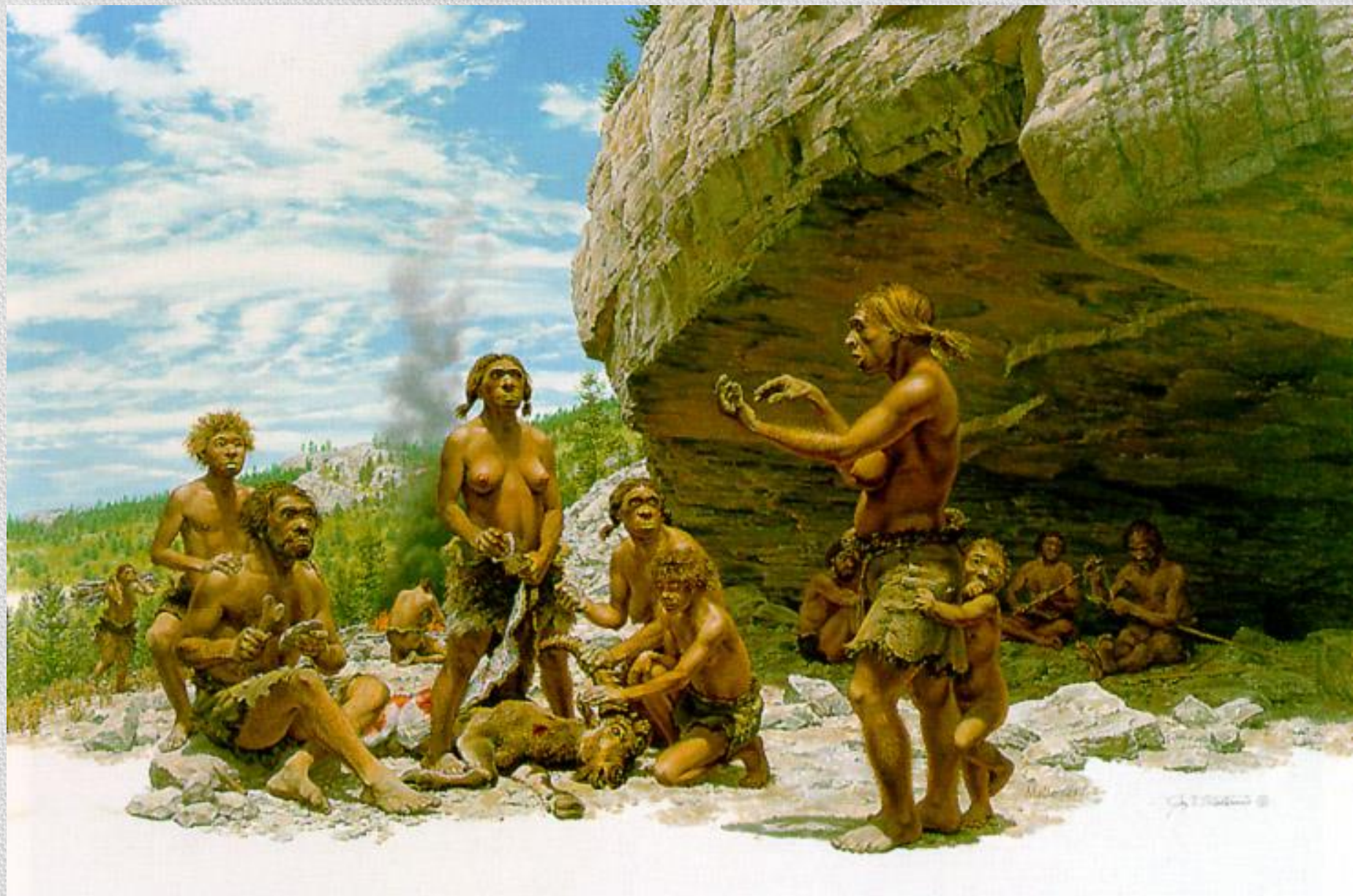
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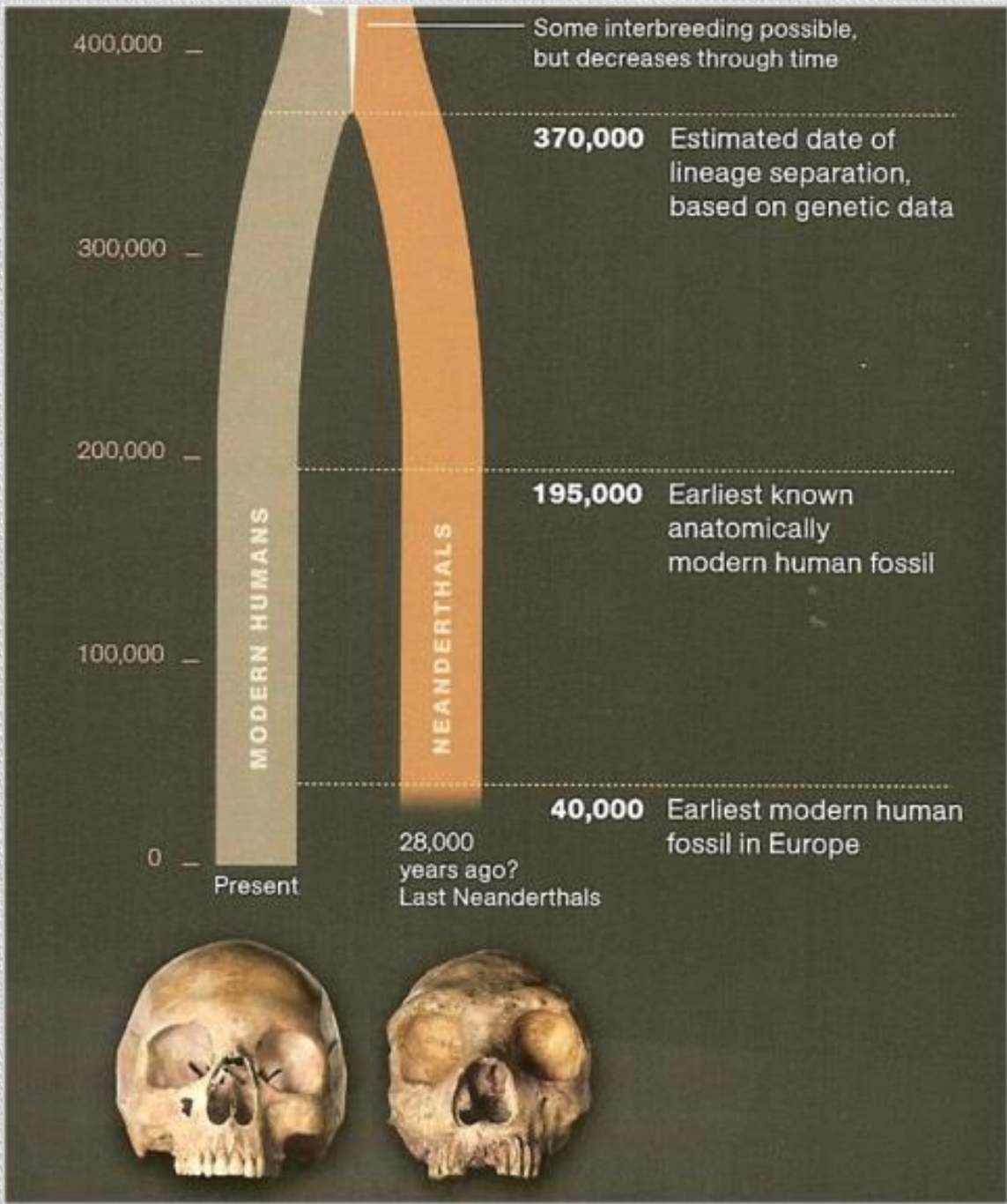
ated many Neanderthals

4,034 cal/day

\* Neanderthal female of average size (5'2" tall, 146 pounds)

