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PAL NEWS
PAL NUUS

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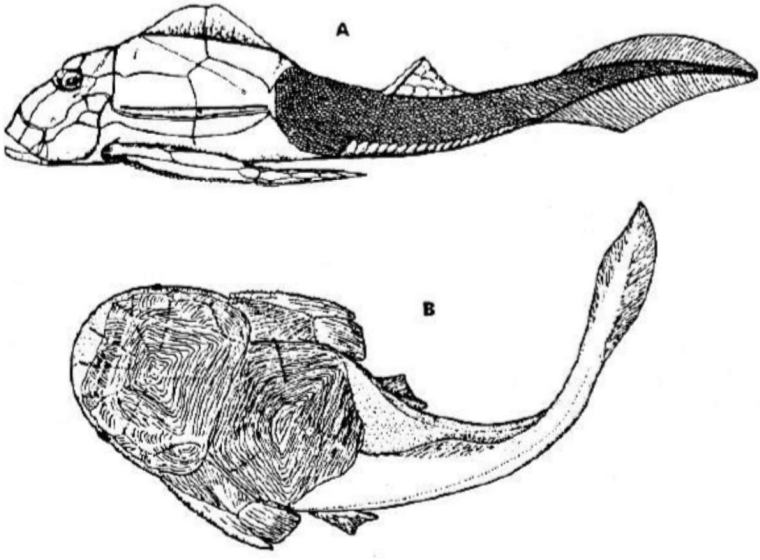

A. A species of *Bothriolepis* from Australia (Long & Werdelin, 1986)
B. A phyllolepid placoderm from Antarctica (c. 220mm long) - Aztec siltstone. (Young, 1989).

Specimens of both these fossil fish are being discovered in the Grahamstown N2 bypass road cuttings which have exposed Witteberg Group shales of late Devonian age.

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EDITORIAL

Greeting from your new editor!

Well, the PSSA conference is now well behind us and it's back to the grind-stone until we again meet in Grahamstown in 1994. Once again the PSSA conference was a tremendous success and Bruce Rubidge and his team at the BPI have set a standard of conference excellence which we in the eastern Cape will be hard pressed to match.

Readers may remember that the "twin" editors of **Pal News**, none other than Francis Thackery and Anusuya Chinsamy, had in a previous issue (Dec. 1990) discussed the "non-response" to an advert for a new editor for this newsletter. By mid-1992 they were getting desperate as Francis had an inkling that he was destined for higher office and Anusuya was planning her post-doctoral stay in Philadelphia, USA. So, during the latter half of 1991 and first half of '92 this fiendish alliance of editors hunted for a new incumbent. They tirelessly scouted around until eventually they targeted an unsuspecting *igneous petrologist*, stranded in a sedimentary environment, and who only has a smattering of palaeontology in his veins. So if some hard-rock geology slips in occasionally you'll know who to blame - not me, but those that coerced me into this position.

I'd like to thank both Francis Thackery and Anusuya Chinsamy, our previous interim co-editors of Pal News for their hard work and for showing me the ropes on transfer. I only hope I can match the high standard set by these two and of course their predecessor, Mike Raath.

May your digs be dusty and rewarding! Ed.

PALAEONTOLOGY AT THE CLOSE OF THE TWENTIETH CENTURY: REFLECTIONS AND DIRECTIONS

Presidential Address presented by Dr Jurie van den Heever at the 7th Biennial Meeting of the PSSA at the University of the Witwatersrand on Sept. 7, 1992.

Mr Chairman, Ladies and Gentlemen
It is a privilege to address a few words to you at the start of this conference, as a forum such as this allows a wide range of people who share an interest in the discipline of Palaeontology the opportunity to discuss current research developments and ideas with colleagues.

Currently we meet under the banner of change in our country: as the media constantly remind us, we have already experienced change, both locally and internationally and we face the prospect of greater changes still to come. This change is most often viewed with trepidation by society at large and by the guardians of our morals and, the ultimate forecast seems gloomy.

How would we view these forecasts from a palaeontological perspective? Let us reflect briefly, in a biased way, on the history of palaeontology in South Africa. From the initial fossil discoveries of Andrew Geddes Bain in the previous century to the current situation where a number of research institutions employ professional palaeontologists, it seems to me that Palaeontology has influenced attitudes towards change in our country. The changes wrought by Palaeontology may not have been obvious in a purely practical sense, but its impact lies in a far more important area: the minds of the people. To influence a person's attitude is a difficult and responsible task. Richard Owen, who first described the mammal-like reptiles collected by Bain was not an evolutionist and therefore found it difficult to explain their morphology. So much so that as long as 20 years after the publication of Darwin's epochal work he still speculated on the question of descent in the Cape Monthly Magazine, without committing himself.

With the advent of Robert Broom in South African Palaeontology great changes came about. His discoveries shed new light and understanding on the evolution of mammals and ultimately on human origins. Raymond Dart also influenced more than a few attitudes with the discovery of the Taung child. In spite of the strong criticism from abroad he forged ahead and was vindicated. There are people here today who, through their contributions to Palaeontology, helped equally to shape the way people perceive the natural world. It is with a sense of satisfaction then that one can state that Palaeontology has not only initiated positive changes in society, but as an instrument of change it will continue to influence the way people think about themselves and their place in nature.

What will the position of Palaeontology be in the new South Africa? We have seen that recently members of the Society have come forward in debates and this is a refreshing change. A new society has been founded to cater for interested amateurs and of late I also perceive a somewhat greater openness in mainstream theological thought towards palaeontology and evolution.

It is also true, however, that in times of perceived or real upheavals in society the "trend" is often to retreat to a more fundamentalist position. This has been shown to be true of the early history of the United States of America where even today fundamentalist religion is rife, as well as in South Africa where much the same scenario has repeated itself in certain areas by the establishment of prescriptive religious attitudes and a general condemnation of evolution.

This is certainly not a trivial trend as it has severely hampered our discipline. Up to now we have had decisions taken for us both in the political and cultural areas. In the new South Africa it will hopefully be easier to assess the importance of a biological view of life. By biological I mean a palaeontological approach. How, you may well ask, will we achieve this, given the present formidable odds.

That the so-called battle between science and religion has been largely unnecessary is not even debatable in palaeontological circles. The passage of time, however, has not served to diminish the attack on palaeontology, evolution and science in general. We are still under fire to this day evident in the quaint rumblings of the creationists and also in the much more insidious mechanism of the denial of the facts of evolution. This problem stems from within ourselves and the conventions of the society in which we live.

Because we often adopt apologetic attitudes in explaining evolution and Palaeontology, presenting contorted arguments to explain evolution in such a fashion as not to offend anybody, it is small wonder that the public is not as informed about evolution as they should be. Is it not then unfair of us to claim that our science and ourselves are not understood. I believe that we are at least partly to blame for pandering to current anti-evolutionists by watering down statements.

The year is 1992, close to the end of the 20th century. Palaeontology and therefore evolution is not being taught in South African schools, despite the fact that we live in a society that has largely being constructed by science. The activities of the fundamentalist faction in North America have received a lot of media coverage and this has been counter to fundamental tenets of education. We have a parallel situation in South Africa in that fundamentalist religion is so entrenched in the school system that evolution is excluded from the curriculum.

It has been shown that the place to start with innovation and a change in attitudes is at school level, and the earlier the better. This is where we can make an important contribution. Current approaches have a negative impact. **Science as a Way of Learning** criticizes the biology curriculum as follows: "*Teaching morphology at school is most often done in typological fashion, selecting a few specimens. It is presented in the context of animal and plant diversity and the students are left with a sense of immutability of form and not diversity and variation. No embryology is done in comparative fashion and the student has no link between development and morphology.*" This statement refers to conditions in North America but is equally true of the South African context.

We regard the fossil content of the Karoo rocks as one of the wonders of the world and South Africa possesses many other fossils assemblages, not the least of which are the unique protohuman contents of the Transvaal caves. Why do we tolerate a situation in which these places are well researched, evidence from them is regarded as vital for our understanding of the natural world, and yet we deprive our school children of access to this knowledge. Why is it that the fossil people of South Africa are included in a book on the history of South Africa and not in the biology curriculum at school, where they belong? Children are our investment in the future and they should not be misinformed. Especially not through the devious method of ignoring something to create the impression that it does not exist.

