

LIFE IN THE PAST Lecture 3



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Subject: Zoology

Course Title: Zoogeography

&

Paleontology

M.Sc. II (Evening) Semester III

CENOZOIC LIFE



- The Cenozoic era includes the **last 65 million** years of the evolutionary history.
- Though it is generally referred to as the “**Age of Mammals**” , this era with equal justice could be called as the “**Age of Birds**”, the **Age of Insects** and the **Age of Flowering Plants**”. Because it is marked by the evolution of all these forms as much as by the evolution of mammals.
- Mountain building continued in this era and cooling of polar regions occurred.

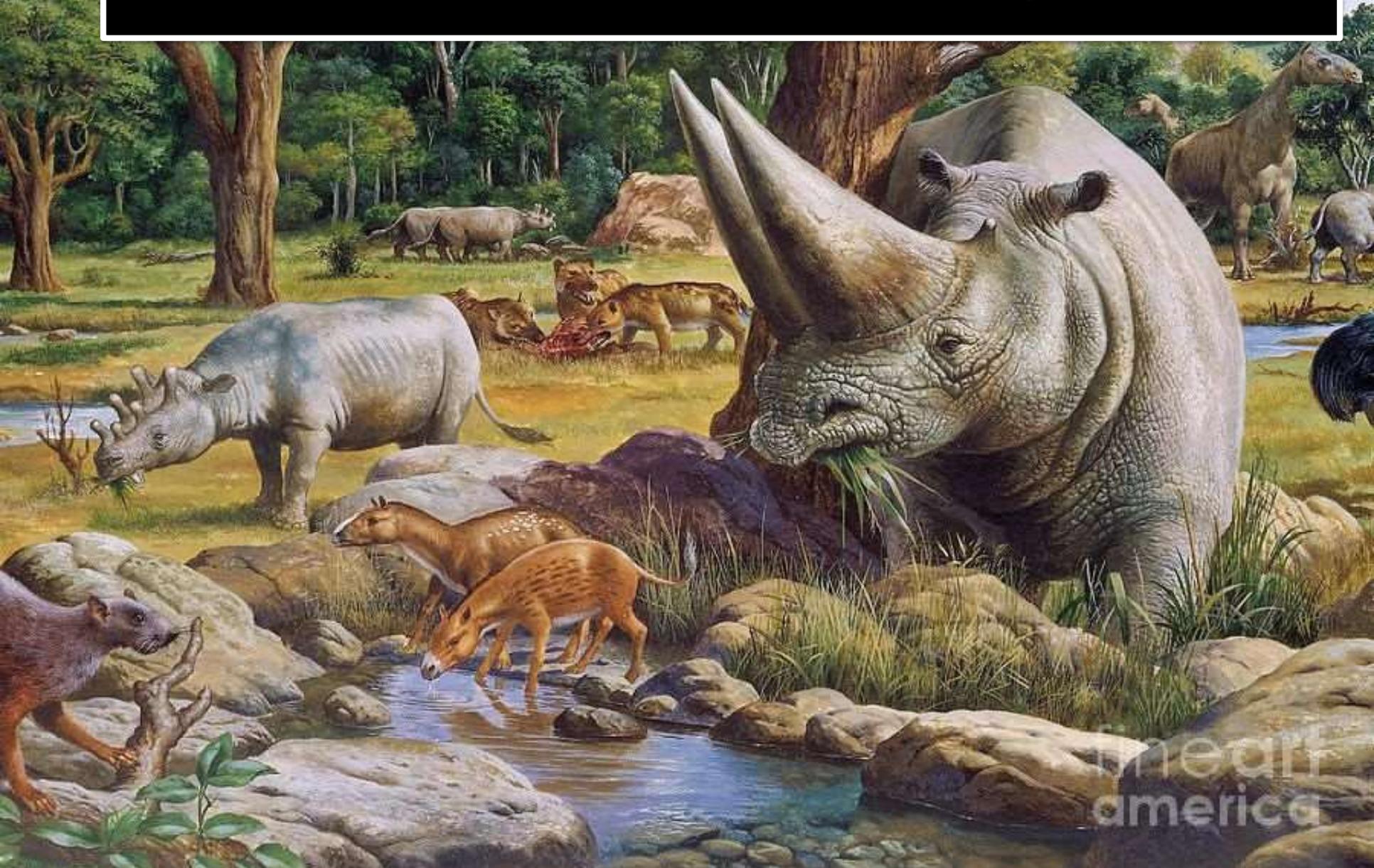
PERIODS OF CENOZOIC ERA

- The Cenozoic era is subdivided into two periods:

1. TERTIARY- which lasted for **62 million** years

2. QUATERNARY - which includes last two or two and a half million years.

TERTIARY PERIOD



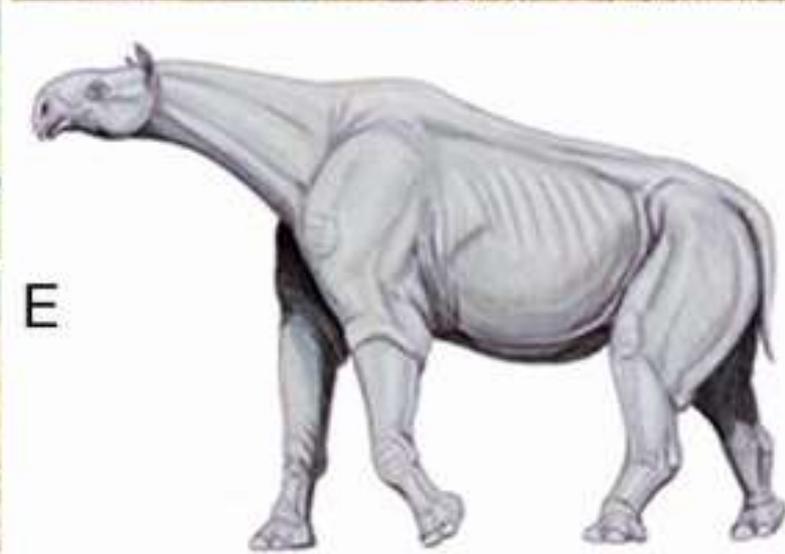
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TERTIARY PERIOD

- Tertiary period is subdivided into five epochs:
 1. Palaeocene
 2. Eocene
 3. Oligocene
 4. Miocene
 5. Pliocene

(Named from earliest to the latest)

- This period has been studied in greater details partly because the fauna and flora bear a close relationship to the present living forms but mainly in the search of **petroleum** which is mainly found in the **tertiary rocks**.
- This period saw the rise of mammals and birds.
- Mammals occupied all the niches evacuated by dinosaurs. The elephants, horses, pigs and camels appeared in Eocene, where as deer, cattle and antelopes appeared in Oligocene.
- Whales, sea-lions and seals appeared in Miocene.
- Most of the modern birds appeared in Eocene.