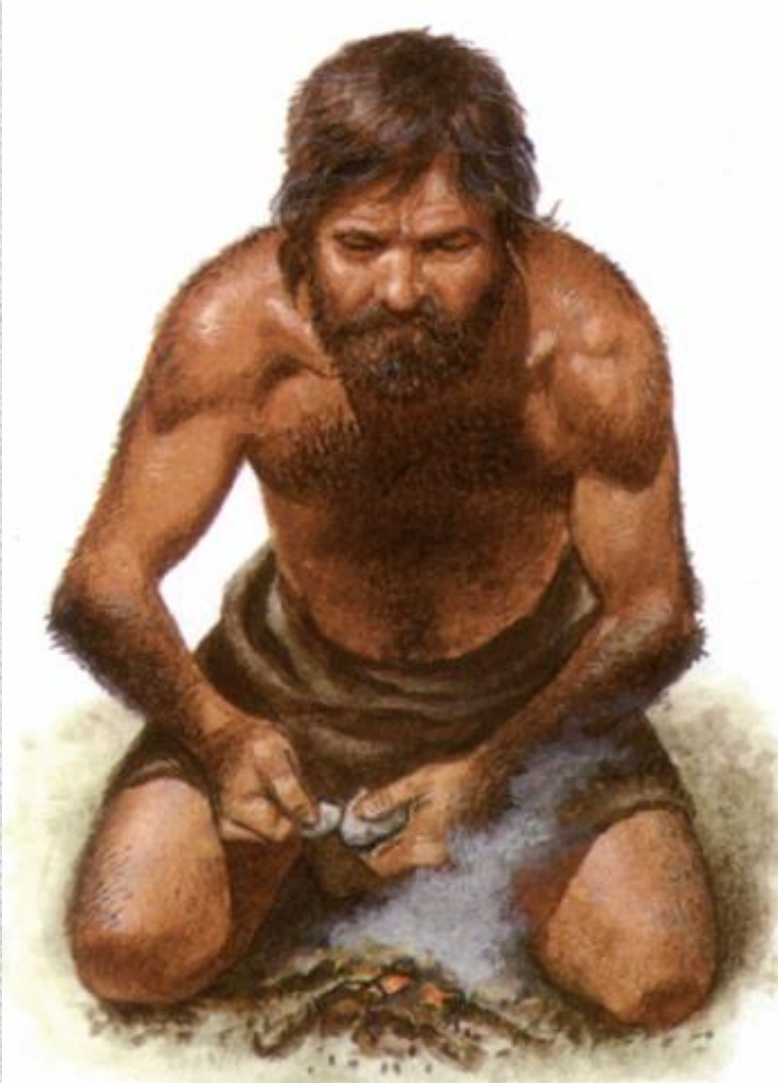








# Cro-Magnon: Homo Sapien Sapien



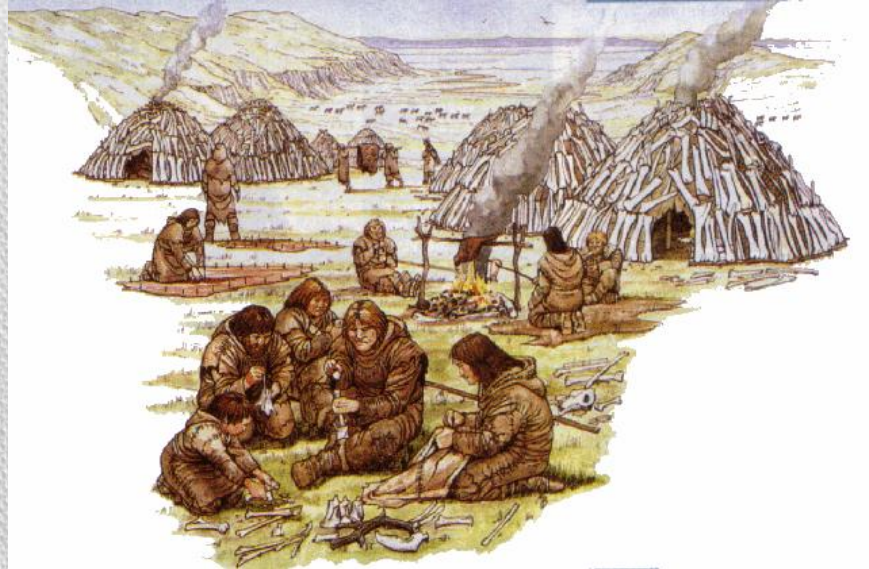
- Lived 40,000 years ago
- Are they the beginnings of modern humans?
- Discovered in a cave in France.
- Highest level thinking humans.
- Long, lean bodies.

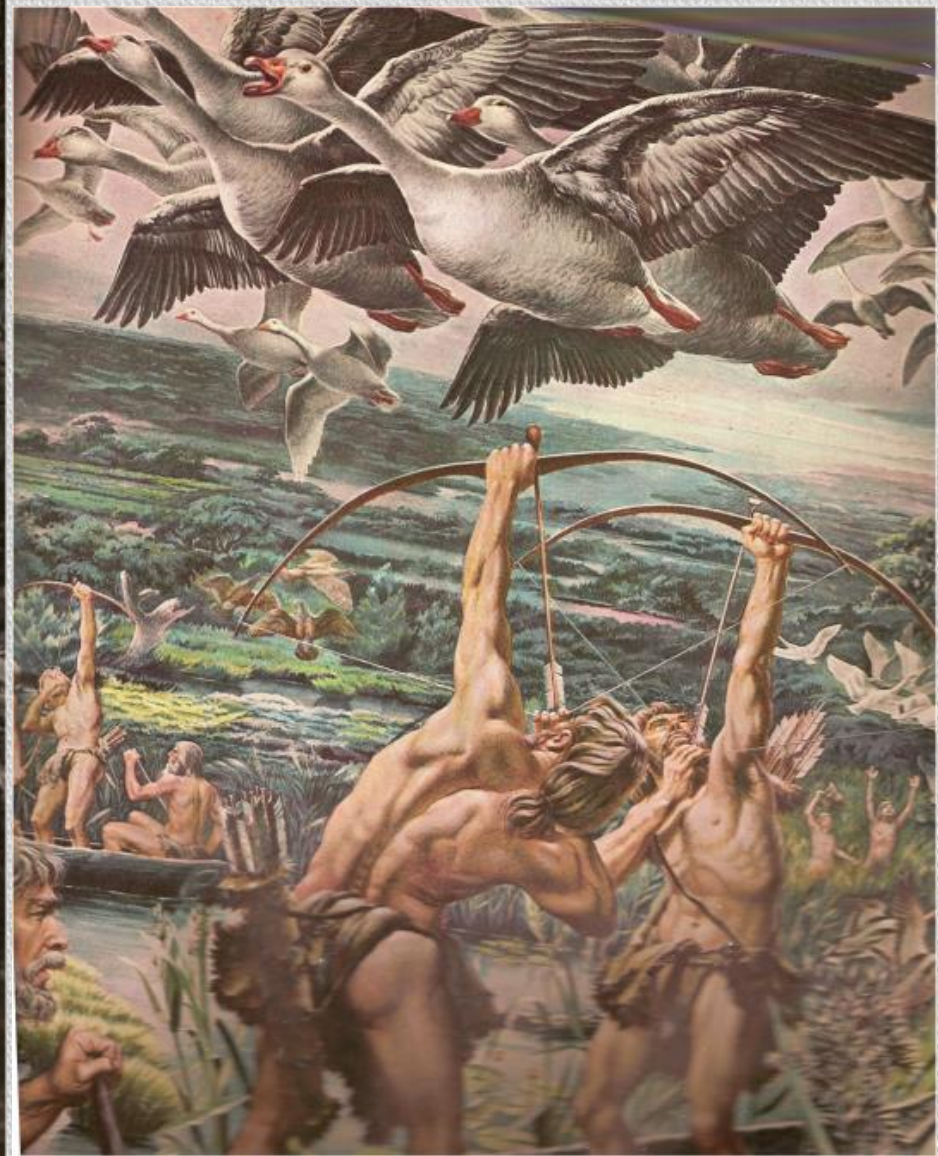
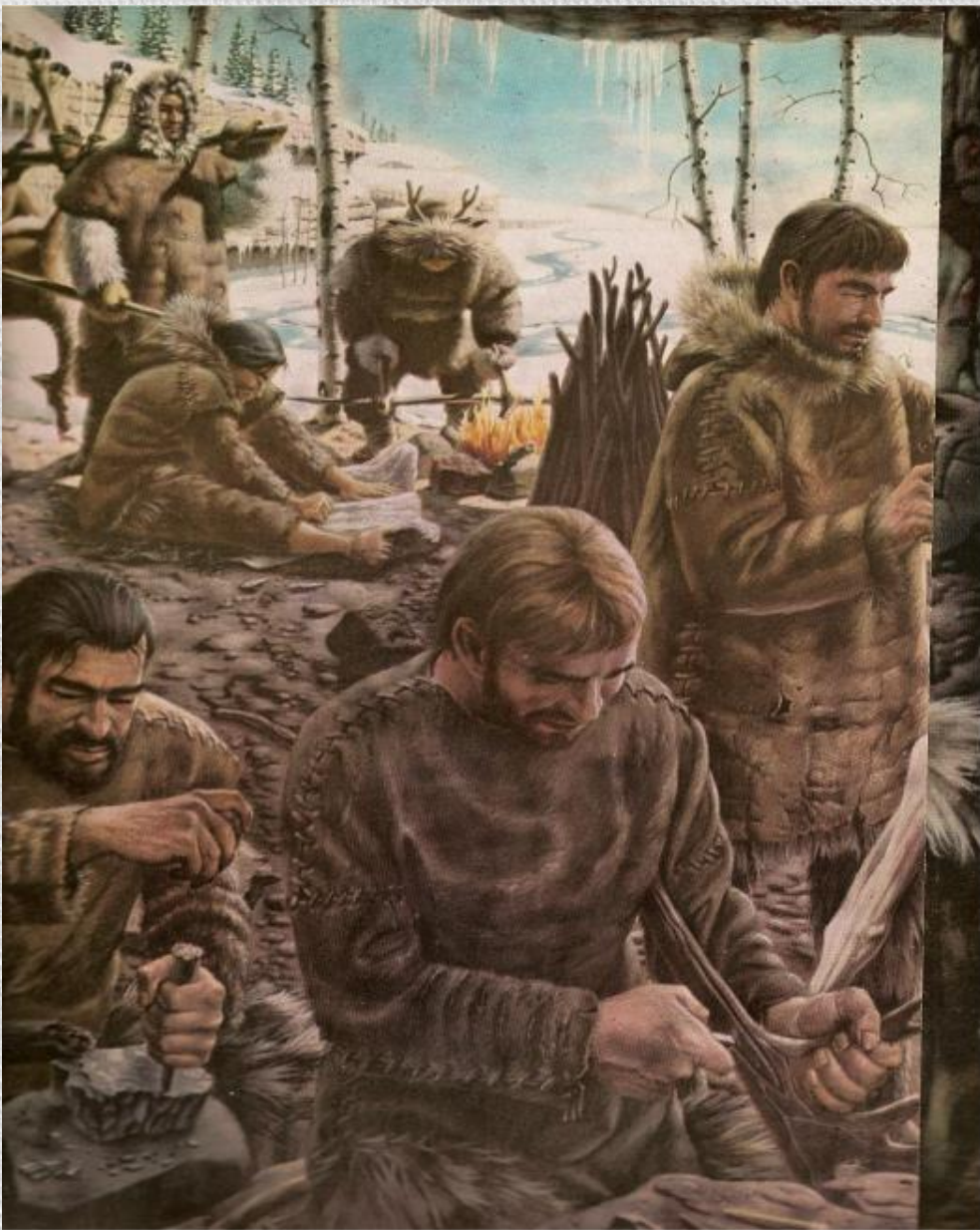
## Cro-Magnons Emerge

