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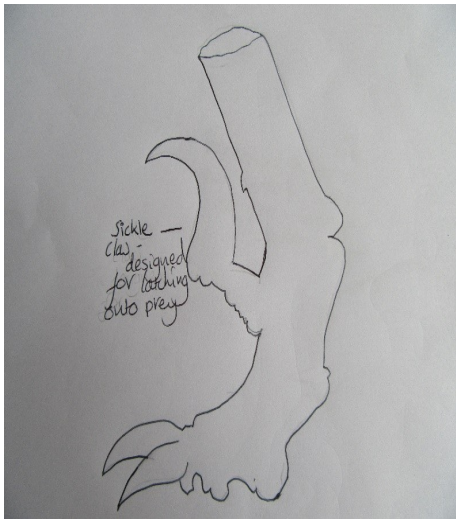
VELOCIRAPTOR

The Velociraptor - meaning “swift seizer” - lived during the late Cretaceous period - 75-71 million years ago. They were a genus of dromaeosaurid theropod dinosaur and there are several species known to have existed - one is Velociraptor Mongoliensis, the other is Velociraptor Osmolskae; the first species’ remains were discovered in Mongolia, the latter’s remains were discovered in Inner Mongolia, China.

An adult Velociraptor could reach up to 0.5 metres high and 2.07 metres in length, it could weigh up to 15kg; their skulls were roughly 25 cm long and their jaws were filled with around 26-28 widely spaced teeth (13-15 teeth in its upper jaw and 14-15 teeth in its lower jaw) . They possessed large “hands” which held three claws to each; the second claw on the “hand”, mirrored in the second claw on the foot, and is the longest of the digits.

Defining features

The long claw on the foot, considered something of a well-known feature in Velociraptors, is the longest of the claws they possess; it is shaped like a sickle and can grow up to 2.6 inches in length and fossil evidence shows that it was razor-sharp, an attribute of a lethal killing machine. The Velociraptor walked mainly on its 3rd and 4th digits, although its 2nd digit did touch the ground, but no weight could be applied to it due to the awkward angle at which it was held.



The feathers of the Velociraptor were also a defining feature, though there is too little fossil evidence to prove whether many other dinosaurs also had feathers similar to those of Velociraptor - further fossil evidence as to feathers in other dinosaurs may compromise the uniqueness of the family of dinosaurs connected with Velociraptor Mongoliensis.

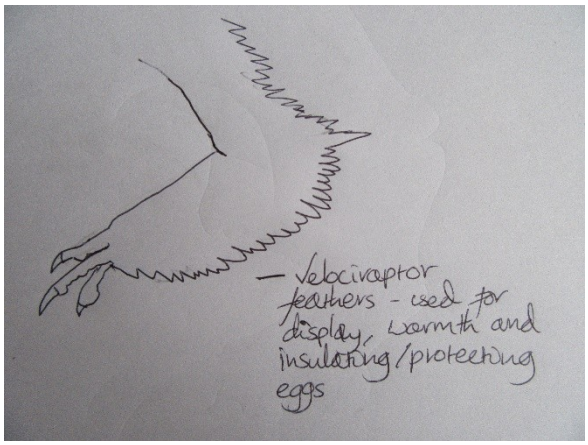
Intelligence

Velociraptors were highly intelligent dinosaurs - as has been calculated by their relative brain/body weight; they were some of the most intelligent dinosaurs of their period, surpassed only by the Troodontids - a family of bird-like dinosaurs very similar in build to that of Velociraptors. Their added intelligence, speed and agility and their highly refined coordination skills made Velociraptor packs deadly adversaries.

Feathers

The first indication that Velociraptors possessed feathers came in 2007 when a Mongolian Velociraptor skeleton was discovered with quill knobs along its forearm. The Velociraptor would have had bird-like “wings” which, although these could not have been used for flight, might have been used for display and to attract mates and for covering their nests, as birds do, to protect the eggs. The addition of feathers might also have been

used for added speed and agility when running. The fact that Velociraptor had all the attributes of a dinosaur which had the ability to fly (such as hollow bones), and that its main hindrance would have been its relatively large body size, has been used to promote the idea that ancestors of the dromaeosaurids could have flown. Other dinosaurs bearing quill knobs include Archaeopteryx, Microraptor and Rahonavis.



Environment

The Cretaceous period lasted for 79 million years and was ultimately a far more humid period than the Jurassic period prior to it. At the time Velociraptors inhabited it (75 - 71 million years ago) - during the late Cretaceous, it would have been an arid desert-like environment with few streams and water resources, meaning that both predators and prey would have stayed fairly close to any water they could find; many herds of dinosaurs near to water resources would have made a perfect hunting ground for predators such as Velociraptor.

The Cretaceous period was so warm that dinosaurs even roamed Antarctica and even at the end of the period when at its coolest, it was still far warmer than the climate today.

Adaptations

Velociraptors were adapted to their environment by their agility and communicative skills, as these enabled the whole pack to benefit in terms of survival in the harsh landscape.

Velociraptors had a unique skull shape (elongated and curved upwards) and a skull which was approximately 9.1 inches long (meaning that with the flesh added it would have been around 10-11 inches long) and an average of 28 teeth - which had serrated edges on their backs in order to hold and tear the flesh of their prey. Another adaptation Velociraptors exhibited is their build - they were lightly built and extremely agile; their light built would have allowed them to move faster, and heighten their agility - thereby increasing their chances of catching prey or escaping from a predator.

Velociraptor's tail was made up of hard, fused bones, making it inflexible, but was used to balance it as it ran.

Speed

Owing to the Velociraptor's light build, fused bones of the tail (to assist with balance when running) it could reach speed of up to 40mph. Of course, Velociraptors would have normally had a lower average speed when running depending on conditions in their environment - e.g difficult terrain would have had a slowing impact.

Diet

The Velociraptor was a carnivore and a scavenger.

Velociraptors would hunt in packs, making up for their relatively small size, by numbers and speed. There is fossil evidence for Velociraptors hunting Protoceratops. A famous "fighting dinosaurs" scene was created by the skeletons of Velociraptor

and Protoceratops locked in duel; the Velociraptor with its sickle-claw in Protoceratops' throat, Protoceratops with Velociraptor's forearm clenched between its teeth - the two dinosaurs were likely killed and preserved by a sandstorm during their fight. Singular Velociraptors would have hunted other similarly sized or smaller dinosaurs, as without its pack a single Velociraptor would probably be unlikely to bring down a very large dinosaur without great risk of injury to itself - singular Velociraptors would have been unlikely to survive for long without their pack. Apart from the fossil evidence of the Velociraptors hunting Protoceratops, there is also fossil evidence of a Pterosaur found in a Velociraptor's gut, suggesting that they were also present in Velociraptor's diet. Velociraptors are thought to have been nocturnal so their diet would have been refined, due to the selection of other creatures which came out at night. Velociraptors, rather like prides of lions today, would target the old, injured or young other dinosaurs they hunted; in a pack they might have been able to bring down a fair-sized animal of another species.
However, the majority of fossil evidence suggests that Velociraptors were primarily scavengers - there is evidence on many bones (here again Protoceratops features mainly) of scavenging - e.g tooth and claw marks - by Velociraptors.

Fossil evidence

The most famous example of Velociraptors is the "Fighting dinosaurs" exhibit - of the Velociraptor and Protoceratops attacking each other.

Fossil evidence from Oviraptor - a close relative of Velociraptor - eggs suggests that Velociraptor laid eggs rather than give birth to live young.

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