

ISSN 0379-9336

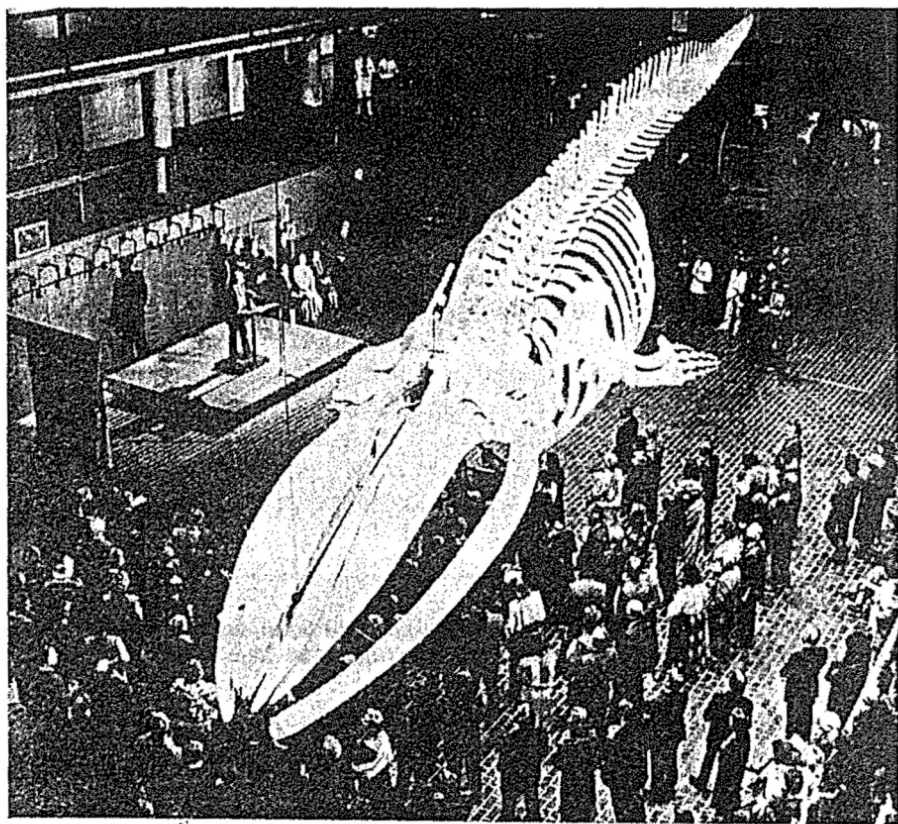


# **PAL** NEWS NUUS

Biannual Newsletter of the Palaeontological Society of Southern Africa  
Halfjaarlikse Nuusbrief van die Paleontologiese Vereniging van Suidelike Afrika

Vol./Band 5 (3)

Dec./Des. 1987



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Pal News/Pal Nuus is published by the Palaeontological Society of Southern Africa for its members. The views expressed are not necessarily those of the Society or its Officers.

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(Cover: the Whale Well in the new extensions of the South African Museum - scene of the official opening, 6 August 1987. See p. 15) (photo: Clive Booth).

## EDITORIAL

### Who takes care of the Caretaker...?

I wonder how many National Monuments Council Honorary Curators there are who have palaeontological interests? I will try to find out from the NMC and publish a list of their names and addresses; it may be useful.

In this connection, I had a chat recently to a senior police officer who was described in a local paper as "an avid collector of gems and fossils". I contacted him to ask whether they were South African fossils, and under what sort of circumstances they had been collected. To my relief they were mostly "trinket" specimens bought from Importers/dealers. Disturbingly (but predictably) though, some were indeed South African. Equally predictably, they were viewed as little more than mere curios: they had no provenance; knowledge of their taxonomy or relationships was scant at best; and it was clear that he was only vaguely aware that there was some protective legislation in this country. It was equally clear that he didn't have a permit!

We parted with a promise that he would bring his collection to show me at the museum - "any that the museum wanted it could have". Many other individuals around here have been pillaging the Algoa basin Uitenhage Group rocks for years, and precious few of those specimens have ever found their way into properly curated permanent collections.

If the guardians of the law don't know the law, what hope have we?

Best wishes for the Festive Season!

Mike Raath  
EDITOR

## HORNS OF *DAMALISCUS NIRO* FROM WONDERWERK CAVE

by

Francis Thackeray

Dept of Archaeology

University of Stellenbosch

In 1943 B.D. Malan and L.H. Wells published an account of faunal and artefactual material from Wonderwerk Cave, situated in the northern Cape Province, some 40 km south of Kuruman (*S. Afr. J. Sci.*, 40: 258 - 270). Unfortunately, a large quantity of the faunal remains had been disturbed during guano-digging operations. The loss of the contextual information is regrettable since Wonderwerk is one of the few sites in southern Africa having a relatively long sequence of Quaternary deposits with well-preserved fauna. In fact the preservation at Wonderwerk was such that even horn sheaths were recovered together with the horn cores of various animals represented in the faunal collection described by Wells. It was recognised that these specimens, reported to have come from the rear of the site, were not recent. The excellent preservation of this material is attributable in part to dry conditions within the cave.

If the preservation of the horn sheaths was remarkable, even more remarkable was the report that two of the specimens represented a species of ibex. Wells noted that the larger and more complete of the two had been identified by Robert Broom as the horn of the Abyssinian ibex, *Capra wallei*. A smaller horn fragment from Wonderwerk evidently represented the same animal, if not the same individual. Wells went on to say: "The presence of remains of ibex in this cave is most puzzling. No such animal existed in South Africa within recent times, nor does this part of the country appear at all a suitable habitat for it. Dr. Broom has therefore suggested that these remains were brought to the site by man, by whose agency they may well have been transported from N.E. Africa. Although this explanation presents difficulties, no better one has yet been proposed".

Unpublished correspondence (1943-44) relating to these specimens (Government Archives, File B20/1/1) indicates that the horns had been sent to E.C.N. van Hoepen at the National



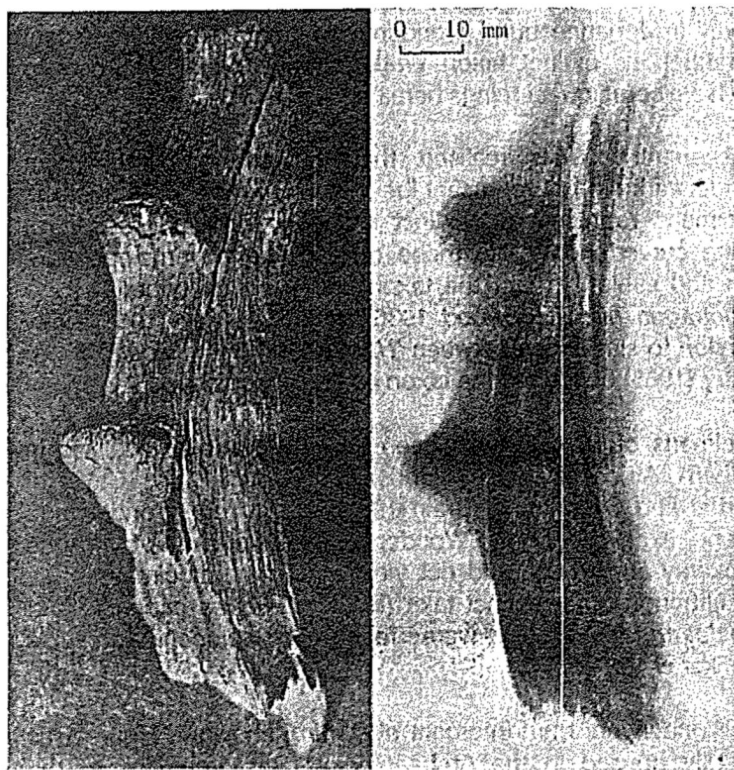
Museum in Bloemfontein, as well as to H.C. Maydon in Hermanus for identification. Maydon was familiar with ibex from hunting expeditions in Ethiopia and elsewhere. He agreed with Broom that it belonged to the genus *Capra*, but felt that it represented the Nubian rather than the Abyssinian ibex. Van Hoepen did not want to specify the species, but said "Tot ons verbasing is dit werklik 'n Ibex-horing". By contrast, C. van Riet Lowe (Director of what used to be called the Archaeological Survey in Johannesburg) wondered whether it might represent an indigenous, extinct, taxon. Writing to Maydon in 1944, he said "We have some queer things here..."!

