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

- Promote the science of palaeontology through study and education.
- 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

- Provide information and expertise to other collectors.
- 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.)

Single membership **\$20.00 annually**
Family or Institution **\$25.00 annually**

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UPCOMING APS MEETINGS

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

Friday, October 20, 2006—Annual Open House and Fossil Clinic—Bring your Fossils!

Friday, November 17, 2006—Holly Parkis, University of Alberta.

Hard parts: *The evolution of calcium carbonate skeletons in invertebrates.*

Friday, December 15, 2006—Christmas Social. Speaker: Cory Gross, APS.

Silent movie monsters: *Sir Arthur Conan Doyle's "The Lost World" on the silver screen.*

ON THE COVER: View of the Red Deer River valley from the famous Knudsen's Ranch Cretaceous/Tertiary (K/T) boundary locality, west of Trochu, Alberta. This was one of the sites visited on APS field trip 2006-2, June 2006. View is to the north. See field trip reviews, starting on Page 4. Photo by Howard Allen, © 2006.

From the Desk of the President

By Dan Quinsey



Welcome back to all our members. I hope everyone had a good, safe summer.

The October General Meeting will be an open house and fossil clinic. The General Public is invited to drop in and visit us at Mount Royal

College, Room B108 from 7:30–9:30 P.M. to view specimens on display and take advantage of resident experts to help identify fossils that are brought into the clinic.

Members are strongly encouraged to bring fossils they have acquired over the summer as well as any items they would wish to display. If you have a poster you would like to display as well, you are welcome to bring it along. For more information, contact Dan Quinsey at (403) 247-3022 evenings and weekdays.

Email: president@albertapaleo.org □

Mark your calendar!

2006–2007 Meeting Dates

Executive Meetings

May 17, 2006
June–Aug, 2006
(no meetings)
Sept 6, 2006
Oct 11, 2006
Nov 8, 2006
Dec 6, 2006
Jan 3, 2007
Feb 14, 2007
Mar 7, 2007

Apr 4, 2007
May 2, 2007
June–Aug 2007
(no meetings)
Sept 12, 2007

General/Special Meetings

May 26, 2006 (4th Friday)
June–Aug 2006
(no meetings)
Sept 15, 2006
Oct 20, 2006
Nov 17, 2006
Dec 15, 2006
Jan 19, 2007
Feb 16, 2007
Mar 17–18, 2007
(Symposium)
Apr 20, 2007
May 25, 2007 (4th Friday)
June–Aug 2007
(no meetings)
Sept 21, 2007

Program Summary

Friday, September 15, 2006

Archaeopteryx and the evolution of avian flight.

Speaker: **Nicholas Longrich, University of Calgary.** This study examined the morphology and function of hind limb plumage in *Archaeopteryx lithographica*. Feathers cover the legs of the Berlin specimen, extending from the cranial surface of the tibia and the caudal margins of both tibia and femur. These feathers exhibit features of flight feathers rather than contour feathers, including vane asymmetry, curved shafts, and a self-stabilizing overlap pattern. Many of these features facilitate lift generation in the wings and tail of birds, suggesting that the hind limbs acted as airfoils.

A new reconstruction of *Archaeopteryx* is presented, in which the hind limbs form approximately 12% of total airfoil area. Depending upon their orientation, the hind limbs could have reduced stall speed by up to 6% and turning radius by up to 12%. Presence of the “four winged” planform in both *Archaeopteryx* and basal Dromaeosauridae indicates that their common ancestor used fore- and hind limbs to generate lift. This finding suggests that arboreal parachuting and gliding preceded the evolution of avian flight. □

Upcoming Talks

Friday, November 17, 2006, 7:30 P.M.

Hard parts: The evolution of calcium carbonate skeletons in invertebrates.

Speaker: **Holly Parkis, University of Alberta**

Calcium carbonate skeletons in invertebrates are ubiquitous: from molluscs to arthropods, sponges to echinoderms, many of the major groups have representatives that protect and support themselves with calcium carbonate. It is an excellent skeletal material, both readily available in ocean waters and

easy to deposit in a variety of forms. However, continuous, well-mineralized skeletons do not appear in the fossil record until the late Ediacaran and early Cambrian. It has been proposed that this Cambrian explosion may be an artifact of the appearance of skeletons instead of an indication of the appearance of the Metazoa, but this still begs the question of why and how that skeletal material was being used.

