



ALBERTA

PALAEOLOGICAL

SOCIETY

BULLETIN

VOLUME 1, NUMBER 3

SEPTEMBER 1986

ALBERTA PALAEOLOGICAL SOCIETY

OFFICERS:	President	Wayne Braunberger	278-5154
	Vice-President	Don Sabo	238-1190
	Secretary-Treasurer	Steffie Negrich	249-4497
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	Education & Programs	Don Sabo	238-1190
	Fund Raising	June Barrett	246-8738
	Librarian	Karen Weinhold	274-3576
	Membership	Steffie Negrich	249-4497

The Society was incorporated in 1986, 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, curation, and display
 - 4) Education of the general public
 - 5) Preserve material for study and the future
- C. Provide information and expertise to other collectors.
- D. Work with professionals at museums and universities to add to the palaeontological collections of the province (preserve Alberta's heritage).

MEMBERSHIP: Any person with a sincere interest in palaeontology is eligible to present their application for membership in the Society. Applications will be referred to the Board of Directors for approval. Upon approval new members will receive a copy of the Society By-Laws and a copy of the current edition of the Bulletin.

Single Membership \$7.00

Each additional member at the same household \$3.00

For further information contact:

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OUR BULLETIN WILL BE PUBLISHED QUARTERLY: March 1, June 1, September 1, and December 1 annually.

DEADLINE FOR SUBMITTING MATERIAL FOR PUBLICATION
IS THE 15th OF THE MONTH PRIOR TO PUBLICATION.

PRESIDENT'S MESSAGE

Wayne F. Braunberger

I would like to welcome everyone back after what I trust was a successful summer.

The coming winter promises to be very exciting for the Society.

Over the summer, three field trips were held which were very successful. Field trips are an integral part of the Society's program, and it is hoped more and better trips will be held next year. If any of you have ideas for field trips, please bring them forward; they would be greatly appreciated.

Also, over the summer the Society secured the use of the Rock Lab at Mount Royal College for the meetings this winter. The Society thanks all those who volunteered the use of their homes over the past winter.

As well, membership has increased over the summer and, as word of our existence gets around, will continue to do so. Keep spreading the word!!

This winter is, in my view, a most important period of time for the Society. Last year we concentrated on organizing and forming the Society. This year the challenge is to consolidate the gains that have been made and to further develop the programs, policies, and activities of the Society. Volunteers are needed to work for the Society. If you feel you have time to spare, your help is welcome. Please be prepared to devote some time and effort to the tasks. The more people who volunteer the less there is for each to do. We must all work together in the development of the Society.

I look forward to meeting the new members and renewing friendships with old members during the coming winter. See you soon.

NOTICE OF MEETINGS

The monthly meetings of the Society will now be held at:

MOUNT ROYAL COLLEGE
4825 Richard Road S.W.
Calgary, Alberta

In Room 1032 (Rock Lab)

Starting At 7:30 PM sharp

Meetings will be held on the third (3rd) Friday of the month from September 1986 to May 1987. The tentative meeting dates are as follows:

September	19, 1986	January	16, 1987
October	17, 1986	February	20, 1987
November	21, 1986	March	20, 1987
December	19, 1986	April	17, 1987
		May	15, 1987

NEW BUSINESS

Those members wishing to bring up new business at a general meeting are advised to contact the President (Wayne Braunberger at 278-5154) or the Secretary (Steffie Negrich at 249-4497) prior to the meeting.

This is to ensure that the business portion of the meeting is completed in a timely manner so that more time may be spent on palaeontology.

FIELD TRIP CO-ORDINATOR

Harvey Negrich

A.P.S. FIELD TRIPS 1986

We have now moved into the indoor phase of our Society activities after a successful field trip season.

The summer finds will motivate some members to devote many winter hours to identification, study and cataloguing. Collectively our field trips produced a few fossils that still remain unidentified, with the help of others and research in the texts, I am sure that we will be able to identify all these finds.

Field trips No. 1 and No. 2 will be reported by their Resource Person; I will comment on trip No. 3.

On August 16th and 17th 1986, we went to the Glenogle (Golden, B.C.) graptolite location.

On August 16th, after a brief discussion on the localities we expected to visit, and a warning on the dangers of the area, we headed out. We visited several graptolite localities and were surprised to discover that some of the localities were not very productive due to various reasons. Upon persistent searching by some members of our group, we discovered two localities that were very prolific. Our group was rewarded with several graptolite genera and all were able to collect specimens.