Subsequently, Wells realised that the strange horns from Wonderwerk did not represent ibex. It is now recognised that the specimens represent an extinct alcelaphine, *Damaliscus niro*, having curved horns like those of hippotragine antelope (e.g. roan and sable). In fact the taxon had been described first as *Hippotragus niro* (Hopwood 1936). L.S.B. Leakey (1965) drew attention to similarities between "*H. niro*" and *Damaliscus*, before Gentry (1965) described the taxon as *Damaliscus niro*.

Specimens of *D. niro* have been found at various localities in southern Africa, including Florisbad, Cornelia, the Cave of Hearths and Swartkrans (Brain 1981), apart from Wonderwerk. Recent excavations at Wonderwerk, undertaken by Anne Thackeray and myself, did not yield additional specimens of *D. niro* although other extinct taxa (including *Equus capensis* and *Megalotragus priscus*) were found in Holocene contexts (Thackeray 1984).

The Wonderwerk horn fragment of *D. niro*, shown in Figure 1, is currently housed in the Archaeological Research Unit of the University of the Witwatersrand in Johannesburg. It is one of the two specimens of this taxon represented in the sample described by Wells. The second (larger) specimen could not be found in the existing collection in Johannesburg, and was last seen by Elisabeth Vrba when she visited Laurie Wells in his office at the

Department of Anatomy at the University of Cape Town more than ten years ago. Since his death, attempts to recover the specimen have unfortunately been unsuccessful. Should any member perhaps come across (or know of) the missing horn, would they please return it to the Archaeological Research Unit in Johannesburg. A catalogue number which should be visible on the specimen is 56/42.



*Figure. 1*

*Two photographs of a horn fragment from Wonderwerk Cave, northern Cape Province, South Africa, described by Malan and Wells (1943). Photograph on the left (J.-Y. Mathieu) shows the horn sheath. X-ray photograph on the right reveals the horn core beneath the sheath; X-ray photograph courtesy of the Kimberley Hospital, with thanks also to Dr. R. Liversidge who helped obtain the photograph.*

## A TETRAPOD TRACKSITE IN MOLTEO DEPOSITS?

by

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On 15 June 1987, Mike Raath was taken by the owner of a chain of hotels in the Eastern Cape and Transkei, Mr Gerald Spilkin, to examine a site where what were thought to be fossilised "spoor" had been reported by a trout fisherman who had been fishing a tributary of the Klein Pot river a few kilometers north of Maclear in the northeastern Cape. On arrival at the site it was immediately clear that there were indeed several tetrapod tracks preserved in a fine-grained silty mudstone extensively criss-crossed by polygonal desiccation cracks.

The initial reconnaissance was enough to indicate that the tracks were probably dinosaurian, including the tracks of several individuals - at least two large quadrupeds and an unknown number of smaller bipeds. The quadruped tracks have considerably larger hindprints than fore, but the number of toe impressions in either set was indistinct - possibly four in the hindprint. They also show a distinct tail drag. The biped has a very symmetrical and rather birdlike three-toed track. This combination of larger, possibly tetradactyl quadruped and smaller tridactyl biped is immediately reminiscent of the fauna of the later Stormberg deposits of the middle and upper Elliot Formation and lower Clarens Formation, where the genera *Euskelosaurus* and *Massospondylus* (prosauropods) and *Syntarsus* (theropod) are known. (The only bipedal, three-toed, birdlike dinosaurs known to occur in rocks of this age in South Africa are "coelurosaurian" theropods as represented by *Syntarsus*, and it has so far been found associated only with *Massospondylus*, never with *Euskelosaurus*).

Because this first visit was so brief and rushed, there was chance for little more than a superficial reconnaissance and an "eye-balling" of the geology, but this was enough to raise the

suspicion that if the tracks were indeed made by "Elliot" dinosaurs, then they were in the wrong rocks because these rocks looked like Molteno! Nothing further could be done on that trip, and it was decided to return suitably bolstered by colleagues with direct knowledge and experience of both Molteno and Elliot rocks in order to try to settle the question.

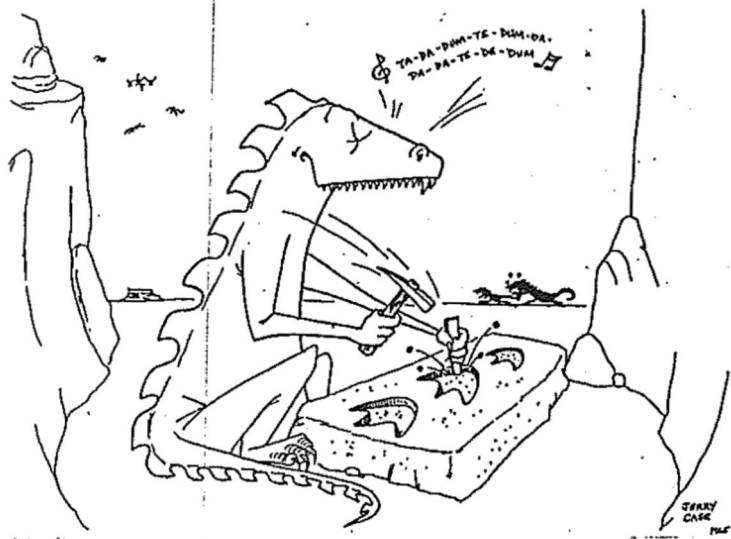
In due course, on 22 September 1987, a party consisting of the authors of this note and Bob Law of the South African Broadcasting Corporation went to the site to examine it in more detail. On arrival in bitterly cold and wet weather it was noted with dismay that the torrent in the swollen trout stream was over the tracks. But after a brief search we intersected the same horizon further downstream and several further prints were located. Preliminary examinations in the vicinity, and especially in a prominent sandstone capping the hill to the north of the tracksite, tended to support the early conclusion that the tracksite lay deep in Molteno sediments. Some sections were measured in these coarse capping sandstones whereafter our party backtracked to the top of the nearby Barkly Pass, into undoubted Clarens Formation Sandstones, and we then retraced our stratigraphic steps down through the succession crossing typical bone-bearing, brick-red and drab Elliot Formation mudrocks, into typically coarse Molteno sandstones with interbedded fine shales. Stratigraphically, the tracksite lay more than one hundred metres below the uppermost of these supposed upper Molteno rocks. It was concluded that the rocks could be nothing other than Molteno, as no major faults could be seen in the vicinity which might have accounted for displacement of this magnitude, although one or two smaller ones with displacements of a meter or less were noted.

An account of this occurrence is being prepared for publication, but the authors would be interested to hear from anyone who can shed further light on the matter, particularly the apparent stratigraphic anomaly in that until now no tetrapod fauna has ever been reported from Molteno beds. Even when dinosaurs are first encountered in the basal Elliot Formation, theropods are lacking and the prosauropods are represented by large forms

such as *Euskelosaurus*. No unequivocal evidence is known of the co-existence of *Massospondylus* and *Euskelosaurus*. So the Maclear tracksite seems to present a number of anomalies: first it seems to be a substantially earlier record of dinosaurs in South Africa than demonstrated hitherto (but Ellenberger published several papers on tracksites in Lesotho some of which he persistently dated as Molteno, thus arguing for a Molteno dinosaur fauna; these conclusions of his have not found general acceptance in the past); second, it seems to upset a firm biostratigraphic conclusion of long standing, namely that *Euskelosaurus* is always stratigraphically below *Massospondylus*; and thirdly it suggests that the Molteno is not devoid of tetrapod fossils as thought hitherto (previously the only vertebrates known from the Molteno were fish). If anyone can comment helpfully, Mike Raath would like to hear from you.