Why should it be necessary to soft-pedal the fact of evolution? We are often confronted by the request: "*How do I introduce evolution to my students without offending them?*" Can it be that for some dark and mysterious reason the origin of the eye should be regarded as obscene? Could it in any way be dangerous or forbidden to know about the comparative embryology of vertebrates? Is it shameful that visceral clefts are part and parcel of the embryogenesis of humans? I think not. It is probably because evolution and certainly Palaeontology places humans in the proper perspective: not as the crowning glory of all creation, with the mission to subjugate and exploit the planet and its natural resources, but as an integral element in the evolution of life on earth. This is not a popular idea because people do not usually relish the possibility that they are probably superfluous in the grander scheme of things.

One can criticise the school curriculum further: we are constantly confronted with the fact that we live in a country which has insufficient water resources. Despite the urgency to preserve water, our streams and rivers are poisoned on a regular basis by industry and other commercial activities. This is done by people who should know better - people who are products of our biology curriculum at school. To me this means that the biology curriculum has failed in what it should achieve. What is needed at school is evolutionary biology which places mankind in a proper perspective, not taking up the major portion of

the biology handbook. A recent text which I helped to evaluate is promoted as a course in advanced biology based on the school curriculum but written in such depth that it can be used in tertiary education as well. In this book, of approximately 1000 pages, Botany is dealt with in 177 pages, Zoology takes up 164 pages whilst 300 odd pages are devoted to human anatomy and physiology. It is not the authors of the book that are at fault here, it is the system which prescribes the format. This is what should be changed and we should contribute to that change in order that the result should better reflect conditions in the real world.

Man should not be portrayed as the centre of the universe, as this only promotes an anthropocentric world view. We have seen that this invites ecological disaster. Uncontrolled strip mining is a good example of what can emanate from such reasoning. The attitude seems to be that we should take what we can get because we will eventually depart from this vale of woe and live eternally somewhere where all conveniences will be readily available as well as free. Instead of evolution then being seen as responsible for the evils of the world it appears that outdated human conceptions of what our existence is about may in fact be responsible. Regarding humans as unique and worthy of special attention has contributed to the world-wide problem of overpopulation. Taking palaeontological history as an example the answer is obvious. The population of the world should be smaller. There are quite obviously too many of us since we are capable of extending the life of individuals who would otherwise have died at birth or of old age. In contrast we are also able to curb the increase of human life. It is tempting to speculate, if we listed our resources such as available water and crop production, on what the population of Southern Africa should be. Farmers do it all the time otherwise they go under. We should do it for ourselves. In fact we owe it to ourselves. In order to do this it is important to give the argument a sound palaeontological basis in terms of the success of past life forms. It is often said that we should heed the lessons of history and let us remember that Palaeontology is a vital component of history.

In the final analysis it is perhaps true that the grip religion has on our lives stems from the fact that we would like to think that our existence need not terminate with death. It is comforting to entertain the thought that one may indeed attain eternal life, as promised by mainstream religion. It is perhaps too much to ask believers to accept the concept that there might, after all, be nothing after death. That we may be as leaves on a tree or flowers on a plant that blooms, withers and dies. However, it seems to me that a great deal of inner peace can be gained purely from the fact that we are indeed part of the stuff of the universe and I agree with John McPhee when he states in his book **Basin and Range** - *"If you free yourself from the conventional reaction to a quantity like a million years, you free yourself a bit from the boundaries of human time. And then in a way you do not live at all, but in another way you live forever".* **Thank you.**

The PSSA Conference at BPI - University of the Witwatersrand

The *7th Biennial Conference of the Palaeontological Society of Southern Africa* (6.11 September) was organised and hosted by the BPI Palaeontology. Seventy delegates attended, which is an increase on the attendance at past conferences. Six overseas palaeontologists attended and the keynote address entitled "Dinosaurs and the evolution of herbivory", was presented by Dr Dave Norman of the Sedgewick Museum, Cambridge.

Papers presented at the conference covered a wide range of palaeontological and related subjects and so we have all gained a broader knowledge of the ongoing research. The papers on the first day dealt mainly with hominids and quaternary mammals, mainly from cave deposits. Dr Friedemann Schrenk from Darmstadt, Germany spoke on "The hominid corridor of south east Africa", and Prof. Basil Cooke of Canada (formerly Wits Geology department) gave two papers on suid and proboscidian remains from Transvaal cave deposits. Judith Masters and Dick Rayner presented a paper on "Palaeobiogeography and the riddle of the Malagasy lemurs".

Karoo fossils were the emphasis on the second day of talks. BPI Palaeontology has a huge collection Karoo vertebrates and several staff members work on some of this material. Prof. Anne Warren from La Trobe University, Australia, presented a paper on "The last, last *labyrinthodont*?". Anusuya Chinsamy and Bruce Rubidge's paper was entitled "*Dicynodont (Therapsida)* bone histology; phylogenetic and physiological implications." Bruce Rubidge also gave a paper on "The most primitive *therapsid* fauna - South Africa or Russia?" based on research carried out during his recent trip to Russia. Heidi Fourie spoke on the "Internal cranial morphology of *Emydops*", and Chris Gow's paper, "The first mousetrap - why we are not extinct," on the primitive crocodilian *Protosuchus*, also showed the humorous side of survival.

After lunch the poster session was held and each of the thirteen contributors were able to say a bit about their posters. Posters have become an important part of the PSSA conferences. The BPI students produced posters of a very high standard. Following the Poster Session the important hominid-bearing cave deposits at Kromdraai and Swartkrans were visited. Francis Thackeray of the Transvaal Museum and Tim Partridge of Wits Geology Department were our guides. Dr Bob Brain of the Transvaal Museum is about to retire after 25 years of excavation and research at Swartkrans. Prof. Sellschop, Deputy Vice-Chancellor of Wits, unveiled a plaque from Wits in honour of Bob Brain, and also a National Monuments plaque. The delegates were then treated to a magnificent evening braai hosted by the Brain family.

Papers on the third day of the conference covered palaeoecology, palaeoenvironmental

interpretations, sedimentology, palynology and palaeobotany. Caroline Northwood, from La Trobe University, Australia, spoke on "Palaeoecology and taphonomy of the Arcadia Formation *tetrapods*". In the final session Ann Cadman, Louis Scott and Ian Corbett's paper on the "Palynology of offshore marine Tertiary sediments, West Coast, southern Africa," and Marion Bamford and Mike de Wit's paper, "Fossil wood from the Brandvlei area, Bushmanland, as an indicator of palaeoenvironmental changes during the Cainozoic," were examples of interdisciplinary and economically important research and diamond exploration.

The conference ended with a two-day excursion to Sterkfontein, Gladysvale and Makapansgat Caves. Ron Clarke of the Palaeoanthropology Research Unit, Wits, showed us around the excavations and the hominid bones at Sterkfontein. Lee Berger (Palaeoanthropology Research Unit) and Jeff McKee (Department of Anatomy and Human Biology, Wits) were our guides at Gladysvale. James Kitching and Judy Maguire, both Honorary Research Associates of BPI Palaeontology, were our guides through the Limeworks and Cave of Hearths at Makapansgat.

Marion Bamford

monument to his skill and unbounded energy. These pursuits have only been

1947. James was involved with the analysis of the fossils from the Pinhole cave in England. In addition he spent some time in the Netherlands, Belgium and France studying Palaeolithic mammalian faunas.

James W. Kitching

Professor James Kitching has spent his entire professional career working at the University of the Witwatersrand where he has been instrumental in building the Bernard Price Institute for Palaeontological Research into an institute which is internationally recognised for the study of the fossil heritage of southern Africa. At the time of his retirement in 1990 James was a reader of Karoo Biostratigraphy and also director of the Bernard Price Institute for Palaeontological Research. Since his retirement, James has been appointed Honorary Research Professional Fellow at the Institute. Today, as in the past, James is in his office long before 08h00 and leaves only after 17h00 every day! The palaeontological community is indeed indebted to James Kitching for what he has done, and knowing how energetic he is, we look forward to what is still to come. ***Bruce Rubidge***

TRIBUTE TO MR LEX BREMNER

A document paying tribute to the late Mr Lex Bremner was tabled at the PSSA Biennial General Meeting which reads as follows:

On the occasion of the Seventh Biennial Conference of the Palaeontological Society of Southern Africa, held at the Bernard Price Institute (Palaeontology), in Johannesburg in September 1992

LEX BREMNER

was acknowledged for his contribution to palaeontological research in southern Africa, particularly with regard to his collection of fossils from the Karoo in the Graaff-Reinet area. This material collected by Lex has already been recognised as important, and has been described in the scientific literature. The fossils collected by him will continue to be studied by future generations of palaeontologists.

