

ALBERTA PALAEOANTHROPOLOGICAL  
SOCIETY

VOLUME 5 NUMBER 4  
DECEMBER 1990



## ALBERTA PALAEOLOGICAL SOCIETY

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The Society was incorporated in 1986, as a non-profit organization formed to:

- A. Promote the science of palaeontology through study and education
- B. Make contributions to the science by:
  - 1) discovery
  - 2) collection
  - 3) description
  - 4) education of the general public
  - 5) preservation of material for study and the future
- C. Provide information and expertise to other collectors
- D. Work with professionals at museums and universities to add to the paleontological collections of the province (preserve Alberta's heritage)

MEMBERSHIP: Any person with a sincere interest in palaeontology is eligible to present their application for membership in the Society

Single membership	\$10.00 annually
Family or institution	\$15.00 annually

THE BULLETIN WILL BE PUBLISHED QUARTERLY: March 1, June 1, September 1, and December 1, annually

DEADLINE FOR SUBMITTING MATERIAL FOR PUBLICATION IS THE 15th OF THE MONTH PRIOR TO PUBLICATION

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NOTICE: Readers are advised that opinions expressed in the articles are those of the author and do not necessarily reflect the viewpoint of the Society.

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This month's cover: from Jeff Doten

## PRESIDENT'S MESSAGE

Percy Strong

It is not too hard to put together a Christmas wish list for the Society. There are many things that we need, but I will touch on the few that I feel are most important.

The most important one is participation in the Society. If you take time to review the list of officers and directors, you will see a number of posts that remain unfilled. Some of these positions, such as Programs & Education, are vital to maintaining member interest. We cannot afford to leave that post open. Participating also means that the membership is willing to let their interests be known so that it is easier to plan activities to meet these needs.

My second wish is to set up a series of courses to instruct the membership in everything from basic palaeontology and specimen preparation to collection cataloguing. Presently we have no one who is well versed in all these techniques. I feel that developing an expertise in these areas is crucial to sustaining a keen interest in palaeontology. Wayne Haglund from Mount Royal College has offered to teach us some of these subjects in the new year. The tasks ahead are to decide which subjects are most important to us, and how much time we want to spend learning them.

Third on my list is a series of winter field trips! No, not necessarily out to collect, but to various facilities that house "hidden" collections that the general public never sees. An example would be the University of Calgary, which I am sure contains more interesting fossils than one could imagine. Another example was suggested by Don Sabo - an annual visit to the Royal Tyrrell Museum of Palaeontology to view the contents of its storage and preparation areas.

My last wish is that everyone have a safe and enjoyable Christmas. May the new year bring good health and prosperity to all.

## EDITOR'S NOTE

Heather Whitehead

As your new editor, I would like to say thanks for bearing with me if (when?) there are glitches. This is one of those jobs you learn by doing, I think! Thanks to Wayne Braunberger for all his work on the Bulletin in the past - I'm sure he will be able to use his "free time" in setting up field trips for 1991.

For those of you who don't know me, I have been an APS member since May 1989, and was a member of the Rock Club (CRLC) before that, where I learned of the APS. I have a B. Sc. in Geology from the University of Alberta, where my primary interests were invertebrate micropalaeontology and sedimentology. I currently work as a freelance geological editor, and I am trying to learn about dinosaurs and other vertebrates. If you have any suggestions or comments, please feel free to send them on - your input is appreciated. Till next time, Merry Christmas and Happy New Year.

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Members are reminded that dues for 1991 are due!

## PROGRAM: NOVEMBER 23, 1990

Alan Ingleson, Code Hunter, on laws governing collecting and disposing of Alberta fossils

Fossil collections in Alberta are governed by several different sets of regulations. One is the provincial Historical Resources Law, set up to control commercial exploitation (particularly from/to outside Alberta) and promote preservation, especially of dinosaur remains. This act requires acquisition of a permit for excavation (*versus* surface collecting, which is allowed); requires that the minister be notified of any find of a potential historic resource; and controls transport of fossils outside Alberta.

Another is the Federal Cultural Properties Import/Export Act. The aim of this act is to prevent significant fossils from leaving Canada; export permits are needed. The Act encourages donation of fossil collections to Canadian institutions, by use of tax incentives. A committee decides the fair market value of a significant collection, and allows this full value as a tax deduction, regardless of the cost of the item. (in contrast, the Income Tax Act allows donations of fossils, but treats the difference between market value and original cost as Capital Gains). Other tax factors include the status of the receiving agency. For example, donations to a museum that is a registered charity are limited to a maximum of 20% of Net Income of the donor in any year; but donations to government (e.g., the GSC) would not be subject to the 20% maximum.