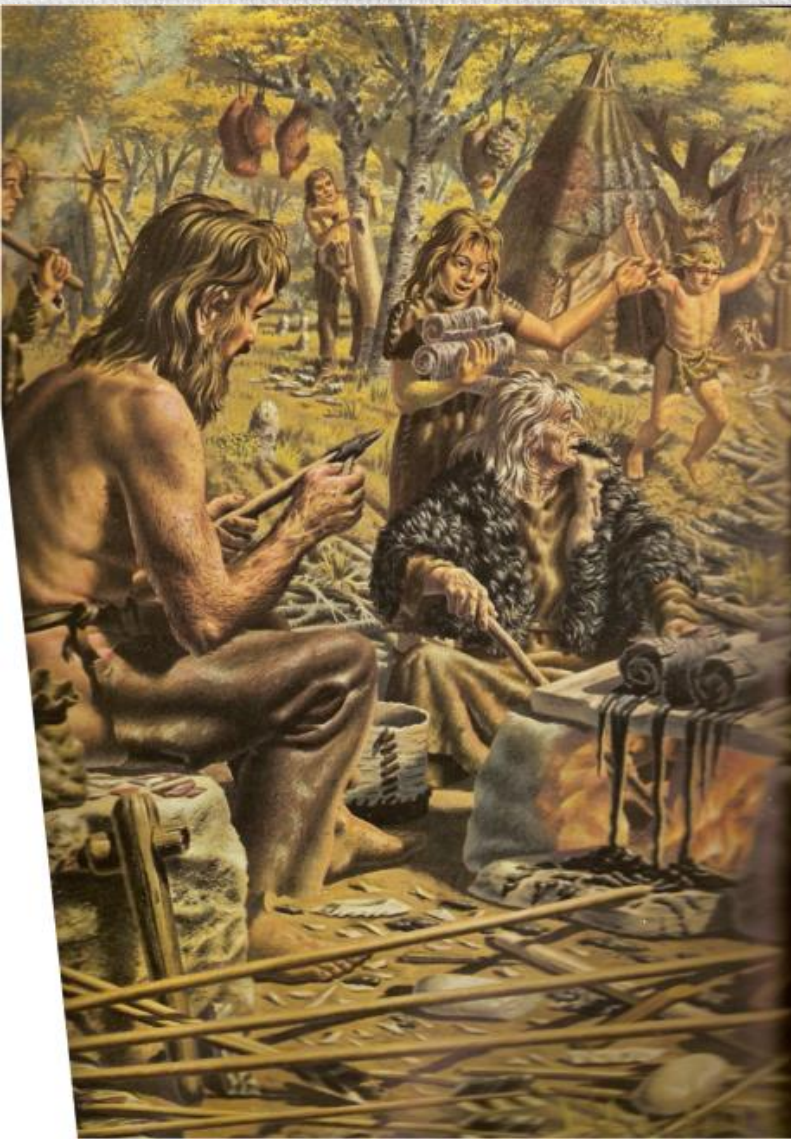
- About 40,000 years ago Cro-Magnons appear
- Physically identical to modern humans
- Hunted in groups; better hunters than Neanderthals
- Advanced skill in spoken language
- Migrated from North Africa to Europe and Asia
- Population grew quickly, replaced Neanderthals



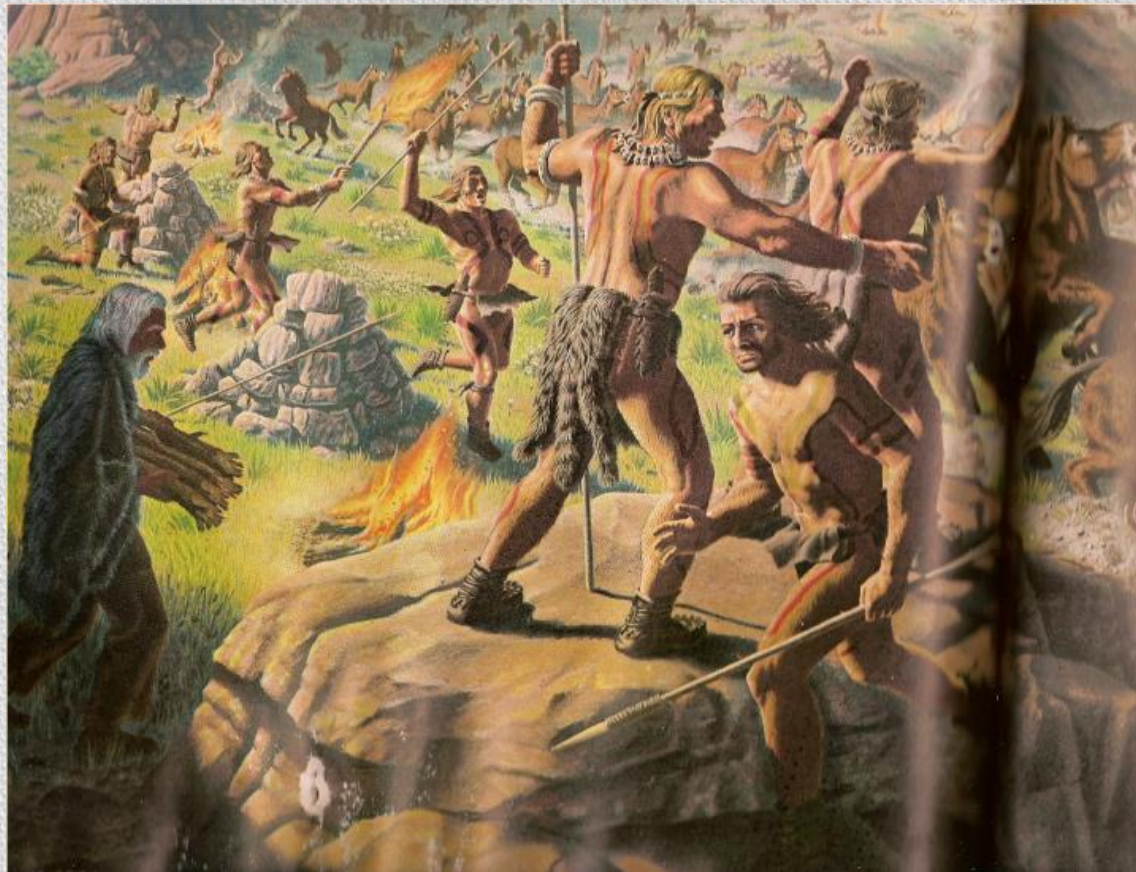
- Our ancestor, the Cro Magnon Man is the earliest known modern man, Homo sapiens sapiens, and they lived from about 40,000 to 10,000 years ago in the Upper Paleolithic period of the Pleistocene epoch. The Cro Magnon man is named after its first findings, they were discovered by Louis Lartet and Henry Christy in March of 1868 in the Cro Magnon cave at Dordogne, France.