Signed: Dr J van den Heever
President

LEX BREMNER: PALAEONTOLOGY LOSES A STAUNCH SUPPORTER

Lex Bremner, the well known amateur palaeontologist and fossil collector of Graaff-Reinet in the Cape, died suddenly on 6 August 1992, at the age of 81. He had remained active up to the day of his death and was busy in his garden when he was suddenly taken ill.

Lex Bremner was born at Cape Town in 1910, and grew up in the Graaff-Reinet district. During World War II he served as a pilot in the South African and Royal Air Forces, eventually reaching the rank of Captain. He settled in Graaff-Reinet after the war, and was engaged in business before taking up the position of Groundsman at the Union High School in 1958.

Lex was a keen and talented sportsman and loved the outdoors. He was widely known for his prowess as a huntsman, but also had a deep interest in the natural world. In Graaff-Reinet, such interests would almost inevitably widen to include the region's rich and varied record of prehistoric life, and from the time of his retirement Lex Bremner became increasingly absorbed in the fossils of the area which he knew so well. Combining physical fitness with a sharp eye for fossil fragments, Lex combed the mountains around Graaff-Reinet with seemingly boundless energy and enthusiasm, bringing back to town an array of specimens - molluscs, plants, fishes and reptiles - which he identified with the help of textbooks and, wherever possible, with the aid of visiting palaeontologists. His work as a collector led to a permanent link with the South African Museum, which accorded him Honorary Associate status, and his contribution to the science of palaeontology can be measured in the numerous fine specimens which now form part of that institution's study collection. His keen eye for the smallest detail accounted for a number of tiny and rare specimens of fossil reptiles - including the new reptile which bears his name, the type of *Acanthotoposaurus bremneri*. A fitting and lasting memorial to his work is the Lex Bremner Fossil Collection in the Graaff-Reinet Museum, where a selected number of fossils collected by him and prepared by technicians of the South African Museum are on permanent public display.

For Lex Bremner, fossil were part of an extraordinarily rich and varied life. Collecting trips were not allowed to interfere with hunting, when this was in season, and in the evenings time was always set aside for the Graaff-Reinet Club. Lex was a regular and highly-literate contributor to the Graaff-Reinet Advertiser, and used the columns of this newspaper to foster interest among readers in topics in natural history, conservation and the prehistoric past of Graaff-Reinet. Always colourful in manner and speech, never afraid of controversy and always ready to question conventional wisdom. Lex was a true son of Graaff-Reinet and the Karoo. His contribution to Palaeontology lies in the many beautifully preserved specimens which now form part of museum research collections, but for those who were fortunate enough to know him and collect with him at his favourite localities, he will also be remembered as a remarkable, highly-talented and warm person who made a deep impression on all who met him. Palaeontology in South Africa is much poorer without him.

Michael Cluver

(Clipping from the "Graaff-Reinet Advertiser" - 5 Nov. 1992)

Lex Bremner honoured by Paleontological Society

The Paleontological Society of Southern Africa recently presented a posthumous award to local paleontologist, Mr Lex Bremner, for his contribution to paleontological research in Southern Africa, particularly with regard to his collection of fossils from the Karoo in the Graaff-Reinet area.

The award was made at the occasion of the seventh Biennial Conference of the Paleontological Society of Southern Africa at the Bernard Price Institute in Johannesburg in September. It was presented by the President of the Paleontological Society, Dr Jurie van den Heever.

"The material collected by Lex has already been recognised as important, and has been described as scientific literature. The fossils collected by him will continue to be studies by future generations of paleontologists" the wording on the award reads.

Mr Bremner collected more than 450 Karoo fossils during his lifetime, one of which was named in his honour, the Aconthoposaurus bremneri. The collection has been housed in the Old Graaff-Reinet Library since iit was converted into a museum in 1982.

It includes artefacts which vary in age from the Early Stone Age (about two million years) to the Middle Stone Age (300 000 years), the Bushman Age (10 000 years) and the Iron Age.

To co-incide with the opening of the fossil collection in the museum in 1982 a set of special stamps with pre-historic animals as the theme was issued.

Mrs Rosemary Kingwill presented Mr Teddy Whitlock, Chairman of the Graaff-Reinet Museum Board, with the posthumus award her father, Mr Lex Bremner, received from the Paleontological Society of Southern Africa for his contribution to paleontological research, particularly with regard to his collection of fossils from the Karoo. In the background are photographs of Mr Bremner (right) and the fossil named after him, Aconthoposaurus bremeneri.

"DYNAMATION"

Members of the PSSA are currently assisting with an exhibition of dinosaur models, and have compiled a booklet which is being used in conjunction with the much publicised **"Dynamation SA"** show that is scheduled to run in Cape Town from the beginning of December through to the end of February at Victoria-Albert Waterfront. The show is being set up in the Maritime Museum warehouse. In all eleven latex covered dinosaur robots are being shipped from the USA and casts of South African fossils will also be on display. As an adjunct to the show the Palaeontology Department of the South African Museum is setting up a preparation lab at the venue and will be publicly developing a new Lystrosaurus skeleton that they have recently collected.This lifelike dinosaur exhibition is the same one that has attracted more than 10 000 people a day in London. One of the "stars" of the show is *Tyrannosaurus* which is 10 metres long, weighs seven tons, has 15cm serrated teeth in a head the size of a Mini car. But the old T-rex won't be full size - its simply too large to practically accommodate. Others, which have been build to scale include *Stefosaurus, Allosaurus, Ankylosaurus, Pachycephalosaurus, Pteranodon, Apatosaurus, Dimetrodon, Triceratops* and *Deinonychus*. From Cape Town the show will move to Durban and then on to Johannesburg where it is due to run during the Rand Easter Show in April.

The booklet that has been prepared and which is on sale to the public during this tour is based largely on Bob Baker's text, which deals almost exclusively with American and European taxa. The PSSA has added some text and diagrams on South African dinosaurs. In helping to compile the booklet, the PSSA has gone some way in educating the public on South African fossils and for this service the PSSA is being paid by the company "Dynamation SA".

oOo

News from Roger Smith - South African Museum, Cape Town.
Once again Roger gets get the accolade for being the first member to send in a contribution for this edition of PALNEWS (Ed.)

Publications
Since March this year I've concentrated on getting papers into press. Two papers on the Lower Beaufort have been refereed and accepted for publication in PALAIOS - one on sedimentology and vertebrate taphonomy of the argillaceous Hoedemaker Member and the other on ichnology of floodplain palaeosurfaces.

A paper on the sediments and trace fossils of sub-recent Kuiseb River deposits in Namibia, co-authored by Tom Mason and John Ward is going into a special volume of Sedimentary Geology for the proceedings of the Fluvial Symposium to be held in Brisbane next year. If the aussies let me in this time I hope to present this at the conference and get on a trip into the Lake Eyre Basin to experience an active arid continental basin for comparison with the Upper Karoo Basin of South Africa. Another special volume, this time on the Geology of Southern Africa, is being compiled by the University of Pretoria for publication in the Journal of African Earth Sciences. I've submitted a revised summary of stratigraphy and palaeoenvironments of the Karoo basins of Southern Africa containing some fancy "geofantasmograms" drawn by Cedric Hunter of the SA Museum.

Research
I am currently compiling the field data collected last March with James Kitching on the "*Tritylodon* Acme Zone" in the middle of the Elliot Formation of the south-eastern Orange Free State. This turns out to be an interesting exercise as it seems that we are dealing with a reworked fossil assemblage on a pedogenically modified regional degradation surface within a fluvial succession. More fieldwork is planned for next March to map the lateral continuity of this surface and I hope to present this next October at the Non-Marine Triassic Symposium in New Mexico.

