

Thermal Regulation in Camel

Q. Give scientific names of two camels who evolved specialized mechanisms for thermal regulation?

The two species of camels are *Camelus dromedarius* (one humped Arabian camel or dromedary of central Asia) and *Camelus bactrianus* (two humped Bactrian camel of Central Asia.)

There are authentic records of journeys in excess of 500 kilometers, lasting 3 or 3 weeks, during which the camels did not have an opportunity to drink.

Q. What are the water cells? What is the significance of such cells in desert adaptation? Q. How camel can travel for long time without taking water? Q. Make a brief note on pattern of moisture conservation in camel.

i) In camel the rumen or first division of the stomach has developed in its walls which are known as water cells. These are cavities with a narrow mouth which can be closed by a sphincter muscle, acting like the drawstring of a bag.

ii) When camel drinks, not only is the stomach filled, but these water cells as well. The water contained in the stomach is of course at once absorbed into the circulation and distributed, but the stored water is later doled out to the stomach and thence to the blood through the relaxation of the sphincter muscles.

Hence the camel can travel from Oasis to oasis with out taking water.

A camel's condition runs rapidly and after long journeys of 2 or 6 days without water, it requires several days to regain its strength, while if it is allowed to go down below a certain point, it will take weeks, perhaps months, to pick up again, and tis Ofa it may never recover.

Q. How stomach performs as a water reservoir in a camel?

Walls of the stomach in camel perform as water reservoir. These are small flask-shaped cavities, each with a constricting muscle at its mouth, so that when the stomach is filled with water the muscles relax automatically, allowing the water to enter the cavities, while that which remains is absorbed into the system. In time of water scarcity the stored liquid is allowed to trickle out into the stomach and is thence available for the impoverished blood.

Q. Describe the pattern of adaptation camel evolved to maintain defense strategy.

i) Camel shows such adaptation in their large eyes, necessary for an animal which relies so much upon vision for security.

ii) The eyes are guarded by long, abundant eyelashes and the level carriage of the head, seen also in the desert ostrich, being the eyes as far as possible above the sand-9 feet in the camel.

iii) The camels nostrils are capable of being closed like eyelids and the apertures of the ears are protected by hair.

