Alberta Palæontological Society Bulletin

VOLUME 17 • NUMBER 3 www.albertapaleo.org SEPTEMBER 2002

# ALBERTA PALÆONTOLOGICAL SOCIETY



**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 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. (Please enclose membership dues with your request for application.)

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|---|---|
| Single membership | $15.00* annually |
| Family or Institution | $20.00* annually |

* A dues increase was approved at the May 2002 annual meeting. Effective January 1, 2003, dues will be $20.00 and $25.00 respectively. (This also applies to dues collected prior to January 1, 2003 but applied to the year 2003.)

**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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# UPCOMING APS MEETINGS

Meetings take place at **7:30** p.m., in Room **B108** (or **B101**, across the hall)
**Mount Royal College:** 4825 Richard Road SW, Calgary, Alberta

**September 20, 2002**—Open House and Fossil Clinic. See Page 4 for details.

**October 18, 2002**—"34 Years and Two Ships: Drilling in the Deep Ocean." Speaker: Dr. Catherine Nigrini, Canmore Geoscience Centre and University of Michigan. See Page 4 for details.

**November 15, 2002**—"The Life and Death of a Graptolite: Palaeoecology and Taphonomy of the Cape Phillips Formation, Arctic Canada." Speaker: Dr. Jen Russel-Houston, Shell Canada Ltd.

**ON THE COVER:** "Almost Alberta" fossils—Collected on the July field trip, near Sparwood, British Columbia. Unidentified plant fossil, apparently a fruiting apparatus. Kootenay Group (U. Jurassic–L. Cretaceous). Magnified approximately 2.5 times. Specimen courtesy of Wayne Braunberger, photo by Vaclav Marsovsky.

## *In Memoriam*

### Mrs. Anna Elizabeth (Betty) Speirs

It is our sad duty to report the death of Society member Betty Speirs, on August 14, 2002, in Red Deer, at the age of 71 years. Betty was a faithful member, having joined the Society within a year of its establishment in 1986. She was well known to many of our members, having led two field trips, in 1987 and 1988, to the Tertiary (Paleocene) Joffre Bridge locality, which she made famous as one of the most important Paleocene fossil sites in the world. Over the years, Betty was largely responsible for the excavation of nearly 20,000 plant, mammal, fish and insect fossils, to the incalculable benefit of students and researchers at the University of Alberta. Her obituary in the August 17 edition of the *Red Deer Advocate* (p. D1) notes that no less than four fossil species and one genus were named for her:

> "…*Joffrea speirsii* (tree), *Pseudolimnophila speirsae* (aquatic insect), *Speirsaenigma linloei* (fish), *Platananthus speirsae* (tree) and *Ricciopsis speirsae* (aquatic fern). In addition a Paleocene lake that existed at Joffre Bridge was named Lake Speirs in her honour. For her palaeontological work, she received a special award from the International Organization of Palaeobotany when it held its World Conference in 1984 at Edmonton. Betty received the Mayor's Special Award from the City of Red Deer in 1999 for service to the community."

Betty's life has left a permanent mark on the science of palaeontology, and on the lives of those who knew her. She will be greatly missed by our Society members, and we extend our sincerest sympathies to her family and friends.

# 2002 Field Trip Reports

## Onefour, Alberta
## June 22–23, 2002

by Mona Marsovsky

Forty-five APS members explored the Upper Cretaceous (Campanian) Oldman and Dinosaur Park Formations on Saturday, June 22, at the Onefour Sub-Research Station (an Agriculture Canada research farm). **Keith Mychaluk**, our field trip leader, gave an overview of the geology and palaeontology of the region, as well as a safety talk. **Fred Sane** and **Jack Fox**, employees of the Station, then led our convoy of 15 vehicles to the Lost River Valley.

The rains of the preceding two weeks had made the country unusually green and encouraged a profusion of flowers and mosquitos. Some members encountered a rattlesnake near the rim of the valley. The snake generously posed for a photograph, but declined a close-up photo. Although most of the formation was barren of fossils, some people did find some typical micro-vertebrate fossils such as teeth (hadrosaur, small theropod, ankylosaur, crocodile), champsosaur vertebrate, turtle shell, fish scales, snails, clams, egg shell, ossified tendons and a turtle's claw.

As we gathered at 9:00 A.M. on the following day, the clouds (which had been threatening ever since the previous day) delivered a light rain. We briefly reviewed the fossils collected on the previous day. Fearing for the state of the dirt roads after any more rain, the group decided to head north (away from the rain) to explore the Dinosaur Park Formation near Manyberries, Alberta. First visited by the APS in 1998, the micro-vertebrate sites near Manyberries again yielded many fossils. Some invertebrates were also encountered, including a bed of gastropods and poorly preserved bivalves.

We would like to express our appreciation to the employees of the Onefour Sub-Research Station for their helpfulness and generosity. ❑

## Fernie-Sparwood, British Columbia
## July 20–21, 2002

by Stan Williams

**Guy Santucci** led our group of twenty-two to several Jurassic-Cretaceous (Kootenay Group) plant fossil sites. Society members were rewarded with some nice specimens.

The first two stops were along Coal Creek Road about five minutes from Fernie. They are quite accessible with just short walks up to the sites. The first stop was an old quarry (the "limb cast" site) containing many bark and log impressions along with some preserved branches and logs. There had been extensive blasting in the quarry so there was a variety of specimens of different sizes. One block looked about a cubic metre with a large fossil bark impression about 0.75 m long on it. It was surprising that no one collected it.