Three different graptolite forms were discovered that we were not able to identify; these will require a more thorough search to find them a name. Possibly, with some luck, we may have found a new graptolite form.

In summing up, may I on behalf of APS, thank our Resource Persons for doing their part on our summer field trips, and encourage anyone to submit any constructive criticism on these trips.

One change that I would suggest to all field trip participants next year is to take along a pack lunch and water container so as to avoid splitting up the group and help us maintain timing.

Suggestions for next year's field trips are:

- 1) Plant localities east of Red Deer.
- 2) Stratigraphy and structural geology of a location in the front ranges of the Rocky Mountains.
- 3) Devonian outcrops of the Cline River area.

See you next season!

**FIELD TRIP NO. 1
TOLMAN BRIDGE**

Wayne F. Braunberger

The first field trip of the Alberta Palaeontological Society was held on June 21st and June 22nd 1986 at the Tolman Bridge, 18 km east of Trochu, Alberta. The field trip was attended by 21 members and guests over the two day period. Many arrived on the Friday evening and camped out over the weekend.

The weather was excellent for collecting, being hot and sunny for both days. The evenings were cooler and quite windy on Friday and Saturday, with the threat of thunder storms.

The field trip area covered both sides of the Red Deer River north and south of the Tolman Bridge. Exposures here are of Upper Cretaceous (Maastrichtian) age comprising formations of the Edmonton Group. These are the Horseshoe Canyon, Whitemud, Battle, and Scollard Formations. The Horseshoe Canyon and Scollard Formations are renowned for their vertebrate remains. As well, invertebrate and plant material are common.

Geology of the area was most impressive as the contacts between formations could be observed without any great difficulty. Sediments in the area consisted of interbedded sands, shales, silts, mudstones, and coals.

In the area to the northeast of the bridge, ripple marks were observed that had been excellently preserved. Also in the same area could be observed points where channels of the Paskapoo Formation (Tertiary age) has cut down into the underlying Scollard Formation.

Fossil material in the area was not that common and was generally poorly preserved. Items collected included partial dinosaur teeth, bone fragments, invertebrates (pelecypods and gastropods), and plant material. One tree stump in perfect condition was discovered on the northeast side of the bridge.

Of all the fossil material collected, the most interesting has proved to be the plant material. Fossil seeds were collected which are most likely referable to the genus Carpolithus (Ginkgoites?). No leaf impressions were found with these seeds. Mr. Les Adler has done some further work on the seeds to identify them. Mr. Adler's initial findings are published in this Bulletin.

Overall, the field trip was quite successful and a good time was enjoyed by all. To fully appreciate fossils, time must be spent in the field trying to find them.

**FIELD TRIP NO. 2
SEEBE - GRASSI LAKES - BANFF**

Percy Strong

Gorgeous weather accompanied the dozen stout hearts who turned up for Field Trip No. 2. The field trip objective was to use the geology of the sequences to predict and understand the fossils found in them. Two shallow marine clastic sequences and one carbonate sequence were viewed.

At Seebe Dam, after rescuing Wayne and Geoff from being accused of loitering, the shallow marine units of the Upper Cretaceous, Cardium Formation were viewed. The Cardium section contains an extensive and diverse suite of trace fossils.

FIELD TRIP NO. 2 (Continued)

High water in the river prevented a complete view of the Cardium section (except for those with snorkels) so a trip to the shale quarry on the west side of Seebe Dam was taken. Here the shales of the Upper Cretaceous, Wapiabi Formation were scoured for Inoceramus, Scaphites, and Baculites. Everyone was successful and several pyrite coated Scaphites were sauteed and served later for lunch.

The long climb to Grassi Lakes was rewarded by a beautiful vista of the valley below and lunch by a pristine mountain lake. The Upper Devonian section contains several small bioherms which illustrate the change from the bulbous stromatoporoid dominated reef to the amphipora dominated sediments of the inter-reef depositional environments. Unfortunately, no fossilized palm trees, hula skirts or Club Med cards were found!

The last stop of the day was east of the Banff overpass and featured an Upper Jurassic shallow marine sequence. In contrast to the Cardium Formation at Seebe Dam, this sequence was deltaicly influenced and contained a lot of coaly plant fragments. The highlights of the stop were a large tree stump and several large tree trunk pieces which, although found several hundred feet apart, stratigraphically were alleged to be part of one tree. A tall story no doubt!

