
BEER 'N' BONES

Volume 1 Issue 2

APRIL 1997

Message from the President

Welcome back for from 1997.

Hope you all had a good break. Things are looking good for 1997 with the KI trip planned and only needing those that are going to pay Lyndlee before 9th April or they will miss out. If you now can't come for whatever reason also tell Lyndlee or we may get stuck paying for those that don't turn up.

Well, enough from me. I'm sure the rest of the newsletter is tempting you so have a good read.

Jo Colmer President

Kangaroo Island Dig.

The big dig is fast approaching and I for one, am eagerly awaiting 15th April. Although we are disappointed that more people are unable to assist in this major palaeontological dig, those going are very keen. The prospects of finding remains of major palaeontological significance are high. A little geological knowledge and a little taphonomic knowledge, one can imagine how different the countryside would have looked during the Pleistocene and what was roaring around. We will also have the company of several archaeologists to enlighten us if we find any Aboriginal artefacts (see Heather Builth's article later).

To sit in the peace, playing Sherlock Holmes in the dirt by day, having a few around the fire

with good company, is like a little piece of paradise. Reminiscent of Alcoota!

For those of you contemplating



the trip to Alcoota this year, GO. There is nothing like the atmosphere of the dig at Alcoota. To uncover remains of creatures 8 million years old is quite awe inspiring. And for you who have never been to the outback of the Outback, it is a once in a lifetime experience that you'll never forget or regret.

A Recent Trip to Entrance Cave

As the name suggests, there is no paved tourist entries to be found in this cave situated near Margaret River in the south-west of Western Australia. Entry to the main chamber of the cave is via convoluted passages that start with a climb down a narrow 6m solution tube into a small chamber, then through an even smaller hole into another small

chamber, across 'the crevasse', down a slope, along a passage, down the 'lounge' and into the fossil chamber. This may sound daunting but Gav has cracked the minute on 'The Run'.

This cave was first opened in the sixties with the aid of a small blast or two and was found to be relatively unremarkable as far as cave formation was concerned. It was subsequently used as a training cave. In 1991, caviae and amateur palaeontologist Lindsay Hatcher noticed that the cavers had been walking straight through a *Sthenurus* skeleton, and (with permission) conducted a preliminary snarfing, er, I mean test dig. However, if it wasn't for this, the cave would never have come to the attention of expert palaeontologist, Gavin Prideaux.

The importance of the new megafaunal deposit in Western Australia was not lost on Gav. Current understanding of Quaternary faunas in the western half of the continent are comparatively poor. At this stage there is generally a scarcity of sites and fossil material from Western Australia. Mammoth Cave is the most prominent with excavations early this century yielding a fair amount of material. Unfortunately the stratigraphic relationships were poorly documented making speculation of relative ages of the material extremely hard. A few other minor sites exist in the west but none of them approach eastern sites like Naracoorte or the Wellington Caves.

Gav conducted a preliminary dig in January of '96 to assess the

potential and to get an idea of the stratigraphy. Things looked good and another trip was planned for August, but Gav needed an offsider. I was promised the adventure of a lifetime and knew that by then my degree would be out of the way. I agreed to go. At that stage I thought it would be a nice little working holiday. With some funding and plane tickets provided by Conservation and Land Management and help from Lindsay and a few mates, we arrived at a hole in the ground and ferried in lights and gear. My first trip in was fraught with what I considered a justifiable fear of slipping down jagged rocks and unseen pits, smashing every bone in my body and leaving a taphonomical nightmare for future palaeontologists finding me at the bottom of the scree slope. Within about three days I was *Rattus rattus* in a sewer pipe.