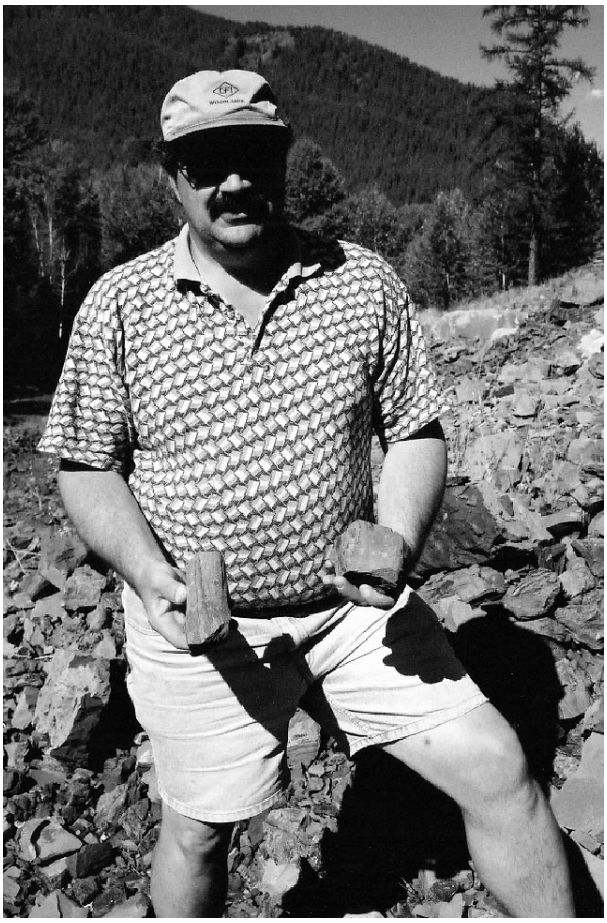
The matrix material in which the impressions are formed is quite hard. It consists of fine-grained sandstone. Since I am a sedimentary geologist, I am interested in some of the sedimentary structures in the sandstone; it appears to me that the sand was deposited in a shallow marine environment. The coal resulted when the sea became shallower and coastal marshes formed. **Les Fazekas** collected some nice impression specimens there but everyone was able to collect something.

The second stop was at a tailings pile at the former "No. 9" underground coal mine, which was quite a large mine at its peak of operation. All that is left of the mine now are some cement pillars and pieces of rusty, twisted metal. In addition, the tailings site is quite overgrown so careful spotting was required to find it. The rock/coal here was much softer than at the first stop, making it easy to split. Collectible material at this site was a little more sporadic than at the first site. However, **Keith Mychaluk** collected a large slab with many nice cycad leaf impressions and I found a featherlike leaf impression. In order to stabilize soft and crumbly specimens such as at this site, it may be useful to have some 5-minute epoxy in your kit. I was given this idea while collecting soil samples for analysis.

***Ginkgo* sp. leaf collected by Alex Morrison. (Photo by Stan Williams)**

The third and fourth stops of the trip were near Sparwood, B.C, just off Highway 3. Here again the matrix material consisted of a hard siltstone and several plant fossils were found here. There were several

**The usual suspects, at the Terex Titan truck in Sparwood, B.C. (Photo by Vaclav Marsovsky)**



**Our guide, Cranbrook BC member Guy Santucci. (Photo by Stan Williams)**

*Ginkgo* specimens found. **Alex Morrison** collected a nicely preserved leaf impression and **Arnold Ingelson** collected some large, curved needle-like samples. **David George** and **Roslyn Ozstian** also collected some wonderful specimens. **Wayne Braunberger** collected a small plant impression that we couldn't readily identify [*Field trip leader's note: during the September general meeting we will try to help everyone identify their specimens*]. And then there was a grasslike fossil that was very hard to miss. Most of the experienced collectors didn't bother with it but I'd never seen it before. So given my otherwise poor luck that day, this was one fossil I couldn't miss!

A quick stop was also made at a Rundle Group (Mississippian) invertebrate site near Crowsnest Lake, Alberta, where some brachiopods, corals and bryozoans were observed.

A highlight of the trip was a bus tour of the Elkview open-pit coal mine. The tour began at the world's largest truck—the Terex Titan. It's BIG! Someone who had a little too much time on their hands calculated that 2 million golf balls would fit in the truck's box . Empty, the truck weighs over 250,000 kg. The coal mining operation is also BIG. There are five active mines in the Sparwood area and Elkview Coal Corp. (Teck-Cominco) is operating three of them. At the Elkview mine itself, they move about 30,000 tonnes of rock a day, operating 24 hours a day, of which 20,000 tonnes is raw coal for processing. Most of the coal extracted at Sparwood is deemed "metallurgical"—for use in steel-making. The coal is shipped to Vancouver as coal dust using five coal trains. There is a steady market for coal right now, but demand may grow as new technology allows for scrubbing of harmful by-products; some claim coal can now burn cleaner than natural gas. Elkview Coal Corp. stated that mining should continue for at least another 10–20 years, attesting to the large coal reserves found in the Fernie-Sparwood area. ❑

# Upcoming APS meetings

by Philip Benham

Hello fossil enthusiasts! The summer is winding down and the APS lecture season is upon us again. I hope you had a good season in the field between the rain and snow storms that characterized this year's "summer."