- Cro Magnon made tools from blades of Flint stone, used for preparing animal skins. Significant innovations was pierced shells, tooth and bone pendants used for body ornamentation.

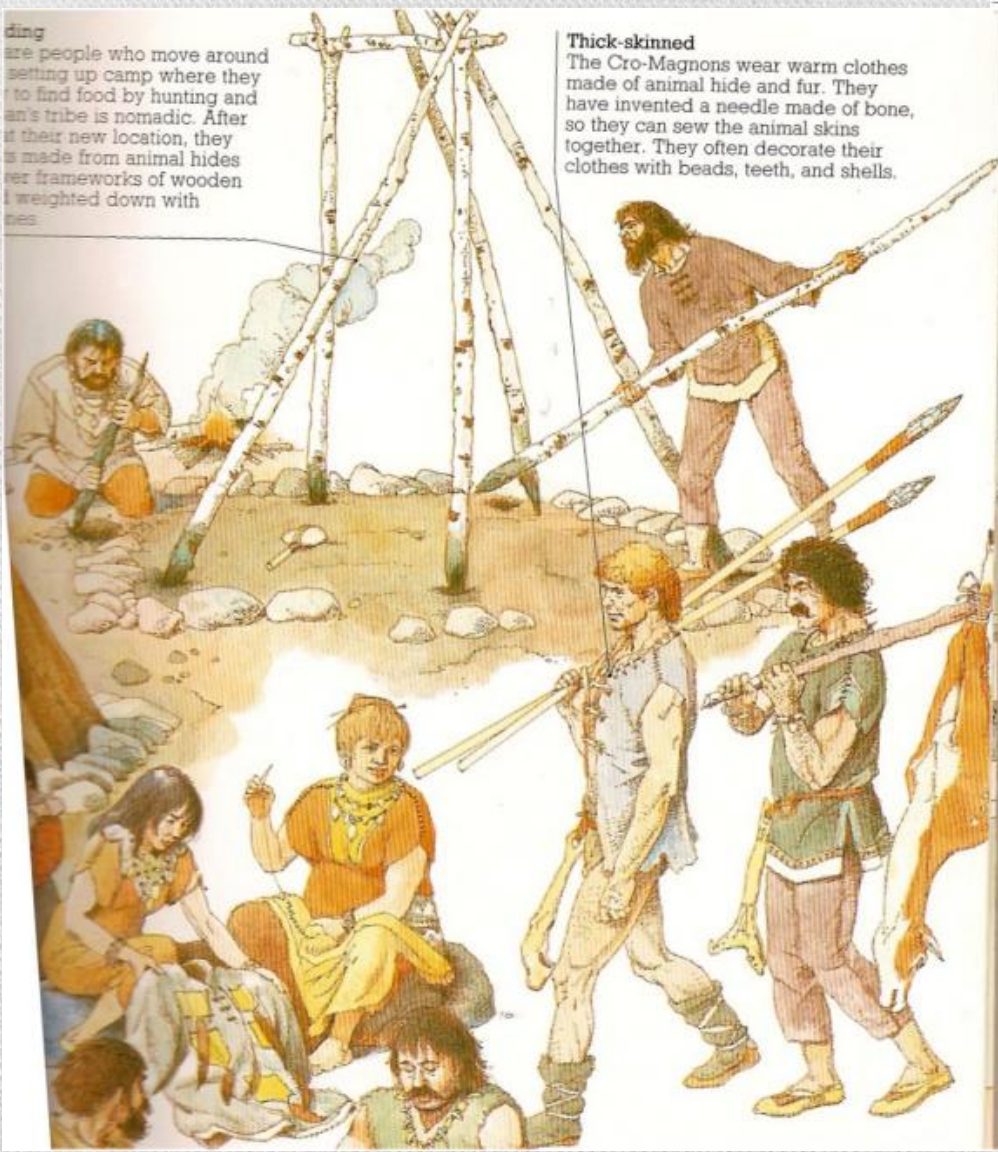




- Cro Magnons are associated with the Aurignacian culture, (occurred between 38,000 and 22,000 years ago) and hunted mainly with spears, (bow and arrows were later developed). Their art extended to Venus figures, ritual statuettes of bone, and they made outline cave wall drawings of woolly rhinos, mammoths, cave lions and cave bears.

ding  
are people who move around  
setting up camp where they  
to find food by hunting and  
an's tribe is nomadic. After  
at their new location, they  
is made from animal hides  
er frameworks of wooden  
l weighted down with  
nes

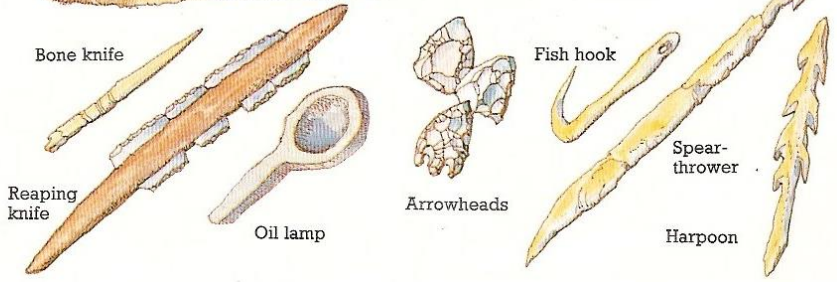
**Thick-skinned**  
The Cro-Magnons wear warm clothes  
made of animal hide and fur. They  
have invented a needle made of bone,  
so they can sew the animal skins  
together. They often decorate their  
clothes with beads, teeth, and shells.







Some of these women are making necklaces from shells, animal teeth, ivory, and colored pebbles. Slices of mammoth tusk make good bracelets. The other women are preparing animal skins to make into clothes, footwear, tents, bags, and bedding for the tribe.



