

EVOLUTION OF MAN

MAN A UNIQUE PRODUCT OF EVOLUTIONARY
FORCES.

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Introduction

- Man is an animal origin
- Human evolution does not involve any peculiar evolutionary pattern
- But man is a unique product of evolutionary forces
- Human evolution is a combination of biological and cultural evolution
- He is unique because man can achieve his destiny, he can control his environment in which he lives, he has the ability to think, remember and profit from the past he has the ability to look ahead and imagine the future and he has the ability to talk with others and work with other to achieve a better way of life.

Discussed under three headings

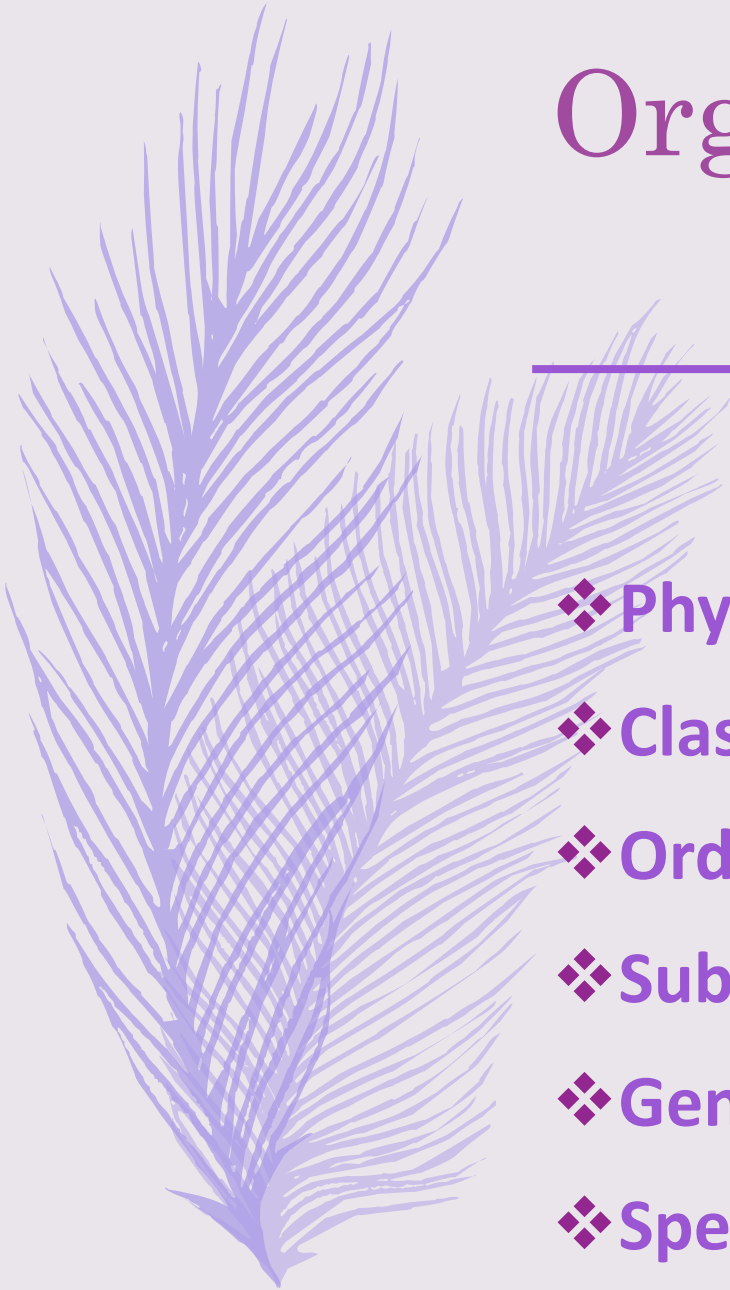
- Organic evolution
- Cultural evolution
- Future evolution



Organic Evolution of Man

Man's place in the Animal Kingdom

- ❖ **Phylum** : Chordata
- ❖ **Class** : Mammalia
- ❖ **Order** : Primates
- ❖ **Sub order** : Anthropoidea
- ❖ **Genus** : Homo
- ❖ **Species** : Sapiens





Human Evolution

- Place : Fossils – East Africa
- Time : 3 million years
- Ancestor : Apes (gibbons, orangutans, chimpanzees & gorillas)

Salient Features of Apes



They are arboreal

They have no tail

They have a narrow nose with nostrils close together

Apes have premolar teeth on each side of both the jaws

They have the long canal

Their pelvic is narrow and elongated

They have large incisors and canines

Salient features of Man

- Bipedal gait, erect walk
- Freeing of hands for non-locomotory purposes
- The hand is specially devised for making and using tools
- Large cranium
- Steep and high brow
- Distinct chin
- Permanently enlarged breasts
- Enormous penis, compared to that of apes
- Speech
- Man is naked without a hair-coat
- Historic behavior and culture





Causes for Human Evolution

- The ancestors of man lived on trees, but man is a permanent terrestrial animal
- So the first step in human evolution is his descent from trees to the ground
- To get a constant supply of food, man descended from trees
- The shrinkage of forests
- To give increased protection to young ones
- Competition of food on land
- Plenty of food on land
- Change in behavior caused by recombination of genes.

Trends in Human Evolution

- The most important evolutionary trend in human evolution is that he left his arboreal life and descended to the ground.

- The opposability of great toes in the hind limbs, was lost
- The development of erect posture or upright posture
- This upright posture is made possible by a lumbar curve in the vertebral column
- The developmental of bipedal locomotion
- The development of chin
- Increase in size and complexity of brain and cranium. Development of intelligence
- Reduction in size of canines and incisors
- Conversion of a straight sided U shaped upper dental arch into a smoothy rounded bends
- Manipulation and manufacturing of tools
- Use of forelimbs for non-locomotory purposes





Evolution of brain as the moving force of Human Evolution

The development of brain power was triggered by the freeing of hands for non-locomotor functions such as manufacture and manipulation of tools.

