

# **Ratitae and Carinitae**

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## Ratitae and Carinatae Ratites and Carinates

Birds are highly specialised group of vertebrates, included under the class Aves which have attained the peak of evolutionary perfection. Actually they are of essentially "Glorified Reptiles" and the discovery of the fossil of Archaeopteryx, speaks about the reptilian origin of birds.

### Ratites and Carinates

Merram (1816) first divided the birds into ratites or flightless birds under the super order Palaeognathae and Carinates or all flying birds under the super order Neognathae.

Eg - Ratites → Ostrich (Struthio), Emu (Dromaeus), Cassowary (Casuarinus) and Rhea (Rhea).

Eg - Carinates → Columba, Peacock.

## Characters of Ratites (Palaeognathae)

- i) Raft-like keelless sternum.
- ii) Mostly flightless walking or swimming birds.
- iii) Palaeognathous type of palate (large and broad vomer separate the palatine).
- iv) Wings vestigial.
- v) Tail vertebrae are free.
- vi) Sternum devoid of keel or carina.

## Casinites (Neognathae)

- i) All modern and flying birds.
- ii) Tail usually short, ends in a pygostyle.
- iii) Sternum well developed and usually provided with keel or a Carina.
- iv) vertebrae heterocoelous in living forms.
- v) Jaw neognathous type that is small vomer with rigid palato-cranial articulation.
- vi) The rectrices are arranged in a semicircle around the pygostyle.

## Difference between Rallies and Carinates

Points	Rallies	Carinates
1) Distribution	Discontinuous (except Ostrich)	Cosmopolitan
2) Size	Usually large	Smaller in size
3) Shape and exoskeleton		
i) Feathers	Devoid of hooks and hooklets. Barbs are free.	Barbs are united by hooks and hooklets.
ii) After shaft	Well developed.	ill developed, except (Heron)

Points	Ratites	Carinates
iii) Down feather	Absent	Present
iv) Rectrices	Absent or ill regularly arranged.	Present arranged in a semicircle.
v) Wings	Reduced or vestigial or absent.	Well developed.
④ Skull		
i) Type of skull	Dromaeognathous	Never dromaeognathous, may be schizognathous.
ii) Sutures	Persistent	absent in adult.
iii) Quadrate	Y-shaped	Never Y-shaped.
iv) Vomer	Large, broad and separates the palatines.	Small, narrow
v) Sternum	raft-like, with out keel.	Well developed, with keel.
vi) Pygostyle	undeveloped	Well developed.
vii) Furcula	absent	Present.

⑤ Digestive System

i) Tongue

usually small.

prominent and pointed at the tip.

ii) Caecum

very large

small.

⑥ Respiratory System

i) Syrinx

absent except Rhea.

present.

ii) air sacs

iii) developed or absent

Highly developed.

⑦ Circulatory System

i) Heart

~~Heo~~  
Small

Large

ii) R.B.C

Smaller in size

Large in size.

⑧ Reproductive System		
i) Ovary	Both - right and left ovary are present.	Right ovary is absent.
ii) Penis	present	absent except duck.
⑨ Youngs	independents.	dependent and helpers.
⑩ Egg-shell	Thick and hard	Thin and fragile.
⑪ Example	Ostrich, Rhea, Emu.	pigeon, duck, peacock.

### Conclusion →

The above differences indicate that the ratites are primitive than Cathartes. According to E. R. Lowe (1935) and Holmgren (1955), ratites are monophyletic and have originated from Dinosaurs independently.