



BULLETIN

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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) Preserve 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 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 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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BULLETIN BACK ISSUES: Back issues of the Bulletin are available at \$2.00 per copy. A limited number are available.

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.

PRESIDENT'S MESSAGE

Percy Strong

After a wonderfully wet spring we should be in for a tremendous collecting season. The high water in the rivers and streams has probably exposed more new material than we could have hoped for! I hope that while you are out collecting that you will also come up with the "new material" that we need to work on our long term goals.

In terms of our membership and public relations goals the field and private collecting trips provide a great opportunity for us. By encouraging friends and interested parties to come along with us, we find new members or at least educate the public about our activities.

The summer collecting season also whets our appetite for more knowledge of palaeontology. After collecting a basement load of fossils we realize which areas we need to know more about and which areas we are well versed in. With that in mind it should be easy to make suggestions for fall educational programs. The Society needs to know more about what the membership would like to learn about as well as in what areas you might be able to share your knowledge.

In financial terms the Society is in good shape. However, if we are to provide more programs we shall need to come up with innovative ways of financing them. We are proposing to set up a fund raising committee in the fall to work on this. Your input is vital if we are to succeed.

Have a fruitful and safe collecting season.

FIELD TRIPS 1990

Harvey Negrich

This will be our last contact for our 1990 field season. As you will see there have been some changes (Trip 90-3 date change). Please do not be disappointed if a last minute problem necessitates a change. Bring along a lunch, drink, and proper clothing as some of our outings take us to odd places not normally visited.

TRIP 90-2: July 21, 1990, Canyon Creek, Alberta
Resource person: Dr. Dave Mundy (281-3668)

We will be looking at the sedimentary and depositional environments as interpreted by Dr. Mundy. The time period will be Carboniferous with an emphasis on the Rundle Group and Banff Formation.

TRIP 90-3: August 11 and 12, 1990, Dinosaur Provincial Park
Resource person: Dr. Paul Johnson (294-1992)

Your resource person has changed for this trip. We now have Dr. Paul Johnson, the invertebrate palaeontologist from the Tyrrell Museum to lead us. More on this trip later.

TRIP 90-4 and 90-5: Are now cancelled due to government cutbacks. The planned trips were cancelled as we were not able to negotiate a trip for our group to each locality. The Yoho National Park people have scheduled public walks to each location lead by a licensed guide.

Mount Stephen Trips run Monday, Tuesday, Thursday, and Friday beginning June 30 and running through to August. Walcott Quarry trips will be only on Saturday beginning on June 30 and running through August. Hikes are limited to only 15 people; there are no exceptions to this limit. This ensures a good-quality interpretive experience, reduces trampling and congestion at the sites, and allows supervision of the activities of all the people on the site. Participants must sign up for the hike in advance at the Visitor Information Center at Field. Registration is on a first-come, first-served basis. Reservations will be accepted by phone, no more than 3 weeks in advance, for groups no larger than 5 people. For all hikes, eight places are reserved for park visitors who sign up in person at the Information Center during the 24 hours preceding the hike. Phone number for advance reservations is (604) 343-6324, extension 10 or 24. If you reserve in advance, you must confirm by 6:00 pm the day before the hike. All reservations that are not confirmed will be cancelled.

PROGRAM REVIEWS

Heather Whitehead

April 20, 1990. **The Canada China Dinosaur Project; Turtles**, Presented by Dr. Don Brinkman, Tyrrell Museum of Palaeontology

Dr. Brinkman opened his talk with a selection of slides taken during the expeditions of the CCDP, and a general survey of customs, history, religion, and people encountered along the way. These excellent slides really showed the colour, beauty, and diversity of China. Dr. Brinkman's particular interest (turtles) was notable in some of slides. Turtles are important in Chinese mythology, signifying long life and prosperity and, as a result, they show up in places a Westerner wouldn't expect: as turtle-dragon statues, in an opera called "Night of the Golden Turtle", and - with a dose of imagination - in the dragon-headed rental paddle boats on the moat around Beijing's Forbidden City.

