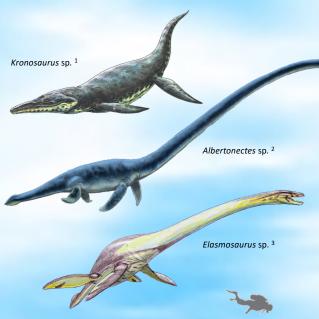
PLESIOSAURS

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Plesiosaurs first appeared at the end of the Triassic Period, about 205 million years ago and became especially common during the Jurassic Period, thriving until their disappearance due to the extinction event at the end of the Cretaceous. They had a worldwide oceanic

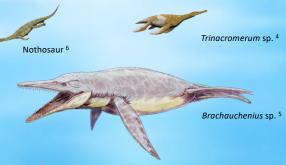
distribution, though based on where most of their fossils have been found, it appears that they preferred cooler waters found at higher latitudes to those of warmer equatorial climates. In North America, they are found more often in the Cretaceous deposits of Canada than in the central United States, and are relatively rare in Texas. Species from five genera are found here, including Kronosaurus, Elasmosaurus, Brachauchenius, Trinacromerum, and Polytychodon.

Plesiosaurs had a broad flat body and a short tail. Their limbs evolved into four long flippers, which were powered by strong muscles. Recent studies of plesiosaur paddles have shown that, instead of being pulled back and forth like oars on a rowboat, they were 'flapped' up and down much like the wings of a bird or the paddles of a marine turtle. The plesiosaur, in effect, 'flew' through the water like a modern penguin. There were two types. Some species had long necks and small heads; these were relatively slow and caught small sea animals. Other species, some of them reaching a length of up to 55-60 feet, had a short neck and a large head; these were apex predators, fast hunters of large prev.

Scientists often find gastroliths or gizzard stones (egg-sized to pea-sized) in long-necked plesiosaurs - breaking up of hard shelled invertebrate food was aided by these stones found in the abdominal region. Whether or not this was their primary function or was secondarily related to buoyancy control remains a matter of debate. ⁹

EVOLUTION

Paleontologists are still uncertain what the ancestors of the first plesiosaurs looked like but it is probable that they came from small, primitive aquatic reptiles called nothosaurs. Nothosaurs were Triassic marine reptiles that may have lived like seals of today, catching food in water but coming ashore on rocks and beaches. They averaged about 10 feet in length, with a long body and tail. The feet were paddle-like, and are known to have been webbed in life, to help power the animal when swimming. The neck was quite long, and the head was elongated and flattened, and relatively small in relation to the body. The margins of the long jaws were equipped with numerous sharp outward-pointing teeth, indicating a diet of fish and squid.



DI ESIOSALIRS IN SHOAL CREEKT



The fossilized skeleton of a 14 to 18 foot long Cretaceous plesiosaur (genus *Polytychodon*) was discovered in the bed of Shoal Creek in January, 1990. The fossil was found by Dr. Bob McDonald, a local dentist, amateur paleontologist and member of the Paleontological Society of Austin. Bob and his 5-year-old son were searching for shark teeth along the creek, something they did regularly. Knowing that the entire Central Texas region was once underwater, Bob often spent time collecting the creek. But even he was surprised by this find.

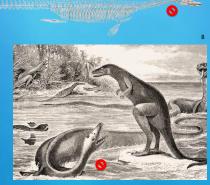
It took several weeks for the fossil to be properly excavated by faculty and students from ACC and the University of Texas. The specimen is fairly complete (except for the head) and dates to roughly 90 million years ago. It is now on display in the Texas Memorial Museum.

THE BACKWARDS PLESIOSAUR

Elasmosaurus platyurus was described in March, 1868 by Edward Drinker Cope, one of the most famous early American paleontologists, from a fossil discovered and collected by Dr. Theophilus Turner, a military doctor, in western Kansas.

When Cope received the specimen in early March, 1868, he had a pre-conceived idea of what it should look like, and mistakenly placed the head on the wrong end (i.e. the tail). See the skeletal illustration from his original publication above right. The early depiction of Dryptosaurus confronting Elasmosaurus, with two Hadrosaurus in the background shows again this idea of a short neck and long serpent-like tail.

In Cope's defense, he was an expert on lizards, which have a short neck and a long tail, and up to that time no one had seen a plesiosaur the size of Elasmosaurus. Joseph Leidy pointed out the problem in his *Remarks on Elasmosaurus platyurus* address at the Academy of Natural Sciences of Philadelphia meeting on March 8, 1870.



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