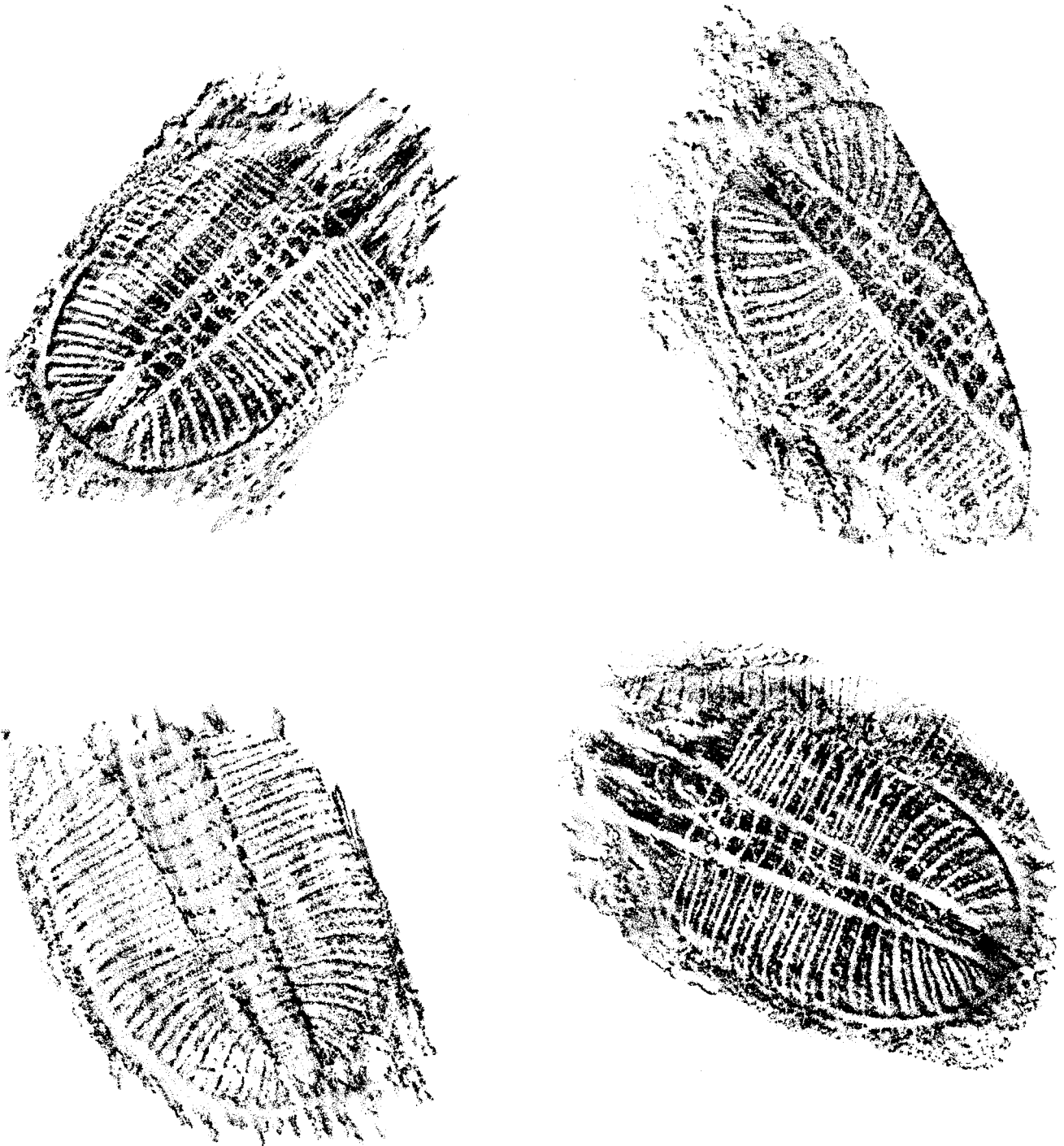


BULLETIN

VOLUME 8 NUMBER 3

SEPTEMBER 1993



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 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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Requests for missing issues of the *Bulletin* should be addressed to the editor.

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. Except for articles marked "Copyright ©," reprinting of articles by exchange bulletins is permitted, as long as appropriate credit is given.

†APAC is the Alberta Palaeontological Advisory Committee

UPCOMING APS MEETINGS

Meetings take place at **7:30 p.m.**, in Room **B108**,
Mount Royal College: 4825 Richard Way SW, Calgary, Alberta

September 17—Show-and-tell: bring your finds and photos from the summer of '93

October 15—(tentative) A presentation by the organizers of Dinotour.

November 19—(tentative) A visit to the home of Dr. Barry Richards, a private collector.

ON THE COVER: Graphite rubbings of *Ogygopsis klotzi* (Rominger). Middle Cambrian Stephen Formation, Mount Stephen trilobite beds, Yoho National Park, British Columbia. Rubbings by Howard Allen.