On Wednesday, June 18, 1986, representatives of the Alberta Palaeontological Society were present at Wesley United Church to attend the Memorial Service for fellow APS member Charles Masur.

Charles, a member of CARES (Civil Air Rescue Emergency Services) was a victim of the tragic air disaster that claimed the lives of himself and seven crew members participating in the air search for a light plane missing in rugged mountainous country to the west of Calgary.

The following passage taken from the eulogy by Rev. C. Leighton Streight seems particularly appropriate.

"He was a compulsive collector, who was forever picking things up and treasuring them, and giving them to others if he felt they would be interested."

Our deepest sympathy is extended to the Masur family.

DINOSAUR SYMPOSIUM

Don Sabo

During the first week of June, I had the good fortune of attending the first Dinosaur Systematic Symposium which was held at the Tyrrell Museum of Palaeontology in Drumheller, Alberta. The Symposium included a one day field trip to Dinosaur Provincial Park and three days of lectures. Such problems as posed by individual variations, sexual dimorphism and ontogeny in dinosaur systematics were dealt with by an international group of dinosaur experts based on their recent studies of various dinosaur taxons.

DINOSAUR SYMPOSIUM (Continued)

Well known dinosaur experts such as Edwin Colbert, Loris Russell, John Ostrom, Alan Charig and Peter Dodson were just a few of the many speakers who gave interesting and informative talks which were in turn followed by a constructive open floor question and answer session.

During the four days of the Symposium, various television networks interviewed a number of the more famous of these people, which will hopefully be televised later this year. There was also a press conference held at the museum for the Canada China Dinosaur Project. This project will bring together leading authorities on Canadian and Chinese-Mongolian Dinosaurs to work collectively in the famous dinosaur fossil fields of each country, and to exchange specimens and technical knowledge. Through extensive media coverage and educational programs, as well as an international travelling exhibition, the work and results of this joint project will be brought to millions of people around the world.

From my viewpoint the Symposium was a big success, with most of the speakers helping to answer taxonomic problems within the particular dinosaur group they were studying. As a result of these studies, the general consensus concerning the "traditional" methods used in naming taxons, which have created so many problems in the past, will have to be changed in the near future to be consistent with these findings.

In attending the Symposium, I had the opportunity to meet and talk with a number of friendly and very interesting people who helped to broaden my knowledge and heighten my interest on the fascinating study of Dinosaurs. It was a fantastic experience.

TOLMAN BRIDGE CONNECTION

Les Adler

Field trip No. 1 of the Alberta Palaeontological Society was to the Tolman Bridge area about 16 km east of Trochu, Alberta. About 2 km southeast of the Tolman Bridge, Harvey Negrich accompanied me to a small hill where he directed me to a sandstone outcrop with mudstone close by. I soon found a fossil seed impression, and lower down I located a fragment of a hadrosaur tooth. During the next day, I collected many fossil seeds and plant fragments. Other members were able to collect several gastropods and a small carnivorous tooth from this same hill.

In order to learn more about my finds, I read several palaeobotanical books at the Gallagher Library at the University of Calgary, the downtown Calgary Public Library and from my own book collection. I am very interested in "ginkgos" as they represent the prime example of a living fossil. I have a Triassic specimen from Queensland, Australia in my collection and my brother's wife grows a Ginkgo Bibba tree in their backyard at Melbourne, Australia. Harvey Plotkin and Peter Meyer of the Calgary Rock Club have brought me several leaves and twigs from the stand of Ginkgo trees at Kelowna, B.C.

I use the term "living fossils" to refer to either living species which were first found as fossils and then later were found not to be extinct after all, or present day species where fossils were later found to be closely associated.

TOLMAN BRIDGE CONNECTION (Continued)

Amongst these are Lingula brachiopods with very little change through 500 million years of time from the Cambrian period. Another is the coelacanth of which I have a Triassic specimen from New Jersey in my collection. I have now incorporated the fossil seeds from the Tolman Bridge into the collection as Carpolithus (Ginkgoites?) fultoni Bell.