A

D

B

E

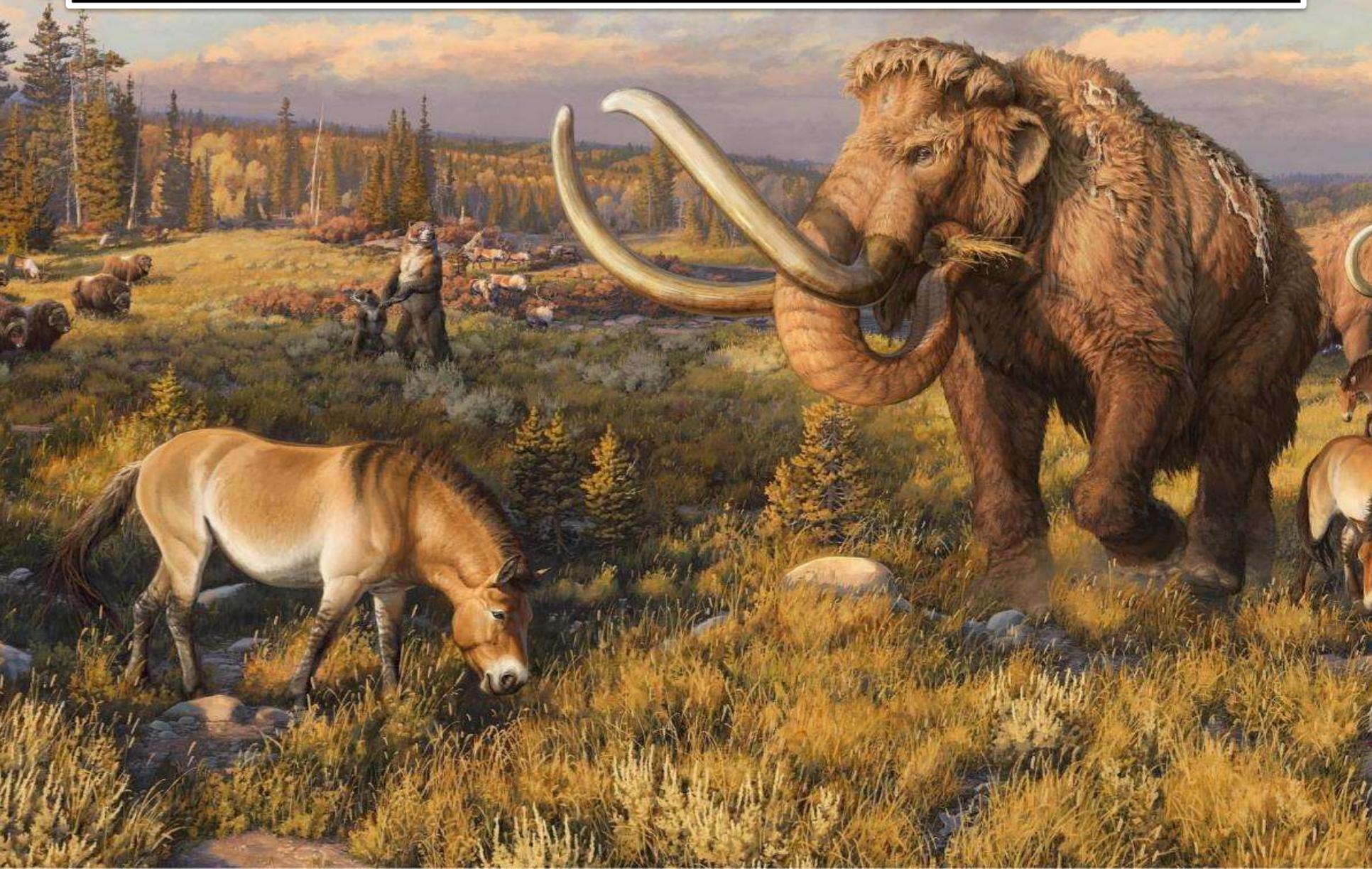
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- (A) : Mesohippus showed small steps toward modern horses.
- (B) : Hyaenodon had the large, sharp teeth of a carnivore.
- (C) : Elotherium was a piglike scavenger
- (D) : Arsinoitherium was a large relative of elephants and hyraxes.
- (E) : Indricotherium , largest land mammal of all time (15 tons and 18 feet in height) resembled an overweight giraffe;



A reconstruction of *Diatryma* based on skeletons found in North America. It reached the height of 9 feet and lived in Eocene grasslands.

QUATERNARY PERIOD



QUATERNARY PERIOD

- The quaternary period is called the “Age of Man”.
- It includes the last two or two and a half million years of evolutionary history.
- It is divided into two epochs:
 1. Pleistocene
 2. Recent

