Strange Relatives

During the final period of the Mesozoic Era, the Cretaceous, the supercontinent Pangaea gradually broke apart into the continents we know today. Their arrangement, however, was still very different from the modern world.

At that time, much of Bohemia was covered by the sea, while the Bohemian Massif rose above the water like an island. Fossils from this period found in Czechia therefore include both terrestrial plants and marine animals such as ammonites and even shark teeth.

The Cretaceous Period brought enormous changes on land. Cycads, ferns, ginkgoes and conifers gradually began to decline, while more advanced plant groups with structures distantly resembling flowers started to spread. These were the gnetophytes, a group that includes the remarkable *Welwitschia mirabilis*, ephedras and tropical lianas of the genus *Gnetum*. These unusual plants are related to conifers and most likely evolved during the early Mesozoic Era. They have survived to the present day.

At the same time, dinosaurs still dominated the planet, but many groups of invertebrates, including bees, ants and wasps, also began to evolve. The first mammals appeared as well, although they were still rare and their great age was yet to come.

The end of the Mesozoic Era was a geologically unstable time marked by intense volcanic activity. It ended 66 million years ago, when a large asteroid struck the region of present-day Mexico. Vast quantities of dust were thrown into the atmosphere, blocking sunlight and causing dramatic global cooling. These changes led to the extinction of many plant and animal species, including the dinosaurs.

Distribution of continents on Earth 140 million years ago (Cretaceous Period, Mesozoic Era)

Timeline

Formation of the Earth	4.5 billion years ago
Probable origin of life on Earth	4.3 billion years ago
Estimated origin of multicellular organisms	1.56 billion years ago
Beginning of the Palaeozoic Era – Cambrian	538 million years ago
Probable transition of plants onto land	500 million years ago
Beginning of the Mesozoic Era – Triassic	251 million years ago
Gnetophytes – first flower-like structures	250 million years ago
Age of reptiles (dinosaurs)	243 million years ago

Jurassic	201 million years ago
Cretaceous	145 million years ago
Asteroid impact in present-day Mexico	66 million years ago
Beginning of the Tertiary – Palaeocene	66 million years ago
Beginning of the Quaternary – Pleistocene	2.6 million years ago

Welwitschia

Named after the Austrian botanist Friedrich Martin Josef Welwitsch, whose surname later gave rise to the name *Welwitschia.*

Fossil pollen of ancestral relatives has been discovered in North America, Portugal and Brazil, although today the plant survives naturally only in Namibia and Angola.

Fossilised young seedlings resemble the Golden Snitch from the Harry Potter series.

Grows in desert environments.

Obtains water from fog or from deep underground using long roots.

Living welwitschias may survive for more than 1,000 years.

This long-lived evergreen plant has a woody stem that eventually becomes hidden beneath the ground.

Produces only two leaves, exceptionally three, which may reach up to 6 metres in length and 1.5 metres in width.

The leaves last throughout the plant's entire lifetime. As they continue to grow, their tips gradually die back and split into ribbons.

Pollinated by insects, unlike conifers, which are pollinated by wind.

The seeds possess membranous margins that aid wind dispersal.

The seeds are protected by two outer layers that prevent them from drying out. They germinate only in the presence of water.