Several scenarios purport to explain this puzzle, including, first, a facilitation of calcium carbonate deposition by certain changes in the chemical composition of the atmosphere; second, a need for protection as a result of increased predation; and third—and most likely—a combination of these factors, but a truly satisfactory answer has not yet emerged.

Biography

Holly is currently working towards the completion of her Ph.D. in the Department of Biological Sciences at the University of Alberta. She studies plasticity in *Pisaster ochraceus*, the purple starfish common along the coastline of western North America. □

2006 & 2007 Field Trips

Wayne Braunberger

To date this year we have been able to hold all our scheduled trips. Our adventures are documented on the following pages.

Unfortunately no trip was scheduled in August, but not for lack of trying. Our plan was to have a fossil plant trip to a coal mine; however the appropriate access permission could not be obtained. **Georgia Hoffman** put a lot of time and effort into this and hopefully we will be able to do this trip next year.

Plans are already underway for next year's field season. At this time sites have not been selected, however the trips will most likely be held on the following dates: June 23–24, July 21–22, and August 18–19. A preliminary schedule will be published in the December *Bulletin* and posted on the Society's website.

One of the issues surrounding the field trip program is the lack of new and/or easily accessible sites. Many of our long term members have been to most if not all the classic sites while many of our newer

members have not. The challenge is to create a field trip program with something for everyone so that all members of the Society can participate. I will be attempting to have the trips equally divided between invertebrate, vertebrate and plants. Any suggestions for sites to visit or improvements are always welcome. Next year **Wendy Morrison**, our new director at large, will be assisting with field trips. □

Field Trip Reviews

Trip 2006-1

June 5–9, 2006

Hay River, NWT

Article and photos by Keith Mychaluk

Ten intrepid APS members made the long but worthwhile drive up to Hay River, NWT to participate in the Society's first excursion north of the 60th parallel (Figure 1). Several of our long-time members have previously visited the Devonian-aged sites near Hay River and Enterprise over the past couple of decades. Their efforts at locating the best, most easily accessible sites made for a terrific collecting and educational trip!

Participants took about a day and a half to drive the 1580 km from Calgary to Hay River, arriving on Sunday June 4. The city of Hay River (population 3600) was originally a Slave Dene (native) camp site, located where the Hay River empties into Great Slave Lake. Anglican missionaries arrived in 1893 and the site grew into an important trading and shipping hub for the north.

On Monday June 5 our field trip leader, **Wayne Braunberger**, took us to a site on the west bank of the Hay River, just north of the town of Enterprise. Interpreted to be an off-reef sedimentary environment, shale exposures of the Escarpment Formation (Late Devonian) yielded a spectacular array of three-dimensionally preserved colonial corals and some brachiopods. The coral heads can be quite large—I collected several greater than 20 cm in diameter (figure 2)—and show remarkable preservation of



Figure 1. Hay River trip participants from left to right: Roslyn Osztian, Elsie Patmore, Dave Patmore, Wayne Braunberger, Marilyn Francis (kneeling), Pete Truch, Geoff Barrett, Chuck Zietsma—and Chuck’s dog “Buddy”! Missing: George Madge. Photograph taken at Pine Point mine.

detail, including attached parasitic species such as small brachs and solitary corals. I also managed to find a small, but complete crinoid head with arms on a piece of matrix, which was quite lucky considering I did not see another crinoid fragment for the rest of the trip. Although relatively dry when we first arrived, rain soon developed and quickly made the river banks a gigantic mud pit. By mid-afternoon we were officially rained-out and were back at our motels in Hay River.



Figure 2. Late Devonian colonial coral fossils, probably *Philipsastrea* sp., from the Escarpment Formation, Enterprise, NWT. Bottom scale bar is 8 cm across.

