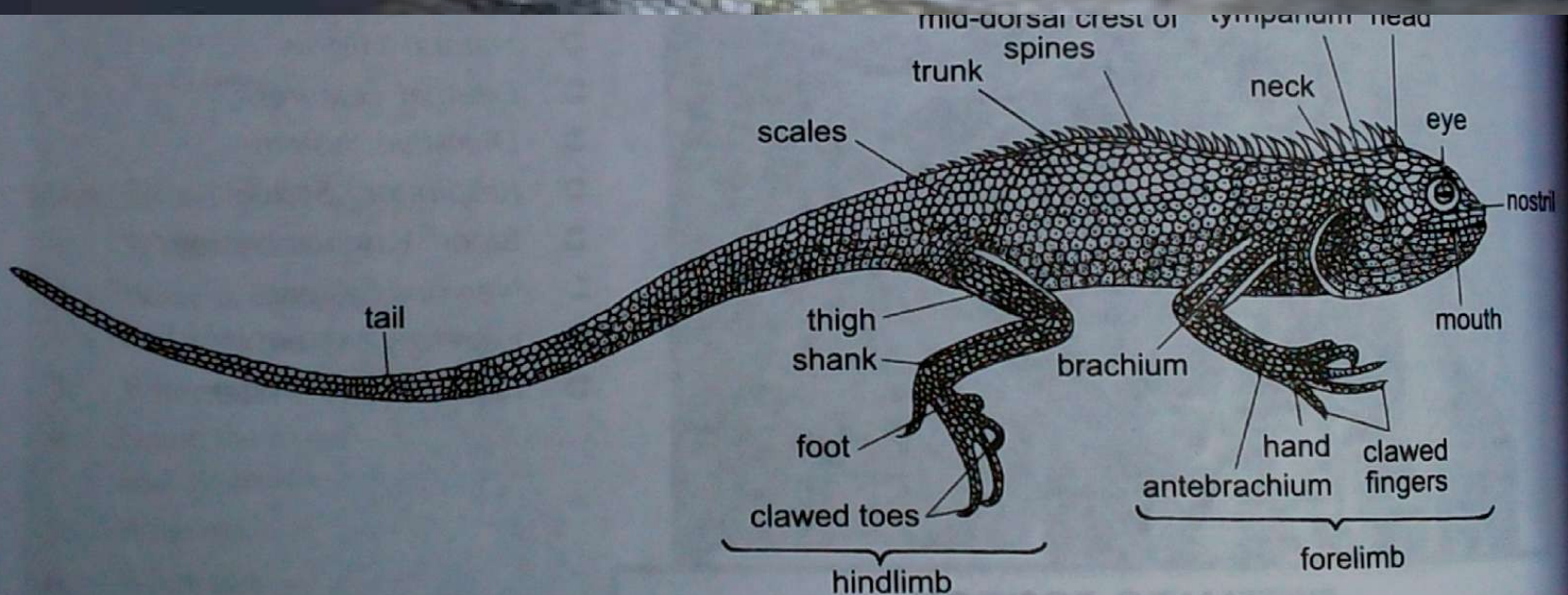


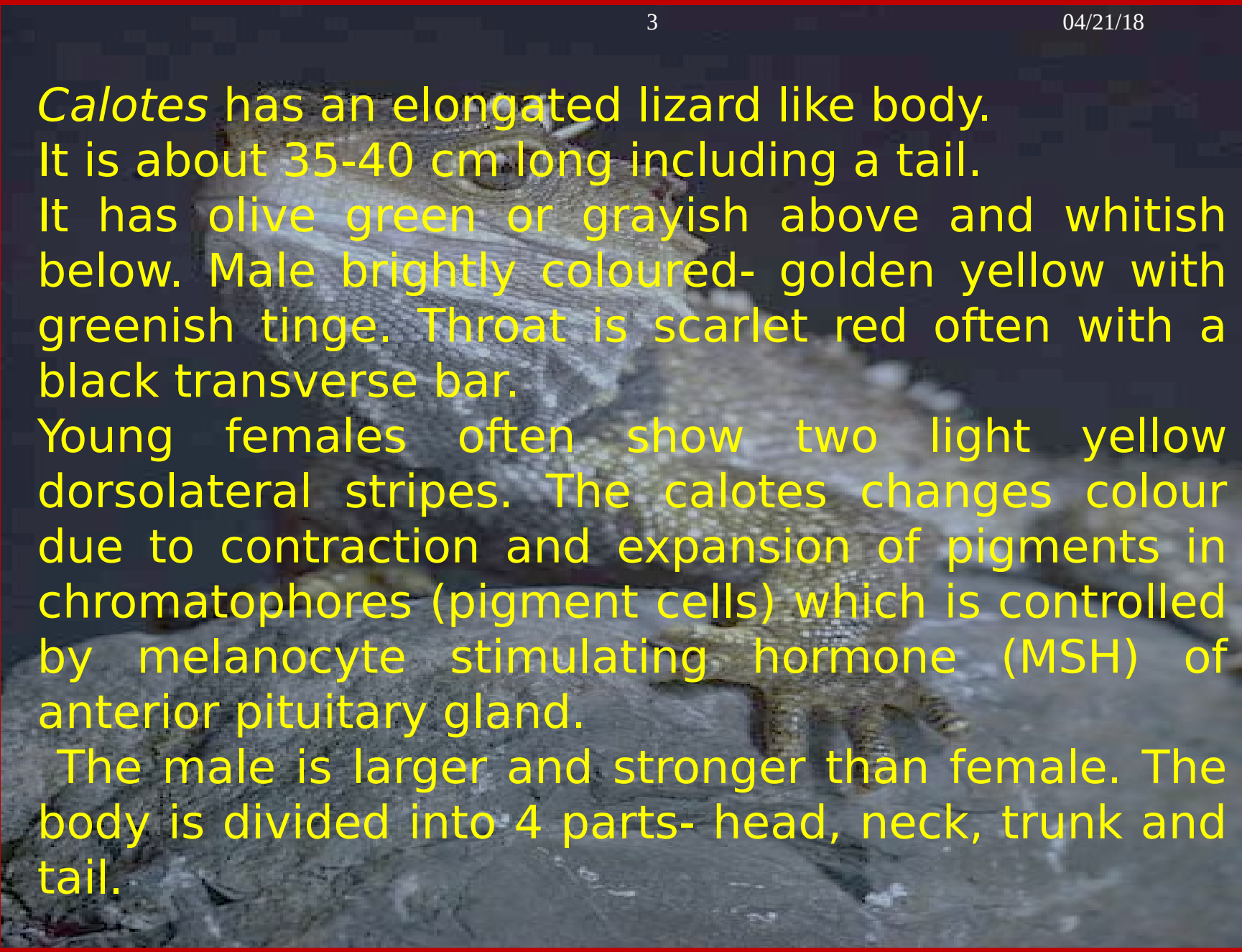


Calotes versicolor

s of Calotes

Phylum - Chordata,
Sub-phylum - Vertebrata,
Class - Reptilia
Order- Rhynchocephalia
Family- Agamidae
Genus - Calotes
Species – *versicolor*



A photograph of a Calotes lizard, likely a Common Spiny-tailed Lizard, resting on a dark, textured rock. The lizard's body is elongated and covered in small, bumpy scales. Its head is slightly raised, and its eyes are visible. The background is dark and out of focus.

Calotes has an elongated lizard like body. It is about 35-40 cm long including a tail. It has olive green or grayish above and whitish below. Male brightly coloured- golden yellow with greenish tinge. Throat is scarlet red often with a black transverse bar.

Young females often show two light yellow dorsolateral stripes. The *calotes* changes colour due to contraction and expansion of pigments in chromatophores (pigment cells) which is controlled by melanocyte stimulating hormone (MSH) of anterior pituitary gland.

The male is larger and stronger than female. The body is divided into 4 parts- head, neck, trunk and tail.

Head:

The head is more or less triangular in shape. The snout is short and bears a pair of nostrils.

The eyes are provided with movable nictitating membrane in addition to upper and lower eyelids.

The mouth is a transverse aperture.