President's Message

by Les Adler

Having had a summer break, with initially cold and wet conditions, we are now able to settle down and review our operations. **Holger Hartmaier** has about six programs in reserve which will take us into March of 1994. The September meeting will review trips and collections, while in November and January we expect to view collections in private homes in Calgary. In October we will possibly see a show from the **Dinotour** people. In December and January we will see videos.

Finances are in good order and most of our bills have been paid, leaving us with a reserve of about \$800. We would like to sell more T-shirts. These are an excellent buy, with four colours and a superior custom design by **Mike Skrepnick**. I consider that the printed advertisement does not do justice to the product. Also we now have to compete against Jurassic Park T-shirts and a set of four from Canada Post.

At the date of writing (early August because of publication deadlines), two field trips had taken place. Each trip had about 11 persons in attendance with 90% expressing strong satisfaction because of the material collected. The first trip, reviewed elsewhere in this issue, produced Cretaceous mosasaur vertebrae, parts of crayfish, and molluscs, including an excellent ammonite. On the second trip, members found Mississippian shark teeth fragments and one shark spine, possibly *Xenacanthus* sp. The 10% dissatisfaction was due mainly to poor camping conditions, such as strong winds blowing down tents, cold temperatures, dampness underfoot, mosquito bites and steep hiking. We urgently need to get our third-party insurance in order.

With **Howard Allen** continuing as editor, and illustrations to come from **Chris Bretz**, other material expected from **Heather Whitehead** and myself, and reports from other contributors, you will continue to receive an outstanding *Bulletin* on a regular basis. The *Bulletin* will keep you up-to-date with reviews of recent events, exhibitions, scientific articles, news reports and forthcoming trips. (If you have the cash and the time, dinosaur trips have been planned for the USA, Mexico, Argentina and southern England.) I will be asking Howard to publish an up-to-date list of what is in the APS library, and a complete membership list. We now have strong participation by about 22 members: some financial, some in services (particularly **Mount Royal College's** contributions) and hopefully with a stronger participation from a few others you can look forward to the Society continuing to help you enjoy your interest in fossils. □

From the Editor...

by Howard Allen

We won!...sort of. Won what? The Gem and Mineral Federation of Canada (GMFC) holds an annual club newsletter contest, in which rock clubs submit their bulletins and newsletters for judging against a score sheet. **Trudy Martin** of the **Calgary Rock and Lapidary Club** was kind enough to submit our *APS Bulletin* of September and December 1992 and March 1993. The results? Out of a possible 100 points, the three issues of our *Bulletin* scored an average of 72.66%. This netted us a handsome "Level 3 Certificate of Achievement." In the words of Trudy Martin, one of the judges: "You did very well considering you hadn't seen the score sheet before."

Now that I have seen the score sheet, a pattern is evident in the points distribution. The *Bulletin* consistently garnered full marks, or high marks in many categories: legibility; easy and pleasant reading; format, design, layout; vital information (page 1 stuff); variety of subject material; extended information (provincial, national, international news, etc.); and general appeal.

So far so good. However, when it comes down to one of the major categories—club news—the *Bulletin* trips and pretty much falls on its face. Here's how we scored in this category:

CLUB NEWS – 30 points possible

	max.	Sept	Dec	Mar
Program: announced & described	5	3	3	3
review of previous program	5	3	5	0
Major activity/business of last meeting	5	0	0	0
Field trips, workshops, other activities	5	5	5	5
Coming events	5	0	0	0
Personal news of members	5	0	0	0
	<u>30</u>	<u>11</u>	<u>13</u>	<u>8</u>

See what I mean? When it comes to club news, the *Bulletin* is all sizzle and no steak. What can we do to boost our score? First, we need some volunteers to take a few notes during or after the meetings: a paragraph or two about who gave the presentation and what it was about. **Heather Whitehead** used to do a fine job of this, but she now lives halfway across the continent! How about "coming events?" I'm sure someone hears about rock shows and exhibitions (the CRLC show, Dinamation, dino lectures, other provincial and national events). Maybe we should print the minutes of the general and executive meetings. As for "personal news of members"—sometimes no news is good news—but how about awards or recognition in the media? Let's see if we can get rid of some of those goose-eggs before the next GMFC contest. □

Dinotour 1993: An Overview

by Les Adler

A group of Dr. Philip Currie's ex-students of dinosaurs banded together and set up a committee to develop a series of non-profit expeditions from Calgary to Mexico, visiting museums, dinosaur track-sites and quarries, dinosaur sculptors, and historical, archaeological, geological and physiological locations:

- 1991– Calgary to northeastern Utah via Alberta, Montana and Wyoming.
- 1992– Salt Lake City to Colorado and Utah.
- 1993– Denver, Colorado to New Mexico, Arizona to Salt Lake City.
- 1994– Texas and Mexico, including Fort Worth, Glen Rose, Austin, Riverwalk, Big Bend, Lubbock.