On Tuesday we travelled east, about an hour, to the abandoned Pine Point mine site. First opened in 1964 by Cominco, the Pine Point mine was a large producer of lead and zinc sulphides from dolomitized Devonian-aged carbonates. Instead of mining one large ore body, Cominco extracted the sulphides from fifty small deposits (by open pit), scattered across a huge area measuring 65 x 24 km. After extracting 52.8 million tonnes of 3% lead and 6.7% zinc, the mine was abandoned in

1988–1990. Today, all of the mine structures, including an entire town with a bowling alley, have been removed (the only indication of the old town are some cement foundations and a cross-walk painted on the main asphalt road). Even the road sign off the main highway and the railway to Hay River has been removed and salvaged. I am tempted to return one day with my golf clubs as the topographic map for the area indicates the former golf course location near the town-site!

There is a myriad of confusing roads leading from the abandoned town to the individual open pits, so getting lost and/or running out of gas is a real potential problem at Pine Point. Luckily Wayne knew exactly where to go.

Our first stop was at the abandoned drill-core storage area where Cominco left behind acres of core boxes (figure 4). Apparently Cominco cut 600,000 m of core for exploration and deposit delineation but left the core behind when the mine was abandoned. Core samples containing sphalerite, galena, pyrite, dolomite, calcite and sulphur could be found with some diligent searching.

Later we drove to one of the few open pits not filled up with water. Within the pit our group discovered an area laden with large calcite crystals protruding from several large cavities (vugs) in the pit wall. It quickly became clear that someone else had previously been digging here and had high-graded the best material. Based on the scale of the digging, I concluded that a commercial mineral collector must

have done the work. We did find some nice individual crystals up to 8 cm in diameter and sprays of smaller crystals with sphalerite.

Other open pits yielded nice branching corals in matrix and calcite crystal clusters in the mine dumps (figs. 5, 6). Some really cool dolomite rock samples also displayed small vugs filled with bitumen (heavy oil) that had oozed out during hot summer temperatures. Since it was cool while we were there, the bitumen had stopped flowing and was hard and brittle. Bizarre stuff!

On Wednesday we travelled back to the Enterprise area—this time the sun was out to greet us (figure 8). Again, sites along the Hay River yielded incredibly well-preserved brachiopods and horn corals, along with rarer gastropods and orthocone fragments. It will take me months (maybe years!) to identify and curate all of the brachiopods I collected!



Figure 3. Various brachiopods (notice spines protruding from one on lower left), solitary horn coral (upper right), small orthocone cephalopod (bottom right), gastropod (also bottom right) and crinoid calyx with arms in matrix (second from bottom right). Escarpment Formation, Enterprise, NWT. Scale bar (bottom left) is 1 cm.

Thursday we switched gears from collection to education. Travelling northwest from Enterprise, the road crosses onto the ancient Devonian reef (Alexandra Member, Twin Falls Formation). The on-reef exposures are markedly different from the off-reef sediments (Escarpment Formation) we had been

collecting on the previous day. The fossils were much harder to find and were no longer loose in shale, but rather incorporated into the limestone itself. We saw how large stromatoporoids constituted the main skeleton fabric of the ancient reef.

We also located a number of small lagoonal reefs or mounds similar to what can be seen in the Bahamas today (figure 7). The mounds we found looked rather strange to me with pine and birch trees now growing out of them. It's amazing what time can do.



Figure 4. Cominco abandoned acres of core boxes along with the mine in 1990, Pine Point, NWT.



Figure 5. Large calcite crystals uncovered in the bottom of a mud-filled vug, Pine Point mine, NWT. The vug was about 1m in diameter.

Since the limestone reef is much more resistant to weathering than the off-reef shale, rivers and streams cut waterfalls as they flow off of the reef sediments and into the softer shale. We visited several spectacular waterfalls in the area including Alexandra (figure 10), Louise, McNallie and Lady Evelyn falls. The NWT government has created well laid-out and maintained parks around all of these falls which are a must-visit if you are travelling this way.



Figure 6. Calcite specimens from Pine Point mine, NWT. Top row, left to right: Tabular crystals in matrix; Huge single crystal. Middle row, left to right: Two crystal clusters; Calcite vein in-filled with bitumen (heavy oil). Bottom two specimens: Large individual crystals derived from vug seen in figure 5. Bottom scale bar is 8 cm across.