Tight Entrance Cave appears to be a pitfall trap with sediments and animals falling in through multiple solution tubes in the main chamber that are all now blocked. At this stage it seems that there is a minimum of three distinctly different sedimentary units that contain fossils, possibly from different holes or different time periods. Digging ranges from using hands and brushes in soft sands to geopicks in clayey calcium carbonated filth. Slumps in the soft sand part of the pit wall were measured in the amount of feed bags used (1/3 filled and used for carrying sediment to be sieved in the cave). The record was about 60-70 (we lost count) on the last trip.

Fifteen species are extinct megafaunal species including *Zygomaturus*, *Thylacinus*, and *Sthenurus browni* along with several others which are locally extinct such as *Sarcophilus*. Several extinct species have previously only been described from eastern Australia placing in question the idea of a faunally

depauperate Western Australia. During the August excavation the jaw of a new genus of bettong (rat kangaroo) approximately three times larger than any known bettong was uncovered. The carbonated sand coating was removed in standard vinegar (in the rush to get a good look at the piece). Beer and peanuts were voraciously consumed back the caravan park, during which the jaw bubbled to reveal its secrets.

In the latest February expedition good flowstone was found in the extension of the pit that should allow a date to be established. Work proceeded every day with tedium broken by accent hours, movie quoting and prodigious amounts of bullshit. The job was only halted in the absence of our generator which was stolen with about five days to go (our next genny was tied to a tree), and an afternoon off spent drinking a fine caberet merlot, (which almost ended up with fish chowder pillow) during the opening of Caveworks, a cave interpretation centre at Lake Cave which we were staying out the back of in luxurious demountable style office trailer accomodations (ie it had a fridge).

From a biogeographical perspective the study of this cave should allow vastly enhanced picture of Pleistocene faunal distributions from the south western Australia, across the Nullabour to eastern Australia to be constructed in the future. The different layers may reveal fauna that may be associated with habitat changes in the region.

Grant Gully is presently doing his Honours project on the Margaret River fauna. I don't think you really want to know anything else about him.

Matt McDowell in Venus Bay.

As many of you know, I completed my Honours Degree in

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1995. I studied the fauna collected from a Late Holocene sinkhole located in Venus Bay Conservation Park (VBCP) on the upper west coast of Eyre Peninsula. The results of the study have recently been published in the 117th volume of 'The Linnean Society of New South Wales'.

VBCP has been used as a reintroduction site for Brush-tailed Bettong (*Bettongia penicillata*) and is considered a good site for the reintroduction of the other locally extinct native species, particularly the Greater Sticknest Rat (*Leporius conditor*).

The sinkhole has this tiny little entrance, a bit over half a metre across and the walls belled just inside to about two metres across.

To enter the sinkhole, the park's resident biologist just threw a shovel across the hole and dropped in an attached rope ladder. When Rod and I descended, the shovel handle visibly flexed, not a good feeling when you can't reach the walls. Someone had dug a well in the sinkhole so that 1.7 metres of sediment that consisted of two distinct strata could be seen in cross section. Sediments were divided into 20cm levels, the top five of which were studied.

On my second trip, a hurricane hit the west coast and it rained for three days straight. No problem you say, we were underground. WRONG! We saw and suffered one of the biggest subterranean waterfalls ever, suggesting the likely candidate for the bone accumulation. The rain stopped but the waterfall didn't so I made myself comfortable in a wheelbarrow and read a book by the sea.

The following species were identified from the recovered fossils, but the elusive Sticknest Rat was not among them. One species of native rat, one species of native hopping mouse, five species of native mouse, one species of pygmy possum, three species of bandicoot (including the

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rabbit-eared bandicoot or bilby (*Macrotis lagotis*), one species of bettong, two species of kangaroo, seven species of dasyurid (including the dibbler, *Paranthuchinus apicalis*) the Tasmanian Tiger (*Thylacinus cynacephelus*) and at least six species of reptile ranging from geckos to death adders and 1.8 metre goannas.