Annelise Crean has nearly finished preparing a fantastic "nest" of four intertwined *Owenetta* skeletons from the Hoedemaker Member which appear to demonstrate denning behaviour. This is the most delicate fossil Annelise has yet prepared, the skulls are only 10mm long and the ribs are less than 1mm thick. The fossil is

completely encased in calcareous mudstone and it was from X-Ray radiographs that we discovered that there was more than one individual.

Last June I was invited to join John Ward, Martin Pickford and Glen Conroy on a week-long reconnaissance of fossil dune deposits in the CDM diamond areas of the southern Namib desert. The Rooilepel Sandstone turned out to be quite fossiliferous with abundant gastropod casts and rodent teeth concentrated on carbonate-cemented palaeo-deflation surfaces. More sedimentological logging and systematic fossil collecting is planned for next May.

After Geocongress '92 Herbie Klinger and I joined a field excursion to Madagascar led by Johan Loock and Shalk van de Merwe. My motivation for joining the party of 17 geologists was to investigate the possibility of working on the Karoo-aged continental strata in the southwestern part of the country with a view to adding more fuel to the arguments of how and where Madagascar and Africa fitted together during Gondwana times. The continental Karoo outcrops in rugged semi-arid terrain with very few roads. Logistical support from within the country would be minimal so it seems that a field party from South Africa would have to bring its own 4X4 vehicle and camp. IS there anybody willing to get involved in such a venture?

Karoo National Park Fossil Trail

In the last edition of Palnews I reported that the skull of the *Bradysaurus* skeleton that now resides in the Karoo National Park was removed by a Geological Survey fossil collector back in 1975 and I hoped to find it in the GSO collections. The farmer, Mr Piet Le Grange showed me a cine film of the skull taken at the time of removal and he allowed me to make a print which I gave to Colin McRae to aid his search. Colin was immediately able to match this with an un-numbered *Bradysaurus* skull in the collection but he also informed me that the 1:50000 map indicates that I was the only GSO collector to have found fossils in that area. Even though I have no recollection of the farm or the farmer (nor does the farmer recognise me), as it stands I must take responsibility for having collected this fossil. I would like to apologise to Colin and the Geological Survey for any embarrassment that I may have caused and hope we may speedily "recapitate" the fossil for the benefit of visitors to the Karoo National Park.

oOo

News from Gillian King - South African Museum, Cape Town.
Dinosaurs are making a big impact on the life of Karoo Palaeontology at the moment. From December to January Dynamation SA will be hosting a show of animated dinosaurs at the waterfront in Cape Town and the department is staging an exhibit - with real fossils and live preparators! - as part of the show. The Museum is also running a complementary programme of lectures, dinosaur safaris, a quiz, and so on throughout December and January, so we should all be pretty busy. It's a very exciting venture, however, and we're all enjoying being involved.

On a (slightly?) more serious level we are also planning to go out and look for dinosaurs next year. Not the live ones reported in the Congo jungle, but the more tangible fossil ones of the Karoo. Most of the department in Cape Town will be going into the field accompanied by Chris Gow (BPI). Lars Juul (from Copenhagen, soon to be at the BPI) and Dave Norman (Cambridge). The field work is the initial part of a longer term project to look at South African dinosaur systematics and biology, and leading on to a study of the interaction of herbivorous dinosaurs and mammal-like reptiles in the Triassic and Jurassic. We've been lucky enough to get finance from the FRD and Engen for the project, and intend to start the work in March 1993.

oOo

News from Herbert Klinger - Dept. Invertebrate Palaeontology, SA Museum, Cape Town.
The past few months have been rather hectic with little time to sit down and do some serious writing. Roger and I attended the Geocongress in Bloemfontein in July. Never in my life have I suffered from the cold as much as in Bloemfontein. Moscow seemed like a tropical paradise compared to the Free state. Fortunately this was followed by a field trip to Madagascar; an unforgettable experience. We did not get to see any fossiliferous exposures, but the general impression I got from the Island, is that it would certainly be very difficult to do any productive field work there. For the present, it would be better to study the existing ammonite collections in Dijon and Paris.

Jim Kennedy (Oxford) managed to get some money from a Strontium Isotope stratigraphic correlation project to finance three weeks of field work in Zululand. We managed to collect over three tons of material during this time. Things have changed somewhat since we first did field work together in Zululand in 1970: most noticeable are that we both are twenty years older and probably as many kilograms heavier and that our tolerance to wine has increased considerably. All in all it was a very successful trip. Ricky Taylor and Caroline of the Natal Parks board were extremely helpful in shipping us all over Lake St Lucia and False Bay. Les Carlisle and his team of Game rangers at Phinda were equally helpful in showing us some of the new Cretaceous exposures and allowing us free access to their property. Jim and I gave a short talk on the geology and palaeontology of the area to the game rangers and showed them some of the important fossil localities. They intend including some of these fossil sites in their tourist game drives.

We did not find any new ammonite taxa, so it seems that we covered the ground pretty thoroughly in 1970 and 1985. Some of the interesting material we found includes more dinosaur vertebrae, a new Barremian plant locality and a carbonized conifer of some sorts. In addition, we collected a lot of fossil wood from the Cretaceous.

After a week at home to mow the lawn I was off again; this time to Hamburg for the 4th International Cretaceous Symposium. The symposium was preceded by a field trip to the Cretaceous-Tertiary boundary at Sevens Klint in Denmark and followed by another to the type section at Maastricht. The symposium itself was a bit of a disappointment; there were too many papers of very local stratigraphic importance only. In addition, some of the Russian and Polish contributions should not have been presented. It is a waste of time to sit through twenty minutes consisting of someone reading off fossil lists, presumably in English, while facing a white screen with faint back markings on it. Fortunately the field excursions were well organized and really interesting. After the symposium I flew to Munich to look at the Moçambique material collected by the late Reinhard Förster.

oOo

News from Eric Anderson (JLB Smith Inst. of Ichthyology) & Norton Hiller (Rhodes University) - Grahamstown.

Winter storms eroded a section of the Grahamstown Devonian shale beds to a point where much overburden covered our primary excavation site. This has subsequently been shovelled off and new areas for the collection of future overburden prepared, a previously neglected problem at this precipitous site. The clearing away has revealed more well-bedded shale and an abundance of fossil plant material, but so far no new fish. We have received a stipend from Rhodes University to aid in excavation and transport costs as we expand the local dig and Bokkeveld interests elsewhere. Work at Grahamstown will recommence in mid-December.

Letter from Dr Mike Raath - Port Elizabeth Museum

WIRE SCULPTURES OF FOSSILS

At the PSSA Conference held at the University of the Witwatersrand in September, I showed a wire sculpture based on the free-standing mount of *Kannemeyeria wilsoni* on display at the East London Museum. This unique piece was created by East London artist Shepherd Xago, who is from the economically and socially depressed Black township of Mdantsane. I said at the time that I was not acting as his agent and had not been asked by him to canvas work for him. However, I said that anyone who was interested in acquiring one of these unique works could contact me after the conference and I would find out if the artist was prepared to make them to order. I have since ascertained that he is prepared to take orders, and they can be submitted either to me (P.E. Museum, PO Box 13147, HUMEWOOD, Port Elizabeth 6013, South Africa), or preferably straight to the director of the East London Museum, Nancy Tietz, at PO Box 11021, SOUTHERNWOOD, East London 5320, South Africa.

When I showed my one I said I paid R50 for it. Of course, I can't commit the artist to that price as I bought mine some months ago, but I doubt if the price would be all that different now. I think this is an opportunity to acquire a unique bit of palaeontological "africana". while at the same time helping a talented man from an economically depressed area to improve his own lot in life. If you agree, and wish to order one, contact Nancy Tietz and she has said she is willing to help him service any orders that might come, including handling and packing and shipping (at a price, of course).

I am not certain to what extent he would be able to produce forms other than *Kannemeyeria*, simply because I think he has to have something to work from. The East London Museum does not have many fossils, but his usual work is in any case based on extant African animals. If you want to order something specific, I suggest you let Nancy Tietz know and she could find out if it is possible. ***Mike Raath.***

oOo

News from the Transvaal Museum - Francis Thackery *(scribe).*
Tim Partridge continues to work on deposits from Zoutpan, a meteorite crater near Pretoria. (No longer is it thought to be a volcanic crater). He recently returned from conferences in Israel and Japan, where he was given the responsibility for defining the boundary between the Pliocene and the Pleistocene! He's off soon to Australia to deal with palaeoclimates, and thereafter he goes to South America. With all this jet-setting, and jogging around the streets of Jerusalem (let alone Johannesburg and Japan), Tim is getting trim. Trim Tim will appear shortly on SATV, talking about his work on the Zoutpan.

