

Tunnelling at Dinosaur Cove

The discovery of the "Slippery Rock" site at the end of the 1985 field season at Dinosaur Cove led to a change in excavation methods and the start of a six-year odyssey of tunnelling into the base of a ninety metre cliff. Tom's plan was to excavate narrow tunnels above the fossil layer so that the fossils could be removed from the floor of the tunnel by conventional means. The excavation of tunnels into the cliff at Slippery Rock required the skills of a volunteer mine manager and underground shot-firer, both of whom came forward in response to an advertisement that Tom placed in the newspaper in 1986.

The first attempts at tunnelling in 1987 were met with many setbacks including adverse weather conditions, inadequate machinery and the continual modification of the shot firing technique to produce the right amount of rock that could be safely removed. Progress was made and after more than 40 days of excavation, two parallel tunnels straddling the fossil layer, were completed. Unfortunately, very few fossil bones were recovered in the floors of the two tunnels and Tom was in a quandary.

At the start of his book "Dinosaurs of Darkness" Tom begins with this paragraph: ""Collect butterflies". After fifty days of tunnelling for fossils in the fourth season at Dinosaur Cove, that was Tom's heartfelt response to the question, "Well, what *will* you do if you give up searching for dinosaurs?"

Fortunately for us he did not give up but instead decided to excavate a cross-tunnel between the west and east tunnels. His decision turned out to be spot on as fossils began turning up in abundance in the Cross Tunnel, including a partial skull and associated partially articulated skeleton of a juvenile dinosaur. This dinosaur was the first to be discovered at Dinosaur Cove and was later named *Leaellynasaura amicagraphica* (more about this dinosaur in the featured fossil section).

Further tunnelling continued during the 1989, 1990 and 1991 field seasons. In 1991 a concrete pillar was erected in the Cross Tunnel directly behind the outside pillar created by the excavation of the west, east and cross tunnels (see diagram below). The difficulty in erecting the concrete pillar cannot be underestimated. It took hundreds of manpower hours, 50 tonnes of concrete and was extremely labour intensive, taking more than a month to complete. Tom estimated each hessian sack of sand and screenings were handled at least nine times from when they were filled to when they were poured. Tom described the concrete pouring procedure in his 1990/1991 annual report:

"Initially, the cement could be poured directly from the mixer into the form work. However, for the last one-third of the wall just beneath the roof, a further step was necessary, to pour the wet concrete into a bucket which was lifted upwards by hand and poured into the form work and packed against the roof it is ultimately to support."

This concrete pillar was necessary for the final stage of the tunnelling, which took place during the 1993 field season. With a strong wall to support the roof of the tunnel, the first rock pillar was safely excavated and work at the Slippery Rock site was complete. The removal of the pillar took nearly three weeks and was completed by a series of blasts carried out by professional miners Patrick O'Neill and Ian Jesser. Initially, the yield of fossil material recovered from beneath the pillar was disappointingly low. However, one specimen, initially identified as a possible turtle humerus turned out to be the humerus of the first Mesozoic mammal from Victoria. Named *Kryoryctes cadburyi*; "Kryoryctes" means "cold digger" referring to the polar environment in which it lived and honouring all the diggers to work tirelessly to recover it. The specific name "cadburyi" honours Cadbury Chocolates who generously honoured Tom's bet of a cubic metre of chocolate to the person who found the first evidence of mammals at Dinosaur Cove. Unfortunately, the person who found the humerus was not recorded in the data collected with the specimen so the cubic metre of chocolate, in the form of thousands of bars of chocolate, was shared out between all the volunteers who attended that 1993 dig. A fairer solution and one which probably saved one person from becoming a diabetic or dying of chocolate overdose.

With the removal of the rock pillar it was decided that the two entrances into the tunnels should be sealed with concrete. A glass capsule containing casts of some of the fossil bones found at the site as well as a number of publications relating to the work at Dinosaur Cove, was placed inside the tunnel. The East tunnel was sealed with a black granite marker, which was placed in front of it and which read:

SIGNIFICANT FOSSILS WERE
DISCOVERED AT THIS LOCALITY,
DINOSAUR COVE, IN 1980.
FIELD PARTIES COMPOSED
PRINCIPALLY OF VOLUNTEERS
FROM MONASH UNIVERSITY,
THE MUSEUM OF VICTORIA
AND EARTHWATCH COLLECTED
DINOSAURS AND OTHER
VERTEBRATE FOSSILS FROM
THREE SITES WITHIN THIS COVE,
1984-1993. MAJOR SUPPORT CAME
FROM THE NATIONAL GEOGRAPHIC
SOCIETY, ATLAS COPCO, I.C.I.,
THE DEPARTMENT OF CONSERVATION
& NATURAL RESOURCES, AND
THE AUSTRALIAN RESEARCH
GRANTS COMMITTEE

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The sealing of the tunnels at the Slippery Rock site ended an intense period of arduous excavations at Dinosaur Cove. Such a gargantuan task is unlikely to ever be repeated, but it did result in the recovery of two partially articulated dinosaur skeletons, the first evidence of a tyrannosaurid dinosaur and Victoria's first Cretaceous mammal, along with many hundreds of other fossil bones and teeth. Credit for all these discoveries must go to the tenacity and strength of character of one man - Dr. Tom Rich.

References:

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Advertisement for volunteer mine manager and shot firer. Courtesy of T.H. Rich Collection.