The rain returned on Friday increasing river levels overnight so that a planned stop to visit another reef section were cancelled. Most began the long journey home a day early. Surprisingly, outside of clouds of nasty mosquitoes, the only wildlife we saw during our 5-day stay was a nesting family of owls (figure 9), some noisy woodpeckers, squirrels and a set of fresh bear tracks.



Figure 7. Reef madness! The author realizes—at the last second—that he is about 370 million years too late to snorkel in the NWT. The reef he is standing on is interpreted to be a small lagoonal mound that you might see in today's tropical regions.

I really enjoyed this trip as I saw a lot of great fossils and beautiful scenery. Many thanks to Wayne for his hard work on making this one of the most memorable field trips I have undertaken with the APS in the twenty years I have been a member. □

Figure 8. Pete Truch takes a break while other APS members collect brachiopods from a bench above the Hay River.



Figure 9. This pair of baby owls prevented us from viewing an outcrop at McNallie Creek Falls, NWT. We enjoyed the distraction, although their mother was rather upset with us.

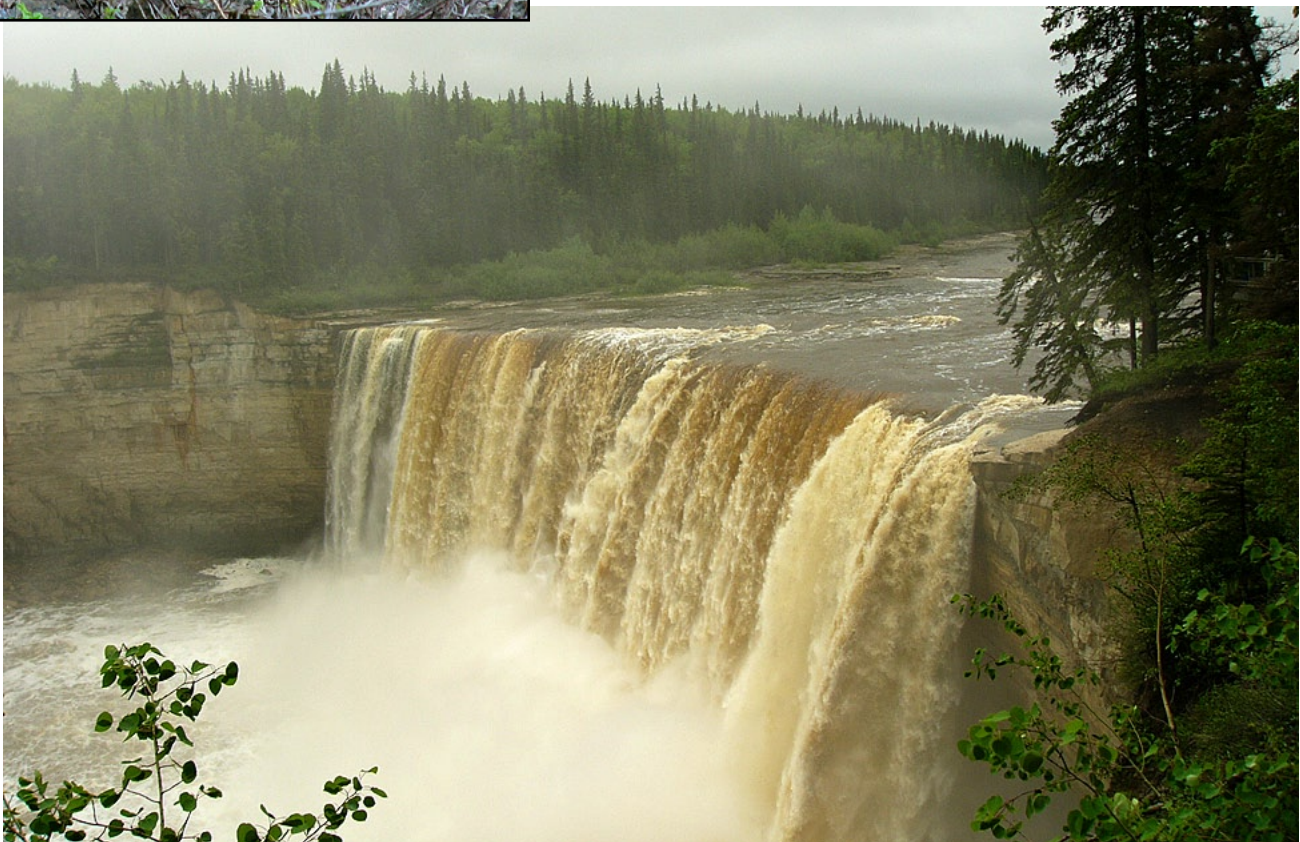


Figure 10. Alexandra Falls on the Hay River near Enterprise, NWT.

Trip 2006-2
June 17–18, 2006

Tolman Bridge Alberta

Article and photos by
Howard Allen

Our 20th Anniversary field trip, a nostalgic return to the venue of the very first APS trip in 1986, started hopefully enough with the promise of a nice weekend following several days of thunderstorms. Part of our contingent gathered at the picturesque (and bug-free!) Tolman Bridge campground Friday evening.

Our hoped-for nice weekend started to look questionable around 10:30 P.M. when a bank of black clouds made good on its threats and sent us running to our sleeping bags. It rained off-and-on most of the night; however, Saturday morning dawned with sunshine and a chorus of birdsong.

It wasn't long before the grass dried out and the rest of our group began arriving soon after breakfast, resulting in a good crowd of twenty or more. Under



Figure 1. Dave and Elsie Patmore examine the Horseshoe Canyon Formation for fossils. Keith Mychaluk found a large theropod tooth here.

the guidance of **Doug and Tim Shaw** we trooped southeast into the badlands, quickly dispersing across the seemingly endless exposures of Upper Cretaceous Horseshoe Canyon Formation—dinosaur country.