Francis returned from overseas travel at the end of August. With Tim Partridge, he had attended the Third International Human Palaeontology Conference in Jerusalem, and saw lots of interesting people and fossils (including original neanderthals). One of the themes of the conference concerned the origin(s) of *Homo sapiens*, and Francis' paper on the dental arcade of fossils from Tuinplaas, Klasies River Mouth and Border Cave attracted interest. Also in Israel, apart from fossils, there was a chance to see the Dead Sea scrolls, the old city of Jerusalem, Masada and Mount Carmel.

After Israel, Francis went to London to look at material at the Natural History Museum: more neanderthals, and for fun, a look at the original Piltdown pieces. The *painted* orangutan canine should have been detected as a joke/hoax immediately after its "discovery"!

In Nairobi, Francis worked on hominids and discussed prospects for future research with Meave Leakey, who will be coming to the Museum with Alan Walker some time next year.

An interesting project that has developed after looking at East African hominid material concerns the question as to whether a specimen called KNM-ER 1470 (from Lake Turkana, formerly Lake Rudolph) is australopithecine rather than *Homo*, and whether its cranial capacity has been overestimated as a result of pre or post depositional distortion. Ideally, one needs to define criteria for distinguishing *Australopithecus* and *Homo*. This is particularly relevant to the study of hominid fossils that are about 1.8 million years old, from both South and East Africa.

Work on fauna from Gondolin (Ginny Watson) and Plovers Lake (Francis Thackeray and David Panagos) is continuing. Preparations are being made to work at Kromdraai soon.

oOo

News from Barney Newman - c/o Port Elizabeth Museum

Port Elizabeth Museum decided they needed to update their thirty year old Brontosaurus model, and they opted to replace it with a similar but more accurate reconstruction of a sauropod based on the remains of the more local *Algoasaurus*. Described by Dr Robert Broom, *Algoasaurus* was found in Cretaceous rocks in the vicinity of Kirkwood in the Eastern Cape Province. This animal is a Camerasaurid, a group of the sauropods which are well represented from other areas of the world with very good reference material upon which to base the reconstruction.

The model is some 14.5m along the spine and stands 3.5m at the shoulders. The stage in reconstruction has been reached where we have begun to model on the skin. Placed in a more dynamic posture than its predecessor, it is hoped that the new exhibit will prove a popular attraction whilst at the same time make a statement in support of more recent concepts as to how these animals appeared in real life. The model should be ready by late spring of 1993.

oOo

YET ANOTHER VIEW OF EVOLUTION - hook line and sinker!!
(Submitted by Norton Hiller)

Hook Line & Sinker

Our primaeval ancestry
Geologists engaged in constructing a road by-pass system in Grahamstown a few weeks ago unearthed the fossilised remains of a primitive armour-plated fish that dated back 360 million years.

The fish was found in a black shale area, and Dr Ron Hiller of Rhodes University believes the discovery provides new information on the previously accepted distribution of the Bothriolepis genus.

It is interesting to note that biophysicists say that some 600 000 000 years elapsed between our earliest fishy ancestors and the arrival of man.

During experiments, researchers have been given some incredible insights into the evolutionary relationships among animals.

Time-scales show a break of approximately 200 000 000 years between fish and bird. Internally, it was not a complete change. The bird retained a considerable number of chromosomes of the fish, but developed a good many of its own.

Another 200 000 000 years later, the earliest mammals evolved from bird-like ancestry.

These creatures are believed to have been roughly similar to the extremely primitive armadillo. With the addition of chromosomes derived from the armadillo-like ancestry, the most primitive of mammals, the lemurs, came into existence, such as the slow loris of Sri-Lanka. This moment in evolution has come to be regarded as the vital step towards the monkeys.

Some researchers believe that the monkeys of the New World came into being just slightly earlier than those of the Old World. From there it was a relatively short step of only a few million years to the highest animals — the chimpanzee and man.

Extract from: *Ski Scene/Fish*, **Vol. 16(2).**

News from John Anderson - National Botanical Institute, Pretoria (Strasbourg, 25 September 1992)

BIODIVERSITY : A palaeontological perspective

The Rio Earth Summit: In Rio de Janeiro, in June 1992, over 100 heads of state signed a Biodiversity Pact. Within the preamble to the 25-page pact appears a wide-ranging set of points agreed to by the 'contracting parties'. One states that the signatories are 'aware of the general lack of information and knowledge regarding biological diversity and the urgent need to develop scientific, technical and institutional capacities to provide the basic understanding upon which to plan and implement appropriate measures'. Biological diversity was understood to include 'diversity within species, between species and of ecosystems'.

Extant biodiversity: Remarkably, even the order of magnitude of the tally of species sharing our Earth's biosphere remains uncertain. When man first looked back from the moon at his home planet, the estimate stood at around 3 million species. By the mid 1980s after an ingenious band of French scientists first settled atop the canopy of the South American rain forest - on their inflatable rubber raft - the estimate had catapulted to perhaps 30 million species. A new world teeming with life had been encountered.

Fossil biodiversity (the fossil species): And what of the fossil species? Certainly we cannot hope to come to any direct approximation of the number of species around globally at any chosen time in the geological past. The fossil record is hopelessly incomplete for that. But we might realistically aim at piecing together meaningful biodiversity trends through time-at about the species level-for the major plant and animal groups. In the wake of Rio this, surely, becomes an imperative.

A tendency must first be reversed: through the 1970s and 1980s the fossil species - at least the fossil-plant species - acquired a badly tarnished image.

Paris and Aix 1992 (a bemused search for relevance): At the 4th International Palaeobotanical Congress in Paris and the 8th International Palynological Congress in Aix, the fossil-plant species had an air of taboo about it. Palaeoecology, on the other hand, had a definite ring of respectability; so had the untrastructure of the spore wall and of the leaf petiole; and so had the generation

of global data- bases. Considering that it is the interplay of species that make up an ecosystem, or that it is the species that will take up most of the space in the data-bases, this shift in focus is perhaps a little exaggerated.

In Paris and in Aix the word 'relevance' was everywhere heard. How is palaeobotany (or palaeontology) to make itself meaningful in the modern world? How, in our insecure and often dwindling numbers, are we to sell ourselves to the politician or to the neo-biologist? There was this tangible sense of half-hopeful expectancy: surely we must soon be embraced as relevant, but when and how? Biodiversity 'within species, between species and of ecosystems' definitely has relevance!

The fossil population: For over 20 years now Norman Hughes, in Cambridge, England, and we, Heidi Anderson and myself, in Pretoria, South Africa, have been lobbying unsuccessfully, for the fossil-plant population: Hughes, mostly through work on Cretaceous palynology; we, mostly through Permo-Triassic, Gondwana floras. Hughes speaks of biorecords or paleotaxa, we of palaeodemes, but all are in essence fossil populations. (A palaeodeme may be defined, for instance, as a collection of specimens from a discreet body of sediment (lithosome), displaying a continuous range of morphological variation, and judged to represent a natural species growing at the time and in the vicinity of the site of deposition).

The fossil population has two very evident features about it. First, it opens a wholly different perspective on species, speciation and biodiversity; second, it is inordinately difficult to sell.

Debate: 'Towards a base-taxon for fossils': At Paris and Aix (1992) we continued our campaign for the fossil population, through the medium of debate. We had fun; the merits and demerits of orthodox ICBN-generated taxonomy and of the population approach - requiring a paradigm shift in collecting and curating strategy - were aired, but no real debate ensued. The panellists were unashamedly Chekhovian - talking clear past one another.

Triassic megaplants: Ask any Triassic palaeobotanist approximately how many species of *Pleuromeia* (lycopod), *Voltzia* (conifer) or *Dicroidium* (seed fern) have been named and he will almost certainly pass. Rephrase it, and ask how many

acceptable species of these genera might reasonably be recognized, and he will surely pass again. If pressed, each Triassic specialist would come up with a very different number. But these genera are the most prominent of the period and they have been studied by numerous authors of over one-and-a-half centuries now. There is, unarguably, room for improvement.