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(from SVP Bulletin, Nov. 1966)



Several years ago (back in the sixties if my memory serves me correctly) the following appeared in the SVP Bulletin. It seems apt in the light of the continuing debate on dinosaur extinction:

## STRUTHIOMIMUS

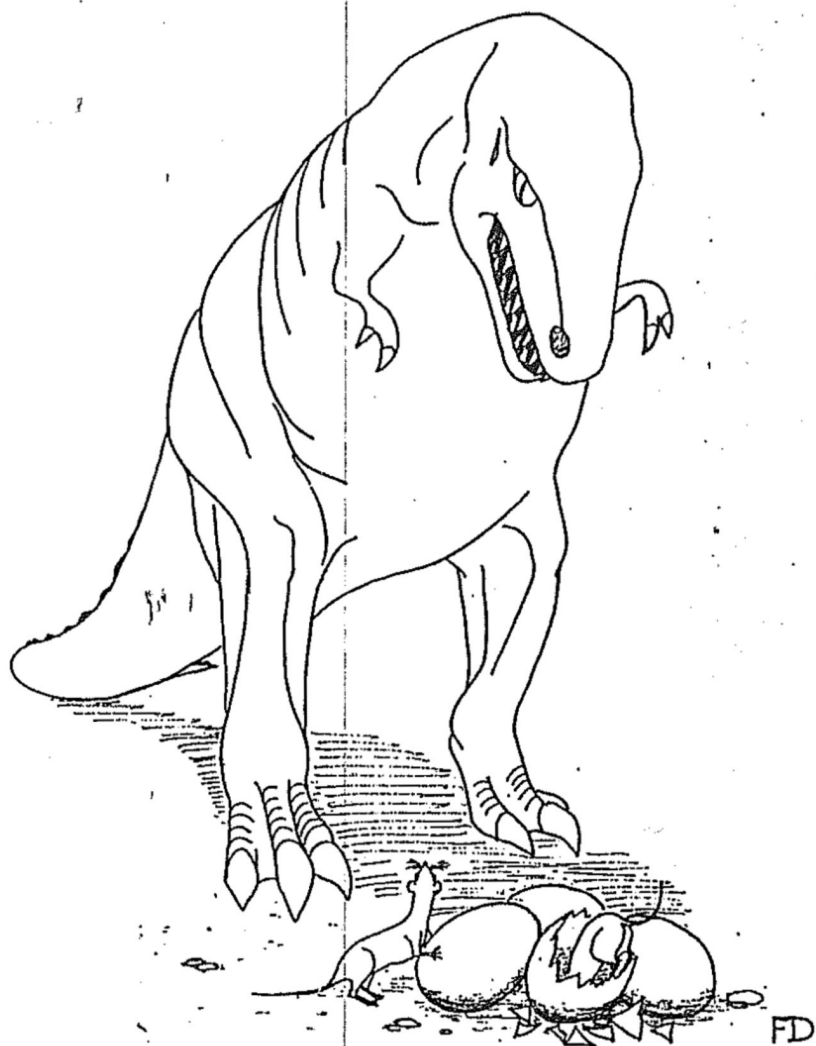
or

### THE DANGER OF BEING TOO CLEVER

by Prof. J. Maynard Smith

The dinosaurs, or so we're told  
Were far too imbecile to hold  
Their own against mammalian brains;  
Today not one of them remains.  
There is another school of thought,  
Which says they suffered from a sort  
Of constipation from the loss  
Of adequate supplies of moss.  
But Science now can put before us  
The reason true why *Brontosaurus*  
Became extinct. In the Cretaceous  
A beast incredibly sagacious  
Lived and loved and ate its fill;  
Long were its legs, and sharp its bill,  
Cunning its hands, to steal the eggs  
Of beasts as clumsy in the legs  
As *Proto-* and *Triceratops*,  
And run, like gangster from the cops,  
To some safe vantage point from which  
It could enjoy its plunder rich.  
Cleverer far than any fox  
Or Stanley in the witness box  
It was a very great success.  
No egg was safe from it unless  
Retained within its mother's womb,  
And so the Reptiles met their doom.

(original by Francois Durand, 1986)



EIERS KAN SLEG VIR JOU GESONDHEID WEES

The dinosaurs were most put out  
And bitterly complained about  
The way their eggs, of giant size,  
Were eaten up before their eyes,  
Before they had a chance to hatch,  
By a beast they couldn't catch.

This awful carnage could not last;  
The age of Archosaurs was past.  
They went as broody as a hen  
When all her eggs are pinched by men.  
Older they grew, and sadder yet,  
But still no offspring could they get.  
Until at last the fearful time, as  
Yet unguessed by *Struthiomimus*,  
Arrived, when no more eggs were laid,  
And then at last he was afraid.  
He could not learn to climb with ease  
To reach the birds' nests in the trees,  
And though he followed round and round  
Some funny furry things he found,  
They never laid an egg -- not once.  
It made him feel an awful dunce.  
So, thin beyond all recognition,  
He died at last of inanition.

#### MORAL

This story has a simple moral  
With which the wise will hardly quarrel;  
Remember that it scarcely ever  
Pays to be too bloody clever!



## ARCHAEOPTERYX: IS THE BRITISH MUSEUM SPECIMEN A FAKE?

by  
J F Thackeray

In August this year my visit to the British Museum (Natural History) in London happened to coincide with a special display on *Archaeopteryx*. At issue was the question of whether or not the museum's specimen is a fake, as claimed by astronomers Sir Fred Hoyle and Chandra Wickramasinghe.

If there was any reason for doubt, one would have expected the British Museum to undertake rigorous tests to establish the authenticity (or otherwise) of the specimen in its possession. Hoyle and Wickramasinghe, together with physicist Lee Spetner, would like to undertake tests which (they say) would establish whether or not the specimen is an artefact, created in the last century by adding impressions of bird feathers onto a slab which already contained a reptilian fossil. However, museum officials (including Dr Angela Milner, Curator of Fossil Birds) refuse to give samples of the specimen to Hoyle et al. for testing, since they are sufficiently confident that tests already undertaken indicate that the specimen is indeed authentic.

In the wake of the Piltdown saga, it is important that such a controversy be settled. However, coming away from the exhibit at the BM, one feels that the controversy should never have been allowed to develop in the first place. After all, in addition to the specimen of *Archaeopteryx* in London, there are several others which show feather impressions (I was interested to see casts of these at the Senckenberg Museum in Frankfurt), and one wonders why Hoyle et al. are so adamant about their case. Perhaps one can understand their frustration about not being given a sample of the London specimen to analyse. However, it is difficult to accept Hoyle's opinion that the museum's refusal to grant him a sample for chemical analysis is evidence of an "unscientific" unwillingness to settle the issue (*Nature*, 328: 657).