Although the area was not particularly fossiliferous, we had an excellent day of sunshine, fresh air and badlands scenery. As a bonus, a multitude of prairie wildflowers—including prickly pear cactus and western wood lilies—were at their best, providing plenty of distractions to those who appreciate such things. All of us were made aware of the remarkable lubricant properties of bentonite clay, made all the more interesting after a night of rain. A lucky few ended up wearing their experience from head to toe.

We reconvened at the campsite late in the afternoon. President **Dan Quinsey** soon had his finest burgers on the grill, and the feasting commenced. It was soon after this that our most memorable incident occurred, one that will live on in infamy (or—it pains me to say—hilarity) for many field trips to come.

Dan, our one-man social committee, brought out gloves and a baseball. The author, being a baseball aficionado since early childhood and having already enjoyed one or two tins of Mr. McNally's excellent cordial, quickly took up the challenge of a friendly game of three-way catch. The friendliness evaporated on about the tenth throw, when Dan's well-aimed pitch tipped off the end of my glove and transferred its entire momentum to my left eye. I'm happy to say



Figure 2. Wildflowers offer plenty of distractions in the badlands in mid-June. Western wood lily, *Lilium philadelphicum*.



Figure 3. A small fossil tree stump in growth position, upper Horseshoe Canyon Formation.

that this was the only time it hurt. I'm also happy to thank **Sue Marsden** for first aid advice, **Wendy Morrison** for the ice-pack, **Doug Shaw** for the Guinness, and nobody for sympathy.

Despite the events of the previous evening, Sunday turned out to be, if possible, even nicer than the day before.

In bright sunshine and a cooling breeze, a much-reduced complement of APS members drove north to the famous Knudsen's farm, site of a well-known K-T boundary exposure and the source of the famous "Huxley *T. rex*" (the big specimen on display in the Royal Tyrrell Museum). Mr. Knudsen himself gave us a cheerful sendoff, and we hiked toward the badlands in search of the K-T boundary.

A slight navigational error took us down a steep coulee some distance from the intended target, but resulted in a good scramble through the badlands to a breathtaking scenic overview of the Red Deer River valley, the vista stretching north to Dry Island Park and south as far as the Tolman Bridge area.