Plio-Pleistocene hominids: It might be claimed that such uncertainties are uniquely palaeobotanical in view of the dissociated-organs problem. Far from it! Consider the hominids (pre *Homo erectus*), our ancestors, the most glamorous and famous of all fossil groups. How firmly has their taxonomy been settled? For the interval 5 to 1 myrs B.P., around 1 000 individuals from some 15 African 'localities' have been unearthed. The few score of palaeoanthropologists, whose bread and butter it is to arbitrate, hold widely divergent views on the hominid diversity evident in this material. Perhaps there are two genera - *Australopithecus* and *Homo* - and half-a-dozen species; or perhaps half that number; or perhaps twice that number!? I would venture that short of a total reorientation towards a population approach, highly fluctuating subjective opinion will continue ad-infinitum.

This is an unambiguous call for the collection, curation and study of fossil populations (palaeodemes). Biodiversity has relevance; palaeontology has profound relevance!

NEWS FROM BPI PALAEONTOLOGY - WITS UNIVERSITY

Ann Cadman

Our palynology lab is looking really smart now, with all the fittings and trimmings in place. The whole environment is much more conducive to the sometimes laborious task of extracting unwilling and obstinate palynomorphs from their place of entombment.

I attended the 8th International Palynological Conference in Aix-en- Provence in France in September. As always, it's a thrill to meet those legends that one has been reading, and reading about. Other lesser mortals obviously felt the same awe, judging by the number of people I saw sneaking around corners and behind trees to surreptitiously snap pictures of Knut Faegri. He is one of the palynological "greats" (for all you vertebrate palaeontologists out there).

The paper that I delivered at the IPC was the same one that Ian Corbett gave at the PSSA (in collaboration with Louis Scott also), on Tertiary sediments off the west coast. Addressing a whole bunch of very experienced palynologists on a subject that has not yet been extensively studied in southern Africa was daunting to say the least. Anyway the paper generated lively discussion, with many worthwhile suggestions being given. The international palynological community has the greatest respect for our Drs Van Zinderen Bakker and Coetzee, both of whom are semi-retired. I think that this respect is what leads to the tremendous support that is offered to the newer generations of South African pollen people.

oOo

Bruce Rubidge.

During May and part of June Gillian King and I spent time at the Palaeontological Institute in Russia. My aim was to have a closer look at their primitive therapsids and compare them with the oldest therapsids from S.A. It was a wonderful experience to at last be able to handle the specimens which up till now have been known to me only from pictures and photographs. The palaeontologists at the institute were also wonderfully kind especially Peter Chudinov and his lovely family who tended to all our needs and took us sightseeing over weekends. I had a look at *Venjukovia* and *Otsheria* in order to compare them with *Patranomodon* from the lowermost Beaufort, and also spent time on their various brithopid

dinocephalians to compare them with a specimen we collected in the southern Karoo. I am now convinced that we have a brithopid from South Africa.

On the way back home I had a quick stop - over at the Natural History Museum in London to look at South African dinocephalians in their care, and also to study the type and only specimen of the weird *Burnetia*. Also managed to fit in a quick visit to Tom Kemp at Oxford and Dave Norman at Cambridge.

As the second semester has been largely taken up by teaching and organisation of the PSSA conference, I have not yet got down to applying my notes on the Russian fossils to their S.A. counterparts. This will happen early next year.

oOo

Grigor Aitken's investigation of the extracted material on the No 5 coal seam is now underway. The samples have yielded a large number of pollens and spores. A catalogue of the No 5 seam material is in preparation for future reference and it is hoped that this study will be upgraded to a PhD at the end of this year.

oOo

Carol Aston, an MSc student working on the early therapsid *Hipposaurus*, has now virtually completed her research, after a visit to the South African Museum to study their display specimen. The specimen which she has prepared herself has proved to be the best preserved of the four known specimens, and is yielding new and interesting information.

oOo

Marion Bamford is continuing with her research on Tertiary fossil wood and has found a variety of now extinct dicotyledonous and coniferous woods. Next year she will extend her research to include Karoo fossil wood and will attempt to decipher the *Dadoxylon* problem, i.e. why is most of the Karoo wood dumped into *Dadoxylon*?

oOo

Sue de Villiers is spending her holiday in London, while it pours with rain, ferreting out interesting books and journals in the Natural History Museum Library and other such dry places.

oOo

Heidi Fourie continues the preparation of the post-cranial material of *Ictidosuchops* and has found that there are two specimens in the block. She will also be looking at post-cranial material of *Pristerognathus* and one of the whaitsiids for her PhD thesis.

oOo

John Hancox, an MSc student, has just returned from a five week field excursion in the vicinity of Sterkstroom, Eastern Cape Province. During this time he was joined briefly by Messers Rayner and Aitken who looked at various plant localities and collected samples for pollen analysis. Research to date has concentrated primarily on the sedimentology and palaeontology of the Upper Bergersdorp and lowermost Molteno, with emphasis being placed on the exact stratigraphic positions of all recovered biogenic material. Preparation of various material is currently underway which will hopefully shed new light on the faunal assemblage present during Upper Bergersdorp times, as well on the ranges of forms such as *Kannemeyeria*.

oOo

Some comments from Chris Gow:
Monuments Council
Following discussion at the PSSA meeting in September, it seems to me that all the present dissatisfaction could be avoided if the Monuments Council Annual Report was to list comprehensive details of all permits granted for the export of fossils during the year under review (perhaps any declined and why). I am still amused by the quaint notion, aired at PSSA, that the monuments council is in some way is capable of securing the return of outstanding loans. It would be a most enlightening exercise for someone to compile a list of loans outstanding from SA institutions with fossil holdings, with the dates of inception.

The first mouse-trap....

Owing to popular demand I summarise below the key arguments of the claim I presented at the PSSA Conference for protosuchids being such effective predators of small mammals (the original mouse-trap) that they might well have altered the course of mammalian evolution.

1. The specialised lower dentition
Conferred the potential (hence an exaptation)
To hold the undivided attention
Of any mouse-sized male animal
With attributes one shouldn't mention.

2. With crocs like these nipping at the nethers
Of our fossilised distant kin
There was no incentive
To loosen the tethers
Supporting the gonads within.

As external gonads are the key to mammalian breeding success we conclude that:-

3. The early Jurassic Mammalia
Reproduced in a seasonal splurge
When the sperm produced by their paraphernalia
Had the necessary
Motility, number and urge.

We might therefore suggest:-

4. Rather than dinosaurs winning the race
For the then available ecological space
Should we perhaps do a smart about face?
The tardy progression to the human race
Could be due to a mouse-trap, in the first place.

Epilogue:

I had one more up my sleeve:-

There was a man from the BEEP
Who put his audience to sleep
His arguments orbicular
On sex in particular
Ancestors caused them to weep.
Chris Gow

Chris Gow is looking forward to the end of the academic year so that he can give undivided attention to :- 1. a thick ribbed cotylosaur with none of the unique derived characters of *Eunotosaurus*, 2. John Hancox magnificent *Scalenodontoides* skull material, 3. *Protosuchus* of course, and several others.

oOo

Howlers or "The Joys of Teaching Biology to Geologists"

"Birds and dinosaurs have airsacs in their bones connected to their hearts."

"Ancestors of the birds flapped their arms in a propeller-like fashion."

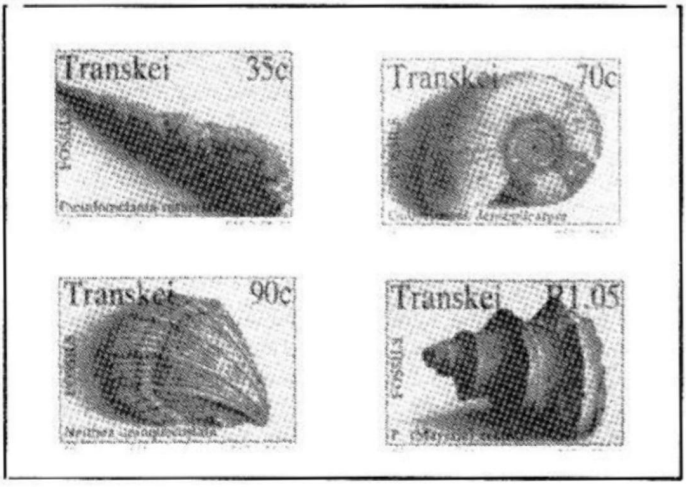
"They evolved feathers on the edges of their scales'

"In theropods and *Archaeopteryx* ..... the lips and tails are similar."