### SEPTEMBER 20

I invite you to bring your summer fossil finds to display or specimens that you can't identify to challenge our local experts at this year's **Open House and Fossil Clinic** on Friday, September 20, 7:30–9:30 P.M. in Room B108.

### OCTOBER 18

**"34 Years and Two Ships: Drilling in the Deep Ocean."** Speaker: **Dr. Catherine Nigrini**, Canmore Geoscience Centre and Dept. of Geosciences, University of Michigan. Friday, Oct. 18, 7:30 P.M. in Room B108.

**Abstract:**

Dr. Catherine Nigrini has had a long association with both the Deep Sea Drilling Project and the Ocean Drilling Program. Both these endeavours, funded by the U. S. National Science Foundation and by a number of international partners, are designed to explore the

earth's structure and history beneath the sea floor. The Deep Sea Drilling Project began in 1968 with the first voyage of the R/V *Glomar Challenger.* Over the next 15 years the ship drilled and recovered sediment cores from the Atlantic, Pacific and Indian Oceans as well as the Mediterranean and Red Seas.

Discoveries included a confirmation of the theory of continental drift, the relative youthfulness of the ocean floor in comparison with the Earth's geologic history and the existence of salt domes beneath the Gulf of Mexico. The *Glomar Challenger* was decommissioned in 1983 and was replaced by a larger and more advanced drilling ship, the *Joides Resolution*. Drilling operations began again in 1985 under the auspices of the Ocean Drilling Program. Each voyage, called a Leg, of the *Joides Resolution* is about 2 months long. A complement of about 25 scientists is on board to study and document the recovered sediments and rocks. These results are published and are available to the public.

**Biography:**

Dr. Nigrini received her B.Sc. from the University of Toronto and a Ph.D. in marine micropalaeontology from the University of Cambridge. Her specialty is the study the morphology, taxonomy and stratigraphy of Cenozoic Radiolaria. She has published numerous papers about Radiolaria and is one of five authors of a recently published book on the subject. Dr. Nigrini has participated in a total of 5 voyages on both the *Glomar Challenger* and the *Joides Resolution*. Last year she made a 49-day voyage (Leg 199) on board the *Joides Resolution* in the Central Pacific. When pressed, she has to admit that she also sailed on Leg 2 aboard the *Glomar Challenger.*

**NOVEMBER 15**

**"The Life and Death of a Graptolite: Palaeoecology and Taphonomy of the Cape Phillips Formation, Arctic Canada."** Speaker: **Dr. Jen Russel-Houston,** Shell Canada Ltd.. Friday, Nov. 15, 7:30 P.M. in Room B108.

**DECEMBER 13 (NOTE—Second Friday!)**

**APS Social (potluck dinner) and "Missing Link" palaeotrivia game.** We are looking for participants in the game, which will seek to determine who's brains have stored the most trivial knowledge. Please contact the APS executive (Page 1) if you wish to volunteer to play. Fantastic prizes await the winners! Friday, Dec. 13, 7:30 P.M. in Room B108. ❑

# APS Symposium slated for March

by Philip Benham

The Society's Seventh Annual Symposium is planned for the weekend of March 15th, 2003, at Mount Royal College.

**Call for Posters and Speakers**

You are invited to present a poster, lecture, or display specimens from your collection at the 7th Annual APS Palaeontological Symposium. This symposium will contain presentations from a mix of avocational and professional palaeontologists from all over western Canada. Specific invitations will be given to staff and students of western universities, natural history clubs, the Geological Survey of Canada, museums and members of the petroleum industry and the artists' community. Increasing the number of palaeontological collections on display is a new twist on this year's symposium. We hope to access some appropriate cabinets to display the fossils safely. Please contact us ASAP if you plan to display specimens as this is important to our planning process. The aim is to foster closer relations between the APS and the above groups and showcase palaeontology to the general public, so let's have good representation by APS members. If you cannot attend but would like to provide a poster, that can be arranged via mail.

A fossil identification booth and workshops are also under consideration. Advertising for the event will occur through academia, government facilities, museums, CSPG Reservoir, schools and news media. The event is free to all participants.

More details will be provided with the December issue of the APS *Bulletin*. The speaker schedule will hopefully be settled by then. If you wish to speak, present a poster or simply volunteer please contact:

**Posters /Organization,** Wayne Braunberger at waylynn@telusplanet.net
**Lectures,** Philip Benham: phone (403)-691-3343, email: programs@albertapaleo.org
**Abstracts,** Howard Allen: editor@albertapaleo.org

Visit the APS website for confirmation of symposium dates, times and speaker schedule:
**www.albertapaleo.org** ❑

# Library Notes

by Mona Marsovsky, Librarian

### Exchange Bulletins

The APS exchanges newsletters with several other palaeontological societies. All of these newsletters include descriptions of their meetings and field trips. These bulletins can be good sources of information for field trips and palaeo activities if you are planning to travel to those areas. The following is a brief description of some of the exchange bulletins in the APS Library.

***The Paleo Newsletter*** is published monthly by the **Austin Paleontological Society** in Austin, Texas. This newsletter includes descriptions of upcoming meetings and field trips plus articles written by members on safety in the field and other aspects of palaeontology.

***Trilobite Tails*** is a monthly publication of the **Western Interior Paleontological Society (WIPS)** headquartered in Denver, Colorado. In addition to the normal meeting announcements, this publication includes detailed descriptions of presentations, descriptions of their numerous field trips, book reviews and palaeontology articles from members. Their calendar also lists activities at the Denver Museum of Nature and Science and at other nearby palaeontology museums (*e.g.* Morrison, Dinosaur Ridge).