Bone knife

Reaping knife

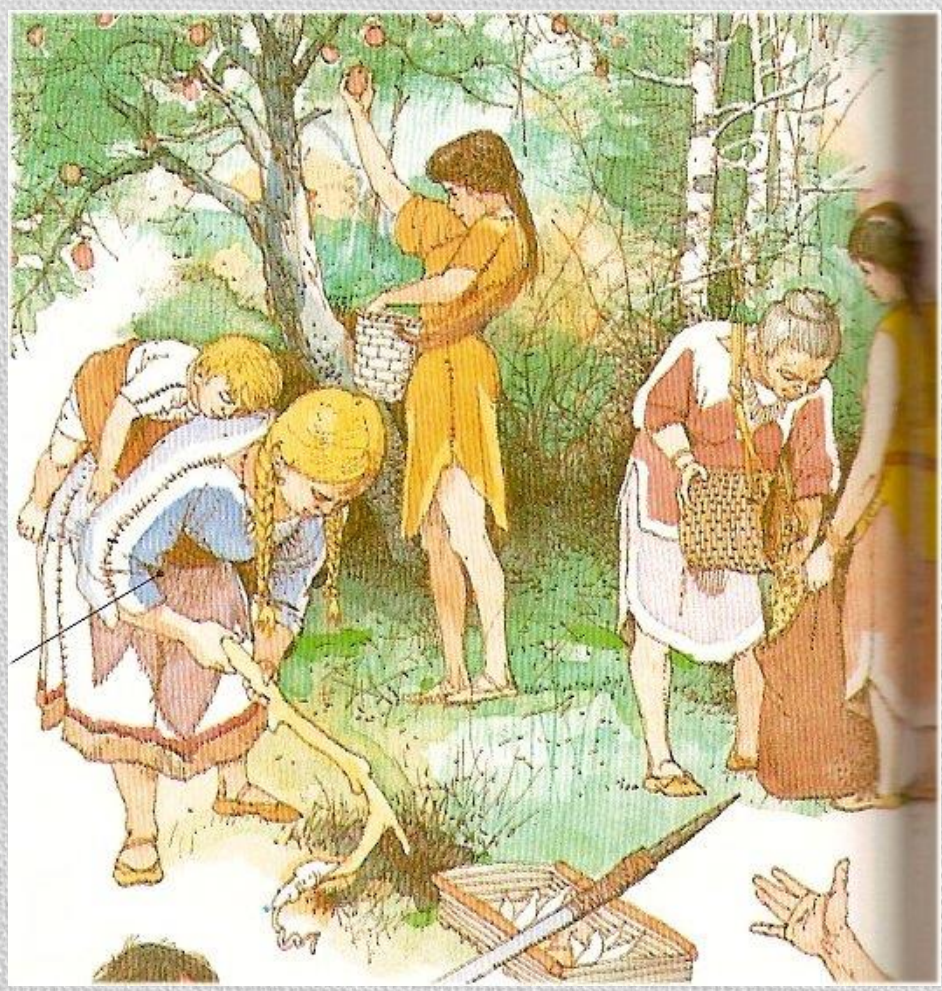
Oil lamp

Arrowheads

Fish hook

Spear-thrower

Harpoon

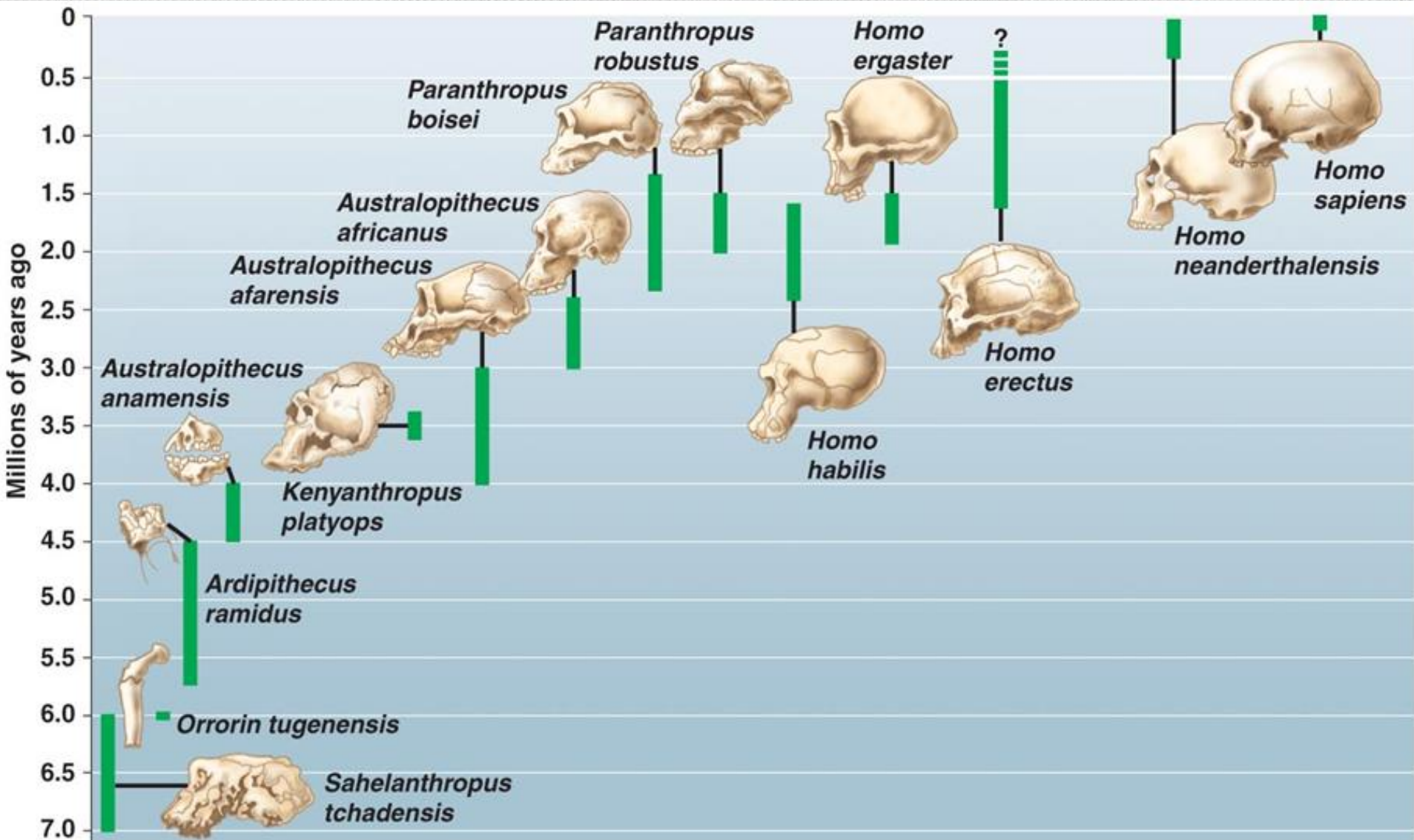




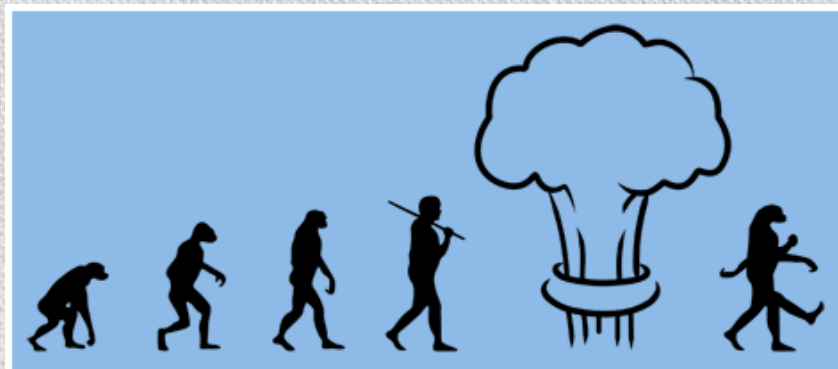
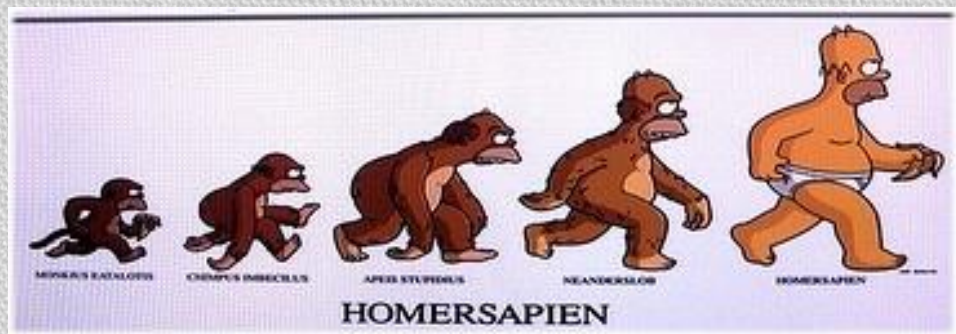
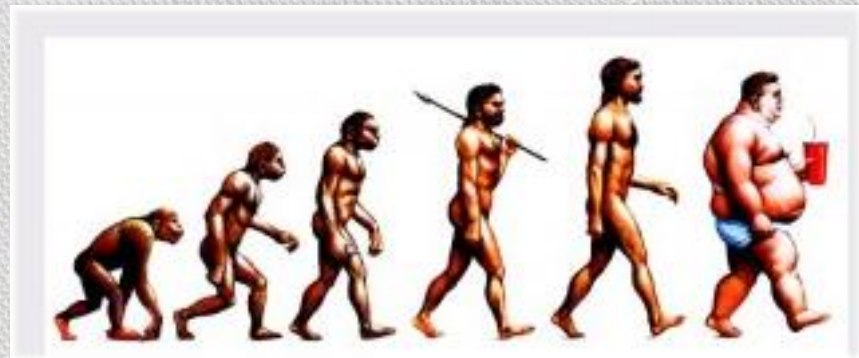
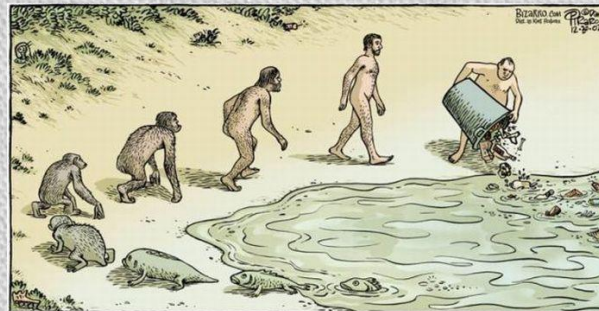
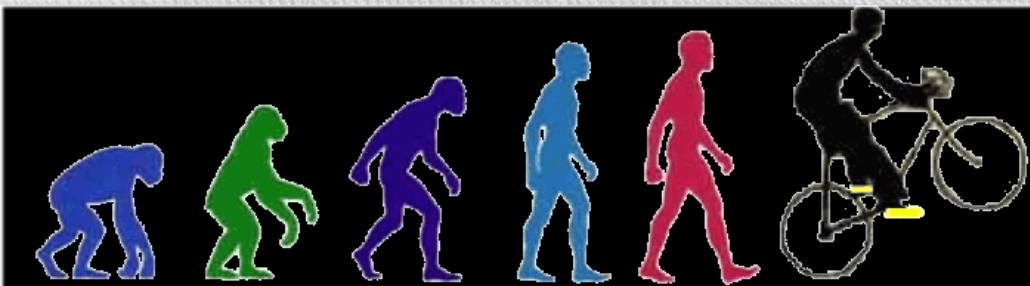
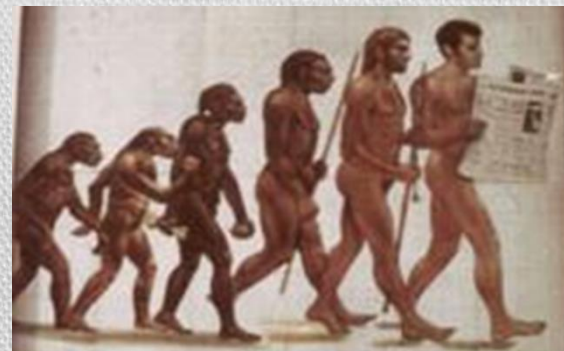
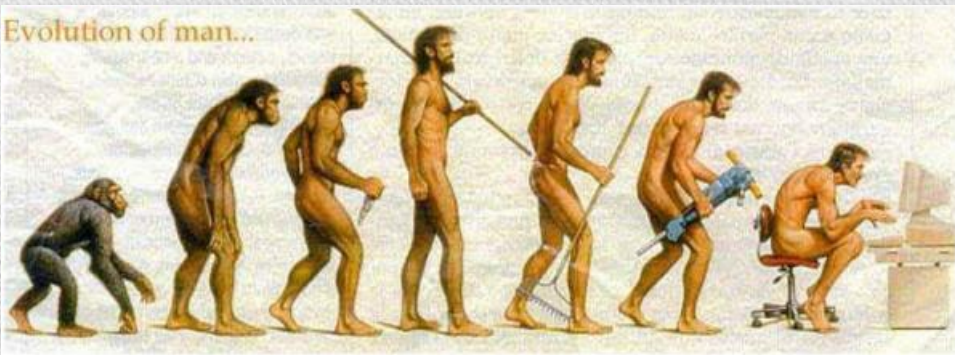
0 1 cm