It is terminal in position and lips are absent.

The tympanum is situated behind eyes.

A small narrow neck joins the head with trunk.

Trunk:

The trunk is situated behind the eyes. The trunk is elongated and bears two pairs of

appendages, the fore limbs and hind limbs.

The hand further comprises a shortcarpus (wrist) and the metacarpus (palm) and 5 digits (fingers) and the digits are provided with sharply pointed claws.

Like wise the hind limb is divisible into femur (thigh), middle crus (shank) and pes (foot). The foot further comprises a tarsus (ankle), metatarsus (instep) and 5 digits (toes) of varying sizes, each ending in a curved, pointed claw.

The cloacal aperture or vent is a transverse opening and is situated in the posterior-ventral part of the trunk and at the base of the tail. In adult male the base of the tail, just behind the cloacal aperture, becomes swollen due to hemipenis.

Adaptations to life on land



- More efficient lungs and a better circulatory system were developed for life away from water
- Scaly skin provided protection against the elements and desiccation
- The amniotic egg protected against desiccation

Respiratory system of *Calotes versicolor*

Dr. Laxmikant Shinde

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J. E. S College Jalna

Respiratory System

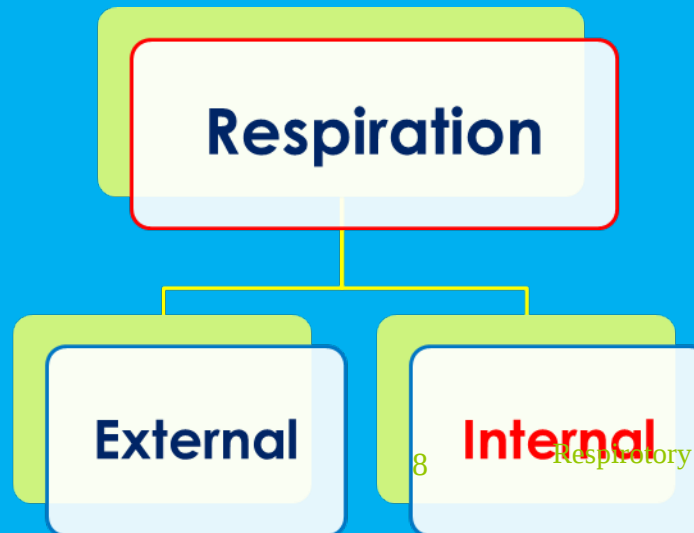
Respiration:

Exchange of Respiratory Gases i. e. O_2 and CO_2

(Inspiration/ Inhalation and Expiration / Exhalation)

Arial / Terrestrial

Respiratory organ – Lung



Areal Respiration

- Reptilian lungs are better developed than amphibians
- Reptiles use two efficient lungs (except snakes – they only have one long one that fits their bodies)
- Muscular ribs help them expand the chest cavity as we do to draw in the air
- Nostrils allow them to bring in air while their mouth is closed
- Few reptiles can also exchange gasses through skin eg. sea snakes, soft shelled turtles
- Lungs, trachea are respiratory organ.
- also, aquatic turtles can “breath” through their mouth