The Institute of Vertebrate Paleontology and Paleoanthropology was established in China in the 1920's, but only recently have the richness and diversity of its Chinese discoveries become known to the non-Chinese world. The CCDP, begun in 1987, is the first official, large scale exchange of people, ideas, expertise, and materials. Dr. Brinkman's work with the CCDP covered several areas in China and Mongolia, and his talk referred to general findings as well as to his specialty.

One field site in the Gobi Desert was described as badlands, but without a river to carve them. Hazards included wind, which rolled a (luckily empty) tent over 2 miles, and occasional storms which created a river through the camp. The rock was very hard, requiring dynamite and jackhammers to work specimens free. Field techniques were similar to those used in North America, but manpower replaced western cranes and helicopters. Finds included in situ fossil forests, sauropods, theropods, psittacosaur, and a group of ankylosaurs preserved in a dune deposit. One turtle was found when a dinosaur skeleton was dynamited free - and promptly christened the "flying turtle"!

The turtle study had two aims: to search for taxonomic similarities and differences among Chinese, North American, and European turtles, and thus help define connections between land masses; and to study the evolution of turtles, especially whether they evolved in China.

In China, turtles were found in rocks of Jurassic and Cretaceous ages. The Jurassic turtles appear similar to European turtles, but different from North American turtles.

The Lower Cretaceous turtles found were of a primitive type, associated with pterosaur remains in low energy (possibly hypersaline lakebed) deposits. Further study of these turtles is important, since their placement on a cladogram affects the understanding of turtle evolution. In the Upper Cretaceous, turtle assemblages in northern North America and China appear increasingly similar. The similarities spread southward, through Montana and beyond, during the Paleocene

Based on the fieldwork so far, China had an isolated turtle fauna during the Upper Jurassic and Lower Cretaceous, but by the Upper Cretaceous a North America - China connection had been established. Continued dissimilarity of some fauna indicates that a "filter" or barrier existed, for at least some species of turtles.

May 25, 1990. **Preserved Colour Patterns in Fossil Invertebrates**, Presented by Dr. Dave Mundy, BP Resources.

We expect fossils to be bland and grey, and tend to forget that colour and pattern are the norm, not the exception, in many modern shells.

The primary function of shell pigment is to get rid of metabolic and dietary wastes. Secondary functions include strengthening the shell; acting as a light filter/thermoregulator; providing camouflage; and assisting in mimicry, deception, and warning display functions.

One modern study of land snails showed large pattern variation within a species, which helps to maintain the whole population. Certain patterns are preyed upon only at certain times of the year, depending on vegetation patterns and camouflage success.

Colour in fossil invertebrate shells is rare, but has been found in fossils ranging from mid-Cambrian through Holocene age. Fossils with colour patterns preserved are most often found in Mississippian age rocks. Dr. Mundy suggested checking your collections, as even a poor specimen can be worthy of a publication if it has remnant colouration. Colour from pigment should be differentiated from artifact colour due to mineral replacement. In most older fossils, pigment has been lost during diagenesis, but visible colour patterns can be preserved in greys and blacks.

Trilobites have been found with spots and occasionally with stripes. Cephalopods can have chevron stripes on the dorsal (upper) side, which countershades and hides them from both predators and prey. Gastropods commonly show a radial pattern. Brachiopods can show concentric, spotty, or radial stripe patterns.

What can be learned from pigments and patterns?

-In the modern nautilus, shading pattern suggests an open water lifestyle for adults, but a substrate existence for juveniles. Similar inferences can be made for the fossil record.

-Camouflage patterns are linked to the evolution of vision. There were no sighted predators before the Ordovician, and no fossils with disruptive colouration patterns.

-Analysis of the frequency of preserved colour patterns in fossil invertebrates shows peaks that correspond to major predation cycles, such as the Carboniferous peak in fish predation. During predator-prey evolution, natural selection acts to selectively preserve valuable patterns for both predators and prey.

CALGARY ROCK AND LAPIDARY CLUB 1990 ROCK, MINERAL AND FOSSIL SHOW

Les Adler

The C.R.L.C. continues to hold its annual show during the first weekend in May at the West Hillhurst Arena in Calgary. Several members of the Alberta Palaeontological Society present displays.