Dinosaur locations are often far apart in isolated, barren locations so that an early start has to be made for several long days; transfer to trucks may be necessary. Heinz Kluth has been the regular Cardinal Lines bus driver and is well aware of the idiosyncrasies involved for trips with fossil enthusiasts on board. Regular participants hail from Canada, the U.S. and the U.K.

Bill Carson, geologist-leader, explains the tectonics and geology while Phil Currie brings around specimens to each participant and describes the latest research on dinosaurs.

The experiences of the first year have led to an increase in costs, but on the whole the standard of accommodations has been raised to include Holiday Inn and Best Western motels (US\$99.50 quoted on the back of the door). More guides and advisors have been added, now numbering 19, including professional curators of museums, palaeontologists showing us current projects and excavations under way, and sculptors describing their work. Also, the original discoverers of sites tell their stories. Each year Lesley Nicholls of the Archaeology Department of the University of Calgary has discussed sites that have included Mesa Verde in Colorado and Canyon de Chelly.

Although these trips mainly involve observing, some hands-on experiences have been provided. In Montana and Colorado fossil dinosaur eggshell fragment collecting was allowed. In Utah we were allowed to collect possible dinosaur coprolites. We assisted the State Palaeontologist, Dr. Gillette, in assessing a recent Jurassic dinosaur find by scouting the surrounding countryside for further dinosaur remains.

At the back of the bus there is a supply of drinks and a large library featuring geology,

fossils, history, archaeology, art and natural history. A nurse also accompanies the trip.

Through these trips we have been able to make personal friends of several of the world's leading vertebrate palaeontologists and to visit classical sites and see work in progress. We are now better acquainted with *Utahraptor*, *Coelophysis*, *Triceratops*, *Allosaurus*, *Maiasaura*, *Stegosaurus*, *Diplodocus*, *Apatosaurus*, *Rutidon*, *Tyrannosaurus*, *Ornitholestes*, *Supersaurus*, *Brachiosaurus* and *Ultrasaurus*, as well as Triassic plants.

I have assembled a photo album with 500 pictures and an accompanying calligraphic commentary. When in Calgary, ask to see the album. □

1993 Field Trip Report

by Howard Allen

Coronation & Hanna (Carolside Dam), Alberta (June 19 – 20)

By a miracle of good luck, one of the few nice weekends this summer actually coincided with our first field trip of the season. Two parties headed to the Coronation town campground the evening of Friday the 18th, where we were treated to a minor light show as a prairie thunderstorm skirted by, narrowly avoiding our campsite. Any plans of sleeping-in Saturday morning were foiled by the crack-of-dawn reveille of a myriad of songbirds, including western meadowlarks, yellow warblers, and a particularly vocal Baltimore oriole.

The rest of our contingent (for a total of 9) arrived by the appointed 10:00 meeting time and we soon proceeded to the first field trip stop, a road-cut northeast of Coronation, exposing concretion-bearing shales of the Upper Cretaceous Bearpaw Formation—within minutes, Wayne Braunberger had produced a fine scaphitoid ammonite.

Our second stop was further to the northeast, at the edge of a small prairie valley. Unfortunately for fossil hunters, recent rains ending a multi-year drought had resulted in lush vegetation, all but obliterating the formerly exposed outcrop.

Heading back to the southwest, the group stopped to observe a great blue heron colony nesting in a grove of dead poplars, before continuing on to our final stop of the day. Here we really hit pay-dirt. Scattering in all directions to explore a series of creek valleys, participants soon began digging up fossiliferous mudstone concretions containing beautifully preserved marine Bearpaw Formation fossils. Abundant pelecypods, including *Oxytoma nebrascana*, *Inoceramus barabini*, *Protocardia borealis*, and *Modiola* sp., as well as occasional small gastropods occurred in the concretions. Several types of ammonites were recov-

ered, including fragments of *Baculites* sp., *Rhaeboceras* sp., and possibly *Ponteixites* sp. Vaclav Marsovsy found one concretion containing fragments of several mosasaur vertebrae, with the broken ends of ribs exposed on the opposite side of the concretion.

Late that afternoon, the stragglers finally regrouped and headed south to the site of our second day's activities, the Carolside Dam/Berry Creek Reservoir, in the remote and barren rangeland southeast of Hanna.