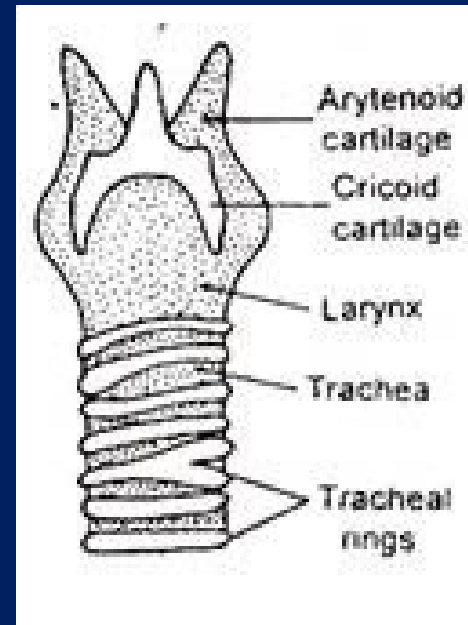
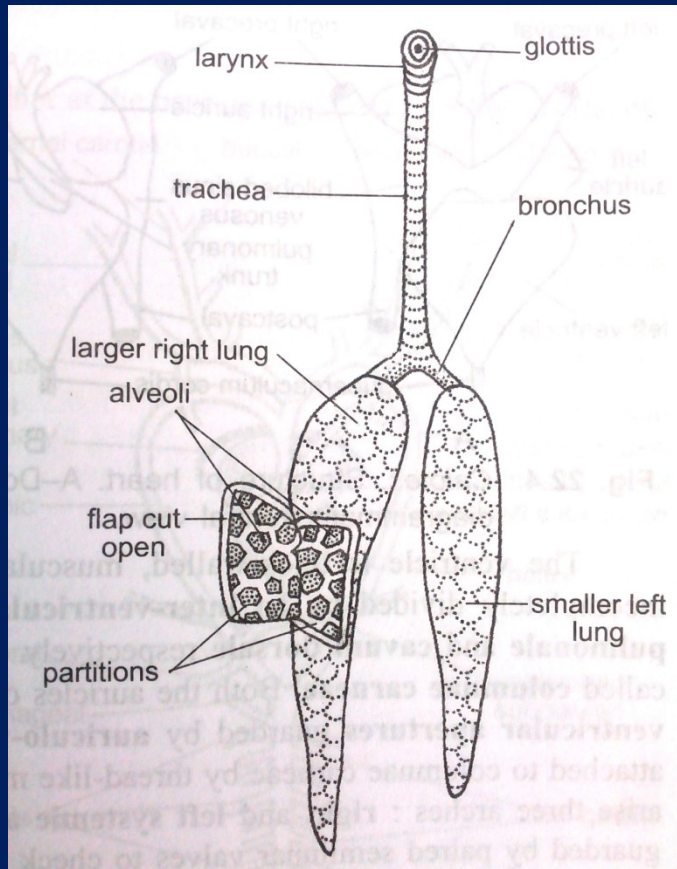
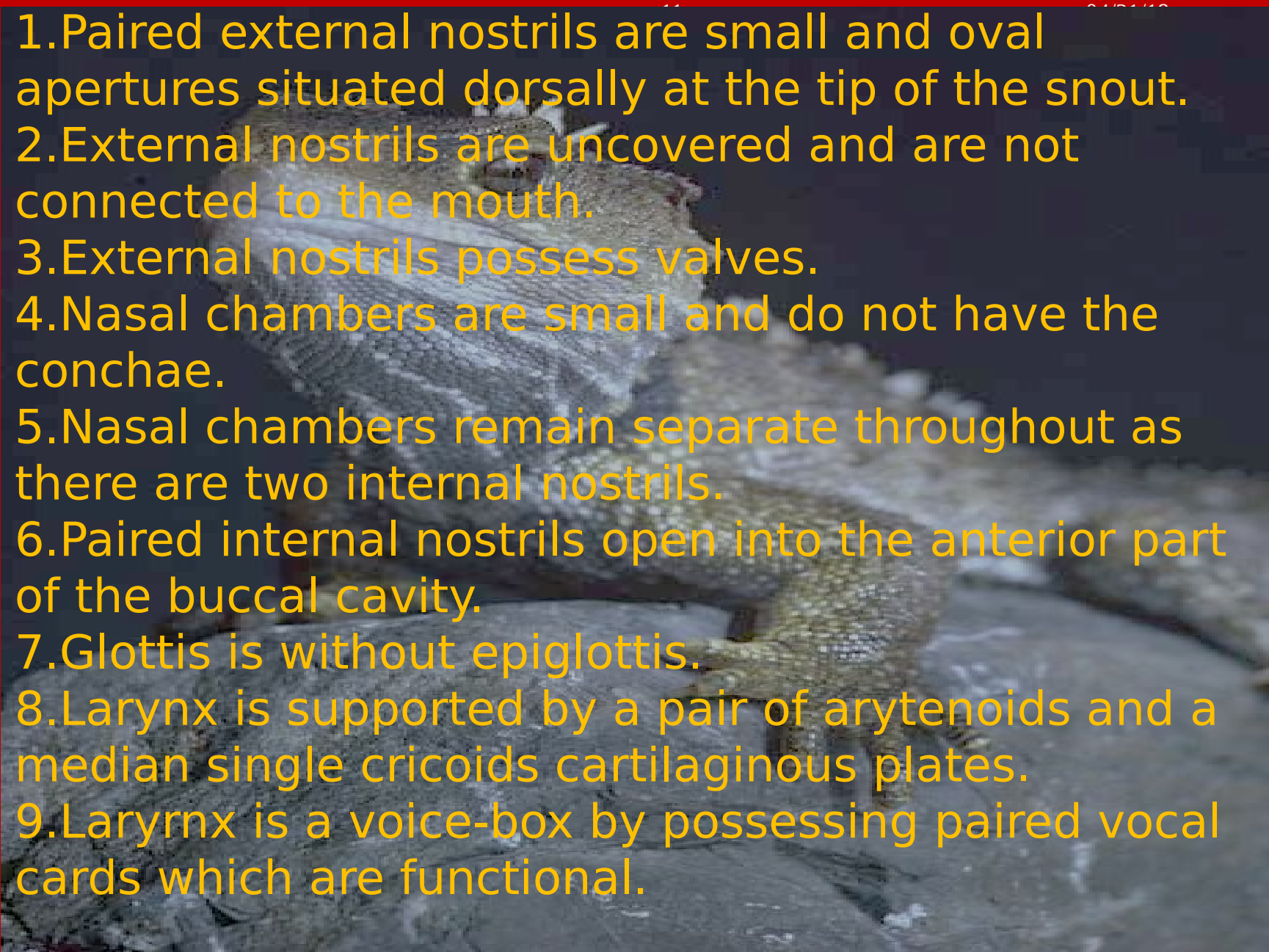