Of the 96 cases on display, 17 were of fossils. In addition, three of the twenty dealers had large selections of fossils for sale and a large table section enclosed an information booth from the Friends of the Tyrrell Museum, an identification section manned by members of the A.P.S. and a special display of dinosaur bones by Lawrence and Marge Halmrast of Southern Alberta.

This year Harvey and Steffie Negrich displayed Later Cretaceous vertebrate specimens that had been assembled in 1985. The specimens embraced various parts of reptilian orders including crocodile, turtle, champsosaur, hadrosaur, ornithomimid, and theropod dinosaurs.

A professional case from the University of Calgary Geology and Geophysics Department displayed foraminiferal and conodontal faunal slides, both natural size and highly magnified from Australia, U.S.A., and France. Technical descriptions accompanied these Cretaceous and Tertiary specimens.

Les Adler displayed a string of 38 rear hadrosaur vertebrae arranged to simulate a dinosaur tail. A mixture of plaster casts and real specimens covered eggs, jaws, teeth, and feet of various other dinosaurs. Also displayed was a dinosaur femur nearly 4 feet in length weighing 38 kg found by Les near the Morrin Bridge.

Don Sabo presented various meso and microvertebrate Late Cretaceous Alberta faunal remains including mammal, fish, and reptile. These specimens were tastefully labelled and arranged.

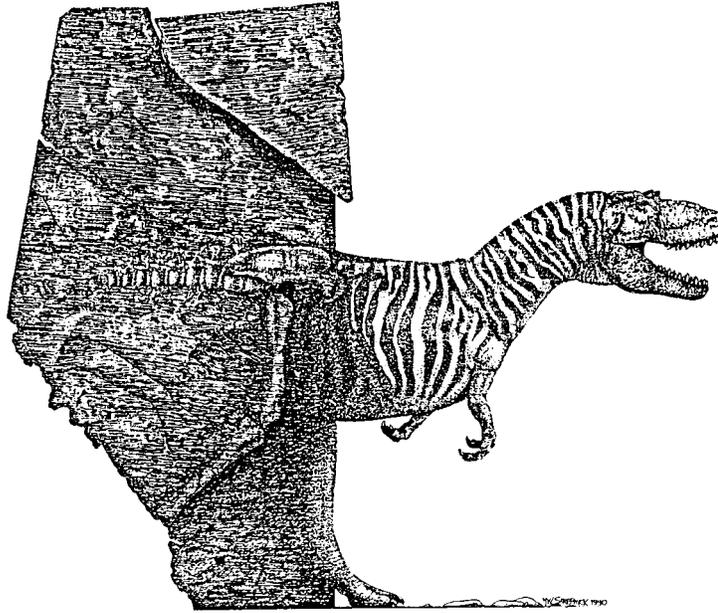
Harvey Negrich ran the Identification Booth with the assistance of Steffie Negrich, Don Sabo, Les Adler, and Lyle Hartwig.

A new Burgess Shale Exhibit has been installed in the Travel Information Center at Field, in Yoho National Park. The exhibit includes a selection of original fossils and high-quality illustrations of what each animal would have looked like alive. The center will be open from 9am to 9pm during most of the summer.

An outdoor exhibit at the Kicking Horse Overflow Campground, at the beginning of the Yoho Valley in Yoho National Park, includes a World Heritage Site Plaque and several full-colour panels detailing the scientific significance of the Burgess Shale, examples of the Burgess Shale fauna, and the history of the site.

The new Lake Louise Visitor Reception Center in Banff National Park, 20 minutes east of Field, features a world-class interpretive exhibit on the geological story of the Rocky Mountains. One portion of the exhibit includes Burgess Shale fossils as part of the story of the Cambrian.

T - SHIRTS / SWEATSHIRTS



ALBERTA PALAEOANTHROPOLOGICAL SOCIETY 1990

T-shirts/sweatshirts, with the above logo on them, will be going on sale in the fall. In order to determine the number of shirts we need to order please indicate your interest by filling in the order form below and returning it to:

APS
P.O. Box 7371, Stn E
Calgary, Alta. T3C 3M2

T-SHIRTS

NAME: _____

(Please indicate the number you might order)

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Sweat Shirts: Mens: S___ M___ L___ XL___
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Cost approximately \$20 - \$25