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Q2(a)

Discuss the Miocene hominoid remains and their significance in evolution

UPSC Civil Services Mains 2025 · Anthropology GS 1 · 20 marks · Characteristics of Primates

1.5 Characteristics of Primates; Evolutionary Trend and Primate Taxonomy; Primate Adaptations; (Arboreal and Terrestrial) Primate Taxonomy; Primate Behaviour; Tertiary and Quaternary fossil primates; Living Major Primates; Comparative Anatomy of Man and Apes; Skeletal changes due to erect posture and its implications.

Core demand of the question

- Survey major Miocene hominoid remains by region
- Note locomotor and dietary diversity
- Place them relative to the ape-human last common ancestor
- State evolutionary significance without inflating *Ramapithecus*

Revision summary

The Miocene, about 23 to 5.3 million years ago, was the main radiation of fossil apes, followed by late-Miocene decline.

Africa gives *Proconsul* as a stem hominoid that was not yet a specialised hanging ape.

Europe gives *Dryopithecus* and related forms, which matter for biogeography.

Asia gives *Sivapithecus* on the orangutan line. *Ramapithecus* is not a hominin.

Gigantopithecus is a giant pongine side branch.

Significance lies in mosaic traits, an African last-common-ancestor setting, and climate winnowing of apes.

There is no single missing link.

Introduction

The **Miocene epoch**, about 23 to 5.3 million years ago, was the age of ape radiation. Fossil apes were more diverse in Africa, Europe and Asia than living apes are today. These fossils do not give one missing link. They give a bush of experiments from which later African hominins and living great apes were winnowed.

Body**African Miocene**

East African early and middle Miocene sites such as Rusinga yield *Proconsul* and related proconsulids. *Proconsul* was tailless, but it was still an above-branch quadruped rather than a specialised hanging ape. It is a useful picture of a stem hominoid before modern suspensory living. *Morotopithecus* from Uganda hints at a more upright trunk. Later forms such as *Kenyanthropus* show thicker enamel and harder-object diets as forests became more seasonal.

These taxa matter because the last common ancestor of African apes and humans is widely placed in Africa after this radiation. They also show that "ape" did not always mean brachiator. **Louis Leakey's** early Miocene work in East Africa, and later teams, built this African file.

Europe and the Mediterranean

Middle and late Miocene Europe produced *Dryopithecus*, *Pierolapithecus*, *Anoiapithecus* and *Ouranopithecus* in Greece. Some combine a more upright body plan with thick enamel. They document hominoids outside Africa. They also feed debate on whether some late Miocene Eurasian forms sit near the African-ape clade. European taxa show diversity and biogeography; they are not a route that leads automatically to *Homo*.

Asia

Siwalik *Sivapithecus*, studied for decades in the Indian subcontinent, shows a face closer to the orangutan. In the 1960s and 1970s **Elwyn Simons** and others promoted a split genus *Ramapithecus* as an early hominin because of thick enamel and small canines. That story was withdrawn. Thick enamel is not a hominin monopoly, and *Ramapithecus* is generally placed with *Sivapithecus* on the orangutan side. *Gigantopithecus* in East Asia is a giant pongine side branch, known mainly from jaws and teeth, not a human ancestor.

Significance in evolution

- **Radiation then decline:** Late Miocene cooling and seasonality reduced ape diversity. Monkeys expanded. Hominins inherit a narrowed ape world.
- **Mosaic evolution:** Enamel, face and locomotion do not travel as one package. That lesson later killed simple *Ramapithecus* phylogenies.
- **The last common ancestor problem:** No Miocene fossil is "the" chimpanzee-human ancestor. The set constrains what that ancestor could have been: African, still able to use trees, and not a ready biped.

Flow diagram

Miocene hominoids -> Africa: *Proconsul*
Miocene hominoids -> Europe: *Dryopithecus*
Miocene hominoids -> Asia: *Sivapithecus*
Africa: *Proconsul* -> African ape-human ancestor
Asia: *Sivapithecus* -> Orangutan line

Conclusion

- **Miocene hominoids are the comparative baseline for later hominins:** a pan-Old World ape radiation, locomotor experiments, and a late-Miocene squeeze. Significance is phylogenetic and ecological. *Ramapithecus* is not the first man. *Proconsul*, *Sivapithecus* and the African setting of the last common ancestor are the working set.

Facts & figures

Miocene epoch

Approximately 23 to 5.3 million years ago. This is the principal radiation of fossil apes.

Proconsul

An early Miocene East African stem hominoid. It was tailless but not a modern suspensory ape.

Sivapithecus

A Siwalik fossil ape with orangutan-like facial architecture. It is not a hominin.

Ramapithecus

Formerly promoted as an early hominin on dental grounds. It is now generally grouped with Sivapithecus and removed from the human line.

Gigantopithecus

An East Asian giant ape on the orangutan side of the family, not ancestral to Homo.

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