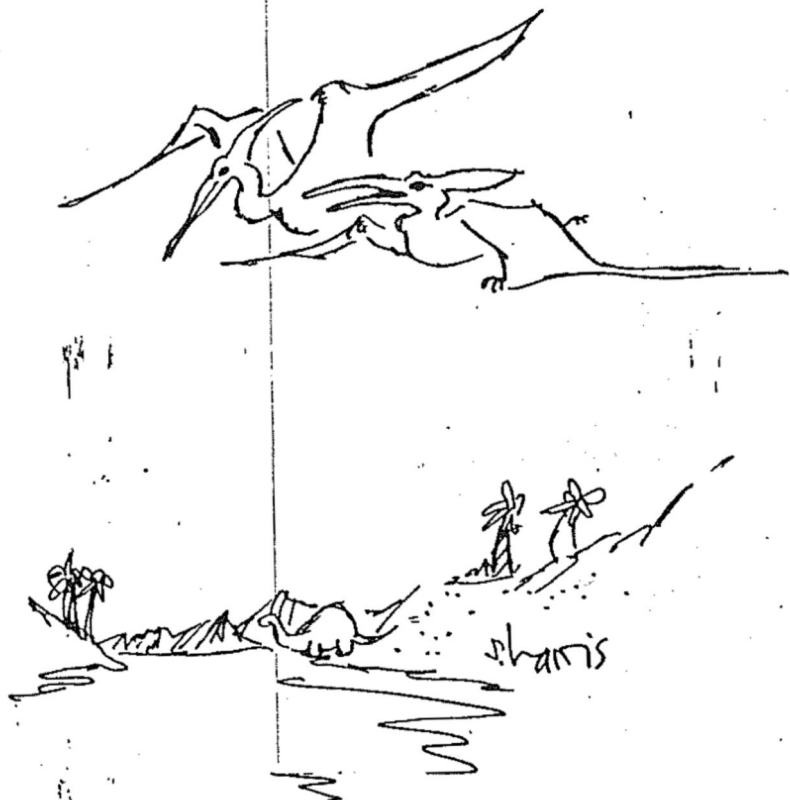
The feelings about this issue are reflected in the following limerick, attributed to an anonymous visitor to the British Museum:

Archaeopteryx was feathered (we've heard)  
Reptilian, but much like a bird.  
Sir Fred says it's phoney  
But that's all baloney.  
Confound him! Tar and feather him! How absurd!

(I have been interested in this controversy ever since it started (or rather, was resurrected) a couple of years back, and I was fascinated to hear one of the chief participants, Dr Alan Charig of the Department of Fossil Reptiles at the British Museum (Natural History), giving - in his inimitable style, consummate raconteur that he is - an account of the confrontation at the BM between the opposing parties - Sir Fred Hoyle, Chandra Wickramasinghe and party (including, incongruously, a local plumber!) on one side; Alan, Angela Milner and Peter Whybrow (who did the most recent fine preparation work to free the braincase of the London specimen from its matrix) on the other. Subsequently Alan and his colleagues published the results of their detailed, painstaking, microscopic examination of the specimen to answer the charges of Hoyle et al. (Science, 232: 622 - 626 [1986]; there have been several other papers besides, see for example the paper by Siegfried Rietschel in the book "The Beginning of Birds" [1985], being the Proceedings of the International Archaeopteryx Conference, Eichstatt, W Germany, 1984). As Francis points out, with all the other known specimens of Archaeopteryx - six in all if one includes the isolated feather impression to which the generic name was originally applied before the London specimen was found, and they all bear some evidence of feathers - then there can be absolutely no doubt at all that Archaeopteryx was genuinely a feather-bearing taxon. I'm afraid my sympathies lie with the BM staff in the "Hoyle-controversy"; where would it end if you started to let each and every doubtful non-specialist have a little bit of each specimen he didn't accept, so that he could "test" it? When could you ever rest assured that any "controversy" was finally "settled"? Each new sceptic would discount all previous investigations and claim that only his new test could settle the matter beyond all doubt and dispute - until the next sceptic came along. Furthermore, in the light of the current surge of creationism I think it would be positively dangerous to open up our collections to this kind of "examination". There are apparently many mischievous people around (I exclude Sir Fred and his colleagues from this!), bent on vandalising everything that doesn't fit their own preconceived ideas - witness the stringent security precau-

tions taken by the American Museum of Natural History for the "Ancestors" exhibition in New York in 1985 to guard against just such an eventuality. I doubt if, under a free-for-all system, any fossil specimens would remain intact in our museums - hordes of earnest, fresh-faced, squeaky-clean, born-again zealots would descend on them and pick them to pieces in pursuit of their own particular version of the "gospel truth"! Heaven preserve us! I wonder if Phillip Tobias would willingly let them loose on the Taung skull, for instance? I somehow doubt it. I agree with the BM - enough is enough; they have shown quite clearly that the London Archaeopteryx is genuine. Let it be. Ed)

---



"Some of these youngsters have come up with a terrific new idea—feathers."

Barney Newman sent in several pieces after the Fourth Conference last year, which I have been steadily working through - especially when times are lean in respect of contributions from members (as always!!). Here is the next one from Barney:

"The recent conference was well spiced with humour, as when Bob Brain was recounting his purchasing a fossil fish from a steward on an aircraft en route home from Brazil. The word "steward" escaped Bob's mind for the moment, so he asked: 'What do you call those people who serve food to you on aircraft?' Quick as a flash Juri van den Heever came back with 'Flying mammals!'

Victorian Palaeontologists were also not without humour. After Gideon Mantell had received the block containing the Maldstone Iguanodon bones, he installed it in the main room of his house in Brighton, Sussex, close to the fireplace.

The following verse was published in a volume of the proceedings of a contemporary Maldstone dining club, the "AMICI":

EPIGRAM on the Presentation of the Iguanodon Bones to Dr. Mantell of Brighton:

*Our young Geologist, who found  
These monstrous bones deep underground  
And sent his parcel, not a light one,  
To his enlightened friend at Brighton;  
Imagined, perhaps, like those who send  
The marbles of almighty Greece  
Here, to some Antiquarian friend,  
They'd make a famous Mantell-plece."*



## OPENING OF MAJOR NEW EXTENSIONS TO THE SOUTH AFRICAN MUSEUM

The R20 million extensions to the South African Museum in Cape Town were officially opened by the Minister of National Education, the Hon. F W de Klerk, on 6th August 1987. A large crowd of invited guests strolled in over the redesigned and newly paved piazza surrounded by manicured lawns, through the spruce and freshly painted entrance to the old museum buildings at the top of the Gardens, from where they moved to the huge Whale Well in the new section, there to witness the formal opening proceedings.

Guests included the Administrator of the Cape, the Mayor of Cape Town, the Consuls General of the United Kingdom, the United States, and West Germany, the Director-General of Public Works (the state department responsible for the contract) plus some of his senior officials, senior officials from the Dept. of National Education (under which the Declared Cultural Institutions resort - of which the S A Museum is one), business and community leaders, and a "cast of thousands" in the best Cecil B. de Mille tradition!

The special guest for the occasion was an old friend of palaeontology in this country, Dr Nicholas Hotton III ("Nick" to all his friends, which means everybody!) from the Smithsonian Institution, Washington, DC. The opening festivities stretched over a week-long program which included a number of special events, including: lectures by Dr Bob Brain (S H Haughton Memorial Lecture), Prof. David Lewis-Williams (Margaret Shaw Lecture), Nick Hotton (special lecture for the occasion); a musical concert in the Whale Well; a special planetarium show; and an Arbor Day tree-planting ceremony. Special exhibitions were a display of Children's Art, one on the Art of the Scientific Illustrator, and an exhibition of Pacific Islands material that included items presented to the Cape by Capt. James Cook.

The S A Museum planetarium is only the second one in this country, the other being the one run jointly by Wits University and the City of Johannesburg.

We wish the museum every success in its new and expanded state, and we all look forward to the ultimate completion of all the new parts, but especially the palaeontological facilities and displays. I was privileged to have a sneak preview of some of the things they have up their palaeontological sleeves, and it all looks most exciting and enticing. An interesting experiment that they have launched in the progressive development of the public parts of the new sections is that they have decided to build new displays in full view of the public - making the construction of the display itself part of the exhibition. This gives the visitor a certain feeling of privilege in that he feels he has been "let in behind-the-scenes", and there is little doubt visitors will find it an interesting experience.



*Mike Cluver and Nick Hotton, surrounded by most of the important things in a palaeontologist's life (except for a geological hammer!) Photo: Clive Booth.*

Nick ("Bwana") Hotton, freshly back in civilisation from a safari through the savage wastes of Darkest Palaeo-Africa, demonstrates the jawbone of a fearsome beast he bagged.

(Nick in "Poonah Colonel" mode at the SAM opening festivities).

Photo: Clive Booth.



Tête-à-tête at the opening: Roger Smith tries to convince Bruce Rubidge that he could use a "Daimonelix" to open any bottle of wine, no matter how big! (Bruce looks doubtful). Photo: Clive Booth.