The Wills Act allows a person to stipulate the disposition of a collection in a will. Without specific instructions, a collection will be converted to cash at fair market value along with other assets, and distributed to survivors by a set formula.

Also of note are changes to the Historic Resources Act in 1989. These changes distinguish samples mined for shell *versus* specimens of scientific and display interest. Only the specimens determined by the provincial minister or agent to be not of scientific or display interest are included in the leasehold of the commercial miner.

These regulations are complex, occasionally vague, and their interpretations will change over time as court cases progress.

h.w.

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## MEETINGS

Meetings are held at Mount Royal College at 7:30 pm, usually on the third Friday of the month, in Room B108. Dates are:

January 18, 1991

February 15 (deadline for handing in articles for March Bulletin)

March 15 (March Bulletin distributed at this meeting)

April 19 (early deadline for handing in articles for June Bulletin)

May 24 (June Bulletin distributed at this meeting)

APS FIELD TRIP 90-3, AUGUST 11, 1990: DINOSAUR PROVINCIAL PARK  
by Harvey Negrich

Our outing began with participants meeting at the lookout at the top of the hill overlooking the UNESCO World Heritage site, Dinosaur Provincial Park. Dr. Paul Johnston, Invertebrate Palaeontologist with the Royal Tyrrell Museum in Drumheller, Alberta was our Resource Person for the day. Dr. Johnston was kind enough to donate a full, long day of his time to come out and guide us on this trip.

From the viewpoint, we were looking at Campanian (Late Cretaceous) age deposits, from the upper part of the Oldman Formation, dated from 75 to 72 million years ago. Only a few of the higher hill tops have the base of the overlying Bearpaw Formation still present. There is a disconformity noted throughout the area, and evidence of many meandering streams in the deposits. Dr. Johnston pointed out a volcanic ash layer that is present in the area; this ash layer is very useful for dating purposes.

After our introduction, we went down to the reception area in the Park, reorganized into two vehicles, and proceeded into the protected and restricted area of the Park.

The first safari into the hills took us to a locality that occurs about one metre stratigraphically above the disconformity mentioned above. The locality has a unionid-dominated mollusc assemblage, and Dr. Johnston identified the fossils as *Fusconaia(?) dande* (Meek and Hayden), a fresh water clam. The site is very interesting as it has many of these clams and shows evidence of rapid sediment dumping. The clam beds show frequent meniscate laminae, escape structures that show that the clams tried to push up through the sediment. Some of the escape trails contain fossil clams, indicating that the animal did not make it to the top of the rapidly incoming sediment. Estimates of density of the clams run as high as 200 per square metre, and some of the escape trails are 300 to 400 mm long. Most of the clam fossils point in one direction, which must have been into the current flow. So, these little animals are still telling us what happened many years ago. Another, smaller, less common mollusc found in the area is *Anodonta propatoris* (White).

After exploring the invertebrate beds, we went to see some of the dinosaur quarries and other points of interest that Dr. Johnston recommended for the time we had left. We stopped at the *Centrosaurus* bone bed (with the retractable cover) and received a new appreciation of certain points. This bed is called a "monospecific" assemblage, as almost all the fossils found in it are from the one species. The bones show evidence of chewing and gnawing, some bones have their ends missing, and others show green breaks as though they could have been trampled when fresh.

As our time had run out, we trudged back to our vehicles and returned to the Field Station where we had a really late lunch (3 p.m.!). Dr. Johnston guided us through the displays at the Field Station, and gave his interpretation of some of the displays. After this, we all retired to the area campground for refreshments and some shade. After a well deserved rest, we packed up and headed back a few kilometres to the Patricia Hotel for a steak supper.

Thanks again to Dr. Paul Johnston for his efforts toward the Society, and for making this trip a success.



This issue introduces a new feature, excerpts from *Update*. All articles copyright © 1990 The Ex Terra Foundation, #406, 10310 - 102 St., Edmonton, Alberta T4J 2X6 (403) 424-5515.

#### **How Is The Dinosaur Project Funded? (Sept. 1990)**

The Dinosaur Project is co-ordinated by The Ex Terra Foundation, a non-profit organization in Edmonton, Alberta. Obviously, to mount five years of field expeditions into China, Canada and the Arctic and then produce films, books and a 3200 m<sup>2</sup> (40,000 square foot) travelling dinosaur show is an expensive undertaking.

The Ex Terra Foundation has received financial support from both the Government of Canada and the Province of Alberta. This support has come in the form of interest-free loans, which must be paid back. Valuable assistance has also been received from Canadian Airlines International, which has provided transportation to China for our field crews.