"The ancestors of birds were predators that had to leap into the sky to catch there (sic) prey."
....and just to show he means it the next sentence reads ...
"This action of leaping into the sky and then returning into the ground eventually evolved into a feather to support the animal."

Fossil Philately - Ludwig Döhne

The second set of stamps depicting fossils of the Transkei was issued on 17 September 1992. This issue was designed by Lambert Kriedemann and shows four molluscs from the upper Cretaceous Mzamba Formation which outcrop along the northeastern Transkei coast.



35c - *Pseudomelania sutherlandi* (Baily, 1855) a common fossil gastropod at Mzamba which was among the first fossils to be described from this locality.
70c - *Gaudryceras denseplicatum* (Jiombo, 1894) an ammonite which is also known from KwaZulu, Madagascar, Japan and Spain.
90c - *Neithea quinquecostata* (Sowerby, 1814) a scallop-like bivalve which has a wide geographic distribution.
R1.05 - *Pugilina (Mayeria) acuticarinatus* (Rennie, 1930) a rather rare fossil gastropod from Mzamba.

The commemorative envelope shows *Texanites presoutoni* (Kilnger and Kennedy, 1980), a large fossil ammonite which occurs in the basal part of the Mzmba Formation.

The first fossil series, issued in October 1990, showed four fossil plants of the Molteno Formation and a third issue will be released on 18 June 1993. More detail in he next edition of Pal News.

MINUTES OF THE SEVENTH BIENNIAL GENERAL MEETING OF THE PALAEONTOLOGICAL SOCIETY OF SOUTHERN AFRICA, HELD AT THE BERNARD PRICE INSTITUTE, UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG, SEPTEMBER 9, 1992

1. Welcome. The President of the PSSA, Dr Jurie van den Heever, opened the meeting at 16:03h. Approximately 40 Members in attendance.

2. A moment of silence. Held in tribute to the late Dr Ian Brink and Lex Bremner.

3. Apologies. Received from Sue Groenewald, Solly Rossouw, Johan Visser, Burger Oelofsen, Roy Oosthuizen, Mike Cluver, and Gillian King.

4. Minutes of the previous meeting having been previously distributed, were *approved*. (Proposed: Bruce Rubidge; Seconded: Mike Raath).

5. Matters arising from minutes of the previous meeting.
Dr H.B.S. Cooke expressed his thanks to the PSSA for having conferred upon him Honorary Membership.

6. Hon. Secretaries' Report. Francis Thackeray expressed his thanks to all Members of the Society who had given their support during the six years while he had stood as Honorary Secretary. During that time, the Membership of the Society had grown, and attempts had been made to foster interest in palaeontology among the general public. Francis felt it time to step down as Secretary.

7. Hon. Treasurer's Report. Roger Smith presented the Treasurer's Report which showed a balance of R9143.52 as of June 30, 1992.

The Report was accepted (Proposed: Francois Durand; Seconded: Chris Gow).

In discussion following acceptance of the Treasurer's Report, it was *agreed* that the Society could invest part of these funds in an account which could yield high interest, the remainder to be kept in an account that could be made readily available for PSSA running expenses. Dr Rubidge commented that the PSSA had recently purchased a number of ties and wallets; accordingly the balance as shown in the Report dated June 30 1992, had changed.

8. Election of Office Bearers for the term 1992-1994.
In terms of the Constitution, Dr Bruce Rubidge automatically succeeds Dr Jurie van den Heever as President; Dr van den Heever becomes Immediate Past President.

In terms of the Constitution, the following nominations had been received in writing prior to the BGM:

Vice President: Dr Francis Thackeray
Honorary Secretary: Dr Ginny Watson
Honorary Treasurer: Dr Roger Smith
Honorary Editor: Dr Billy de Klerk

Dr van den Heever called for other nominations. No further nominations were offered. The Executive Committee for 1992-1994 was duly elected. (Proposed: C. Gow; Seconded: M. Raath).

9. Venue for the 8th PSSA conference.
A proposal had been received from Norton Hiller, supported by Mike Raath, Gideon Groenewald and others, that the next meeting could be held in 1994 in Grahamstown. *Agreed*. The Secretary thanked Norton Hiller and others for proposing Grahamstown as the next venue for the 8th PSSA conference.

10. General.
10.1 Dr Jurie van den Heever had received a letter from the Department of Environment Affairs, concerning a multidisciplinary register of specialists, including professional palaeontologists, who could be approached to undertake environmental impact assessments (see letter dated August 26 1992, addressed to the President of the PSSA, Ref. 24/13/3/1). This possibility had also been expressed in a paper presented at the PSSA conference by Dr Janette Deacon (paper entitled "Palaeontology and the National Monuments Council"). In that paper, Dr Deacon had suggested that the PSSA draw up not only a list of palaeontologists willing to do contract work; she also recommended that the PSSA identify criteria for evaluating applications for temporary and permanent export of fossils; formulate conditions for palaeontological collecting and excavation to ensure uniform standards; concern itself with more active conservation of sites through the declaration of a representative selection of national monuments and compilation of a list for inclusion in a national register, and through environmental impact assessment and planning; draw up a code of ethics and guidelines for conservation of palaeontological resources; draft a bilingual brochure on the importance of palaeontological sites and their conservation for printing and distribution by the National Monuments Council.

... In response to these questions, Dr van den Heever proposed that the incoming Executive Committee attend to these matters. *Agreed.* (Motion seconded by both Mike Raath and Gideon Groenewald).

10.2 PSSA representative(s) to liaise with the NMC.
Dr Deacon had recommended that the PSSA appoint a representative to liaise with the NMC. Dr Colin McRae suggested that several specialists in particular fields be identified as PSSA representatives, with whom the NMC could liaise. After considerable discussion, including comments from Dr David Norman who had had experience with conservation of palaeontological sites in England, it was *agreed* the President on the Executive Committee of the PSSA (or Vice President and Honorary Secretary as alternates) should be the PSSA representative to liaise with the NMC. (Proposed: J. Welman; Seconded: H.B.S. Cooke). The President (and his alternates) would be aware of specialists in various fields within the Membership of the PSSA, and the President (or his alternates) could consult with these specialists regarding matters such as permit applications.

10.3 Publication of permit applications.
Dr Chris Gow suggested that the PSSA should be given the opportunity to be aware of permit applications submitted to the NMC. It was suggested that lists of such applications be published at intervals in PAL NEWS.

10.4 A list of professional palaeontologists, including fields of interest.
The President noted that Dr Thackeray had already compiled a list of professional palaeontologists in South Africa. It was *agreed* that the list could be used as a basis for a document that could be submitted to the Department of Environment Affairs. The President suggested that any professional palaeontologist who did not want to make himself available for environmental impact assessments should notify the Hon. Secretary.

Johan Welman proposed that a list of professional palaeontologists should include a list of fields of interest held by particular palaeontologists. This was seconded by Francis Thackeray. Mike Raath objected on the grounds that such lists might be misused to stake "claims". The proposal was withdrawn.

10.5 South African Association of Natural Scientists.
Dr Raath asked whether the PSSA should be associated with the South African Association of Natural Scientists, if Members within the Society were to undertake consulting work. It was agreed that this matter would be taken up by the Executive Committee.

10.6 PSSA tie.

Dr Rubidge said that there were a number of unsold ties. It was agreed that these could be sold at R40.00 (the cost to the Society having been R30 per tie).

10.7 Honorary Membership.

A proposal had been received from Dr Bruce Rubidge, seconded by Dr F. Thackeray, that Honorary Membership be conferred upon Professor James Kitching. In motivating the proposal, Bruce Rubidge mentioned that James Kitching had discovered his first fossil at the age of five years. He had worked as a distinguished palaeontologist for 45 years at the University of the Witwatersrand, until his "retirement" two years ago. The proposal regarding Honorary Membership was accepted unanimously, with loud applause.

Professor Kitching extended his thanks to the PSSA for conferring Honorary Membership upon him.