## CAPE TOWN MICRO- PALAEONTOLOGIST

The post involves the application of foraminifera studies to the determination of age relationships, depositional environments and the elucidation of geological problems.

Applicants should be in possession of an M.Sc or Ph.D degree in foraminifera studies and must be prepared to work as part of a micropalaeontological team. Experience in Jurassic to Tertiary foraminifera will be considered an advantage, but appropriate induction training will be provided.

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# KAAPSTAD MIKRO- PALAEONTOLOOG

Die pos behels die toepassing van foraminiferiese studies op ouderdomsverhoudings, afsettingsomgewings en die oplossing van geologiese vraagstukke.

Kandidate moet in besit wees van M.Sc of 'n Ph.D-graad in foraminifera en moet bereid wees om as deel van 'n mikropalaeontologiese span te werk. Ondervinding in Jurassiese tot Tersiëre foraminifera sal tot voordeel strek, maar toepaslike indiensopleiding sal verskaf word.

Ons bied 'n markverwante salaris en omvattende byvoordele, insluitend 'n behuisingslening teen 'n lae rentekoers aan kwalifiserende personeel.

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## NEWS FROM MEMBERS

### Gideon Rossouw, Univ. of Port Elizabeth

#### SECOND YEAR ZOOLOGY STUDENTS' PALAEOLOGY EXCURSION: 1987

What must be the coldest, muddiest and wettest excursion ever to be undertaken during this time of the year took place from the 26th to 28th September during the vacation. Despite the inclement weather that dogged most of the excursion, some 40 students were very privileged and fortunate to have the companionship of James Kitching, Izak Rust and Mike Raath. These men proved to be worth their weight in gold and the students made full use of their expertise.

Our first stop was at a quarry 20 km north of Uitenhage on the national road to Graaff-Reinet. This quarry in the Bokkeveld shales hosts a wealth of fossil trilobites, crinoids, brachiopods, cephalopods and bivalves, and it gave the opportunity to some of the inexperienced students to collect their very first fossil ever. This was also the place where we first met the rain that was to be our constant companion for the rest of the weekend. After a few exciting finds we proceeded to Graaff-Reinet. Staying in the new Camdeboo Education Centre behind Spandau Kop was to be a first, too, this year. On our way there the 48-seater bus got stuck on the dirt- (now mud!) road and the students had to walk the last kilometer to the campsite in conditions that must have been fairly typical of the palaeo-Beaufort! It proved an excellent opportunity to study miniature meandering rivulets, crevasse-splays, overbanks and levees in the torrent running down the dirt road while we were walking to camp! The bus driver reluctantly decided he should stay in the stuck bus to guard it through the night, while we settled down in the camp. Izak and Mike then talked to the students on early Karoo palaeo-environments and faunas, while James and I ploughed back through the mud (thanks to the 4x4!) to collect a sheep from a nearby farmer. Part of this sheep ended up in a "potjie" excellently prepared by Oom James. Discussions on evolution and the prospects of the weather saw us to bed.

The campsite can be highly recommended as one of the finest and most suitable places for anyone intending to pay an educational visit to Graaff-Reinet and environs with a group of students or pupils.

On hearing the next morning that the first opportunity to get the bus mobile again would be on Monday morning, the students took the initiative and by dint of sheer determined manpower pushed the bus free from the mud. To everyone's delight we could continue, although it was still raining mildly. We passed Kompasberg and stopped at the conical hill on the farm De Toorn. This magnificent sight of the product of a meandering river and erosion through the ages made a big impression on everyone, judging by the clicking of the cameras. The next fossil-bearing location we stopped at was the riverbed on the Nieu Bethesda Commonage. Bitterly cold and wet conditions did not deter a very enthusiastic group of students from going fossil hunting, and soon a few fragments were found. Among the finds were pieces of a gorgon skull, a *Daptocephalus* tusk and various other bone fragments. The stop at Wilgerbosch was again somewhat marred by wetness, but nevertheless fish scales (*Atherstonia*), *Glossopteris* and *Schizoneura* leaf impressions were added to previous finds.

Then followed what was described by most students as the highlight of the excursion - namely, a visit to "Wellwood". By kind permission of Richard Rubidge the famous Rubidge Museum was visited by our group and proved to be an unforgettable experience. Scepticism disappeared and made room for intellectual enquiry as James took the students through the collection. Dry conditions and a wealth of information saw notebooks and cameras working overtime in the short time available. After a hearty cup of tea and home-made biscuits, kindly prepared by Marion Rubidge (Richard's daughter-in-law), we left again for the Camdeboo Centre. On nearing the camp the ritual of getting stuck in the mud was repeated, only this time it happened a little further away from camp! Again the rest of the way was made on foot. As the rain ruled out a braai, the rest of the sheep found its way into the pot once more under the

watchful eye of James - and it was soon devoured by the ravenous horde in what might have qualified as record time if anyone had spared the precious moment needed to time it! The main room of the Centre was again filled with the buzz of animated conversation on palaeontology, evolution and all sorts of other things, while some simply and unceremoniously hit the sack!

The next morning the weather showed some improvement, but cleaning up the camp and shuttling all the equipment to the stuck bus left us no alternative but to proceed straight back to Port Elizabeth, rather than visit some of the Cretaceous deposits of the Kirkwood and Sundays Rivers formations in the Algoa Basin on the way back to Port Elizabeth. The slow-moving bus seemed to drag out the time going home, making the distance seem a lot greater than it really was.

In spite of the weather, the excursion was appreciated and enjoyed by all the students, and the majority found it a very stimulating and worthwhile experience. I would like to thank my guests, James Kitching, Mike Raath and Izak Rust as well as the students, who showed great enthusiasm and were a pleasure to work with.

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Palaeontologists do it with Hard Parts! (from Palaios)



**Arthur Cruickshank, Leicestershire, UK**

My contract with Leicester Museum draws to a close - but not so long ago a digger-driver in one of the brick-clay pits near Peterborough was persuaded to dig into the fossiliferous layers and unearthed a complete baby *Cryptocleidus* - an elasmosaur - quite common in the Oxford Clay (M Jurassic), but not often found so well preserved. The skull will come here and I have the job of making a museum preparation of it - and, if it warrants it, casting it for sale/exchanges.

We have the M Jurassic marine croc collection under control and the raw data for the database is being compiled. Ichthyosaurs and plesiosaurs are being sorted out by other volunteer helpers.

The VP Symposium in London in September was well attended and very interesting. We hope that the gathering will move to Leicester for 1989; 1988 is being hosted by Eric Buffetaut and colleagues in Boulogne-sur-Mer.

John Martin, Keeper of Earth Science, is busy dismantling the *Cetiosaurus* mount in the main palaeo gallery so as to draw and describe all the bones incorporated into it and to add much of the hitherto unidentified material lying round the palaeo store. He went to the Terrestrial Ecosystems Symposium in Drumheller and gave a paper on early sauropod neck mobility and mode of life.

Mike Taylor is at last getting round to writing up his *Rhomaleosaurus* material (ex PhD) for publication and we are collaborating on a popular "old crocs" booklet for museum sale, and on a new marine croc display.

While at the VP Symposium I heard of yet another batch of Ruhuhu material - all part of the Nowack 1936 collection, but this time in Munich; apparently financed by Broili and Schroeder. I hope to be able to go to look at it after Easter (1988).

Sue Gay has submitted her PhD and is off on holiday before starting work with Academic Press. Revision to *Dicynodon leoniceps* (= *D. huenei*), *Pelanomodon locusticeps* (= *D. locusticeps*), *Geikia* and other forms; plus a nice comparative study of *Dicynodon* jaw musculature, review of Ruhuhu Permian faunas and sundry other contributions. This should be read and sorted out before this appears in print.

Mike Stocker (a new name!) has come into the Cambridge collection to work on some of the Manda Triassic dicynodonts. He has an engineering background (as well as geology and zoology), so will be looking at stress path analyses in dicynodont skulls - as well as trying to sort out the problem of what constitutes a shansiodont!