***The Earth Science News*** is published monthly by the **Earth Science Club of Northern Illinois (ESCONI)** in Downers Grove, Illinois. Detailed descriptions of presentations are included in this publication. For example, in the July/August 2002 issue, the article "Recent and Fossil Fishes" (page 9) concisely describes the evolution of fishes. "Karen's Komments" briefly discusses current palaeo news including summaries of selected articles from *Scientific American*, *Nature* and *Science*.

***The Pterodactyl*** is the official publication of **The Roamin Club**, from Livonia, Michigan. This quarterly newsletter describes their club's events and lists upcoming rock and palaeo seminars and shows in Michigan and neighbouring states.

***The Calgary Lapidary Journal*** is published 8 times a year by the **Calgary Rock and Lapidary Club**. This newsletter describes their meetings, field trips and annual rock and lapidary show and includes executive reports and various articles on rocks and lapidary.

The quarterly ***Gem and Mineral Federation of Canada Newsletter*** includes reports from their member clubs and annual convention and copies of articles from member clubs' newsletters.

APS has just received our first copy of ***Canadian Palaeobiology***, the quarterly newsletter from the **Canadian Museum of Nature**. This newsletter is packed full of nontechnical to semi-technical abstracts of Canadian papers, progress reports on palaeo research in Canada, book reviews and a list of recent publications from Canadian palaeontologists. The Spring 2002 issue has a fascinating, 21-page feature article by **Darren Tanke *et al*** (Royal Tyrrell Museum, APS member) documenting how some Alberta dinosaurs wound up on the bottom of the Atlantic ocean—excellent reading! ❑

# Feathered dinosaur on display at Royal Tyrrell Museum

by Vaclav Marsovsky

For those of you who visited the Royal Tyrrell Museum this summer, you may have seen a specimen of *Sinosauropteryx prima* through the window into the big preparation lab. The specimen is Nanjing Institute of Geology and Paleontology NIGP 127587. The specimen was found in the Liaoning Province of the Peoples' Republic of China. Of the three specimens of *Sinosauropteryx* found to date, NIGP 127587 is sized between the other two.

Some of you may remember the holotype specimen (the smallest of the three) which was on exhibit at the museum during the summer of 1999. Unlike the holotype which was split down the middle creating a slab and counterslab, specimen NIGP 127587 is prepared from one side. Unfortunately, many of the protofeathers ("integumentary structures") were destroyed in the preparation process.

One special thing about this specimen is that the remains of its last meal are still in its gut. Tiny lizard jaws can be seen within the rib cage. The specimen is being studied by Dr. Philip Currie. ❑

# Bronzed Beauties

## Airports, art and fossils

Article and photos by
Philip and Celeste Benham

Earlier this summer we were contacted by Jennifer Macklem, a Kelowna-based artist who was commissioned, along with her two partners, Kip Jones and Alden Alfon, to provide some art for the Calgary International Airport. The nature of the project should be of interest to all palaeo-enthusiasts. Jennifer's task was to create a palaeontological focus for the airport through a tile mural placed on the floor in the new arrivals area. In late July, as part of a family road trip, we had the opportunity to visit her studio in Kelowna. What ensued was a fascinating lesson on the process of turning fossil images to ideas and then to art.

The first stage involved finding and selecting fossils representative of western Canada. The real challenge was not in choosing fossils that were appropriate but rather finding complete images of those fossils. The best images turned out to be line drawing reconstructions, although photos were used in the absence of other media. A search of old GSC bulletins, Tidwell's *Common Fossil Plants of Western North America*, and the internet yielded many of the required images.

The fossil images chosen represent the realms of land, sea and air, spanning time and comprising flora and fauna typical of western Canada. Alberta was a specific focus when selecting fossil candidates but neighbouring fossil sites (such as the Burgess Shale) and fossils of organisms that likely lived in Alberta were also considered. Drawings were sized to fit within the appropriate scene.*

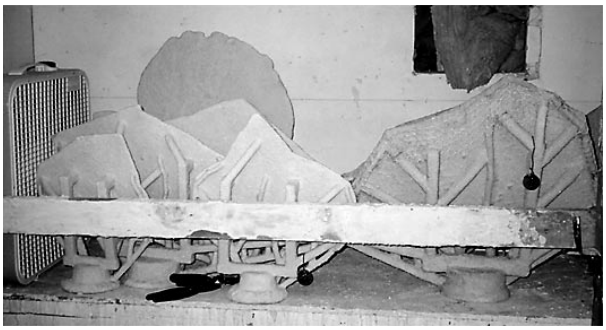
The next step involved transferring the images to wax. The outline of the fossil was sketched into a wax sheet. Jennifer and her assistants then softened wax and moulded it onto the sketched image. The fossil was built up with wax to provide relief and then textured appropriately.

**Kelowna artist Jennifer Macklem with one of the works in progress.**

Jennifer showed us around the workshop where they were working on several fossil representations. A heteromorph ammonite, well over a metre long, was spectacular in that all its bumps and ridges were captured faithfully. Other images of leaves, trilobites, a dragonfly and a fish were in progress but the most amazing piece was the life size image of a *Quetzalcoatlus*. Just half of this flying reptile took up a whole floor in the workshop. The large wax fossil images had to be made in a number of pieces because of the equipment size limitations at the next step.