Wendy Morrison and Tim Shaw were soon picking up fragments of turtle shell weathered loose on the ground. Our leader, **Wayne Braunberger**, led us a short distance down the slope to an exposure of the Kneehills Tuff bed, a regional stratigraphic marker consisting of indurated, white-weathering volcanic ash. Just below the tuff bed, several small, fossil tree stumps were standing upright in their original growth position, growth rings clearly visible.

Heading back up the slope, we made our way to the K-T boundary exposure at the base of a thin, shaly coal seam in the Scollard Formation, high on the rim of the canyon. Tim excavated a small bagful of the boundary layer for a school project.

After one last gaze at the magnificent view, we finally turned our backs on the Red Deer River valley and headed back to the vehicles across Knudsen's wonderfully green cow pasture, an enjoyable end to an excellent weekend in the badlands.

Thanks to **Ron Fortier** for arranging the trip and obtaining permission from landowners; thanks to the landowners, and thanks to Wayne for researching the geology and leading Day 2. More photos of the trip are posted online at www3.telus.net/public/howallen/Tolman/index.htm □



Figure 4. At the K-T boundary. The boundary is at the base of the shaly coal seam. Tim Shaw collects a sample.

Trip 2006-3
July 22–23, 2006

Manyberries area, Alberta

Article by Howard Allen

Our July field trip took us to the extreme southeastern corner of Alberta, a region that evokes an unexpectedly powerful sensation of wilderness. Not wilderness in the sense of the boreal forest or unexplored mountain peaks, but wilderness in the sense of an infinite, untouched landscape of rolling, native prairie stretching as far as the eye can see in every direction; which, but for the occasional lonely road or barbwire fence, looks no different than it would have a thousand years ago. The sky forms a nearly perfect 180° dome, marred only on its rim by the slightly surreal appearance of the Sweetgrass Hills, bumps of igneous rocks standing on the southern horizon in Montana.

On Saturday morning, even after consolidating our group by carpooling, we still formed a sizable convoy of vehicles at our staging area on the eastern boundary of the Sage Creek Provincial Grazing Reserve. After receiving final instructions from our leader, **Wayne Braunberger**, on Grazing Reserve etiquette (no smoking, no driving off the designated roads, no idling, fire extinguishers at the ready for every vehicle), we started across the prairie, following a narrow, dusty trail over the rolling landscape.

Some 30 minutes later we arrived at an area of low-relief badlands near the centre of the grazing reserve, the venue for our day of exploration, where we were met by a lone cowboy—the Sage Creek Range

Manager—on his horse. Once again we were given fire safety instructions which included placing our fire extinguishers in plain view some distance from the vehicles, for ready access. The extreme sensitivity about fire prevention in this region stems from an incident a few years ago in which a university research group accidentally started a serious grass fire, ignited by an overheated vehicle exhaust (the vehicle was destroyed along with a large area of grassland).

As we topped off our water bottles and smeared on the sunscreen, the sun blazed down with as much ferocity as it can muster in southern Alberta. The



Figure 1. Our group receives friendly advice and fire-prevention instructions from the Sage Creek Grazing Reserve Manager. Photo by Keith Mychaluk.

temperature *in the shade* was officially 37°C* and the only shade to be found was a meagre strip of shadow clinging to the north side of our vehicles. A merciful light breeze from the southwest stirred the air just enough to make the heat tolerable as we trooped off into the badlands to explore the exposed upper Dinosaur Park Formation, an interval informally designated the “Lethbridge Coal Zone”.

The beds are a series of interbedded white sand-

* Environment Canada online daily weather data for Onefour, Alberta. As it turns out, this was only the third-hottest day of 2006.