Fig: *Calotes* Respiratory System
Lungs, Larynx, trachea and other associated parts

Respirotory system of Calotes - Dr. Laxmikant Shinde

- 
1. Paired external nostrils are small and oval apertures situated dorsally at the tip of the snout.
 2. External nostrils are uncovered and are not connected to the mouth.
 3. External nostrils possess valves.
 4. Nasal chambers are small and do not have the conchae.
 5. Nasal chambers remain separate throughout as there are two internal nostrils.
 6. Paired internal nostrils open into the anterior part of the buccal cavity.
 7. Glottis is without epiglottis.
 8. Larynx is supported by a pair of arytenoids and a median single cricoid cartilaginous plates.
 9. Larynx is a voice-box by possessing paired vocal cords which are functional.

10. Larynx has two paired muscles - inner musculus compressor laryngis and outer musculus dilator laryngis. It opens into the trachea.

11. Trachea is supported by complete cartilaginous rings.

12. Bronchi have complete cartilagenous rings.

13. Bronchides are not formed.

14. Syrinx is absent.

15. Lungs have orange colour. These are elongated bodies of fairly large size.

16. Lungs are hollow sacs with thin elastic wall. These are having low septa and shallow alveoli on the inner surface.

17. Lungs are not differentiated into lobes.

18.Lungs are enclosed by peritoneum.

19.Air sacs are absent.

20.The inter costal muscles help during the processes of inspiration and expiration.

21.Gaseous exchange occurs through the entire inner surface of the lungs.

22.Some deoxygenated residual air is left over in the lungs. Hence aeration of blood is not very efficient.

(A)Exchange of Gases in Lungs:

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04/21/18

(B) Exchange of Gases in Tissues:

Transport of Gases in Blood:

Blood carries oxygen from the lungs to the heart and from the heart to various body parts. The blood also brings carbon dioxide from the body parts to the heart and then to the lungs.

A. Transport of Oxygen:

(i) As dissolved gas:

About 3 per cent of oxygen in the blood is dissolved in the plasma which carries oxygen to the body cells.

(ii) As oxyhaemoglobin:

About 97% of oxygen is carried in combination with haemoglobin of the erythrocytes. Oxygen and haemoglobin combine in an easily reversible reaction to form oxyhaemoglobin.

