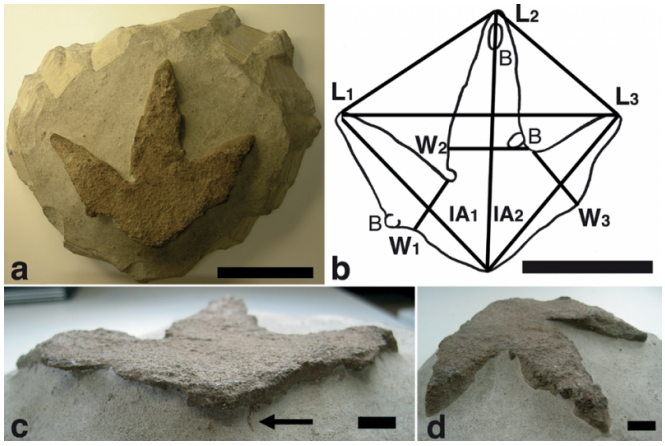
Tracking Australia's dinosaur past

9 August 2016, by Jon Tennant



One of the footprints from Knowledge Creek. Credit: Martin, 2016

The Australian outback. Known for a few, very specific things. Kangaroos. Sand. Lots of animals that want to kill you. More sand. Paul Hogan. And dinosaurs!

Some of the very best dinosaur fossils we know come from Victoria, one of the major regions of Australia. They come from around 100 million years ago, when Australia was more of a polar rainforest, something we know from examining the rocks from this time. The first dinosaur fossils from here were discovered back in 1903, one of the finger bones from a theropod.

Now dinosaur bones are interesting for a multitude of reasons. But what they tell us in reality about the living, breathing animal it once was is very little: they tell us more about its death. There is a whole other style or type of fossil that we call trace fossils. Trace fossils are records of the behaviour of animals, including remains like burrows, trackways, or tooth marks. These tell us about how animals interacted, and most importantly what they were like when they were still alive.

It was not until 1980 when the first dinosaur trace fossils were discovered in Victoria. Found in the aptly named Knowledge Creek, this opened up the path to explore the behaviour and life of the dinosaurs that once roamed the outback. Since then, a whole range of discoveries have been made, mostly the trackways of different polar dinosaurs, but also possible burrows (yes, some dinosaurs used to burrow!)

Leaellynasaura, depicted in "Walking With Dinosaurs."

Recently, a wonderful Memoir series from the Museum Victoria was published in honour of the eminent palaeontologist, Thomas H. Rich, and contains a wealth of great information about the palaeontology of Australia. Among this, Tony Martin, one of the world's top ichnologists (trace fossil expert, not fish expert), wrote a great account of the dinosaur trace fossils of Australia.

By examining the shape and structure of the trackways from Victoria, Tony was able to use his keen eye and expertise to work out that some belonged to an ornithopod dinosaur. This deducation was based on their size and shape, and proximity to where we know other ornithopod fossils have been found. Ornithopod translates as 'bird foot', and their trackways are quite similar to those of theropod dinosaurs, which have also had their

trackways found in the region.

The only ornithopods that are known from this time in Australia based on skeletal remains are small, fast-running ones known broadly as hypsilophodontids, such as Laellynasaura. These little bipeds are often depicted as caring creatures, or meeting their disastrous end at the claws of a larger theropod dinosaur.

We know from the rocks in which the trackways are preserved in that it used to represent the floodplains of an ancient seashore. It's nice to think back 100 million years to think that little dinosaurs pitter-pattered around the rivers, possibly dancing along with the ripples. I mean, that's the great thing about trace fossils – they let us use our imaginations to recreate the beauty of lost worlds in our minds. And that's pretty awesome.

More information: Anthony J. Martin (2016) A close look at Victoria's first known dinosaur tracks, Memoirs of Museum Victoria, 74, 63-71. museumvictoria.com.au/pages/38 … V74_Martin_2_WEB.pdf

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