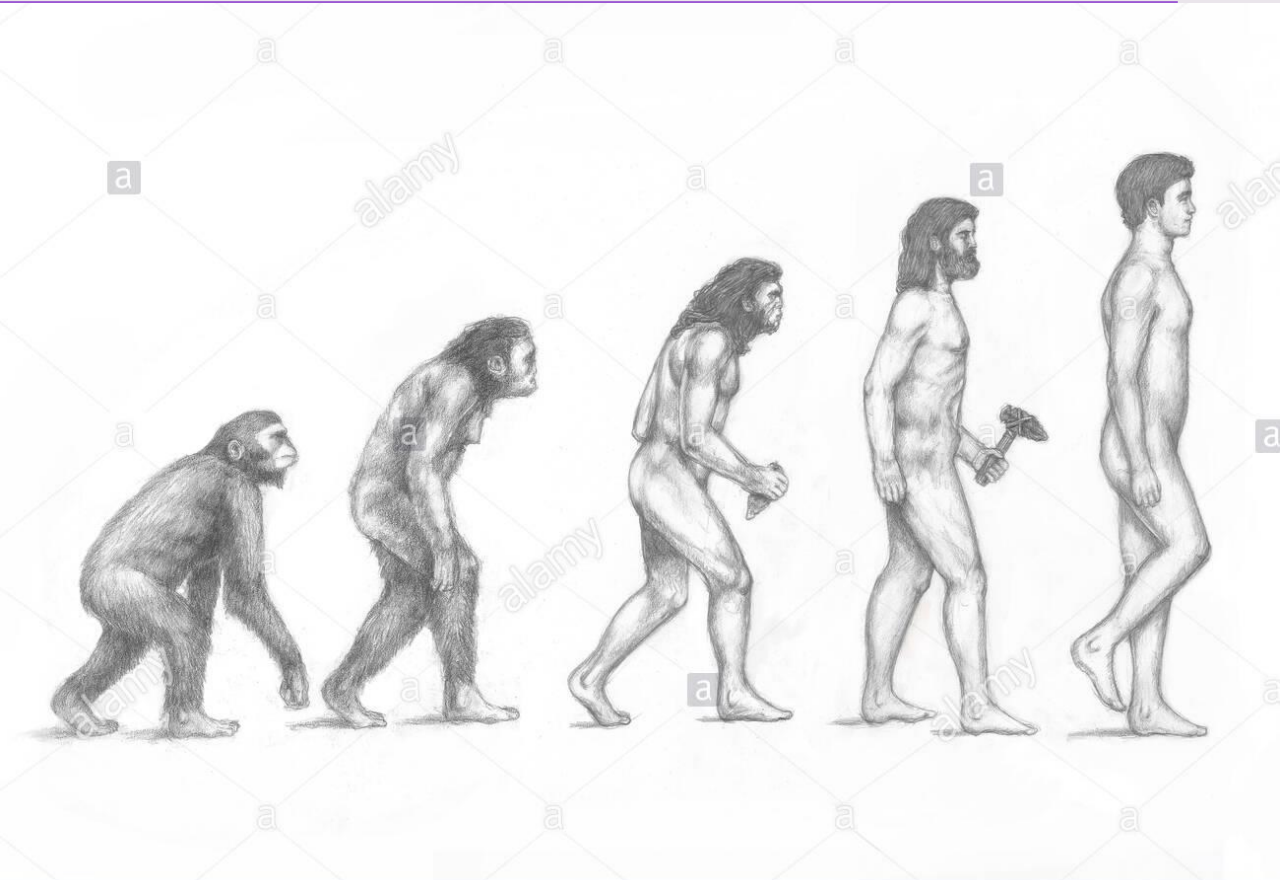


Evolution of Man as seen in the Fossil Record

- ❖ Man originated in East Africa
- ❖ Human evolution started 15 million years ago. Man appeared only 3 million years ago
- ❖ Man originated from ancient apes
- ❖ Ancient apes were our ancestors
 - Man left the arboreal life and descended to the ground
 - Development of erect posture
 - Bipedal locomotion
 - Development of chin
 - Increase in the size of brain
 - Development of intelligence
 - Tool using
 - Use of fore limbs for non-locomotory function

