A L B E R T A • P A L A E O N T O L O G I C A L • S O C I E T Y

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ALBERTA PALAEONTOLOGICAL 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

4) education of the general public

2) collection

5) preservation of material for study and the future

- 3) description
- c. Provide information and expertise to other collectors.
- d. Work with professionals at museums and universities to add to the palaeontological 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, June, September and December. Deadline for submitting material for publication is the 15th of the month prior to publication.

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†APAC is the Alberta Palaeontological Advisory Committee

UPCOMING APS MEETINGS

Meetings take place in Room B108, Mount Royal College, at 7:30 p.m.

January 15—3011 Hampton Cres. SW—an inspection of the APS's impressive collection curated by Harvey Negrich

February 19—Dr. Len Hills: "Surprising Fossil Forests of the Canadian Arctic Islands" **March 19***—Holger Hartmaier: "Geology and Palaeontology of the Oldman River Dam Area"

*Bulletins will (hopefully) be distributed to members in attendance.

ON THE COVER: A sentimental return to the old standby.

PRESIDENT'S MESSAGE

by Les Adler

A Merry Xmas and a happy and prosperous New Year to all! About a quarter of our subscriptions have arrived and we expect quite a few more in the near future. I was surprised to see that Ralph Klein is the new premier of Alberta, however I was impressed by his acceptance speech which augurs well for the Province of Alberta and consequently for our Society. Check our financial report in this issue and you will see that if the APS had to fold (which becomes more and more unlikely), that each member would recover the price of one or two year's subscription.

We intend to sell T-shirts in the near future to raise funds to cover the cost of a first-rate slide projector, so that we can better organize the requirements of our speakers. We are also purchasing a large metal storage cabinet for our records and library. We always lose a few members each year but during the last twelve months we have gained new members far faster than we have been losing them. For each fifteen new members we hope to gain one new member for the executive so as to lighten the load of voluntary work that each member carries out. Right now we could do with the help of two people—one to keep track of subscriptions running late, changes in telephone numbers, and addresses, which occur every month and another member who is friendly with educated people to provide lecturers for our meetings.

The last four meetings went as follows: In September, Les Adler, incoming president, described fossil collecting around Calgary (Paleocene and Recent) because Les believes that it is simpler to start with one's own locality—less costly and easier of access; learn about your home district first and go on to outside localities later. Les then added a few words on identification of Calgary pelecypods which can be seen at Edworthy Park.

The October meeting featured Dr. Dave Mundy of BP Canada, with *The Testimony of the Rocks*. Dave presented a series of slides, mostly of European palaeontologists for about a 400-year period arranged chronologically so as to develop a history of palaeontology. We laughed a great deal because these people misinterpreted the evidence due to a lack of experience, the prevailing religious climate of the times and because of their collecting methods...one person might carry the hammer, one the collecting bag and a third might do the work. The person in charge was dressed in an expensive suit and top-hat. Dave also showed slides of a pilgrimage to Lyme Regis in southern England, and of the Jurassic deposits in that area,

which produced many of the first specimens of Jurassic reptiles. We all left the meeting in good humour.

The November meeting was a "Dinosaur Night". First, Dr. Philip Currie, director of dinosaur research at the Royal Tyrrell Museum of Palaeontology presented a set of slides and discussion presenting evidence to suggest that birds very likely evolved from theropod dinosaurs. The evidence included footprints and many body structures from bottom to top and from back to front. Possibly there are now about thirty pieces of evidence available, but to obtain total acceptance among palaeontologists about a hundred pieces of evidence may be required.

Phil answered questions, identified specimens, discussed educational requirements for a career in palaeontology, and received an Australian first-day philatelic museum cover as a token of our appreciation. This lecture was very much appreciated. The presentation was an inspiration due to the clarity of the presentation, his mastery of the subject and the assistance that he brought along which resulted in a faultless presentation of slides, all of which were outstanding.

Later, Phil noted that the January issue of the National Geographic Magazine will feature the latest findings on dinosaurs, with a reference to the Royal Tyrrell Museum of Palaeontology. Also to come will be the Ex-Terra Foundation show in Edmonton and Steven Spielberg's "Jurassic Park".