H.JENSEN/UNI OF TUBINGEN

- The world's oldest sculpture, unearthed by archaeologists so far, is a quite recent find. It was only discovered in 2008. It is believed to be approximately 35,000 years old and was re-assembled from several pieces that had broken apart.
- The figurine depicts a voluptuous woman which makes it likely that it was used as a kind of fertility amulet. Another interpretation would be a protection amulet since the woman is holding her belly; protection from illness for a pregnant woman for example. The woman does not have a head, but instead there is a perforation, so the figurine could be worn as a pendant.



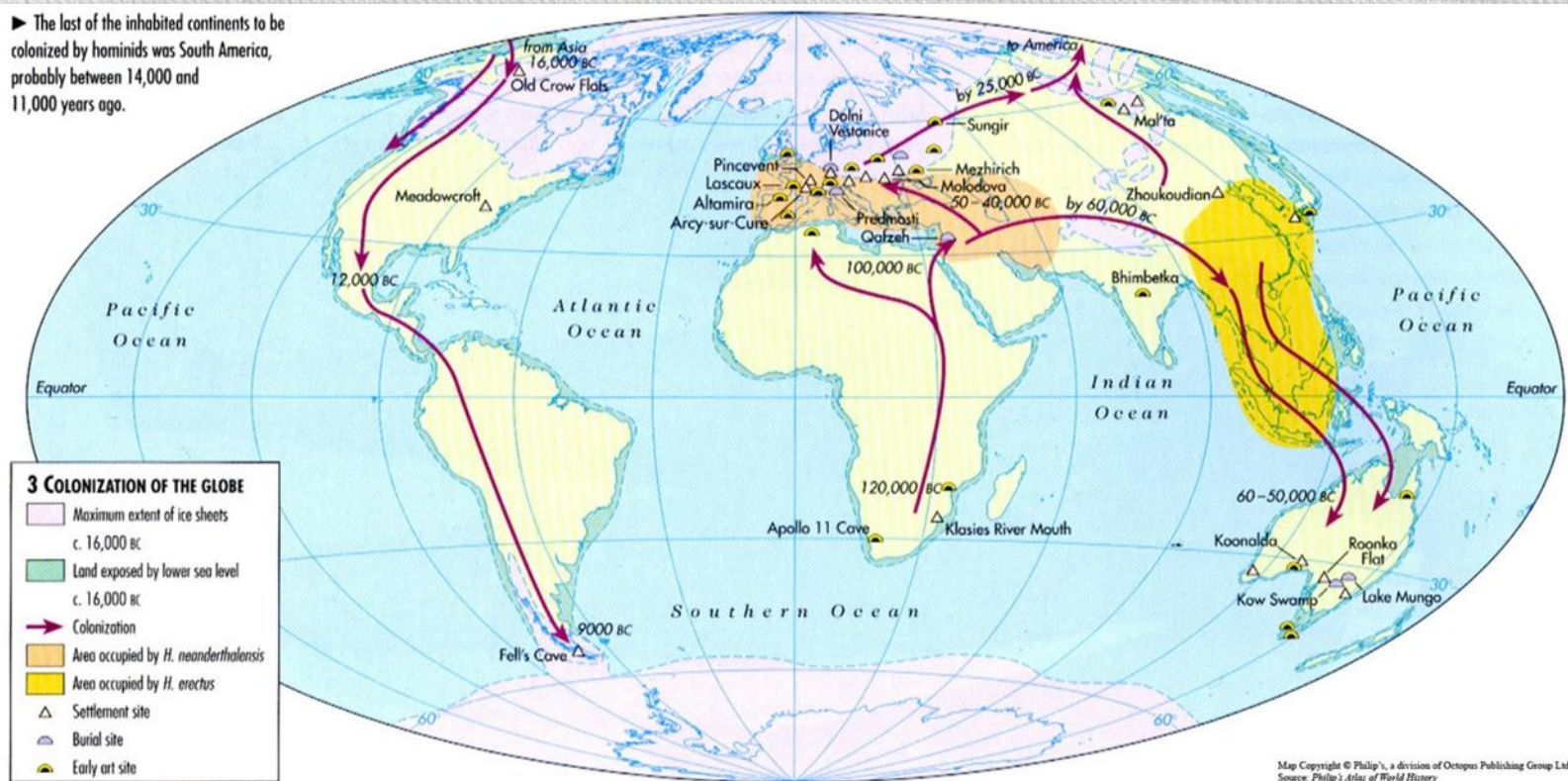
Evolution of man...



# Theories to Origins of Modern(M)

- There are two theories to the origins of modern humans:
- The “Out of Africa” Theory: modern humans arose in one place- (Africa) and migrated to other parts of the [earth.m](#)
- The “Multi-Regional” Theory: Pre-modern humans migrated from Africa to become modern humans in other parts of the world.

► The last of the inhabited continents to be colonized by hominids was South America, probably between 14,000 and 11,000 years ago.



- Fossils, Tools, and Cave Paintings

- • New fossil discovery places hominids in Africa 6 or 7 million years ago
- • Stone tools suggest toolmaking began earlier than previously thought
- • Stone flute suggests Neanderthals might have made music
- • Cave drawings of people, animals give clues to ways of life

- Tools Needed to Survive

- • Paleolithic (Old Stone Age) humans were **nomads**—
- moved in search of food
- • Hunted animals, collected plant foods—were **hunter-gatherers**
- • Cro-Magnons had more than 100 specialized tools;
- bone needles to sew

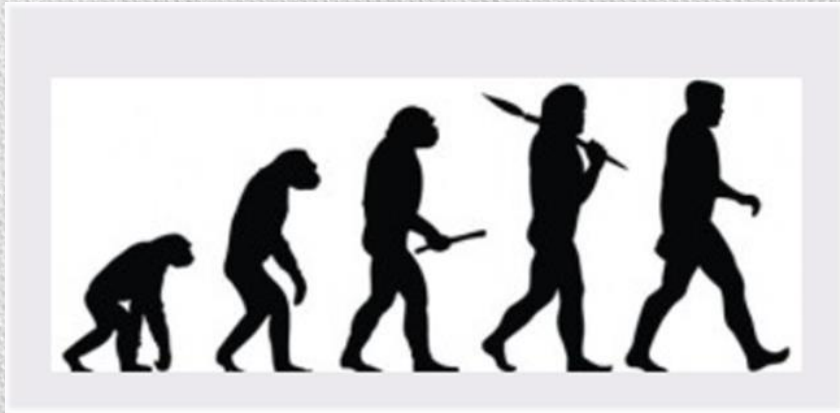
Stone statues are believed to have had religious meaning. Statues of pregnant women suggest that early people worshiped earth-mother goddesses.