The waxes are carefully transported from downtown Kelowna to Pyramid Bronze Foundry, which is

* At the airport, wooden "plugs" or cutouts in the shape of the fossils are placed onto the floor. A team from Winnipeg will then pour terrazzo around the wood, and when it sets (it is a kind of epoxy resin), the wood will be removed and the bronze inserted. The end result in this case is a coloured floor with lines reminiscent of waves or perhaps topographic maps in which the fossils sit.



**Ceramic-and-sand dipped wax pieces drying.**

located right smack in the middle of fruit orchards. Jennifer invited us to see the foundry and we eagerly took up the offer.

As we pulled up outside, I could see a stack of bronze bars awaiting the smelter. Friendly staff then walked us through the next steps of the process. In the first room we were shown some of the wax pieces that had been shored up with a branch-like wax structure to provide strength and to later serve as drainage tubes. These were then dipped into a large barrel that contained a mixture of ceramic powder and sand. The waxes are dipped repeatedly until the mixture cakes the image at least 1.5 cm thick. Each dipping is required to dry completely before the next layer is added. Smaller art pieces are dipped approximately five times and larger pieces eight times or more for additional strength. The integrity of this coating is vital because if there were a fracture or a thinning of the coating the molten bronze could burst through. Once the structure is properly coated and dried it is placed in the oven at a very high temperature. The wax melts and pours out of the drainage holes, leaving a perfect ceramic shell, the mould vessel. Some of the larger fossils had to be broken up jigsaw style, casted and assembled. There is only one shot to get it right. If part of the fossil didn't come out the whole thing would have to be started over.

**Bronze ingots: raw material for the art castings. Next stop is the smelter oven.**

The next step requires heat and lots of it. The bronze bars are melted to a temperature of 1100° C within a huge crucible in the smelter oven. The crucible requires two people to remove and pour the molten bronze.

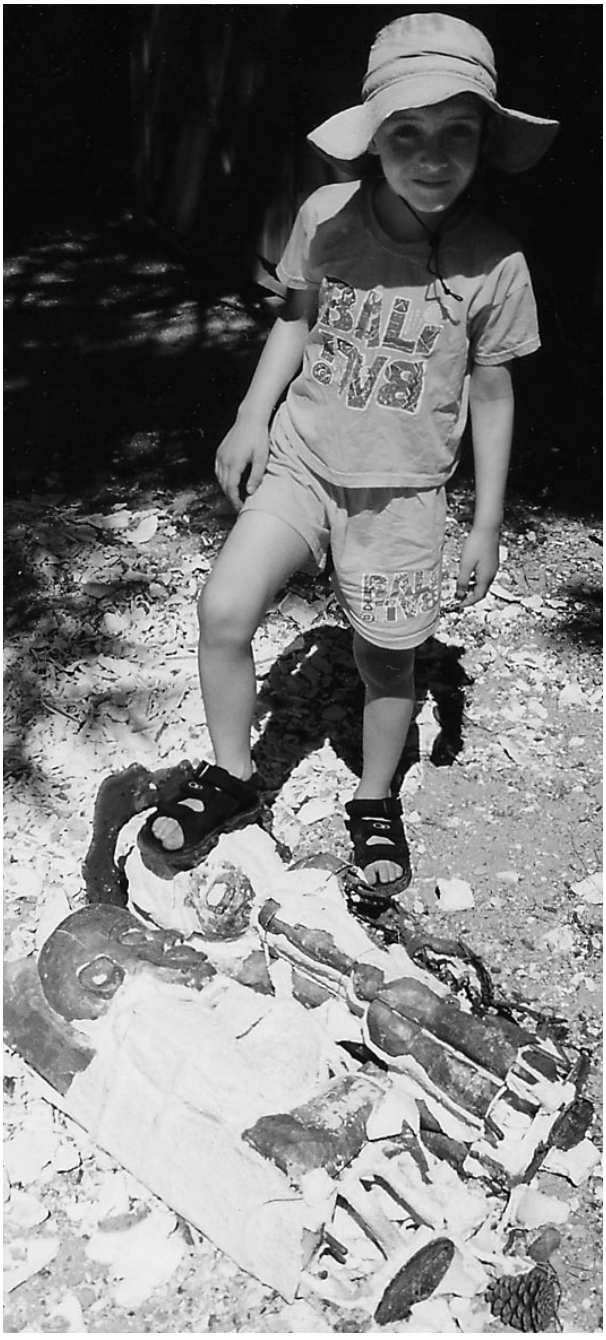
**The foundry yard, in a Kelowna orchard. Smelter oven is at lower right.**

The mould vessel is heated to the same temperature in an adjacent oven to prevent it from cracking as the bronze is poured in. Another problem, which is more common with the larger and complicated pieces, was the presence of trapped air that would prevent the bronze from completely filling the voids within the ceramic. The oven is outdoors to reduce the heat but even so, those working the bronze must wear an aluminum suit to deal with the oven. On their hands they wear oven mitts that look a better fit for the jolly green giant! I was shown the protective headgear to see that it was hot enough to burn the inside of the hat.

Once the molten bronze is poured into the mould vessel it is left to cool. The ceramic cover can then be tapped off with a hammer revealing the artwork within. The children were given an opportunity to reveal some of the artworks that had recently cooled. They were told where and how hard to hammer so as not to damage the bronzes. My youngest son, Ryan, was

tapping away at a bronze destined for some high end gallery when our guide casually mentioned "That one will probably go for $10,000." At this point I urged Ryan to "hammer a little more gently!"