Four main stages

- ❖ Apes
- ❖ Ape – man
- ❖ Primitive men
- ❖ Modern men



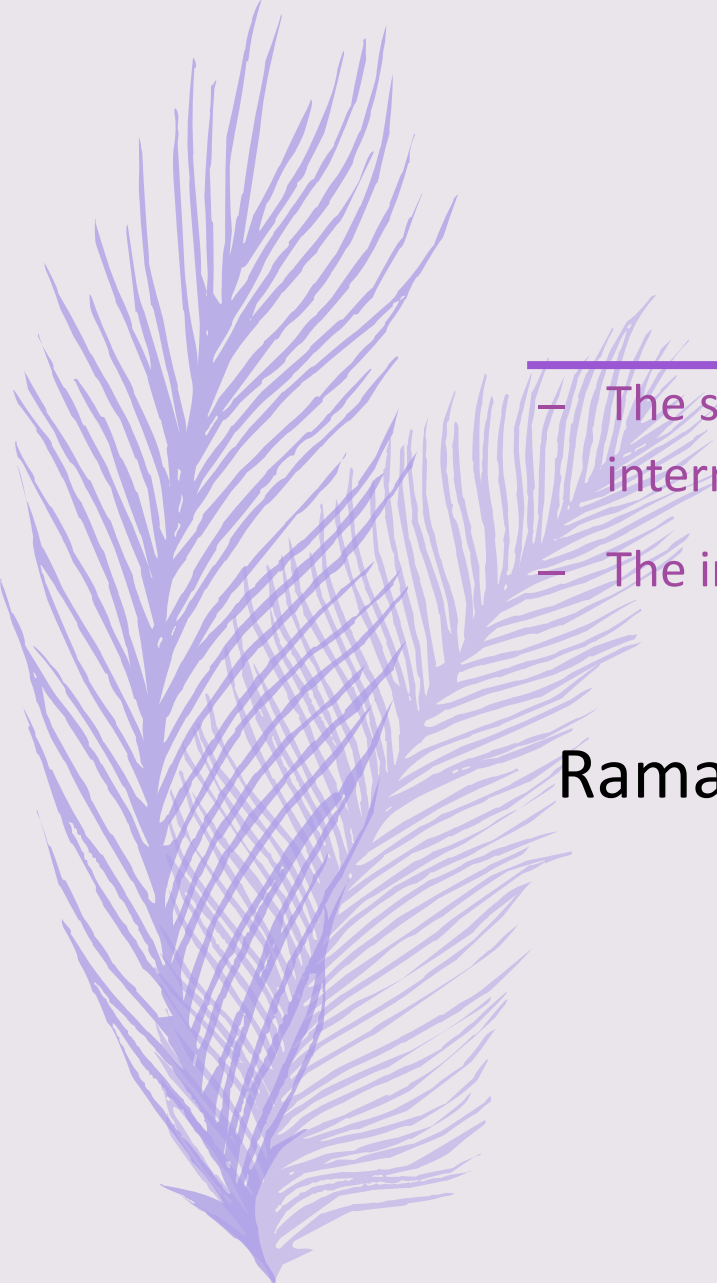


1. Apes

- The ancestor of man was primitive apes which lived 30 million years ago
- The apes were tailless arboreal primate
- The primitive ancestral ape was Propliopithecus

Propliopithecus – Aegyptopithecus – Dryopithecus

2. Ape-men stage

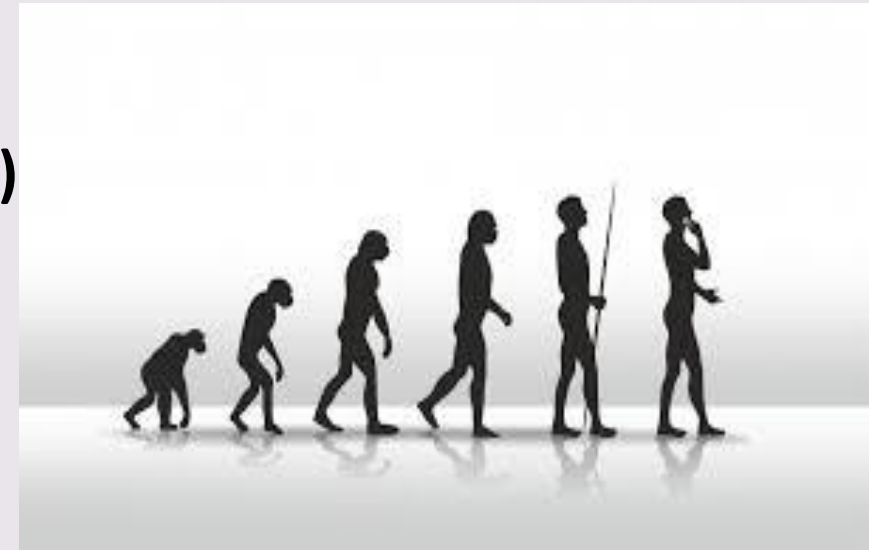
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- The second step in the origin of man is the ape-men stage. This stage is intermediate between apes and men
 - The important ape-men include

Ramapithecus – Kenyapithecus – Australopithecus (African ape man)

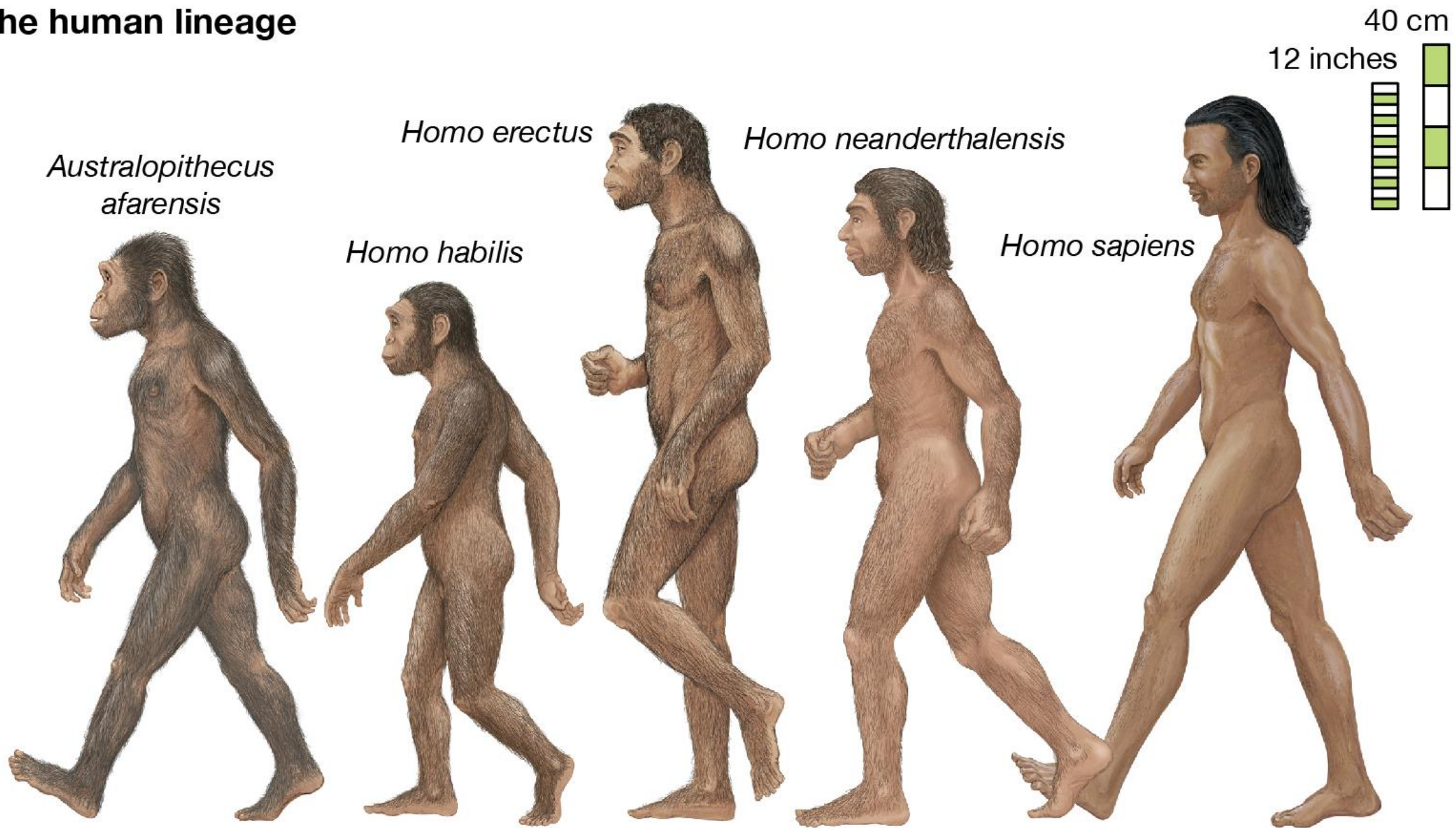
3. Primitive Men (Prehistoric men)