*And some run up hill
and down dale,
knapping the chunky stanes
to pieces wi' hammers
like sae many road makers
run daft*

-Sir Walter Scott, 1842

Arriving at the spartan provincial campsite on the shore of the reservoir, we pulled the wagons into a circle, hoping to avoid as much as possible the attentions of an already well-established high school grad party. Our group commenced setting up tents, carefully taking advantage of any shelter from the moderate south wind. Within seconds of the final tent-peg being driven in, a ferocious gale slammed into our camp from the north, instantly flattening one tent, causing major structural damage to another, and threatening to send the rest south in a hurry. After battening down the hatches, we settled down to a somewhat less than comfortable dinner, huddling in the shelter of vehicles as darkness fell. With no sign of the wind abating, most people headed for their sleeping bags, to enjoy a night of snapping nylon tents and the all-night antics of our drunken neighbours.

Sunday morning dawned sunny...and calm! Most of the revellers having departed before dawn and the rest licking their wounds, our group was able to enjoy a quiet breakfast in the company of shorebirds and low-flying pelicans.

High water-levels required wading along the shoreline to gain access to the eroding banks of the reservoir, which exposed Upper Cretaceous shales of the Bearpaw Formation. As the day grew hot, members spread out along the eastern shore, finding scattered fragments of ammonites, including *Baculites* sp. and occasional *Placenticerias* sp. Toward noon, the group reconvened and headed

across to the western shore of the reservoir, where more fossils were discovered. Trip leader Les "Crawdads" Fazekas, besides finding not one, but *four* crayfish-bearing concretions, was lucky enough to spot a pale disc shimmering beneath the waves, several metres offshore. Plunging in, he hauled out a large *Placenticerias meeki*, broken but complete, and more than a foot in diameter.

By mid-afternoon the field trip began to wind down, and participants went their separate ways after a successful and memorable two days of exploring in east-central Alberta. □

Dinosaur Boners

Palaeononsense gleaned from the media

Skillful saurians

Westworld Magazine (Magazine of the Alberta Motor Association) Vol. 19, No. 3, May/June 1993, pg. 6.

In an article titled *Time Travelling Through the Grande Prairie Plains* by Doug and Pat Dunn, we learn that "...in a geologically rich region at Pipestone, you'll discover artifacts 70 million years old" (referring to the *Pachyrhinosaurus* bone bed at Pipestone Creek). This fact will surprise both archaeologists and palaeontologists, since the *Random House College Dictionary* defines *artifact* as: "any object made or modified by man." The word derives from the Latin phrase *arte factum*, meaning "something made with skill". Fossils are **not** artifacts.

—submitted by Hope Johnson, Redcliff, AB

Et tu, Bob?

Earth, Vol. 2, No. 5, September 1993.

It would be nice to think that articles written by the world's number-one icon of dinosaur science—namely Dr. Robert Bakker—would be relatively safe reading... so imagine the shock and damage to our confidence in uncovering not one, but *two* major boners in his article *Cretaceous Park*. The first gaffe occurs at the top of page 29, where *Tyrannosaurus rex* is proclaimed king of the *Jurassic* period! We might carry on reading with the hope that this was simply an editor's goof (obviously Bakker knows better, since he lists *T. rex*'s age as "Latest Cretaceous, about 66 million years ago" in his second article of the same magazine, *Bakker's Field Guide to Jurassic Park Dinosaurs*—page 37). But the next boner seems a little harder to explain away: on page 30, we are told of DNA residues in "dinosaur bones dug from the frozen mud of Alaska." It is very surprising to hear of mud in Alaska or anywhere else that has been frozen for more than 65 million years! Presumably he means mammoth or other mammal bones. — *ed.* □

Fossils in the News

The Calgary Herald, June 5, 1993:
Dinosaur egg to be cracked

Livermore, Calif. (AP)—Engineers at the Lawrence Livermore National Laboratory's nuclear weapons lab are planning to use Star Wars technology to X-ray a dinosaur egg. The egg, about 15 centimetres long, and 65 million years old, will be scanned by the X-ray machine to reveal details of the dinosaur embryo without damaging the shell.

Calgary Herald, June 26, 1993:
Trapped in Time

By Mark Lowey, Herald writer—The recent book and movie *Jurassic Park* have triggered a predictable feeding frenzy over amber containing insects and other preserved creatures. Prices for amber specimens have skyrocketed, with pieces containing snails with soft tissue going for up to US\$30,000, and even the formerly contemptible mosquito fetching US\$400! This scramble has resulted in many valuable specimens being made unavailable for scientific study.

Dr. George Poinar, a professor of entomology at the University of California at Berkeley, has been studying amber-preserved insects for some time—indeed, it was Poinar's work that inspired Michael Crichton's *Jurassic Park*.

In a recent lecture in Calgary, Poinar showed slides of a myriad of different organisms found preserved in the fossil tree sap: centipedes, fleas, butterflies, scorpions, lizards, and even flowers and leaves, complete with green chlorophyll. Poinar's research team has extracted DNA from insects as old as 118 to 135 million years (early Cretaceous—a weevil—from Lebanon.).