The bronze artworks are not yet complete. Commonly a patina is applied to bring out the detail of the sculpture. We tend to think of patina as the coating on an object's surface that occurs during natural aging. In bronzes, acids (such was cupric or ferric) or other chemicals can be used to bring out a variety of colours. Lastly, the bronze is polished and sent to a gallery for sale. However our fossil art will undergo another kind of polishing. This creative collage will greet international visitors who will stroll fascinated through the arrival area, their very feet buffing the bronzes.



**"Only ten thousand bucks? Don't have a cow, man!" Ryan Benham with the fruits of his hammering labour.**

Good art inspires imagination and stirs the emotions. Here countless thousands will pace upon the bronzes. During a respite in their physical journey, they may pause to reflect upon times and worlds past where monstrous reptiles soared the skies or shelled squids plied the seas.

What better merging of art and science could there be? What better representation of Alberta's natural heritage? ❑

# Archaeological Society of Alberta, Calgary Centre September Meeting

September 18, 2002 at 7:30 P.M.
University of Calgary, Earth Sciences Building
Room ES 162

Speaker: John Dormar
**The Practice of Avocational Archaeology**

**Abstract**

First, there will be a description of some of the tools with which John, as an Avocational Archaeologist, was able to contribute to the discipline of Archaeology over the last 35 years. John is also a Soil Organic Chemist and he will examine several questions such as: "would it be possible to say on the basis of the quality of soil organic matter if palaeosols had been formed under grass or under trees?" or "would it be possible to tell if a soil had formed sub-aqueously or sub-aerially? or, for that matter, is a 'palaeosol' under study really a soil (a profile formed *in situ*) or just soil material?"

Second, since Soil Genesis is a basic discipline and the landscape is really the soil scientist's laboratory, John will examine how people affect the landscape (agriculture, root digging) and how the landscape affects people (camping spots, vision questing).

**For more information contact:**

**Joanne Braaten**
Phone (403) 239-3970 Fax (403) 282-9567
Email: kjbraaten@shaw.ca ❑

**Wax original of a heteromorph ammonite, *Didymoceras* sp., under construction in the studio. Visitors to the Calgary International Airport will eventually polish it and many others with their shoes.**

# Fifth British Columbia Paleontological Symposium

## May 2 to 4, 2003, Nanaimo, BC

Keynote speaker is Dr. Betsy Nicholls of the Royal Tyrrell Museum. A variety of workshops, lectures, a palaeontology art show and field trips are planned. There is currently a call for speaker abstracts, posters and displays. Registration fees will be $65 before April 1 2003 and $75 after April 1.

Several APS members attended the last British Columbia Paleontological Alliance (BCPA) symposium held in Kamloops in 2001. The event was well organized, there were lots of good speakers and interesting field trips. Nanaimo is a great base for field trips to many excellent fossil sites on Vancouver Island and nearby Hornby Island.

**For more information contact:**

**Graham Beard**
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Email: gtbeard@shaw.ca ❑

# Reviews

***Ornithomimus*—Pursuing the Bird-Mimic Dinosaur**
by Monique Keiran, Royal Tyrrell Museum, Discoveries in Palaeontology series.
Raincoast Books, Vancouver, BC, 2001

Although at first glance *Ornithomimus* appears to be a children's book, the content of *Ornithomimus* will appeal to both children and adults. This book entertains like a three-ring circus. Three stories are interwoven, namely:

1. The narrative of the life of the *Ornithomimus* (youth, mating, death).
2. The story of the discovery, recovery and preparation of this fossil.
3. The palaeontological background.

The latest theories on coloration, behaviour, nesting, climate, environment, herding (including a chase by a pack of *Albertosaurus*) are blended seamlessly into the life history of this dinosaur. Excellent artwork complements the exciting story.

My only complaint (and a very minor one at that) would be that the reader isn't told what is "fact" (nest building), what is semi-supported theory (pack behaviour of *Albertosaurus*) and what is complete

speculation (coloration, mating rituals). Perhaps a short description in the appendix might be useful.

The narrative of the discovery, recovery and preparation of the specimen is very well explained, as is the background material. The many excellent photographs complement this description. Boldfaced text indicates terms explained in the glossary. A "who's who" section at the back also gives the reader insight into those who were involved in the recovery effort.

This is an excellent book for those new to palaeontology and for those more-experienced palaeo enthusiasts who want to catch up on the latest theories on dinosaur behaviour and get the inside scoop on the history of this spectacular fossil. I highly recommend Ornithomimus, *Pursuing the Bird-Mimic Dinosaur.*

*– Mona Marsovsky*

**Note:** Raincoast Books has generously donated a copy of this book to the APS Library. ❑

**A report on the April, 2002 issue of *Natural History***, pages 6, 73 – 80.

Ellen Goldensohn in her editorial states that a scientific theory stands or falls by its ability to explain and predict. Darwin's idea of evolution by natural selection rapidly persuaded scientists because it offered a brilliant and thorough-going explanation of the oddities, cruelties, irregularities and patterned intricacies of the natural world. Like all successful scientific theories, the Darwinian paradigm has been modified and expanded. But its basic premise—that species have descended from common ancestors and have been modified over immense periods of time—remains unrivalled in making sense of many disparate lines of evidence.

