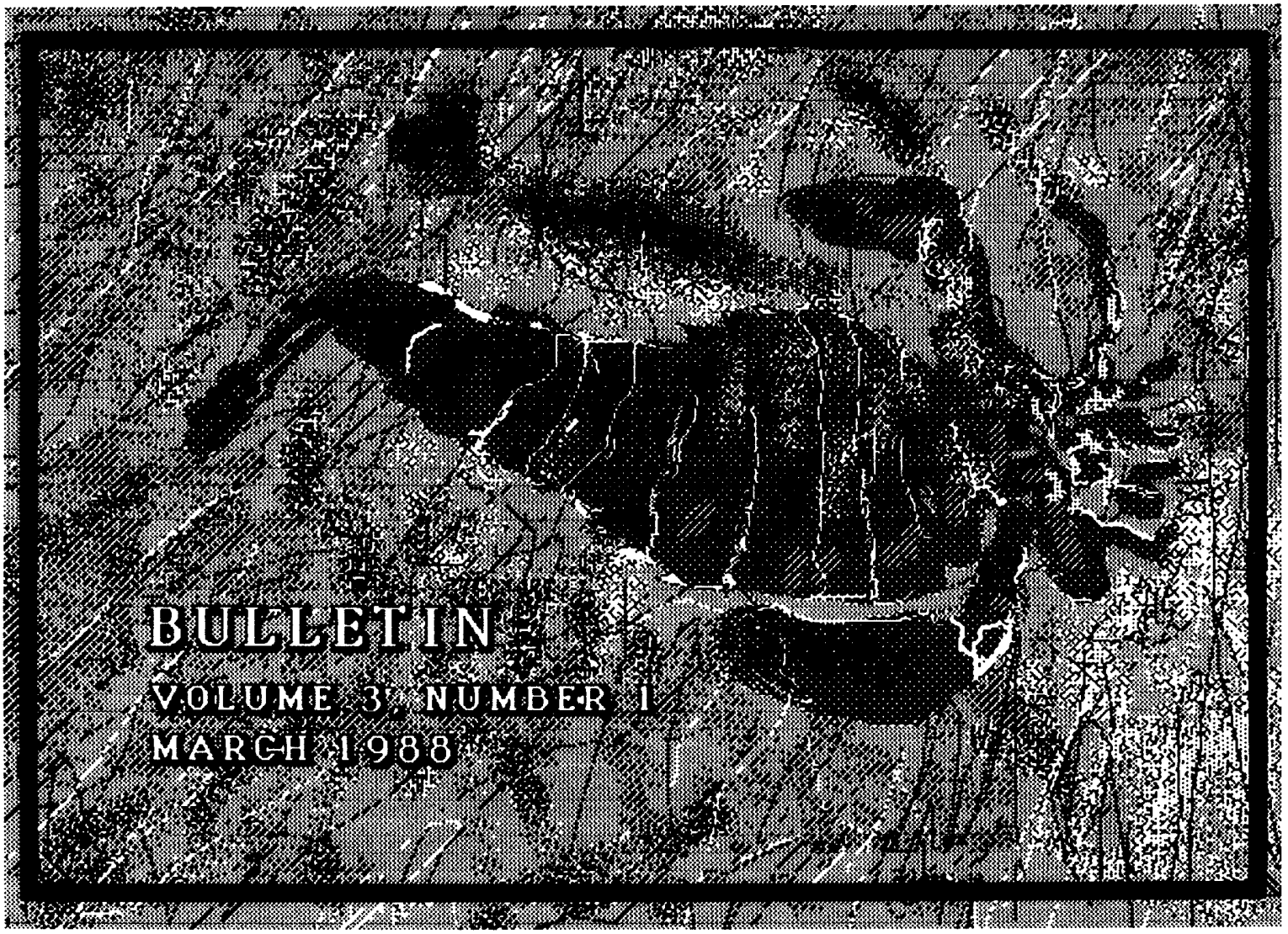

BULLETIN

VOLUME 3, NUMBER 1
MARCH 1988

ALBERTA PALAEONTOLOGICAL SOCIETY

ALBERTA PALAEONTOLOGICAL SOCIETY

OFFICERS:	President	Wayne Braunberger	278-5154
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	Secretary		
	Treasurer	Les Adler	289-9972
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	Curator & Field Trip Co-ordinator	Harvey Negrich	249-4497
	Director at Large	Dr. David Mundy	281-3668
	Public Relations	Jeff Doten	249-0376

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.