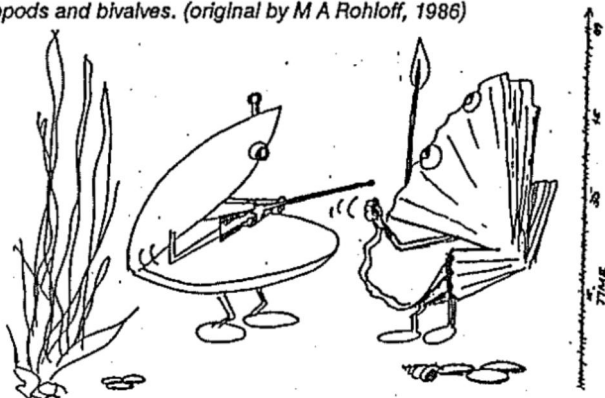
John Martin and I did a "Day School" for Birmingham University Extramural Dept on "Dinosaurs - their life and times"; six hours of concentrated talk on all aspects was quite an undertaking, even split two ways - but well received.

I may even get to see the "Chinese Dinosaur" exhibition in Cardiff before it closes in April. There is even a *Sinokannemeyeria* on show alongside the main collection. And all that exciting stuff coming out of the joint Canadian expedition... So, what price the Red Beds now!

Very best wishes for 1988 and a warm and sunny Christmas to you all.

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Changing views on what the fossil record tells us about the relative success of brachiopods and bivalves. (original by M A Rohloff, 1986)



## **Roger Smith, South African Museum, Cape Town**

After a week of ceremonies and functions to mark the opening of the museum extensions, Bruce Rubidge and I took Prof Nick Hotton III to the field on a whistlestop tour of our favourite outcrops. During the seven days we stopped at the rhyolite trackways, *Diictodon* burrows and exhumed meanderbelts near Fraserburg. We took in some more tracks, channel sandstone cliff sections and various fossilising stops in the Nuweveld mountains before travelling down to Putfontein to view the marvellous exposures of an exhumed crevasse splay sandstone. Down in Bruce's area we were marched off our feet but managed to get to see most of what he wanted to show us, although one night we did need a torch to get back to the bakkie! A trip up Swartberg Pass and a visit to the Geological Survey, Belville, rounded off the tour.

A couple of weeks later I embarked on a 52-day conference/study/fieldtrip visit to the USA:

### **1. PENROSE CONFERENCE, OREGON**

My first stop was the GSA-sponsored Penrose Conference on "Palaeoenvironmental Interpretation of Paleosols" held in Oregon from Sept 11 - 17. Penrose conferences are convened to encourage "open and frank discussion of ideas in an informal atmosphere" in a particular aspect of earth sciences. Delegates were selected by the conference convenor, Dr Greg Retallack, and the financial support was provided by the Geological Society of America and National Science Foundation.

To achieve a balanced discussion group 68 delegates were selected from throughout the world, half of whom are Quaternary geologists and modern pedologists, the rest pre-Quaternary geologists. Being mainly concerned with the South African Karoo sequence, I was one of the latter.

The conference was held at a purpose-built conference centre at Kah-nee-tah on the Warm Springs Indian Reservation in northeastern Oregon.

## Discussions

The conference was structured for three "levels" of discussion. Firstly, more formal presentations by ten keynote speakers followed by two discussant speakers on each topic. Their themes included the five soil-forming factors - climate, organisms, topography, parent material and time - discussed from both the "present" and "past" perspectives.

I was asked to discuss the Interpretation of past ecosystems from palaeosols using examples from the Lower Beaufort of South Africa. Each session was followed by an hour-long general discussion and question time, the second level of discourse. Thirdly, delegates with specific problems in palaeopedological interpretation rallied support for informal discussion groups in the evenings, the syntheses of which were presented on the final day.

The proceedings clearly showed up differences in approach between pedologists working with soils on present land surfaces and geologists' treatment of palaeosols in the rock record, and highlighted difficulties involved in attempting to classify ancient palaeosols using modern soil survey classification. They also showed that many of the long-standing precepts regarding climate-specific soil features - such as colour,  $\text{CaCO}_3$  accumulation and gleying - are no longer valid. Each palaeosol suite must be considered within the framework of its sedimentological setting and cannot in itself be regarded as a reliable indicator of ancient climate or ancient topography.

## Field Trips

Delegates were given the opportunity to study modern and ancient soils in the field on two excursions. Pits into modern soils of the Willamette valley demonstrated the influence of parent material on horizon formation and the range of variability imposed by differences in parent material over relatively short distances, e.g. between soils formed on river channel sands and muddy overbank deposits.

Exposures of the Tertiary John Day Formation in the high desert of Wheeler and Jefferson Counties contain evidence of palaeo-



vertisols and are a testament to a period of considerably wetter conditions there some 35 million years ago.

We were shown several mammal fossil localities including the Clarno "nut beds" full of fossil fruit and seeds, the most visible of which were walnuts. Animated discussion at several palaeovertisol localities centred on distinguishing palaeo-fragments and relict from modern pedogenic features in such poorly consolidated material.

On the way back to Eugene time was taken to view the spectacular lava flows and snow-capped cinder-cones of the eastern cascades volcanoes

## 2. SHORT-TERM VISIT TO SMITHSONIAN INSTITUTION, WASHINGTON, DC

After the Penrose Conference a 3-week visit to the National Museum of Natural History was arranged to collaborate with Dr Kay Behrensmeyer and Prof. Nick Hotton III of the Dept. of Paleobiology. The visit, funded by the Smithsonian Institution, was to enable me to compare my taphonomic work on Karoo therapsids with results of a series of well documented modern taphonomic experiments conducted over the past ten years by Dr Behrensmeyer and her co-workers.

Nearly three weeks were spent in the department studying vertebrate bone weathering in modern and fossil skeletons. A few days were given to taphonomically assessing and re-establishing the localities of a collection of Karoo therapsids made by Prof. Hotton from various parts of the southern Karoo during the sixties. I was also asked to give a talk to the research staff on my Karoo work.

## 3. TEXAS FIELD TRIP

The final ten days were taken up with a field trip to the Texas Permian around the town of Seymour in Baylor County, Texas. Here Prof. Hotton and I were joined by Bob Hooke and Dr M

Fricasso, both based in Austin and working on L. Permian tetrapods.

We visited several historical bone bed localities in the Arroyo and Bell Plains Formation of the Clear Fork and Wichita Groups. Our main purpose was not to collect fossils, although many were found, but to assess the depositional sedimentary environments of bone-rich localities.

On outcrop scale the fluvial facies are quite easily defined but the subdued relief of the landscape makes their spatial relationships difficult to observe. Based on comparable but more extensive outcrops in the Karoo I was able to offer interpretations of the depositional history of some of their "crazy sandstone" outcrops. The classical "bone-bed" occurrences have been regularly collected for ca. 50 years. This has given rise to a "collectors' bias" in the taphonomic analysis of these beds, most workers having collected only from these very small outcrops, virtually ignoring the rest of the succession.

At several outcrops in the Arroyo and Bell Plains we studied cliff sections containing well preserved palaeocaliche nodules as evidence of fossil soils. Thin laterally continuous marine limestones intercalate with the terrestrial red-beds at several levels in the Bell Plains. These were studied with respect to their depositional setting.

On returning to Washington, Dr Behrensmeyer invited me to join the 1988 field trip of a newly established multidisciplinary research project on Miocene rocks of Pakistan. This is a 5-year project (starting Feb '88) on the palaeoenvironments of fossil bearing fluvial deposits in the Siwaliks of Northern Pakistan.

Back at the Museum I immediately embarked on a chapter for the IGCP210 volume on Continental Deposits of Africa. This contribution is entitled "A review of the stratigraphy and sedimentary environments of the Karoo basin of South Africa".