Linda Reynolds showed dinosaur books and collectibles developed through the Geological Survey of Canada so as to be scientifically correct. Les Fazekas announced proposed field trips for the 1993 season and handed out an excellent guide produced for the 1992 Ravenscrag field-trip by Howard Allen.

Dr. and Mrs. Stiem of Medicine Hat arrived with a display case of Albertosaurus teeth and a set of vials containing a variety of small vertebrate fossils collected near Medicine Hat.

Mike Skrepnik came in from Okotoks and showed off his T-Shirt design, featuring a *Chasmosaurus* (ceratopsian dinosaur) charging from a 1993 map of Alberta. This design has been readily accepted and we expect to go ahead with this project in the very near future. Mike also reviewed plans for DINOTOUR 1993 [see DINOTOUR update elsewhere in this issue —ed].

Wayne Braunberger brought in a strong contingent from the University of Calgary. The meeting room was completely filled by the 35 people present. Luckily, we had made proper arrangements so that Marilyn Francis and her social committee were able to produce a great set of refreshments. This was the outstanding meeting of 1992.

The Xmas meeting had a very low attendance, but we had a huge amount of food to consume, thanks to Dr. and Mrs. Hoffman, Wayne and Lynn Braunberger and Marilyn Francis. Les showed the dinosaur sequence from "Fantasia" and two cartoons, one featuring Felix the Cat. Wayne also provided a detailed guide for the 1992 Scabby Butte field trip.

For January, we expect to visit Harvey Negrich's house to socialize and examine the APS collection, on which Harvey has been carrying out an extensive recording program.

Mike Skrepnik is ready to execute our T-shirt order. We are considering ordering 150, as three of the members feel that they can sell 50 between them. The January issue of the National Geographic has arrived and the enclosed poster features Alberta dinosaurs. There is also a photo of the work being done at the Tyrrell in readying the display for Edmonton in May, 1993.

As Phil Currie says, 1993 looks like a bumper year for palaeontology!

SOCIETY OF VERTEBRATE PALEONTOLOGY, 52ND ANNUAL MEETING

Toronto, October 28-31, 1992 by Heather Whitehead

When I discovered the SVP was meeting in Toronto, only 2 hours from where I live these days, I decided to attend part of it to see what it was all about. I hoped to learn new things, see friends from DINOTOUR trips, meet new people, and enjoy a well-earned break from graduate school. To my surprise, all those things happened!

Talks were held in two series running at the same time in different conference rooms (on different floors) at the Royal York Hotel; poster sessions were in a third room on a different floor. There were various commercial exhibitors, including many publishers' representatives (most offering special prices for the conference). Talks began about 8:30 and ended about 4:30 each day; each talk was limited to 15 minutes and the time factor was enforced by session moderators. I was glad that the dinosaur talks were held mostly in one room on the final day of the conference, so that I did not have to make too many difficult choices between talks! Evening events that I was able to attend included the Tenth Annual Auction and Social (one set of 2 rare books went for \$1000), and a "Benefactors' Bacchanalia" in the Royal Ontario Museum (with galleries open just for SVP

Talks of special interest included one by Darren Tanke from the Royal Tyrrell Museum on

predation marks on Oligocene mammals; one by Dan Chure from Dinosaur National Monument about an embryonic ornithopod dinosaur skeleton; an update on the American Museum of Natural History 1990-92 expeditions to the Gobi Desert; and a great talk about dinosaurs and sex—sexual dimorphism in Tyrannosaurus rex! There was a fascinating high-tech talk and hands-on "poster" display that used CT-scanned images stored on a CD-ROM to create a video of a fossil skull—the video looked like you were moving into the skull one layer at a time, and the image could be manipulated to show various perspectives or enlargements. Use of this kind of non-destructive technology could help decide if a fossil is worth preparing, and if it is, act as a guide in traditional preparation work.