Other important sources of insect-bearing amber include the Dominican Republic [*the source of the amber purchased by many APS members at our 1992 silent auction*], with material up to 40 million years old*; and Taber, Alberta, where University of Calgary PhD student Ted Pike has found 75 million year-old chunks of amber with up to 100 different types of insects, including some thought to have bitten dinosaurs.

Dr. Poinar reports that laboratories are currently searching for dinosaur DNA, and “somebody will probably come up with it in a year or two.”

[* *Eocene—long after any dinosaur-biting mosquitoes had ‘shuffled off this mortal coil’ ...a fact apparently ignored by Mr. Spielberg—and his technical advisors—presumably the Dominican Republic makes a more romantic setting than Taber, Alberta —ed.*]

The Calgary Herald, June 17, 1993:
Big business

By Gordon Cope, Herald writer—This article reports on PAST (Prehistoric Animal Structure, Inc.), the dinosaur model-building company in East Coulee, Alberta. Founded by Gilles Danis, a former palaeontological lab technician at both the Natural History Museum in Ottawa and the Royal Tyrrell Museum of Palaeontology in Drumheller, the company is experiencing a boom in business, thanks in part to the recent *Jurassic Park* craze.

Danis' move to the world of commercial fibre-glass dinosaurs began in 1988 when a Japanese company asked the Tyrrell Museum to build an exhibit of 18 dinosaur models. Joining forces with a welder and an artist, Danis took a leave of absence from the museum to work on the project. After the Japanese project, several American Museums requested models, enabling Danis and company to create a full-time business, with 10 staff members.

A recently completed *Brachiosaurus** model took six months to build and cost \$375,000. A more modest *T. rex* takes one month and goes for a mere \$80,000.

[* *spelled with lower-case “b” four times in the original item. See my article, “What’s in a name?” elsewhere in this issue. —ed.*]

[*Thanks to Doreen Allen, Trudy Martin and Evelyn Wotherspoon for saving and handing over clippings —ed.*]

HOW I SPENT MY SUMMER HOLIDAYS

Visit any interesting localities, museums, or fossil shows this summer? Any great finds? Any horror stories? Why not send in a paragraph or two on your summer's palaeo-pursuits, and we'll print them in December's Bulletin. Deadline is November 15...Don't be shy!

Reviews

from Les Adler

Dinosaurs by Rick Gore, *National Geographic*, January 1993, pp. 2–53, with double supplement.

This is a spectacular issue which continues the tradition of issuing special articles on fossils about once every ten years. The previous related issue was *New Ideas about Dinosaurs*, August 1978. Each of these issues presents spectacular paintings and superior photographs on fine paper, with a bias toward projects in which the National Geographic Society has made major financial contributions. There is an emphasis on American and Asiatic material, with much material from most other continents being omitted.

Pages 18–20 provide a recent classification chart with the relative geological periods and a fine selection of representative skeletons. Alberta gets a fair shake, appearing in double page pictures showing preparations for “The Greatest Show Unearthed” and a 129-foot *Tyrannosaurus rex* hot air balloon sailing over Dinosaur Provincial Park. Hans Larsson is shown excavating part of a *Centrosaurus* in the park, and “Black Beauty,” an Alberta tyrannosaur, is being prepared for “The Greatest Show.” Dr. Philip Currie is quoted on pages 42, 43 and 46 and Darren Tanke (a former APS director) gets a mention. Several of the sites visited by Dinotour are shown, as well as some of the consultants that were met.

With a circulation in the millions, the issue will be seen by about 20 million people. This article contributes to the layman’s interest and understanding of dinosaurs.

1992: The Top 50 Science Stories *Discover*, January 1993. (Summaries of palaeontology stories)

Utahraptor

The editor of *Discover*, in his editorial, calls 1992 the “Year of the Dinosaur” in reference to Spielberg’s *Jurassic Park* and the discovery of two *Utahraptor* sites (which were visited by Dinotour in 1993). First Stephen Spielberg made his *Velociraptors* in *Jurassic Park* of gigantic size, against the advice of his scientific advisors. Guess what? Specimens of *Utahraptor* of the correct size were found, and will probably replace *Tyrannosaurus* as the ultimate killing machine.

In “The Killing Machine” by Tim Folger (pg. 48), *Utahraptor* is described. It probably hunted in packs, but appeared 50 million years before *Tyrannosaurus* and is related to Early Cretaceous specimens found on the Isle of Wight in the

United Kingdom. In *Jurassic Park* a pack of giant raptors attacks humans and a *Tyrannosaurus*.

Dinosaur blood

“The Blood of the Dinos”, by Tim Folger, page 49.

Barrich and Showers claim to have measured the imprint of body temperature differences on fossil bones using the ratios of oxygen isotopes. Consequently, they claim that the dinosaurs of the Late Cretaceous period were warm-blooded.