No introduced species were recovered from the sinkhole suggestion that the collection halted more than 150-200 years BP. When compared with the modern faunal list (obtained by pitfall trapping), it is seen that some fifteen mammal species have become locally extinct and one totally lost. Interestingly the reptile fauna seems to have changed very little. The most frequently trapped mammal species is now the house mouse (*Mus musilus*).

I recommended DENR should, if possible, re-introduce the Dibbler, the Bilby, the Western Bored Bandicoot (*Perameles bogamville*) and the Sticknest Rat even though it was not recorded in the sinkhole, as VBCP offers a suitable environment, and it historically occupied the region.

Five carbon dates were obtained from throughout the deposit giving an age range between 4440 ± 70 BP and 1160 ± 60 BP. By assessing changes in the sediment and fauna throughout time, possible changes in the environment were inferred. The sinkhole's sedimentary and faunal records imply that approximately 4000BP, the local environment was wetter and closed canopy forest with thick understorey dominated. Between 4000 and 1000BP the environment became warmer, drier and more variably, while open patchy forest dominated. Around 1000BP precipitation increased and the environment became less variable, resulting in an increase in forest and understorey density. These

environmental changes are supported by several other publications based on a variety of scientific methods. For a more complete report please refer to McDowell (1997).

Matt McDowell presently appears to reside in the basement of Biological Sciences. He is currently doing his MSc in the area of Palaeo.

Housekeeping

*The 1997 membership fees are now due. The official last day to pay is April 11th. Yearly subscription is \$5.00, payable to the Treasurer, Rachel Farrugia, or post to F.U. Palaeontology Society, c/- Clubs & Societies, Flinders University, Bedford Park, 5042.

*1997 sees four of our committee positions with new faces. The positions of Secretary and Club Delegate are being admirably held by Narrelle Craig. Our new Treasurer is Rachel Farrugia and the task (and a half) of fund raising is in the hands of Raelene Sherwin.

*Welcome, welcome to our many new members. We hope that our Society will stimulate your interest in the fascinating and unfolding world of Palaeontology.

Fair Day

This was again a success due to the many who gave up some of their holiday enjoyment to assist with our promotion. Many, many thanks to all of you who fetched, carried, sold raffle tickets and manned (or should I say personned) our display.

The raffle winners were:

1st prize (Jack Daniels)

Brett Maston

2nd prize (coopers) John Brooks

A special mention must go to Fernando Farrugia who managed to sell an enormous number of raffle tickets while simultaneously assisting with four other club's

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displays!!! A little bird told me that he only joins clubs for the socialising, he doesn't really know what the clubs' aims and objectives are!! Thanks heaps anyway Fernando. And well done Fiona, Raelene and Jo, the new club banner is excellent.

Barbecue

May 14th at 1:00pm on the lawns outside Biological Sciences. Bring your friends and eat, drink and be merry with the best company.

Alcoota 1998

PLEASE NOTE: Due to changes in University policy, the Alcoota trip in 1998 will be a three unit course instead of the current two units. The trip will still be two weeks in duration, but will include a program of lectures.

Dinosaur Club

The Palaeo Society has recently joined the Western Australian branch of the Dinosaur Club. Membership includes a kit containing various things including **Dinonews**, twice a year. The club is a non-profit organisation with branches throughout Australia, which raises funds for research on fossils. We have a copy of the December 1996 issue for you to peruse. It will be available at the next meeting. You can also join the club as an individual, if you wish. Yearly subscription is \$12.00 per individual and Jo has membership pamphlets.

December's issue included John Long's article on the first partial skeleton of a Mesozoic reptile from Western Australia, and two articles by Brian Choo, one on "A Feathered Fossil from China" and the other entitled "Irritatroi, an annoying theropod from Brazil"

Feathered Dinosaurs

(The following is an extract from December 1996 issue of *Dinonews*, as reported by Brian Choo on page 18)

"Easily the most sensational dinosaur find this year (and probably this decade), has been the discovery of a small theropod dinosaur in the People's Republic of China which seems to bear a feathery crest. The skeleton was found in fine lacustrine Lagerstätten deposits in the Liaoning Province, probably of Early Cretaceous age. Several ancient "true" bird fossils, including *Confuciusornis* and *Sinornis* have also been recovered in these deposits....."