*(Thanks, Roger, for a full and interesting report)*

### **H C Klinger, South African Museum, Cape Town**

After presenting the Introduction to Palaeontology course at UCT, I had a welcome break going back to my alma mater, Tübingen, to attend the Third European Cretaceous Symposium. Needless to say, I enjoyed every moment of it. As usual, contributions ranged from poor to excellent. I was quite surprised to see all the East Block delegates. There was even an Albanian.

Most of the new information was discussed over good German beer and in restaurants. Our Symposium dinner was in the castle of Tübingen. Unfortunately the fact had been overlooked that the gates of the castle were too low for the beer trucks! Eventually we ended up manhandling beer crates into the courtyard. This gave us a healthy appetite for the beer and for suckling pig.

After the symposium we went on a field excursion to the south of France in the environs of Grenoble and Die. The geology was mainly about carbonate platforms with rudists, but few ammonites. Fortunately the local wines were very good and cheap, so everybody was happy.

Next year a working commission of the Urengi Is to hold a conference in Tbilisi, Georgian SSR. I applied for this, but I doubt I will get a visa for the USSR.

Back in the museum I am trying to find things in the new building which had been mislaid or hidden during the move from the Research Centre. This ought to keep me out of mischief for some time. Amongst all this I am trying to get a monograph on the ammonite family Baculitidae together.

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### **Pippa Haarhoff, South African Museum, Cape Town**

#### **VISITORS:**

Jerry van Tets from CSIRO, Canberra, visited the Cenozoic Palaeontology Department from 3rd September to 5th October. He made a start on a study of the fossil goose from Langebaanweg.

The fossil appears to have swanlike characters. Extinct "swan-geese" type birds have already been described from the Pleistocene in Malta and Pliocene in Hungary. We do not yet know whether the Langebaanweg species is something different.

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**Norton Hiller, Rhodes University, Grahamstown**

Palaeontological research continues to tick along nicely here at Rhodes where brachiopods rule, OK! I am currently working on a manuscript, with Howard Brunton of the British Museum, on late Pliocene-early Pleistocene brachiopods from John Pether's research area at Hondeklip Bay. The fauna has presented us with a few pleasant surprises including beautifully preserved large specimens of a *Cancellothyris* species. This genus was previously known only from Australia and New Zealand. Several new species of kraussinids are also present.

Work on the Bokkeveld brachiopods is also proceeding. In August I attended the Second International Symposium on the Devonian System in Calgary, Alberta, along with Johan Looek and Hannes Theron. We each presented a paper on some aspect of the Devonian rocks of South Africa; my paper, co-authored by Hannes, documented the benthic communities that we can recognise in the Bokkeveld Group.

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**Bruce Rubidge, National Museum, Bloemfontein**

Since the last issue of Pal News I have been trying to write up the introductory chapters of my PhD thesis on the sedimentology and fossils of the Ecca-Beaufort transition in the Southern Karoo.

James Brink has recently left for Germany to attend a 6-month course on osteology under Angela von den Driesch. James' MA thesis on the Florisbad fossils is in the National Museum printing press at this very moment and should be available any day.

In the beginning of August I was privileged to be able to go on a most instructive week-long sedimentological/palaeontological

field trip with Nick Hotton and Roger Smith to Fraserburg, Beaufort West and Prince Albert, during which time we saw some of the highlights of Roger's numerous finds in the Karoo. These included a visit to the remarkable palaeo-surface at Gansfontein, Fraserburg, which, amongst numerous other attractions, also has dinocephalian footprints. Portion of a morning was spent in the exciting "rediscovery" of several spiral burrows, a lunch time stroll over the exhumed meanders of the Relersvlle sandstone known to all of us from Roger's remarkable much-published aerial photograph, and a glance at "shoestring" sandstones. Some time was spent looking for anything other than *Diictodon*, and lots of time was spent talking about the "good old days" in the Karoo.

A few days in the Prince Albert district included a visit to Roy Oosthuizen's fascinating fossil collection, and naturally a visit to the Ecce-Beaufort contact area, during which time I attempted to convince Nick and Roger as to the position of the Ecce shoreline. Very little time was spent looking for *Eodicynodon*, but despite this, Nick managed to find a skull as the sun was setting on the last day of our excursion!

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**Johan Loock, University of the OFS, Bloemfontein.**

I attended the meeting of the Bernard Price Institute Board of Control in Johannesburg on the day before I left for London and Canada to attend the Devonian Congress. The congress itself was a great success. In the Rockies I even picked up the tooth of a Devonian fish in an area where only brachiopods and crinoids were supposed to be found! In the Gaspé Peninsula I spent two days at the Miguasha(?) Museum to study the fish fossils and the outcrops of Devonian rocks along the coast. The fossils are magnificent. In London I went to see the BMNH; the place has been completely reorganised.

*(My heartfelt thanks to those few of you who sent in contributions. I'm going to get "the Boys" to lean on the rest of you! Ed)*



# UNIVERSITY OF NATAL

## INTERDISCIPLINARY POSTGRADUATE PROGRAMME IN BIOLOGICAL SYSTEMATICS

All biological investigations rest on a base provided by systematics (which includes all aspects of the interrelationships amongst organisms, their classification and nomenclature), since accurate knowledge of the identities and relationships of the organisms involved is essential for the formulation of testable hypotheses. This is particularly true for ecological studies which are becoming increasingly important in attempts to promote conservation and minimise environmental degradation, and even for applied fields such as pest control where biological agents are increasingly being used. Despite this fundamental importance of systematics (also termed taxonomy by many), the training of systematists in southern Africa has been accorded a low priority and what has been undertaken has relied almost entirely on a sort of osmosis whereby concepts, procedures and techniques were absorbed at the feet of a practicing authority. As in many fields of science, advances in systematic theory and practice have recently occurred at a greatly accelerated pace, and the field is filled with lively controversy. This means that the traditional informal training is no longer adequate.

In an attempt to address the situation, the University of Natal offers a unique interdisciplinary programme leading to the specialised degree of Master of Science in the field of Biological Systematics. This comprises formal course work in addition to a research project. Since 1980, academic staff members in five departments, students working on problems in Arachnology, Carcinology, Entomology, Ichthyology, Malacology, Mammalogy and Ornithology, and four museums, have been associated with the programme to varying degrees. It must be emphasised that such broad participation is considered important because each discipline within the biological sciences is able to provide a slightly different perspective in looking at particular problems, so that both staff and students are enriched by considering all points of view. This contrasts with the opinion that an interdisciplinary approach in systematics is not useful

because different sorts of characters and techniques are used in the different fields; such differences are actually somewhat superficial matters of detail, and the philosophy behind the research is common throughout. Indeed, the differences in approach which are encountered in an interdisciplinary situation are extremely valuable because such exposure to new ideas can provide new perspectives and new avenues for solution of problems which were perhaps intractable previously, and a varied base of expertise in a wide variety of techniques and approaches is also available. Furthermore, any student enrolled in the programme is supervised by someone who is a specialist in the particular field of interest; should there be particular techniques which are applicable in that field only, they are dealt with by the supervisor. The programme has operated on an informal basis in the past, and is offered as a formal course from January 1988.

## PROGRAMME AND COURSE STRUCTURE

The structure includes dual components of formal coursework and a research project. By its very nature, the coursework component requires that all students be physically present in Pietermaritzburg or vicinity while it is being undertaken, but the research component may be carried out at some other centre where the necessary facilities (e.g., collections) are available.

**Pre- and Co-requisites:** For admission to the programme, a candidate must normally hold a four-year degree (B.Sc.Honours or equivalent) in any biological science, except by special arrangement. In addition, supplementary reading and courses in basic evolutionary theory, population biology and genetics, biometry or statistics, computer literacy, translation of significant foreign languages or other necessary topics may be required of candidates with insufficient training in these areas.