Single Membership	$10.00 annually
Family or Institution	$15.00 annually

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.

Mailing Address: Alberta Palaeontological Society
P. O. Box 7371, Station E
Calgary, Alberta, Canada T3C 3M2

PRESIDENT'S MESSAGE — Wayne Braunberger

I would like to thank the people who volunteered for office and welcome to the board of directors. I would also like to thank those who volunteered to stay on. At this time I would also like to make known my intention not to stand for election again. This is my third and last term of office.

Over the last two years we have shown that the Palaeontological Society is a viable entity and that it can grow and prosper. We are still in the process of determining the direction the society wishes to take and are in the process of getting the "bugs" out of the bylaws. We should at this time take a look at the four major objectives of the society and ask ourselves some questions . Are these objectives being met ? Can we improve on the objectives ? Should the objectives be changed ? Do the objectives meet our needs ? I think that the objectives are being met although not to the extent that perhaps we would like them to be. The Society has I think, three responsibilities embodied in these objectives : 1) education, 2) dissemination of information, 3) to provide a focal point for all groups to come together.

This leads me to ask the question : " What did you join the Society for? Did you join purely for your benefit or did you join for your benefit and that of others ?" I would hope you all joined for the latter reason. I have raised this question as it has a bearing on the direction the Society will take on many issues. At the present time in Alberta the major controversy concerns the Historical Resources legislation and its effect on collectors.

The issue is being debated at all levels and some are quite worked up about it. It is my opinion, and not everyone will agree with this, but I think that some form of legislation is necessary. I think some type of co-ordinated effort is needed so that everyone is going in the same direction. Unfortunately this can only be achieved by legislation. It must be recognized that without legislation there would be no way to standardize procedures, reporting methods, etc. There is also a risk in too much legislation as well. The risk of alienating people is great and any co-operation is lost. The other factor is the attitude and viewpoint of those enforcing the legislation. The present regulations attempt to address the needs of all concerned parties . Not everyone is happy with the situation and indeed many amateurs feel that they have been left out in the cold. It will probably take some time before modifications are made.

At the present time everyone has the opportunity of ownership of fossils collected prior to 1978. You should all have received an information package on how to do this. If you have any desire to sell or trade fossils you must go through this process.

It seems as though I belabour the issue every time a bulletin comes out. However it is a major issue and is the major topic of conversation at many of the meetings. Legislation is the one issue that has raised the most concern among the membership. It has evoked a whole range of responses.

The one response that most concerns me is the " ostrich response". The "ostrich response" or self-centered approach is where a person expresses all sorts of concern but rather than working to resolve the situation decides to withdraw and ignore everything. They still go about their business but have walled themselves off from everyone. They're the type of people who in many cases joined the Society for their own benefit and not to share with others.

There are many advantages to being a member of the Society. The one major advantage to belonging to a group is access. There are many projects that can only be done as a group. One which comes to mind is excavations. At some time in the future I am optimistic that the Society will be able to sponsor a small exploration and excavation program. This type of activity would only be possible by a group such as ours. This type of project is in the future, not the distant future. The other advantages of our group are the educational benefits, the people you meet, fellowship and good times, to have your views heard, and the ability to make a lasting contribution to palaeontology in Alberta.

I did not start out to write about the legislation issue, but everyone should be aware of it and the effects it could have. Indirectly it will influence the ultimate shape of the Society. The path we take may well be convoluted and not very clear, but at all times we should not lose sight of the Society's objectives or the responsibilities placed upon us.

PROGRAMS

Over the last three months the following programs were held:

January - Anna Curtis and Mark Rasmussen gave a presentation on the changes to the historical resources act (Bill 11). They also outlined the procedures for obtaining ownership of Alberta fossils.

February - Dr. David Mundy gave a presentation on Stromatoporoids in which he demonstrated their importance to the oil industry as they form the main component of reefs.

March - Darren Tanke gave a presentation on preparation methods used at the Tyrrell Museum of Palaeontology.

Field Trips

Three field trips will be held over the summer to various locations.
Dates for the trips are ; **June 18-19 , July 16-17, August 20-21.**
Locations and details will be announced as available.

FOSSILS MADE EASY

Les Adler

Welcome to " Fossils made Easy". I intend to write a series of notes on a regular basis. The reason people have trouble learning about fossils are:

(1) too many new facts presented at one time.

(2) lots of big words are used.

(3) there aren't enough sketches or pictures.

(4) the specimens that you find don't look like the ones in the books.