Numerous problems occur in identifying fossil ginkgos. Present day ginkgo plants have the seeds, twigs, stems and leaves in a particular juxtaposition. Also in the one surviving specie, the leaves may assume a variety of shapes all coming from the one tree, both lobed and non-lobed leaves occurring close by. So when you find a variety of fossil ginkgo leaves, (they all have the same distinctive parallel vein arrangement, although divided), how are you to know if more than one specie is present? Because it is almost impossible to find all the necessary parts fossilized together to give the genus name Ginkgo to a specimen, Ginkgoites is often used for fossil specimens that appear to be indistinguishable from the present day Ginkgo. Scientists have erected a separate biological phylum in which to place the fossil ginkgos and the one living representative. Seward, in a four volume set on palaeobotany, devotes one volume to the ginkgos.

Much of the following is taken from Tidwell. The development of ginkgos, (watch the spelling please!), parallels in time the development of the cycads. Many types of plants had already developed through the Palaeozoic Era. Ginkgos possibly originated in the late Palaeozoic, as fossil leaves from the Permian period have been identified with the ginkgo veneration. Ginkgos became widespread by the Jurassic period and then declined during the Tertiary. Ginkgos have been reported in the fossil record of the Western United States until the Miocene Epoch when they finally disappeared from this region. In modern times, Ginkgo biloba was found in China, possibly being preserved artificially by Homo sapiens and this plant now lives in the Tyrrell Museum of Palaeontology Palaeoconservatory. Members of the Alberta Palaeontological Society and the Calgary Rock Club have found fossil Ginkgo leaves at Drumheller (late Cretaceous), near Red Deer and at Calgary (Palaeocene).

According to Brown (1943, J. Forestry 41:861-868), the evolution of Ginkgo is based on the degree of dissection of the leaf. Accordingly, early Mesozoic leaves are deeply dissected and multiple-lobed, whereas by late Mesozoic they are entirely shallow lobed. During the Cenozoic period, leaves assigned to Ginkgoales are reniform, entire or bilobed.

At the Tolman Bridge, most of the specimens were seeds, although needles of pine or fir may be present. Of the seeds, about 90% appeared to be of Carpolithus (Ginkgoites?) fultoni. Some 2% of the seeds were much larger and could be Carpolithus (Ginkgoites?) kneehillensis. About 3% of the seeds could be fossil fig (Fiscus sp.), and 3% of another type. The specimens figured in Bell come from the Lower Edmonton Group, while the Tolman Bridge specimens come from the Middle Edmonton Group. Tidwell states that the fossilized fruiting bodies and stems are rarely preserved. Bell describes these seeds and states that in some ironstone nodules and lenses in the Edmonton Group, these seeds are abundant, preserved only as siliceous casts (but not showing structure) of the nucellus; in some instances the silica was deposited only next to the inner wall of the sclerotesta, leaving the central part hollow.

TOLMAN BRIDGE CONNECTION (Continued)

The fossils of the Middle Edmonton Group at the Tolman Bridge indicate that the yearly climate in the Drumheller region at this time period was warmer and more moist than at the present. These seeds, common at the Tolman Bridge location, but rare in most other places, help us to learn more about the evolution of ginkgos.

- Reference: Andrews, H.N., Ancient Plants and the World They Lived In
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Tidwell, 1975, Common Fossil Plants,
Brigham Young University Press, Provo, Utah, 84602
Tidwell, and others, 1970, Plants Through Time,
Laboratory Manual for Introductory Palaeobotany,
Dubuque, Iowa, W.C. Brown Co.

BOOK REVIEW

HUNTING DINOSAURS IN THE BADLANDS OF THE RED DEER RIVER, ALBERTA, CANADA

By Charles Hazelius Sternberg

Third edition (first NewWest Press, Edmonton, edition), 1985

Tim T. Tokaryk
Earth Sciences Program
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of Natural History
Wascana Park, Regina

It may seem redundant to review a book that was first published in 1917, but this is an exception. Only about 500 copies of the first edition of "Hunting Dinosaurs in the Badlands of the Red Deer River, Alberta, Canada" by Charles H. Sternberg (1850 - 1943), were published, and a similar number of the second edition (1932). Sought after by book collectors, libraries and palaeontologists alike, the new edition (1985) brings applause from all. Because of the limited number of copies of both the earlier editions, and the wide release of the later edition, a brief review of Sternberg's book is, I believe, warranted.