The additional monies required to mount and operate all the public programmes of The Dinosaur Project will be obtained through show admissions, corporate sponsorships of the travelling dinosaur show, and sale of merchandise. The financial objective of The Ex Terra Foundation is to have a Project that breaks even. Should we find ourselves in a surplus budget situation, those monies would be put into an endowment fund which would guarantee future programmes for the Foundation.

#### **New Dinosaur from the Dinosaur Project (July 1990)**

The first of 11 newly discovered kinds of dinosaurs collected from The Dinosaur Project's four years of field expeditions to China, the Arctic and Alberta is being presented to the scientific world as "Sinornithoides" (not yet its official name), an ancient member of the family of small meat-eating dinosaurs that included the well known North American dinosaur *Troodon*.

Discovered in the Ordos Basin of Inner Mongolia in 1988, this Chinese specimen holds a special significance. It is the best preserved member of its family, and it provides firm evidence that this family of dinosaurs existed 99-140 million years ago in China, far earlier than its appearance in North America.

Only 1.2 metres long, "Sinornithoides" was the size of a heron. The specimen is a complete skeleton with the characteristic large brain and lethal sickle claws on its hind feet. Members of the "Sinornithoides" family had the largest brains of any dinosaurs and have been linked to the evolutionary origin of birds. This skeleton will be included in The Dinosaur Project's World Tour exposition, which will open in Canada in 1992.

"Sinornithoides" is being described and named by Dr. Dale Russell, Curator of Fossil Vertebrates with the Canadian Museum of Nature and Professor Dong Zhiming from the Institute of Vertebrate Paleontology and Paleoanthropology in Beijing, China.

#### **Exciting Final Field Season (Aug. 1990)**

Scientists from the Canadian Museum of Nature and the Royal Tyrrell Museum of Palaeontology have just returned from China after completing the final field expedition for The Dinosaur Project.

The most exciting finds were the discovery of seven additional juvenile *Pinacosaurus* (armoured dinosaurs) at a quarry that had already yielded five juveniles in 1988; embryonic *Pinacosaurus* skulls in the remote north canyon area of Bayan Manduhu, Inner Mongolia; and the discovery of a *Mamenchisaurus* skull.

The *Pinacosaurus* find adds further support to speculation on the social interactions and the complex behaviour of dinosaurs. The 12 juveniles may have lived together as part of a family or herd and been buried en masse in a sand storm.



**THE DINOSAUR PROJECT**  
China • Canada • Alberta • Ex Terra

The *Mamenchisaurus* skull was found in Xinjiang in the same quarry where a neck belonging to a 27 m long specimen was discovered in 1987. Scientists were elated at the find as it has taken four years of excavation to trace the giant neck through the rock to its skull. "We are very excited to find the head. The heads are very hard to find, because they were so small they would break off and float away in a stream," explained Ex Terra Science Consultant John Acorn.

"This concludes one of the biggest hunts in history," says The Ex Terra Foundation's Chief Executive Officer Kevin Taft. "Now we will complete the task of interpreting our findings and preparing the specimens for the world tour of The Dinosaur Project, commencing in 1992."

Over the past five years The Ex Terra Foundation through The Dinosaur Project has coordinated and sponsored field expeditions to China, Alberta and the Arctic for teams of Chinese and Canadian scientists.

#### **Edmonton - World Premiere City (Oct./Nov. 1990)**

The largest travelling dinosaur show in history will premiere in Edmonton, Alberta. "We are delighted that The Dinosaur Project World Tour will premiere in Edmonton, which is home to the Project," said Alex Budge, Board Chairman of The Ex Terra Foundation.

Five Canadian cities - Edmonton, Calgary, Toronto, Ottawa and Winnipeg - submitted written proposals to host the show. "It was a very difficult decision to make," explained Budge. "Not only did each proposal express enthusiasm and imagination but all cities wanted the hold The Dinosaur Show in a tent-like portable structure, and our Canadian climate limits that option from May to October."

The Edmonton dates are May 15 through July 5, 1992. The show then moves to Toronto from midAugust to October. After that, tour locations are being considered in either the Asia-Pacific or in the USA.

Edmonton demonstrated its commitment and ability to undertake this major event with a detailed proposal that involved local tourist and convention authorities, school boards, and media sponsors. Mr. Budge made the announcement with City Alderman Helen Paull. Together they revealed the City's proposed location for the show on Grierson Hill, adjacent to the Edmonton Convention Centre.