I will keep the number of new facts in each article down to about ten. If I use big words I will try to explain what they mean using smaller words. I will make lots of sketches.

What do I think a fossil is ? It is not an old man who doesn't like rock and roll. I think that a fossil is evidence preserved in soil or in a rock or on top of a rock which indicates that some living thing has been at this location a long time ago. If the evidence is connected to humans rather than non-humans then you are referring to archaeological evidence rather than fossil or palaeontological evidence. The evidence can range in size from microscopic to about 35 metres or 140 feet in length. Another way would be to say that the size of the evidence ranges from one tiny cell to a collection of trillions of cells (as in a complete mammoth).

Pollen from plants, excreta from animals, stones that went through an animal's stomach, leaves, flowers, tree trunks, footprints, trails, burrows, skulls, teeth, toe-bones and shells are all fossil possibilities. It may take a lot of experience to recognize a particular fossil.

A few months ago a government official was caught off-guard and indicated that he couldn't tell the difference between the shell of an ammonite and the skin of dinosaur. One has to start somewhere to learn about fossils. Usually you start with a fossil that can be easily found, easily picked up and weathered or eroded in such a way that you can match it with pictures and identify it. I am going to start with brachiopods, (marine shells) that occur fossilized at Canyon Creek about 50 miles or 80 kilometers south-west of Calgary. I would be prepared to bet you that I can find at least one kind of brachiopod within fifteen minutes of leaving the parking lot. I would also expect to find a fossil sponge, a fossil coral and a fossil crinoid piece in that time but I wouldn't bet on these.

If you haven't already done so, I would suggest that you get access to a post-secondary library. At Calgary there are two at the University, one at Mt. Royal College, also at S.A.I.T. and at the downtown Central Library. If you have enough cash you should start your own library with " The Audubon Society Field Guide to North American Fossils" and " Common Fossil Plants of Western North America ". Both books have many sketches and photographs. After you look through these books then you go to experienced people to help you with your fossils.

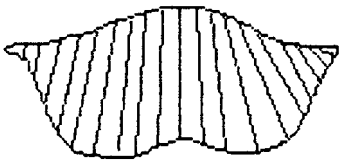
When you find your first fossil it will probably be incomplete and badly weathered , (attacked by heat from the sun, frost, snow, rain and wind) and also somewhat damaged by a hammer. In time you will start finding complete and undamaged specimens. Now you will set up records in a three-ring loose-leaf binder, cataloguing the specimens. Nowadays you should be doing this in co-operation with the Tyrrell Museum's computerized system. Besides location data and classification, there will be some sketches. It won't matter if the drawings are not perfect or incomplete. As time goes on your drawings will become quite recognizable. These will help identification. Here are some possibilities :

(1) From the top or near the back (dorsal)
(2) From behind, looking to the front (anterior)
(3) From the front, looking backwards or to the back
(4) From underneath to the belly (ventral)
(5) From the left side or to the left side (left lateral)
(6) From the right side (right lateral)
(7) From the front, across the middle of the specimen
(8) Along the middle, lengthwise
(9) Diagonally across
(10) Several broken sections and fragments.

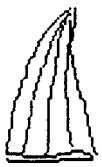
At first you make sketches the same size as the specimens, but you will find this doesn't always work out, so you draw specimens to scale, either enlarging or downsizing.

Here are some sketches of a brachiopod At first glance I will call this a spirifer", then draw it and check references.

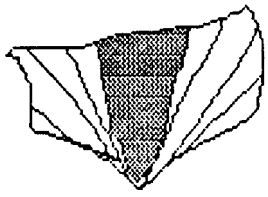
These have been drawn their natural size.



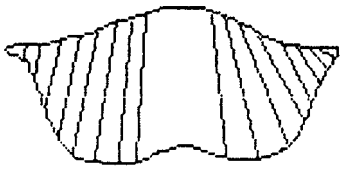
From above



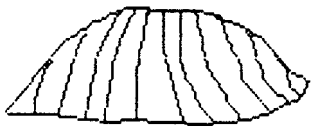
Right lateral



An incomplete specimen



From below



From behind

This specimen was formerly called Spirifer albertensis, now called Podtsheremia ? albertensis

/|\ /|\
genus species

This is an Alberta spirifer. When writing the name of a fossil two words are usually used, the genus and species are both underlined with the genus being capitalized.

More brachiopods next issue !

