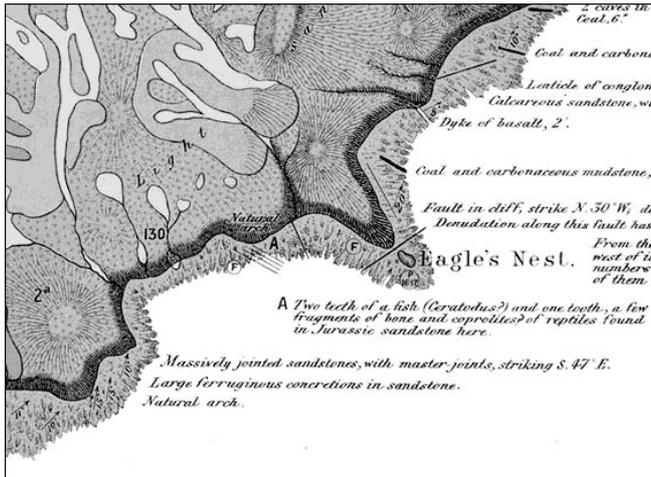


## Our Dinosaurs



It seems appropriate, once in a while, to visit pre-history in our area. When you walk along the beach anywhere from Inverloch to Philip Island first of all your breath is taken away by the panoramic beauty of sea and sand and coastal formations, but as you walk your eye begins to focus on the small things: shells, sea weed, bits of stone smoothed by the waves, tiny seams of coal imbedded in the rocks and chunks of mud or silt rock that breaks easily and is often hiding forms that would become fossils if left undisturbed. You become aware of the abundance that has always been here from the beginning of time.

It is exciting to take your mind back to imagine a time when our beaches were once teeming with dinosaurs. Mike Cleeland, from Phillip Island, has been walking the beaches in just this way and has found fossils in 120-million-year-old sandstone



**Plesiosaur**

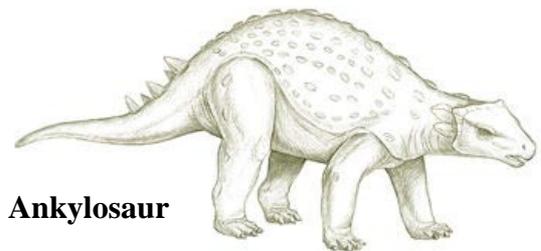
and mudstone, bodies of animals washed into a rift valley along the south coast in times of flood and buried in silt. An experienced fossil hunter, he has a licence to take away fossil material. Lesley Kool, from North Wonthaggi, is another fossil hunter who has been organising “digs” at the Caves along the flats going into Inverloch in connection with Victorian Museum and Monash University since 1993 when the Dinosaur Cove site was phased out. This is one of the most

important sites in Australia and has yielded an abundance of specimens.

The following are excerpts from Terri Allen’s book, *Dinosaurs of Gippsland*, written for her students in 1994.

### The Cretaceous Period 144-66.4 millions years ago:

The Cretaceous Period was a time of great change that went from a cold beginning through a warm humid period to a cold close. During this time life was transformed with new animals emerging and the world changing shape. Gondwanaland began to break up, plate tectonics leading to rifting, mountain building and flooding with resultant changes to climate and sea levels. Following the warm, wet Jurassic, there was rapid cooling and polar glaciation with cool to cold retreating seas. As the climate warmed again, the continents were established, the sea level fell and flora and fauna changed.



**Ankylosaur**

During the early Cretaceous, a great rift valley formed along the margin of today’s southeast Australia, developing as Antarctica began to separate from Australia. Into this poured vast sedimentary deposits, much of it volcanic, choking the rift valley. From the rocks so formed, fossil remains are now being recovered. At the time the fossils were being made winter was cold and lightless, the mean annual temperature was between +5°C and -6°C (measured by studies of the oxygen isotopes preserved in the rocks).

### The Strzelecki Fossil Beds

These beds, which encompass Koonwarra and Eagle’s Nest, are fossil-rich from Cretaceous times. Older than the Otways, they have yielded specimens between 115 and 125 millions years old, the different fossils from the Otway site a result of evolutionary change over +10 millions years. Coastal fossils are particularly accessible and not as affected by mineral percolation as those inland.