".....They (photographs) show a gracile theropod dinosaur skeleton in the typical contorted death-pose that clearly displays a row of "somethings" along the back forming a prominent crest along the neck and back which seems to grow shorter at the tail. The opinions of Chinese and American Palaeontologists who have viewed good quality photos suggest the crest is made of feather-like structures and not large scales.

Named *Sinosauroptryx prima*, the fossil could be of great importance (if these structures prove to be true feathers) in providing solid evidence that some non-avian theropods bore feathers. The ostrich-dinosaur *Pelcanimimus* has also been reported to possess feather-like structures akin to the modern ratite birds, but this information has yet to be published (although this may soon change). Not only would this strengthen the link between birds and dinosaurs enormously but also remove one of the main criteria that have kept birds classified as a separate class (the presence of feathers is one of the principle defining characters of the class Aves).

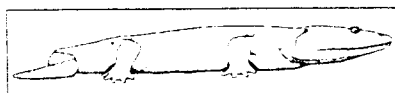
Pliosaurid

Also in the December addition is a report on the findings in 1991 by some geology students in the Kalbarri region of Western Australia, of three marine reptile skeletons (*Leptocleidus* sp.), a three metre long seal-like pliosaurid. These are of the same species as "Eric", the opalised skeleton found in Coober Pedy. The Western Australian species is the largest known of the *Leptocleidus* species, being even larger than "Eric".

Media Watch

The discovery of the 220 million year old *temnospondyl* in the wall of the retired chicken farmer's home in Woy-Woy, NSW, has brought media attention to the fascinating world of palaeontology. Did you catch *The Advertisers* full page spread in the Education section on March 11th? It featured an article about the salamander-like creature, the significance of the find in Australia and its relevance to Gondwana in comparisons to species found in China and South America.

The article also included a large (but evidently somewhat dated) story based on an interview with Assoc. Prof. Rod Wells on the topic of "Digging up the Past" (with photograph), an interview with Neville Pledge (curator at SA Museum) on the "exciting experience" of digging fossils (I agree) and a list of major fossil finds in SA.



An artist's impression of the salamander-like *temnospondyl*.

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Major Fossil Finds

(The following is quoted verbatim from the Advertiser)

1.(1892) The state's earliest discovery made was the fossilised remains of the wombat-like diprotodon, found preserved in the bed of Lake Callabonna in the Far North-East. Numerous fossils aged between 20,000 and one million years ago were found, including fragments of a 1.8 metre tall emu-like bird (*Genyornis newtoni*) and a primitive kangaroo (family *Sthenurinae*).

2.(1953) Two groups of fossils found along a creek east of Lake Eyre, one group about five million years old and the other up to 25 million years old. The fossils included those of a flamingo (*Palaelodid*), crocodile (*Pallimnarchus*), a sheep-sized marsupial (*ngapakaldia*) and a primitive koala (*Phascolarctidae*).

3.(1969) Professor Rod Wells and colleague Grant Gatrell discover Victoria Caves fossil deposit.

4.(1971) Fossils aged between 22 million years and 23 million years found near Lake Frome, including a fresh water dolphin (order *Cetacea*), toothed platypus (*Obdurodon*) and *Muranura* (a common relative of koala and wombat)

5. (1976) Fossils from a similar era as those found at Lake Eyre, including partial skeletons of the possum-like *ektopodon* and a rabbit-like wallaby (*Purtia*).

6.(1987) Opalised fossil of a *Pliosaur*, nicknamed "Eric", found near Andamooka. These creature were marine reptiles.

