PG TRB – ZOOLOGY

Unit IX - Evaluation of Horse

- Horses are odd – toed hooped mammals belonging to the order *perissodactyla*.
- Straight line evolution (*Eimer and Naegeli* in 1897) – ex orthogenesis.
- Eocene period (Cenozoic era).
- History recorded in North America.
- Evolution of Horse – 58 Million years ago.

**Evolutionary Trends:**

- Increase in body size, length of limps, and length of neck.
- Length of pre orbital region.
- Increase length & size III digit.
- Complexity of brain.
- Moralization of premolars.
- High crowns in premolars, & molars.
- Formation of diastema.
- Enlargement of hoof on the middle digit.
- Development of springing mechanism.
- Straightening & stiffening of back.

1. **Eohippus (or) Hyracotherium**
   - It horse (Dawn horse)
   - North America
   - Cenozoic era
   - Hyracotherium
   - Height 10” (0.4 m)– size of fox
   - Fore limbs 4digits splint
   - Hind limbs – 3

2. **Orohippus – Mountain Horse**
   - Eocene horse.
   - Slightly taller than eohippus 30”in size.
   - Splint bones disappeared both limbs.
   - It was browser.
3. Epihippus
- 3rd Eocene horse
- End of Eocene
- Little larger than orohippus
- Last pre molar – molar like

4. mesohippus
- Oligocene horse
- Intermediate horse
- Sheep size 18-24” (0.6m)
- All legs 3 digits. 4th digit splint

5. Miohippus
- Ist 3limb horse. Ancestor for modern horses
- Direct ancestor for modern horses
- A side line gave rise to Anchitherium
- Anchitherium gave rise to hypohippus

6. Parahippus
- Descended from Miohippus
- Pre orbital region was much elongated
- Premolar – Molar – like
- Dentition – hypsodont ex- high – crowned
- Three toes in the legs
- Human like incisors
- Canine teeth no

7. Merychippus
- First grazer (Ruminant horse) size (1.0m)
- Hypsodont ex -high crowned
- Extinct proto horse
- Cerebral hemispheres more complex
- Spring mechanism
- The legs contained 3 toes
8. Hipparion
- Pliocene horse.
- Side line from parahippus.
- 3 toed grazer.
- Height 40”.
- It gave rise to stylohipparion.

9. Pliohippus
- Pleistocene horse size in (1.25m).
- Descended from merychippus.
- Main line of evolution.
- It was the first one toed horse.
- Side toes much reduced.

10. Equus
- Modern horse size in (1.6m).
- It descended from pliohippus.
- Transition from pliohippus to equus.
- Height – 40” – 60”.
- Middle toe enlarged well developed hoof.
- Cerebral hemispheres are much folded.

Correct sequence of horse evolution.

Eohippus (OR) Hyracotherium → Orohippus → Epihippus
Mesohippus → Miohippus → Parahippus → Merychippus → Hipparion
Pliohippus → Equus

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