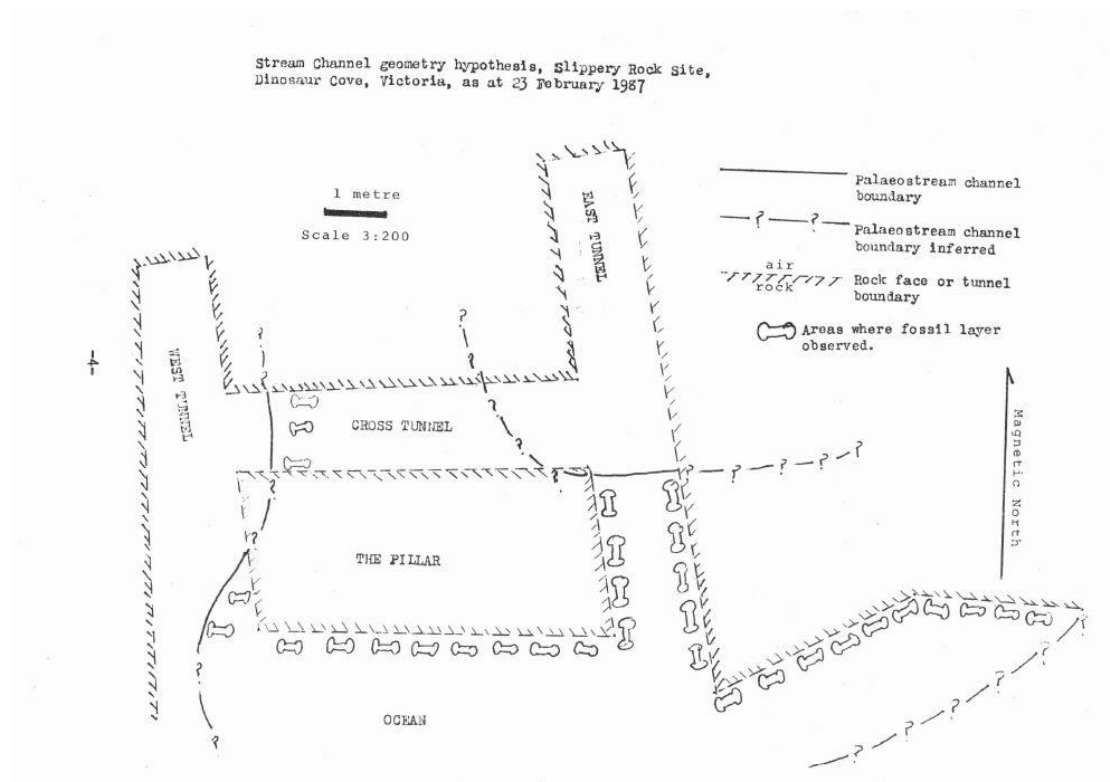


Diagram of Slippery Rock tunnels 1987. Dig at Dinosaur Cove 1987 annual report

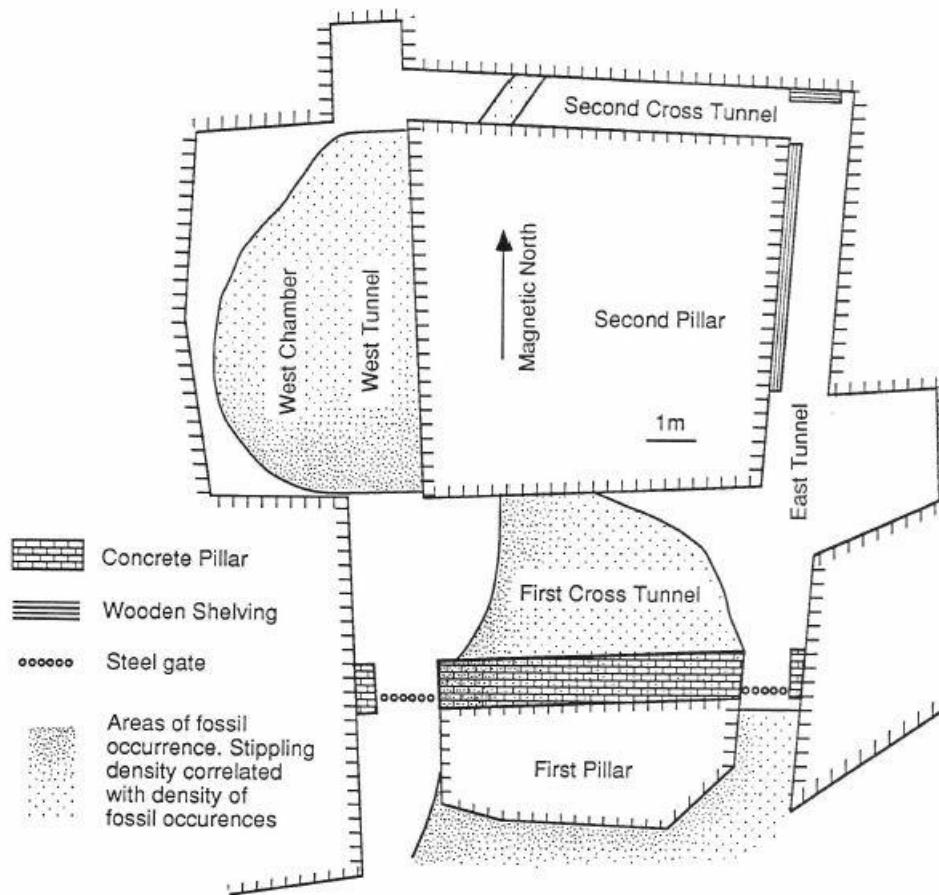


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