7 (1991) Trevor Westlake, a keen amateur naturalist, discovered a fossilised section of a diprotodon, while walking in the Hallett Cove Recreational Park. Originally keeping the discovery to himself, he eventually alerted the SA Museum, which then excavated a site to discover Australia's oldest diprotodon bones, estimated at 55,000 years old.

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8. (1995, June) Brian Hobbs of Daw Park, unearthed a 20 million year old fossil from a bank of the River Murray, near Blanchetown. The fossil belonged to an extinct shark-toothed whale (order *Cetacea*) that cruised the inland sea covering eastern SA between 5 million and 30 million years ago. About the size of a dolphin, the whales fed on fish and were common world wide.

9. (1995, October) The world's biggest fossilised worm discovered in the Flinders Ranges. At 90cm long and 55cm wide, the giant, segmented, oval-shaped worm is estimated to be 530 million years old. *Dickinsonia rex* lived only in the sea and possibly was among the world's earliest animals.

France

Other palaeontological news reported by the media this year included the "Doomed Dinosaur Eggs" (*Advertiser* 8/3/97) found near the Mediterranean port of Sete in southern France. Thousands of nests, each having between five and fifteen eggs were located. Age of the eggs has been estimated at 68 to 71 million years. The reason they did not hatch is so far a mystery.

Beunos Aires

The *Sunday Mail* has reported the finding of 10 metre long carnivorous dinosaurs in the town of Paso de los Indios, 1500 km south of Beunos Aires. The dinosaurs were dated at 115 million years old.

CAVEPS 1997

The sixth biennial Conference of Australasian Vertebrate Evolution, Palaeontology and Systematics (CAVEPS), will be held in Perth from 7th to 11th July, and will include an extinction symposium arranged by Alex Barnes. The conference is a chance for palaeontologists to congregate to present and/or discuss current investigations and

opinions. (My dictionary also quotes *sym-po'si-on* [*syn-together+ pōsis* - a drinking]. Make of this what you will!!) They have also been offered a trip to Gogo (near Broome in WA) for those interested in Palaeozoic fish, and a trip to the south west for those interested in Quaternary mammals.

The main theme for this symposium will be advanced datings techniques of Australian sites. New datings show that most of the Australian megafaunal sites are much older than could be dated "within the practical limits of radiocarbon dating". It was quoted that the more advanced methods for dating (eg U/Th dating) gave higher figures than the radiocarbon dating (with reference to Rod Wells and Kevin Moriarty's reassessed dates of the Naracoorte Cave megafaunal accumulations).

It was also noted that although many areas had produced artefacts at the sites of megafaunal remains, there was as yet no conclusive evidence of human/faunal interactions.

The conference will also include a session on island biogeography, a subject of relevance to the Society, with the upcoming Kangaroo Island trip.

Also mentioned was a presentation of research done on a deposit in Lindsay Hall Cave on the Nullabour Plain which "contains megafaunal species distinguishable from elsewhere in Australia", presented by one G.J. Prideaux (1994), and of Tight Entrance Cave, "the largest and most diverse megafaunal assemblage yet discovered in WA", currently under investigation by Hatcher, Moriarty and Prideaux.

There will be more on the papers cited at a later date.... after I've actually read them!!

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So Why Are the Archaeologists Interested in Rocky River?

As you are aware, during the April mid-semester break the Palaeontology Society will be joined by members of the Archaeology Society on a field trip to Rocky River. A general survey and test excavation including a shoreline trench will be carried out at the Rocky River lagoon, in the Flinders Chase. This is the site where, since 1935, extinct megafauna bones have been found, including *Diprotodon*, *Zygomaturus*, *Sthenurus* as well as Grey Kangaroo, Tasmanian Devil, and Dwarf Emu. Recent radiocarbon dates suggest the survival of the megafaunal species until the end of the Pleistocene on Kangaroo Island, with the possibility of an interaction of these animals with human hunter gatherers.