Unlike the equally revolutionary theories of Copernicus and Galileo, however, Darwin's idea still provokes opposition in some quarters. Most recently this resistance has been embodied by the "intelligent design" (ID) movement, whose supporters maintain that the complexity of the natural world is evidence of planning by a higher intelligence. This line of argument, familiar to theologians, is now being put forth as a scientific challenge to Darwin.

In this issue the magazine offers readers the chance to evaluate, unfiltered by second-hand reports the scientific quality of ID's propositions, and to judge for themselves whether or not these propositions differ from those of evolution's old foe, creationism. Each ID statement has been analysed by a respondent in the Darwinian camp. In addition a brief overview of the intelligent design movement is provided and another columnist reports on recent findings relevant to the evolution of the eye. Finally there is a philosophical report on science versus religion.

*– Les Adler*

**The Beastmaster**
by Ian Cruickshank, *Maclean's*, April 8, 2002. Pages 42 – 44.

Ian provides notes on the career of Peter May who is now located at Beamsville, Ontario, 50 km east of Hamilton and his company, Research Casting International Ltd.

Peter attended the University of Guelph, specializing in sculpting, earning a B.A. in fine arts. He graduated in 1977 and obtained a position as a junior technician at the Royal Ontario Museum (ROM) in its vertebrate palaeontology department. He has the ability to fit the bones together with a knowledge of sculpting, welding, moulding and casting.

After seven years at the ROM he was employed as senior technician in the early days of the Royal Tyrrell Museum of Palaeontology. He returned to the ROM in 1986 and in 1987 started Research Casting in his spare time. In 1991 he landed three major contracts in Japan, England and the United States with orders for a million dollars worth of dinosaurs.

May's firm build the *Barosaurus* at the American Museum of Natural History—the tallest freestanding dinosaur, at 15 m high and 24 m long. He assisted Michael Crichton and cooperated with Stephen Spielberg on *Jurassic Park I*. He has made moulds of Pompeii casts and Hawaiian and Scottish geological formations, a Prince Edward Island sperm whale and Three Gorges Dam, China, archaeological artifacts.

A mastodon skeleton is going to Indiana State Museum and an *Ambulocetus* whale ancestor is going to the Canadian Museum of Nature in Ottawa. The Field Museum of Chicago paid him $750,000 to make seven copies of Sue, the *Tyrannosaurus rex*. Since May of 1990, May's firm has built more than 250 prehistoric beasts.

*– Les Adler* ❑

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# Fossils in the News

*Calgary Herald,* July 29, 2002
**"Naturalist's naturalist" killed by lightning**

LAKE LOUISE, Alberta—A sad lesson for outdoorspeople everywhere, and perhaps of particular importance to APS members, many of whom explore the high slopes of the Rocky Mountains during thunderstorm season, was the recent loss of a popular and respected Surrey, BC naturalist and amateur palaeontologist, Mr. Rene Savenye. Mr. Savenye, 63, was killed by lightning while hiking on the popular trail to the summit of Mount Fairview, overlooking Lake Louise, in Banff National Park. Mr. Savenye was noted for having discovered a very rare fossil bee in Tertiary rocks near Merritt, BC, in 1995. Our sympathies extend to Mr. Savenye's family and to any Society members who may have known him.

*Quirks and Quarks*,
CBC Radio One, May 18, 2002
**Impact gave dinosaurs a head start**

TORONTO—Host Bob MacDonald interviewed Dr. Hans-Dieter Sues, Vice President of research and collections at the Royal Ontario Museum (ROM) and a Professor of Zoology at U of T.

Over the last few decades, scientists have focused on what caused the extinction of the dinosaurs 65 MYA at the end of the Cretaceous and many support the catastrophic extraterrestrial impact theory. Dr. Sues is suggesting a similar mechanism may have been the reason why dinosaurs became the dominant terrestrial animals at the end of the Triassic.

During the Triassic, approximately 230 million years ago, many different groups had evolved and were competing. However at the Triassic/Jurassic boundary, about 200 million years ago, there is a sudden disappearance of many groups. The dinosaurs made it through this extinction event because they could adapt while the other groups could not.

The evidence for an extraterrestrial impact is that a fern spore proliferation ("fern spike") and iridium anomaly have been found at the Triassic/Jurassic boundary by fellow researchers. Although the Manicouagan impact crater site in Northern Quebec was mentioned during the interview, Dr. Sues suggested there are some discrepancies in the dates. The fern spike (an indicator of sudden climate change) and iridium (an extraterrestrial element) are the same markers that are associated with the K/T boundary. In this case however, the asteroid impact wiped out the potential competitors of the dinosaurs such as the 8 metre long meat eating rauisuchians.

Host Bob MacDonald asked Dr. Sues, "why then didn't the dinosaurs survive the K/T extraterrestrial impact?" Dr. Sues indicated that by the end of the Cretaceous, the diversity of dinosaurs had fallen well below earlier levels. – *Vaclav Marsovsky*

*Quirks and Quarks,*
CBC Radio One, April 27, 2002
**Fossilized vomit?**

GREENWICH, UK—Dr. Peter Doyle, a researcher from the University of Greenwich, was interviewed by host Bob MacDonald. Dr Doyle has found what he has interpreted as fossilized vomit. The evidence are the remains of bits of belemnite shell that have been etched by acid (*i.e.* by stomach acid). Dr Doyle described the vomit as "looking like splat." Belemnites are torpedo shaped animals, relatives of the squid.

