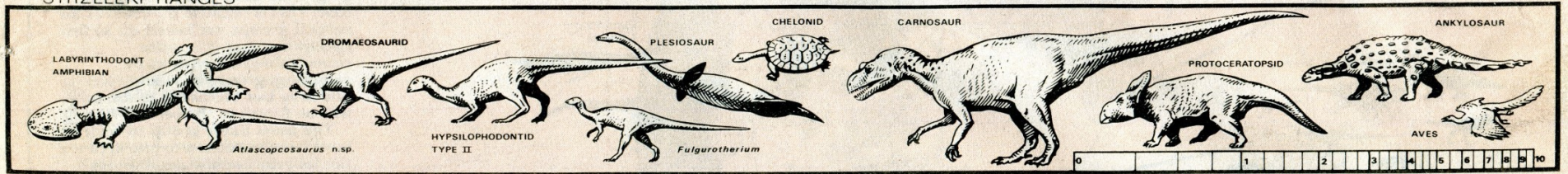


104-112 MILLION YEARS AGO
STRZELECKI RANGES



104-135 MILLION YEARS AGO

Reproduced, with addition, with permission from Qantas 'Inflight' magazine. Copyright Peter Trusler

Victoria's dinosaur hotspots

ALL the dinosaurs found so far in Victoria have been located on coastal outcrops. This is because the rock there is not covered with grass or trees and it is not deeply weathered. Inland, rainwater running through the soil and the rock immediately beneath reacts with chemicals, particularly sulphides, to form acids that leach out fossil bones, destroying them before they are exposed in natural outcrops.

On the coast, the waves erode the rocks so rapidly that there is insufficient time for this natural chemical alteration of the rock to occur and thus the fossil bones survive to be exposed.

The dinosaur sites in the Strzelecki Group are 10 million years or more older than the ones in the Otway Group. The youngest fossil vertebrate site in the Strzelecki Group, Koonwarra,

Dinosaur fossils are the subject of exhaustive study, but answers to the many questions they pose remain elusive. **Dr Tom Rich** explains Victoria's fossil sites.

lacks dinosaurs but is the same age as the Otway sites. All rocks at the dinosaur-producing sites were laid down in stream channels, but the Koonwarra deposit was formed at the bottom of a lake. It is this difference that accounts for the completely different suite of animals that occur at Koonwarra as compared with elsewhere in Victoria.

The differences in the animals between the older Strzelecki and the younger Otway sites are due to a number of different factors. Among the hypsilophodontid dinosaurs, which include *Fulgurotherium*, *Atlascopcosaurus* and *Leaellynasaura*, the differences between the two areas are probably owing to evolutionary changes that took place over a

period of 10 million or more years. For example, there are femora of an as yet unnamed hypsilophodontid from the Strzelecki Group that appear to be somewhat more primitive than similar younger ones from the Otway Group.

It is easy to imagine that this pair of hypsilophodontid species represent an ancestor and its descendant.

Other changes might be because of the extinction of a group during the interval between the formation of the oldest and youngest sites. The labyrinthodont amphibians are well represented in a number of the older sites and completely unknown as yet in the younger ones. They may well have become

extinct during that time. But there may be another reason why the labyrinthodonts are unknown in the younger rocks: they may all be the wrong kind. Where the labyrinthodonts are known, the rocks are coarse, suggesting they lived where the streams flowed rapidly at the edge of the rift valley.

With the exception of a single area, the younger rocks where the fossil bones are found are finer grained, suggesting they were laid down in quieter waters farther away from the edge of the rift valley.

Two explanations for the same phenomenon. Which one is right? One, both, neither? Will it ever be established which is correct? In a historical science such as palaeontology where further

evidence about a question may or may not be forthcoming, one can never be sure if a dispute will ever be settled — until it is.

It is fortunate that all the Victorian dinosaur sites are in national parks or other protected areas, therefore the preservation of fossils requires no additional legislation.

Bones may occasionally be found during visits to the sites shown, however, thousands of coalified plant remains look remarkably like bones, making it difficult for the inexperienced hunter to correctly identify bones.

If you locate something you believe to be bone, take a photograph of it with something to serve as a scale, plus a general photograph of the site. Leave the fossil in place and contact Tom Rich.

Dinosaur Cove is best visited in the company of Michael Evans, of Otway Bush Tours, telephone (052) 338 395.