- **Man originated as man about 5 million years ago.**
- **They lived in caves and used fire and variety of tools.**
- **They were the first true men. They are connecting link between Australopithecus and modern men**
- **Important primitive men**

- ❖ **Homohabilis – handy man**
- ❖ **Homo erectus – Java man (pecking men)**
- ❖ **Homo rhodesiensis – Rhodesian man**
- ❖ **Homo soloensis – solo man**
- ❖ **Homo heidelbergensis – Heidelber man**
- ❖ **Homo neanderthalensis – Neanderthal man**

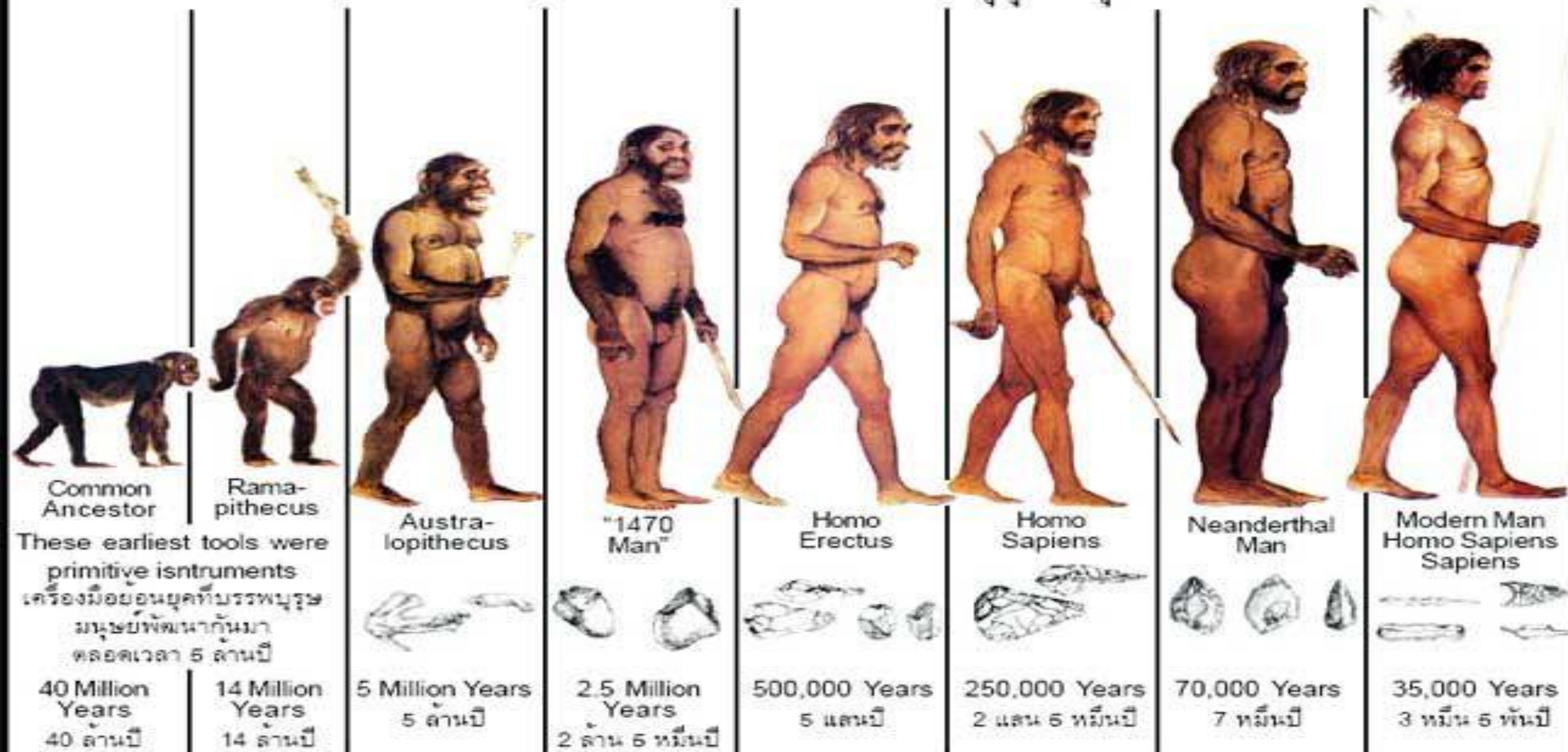


The human lineage



Evolution's long path from "missing link" to modern man

วิวัฒนาการยาวนานของบรรพบุรุษมนุษย์



Over 40 million years ago, descendents of the early primates gradually evolved to become modern man.