Presumably the predator would take in the whole animal and the parts that could not be digested were regurgitated. The belemnites were found associated with teeth and bite marks. The likely predator was an ichthyosaur. To test his theory, Dr. Doyle wants to look at other surfaces for similar evidence to see if there is a recurring pattern. Dr. Doyle also stated that finding an ichthyosaur skeleton with intact stomach contents would be a positive step to support his theory.

*Calgary Herald*, July 4, 2002
**Dinosaur bone find called biggest in BC**

PRINCE GEORGE—Amateur palaeontologist Wayne Sawchuk's discovery of some 20 dinosaur bones in a canyon in northeastern British Columbia constitutes the largest collection of dinosaur fossils ever found in BC. The bones were discovered in 95 to 97 million-year-old sandstone (Upper Cretaceous) near Tumbler Ridge. The bones are thought to belong to one or more hadrosaurs. The Tumbler Ridge area has figured prominently in recent years, as another bone and numerous dinosaur tracks have been located nearby [*see* Bulletin, *September 2001, p. 7*]. Dr. Charles Helm, vice-president of the Tumbler Ridge Museum Foundation, expects the latest discovery to grow to as many as "100 to 200" bones.

*Science*, July 26, 2002

## Fossil bird from China turns tail, spills guts

BEIJING—The latest fossil bird to turn up in northeastern China is a specimen from Lower Cretaceous rocks (120 – 125 Ma) that combines a primitive tail, an advanced shoulder girdle, and an apparent appetite for seeds. The well-preserved *Jeholornis* specimen (palaeontologists Zhonghe Zhou and Fucheng Zhang took particular care to confirm that *Jeholornis* is a legitimate fossil—see the *Archaeoraptor* fiasco, *Bulletin*, December 2000, p. 10) includes the remains of the animal's last meal, a pile of watermelon-sized seeds. *Jeholornis* is thus the first proven seed-eating fossil bird. The specimen also sports a long bony tail, a primitive feature shared with its presumed ancestors, the Jurassic *Archaeopteryx* of Germany and Late Cretaceous *Rahonavis* of Madagascar, showing that long-tailed birds were widely distributed. The Chinese bird, however, has an advanced shoulder girdle, suggesting *Jeholornis* was capable of powered flight.

*The National Pos*t, July 31, 2002

## Australian dig finds odd beasts superbly preserved

SYDNEY—Spelunkers scouting by ultralight airplane for undiscovered caves in Australia's vast Nullarbor Plain have stumbled onto a fabulous trove of beautifully preserved skeletons of extinct mammals. Among the animals found trapped in the caves—most lying articulated in the positions in which they died—are the large and ferocious "marsupial lion" (first complete skeleton ever found), a wombat the size of a small car, a 3-metre tall kangaroo, and bizarre sickle-clawed and horned wallabies. Many of the specimens represent new species. Another cave produced the remains of a Megalania, the largest-ever goanna lizard [*see* Bulletin*, March 2002, p. 13*].

Tests are under way to determine the precise age of the fossils, but they are estimated to be about 1.5 million years old. Dr. John Long of the Western Australian Museum in Perth enthuses that this discovery is "the tip of the iceberg as to what we hope to find in future expeditions."

*Calgary Herald*, July 19, 2002

## Prehistoric flying reptile unearthed

SANTAN DO CARIRI, Brazil—Palaeontologists have announced the discovery of a new type of pterosaur, or flying reptile in 110 million-year-old rocks (Lower Cretaceous) of the Araripe Basin in northeastern Brazil. Named *Thalassodromeus sethi* ("sea runner of Egyptian god Seth"), the pterosaur had a 4.5 m wingspan and a large crest running along the top of its head. Its jaw structure suggests that it fed by skimming the water surface for fish, much like the modern seabird, the skimmer. Brazil's Araripe Basin, site of an ancient lagoon, has produced a number of important pterosaur fossils.

*Calgary Herald*, August 23, 2002

## Fossils likely a new fish species

FORT ST. JOHN, BC—Amateur palaeontologists Don Ball and Pete Lowe of Port Alberni and Dana Ball, of Fort Nelson, have found the remains of a 100 million-year-old (Cretaceous) fish in rocks along St. John Creek near this northeastern BC city. Fossil fish expert and APS member Dr. Mark Wilson of the University of Alberta attended the discovery site and examined the specimen, a well-preserved, metre-long skeleton found in three pieces. He opines that the specimen belongs to the marine genus *Cimolichthyes*, and is probably a new species.

*Calgary Herald*, August 24, 2002

## Natives give museum rare reptile fossil

BLOOD RESERVE, AB—This article is a bit short on details but it relates the discovery, on Blood Tribe land south of Lethbridge, of the skeleton of a Late Cretaceous mosasaur. Subsequent reports in the broadcast media indicate that the skeleton was discovered on Blood land by workers of the Korite company, an ammonite gemstone producer, during excavation operations.

Dr. Betsy Nicholls of the Royal Tyrrell Museum considers it to be a well-preserved skull and skeleton of a relatively rare North American mosasaur genus. The specimen has been transported to the Tyrrell Museum for safekeeping, while tribal officials and museum staff decide on custodial matters. The specimen was to be revealed to the public at the museum in the last week of August. ❑

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*Thanks to Les Adler, Phil Benham, Georgia Hoffman, Trudy Martin, Roslyn Osztian and Sam Richter for submitting news clippings.*