**Animism** is the belief that the world is full of spirits and forces that might reside in animals, objects, or dreams.

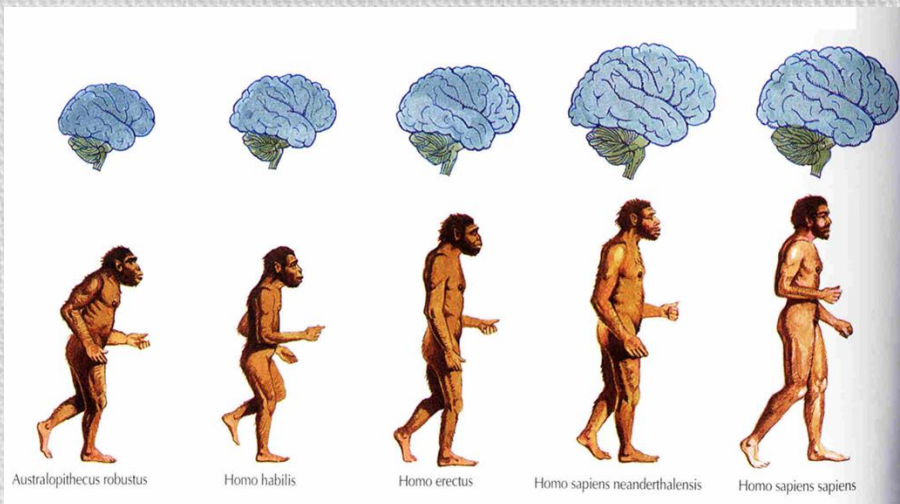
**Cave paintings** may have been part of animist religious rituals.

Early people began burying their dead with care, suggesting a belief in life after death. They provided the dead with tools and weapons for the afterlife.

# The Dawn of History



- **What advances did people make during the Old Stone Age?**
- **How can we learn about the religious beliefs of early people?**



**Why was the Neolithic agricultural revolution a turning point in history?**



- The time period before writing was invented is known as pre-history.
- Prehistory is also known as the Stone Age.
  - The Stone Age has two parts:
    - \_\_\_\_\_
    - \_\_\_\_\_

**Old Stone Age or Paleolithic**

**New Stone Age or Neolithic**

# The Dawn of History

During the Old Stone Age or **Paleolithic era**, people lived as **nomads**, in small hunting and food gathering groups. These people

- **made simple tools and weapons out of stone, bone, or wood;**
- **developed a spoken language;**
  - **How did this change life?**
- **invented clothing;**
- **used caves and rocky overhangs for shelter**
- **learned to build fires**
  - **for warmth, cooking, light, and ceremonies.**





# HUMAN EVOLUTION

From Primitive to Modern Man

## Human Faces



Human faces have evolved over time, showing a transition from a more pronounced brow ridge and larger teeth in early hominids to a more modern, rounded face with smaller teeth in modern humans.

## Origin and Distribution



Early hominids originated in Africa and spread to other parts of the world. The distribution of early hominids is shown on the map, with a concentration in Africa and a wider distribution across Africa and parts of Europe and Asia.

## Stone Age Cultures



The Stone Age is divided into three main periods: the Lower Stone Age, the Middle Stone Age, and the Upper Stone Age. Each period is characterized by different types of tools and technologies.

## Brain Size



Brain size has increased significantly over time, indicating a trend towards larger brains and more complex cognitive abilities. The graph shows a steady increase in brain size from early hominids to modern humans.

## Brain Size and Body Mass



There is a positive correlation between brain size and body mass, suggesting that larger brains are associated with larger bodies. The plot shows that as body mass increased, brain size also tended to increase.

## Our Two-Legged Ancestors



Body mass has increased over time, reflecting the evolution of larger, more robust hominids. The chart shows a general upward trend in body mass from early hominids to modern humans.

## Hominidae Family Tree



## How our ancestors and their ancestors lived



Early hominids lived in savanna environments, where they hunted and gathered for food. They used simple tools and lived in small groups.



As hominids evolved, they developed more complex tools and technologies, such as the spear-thrower, which allowed them to hunt larger animals more effectively.



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## Tools



Early hominids used simple stone tools, such as hand axes and flint knives, for hunting and gathering.



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## Where they lived



Early hominids originated in Africa and spread to other parts of the world. The distribution of early hominids is shown on the map, with a concentration in Africa and a wider distribution across Africa and parts of Europe and Asia.



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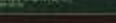
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## Tracks & Trackways

Tracks and trackways provide valuable evidence of hominid behavior and movement patterns. They show the paths taken by individuals and groups, often leading to important resources like water and food.

## **DNA Connections Through Time and Around the World Build Community Feeling**

There are 26 other clans of equivalent status in the rest of the world. Interestingly, Africa has only 13 percent of the world's population yet 40 percent of the maternal clans originated there.

Said Sykes "Until I started this work I always thought of my ancestors, if I thought of them at all, as some sort of vague and amorphous collection of dead people with no solid connection to me or the modern world, and certainly no real relevance to either ... But once I had realized, through the genetics, that one of my ancestors was actually there, taking part, it was no longer merely interesting - it is overwhelming.

DNA is the messenger which illuminates that connections, handed down from generation to generation, carried, literally, in the bodies of my ancestors. Each message traces a journey through time and space ... When two people find out that they are in the same clan they often experience this feeling of connection. Very few can put it into words, but it is most definitely there."

### **Migration of the Clan Mothers & Their Descendants**

#### **Lara (mother of these seven)**

Although modern humans had their origins in Africa, only the descendants of one of these clans, Lara, have so far been found in the peoples of the rest of the world. Lara probably lived originally in what we now know as Ethiopia.

#### **Lara Clan (originated 200,000 years ago)**

One of Mitochondrial Eve's descendants in the female line was an unknown woman, nicknamed "Lara," who lived in Africa, probably south of the Sahara Desert. Lara became the female line ancestor of everyone whose mtDNA belongs to Haplogroup L. Her descendants separated into groups now labeled L0 through L7 - in which Adam as likely a member.

The ancestor of the L3 group was an unknown woman who lived in the Middle East or Egypt about 100 thousand years ago (~5,000 generations). She has many descendants in Africa, but some of her descendants left Africa, so she became the female-line ancestor of all Asians, Europeans, aboriginal Australians and aboriginal Americans.

Humans exhibit less genetic diversity than would be expected for our age as a species; far less than our closest primate cousins, the chimpanzees. Some scientists believe that humans nearly became extinct about 70 thousand years ago (~3,500 generations) when the Toba super-volcano erupted in Indonesia, triggering an environmental catastrophe. According to this theory, the human population might have been reduced to a few thousand people, perhaps as few as 1,000, thereby losing genetic diversity.

#### **Lara's Clan Sub groups (Adam's Parents?)**

The N clan is one of the branches of the L3 clan. It is believed to have originated with a woman who lived in Africa about 80 - 60 thousand years ago (~4,000 - 3,000 generations). She is the ancestor of nearly all Europeans and aboriginal Australians, and many Asians and aboriginal Americans.

The R clan is one of the branches of the N Clan. The first woman with this mutation probably lived about 60 thousand years ago (~3,000 generations) in the Middle East. She became the maternal ancestor of six of the seven European haplogroups. (Haplogroup X is a sister rather than daughter clan of Haplogroup R.)

### **SEVEN DAUGHTERS OF EVE**

#### **Ursula (originated 45,000 years ago)**

Ursula is the oldest clan mother and she lived 45,000 years ago. Her clan faced the Neanderthals and moved further into cold Europe than any of these kind had before. They edged the Neanderthals into extinction and currently make up about 11 percent of the modern European population.

#### **Xenia (originated 25,000 years ago)**

Xenia and her clan came into being about 20,000 years ago at a time when earlier species of the genus Homo had become extinct and modern humans had Europe to themselves. Although the continent was cold and inhospitable, the tundra was teeming with bison and reindeer. Three branches of Xenia's clan fanned out across Europe and 6 percent of today's Europeans trace their mitochondrial DNA back through her clan.

#### **Helena (originated 20,000 years ago)**

Helena, or haplogroup H, was formed by genetic mutations beginning 20,000 years ago. The Glacial Maximum pushed these new Europeans south and up against the Alps and Pyrenees. Her clan may have known the cave paintings at Dordogne in France. This was the most successful clan and 47 percent of modern Europeans are descended from them.

#### **Velda (originated 17,000 years ago)**

A copy error in DNA marks the genesis of Velda's clan about 17,000 years ago. The clan lived in southern France, Italy, and the Iberian Peninsula. They maintained a permanent base camp and produced symbolic and naturalistic art. About 5 percent of Europeans were members of this clan.