ภายหลังยุคไดโนเสาร์ถึง 40 ล้านปีที่สัตว์ตระกูลหนึ่งเป็นไพรเมตเลี้ยงลูกด้วยนม ได้วิวัฒนาการจนมาเป็นมนุษย์ยุคปัจจุบัน

4. Modern Men

- Modern men include all the existing men and also some extinct men.
- They appeared 3 million years ago
- Modern men originated in Asia around Caspian sea
- The modern men developed languages, writings, agriculture, domestication, marriages, villages, education, science, technology and all other cultural aspects
- The modern man called *Homo sapiens* (Knowing man)
- Cro—magnon man called *Homo sapiens fossilis* was the extinct modern man.
- He originated about 3 million years ago and he became extinct 20000 years ago
- He was of the old stone age man

Stocks of modern men

- Homo sapiens is the existing modern man
- He known for his culture and civilization
- There are four basic stocks of modern man
 1. Australian blacks - the most primitive of modern man
 2. Caucasoid – white man
 3. Negroids – Negroes
 4. Mongoloids – yellow and red man (the Asiatics and the American Indians)

In the modern days, the basic stocks are progressively mixed. This mixing is an age of assimilation.

The Imaginative Road to Homo Sapiens

L.D. Smart

Pliopithecus



Proconsul



Dryopithecus



Oreopithecus



Ramapithecus



Australopithecus



Paranthropus



Advanced Australopithecus



Homo Erectus



Early Homo Sapiens



Solo Man



Rhodesian Man



Neanderthal



Cro-Magnon Man



Modern Homo Sapiens





Thank You

Cultural evolution

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introduction

- Cultural Evolution is unique to human species.
- It is a state of intellectual development in human beings
- The concept of culture is used to cover all those skills and ways of life that are transmitted by interpersonal communication and tradition rather than by genetic means.
- It include many different aspect of the life of people, their knowledge and language. Their tools, food, utensils, science technology, agriculture medicine, human society and other means of getting a living.



– Cultural evolution is an inevitable consequence of man's biological evolution

– The essential features of cultural evolution is that it has to be acquired by each individual from other like classmates, playmates, friends etc., it is not transmitted from parent to offspring through gametes

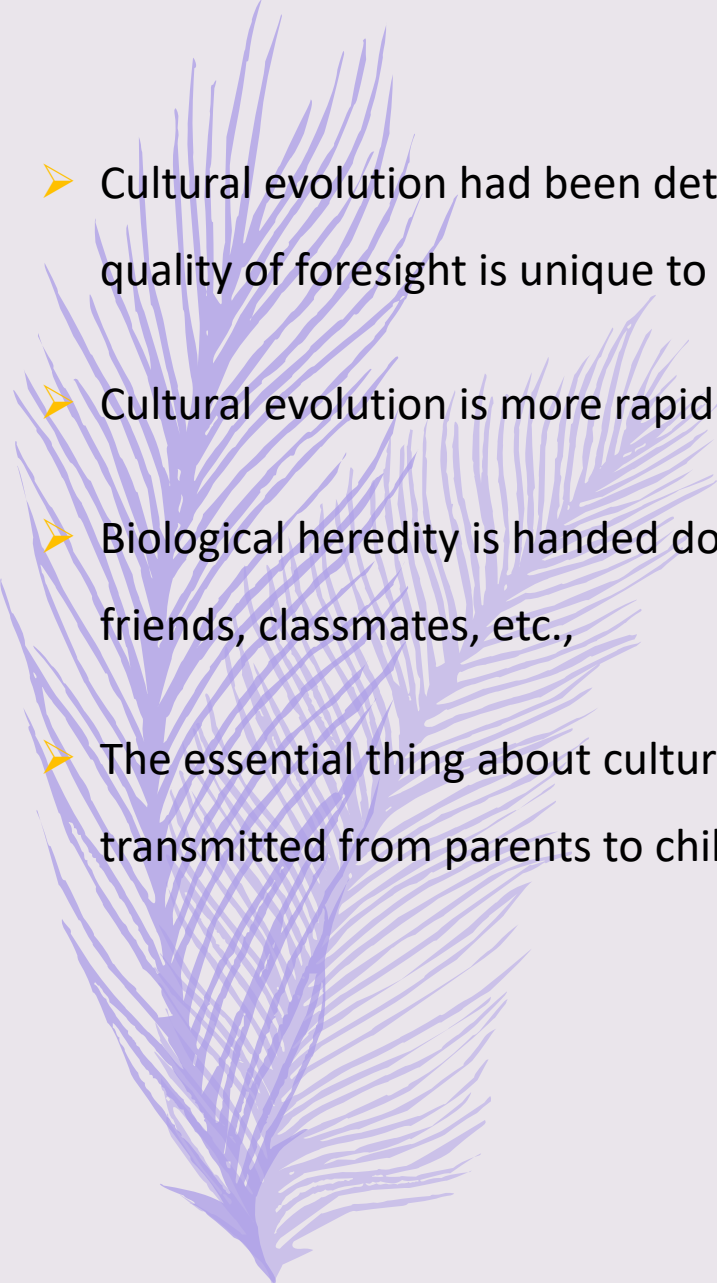
Comparison between cultural and organic evolution