When we palaeontologists begin to get tired of reading technical reports on who found what, where, when, and the eyes begin to show signs of strain because of the almost separate "language" used in these reports, it is relieving to read a book such as this. It starts out by continuing from where Sternberg left off in his previous book, "Life of a Fossil Hunter" (1909). In the first chapter you immediately realize the contributions made to palaeontology by Charles H. Sternberg and his sons, George, Levi and Charles M. In 1909, one of Charles' sons found a Triceratops skull; in 1910, four more were found along with two partial duck-billed dinosaur skeletons.

When we read a technical article describing a new specimen, we seldom read how it was found, collected and prepared. On the surface, this does not sound too exciting; but if Sternberg collected it, there was always a story to tell, some not so happy. "During the winter of 1911, we were preparing a huge skull, some seven feet long, of Triceratops for the Victoria Museum (now the National Museum

HUNTING DINOSAURS IN THE BADLANDS OF THE RED DEER RIVER, ALBERTA, CANADA (Continued)

of Canada). Later, in the spring, I was away and Charlie (Charles M. Sternberg) was at work on it. One evening he had left the shop to go home when a Kansas cyclone struck the building and shoved one of the brick walls as easily as if the building has been a house of cards. The weight of the brick falling on the skull crushed it so badly that it could not be restored and had to be thrown away" (p.16). The book is full of previously unrecorded events. "Professor Cope once sent me on a hypothetical fossil hunt. He had, in Philadelphia, decided in his own mind that above the Permian beds of Texas, there was a new horizon that would yield new extinct animals, and he wanted to be the fortunate discoverer of the new fauna. I had, however, explored this region years before ... and I knew it was barren. Owing, however, to his insistence, I yielded my judgment to his, and, to my cost, spent a month of useless effort", and this "was the last time he ever attempted to give me instructions from Philadelphia when I was in the field" (p.129).

Not known to most was that Sternberg enjoyed writing poetry some of which is included in the book. He wrote mostly about the beasts he carefully collected, how they lived, and the country they were now found in. This was a most unusual combination.

Lepidodendron's bushy crest
Wave back and forth, together prest;
While sponge-moss hangs in festoons gay
Across the thickly planted way" (p.165).

The introduction to Sternberg's third edition is written by David A.E. Spalding, who describes with much appreciation and care, the history of palaeontology in North America in the early part of this century and the influence the Sternberg family had.

"Hunting Dinosaurs" informs the reader on the people and events surrounding the fossils. Most of the stories you cannot find in museums. I might have saved print by just restating the message on the back cover of the book: "Sternberg is the greatest fossil collector to publish an autobiography, and he is certainly the most entertaining."

RECENT PUBLICATION

**KEYS TO IDENTIFY PENNSYLVANIAN
FOSSIL PLANTS OF THE MAZON CREEK AREA**
By Earth Science Club
of Northern Illinois (ESCONI)

Geoff Barrett

Earlier this year, I made a trip to Illinois to attend a field excursion hosted by the Mid-America Paleontology Society (MAPS). During this visit I was taken to the site of an old strip mine at Morris, Illinois to collect the world-renowned Mazon Creek nodules. These sideritic nodules contain some of the most exquisitely preserved plant and animal fossils to be found anywhere. Their unique faunal content, preserving even soft-bodied organisms such as jellyfish, make these fossils comparable in scientific value to the Burgess Shale fauna of British Columbia.

**KEYS TO IDENTIFY PENNSYLVANIAN FOSSIL
PLANTS OF THE MAZON CREEK AREA (Continued)**

Although this particular site at Morris must have been visited by hundreds of collectors during the years following the closure of the strip mine, nodules are still abundant, and I was able to make a representative collection of some of the more common leaf fossils.

Having found these fossils, I was then faced with the onerous task of identification within a field of which I am relatively unfamiliar. At this point the ESCONI publication proved invaluable.

The book, dealing specifically with the floral content of the Mazon Creek area, is illustrated with over 300 detailed drawings. It employs an identification system that allows even the most inexperienced collector to accurately identify a fossil plant to within a particular genus. The book also contains a plant fossil glossary, reference bibliography and collecting information.

Excellent value at \$7.50 U.S., excluding postage.

Available from
ESCONI
P.O. Box 321
Downers Grove, Illinois
U.S.A. 60515

APS wishes to thank Oakwood Petroleums Ltd., Calgary, who very generously offered the Society the use of their photocopying facilities at a greatly reduced cost.

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**Names and contact information removed
to protect members' privacy.**

CHANGE OF ADDRESS

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