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NUCLEAR WINTER AND THE FOSSIL RECORD Dale Speirs

A lot of the recent fuss over the idea of a nuclear winter sterns from the fact that any hypothesis on this matter cannot be tested experimentally. Extrapolations can be made from past wars, atomic explosions, forest fires, and volcanos, but these extrapolations are only sophisticated guesses. Full-scale global thermonuclear warfare is not a testable procedure; there can only be one such event. The range of predictions goes from the-end-of-life-as-we-know-it to a few months of freezing weather down in the tropics.

Paleobiologists have been studying such crisis events for decades, only calling them ' mass extinctions' instead of 'nuclear winter'. The exact causes of such extinctions are still under debate, and some authors even question whether or not there really were such extinctions. The latter people have suggested that such apparent events are due to incomplete fossil records or sudden invasions by species from elsewhere which pushed the original species out.

The extinctions may have been caused by collision of the Earth with a comet (Grieve and Sharpton 1981) or may have been gradual (Archibald and Clemens 1982) . Most people think of the Cretaceous-Paleocene transition when the subject of mass extinctions is brought up, but other extinctions at other times have been reported. Dinosaurs, being the media darlings that they are , have grabbed the largest share of attentions, but other lifeforms have gone out with similar abruptness as well. During the Eocene the Radiolaria were suddenly struck by some sort of disaster and forests suddenly changed their species abundances (O'Keefe 1980).

The central idea of the nuclear winter concept is that the climatic changes of atomic warfare are caused by huge quantities of dust being lifted up into the atmosphere by the multiple blasts. This dust will then be responsible for cooling the Earth down; a major argument within nuclear-winter advocates is how long the dust, and thereby the cold, will last.

The aforementioned Eocene event occurred thirty-four million years ago. Paleoclimatical records show that while summer temperatures were about the same, the winters became much colder. The original suggestion was that the Earth's axis changed its tilt, but this has been shown to be unlikely. At the same time that the mass extinctions took place, there suddenly appeared a large deposit of microtektites strewn over a part of the planet. Tektites are glassy meteorites, most of which are dust-particle sized. When a large mass of tektites reached the Earth in the Eocene, it had several different fates. A large quantity of the particles was deposited on the planet. Many of the tektites floated in the atmosphere but were eventually washed out after a few years. Some of the tektites missed the Earth but did come close enough to go into orbit around the planet and form rings exactly as with Saturn (O'Keefe 1980). These rings cast shadows that cooled the Earth on the winter hemispheres. The rings last only a few million years before breaking up. Although there were species that suffered as a result of this, most lifeforms continued on, suggesting that the impact of abrupt cooling was not so great that species could riot adapt.

Although the Arctic was warmer at the time of the Cretaceous, the light cycle was the same, with long summer days and little light in the winter. Deciduous trees are an adaptation to this kind of climate. When the Earth cooled during the Paleocene, deciduous plants became more numerous. If , as hypothesized, the cooling was due to the impact of an asteroid, then this change would have been caused by the dust thrown into atmospheric circulation by the impact. The spread of deciduous species was confined to the northern hemisphere (Wolfe 1987), and did not cross south of the equator.

This point is relevant to the nuclear winter debate because most of the bombs going off would be in the northern hemisphere. The southern hemisphere has a separate circulation, but if the quantity of dust and the time that it is suspended in the atmosphere is sufficient, then the nuclear winter could transfer itself from the north into the south. If an asteroid impact is considered equivalent to global nuclear warfare, then it appears that this will not be the case. While the Earth would definitely cool down, life would not be eradicated, although it would certainly be inconvenienced.

References.

- Archibald, JD and WA Clemens (1982) Late Cretaceous extinctions. AMERICAN SCIENTIST 70:377-385

- Grieve, RAF and VL Sharpton (1981) The Cretaceous-Tertiary extinction event : A cosmic catastrophe ? GEOS 10(3): 7-9

- O'Keefe, JA (1980) The terminal Eocene event : Formations of a ring system around the Earth ? NATURE 285:309-3 11

- Wolfe, JA (1987) Late Cretaceous-Cenozoic history of deciduousness and the terminal Cretaceous event. PALEOBIOLOGY 13:215-226

BOOK REVIEWS

Geological Survey of Canada , Bulletin 378

Lower Carboniferous Brachiopods From The Banff Formation of Western Alberta, J.L. Carter, 1987

Reviewed by Wayne Braunberger

This is the first major monograph on Banff brachiopods of Alberta ever published. Brachiopods are the most common as well as the most diverse megafossil in the Banff formation. Over 87 species in 53 genera are described from over 6900 specimens in collections of the Geological Survey of Canada. Two new genera, one new subgenus and 24 new species are described.