- Both cultural and organic evolution results in progressive changes
- Both depend upon the presence of a store of variability within the population
- They can progress in many different directions
- They can progress rapidly or slowly or at an average speed
- They can also remain constant at a stabilized equilibrium for long periods of time



Difference between cultural and organic evolution

- Organic evolution is genetic in nature; but cultural evolution is not genetic
- In cultural evolution, the store of variability is increased in size not by means of genetic changes but by additions to our store of inventions, ideas, laws and customs
- Direction is given to cultural evolution not by natural selection but by imitation, conscious selection, foresight and planning
- In organic evolution, animals evolve by adjusting themselves to their environment; but in cultural evolution man evolves by adjusting the environment to himself

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- Cultural evolution had been determined by the ability of some men and women to look ahead they lived; this quality of foresight is unique to man; no other animal has it
 - Cultural evolution is more rapid and efficient than biological evolution
 - Biological heredity is handed down only from parents from children. But culture can be transmitted to anybody like friends, classmates, etc.,
 - The essential thing about culture is that it has to be acquired by each individual by learning from others; it is not transmitted from parents to children through gametes



FOSSIL RECORDS OF HUMAN EVOLUTION

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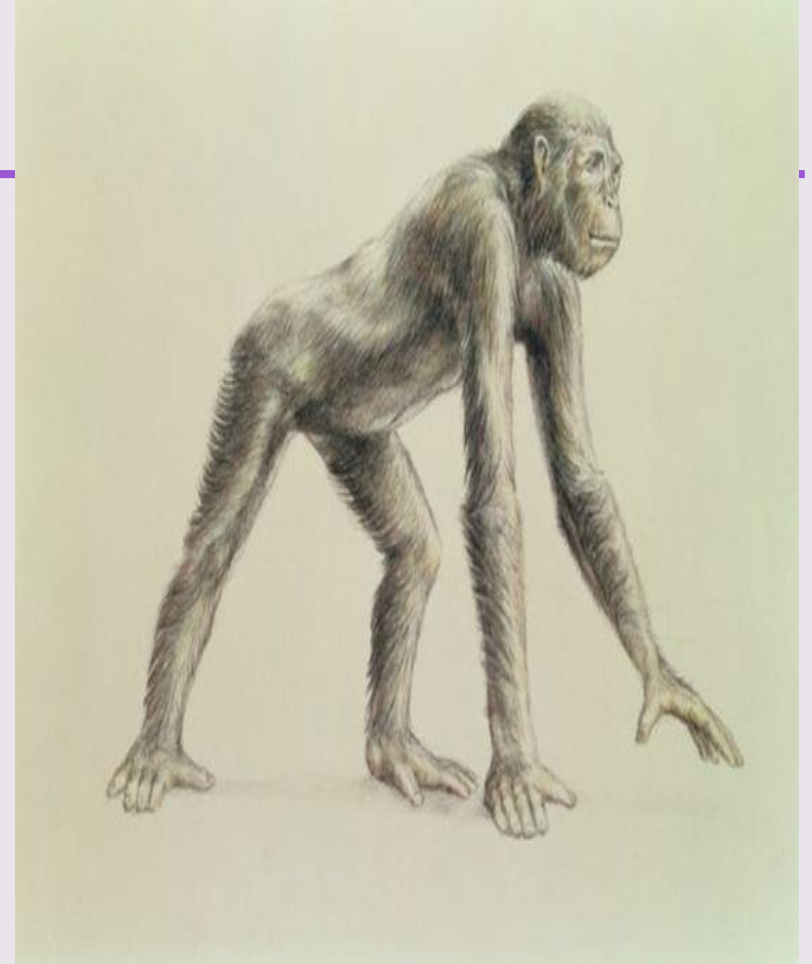


Important FOSSILS OF HUMAN EVOLUTION

- Propliopithecus
- Aegyptopithecus
- Dryopithecus
- Ramapithecus
- Australopithecus
- Homo erectus
- Heidelberg man
- Rhodesian man
- Homo neanderthalensis
- Cro-magnon man

Propliopithecus

- It was an ape-like primate
- But has short arms
- It resembled man
- It lived in the oligocene period (30 million years ago)
- Fossils of these animals were obtained from Fayum deposits of Egypt
- Simpson suggests that propliopithecus might be the ancestor of modern apes (Gorilla and chimpanzee) and man



Aegyptopithecus



- It is similar to Propliopithecus but it is more identical to apes than Propliopithecus
- It lived in upper Oligocene
- It is believed that Aegytopithecus was ancestral to the Miocene ape Dryopithecus which in turn gave rise to gorilla, chimpanzee and man

Dryopithecus

- It was discovered by L.S.B. Lakey in 1930 on an island in Lake Victoria.
- He named it Proconsul, but now it is called Dryopithecus
- It is a group of apes that lived in Miocene period about 20 million year ago
- It descended from *Aegytopithecus* of *propliopithecus*.
- Several species of Drypithecus are available
- Not more knowledge is gained from an African fossil, *D. africanus*
- *Dryopithecus* has fore limbs shorter than hind limbs
- *In this respect it resembles man. So it is believed that Dryopithecus is the distant ancestor of man.*
- *It is also the ancestor of modern apes like chimpanzee and gorilla*