I attended a very popular lunch/meeting of The Dinosaur Society from Massachusetts, and met their new president Dr. Stephen Gittleman. The Society reports large increases in membership, particularly among children (I noticed its "stamp of approval" for the first time, in an ad at the back of the November issue of *Discover*). They plan a big campaign to coincide with the opening of the movie *Jurassic Park*, scheduled for June 1993.

The SVP is working on making its *Bibliography of Fossil Vertebrates* available on computer disk. A version with one year's data is available for testing and user comments; if it is successful, future yearly editions and perhaps 10 to 20 years of back issues may be offered in this format.

The business meeting included a challenge and discussion resulting from the "Baucus Bill," United States Senate Bill #3107, The Vertebrate Paleontological Resources (Fossil) Protection Act. The challenge, led by a member from the American Association of Paleontological Suppliers, was eventually voted down. SVP members will receive further information from the Society regarding this issue.

Lasting impressions:

- It was great to see DINOTOUR T-shirts/ sweatshirts, designed by APS member Mike Skrepnick, worn by *three* different people.
- The Royal Ontario Museum is a *great* place for a party!
- If you plan to talk to a particular person at this conference, don't put it off—you may never find them again if you postpone it...
- It was definitely worth going to the conference—next time I hope I can stay for the closing banquet and awards presentations, too. SVP 1993 is in Albuquerque, New Mexico, in October.

DINOTOUR 1993

Update—Preliminary Route and Cost Information (as of November 1992)

Dr. Phil Currie of the Royal Tyrrell Museum has again agreed to be our on-board scientific leader, and will be with us throughout the tour. On-site people and facilities are being confirmed, and not all the details are in place yet, so some aspects are still tentative. Please contact DINOTOUR (c/o 12231 Lake Fraser Way S.E., Calgary, Alberta T2J 3T2) if you are interested and are not already on our mailing list, or if you require further information.

Air Option Leave Calgary for Denver, early morning of Friday, April 23. Return from Salt Lake City, afternoon of Sunday, May 2.

Bus Option Leave Calgary early morning of Wednesday, April 21; return to Calgary Tuesday, May 4.

Price (U.S. Dollars) (includes motels, admissions, box lunches if required, Guidebook and T-shirt):

	Bus	Fly
Single	1250	1050 + airfare
Double	1100	900 + airfare

Working Itinerary

- DAY 1. Visit to Denver Museum of Natural History; field trip to Dinosaur Ridge (Morrison Formation); lecture on the early days of dinosaur exploration in the west. Overnight in Denver.
- DAY 2. Field trip to historical Marsh and Cope quarries in Canon City; visit to Canon City Museum. Overnight in Canon City, Colorado.
- DAY 3. Field trip and lecture on the geology and paleontology of the Triassic dinosaur quarries at Ghost Ranch, New Mexico. Overnight at Ghost Ranch, New Mexico.
- DAY 4. Visit historic Sante Fe; visit to New Mexico Museum of Natural History in Albuquerque; possible field trip to *Seismosaurus* site. Overnight in Chambers, Arizona.
- DAY 5. Visit Petrified Forest in Arizona (early Triassic paleontology—the dawn of the dinosaurs); tour Canyon de Chelly National Monument, Navajo Reservation, including south rim drive at sunset. Overnight in Chinle, Arizona.
- DAY 6. Drive through Monument Valley or side trip to Canyonlands National Park; visit studio of dinosaur artists and writers Sylvia and Stephen Czerkas in Monticello. Overnight Moab, Utah.
- DAY 7. Still being negotiated—options include the Moab dinosaur megatracksite, the *Utahraptor* field site, Mill Canyon Dinosaur Trail, a hike at Arches National Park, or a visit to Canyonlands National Park. Overnight Salina, Utah.
- DAY 8. We are working on sites for a hands-on field experience with Dr. David Gillette, State Paleontologist for the State of Utah; visit the College of Eastern Utah Museum in Price. Overnight in Price, Utah.
- DAY 9. Visit Brigham Young Earth Science Museum in Provo. Salt Lake City airport for return flight.

