

How did the giraffe get its neck?¹

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"Praise the LORD from the earth . . . Wild animals and all cattle, creeping things and flying birds!" (Ps. 148:7,10, NRSV).

THE GIRAFFE is one of the iconic animals of the great African plains, roaming the open grasslands in small groups of about half a dozen, and using its extraordinarily long legs and neck to browse high up in the ubiquitous acacia trees. Giraffes are the world's tallest mammals: males can grow up to eighteen feet in height, with a neck length of six feet.² Giraffes are already six feet tall at birth; female giraffes give birth standing up, and the newborn calf drops head first to the ground from a height of about six feet, which causes it to take its first big breath. Newborns are up and walking around after about one hour.



Picture: Tony Benson

Like the rest of its body, the tongue of the giraffe is very long, up to twenty-one inches, and is blue-black to prevent sunburn. Its leathery surface enables it to avoid injury from the thorns of the acacia and other food plants. Giraffes eat most of

the time, and, like cows, regurgitate food and chew it as cud. A giraffe eats hundreds of pounds of leaves each week and must travel many miles

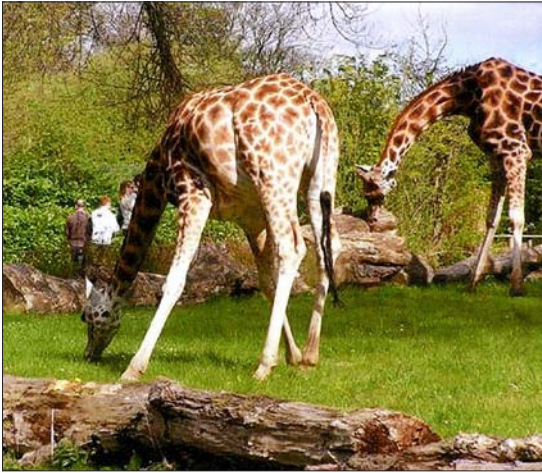
to find enough food. Their generic name, *Giraffa camelopardalis*, means 'one who walks swiftly, a camel marked like a leopard'. Like camels, giraffes have a (small) hump on their backs, and can go without drinking water for long periods, surviving on the moisture content of their diet of acacia leaves.

Circulation to match

The giraffes' stature means that they are generally immune to predators, and they also defend themselves by kicking with their long legs. Their height, though, can be a disadvantage as well. To drink at a water hole they must spread their legs and bend down in an awkward position that makes them vulnerable.

This introduces one of the most remarkable features of the giraffe anatomy, the blood circulation system. To ensure that blood reaches the brain, around eighteen feet above the ground, the giraffe has a large heart which maintains a very high blood pressure, double that of the average large mammal. This means, however, that when a giraffe bends down to drink or to browse low-growing plants its brain would normally be subjected to such high pressure that haemorrhage and death should instantly follow. This problem is solved by a unique system, the *rete mirabile*, or 'marvellous net', a collection of reinforced artery walls, special valves, a mass of spongy tissue below the brain and pressure-sensing signals that keep adequate blood flow to the brain at just the right pressure.

1. My thanks are due to Brother Ed Wright for bringing this subject to my attention.
2. The giraffe neck has seven vertebrae, like almost all mammals; they are just longer.



At the same time, the blood vessels in the lower legs are under great pressure because of the weight of fluid pressing down on them from above. In other animals such pressure would force the blood out through the capillary walls; giraffes, however, have a very tight sheath of thick skin over their lower limbs, which is able to retain the extra pressure, and all the arteries and veins are routed deep within the legs.

Another problem caused by the long neck is the large dead volume of air in the twelve feet of trachea. When the animal takes in a fresh breath, the oxygen-depleted previous breath cannot be totally expelled. Consequently there must be enough lung volume to make this 'bad air' a small percentage of the total, and the giraffe's lungs are indeed very large, about eight times the size of those of humans.

Divine design or evolution?

Naturally, the unique neck and leg length of the giraffe have fuelled great interest among evolutionists. It has been taken to be a classic result of natural selection, allowing the giraffe to feed on leaves beyond the reach of competing browsers such as antelope and gazelles. But in fact this example of evolution is not based on evidence, but rather on armchair reasoning that turns out to be incorrect. Field research has shown that, although their height does confer an advantage

when lower leaves have already been eaten, giraffes prefer certain *types* of leaves rather than those at particular heights. During the dry season, when competition is most intense, they generally feed on low shrubs and spend much of the time with their necks horizontal!

A more recent popular suggestion has been that sexual selection drove the development of the giraffe's neck. Male giraffes compete for females by 'necking' and 'head clubbing' one another, those with the longest necks and heaviest heads tending to win. However, the latest study³ has shown that long necks are no more exaggerated in males than in females, and that the theory fails to meet a number of tests for this type of selection. The researchers conclude that there is still no consensus on the origin of the giraffe's neck, and it still presents a major problem for Darwinists. Biologists seek in vain for evolutionary explanations for these remarkable features, but there is no known selective advantage in the giraffe's long neck, and natural selection would have had to alter the legs, tongue, muscles, lungs, and heart and blood flow system simultaneously.

Remarkably, there is only one species of giraffe, with nine subspecies recognised by their different patterns of spots. There is no other species of animal sharing its unique features of length of legs and neck. Its nearest relative, the okapi, is a resident of the dense African forests, not the plains; it has a long tongue but normal leg and neck lengths. Everything about the giraffe points to a creature whose anatomy and features are unique and designed as a complete package. The authors of the most recent study, in dismissing sexual selection, conclude: "Better explanations for neck elongation must be sought elsewhere". That 'elsewhere' is in the Word of God, which assures us that "God made the wild animals of the earth of every kind, and . . . saw that it was good" (Gen. 1:25, NRSV) and that He created all things for His (and our) pleasure (Rev. 4:11).

3. BBC Earth News: http://news.bbc.co.uk/earth/hi/earth_news/newsid_8050000/8050298.stm, reporting work published in the *Journal of Zoology*.

It was once expected that the basis of life would be exceedingly simple. That expectation has been smashed. Vision, motion, and other biological functions have proven to be no less sophisticated than television cameras and automobiles . . . there are compelling reasons—based on the structure of the systems themselves—to think that a Darwinian explanation for the mechanisms of life will forever prove elusive.

Darwin's Black Box, Michael J. Behe, Preface, p. x