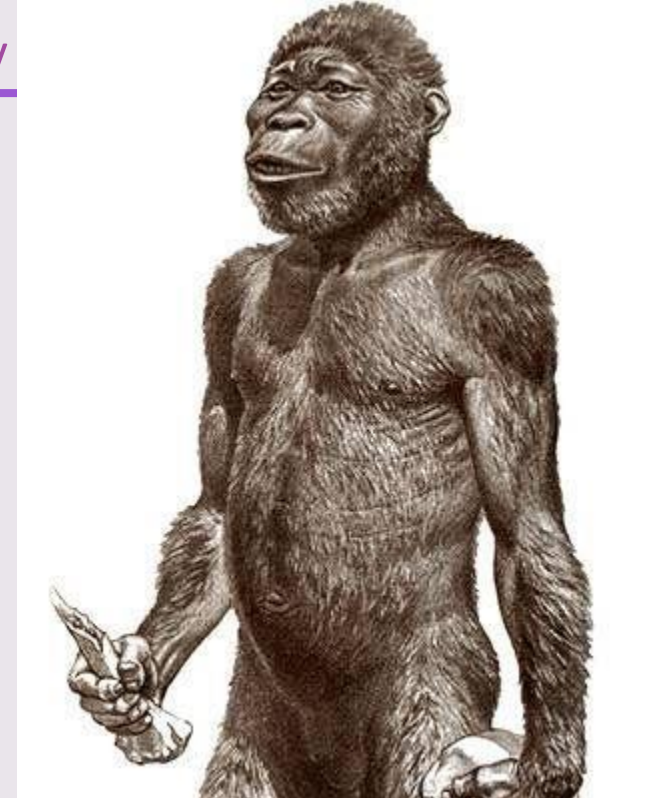
Ramapithecus

- It was an ape man it lived during late Miocene and early Pliocene
- It was contemporary to Oreopithecus
- The fossil of this animal contains only jaws and dentition
- The dentition is more identical to man it was directly ancestral to man
- It was directly ancestral to man
- Ramapithecus is collected from India and Africa
- It lived 12 to 14 million years ago



Australopithecus

- It was discovered by Dart. It was an ape-man because it combined many characters of ape and man
- It may be considered as the connecting link between ape and man
- It is 2 to 5 million years old.



Australopithecus

- Erect posture with four feet height
- Bipedal locomotion
- Vertebral column has a distinct lumbar curve
- Basin-like pelvic girdle
- Forward position of foramen magnum
- Dentition is like that of man
- Dental arch is smooth rounded
- No simian gap
- Hands were used for non locomotary function