The presence of stone artefacts on eroding land surfaces surrounding the lagoon area at Rocky River, and the geomorphic context of this archaeological record suggests that human occupation extends back to the Late Pleistocene.

Taken together, these preliminary palaeontological & archaeological data suggests that Rocky River presents one of the most promising locations for seeking evidence of the possible interaction between humans and the Australian megafauna. Proposed PhD research in an attempt to locate evidence for this interaction will involve:

1. Recording of the extent of surface archaeology.
2. The identification and testing of potential archaeological deposits.
3. The monitoring of sediment cores,
4. Palaeontological tests for archaeological evidence of human involvement with megafaunal remains (stone tools, cutmarks or butchery dismemberment of bones etc)

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All sounds pretty exciting doesn't it? Might see you there.

Heather Buith has recently completed her Honours Degree on Kangaroo Island archaeology and is now commencing her PhD thesis, which includes research on possible human/ megafaunal interactions.

Fundraising for 1997

A couple of fund raising projects are in the pipe-line for this year. These include speakers giving talks based on Palaeontological themes (starting in Semester 2) as well as a major event early on in September (details will be announced at a later date).

Fundraising is not a one-person show and is most successful when contributions are made by many. So please, if you have any fund raising ideas or wish to help out with the organising of any events, then let me know. All help would certainly be appreciated.

Starting with the next meeting, we will be having a small raffle. The prize will be a chocolate bar or some other small item. If anyone wishes to donate prizes to this raffle please let me know. Any contributions, no matter how small would be greatly accepted. Thankyou.

Raelene Sherwin, Fundraising coordinator (phone 82726668).

News from the Lab

The new information centre at the Naracoorte Caves is underway. A new Thylacoleo skeleton has been completed (a-la Ed Bailey and Peter Daenke) and is just waiting assembly. The services of Steven Hayter have been called on. Some of you may have seen his wonderful 3-dimensional whale mural at the SA Whale Centre at Victor Harbour. He will be responsible for a similar style of

work of the Naracoorte area, including automated models. The blue-print is currently on display in the Palaeo lab.

The terrain testing has been completed and the site found suitable. For those of you who have been on the Palaeo 1 course, the new centre will be on the site where we have been wet-screening, and will thus be aware of its proximity to Alexandria Cave. It would have been a little disconcerting to suddenly find yourself in the basement of the Centre when no-one even knew there was a basement!!!

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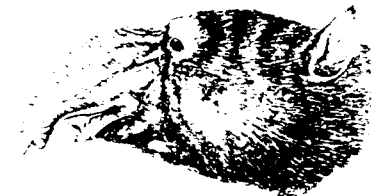
Secretary:

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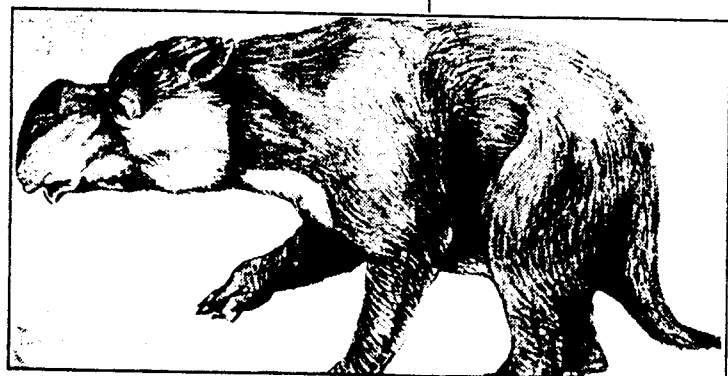
Next edition of BEER 'N' BONES is due in early June. Any articles can be forwarded to the editor at any stage.

Editor, Lyndlee Turner.

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An extinct species of marsupial, Palorchestes azael, painstakingly reconstructed from fossil remains. The animal used its trunk to reach into trees and bushes



Gone: the diprotodon optatum, which grew as big as a hippopotamus.