Figure 2. Harold Whittaker on a richly fossiliferous microvertebrate bonebed. Nearly every pebble and rock fragment on the ground is a vertebrate fossil or mollusc shell fragment. Photo by the author.

stones and buff-grey shales, with occasional iron-stone beds and thin seams of shaly, lignitic coal. Concentrations of microvertebrate fossils were seen in abundance, commonly forming lag deposits at the bases of beds and frequently mixed with quantities of the bleached white shells of freshwater molluscs (figure 2). The preponderance of fossils comprised the remains of aquatic animals: crocodiles, champsosaurs, turtles, bony fishes represented by gar, sturgeon and others, and sharks and rays (teeth of *Hybodus* and *Myledaphus*, respectively). Dinosaur material was relatively less abundant, though bones and teeth of pachycephalosaurs, small theropods, ceratopsians and ankylosaurs were noted by members of our group. Petrified wood was also in evidence, with large fragments resembling weathered fence posts occasionally poking out of the shale beds.

The oppressive heat limited our exploration to two or three hours, after which all but a few die-hards were happy to return to the vehicles for more water and whatever shade could be found. Several well-preserved aboriginal tipi rings were found on the prairie near our parking area, providing an interesting archaeological diversion.

After a final head-count, our convoy returned across the prairie trail, soaring plumes of dust marking our progress. The only casualty of the day was **Jim Wright's** pickup, which succumbed to the

heat, sputtering to a stop on the edge of the gravel access road, just short of the highway. Jim, **Dan Quinsey** and Wayne spent the next several hours systematically dismantling the vehicle's fuel system, to no avail, as the rest of us continued to our respective destinations for the evening. Wayne, followed soon after by Dan and Jim, straggled back to the Medicine Hat campground just before sunset, begrimed, tired and hungry after their efforts at reviving the vehicle. After a visit to Canadian Tire to pick up a new fuel filter, Dan and Jim made their way back to the stranded vehicle after dark, intending to install the filter and spend the night out on the prairie, then rejoin the rest of the group in the morning.

Sunday morning the sky was partly cloudy as our much smaller group drove to the appointed rendezvous spot at the intersection of Highways 41 and 501. Contrary to our



Figure 3. Tristan VonDessauer scans the erratic-strewn Sage Creek badlands. Photo by the author.

expectation that Jim and Dan had killed each other with wrenches overnight, the two were found lolling on the shoulder of the highway in lawn chairs, looking refreshed and in good spirits. It turned out that Jim's truck had started right away upon their return the previous evening: apparently, all it needed was to cool down to cure the fuel line vapour-lock or whatever had caused its distress.

According to Dan, the shoulder of Highway 41 turned out to be one of the best camping spots ever: a beautiful night under a fantastically starry sky, with

no noisy neighbours; apparently, only two vehicles had passed by during the night—another testament to the remoteness of the area. With this good news, we proceeded to our venue for Day 2, a shorter drive across the Sage Creek plains to an area of badlands in the northern part of the reserve.

Some distance from our intended destination, we were stopped by a padlocked gate, which looked to be bad news for our expedition. Taking stock of the situation, and seeing that there was an area of badlands visible off to the north, we decided to make this our base for the day and explore to the north and west, where—according to our map—there were more badlands. We geared up and hiked off across the prairie, taking care to avoid the attentions of a number of surly-looking bulls that were gathered in a corner of the adjacent pasture.

The weather on Sunday was much more amenable to fossil hunting, being cloudy and breezy, with some potentially showery clouds lurking in the northern sky. Under these conditions, the temperature managed only a relatively frigid 34.8° C. Within a short time after reaching the badlands, everyone dispersed and vanished into the landscape, not to be seen again until the end of the day.

The author spent the day exploring at a leisurely pace, with only an occasional curious cow for company. The exposed rocks were similar to those seen the previous day, though generally less fossiliferous. At this location, brownish grey marine shales of the Bearpaw Formation are exposed at the tops of the hills, overlying the Dinosaur Park Formation. Fossils, though sparsely distributed, comprised a mixture of aquatic animal and dinosaur remains. The author photographed a nearly pulverized hadrosaur jaw exposed in the side of a sandstone bluff, and found occasional gar scales, a number of turtle shell fragments, one or two *Myledaphus* ray teeth, and an

ankylosaur tooth.

At one high exposure in the base of the Bearpaw Formation, a giant, reddish sandstone concretion was found, with stunningly preserved, decimetre-scale, high-angle crossbedding, worthy of several photographs (figure 4).



