Lesson 15: Ordovician and Silurian Seas

After the burst of life in the Cambrian, the oceans of Earth kept growing richer and stranger. The Ordovician Period, from about 485 to 444 million years ago, was a time of astonishing **marine** biodiversity. Sea scorpions prowled the depths. Ancient **invertebrates**, including cephalopods with long cone-shaped shells, glided through the water. Trilobites flourished in spectacular variety. And for the first time, **coral reefs** appeared for the first time, living underwater cities built by tiny animals, creating complex structures that offered shelter, hiding places, and feeding grounds for enormous numbers of creatures. A coral reef is not just a habitat. It is an **ecosystem**, a whole community of living things interacting with each other and their environment, and the Ordovician reefs were the first of their kind on Earth.

Among the most significant animals of the Ordovician seas were the first **vertebrates**, animals with backbones. The earliest were small, jawless fish that filtered food from the water. Having a backbone gave these creatures a strong internal support structure that allowed for more controlled, powerful movement than anything an invertebrate could manage. It was a revolutionary design, and it would eventually produce every fish, amphibian, reptile, bird, and mammal that ever lived, including us.

Then, near the end of the Ordovician, disaster struck. Ice sheets spread across the southern continents. Sea levels dropped. The oceans cooled dramatically. Much of the marine life that had flourished for millions of years was wiped away in one of Earth's great mass extinctions. But life endured. A few lineages survived, and the seas bloomed again during the Silurian Period that followed, from about 444 to 419 million years ago.

The Silurian brought something new and important: some fish developed jaws for the first time. A jaw is a seemingly small invention, but it transformed what an animal could do. A jawed fish could bite, grip, and process a far wider range of food than its jawless ancestors. Predators became more effective. Competition intensified. And on the land at the edges of those seas, the first small vascular plants were tentatively taking root, quietly beginning to turn the barren rock green for the very first time.