10.8 Tribute to Lex Bremner.

A document paying tribute to Lex Bremner was read by Dr Jurie van den Heever. The document had been drafted prior to Lex Bremner's death, and it was regretted that this tribute to Lex was being made posthumously. Dr van den Heever signed the document which would be sent to relatives of Lex. A copy of the document would be sent to Graaff-Reinet for archival purposes.

10.9 Education.

Dr Julia Lee-Thorp recommended that Members of the PSSA work particularly through "Model C" schools, to get better coverage of evolution at school level. Dr Thackeray stressed the importance of television, radio and newspapers, as a way in which the subject of evolution could be exposed to all people of southern Africa.

11. Closure.

Dr van den Heever thanked the Members for their attendance. The BGM was closed at 17:12h.

NOTE. These minutes were drafted by Francis Thackeray on September 11 1992 and are subject to confirmation. Any changes to the draft can be submitted to the new Hon. Secretary, Dr Ginny Watson, Department of Palaeontology and Palaeoenvironmental Studies, Transvaal Museum, P.O. Box 413, Pretoria 0001.

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HOW JELL-O KILLED THE DINOSAURS

We believe that Jell-O may have played a role in the mass extinction of the dinosaurs.

Background: The Collision
In 1979, geologist Walter Alvarez discovered unexpectedly large amounts of the metal iridium in sediments that date from the time of the dinosaur extinction. Alvarez and others have taken this to be evidence that a large object struck the earth and, directly or indirectly, killed off the dinosaurs.

The Presence of Jello-O
Trace metal analysis performed with atomic absorption spectroscopy revealed that some flavours of Jell-O contain small but significant levels of iridium. The comet that collided with the earth, causing the dinosaur extinction, may not have been a dirty snowball or a big rock; rather, this body perhaps represents a previously unidentified class of comets called Jell-O -roids, which consist of lumpy, improperly mixed Jell-O.

A ball of Jell-O 10 to 12 miles in diameter (a *Jell-O -rite*) impacting on the earth would likely have altered the environment, shifted the orbit of the planet, and left a worldwide trace layer of Jell-O -borne iridium similar to that which has been detected.

Jell-O's Role
Several possible mechanisms could account, singly or in combination, for the mass extinction of the dinosaurs. Those related to climate change have been discussed extensively in the popular press.

The impact itself would have had an effect, as would the environmental changes brought about by the widespread surface distribution of the Jell-O.

We believe, however, that the most important factor may have been the nutritional impact of Jell-O on animals whose digestive and circulatory systems were unprepared for it.

How much Jell-O would an Apatosaurus eat if an Apatosaurus could eat Jell-O?

How much Jell-O would an apatosaurus eat if an apatosaurus could eat Jell-O? Jell-O contains 420mg of sodium per ½ cup serving (the recommended serving size for humans). The apatosaurus is estimated to have had a typical weight of 60 000 lb. Simple calculation leads to the estimate that an apatosaurus-size serving of Jell-O would be 187.5 cups, or 43.1 litres, and would contain 472 g of salt.

An apatosaurus, drawn by the natural and artificial flavourings (especially chocolate), would daily consume 20 apatosaurus-size servings for breakfast, lunch and dinner.

Eating this much Jell-O, with its 9.4kg of salt daily, would have tended to cause high blood pressure and heart disease. An apatosaurus in a sugar-induced stupor would also have been easy prey for a carnivorous allosaurus or a roaming pack of deinonychus.

The low nutritional value of Jell-O (which contains less than 2% of U.S. recommended daily allowances of vitamins A and C for humans and, by extrapolation, for apatosauruses) suggests that overconsumption of Jell-O would have led the dinosaurs to death by malnutrition. Indeed, apatosaurus bones often show evidence of osteoporosis, indicating calcium deficiency. Following the demise of the large herbivores, which would have been most strongly attracted to eat Jell-O, the entire dinosaur ecosystem would have collapsed.

By: Frank Wu and Ben Lethbridge
Madison, Wisconsin
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CONFERENCES

*** 8th PSSA Conference**
Rhodes University & Albany Museum, Grahamstown - *September 1994*
Contact: Prof Norton Hiller, Geology Dept., Rhodes University, Grahamstown, 6140, Tel. (0461) 22023 Fax 29715.
OR Dr Billy de Klerk, Albany Museum, Somerset Street, Grahamstown, 6140, Tel. (0461) 22312 Fax 29715.

FUTURE MEETINGS OF OTHER BODIES

*** Organism-Palaeoenvironmental Interactions**
(First European Palaeontological Congress)
Lyon, France, *7-9 July 1993*
Contact: Mireille Gayet - EPA, Centre des Sciences de la Terre Universitié Claude Bernard, Lyon 1 27-43 boulevard du 11 novembre, 69622 Villeurbanne cedex, France. Tel. (33).72.44.83.98 Fax (33) 72.44.84.36.

*** Four million years of Hominid evolution in Africa**
An international conference in honour of Dr Mary D. Leakey's outstanding contribution in Palaeoanthropology.
Arusha International Conference Center, Arusha, TANZANIA, *8-14 August 1993*
Contact Prof. CC Magori, Chairperson, PO Box 65453, Dar-es-Salam (Tel 27081 Fax 255-051-46229) OR Dr FT Masao, Vice-Chairperson, c/o Arch. Unit, PO Box 35050, Dar-es-Salam. Tel. 72306 Fax 255-051-49052.

*** 2nd International Palaeozoic Microvertebrate Symposium**
(In conjunction with 90th Birthday Anniversary of Professor Walter Gross (1903-1974)
Berlin, Germany - *August 1993*
Contact: Dr S Turner, Queensland Museum, P O Box 3300, South Brisbane, Qld 4101 Australia.

*** Mesozoic Fishes: Systematics and Paleoecology**
Eichstätt, Germany, *9-12 August 1993*
Contact: Gloria Arratia, The University of Kansas, Museum of Natural History, Dyche Hall, Lawrence, Kansas 66045.2454, USA, Tel: (49) 913.864.45.40.

* **Carboniferous to Jurassic Pangaea**
Calgary, Canada, *15-19 August 1993*
Contact: B. Beauchamp or A. Embry, Geol. Surv. Can., 3303-33rd St. NW, Calgary, AB. T2L 2A7, Canada

* **International Trilobite Meeting**
Kitab State Geological National Park, Uzbekistan (former USSR)
Late August - early September 1993.

* **Arkell International Symposium on Jurassic Geology**
London, *7-20 September 1993*
To celebrate the 60th anniversary of the publication in 1933 of W.J. Arkell's monumental and influential work "The Jurassic in Great Britain". Conference chairman id Dr John Cope (Cardiff) and the Conference Secretary is Dr Stewart Brown (Petroleum Sci. Tech. Inst., 25 Ravelston Terrace, Edinburgh EF4 3EX. Tel. 031-451-5231, Fax 031- 451-5232).

* **Fourth International Workshop on Agglutinated Foraminifera**
Krakow, Poland, *12-19 September 1993*
Contact: Eiva Malata, Institute of Geological Sciences, Jagrellonian University, PL - 30-063, Krakow, Poland.

* **Third International Conference on Rudists**
Mexico City, Mexico, *November 1993*
Contact: Dra. Blanca Estela Buitrón, Instituto de Geologia, UNAM, Ciudad Universitaria, Delg. Coyoacán, 04510, México, D.F. MEXICO.

* **12th International Symposium on Ostracoda**
Czechoslovakia, *1994*

* **Forams '94**
Berkeley, California, *June 1994*
Contact: Jere H Lipps, Museum of Paleontology, University of California, Berkeley, CA 94720 USA.

* **Fourth European Palaeobotanical/Palynological Congress**
Heerlen, Netherlands, *September 1994*
Contact: GFW Herngreen, Geological Survey of The Netherlands, PO Box 157, 2000 AD Haarlem, The Netherlands.

* **4th International Congress on Jurassic Stratigraphy and Geology**
Mendoza - Neuquén provinces, Argentina, *15-26 October 1994*
Contact: Dr AC Riccardi, Casilla de Correos (PO Box 886, 1900 La Plata, Argentina. Tel (54-21) 39125 ext.37. Fax (54-21) 530189

Reminder: Deadline for contributions for the next issue of PAL News is

20 June 1993