This bulletin includes sections on stratigraphy, stratigraphic palaeontology, faunal composition, correlation with other areas of the world, stratigraphic palaeontology and systematic palaeontology. Two appendixes are included: GSC localities and stratigraphic positions of brachiopod collections and range charts for brachiopod species. To complete the bulletin 29 plates illustrating brachiopods is included.

For anyone who studies brachiopods the bulletin is a definite must for the reference library. This bulletin will be of greatest use to those who study brachiopods from the Banff formation. It should be relatively easy to identify brachiopods from the written description, illustrations, and general locality information that is provided.

I was very pleased to see this publication as it was a challenge to identify Banff brachiopods using the various sources previously available. I would recommend anyone with an interest in brachiopods to obtain a copy of this bulletin.

Available from: Geological Survey of Canada

601 Booth Street	or	3303 - 33rd Street N.W.
Ottawa, Ontario. Canada		Calgary Alberta Canada
K1A 0E8		T2L 2A7

Price: In Canada $12.00 other countries $14.00 (subject to change)

Oregon Geology Vol 49 # 10 pgs 115 to 127 (Oct 1987)

Oligocene Fossil Plants of the John Day Formation, Fossil, Oregon By Steven R. Munchester, Dept of Geology Indiana University

Bloomington Indiana 47405 and Herbert W. Meyer,
Museum of Palaeontology University of California Berkeley CA 94720

Reviewed by H. Negrich

Although this is a monthly publication, from time to time there is a feature article on fossils. This edition features a flora locality in a small town called Fossil, Oregon. The fossil plant bed outcrops on a hillside behind their local High School (Wheeler High).

The bed has been identified as the John Day formation and has been worked by professionals and amateurs for over 35 years and still produces fine specimens. Unfortunately there has not been much published on this locality, this is why I viewed this publication with interest. The geologic setting, flora, vegetation and climatic implications are discussed in detail.

For one to identify any flora in their possession from this location will value this publication as there are 5 plates depicting types identified from this locality. To sum up the article there is an extensive reference cited to help in seeking more information on this facet of palaeontology.

A copy of this publication can be ordered from Oregon Geology, 910 State Office Building, 14006. W. Fifth Avenue, Portland, Oregon 97201.

Cost is $1.00 for back issues. Oregon Geology Monthly Bulletin costs $ 6.00 for 1 year and $15.00 for 3 years.

THE COVER: **Jeff Doten**

This month's visual feast of a cover is - an eurypterid, *Eusarcus* from the Silurian of New York.

ALBERTA PALAEONTOLOGICAL SOCIETY
For Year Ending December 31, 1987

BALANCE SHEET

Bank Balance as at Dec. 31, 1987	$ 480.42	Excess of Expenditures over Revenue	$ 121.06
Inventory of Pins at cost	125.40		
Incorporation Expense	78.00	Members' equity	562.76
	$ 683.82		$683.82

OPERATING STATEMENT

REVENUES		EXPENDITURES	
Dues	$ 649.00	Printing & Copying	$ 338.39
Raffles	159.75	Postage & Post Box	186.36
U.S. Exchange	12.39	Bank Charges	19.20
Coffee Collections	120.50	Coffee Supplies	82.06
Lecture Revenue	150.00	Lecture Expense	365.00
Poster Revenue	165.00	Poster Expense	249.16
T Shirt Sales Revenue	384.75	T Shirt Expense	293.25
Supplies Revenue	663.88	Supplies Expense	663.88
Pins Sale Revenue (40 Pins)	120.00	Pins Bought (100 Pins)	209.00
		Office Supplies	105.03
	$ 2,425.27	Friends of Tyrrell	25.00
Expenditures over Revenues	121.06		
GRAND TOTALS	$ 2,536.33		$ 2,536.33

We have examined the books and records of the above named Society and have received satisfactory answers to all queries. The above statements represent a true and fair presentation of the affairs of this society.

L. B. Kidner

(L. B. Kidner) Auditor
178 Wildwood Drive S.W.
CALGARY, Alberta, T3C 3C9

The financial records of the Society were examined by an independent auditor and found to be in order. The above statement is an accurate representation of the finances of the Society.

Wayne F. Braunberger
Wayne F. Braunberger
President

Leslie R. Adler
Leslie R. Adler
Treasurer