Barosaurus

“If I only had Eight Hearts”, page 50, by Robert Naeye. The postulate that this dinosaur had eight hearts comes about because of the recent reconstruction set up at the American Museum of Natural History in New York. The animal had a 25-foot neck, requiring seven times the blood pressure of a human to get the blood to its head. There is no proof that there was more than one heart.

Ancient life section

On pages 66–68, “A Platypus in Patagonia” tells us that a 63 million-year-old platypus tooth was found by a student accidentally sitting upon it (“Eureka!”), in an arid region of Argentina. It is identical to a fossil platypus tooth found in Australia. Between 15 million and 4 million years ago, platypuses lost fully developed teeth. Wouldn’t it shock Aussies if fossil koala teeth turned up in the Patagonian deposit!

Conodonts

“In the Beginning was the Tooth”, pp. 67,68, by Carl Zimmer. It appears from this article that the conodonts preserved in limestones of between 515 million and 208 million years ago (Late Cambrian to Triassic) were vertebrate teeth.

Clarkson of the University of Edinburgh discovered an unexamined fossil in a museum drawer that preserved both conodonts and the impression of a soft, skeletonless body. This animal looked like a small eel, measuring two inches long, and conodonts about the size of sand grains were in its mouth. The body showed evidence of a notochord, suggesting a chordate. Ivan Sansom of the University of Birmingham reported that when examined under an electron microscope and using appropriate chemical testing, the conodonts were teeth composed of enamel, bone and cartilage.

Researchers believed that bone evolved so that vertebrates could imitate shellfish and protect themselves from predators. The evidence from conodonts contradicts that notion. Conodonts were probably a trivial part of the ecological system, but they were part of the lineage that gave rise to us. A conodont is illustrated in the article.

Is Sue being sued?

“G-men Capture T-Rex”, pp. 80–82, by Virginia Morell. On the morning of May 14, 1992, at 7:30 AM, nine agents of the FBI cordoned off the Black Hills Institute of Geological Research in Hill City, South Dakota. With the aid of the South Dakota National Guard they began carrying away the bones of “Sue,” the most complete *T. rex* skeleton yet discovered. This capture will now most likely lead to new regulations in the United States, affecting all fossil hunters.

The rest of this story is extremely tangled and confusing, due to all kinds of legal misunderstandings and people claiming intrusion on their private turf. A native American may have accepted lucre from a person who thought he thereby had a legal right to excavate the *T. rex* skeleton. Hill City officials raised money to build a museum to house the specimen. The chief of the local native American group made loud noises, so the FBI arrived. The seizure then led to all kinds of recriminations, in-house fights and arguments between professionals and non-professionals and fossil collectors, leading on to witch-hunts.

A group called Canada Fossils, out of Calgary, is charging high prices for American specimens, forcing academic palaeontologists to protest. At this stage the US authorities are behind those of Britain, Australia and Canada (especially Alberta) in protecting its fossil resources. What this case is about is: who has the right to exploit the earth for their own benefit?

Advertise in the BULLETIN

Rates:	1/8 page	\$10.00
	1/4 page	\$15.00
	1/2 page	\$20.00
	Full page	\$25.00

Terms: Cheque or money order payable in Canadian dollars

Policy: The APS is not responsible for accuracy or content of ads. Please be aware that the sale of fossils collected in Alberta without official approval and documentation is prohibited by provincial law. All ad material is subject to the approval of the APS executive. Due to the method of printing the Bulletin (photocopying), the reproduction quality of halftone material cannot be warranted.

One Small Step for an Arthropod by William A. Shear, *Natural History*, March 1993, pp. 46–51.

Shear describes the finding of exquisitely preserved Devonian fossils near Gilboa, New York, and Devonian Rhynie Chert fossils, of Scotland. Studies of these fossils show that plants and arthropods had developed far earlier than previously recognized. Also, Jane Gray of the University of Oregon has now found fossil spores, most likely from land plants, in Ordovician sediments about 468 million years old.

The traditional picture of the development of life on land has followed this pattern: first vascular plants invaded the land, followed at some later time by plant-eating animals and then later by predators. But the animal fossils from the Gilboa and Rhynie locations are dominated by predators and detritivores—animals that eat dead plant material. Consequently, new hypotheses have to be developed and tested because these finds are 50 million years older than the Carboniferous fossils of winged insects.

A set of pictures of arthropods magnified up to 1450 times natural size illustrates these ideas. □

What’s in a Name?

by Howard Allen

One my favourite aspects of palaeontology, and of biology in general, is the naming and classification of organisms, tedious as it may seem to many people. There seems to be a delightful irony in finding a creature as apparently lowly and unremarkable as the green sea urchin being given a name like *Strongylocentrotus droebachiensis*. Once the pronunciation has been mastered, and your tongue straightened out, the names can have a euphonious, even lyrical, quality: *Kitakamithyris cooperensis*...