As in previous years, DINOTOUR intends to provide a safe, fun, educational trip for its participants, at as low a cost as is feasible. The committee who puts these trips together is made up of volunteers. We support dinosaur research by making donations or providing small honorariums to the people and organizations who assist us with their time and expertise.

INTRODUCTION TO DINOSAUR TRACKS

by Heather Whitehead

(From an informal talk given to DINOTOUR by Dr. Phil Currie, Royal Tyrrell Museum, June 11, 1992)

Dinosaurs were efficient walkers, which gave them a distinct advantage. Tracks show aspects of anatomy that are not preserved as fossils or in mummies, such as the thick foot pads of hadrosaurs and sauropods. Skin impressions in some tracks define that layer as the precise layer that was stepped on; that is, the print is real and the features such as foot pads are also therefore real, not subtrace distortions.

Footprints form in many ways. Although we tend to think only of mud that later dries and is infilled, the process is not always that simple. All you really need is a separation between two layers, whether on land or in water (dinosaur prints in the Peace River Canyon were formed underwater). Environments where plants are found are generally mildly acidic, and bone preservation is rare. Footprints, however, can be preserved in a plant environment. For example, at Grand Cache there are preserved tree stumps with an identifiable trackway wending between and among the stumps. A carnivorous trackway generally yields speeds 20-25% faster than a herbivorous trackway. At the megatracksite near Moab, Utah, there are adult and subadult sizes, probably all from Allosaurus. Juvenile prints tend to be "chubby" imitations of adult prints—the feet of the babies anticipate the shape of the adult feet of its own species. One Moab site showed at least 12 clear prints in a row, with distinguishable right and left feet. These were probably made by a juvenile Allosaurus, about 6 feet tall and about 500 pounds maximum weight (vs. adult weight of 1.5 tons).

REVIEWS

from Les Adler

The Mammals of Island Europe, by Gerhard Storch, *Scientific American*, February 1992, pp. 64–69.

This article is dominated by a set of nine colour photographs of complete skeletons of fossil mammals excavated from a mining pit at Messel, Germany. The reason for their fantastic state of preservation is the fact that these animals were asphyxiated by carbon dioxide gas while drinking at a lake shore. These toxic conditions preserved the soft tissues to an extraordinary degree. No other site has yielded as diverse an array of

detailed fossils from the Eocene Epoch, 53 to 35 million years ago. The mammals are descendants of types which drove out preexisting faunas.

Due to a lack of fossil evidence, there is confusion as to the pathways of faunal movements across continents from the Cretaceous Period to the Paleocene and Eocene Epochs. Was it from Africa or North America to Europe, or from Asia to Europe? Also, what was the effect of land bridges and continental drift?

The study of the Messel mammals is possible thanks to techniques developed in the 1970s. These developments aid in refining hypotheses and the means of testing them.

A book, *Messel: Insight into the History of Life and of the Earth*, edited by Schaal and Ziegler is being readied for publication.

A New African Ancestor by John VanCouvering, *Natural History*, June 1992, pp. 64–67.

On June 4, 1991, palaeontologist Martin Pickford broke the unofficial world speed record for finding a new kind of prehuman fossil. Within fifteen minutes of arriving at the foot of a mine dump in the Otavi highlands of northern Namibia, an Otavipithecus jaw believed to be 13 million years old was picked up from the rubble heap. The mine was excavated from a deposit of cave breccia and has now been flooded. All specimens come from the dump. The specimen found by Pickford was treated with kitchen vinegar and within three days it could be seen that the jaw was that of a hominoid. The age was determined by its association with fossils of known genera of bats, shrews and other rodents.

It was decided that the jaw was of a wholly new type of dryopithecine. There is a gap of 8 million years between the last known dryopithecine and the prehuman *Australopithecus* of 3.5 million years ago. The finding of this specimen leads to the conclusion that the lines of evolution of the groups of animals leading to humans is far more complicated than originally believed.

Weird Wonders—Was the Cambrian Explosion a Big Bang or a Whimper? by Tim Beardsley, *Scientific American*, June 1992, pp. 30–34.