The City of Edmonton has also appointed Frank Proto, Senior Vice President of Alberta Energy Company Ltd. and President of AEC Pipelines to chair the organizing host committee. Well known for his involvement in industry and community associations, Mr. Proto is currently a Director of the Edmonton and District Y.M.C.A. and a Director of Crown Management Board of Saskatchewan.

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## REVIEWS by Les Adler

Profile - Jack Horner: Time magazine, September 24, 1990, p. 50-52

This article is accompanied by a photo of Jack Horner in charge of a Montana dig, unearthing the most complete *Tyrannosaurus rex* skeleton known. Jack now heads the largest dinosaur research team in the United States, and is supported by the National Science Foundation and a MacArthur Foundation "genius award". He is curator of paleontology at the Museum of the Rockies in Bozeman, where he works on the development of dinosaur dioramas. He has personally found new genera of dinosaurs and dinosaur eggs, and has developed theories about dinosaur family life. I suggest that you put this article into your dinosaur folder.

The Rex of All: Newsweek, October 1, 1990, p. 63, by Bill Harlan

This is the largest of the nine specimens of *Tyrannosaurus* ever unearthed. It is 40 feet long and was excavated during September, 1990, from a sandstone bluff near Faith, South Dakota, U.S.A. The femur, 54 inches in length, is three inches longer than the one in the Museum of Natural History in New York. The Montana specimen mentioned in the previous article was relatively small boned and lightly built, but this one was robust with a powerful build. Perhaps the Montana specimen was a female and this South Dakota one was a male, but the reverse is also possible. The skeleton shows evidence of injuries in the jaw and near the end of the tail, which indicate "a very old individual who led a long and perilous life". This specimen is to form the cornerstone of a new museum in the town of Hill City, near Mount Rushmore.

Fossil of oldest known bird that lived in trees found: Calgary Herald, Friday Oct.12, 1990, p. C16

Researcher Paul Sereno has been studying a specimen found in 1987 in northeastern China, dated from 135 million years ago, which is about 10 million years older than *Archaeopteryx*. *Archaeopteryx* was a ground dweller, and could probably climb trees, jump, and flap its wings to propel itself. It had teeth and a relatively long tail. This new, older specimen lived in trees, as shown by its claws. The shape of its wings, breast bone, and short clump of tail bones indicate that it was agile and capable of long range flight. This find pushes back the earliest age of tree-dwelling birds by 10 million years.

An unscientific science: Alberta Report, September 17, 1990, p. 23

This article discusses the day-to-day work of fossil technicians, with particular emphasis on the work of Kevin Aulenbach and Darren Tanke, both of the Tyrrell Museum. It is accompanied by a photograph of Darren (APS member) at work on a hadrosaurian dinosaur.

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At the Sept. 1990 meeting, lots of ideas for the APS Bulletin were mentioned. In order for the Bulletin to survive and grow, it needs volunteers to write articles - the editor can't do it all! So, here is a list of ideas for you to think about, and write about, and mail/bring to me at the meetings: Letters to editor; columns (new discoveries, current research, how-to's - like fossil prep, curation, identify specimens); finds over the summer (any find worth carrying home should be worth sharing in a story); upcoming events (open talks at U of C, ISPG etc. - does anyone get schedules for these things?); announcements/requests for ways the club can help local researchers; milestones for club members (retirements, promotions, publications, etc.). Also, I will be looking for a volunteer to assist with the Bulletin. Interested?? Please let me know. Thanks! - Heather

We are sorry to report the passing of club member Stan Henders, on October 4, 1990 at the age of 77 years. A member since January 1987, he was an active member in many associations, including the APS. Condolences are extended to his wife Violet and his family.

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Happy to report that Les Adler is making a good recovery from serious surgery in October. Les, the club treasurer, is a frequent contributor to the Bulletin, and to the fossil collections of those who attend meetings - I have quite a few gems from him, as I am sure many club members do. Best wishes for a speedy recovery, Les.

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#### DINOTOUR '91

A bus tour from Calgary to significant palaeontological sites in Montana, Wyoming, Utah and Colorado is planned for June 1-8, 1991. Planned stops include dinosaur field sites and museums, and some along-route scenic/historical visits.

The tour, which grew out of two University of Calgary Continuing Education courses (Digging Into Dinosaurs 1 and 11), will have as its scientific leader Dr. Philip Currie of the Tyrrell. An extensive guidebook is also planned.

Participation is limited to 40 people. Costs are not finalized, but are anticipated to be less than \$600 for bus/private room option, with meals and personal expenses extra. A campers option may be added if there is a demand.