A number of rules have been developed for the consistent reporting of biological names, just like the rules for capitalization, punctuation and usage of regular English words and names. As an editor, I have become especially conscious of these rules, since it is my job to make sure the *Bulletin* is as correct as possible, both in content and form. Proper labelling of fossil collections is also important, and can be (or should be!) worth points in competitive displays, such as the annual Calgary Rock and Lapidary Show. Poorly labelled fossils just plain look bad.

As far as I know, no article has appeared in the *Bulletin* outlining the rules for dealing with fossil names—so here are some of the basics, that everyone should get into the habit of using...

Big ‘uns and little ‘uns

Every type of organism on the planet, both living and dead, if it has come under the notice of a scientist, has been given a two-part name: the first part, the genus name, is *always* capitalized, and the second, the species name, is *never* capitalized. For example:

Tyrannosaurus rex
Homo sapiens
Baculites compressus

This is without a doubt the most frequently violated rule. Newspapers are notorious for goofing up capitalization (see the news item *Big Business* in the “Fossils in the News” column, elsewhere in this bulletin: the genus name *Brachiosaurus* was used four times in the article, never capitalized, while *Tyrannosaurus rex*, for some mysterious reason, rated a capital “T”. Presumably at some point in the distant past either the writer or the editor was smacked on the head with the proper rules for capitalization—too bad the lesson didn’t carry beyond *Tyrannosaurus*). In my experience, newspapers and popular news-magazines are more often wrong than right in this regard, and can probably be considered hopeless.

Some older scientific books and papers, especially 19th century ones, show the species name capitalized if the organism was named after a person, for example *Fasciolaria Cuthbertsoni*, as a gesture of respect; this is no longer done—any capitalization of a species name is now incorrect.

Italics, please

The second most important rule for printing biological names, is that they should be made to stand out from any surrounding text, in either of two ways: by underlining, if the text is typed or handwritten; or by the use of italics, if the text is typeset (printed by computer or printing press). Some typewriters are capable of using italic type, in which case this should be used. For example:

Tyrannosaurus rex
Tyrannosaurus rex
Tyrannosaurus rex

Once again, this convention is rarely used in newspapers. Possibly the editors feel that the general readership neither knows better nor cares; but tradition probably has more to do with it. Most modern newspapers are composed by computer, so using italics, if so desired, would be no harder or more costly than pressing a key or clicking a mouse button.

The only exception to the rule of using italics in typeset material is when the name is surrounded

by italicized text; in which case the name is left unitalicized, to stand out from the rest of the text.

Don’t abuse the brackets!

In scientific papers and on museum labels, you will usually find a third, unitalicized name appended to the genus and species names: this is the author, the name of the person who first described and formally named the organism.

There is a large and complex set of official rules that scientists must follow to have a new name accepted by the scientific establishment, or to change the name of a previously named organism. These rules are far beyond the scope of this article, but it is worth knowing how some of the rules affect the way a name is printed.

The very first time an organism is named, it is given a genus and species name, followed by the name of the person(s) who first described it:

Modiola attenuata Meek & Hayden

Some time later another scientist might look at the same fossil and say: “Aha! this is a new species all right, but Meek and Hayden assigned it to the wrong genus: I think it belongs to the genus *Volsella*”. This second scientist then redescribes the organism, stating why he or she thinks it should be placed in a different genus. In our example, the name then becomes:

Volsella attenuata (Meek & Hayden)

Please note that, besides the genus name having been changed from *Modiola* to *Volsella*, the name of the **original** authors is now placed in brackets. This indicates that the species, *attenuata* is as originally named, but the genus has been changed. Of course, other events can occur during the history of a biological name. For example, scientist 3 might come along and decide that Meek and Hayden were right all along, and scientist 2 is full of baloney—in this case, scientist 3 will stick with the original name, and get rid of the brackets. Does all this sound confusing? Actually, it gets *much* worse than this! Scientific names are not engraved in stone.

All the average user needs to remember is this: *if a published author name has brackets, use them; if it doesn’t have brackets, don’t add any.* Some people are under the impression that brackets or lack of them is simply a matter of taste, added at the user’s discretion. This is not the case—brackets have meaning.

Odds and ends

You may run into a number of other alterations or additions to scientific names while digging through books and papers. Some of the more common ones, and rules for their use include:

Arctica ovata var. *alta*

The “var.” means variety, or subspecies. Another method of indicating a subspecies is to simply add the subspecies name (always uncapitalized) after the species name :

Arctica ovata alta

Some highly variable organisms, such as bivalve molluscs, are often subdivided below the genus level, resulting in a subgenus name. This is always capitalized and bracketed:

Pteria (Oxytoma) nebrascana

When the identification of a fossil is uncertain, a number of notations may be used, often depending on how much confidence the writer has in his or her identification:

Macropotamorhynchus?

(question mark unitalicized) generally means: “this is a crummy specimen, but it might belong to *Macropotamorhynchus*.”

