Lesson 18: The Permian Period

Long before any dinosaur walked the Earth, back in the **Permian** Period from about 299 to 252 million years ago, the land was ruled by a group of animals called **synapsids**. They were not quite reptiles in the modern sense and not yet true mammals. They were something in between, a living bridge between the two groups, and they were the direct ancestors of every mammal alive today, including you. They can be distinguished by a particular opening in the skull behind each eye that is also found in all mammals. Their legs were also positioned more directly beneath their bodies, not splayed to the sides like a lizard's, which made movement more efficient and less tiring. Many had differentiated teeth, with cutting teeth at the front and crushing teeth further back, just like our own. Some may have had fur, and there is even evidence that suggests some may have cared for their young.

The most mammal-like of all the synapsids were the cynodonts. Looking at a cynodont skull, you can almost see the mammal emerging, the different tooth types, the enlarged brain case, the posture. Unlike typical **cold-blooded** reptiles that relied on the sun to warm them, therapsids were likely becoming **warm-blooded**, generating their own body heat internally. This gave them an enormous advantage: they could stay active in cool weather when cold-blooded competitors became sluggish.

The **fossil record**, the collection of all known fossils arranged in rock layers, tells us that synapsids were spectacularly successful. They filled every ecological role from small insect-eaters to large predators. They spread across Pangea. For a time, they truly ruled the land. But the end of the Permian Period was approaching, and it would bring something that no amount of warm blood or good teeth could prepare them for.

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