For further information, please contact:

DINOTOUR '91  
c/o 14 Varwood Place N.W.  
Calgary, AB T3A 0C1

**(editor's note: I have just been told of a change of dates for Dinotour '91, due to an unavoidable conflict. Please note that the new dates are JUNE 1-JUNE 8, 1991, not May 25-June 1, 1991)**

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Club member Mike Skrepnick was written up in a long article by Judi Weaver in The Western Wheel newspaper of Wednesday, November 21, 1990. The article mentions the palaeontological art show that had its beginnings at the APS and Mount Royal College, which also featured another APS paleoartist, Jeff Doten (our cover artist this month). The show, entitled "Dinoscapes", was at The Station in Okotoks through November 30, making it almost a year that it has been circulating.

Mike is the designer of the APS T-Shirt logo, and is involved with art and dinosaurs in many ways, including creating centrefolds for the *Dinogramme*, put out by the Friends of the Tyrrell, and designing the logo for Dinotour '91 (see above).

Thanks for the plug for the APS in the article, Mike!

## LUNCHTIME TALKS AT MCDOUGALL CENTRE

A series of talks were put on at McDougall Centre this fall November featured four Tyrrell speakers: Nov 7, Dr. Koster on "Portrait of Alberta's Royal Tyrrell Museum"; Nov. 14, Dr. Paul Johnston on "In Search of Dinosaurs in China's Gobi Desert"; Nov. 21, Monty Reid on "Dinosaurs in Pop Mythology"; and Nov. 28, Dr. Bruce Naylor on "Research Highlights of the Royal Tyrrell Museum at Home and Abroad". I was able to attend two of the talks - Paul Johnston's and Bruce Naylor's.

The talks I attended were on a general level, but very interesting and as usual provided new insights. Paul Johnston suggested that perhaps one reason that Bayan Manduhau (Mongolia) has yielded such rich fossil finds is because it had never been surveyed before by a scientific team - the Roy Chapman Andrews expedition was turned back by a dust storm just short of this region; fossil bone in the area is white, instead of brown as in Alberta; the *Pinacosaurus* site was not too deeply buried, as there is some evidence of scavenging and damage from maggots/worms; strange, 3 to 4 m long structures, misidentified as root casts, may be dune equivalents of the shallow marine trace fossil *Teichichnus*; dunes are not sterile environments - in the modern, plant material blows into depressions and forms internal, organic layers in dunes. This material is mostly dried camel dung - perhaps the mysterious Cretaceous dune dwellers lived off dried dinosaur dung!

Dr. Naylor discussed the research projects of the RTMP scientists. These include dating of volcanic ash layers in the Judith River Formation; the significance of the fern spike at the Cretaceous-Tertiary boundary (ferns were "the weeds of the Cretaceous" - there were no grasses, no fireweed; perhaps the ferns were recolonizing land affected by firestorm); the finding of extraterrestrial-type amino acids at the boundary; the extremely important "first known skull of a Cretaceous mammal from North America", found at Devil's Coulee; strange invertebrate ?sponges from Top of the World Park in B.C.; the summer 1990 find of the most complete skull of a *Brachylophosaurus*, found in southern Alberta by a field party from the University of Calgary. Dr. Naylor also discussed the role of the technical staff and the importance of behind the scenes research before dinosaur reconstructions can be attempted.

The speaker series will resume in January, but as yet I do not know whether there will be any topics of interest to APS members. Contact for information is McDougall Centre, 455 6 St. S.W., Calgary, Phone 297-8687.

h.w.

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## ALBERTA PALAEOONTOLOGICAL SOCIETY: Record of Donations to the Society

<u>Date</u>	<u>Name of Donor</u>	<u>Item Donated</u>	<u>End Use</u>
Dec. 1989	Les Adler	First day cover - Australia	Raffle
Jan. 1990	Les Adler	Specimens	Raffle
Jan. 1990	Harvey Negrich	Book "Time Exposure"	Library
Jan. 1990	Dr. Dave Mundy	Book "East Coulee Field Guide"	Library
Jan. 1990	Randall Quon	Dec 90 "Natural History" magazine	Library
Jan. 1990	Les Adler	1990 Dinosaur calendar	Raffle
Jan. 1990	Don Sabo	Aerial Photograph	Raffle
Feb. 1990	Randall Quon	"Devil's Coulee" photos	Photo Album
Mar. 1990	Paul Milo	Fossil Plants	Raffle
Mar. 1990	Karen Weinhold	Coprolites from Saskatchewan	Members
Apr. 1990	Harvey Negrich	Book "Digging Dinosaurs"	Library
May 1990	Peter Meyer	Fossil Morocco Ammonites	Raffle
May 1990	Lawrence Halmrast	Plastic casts, various items	Raffle/Prizes