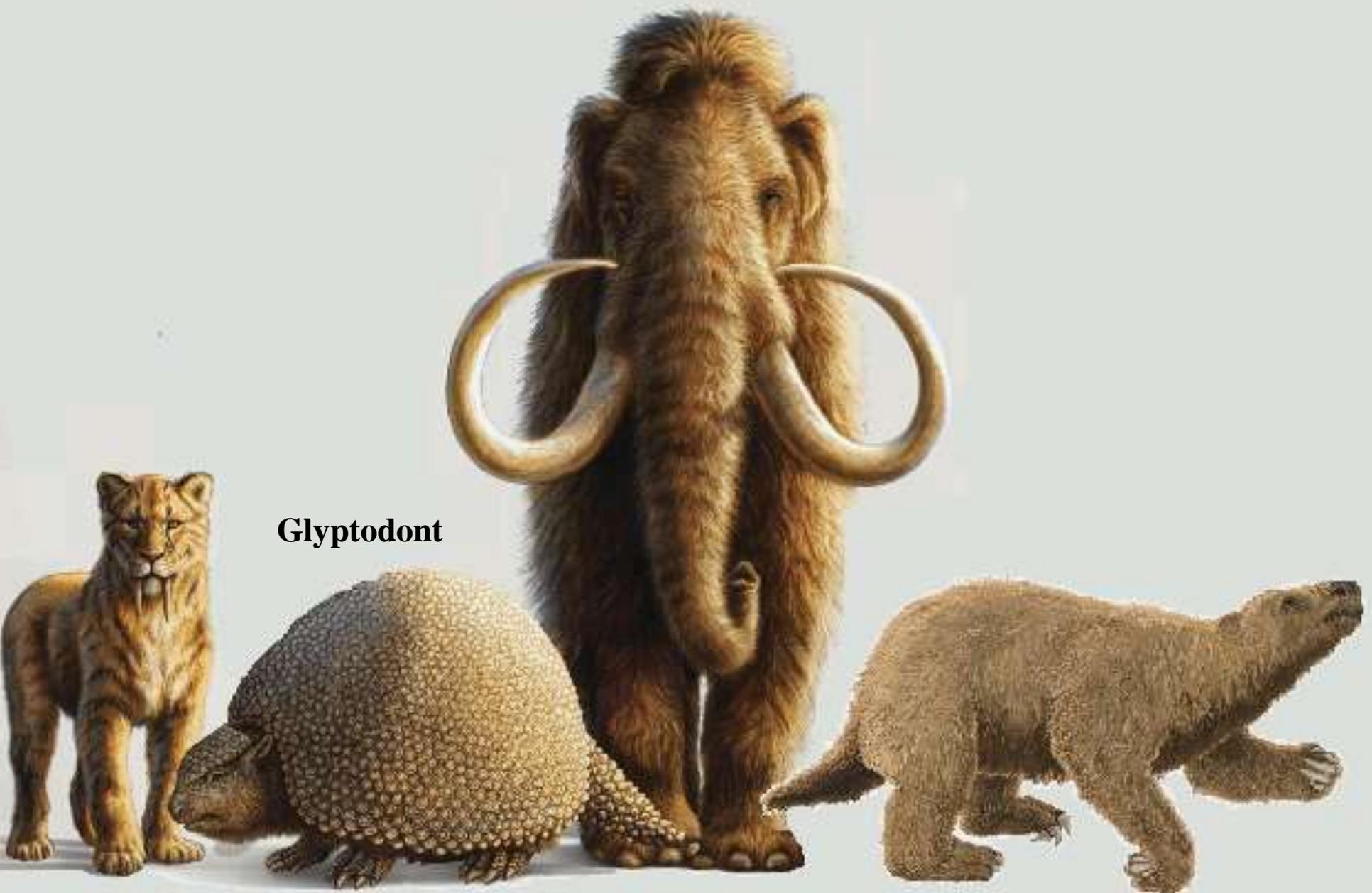
PLIESTOCENE EPOCH



PLIESTOCENE EPOCH

- The Pleistocene epoch was marked by the periods of **heavy glaciations**. During the interglacial periods the sheets of ice retreated.
- Continental ice sheets up to 3,000 meters thickness covered much of the northern hemisphere.
- **The last glaciation retreated about 11,000 years ago.**
- Terrestrial fauna included mammoths, mastodons and woolly rhinoceroses in cold climate and elephants, camels and horses in warmer climate.

- One of the greatest **extinction of mammals** took place during the late Pleistocene.
- A number of great mammals like Irish Elk, Woolly mammoths, Woolly Rhinoceros, Saber-toothed tigers, Mastodons, Giant antelopes, large Ground sloths, Giant Wolves and Glyptodonts became extinct during the late Pleistocene.
- The reason for this wide extinction of these huge mammals is not fully known.



Glyptodont

Saber-toothed tiger

Woolly mammoth

Ground sloth

RECENT EPOCH



RECENT EPOCH

- The period of last 10,000 years of the earth's history is known as the “Recent Epoch”. It includes the time after the last glaciation.
- During this period the ice receded. Forests developed in Europe and North America and deserts appeared in North Africa and Middle East.
- The modern species of man, *Homo sapiens*, evolved and had undergone much cultural revolution but no biological evolution is indicated during the past 10,000 years.