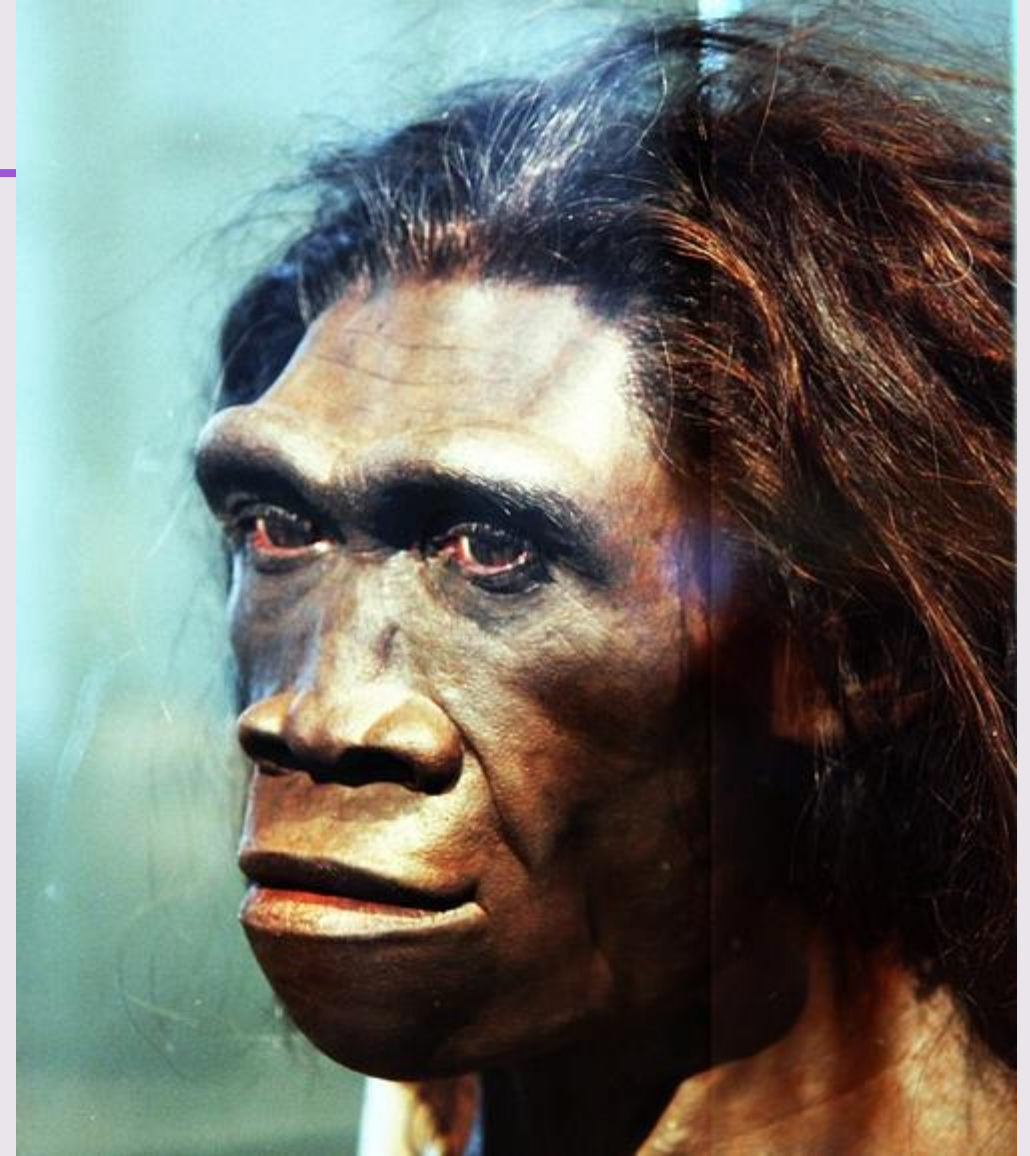
Ape character

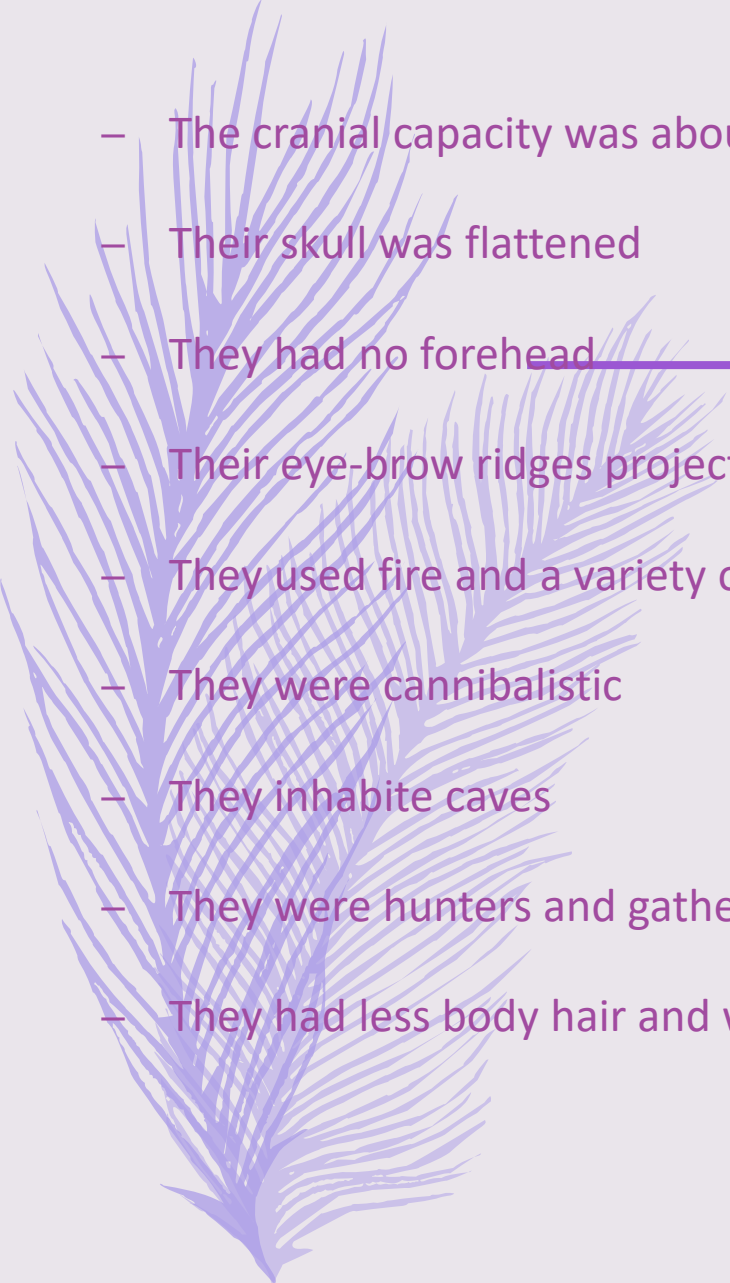
- Small cranial case and brain
 - The teeth were larger than those of modern man
 - No chin
 - The eye-brow ridges projected over the eyes
 - *Australopithecus africanus* was a common fossil
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Homo erectus

- Homo erectus was the true man
- He was a primitive man
- He was a connecting link between ape-man and modern man
- He lived 5 million years ago
- Homo erectus lived in Java and Pecking
- It was discovered by Dubois
- The homo erectus had the following
- They had upright bipedal locomotion
- They were slightly taller than Australopithecus and were about 5 feet



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- The cranial capacity was about 1300 cc. it was intermediate between Australopithecus and modern man
 - Their skull was flattened
 - They had no forehead
 - Their eye-brow ridges projected forwards
 - They used fire and a variety of tools
 - They were cannibalistic
 - They inhabited caves
 - They were hunters and gatherers
 - They had less body hair and were black
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Heidelberg man

- Heidelberg man was primitive man
 - His fossil was discovered in a river bed near Heidelberg in Germany
 - He lived 5 million years ago
 - He was an ancestor to Neanderthal man
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Rhodesian man

- Rhodesian man was a primitive man
- The fossil was discovered in a cave at Broken Hills in Rhodesia
- He lived in the late Pliocene period
- The cranial capacity was about 1300 cc
- Forehead was receding like that of a Gorilla



Homo neanderthalensis

- Neanderthal man was an advanced primitive man
- The fossil was collected from Neander valley in Germany and hence the name
- They were slightly shorter than modern men, women were shorter
- Their eye-brow ridges were heavy and protruding
- Their forehead was low and slanting
- They had no chin
- Their teeth were large
- The burial was done with some sort of ceremony
- Their cranial capacity was about 1400 cc
- They develop speech
- They used utensils and ornaments





Cro-magnon man

- Cro-magnon man was the extinct modern man
- Homo sapiens means knowing man
- He originated about 3 million years ago he become extinct 20000 years ago only
- He lived in the peak of the old stone age
- His fossil was discovered in France, Italy, Poland and Czechoslovakia
- The cranial capacity was 1800 cc
- He was 180 cm tall
- Chin developed

Cro-magnon man

- He lived in caves with families
- He was expert in making weapons and tools
- He was a hunter
- He used fire and clothing
- He buried dead bodies with religious ceremonies
- He was an arties
- He reared dogs only





Thank you