In this article, Tim Beardsley discusses the range of ideas relating to the Cambrian explosion of life forms, with particular attention (and sometimes rebuttal) to Stephen Jay Gould's recent statements [Gould's book *Wonderful Life*—ed].

The turbulent sediments of palaeontological thought are roiled by a debate as to why so many curious animals seem to have evolved more or less at the start of the Cambrian period, about 560 million years ago. The fossils in the Burgess Shale

of British Columbia have been reconstructed over the past decade by palaeontologists working in England, including Briggs, Whittington and Morris of the University of Cambridge. Many of the fossils are thought to arthropods. Some resemble crustaceans, others look like spiders, scorpions, horseshoe crabs or trilobites, yet most of the fossils have too many head segments, or too few other features, preventing palaeontologists from fitting them into known groups.

Gould argues that "the history of life is a story of massive removal followed by differentiation within a few surviving stocks". Other biologists have picked holes in Gould's claim that the diversity of Cambrian animals could not have been produced by conventional evolution. Gould has used taxonomic oddity as a means of assessing diversity, which leads to an error of thinking that evolution was in overdrive during the Cambrian period. Prime examples used by Gould such as Wiwaxia and Hallucigenia are no longer valid, because by reinterpreting structures or turning a specimen upside down they can be shown to be worms. But again, some paleontologists are not convinced. Gould points out that the studies may reduce the number of Cambrian phyla, but the result is an increase in the diversity within the remaining phyla.

Because the entire Linnean classification system for animals is based on living organisms Mark Ridley of Emory University states that "our modern prejudices influence our perceptions of morphological disparity". Fortey and Briggs claim that they are not prejudiced and that "so far the evidence is either ambiguous or does not support Gould".

Until palaeontologists achieve a better understanding of the Cambrian explosion such unconventional hypotheses as Gould's are "a solution awaiting a problem" and Lady Luck is there in the shadows.

In Search of the Dragon by Wayne Grady, *Equinox*, June 1992, pp. 70–81.

This article describes the doings of the Ex-Terra Foundation and the Dinosaur Project in Mongolia. \$7 million was raised to provide funds for a team of Albertans to cooperate with Chinese palaeontologists during five field seasons. The Chinese scientists explored in the Canadian Arctic and Alberta badlands for dinosaurs while Albertans scoured the Gobi Desert for dinosaurs, concentrating on four major study areas:

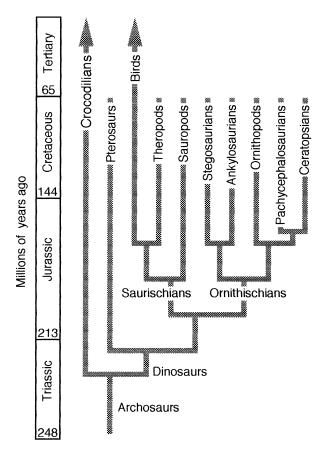
- The Junggar Basin in northwestern China
- The Ordos Basin in south-central Inner Mongolia
- Northern Inner Mongolia, near the Soviet border at Erenhot

• Bayan Mandahu, about 160 km north of Linhe.

At Bayan Mandahu the Nu Qi Daba coulee leads down onto one of the richest dinosaur deposits in the world. In late Cretaceous times the area was a fertile floodplain of a 16 km-wide river. Plant-eating dinosaurs came for the lush vegetation and carnivores preyed upon the herbivores.

In 1988, the Canadians collected 125 fossil skeletons from 49 separate quarries in three weeks. Among the finds were 60 *Protoceratops*, six adult ankylosaurs, many teeth and theropod claws, five kinds of dinosaur eggs, a dozen turtles and several new types of fossil lizards.

Of note was the discovery of several nests with juveniles, along with indications of the cause of death. Theories are being developed on the significance of the many skeletons, particularly of baby ankylosaurs and on the discovery of representatives of a large number of dinosaur families similar to those found in Alberta from the same geological period.