Figure 4. Fantastically crossbedded sandstone concretion in the Sage Creek badlands. The crossbeds are stratigraphically upside-down, the concretion having tumbled a short distance, apparently from beds near the base of the Bearpaw Formation. Lens cap for scale, photo by the author.

While making his way back to the vehicles at the end of the day, the author stumbled onto a richly fossiliferous microvertebrate bone bed, comprising a concentrated lag deposit in the lower few centimetres of an apparent shale-filled channel. A quick collection of loose material was made to document the diversity of the deposit; it included remains of crocodiles, turtles, champsosaurs, gar and sturgeon, *Myledaphus* and *Hybodus* teeth, worn-down hadrosaur teeth and various bone fragments, probably partly dinosaurian. Some of the remains were noticeably rounded, evidently having tumbled along the base of the channel, prior to deposition. This site was recorded and subsequently reported to Dr. Brinkman of the Tyrrell Museum.

So ended another excellent field trip in the Cretaceous rocks of southern Alberta. Thanks to Wayne Braunberger for researching and leading the trip and for obtaining permission to access the Sage Creek Grazing Reserve. Thanks also to the Grazing Reserve management for granting permission, and for unlocking (most of) the gates prior to our arrival. □

TYRANNOSAURUS TIMES

A Newsletter just for Paleo Rangers — September 2006

Created by Dan Quinsey, Alberta Palaeontological Society

Volume 2006-3

The Paleo Rangers summer field trip to Morrin Bridge, Alberta

The Paleo Rangers had a fantastic time searching for dinosaur bones in the Morrin Bridge area on July 15, 2006. A total of 18 participants were in attendance.

A large hadrosaur vertebra was found along with some theropod teeth. One famous dinosaur found in this area in the past was **Edmontonia** (meaning "from Edmonton"). It was an ankylosaur, a heavily armored plant eater, 6-7 metres long. It was covered with bony plates and spikes, and had a wide, flat skull. The teeth were small and the jaws were weak. Its legs were thick and the feet were very wide. This dinosaur was first found in 1924 about 11 km west of the town of Morrin. **Edmontonia** fossils have been found in Alberta and in the USA (Montana, South Dakota and Texas). **Edmontonia** was named by the fossil hunter C. M. Sternberg in 1928. The type species is **Edmontonia longiceps**.

The temperature was very hot by the afternoon and most headed back to the campsite for socializing and fun. Everyone received a certificate and a few goodies to go along with their fossil finds. Most of all, everyone went home safe and full of smiles. Thanks to everyone who participated including Dan Quinsey and Ron Fortier, Ranger Leaders.

We have a contest this month for everybody. What we want you to do is write a funny dinosaur poem and send it in. The best poem will be printed in our next Bulletin. If your poem is picked, you will win a prize package of paleo goodies. Send your funny poem to dinodan@shaw.ca by November 30, 2006.

How to write a funny dinosaur poem—First of all, think of a funny situation that you'd like to see a dinosaur in (like a dinosaur eating lunch and finding bugs in his food).

Next, make a list of some words that you might use in your poem (for example, centipede, beetle, spider, bugs, lunch, munch, drink, think). If you're aiming for a rhyming poem, try to get some pairs of rhyming words that relate to your subject.

Then think of a great name for your dinosaur (like Bob, Sue, or Big Tee) and what type of dinosaur you want to write about.

Now it's time to start writing the poem. Think of the actions or thoughts your dinosaur would be doing or thinking, and describe them in short, descriptive sentences. Begin with a clear introductory sentence. If your poem is to rhyme, then end this sentence with a word that has a rhyme (like lunch and punch). Then write the second sentence, having it end with a rhyming word. Keep going until you've told a little story or described a funny scene.

Last but not least, give your masterpiece a title. For example:

Bob's Bug Brunch

When Bob the T. rex sat down to lunch,
He found a centipede in his punch.
Do all T. rexes hate to think
Of a bug or two swimming in their drink?
Then Bob saw a beetle on his bread,
He shivered when it crawled on top of his head!
After shaking it off, he stopped to blink,
I guess I'm not as brave as I think!