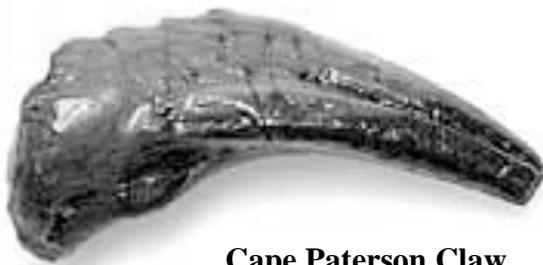
## The Eagle's Nest Fossil Beds

These beds were laid down when the area was 76° South near the South Pole, an area which had at least three months darkness, but was still relatively warm because of equatorial currents reaching far south. The vegetation was composed of mosses, ferns, trees, perhaps the earliest flowering plants and was believed to be in a rift valley. Zircons, derived from volcanic eruptions as Australia and Antarctica parted have been found in rocks. Coarser sandstone and siltstone were then sediments laid down on river- and streambeds or spread across plains during flood. This landscape was dominated by Hypsilophodont dinosaurs which are today revealed as fossils in these channel deposits exposed by the sea's constant pounding.

### First Find in Victoria

Around 1899 the government geologist, William Hamilton Ferguson, found a single toe bone in Cretaceous mudstone near Eagle's Nest.

It proved to be the 5cm long claw of a small carnivorous terrestrial dinosaur or Theropod and

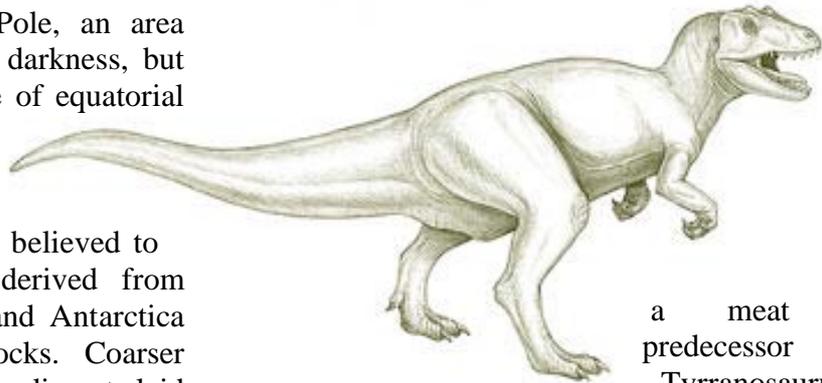


**Cape Paterson Claw**

was described by Sir Arthur Smith Woodward of the British Museum of Natural History in 1906. This was the first recorded discovery of a dinosaur fossil in Victoria.

In 1949 the fossil limb bone of a Lepidosaur (a group that contains lizards and snakes) was discovered; in 1978, using Ferguson's description and data, Tim Flannery, John Long and Rob Glenie rediscovered bones in the vicinity of Eagle's Nest. They were described as "black bones in rocks." As it was written up in *Time* (07-08-1993), "Tim Flannery kept going back to Cape Paterson. A month after the

original find he discovered a bone from a **Allosaurus**,

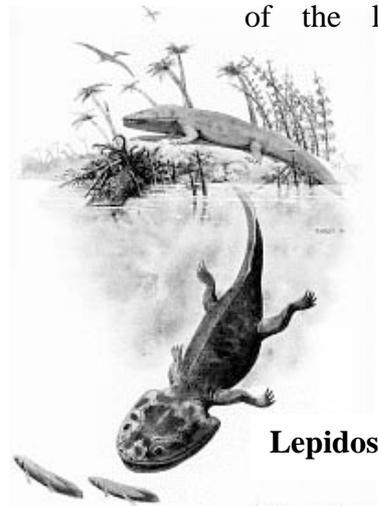


a meat eating predecessor of the Tyrannosaurus, and the first jaw bone of a crocodile like Labyrinthodont, a giant relative of salamanders and frogs.

### Thousands of Bones

Since then Mike Cleeland, Lesley Kool, Mark Burrows and others have discovered thousands of bones altogether. One discovery on March 10, 1991 at The Caves by a Monash team revealed seventeen bones on the surface of ten square metres, as the shifting sand had revealed more of the rock platform.

Digs continue at the Caves every summer with academics and volunteers from Monash and the Museum working on the rock platform three hours either side of the low tide throughout February.



**Lepidosaur**



**Pterosaur**