Partial summary of dinosaur classification scheme adapted from *In Search of the Dragon*, by Wayne Grady, **Equinox**, June 1992, pg. 76.

ALBERTA PALAEONTOLOGICAL SOCIETY, CALGARY, ALBERTA

Financial Statement for Twelve Months 1 SEPTEMBER 1991 TO 31 AUGUST 1992

Balance Sheet					
Bank Balance, Aug. 31, 1992		\$1,011.46	Unearned Revenue—1993		\$10.00
Inventory of Pins at cost (25 pins @ \$1.61 5)		\$40.37	Members' Equity Previous Years	\$1,182.97	
Incorporation expense		\$78.00	This year revenue over expenditures	\$71.40	\$1 ,254.37
Typewriter less depreciation	\$379.00 \$244.46	\$134.54	ever experience		
TOTALS		\$1,264.37		_	\$1,264.37

Operating Statement For 12 Months, 1 September 1991 to 31 August 1992

REVENUE		EXPENDITURES	
Dues	\$737.00	Advertising & Public relations	\$30.71
Raffle Revenue	\$0.00	Bank Charges	\$60.00
Pin Sales	\$6.00	Postage	\$140.89
U.S. Exchange	\$7.80	Pins, cost of pins sold	\$3.23
Coffee Revenues	\$72.94	Coffee expense	\$22.38
T-Shirt Sales	<u>\$15.00</u>	General expenses	\$8.00
		Magazine Subscriptions	\$90.55
		Office Expenses	\$68.76
		P.O. Box Rental	\$73.11
		Printing & Copying	\$236.07
		Depreciation Expense-Typewriter	\$33.64
		T-Shirt Costs	\$0.00
		Other	<u>\$0.00</u>
SUB-TOTAL	<u>\$838.74</u>		<u>\$767.34</u>
EXCESS OF REVENUES OVER	R EXPENDITURES,	FOR 12 MONTH PERIOD	\$71.40
GRAND TOTALS	<u>\$838.74</u>		<u>\$838.74</u>

Membership Dues for 1993

Dear Member:

This is a final reminder that 1993 membership dues should be paid. Dues are now payable by the January, 1993 general meeting. We appreciate your prompt remittance, so that our programs can be properly funded. Please note that **dues not paid by the January, 1993 general meeting will result in cancellation of membership, and no further Bulletins will be received.** All costs for back-issues missed due to cancellation must be paid upon renewal.

If, as a paid member, you failed to receive any issues of the bulletin during 1992, please indicate the missing issues on the back of this pull-out sheet.

Do you have any comments or suggestions that would help our Society? If so, please include them on the back of this sheet.

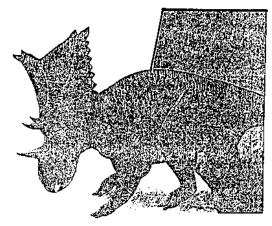
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Membershi	p Renewal Form	for 1993		
Name				
Address				
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Postal/Zip Code	Telephone ()		
Cheque or Money Order	\$	Single	\$10.00	
Enclosed	\$	Family	\$15.00	
(Please do not send cash through the mail)	\$	Institution	\$15.00	

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THE ALBERTA PALÆONTOLOGICAL SOCIETY IS PROUD TO OFFER

T- SHIRTS / SWEATSHIRTS



ALBERTA PALAEONTOLOGICAL SOCIETY 1993

Once again the Society is pleased to offer T-Shirts and Sweatshirts to its members. We are privileged to have an original colour drawing by Mike Skrepnick, a ceratopsian dinosaur on a province of Alberta background, for this offering. A black and white illustration appears above.

To order your T-Shirt or Sweatshirt fill out the order form below and mail to the Society as soon as possible.

T-SHIRTS / SWEATSHIRTS

NAME:ADDRESS:		
T-Shirts:	Small Medium Large Extra Large Total	 X \$15.00/ shirt\$
Sweatshirts	Small Medium Large Extra Large Total	X \$20.00/ shirt\$
		Shipping and Handling: \$3.00/ shirt\$
		Total Enclosed \$