

MINMI CROSSING MEMOIRS

Most palaeontologists would agree; field work is the fun part of the job. Despite the long days and hard work, the basic food and primitive living conditions, there is always the prospect of finding something ... the chance of an exciting new discovery! But no matter how successful the expedition may have been, winding up a field trip is almost always an anti-climax. The anticipation of being reunited with family and friends, and the luxury of a hot shower, is overshadowed by the tedium of packing up the field gear, cleaning up the site and stowing those precious new finds in readiness for a safe journey. And then, as is so often the case in Australian palaeontology, there is the long, long drive home.

So in 1964, when Queensland Museum Palaeontologist Dr Alan Bartholomai climbed out of his dusty 4WD at Roma, Queensland on his way home from a long expedition, the last thing on his mind was the prospect of a new discovery. As Alan enjoyed his lunch, a Roma local, spotting the Queensland Museum logo on the 4WD, sought him out to ask if the Queensland Museum would be interested in a dinosaur he'd found a while ago just out of town. Alan was not particularly enthused. In most parts of Australia, a dinosaur discovery claim could be greeted with some scepticism – the excavation of one such 'dinosaur' find reported in Victoria revealed that the alleged Mesozoic reptile died wearing horse-shoes! But near Roma, bones of the Jurassic sauropod *Rhoetosaurus* had been found and Alan knew that this needed to be taken seriously. What he didn't know was that he was about to open a whole new chapter in the story of Australian dinosaurs.

The Roman (people from Roma are Romans aren't they?) led Alan to Mack Gully, a watercourse running into Bungil Creek on the downstream side of Minmi Crossing. The site was covered with thick, long grass and did not appear to be very promising, but nonetheless Alan and his guide began a systematic search of the slope. Eventually they spotted a piece of rock amongst the grass and dirt – just a small lump of weathered concretion, but there was fossil bone in it! Unfortunately the Roman had to return to his work and left without giving his name or contact details, but with a bit of digging Alan soon had the first piece extracted. A little more digging and more of the concretion appeared – most of which could be fitted together. Considerably more digging and – no, that was all that

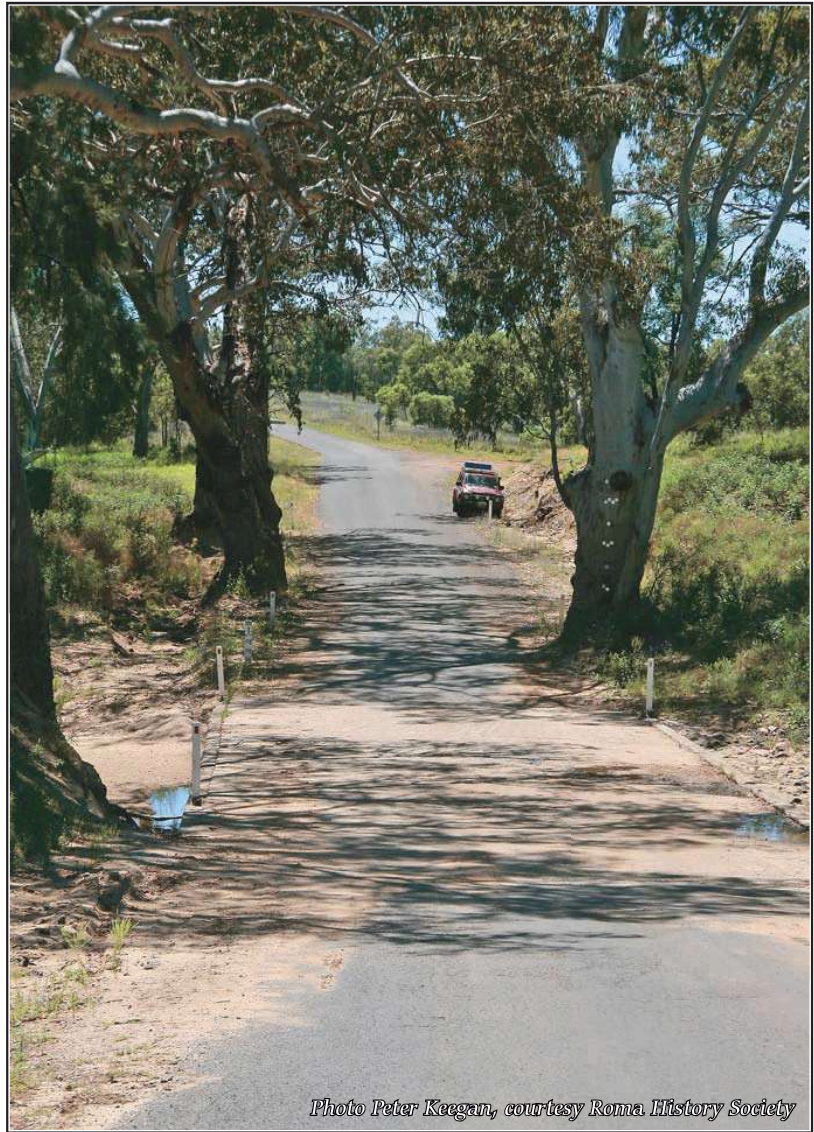


Photo Peter Keegan, courtesy Roma History Society

remained. But there was enough bone visible on the surface of the recovered pieces to show that the Roman was right. Alan was sure that the bones were the remains of a terrestrial vertebrate – probably a dinosaur, and most likely an ankylosaur or 'armoured' dinosaur. Although far from complete, he knew that this specimen represented a dinosaur family that had never before been found in the country.

On his arrival back at the Queensland Museum, preparation commenced to remove surrounding rock matrix from the specimen and expose the bone within. Matrix is usually removed mechanically with pneumatic scribes and sand blasters, but this fossil was preserved in a limestone matrix which can be removed by employing a quirk of chemistry. As a rule, fossil bone is slightly more acid resistant than limestone, so if the fossil is dunked in a diluted acid – usually acetic acid (the active and smelly component of vin-

egar), the acid etches away the rock, leaving the bones behind unscathed.

There is one critical factor in this technique however; you must know when to stop! Retaining the relative positions of fossil bones is vital in an articulated or semi-articulated skeleton – particularly an armoured animal as the matrix surrounding the bones holds them in the position they were in at the time of burial. In life, an ankylosaur's scutes and ossicles (bony armour plates) were embedded in its skin, but as a fossil, the skin that held them in place is long gone, so their relative position is maintained only by the surrounding matrix. If too much matrix is removed, the distribution pattern of preserved ossicles and scutes could be lost. In addition to this, repeated exposure to acid will eventually damage the bones. It is a slow process that needs to be carefully monitored and controlled, but if done with skill, the results of this preparation method can be spectacular.



In 1963, a chance meeting between Dr Alan Bartholomai of the Queensland Museum and a local man from Roma, Queensland, led to the recovery of Australia's first known ankylosaur. Found near Minmi Crossing (left), a short distance north-east of Roma township, the specimen consisted of several segments of skin armour, 11 vertebrae (top and below right) and a forefoot (right).

Amazingly, this specimen displayed unique structures lying parallel to, and on either side of, the neural spines of the vertebrae – a characteristic never before seen in any other animal. These bony rods, as seen in the photograph (top right) consisted of calcium carbonate that formed around the tendons of the backbone. They were given the name 'paravertebra' – of Greek derivation meaning 'alongside' vertebra. The animal was named Minmi paravertebra in recognition of its locality and unusual vertebral column.

Photos Dr Alex Cook, courtesy Queensland Museum