Olenellus sp.

(sp. for “species,” unitalicized) means: “it’s definitely an *Olenellus*, but it’s not preserved well enough to identify the species” (or, “but I haven’t gotten around to getting it identified” or, “...but I’m no trilobite expert”).

Corbicula cf. *cytheriformis*

(“cf.”—unitalicized—for the Latin word *confer*, meaning “compare.”) Translation: “it’s definitely a *Corbicula*, and it compares very closely with *C. cytheriformis*, but it might not be.”

While I’m at it, it’s OK to abbreviate a genus name with its first letter, as long as there is absolutely no doubt in the reader’s mind about what the abbreviation stands for. Species names are *never* abbreviated. Also, long author names are often abbreviated, especially in lists of fossils—for example, Meek and Hayden becomes M&H.

Anomia aff. *micronema*

“aff.” is similar to “cf.”—also unitalicized: it stands for “affinity,” meaning “it’s definitely an *Anomia* of some kind, and it seems to be closely related to the species *micronema*.”

Plicochonetes canadensis n. sp.

The “n. sp.” (unitalicized) stands for “new species”, and is used only by the original author, in the original description of the species (similarly, “n. gen et sp.” means “new genus and species”).

I hope the preceding examples have helped to clear up some of the uncertainties in using the scientific names of fossils and other organisms. Many palaeontology and biology texts discuss the rules and conventions for the creation and use of scientific names. A good introduction can be found in:

Raup, D.M. and Stanley, S.M., 1978, *Principles of Paleontology*, 2nd ed., Chapter 5, “Formal Naming and Description of Species” pp. 114–128; W.H. Freeman & Co., San Francisco

Also, the first few pages in most volumes of the *Treatise on Invertebrate Paleontology* discuss in detail some of the conventions used in scientific names:

Moore, R.C., ed., *Treatise on Invertebrate Paleontology*, The Geological Society of America and the University of Kansas Press (eg. part C, Protista 2, Sarcodina, Chiefly “Thecamoebians” and Foraminiferida, by Loeblich, A.R. and Tappan, H., 1964, volume 1, pp. X–XX.)

Happy labelling! □

Highlights from Exchange Bulletins...

The APS receives several bulletins and newsletters from other societies and clubs on a regular basis. Members are encouraged to examine copies of these, which are filed in the APS library. —ed.

The Earth Science News—Earth Science Club of Northern Illinois (ESCONI)

June 1993

- *Life in the U.P.* by Sally LaBerge—A report on the precambrian fossils (cyanobacteria, algae, stromatolites) of Michigan’s Upper Peninsula (U.P.)
- *More Fantasy Dinosaurs* by Allen A. Debus—Yet another four page, illustrated article by the prolific Mr. Debus [*I wish he was an APS member! —ed.*], analyzing the appearance of dinosaurs in recent sci-fi books and pulp thrillers.
- *Rockhounds Live Longer*—this item, reprinted from *Osage Hills Gems* quotes statistics (from the “Wigwag Statistical Group”) claiming that people engaged in the “rockhound” hobby live longer than non-rockhounds: even better yet is the finding that of the rockhounds, fossil collectors live the longest! □

Membership Dues for 1994

Dear Member:

This is a first reminder that 1994 membership dues should be paid. Dues are now payable by the January, 1994 general meeting. We appreciate your prompt remittance, so that our programs can be properly funded.

If, as a paid member, you failed to receive any issues of the bulletin during 1993, 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.

Alberta Palaeontological Society
Vaclav Marsovsky,
Membership Director



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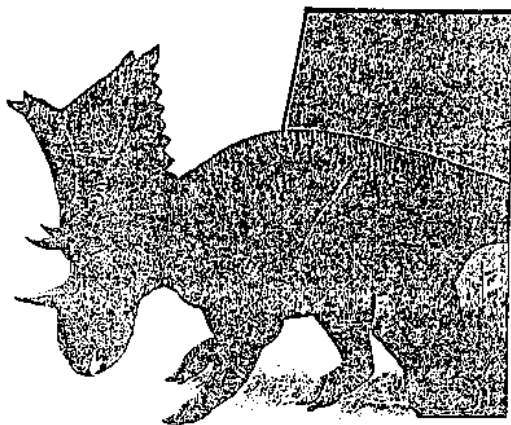
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Once again the Society is pleased to offer T-Shirts and Sweatshirts to its members. We are privileged to have an original colour drawing by Mike Skrepnick, a ceratopsian dinosaur on a province of Alberta background, for this offering. A black and white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

To order your T-Shirt or Sweatshirt fill out the order form below, or a facsimile, and mail to the Society as soon as possible. Quantities of some styles and sizes are limited. At last count, the following sizes were still available: Sweatshirts—medium (1 left!); T-shirts—M,L,XL.



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