**Time Scale:** Prospective candidates will usually apply towards the end of a calendar year and will be screened by the Board of Studies; successful applicants will commence early the following year. No time limits other than those normally enforced by the University apply, but 18 months will usually be the minimum required for successful completion of the programme and 24 months will probably be more usual. The very nature of systematic research, where the accumulation of sufficient specimens from local and often also overseas sources is involved, necessitates a fairly long period. Where a candidate has already started research on a suitable problem when joining the programme, the course may be completed sooner, the minimum allowable period being 12 months (full-time, 24 months part-time).

**Coursework:** The first six to nine months are devoted to an intensive study of the theoretical and philosophical bases of systematics, as well as the methods used in any systematic investigation. Class meetings are held weekly and take the form of discussion sessions based on reading lists provided in advance; they are attended by all students and participating staff members. Topics include the following: Species concepts; speciation; intraspecific variation; macroevolution; purposes, functions and forms of classifications; philosophical problems of higher classification; methods of classification -- classical intuitive, phenetic, cladistic and phyletic (evolutionary); nomenclature; classification of fossils; historical biogeography. The working out of examples using both hand and computer methods is done. Student progress is monitored continuously by means of reports. The coursework is examined at the end of the period by means of one three-hour paper which is subject to external examination. In addition, specialised techniques, including approaches which are applicable only to particular groups of organisms, such as methods of collection, specimen preservation and preparation for study, curation, microscopy, cytology, biochemical analyses, data recording, etc., are imparted by the staff familiar with the relevant techniques. These technical aspects are examined in a second three-hour paper which is tailored to take into account the requirements of each student.

**Research Project:** After successful completion of the coursework, each candidate devotes his or her time to the investigation of a problem involving the systematics of a particular group of organisms under the supervision of the relevant staff member. (The initiation of such an investigation and accumulation of specimens can, of course, commence earlier, but the meaningful analysis of the data can be done only after the candidate has acquired the necessary basic knowledge.) The investigation leads to the production of a thesis in a publishable form. This is of sufficient extent to demonstrate that the candidate is able to apply the knowledge gained from the coursework, but is of lesser scope than that required of a M.Sc. thesis where no coursework is involved. Publication of the thesis is strongly encouraged since work of this type is especially significant in the southern African context and it is highly likely that even a small project will produce new and valuable results.

**Degree Awarded:** The normal degree awarded upon successful completion of the programme is Master of Science, with its interdisciplinary nature being indicated by use of the term 'Biological Systematics' instead of the usual departmental affiliation, where appropriate.



**Administration:** The programme is administered by a Board of Studies comprising one or more representatives of each of the participating departments.

**Expansion of Research and Subsequent Degrees:** If the research (thesis) component becomes significantly more extensive and innovative than that usually required, upgrading of registration to candidature for the degree of Doctor of Philosophy may be considered under the usual conditions applicable in the Faculty of Science, Pietermaritzburg. Such a Ph.D., as well as any such programme undertaken subsequent to obtaining the M.Sc. in the field of Biological Systematics, will be pursued and awarded within the appropriate participating department and not on an interdisciplinary basis.

## PARTICIPANTS

The following departments of the University of Natal participate in the programme (members of the Board of Studies indicated):

Department of Biochemistry -- Dr M.F. Dutton

Department of Biology (Durban) -- Prof. J. Meester

Department of Botany -- (appointment awaited)

Department of Microbiology & Plant Pathology -- Prof. F.M. Wallis

Department of Zoology & Entomology -- Prof. D.J. Brothers

In addition, the Institute of Natural Resources (University of Natal), the Albany Museum (Grahamstown), the Durban Museum, the Natal Museum (Pietermaritzburg), the Transvaal Museum (Pretoria), and other similar institutions, provide resources and expertise.

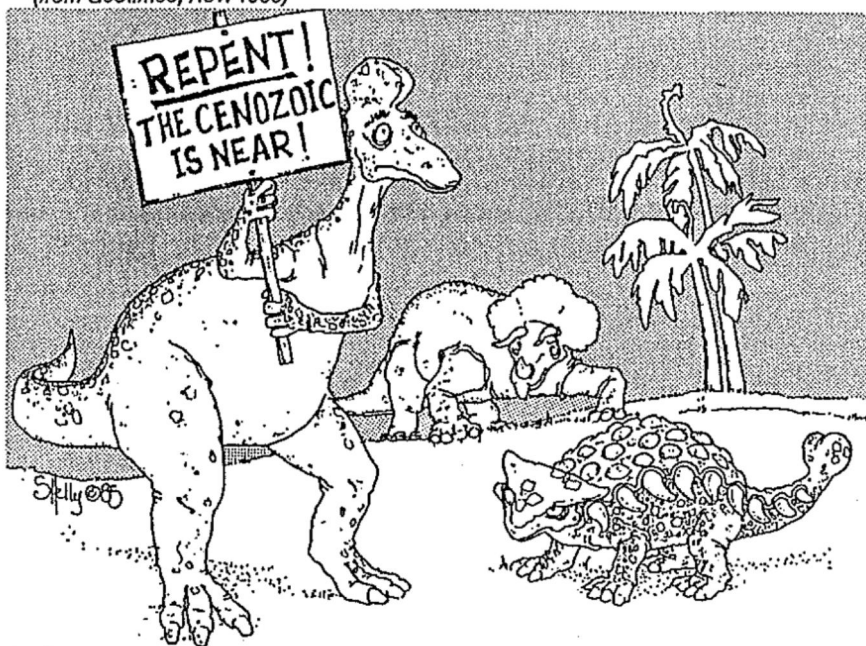
Further information may be obtained from the Chairman of the Board of Studies:

Prof. D.J. Brothers, Department of Zoology & Entomology, University of Natal, P.O. Box 375, Pietermaritzburg, 3200 South Africa.

(from *Pick of Punch*, 1985)



(from *Geotimes*, Nov. 1986)



**DATE AND VENUE FOR  
THE FIFTH BIENNIAL MEETING  
OF THE PSSA, 1988  
(PSSA5)**

All members were circulated by our Hon. Secretary, Francis Thackeray, in September when the suggestion was put forward by Bruce Rubidge that "PSSA 5" should be held in Graaff-Reinet in 1988. As was pointed out in the circular, the advantages are:

1. Excellent conference facilities at the Drostdy Hotel, and enticing reduced rates from this magnificent hotel for delegates to the conference (R35,00 per person bed/breakfast, sharing a room; R45,00 b/b single);
2. Proximity to some outstanding fossil sites - notably on the picturesque Rubidge farm, Wellwood, which is also the home of the magnificent Rubidge Collection of Karoo fossils;
3. The date for the conference would not be constrained by school holidays, which would have been the case if either of the other two suggestions were followed - namely, the Mountain Zebra National Park outside Cradock, or the Giants' Castle Park in Natal.

Members were asked to fill in a response form and return it to Francis. To date the response has been overwhelmingly in favour of Graaff-Reinet, so this decision is now confirmed. However, the organising committee still needs other information from those members who did not respond to the initial circular. If that means you, please use the copy of the amended questionnaire reproduced overleaf, fill it in, detach it, and send it back to Dr. Francis Thackeray at the address given overleaf.

**PALAEONTOLOGICAL SOCIETY OF SOUTHERN AFRICA:  
FIFTH BIENNIAL MEETING  
1988**

*(If you did not respond to the first circular, complete this form,  
detach it and return to the address at the foot of this page)*

**1. Your Name:**

**2. Intention to attend:**

I would like to attend PSSA 5 **Yes** or **No**

*(Delete the inapplicable choice)*

**3. Date:**

Two suggested dates were put forward in the questionnaire -  
Sept 5 - 8, or Sept 12 - 15.

So far the majority favour the later dates (i.e. **Sept 12 - 15, 1988**).  
Please indicate whether you approve or disapprove:

I **approve/disapprove** the dates Sept 12 - 15.

*(Delete the inapplicable choice)*

**4. Paper:**

I intend to present a paper at the conference:

**Yes No**

*(Delete the inapplicable choice)*

If Yes, please supply a provisional title.

**Return to:**

Dr. J F Thackeray,  
Dept. of Archaeology,  
University of Stellenbosch,  
STELLENBOSCH  
7600