#### **Tara (originated 17,000 years ago)**

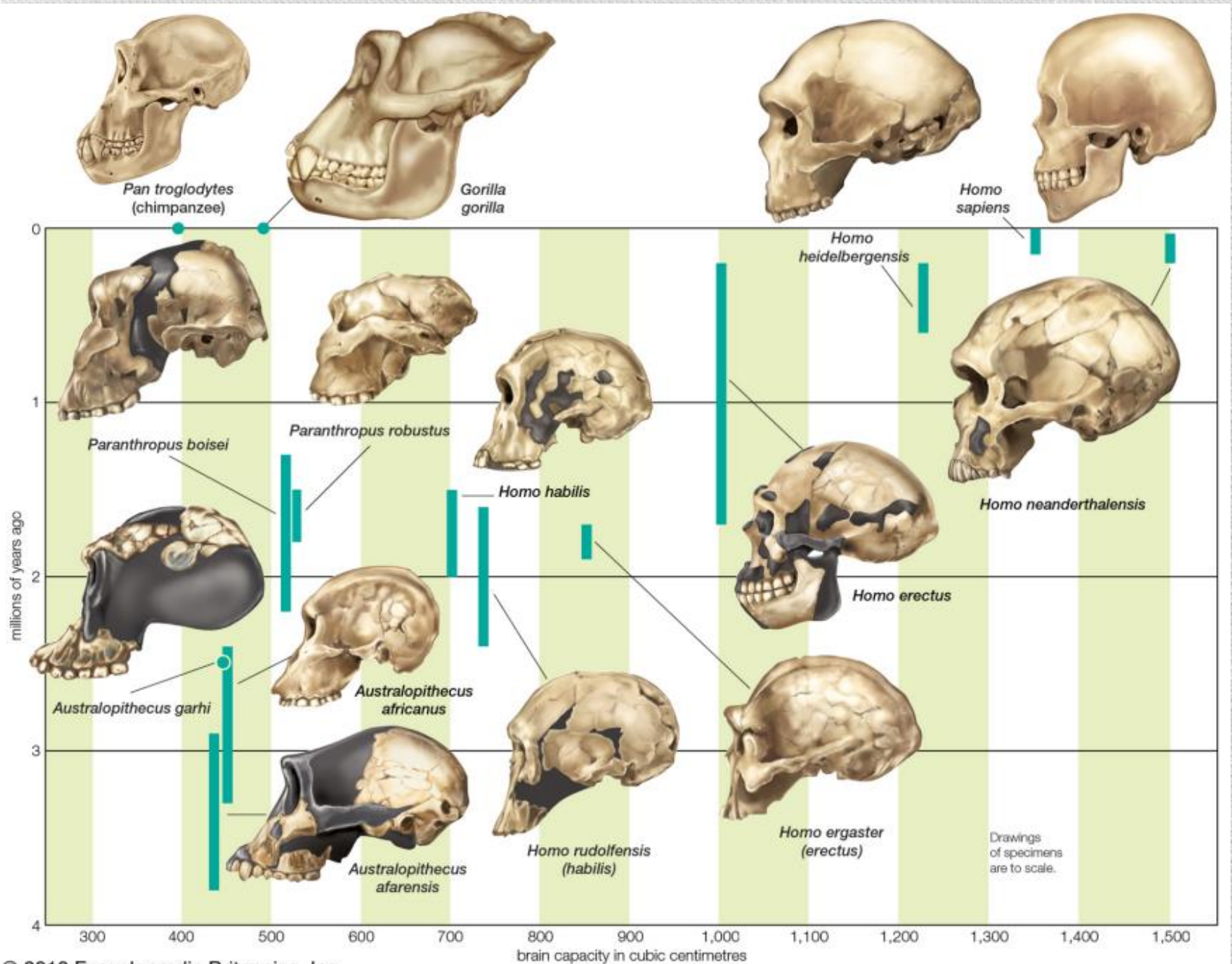
Tara's clan was launched about 17,000 years ago. Her clan lived in Italy in the depths of the Ice Age. They were less prosperous, but perhaps developed musical instruments and boats. The maritime lifestyle provided the clan with mussels and seals to eat. About 9 percent of Europeans are members of the clan of Tara. They live around the Mediterranean and are numerous in Britain and Ireland.

#### **Katrine (originated 15,000 years ago)**

Younger still, Katrine's clan was differentiated about 15,000 years ago. People still lived in small bands at that time, but the world was warming and would soon make this hunting lifestyle less necessary. Katrine's clan domesticated animals to live in herds and provide food and companionship. Six percent of native Europeans are from the clan of Katrine.

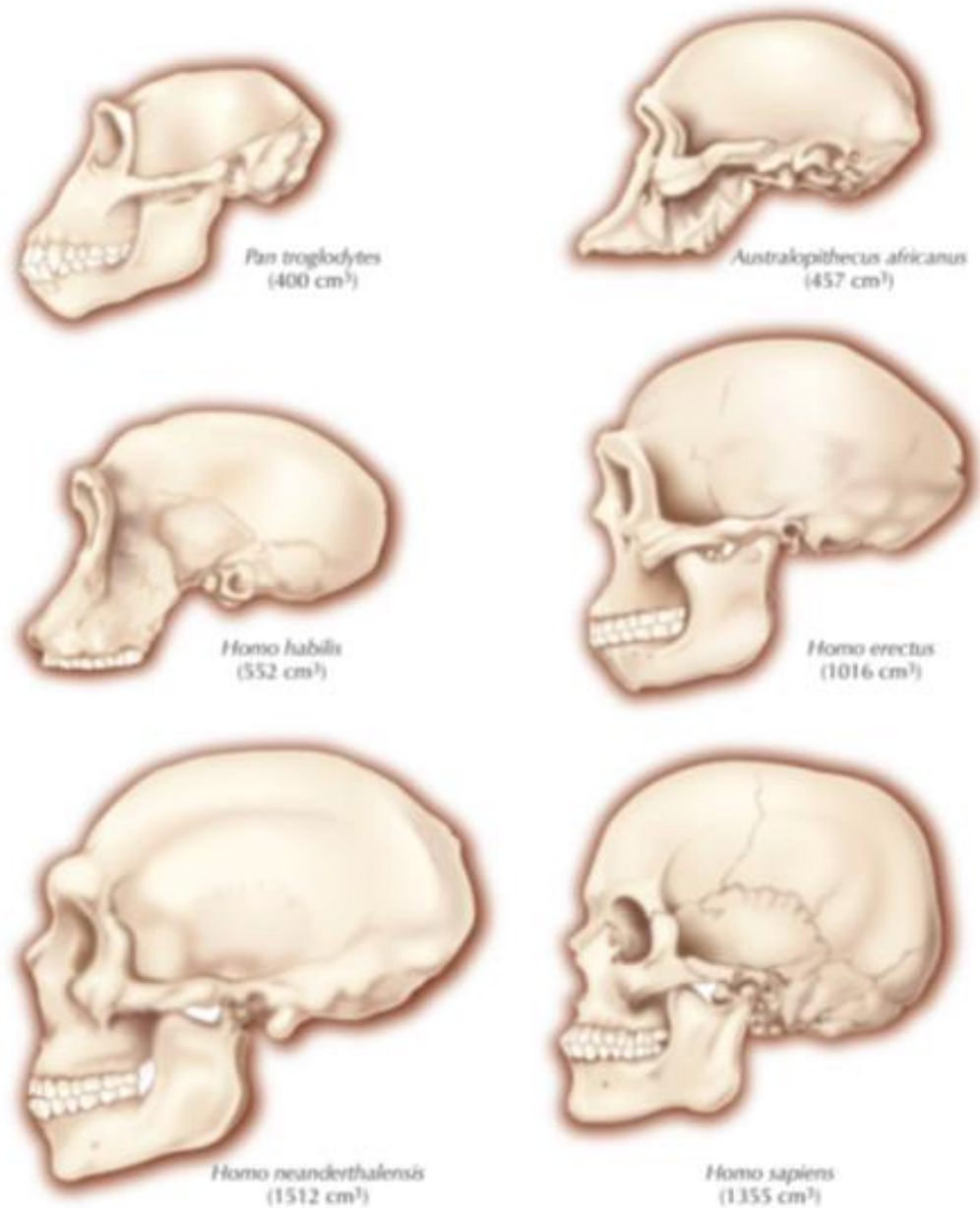
#### **Jasmine (originated 10,000 years ago)**

When Jasmine's clan formed, the Last Ice Age was at an end. Jasmine's clan lived in permanent quarters and began to plant seeds, raise crops, and herd animals. Today, 17 percent of Europeans are in the clan of Jasmine. One group followed the Mediterranean coast and found its way to the west of Britain, and is common in Cornwall, Wales, and the west of Scotland. The other is common in the central portion of northern Europe.





Homo Habilis



**FIGURE 25.11.** Series of hominid skulls showing different brain sizes. Notice that *Homo neanderthalensis* had a greater volume than that of modern humans.