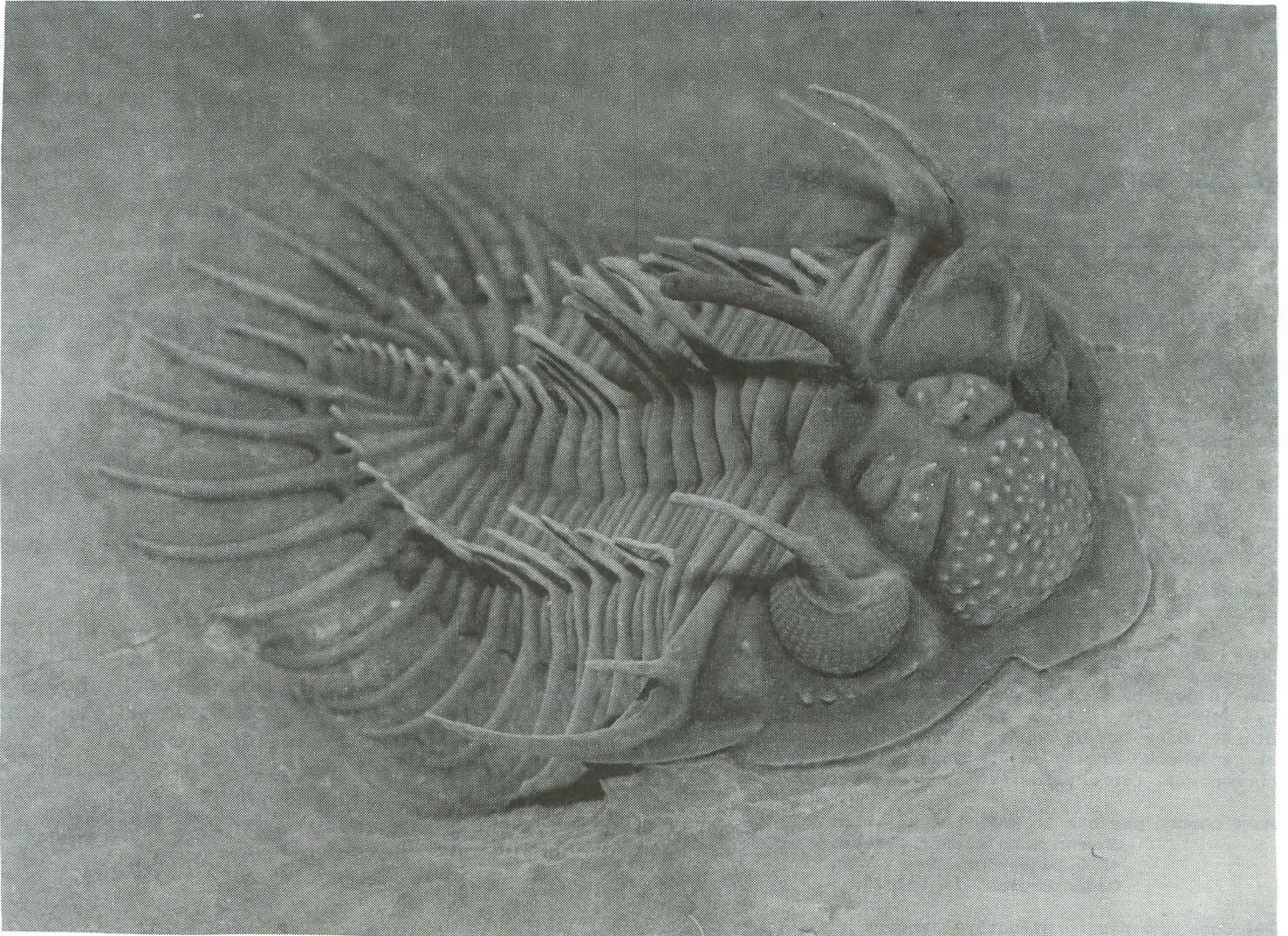


M.A.P.S. *Digest*

Official Publication of
Mid-America Paleontology Society

Volume 17 Number 8
November, 1994



MARK YOUR CALENDARS

3 DEC MAPS MEETING. Trowbridge Hall, University of Iowa, 123 N. Capital St., Iowa City, IA. Main Lecture Room, #125.

1:00 Board & General Meeting combined.

2:00 Program: Tom Stemann, from the University of Iowa, will present the program, entitled "Tertiary Corals of the Caribbean and Europe."

7 APR 1995 MAPS NATIONAL FOSSIL
8 EXPOSITION XVII—CRINOIDS
9

Fri., Apr. 7: 8am - 6pm

Sat., Apr. 8: 8am - 5pm

Sun., Apr. 9: 8am - 3pm

PLEASE NOTE: THE DATES ARE INCORRECT IN
THE 1994 DIRECTORY

*** 94/10 DUES ARE DUE ***

Are your dues due? You can tell by checking your mailing label. The top line gives the expiration date in the form of year followed by month--94/11 means 1994/Nov. Dues cover the issue of the *Digest* for the month in which they expire.

We do not send notices but will let you know if you are overdue by highlighting your mailing label on your *Digest*. We carry overdues for two months before dropping them from our mailing list.

Please include your due date and name exactly as it appears on your mailing label--or include a label.

Dues are \$15 per U.S./Canadian household per year. Overseas members may choose the \$15 fee to receive the *Digest* by surface mail or a \$25 fee to receive it by air mail. (Please send a check drawn on a United States bank in US funds, US currency, a money order, or a check drawn on an International bank in your currency.) Library/Institution fee is \$25.

Make checks payable to MAPS and mail to:
Sharon Sonnleitner, Treas.
4800 Sunset Dr. SW
Cedar Rapids, IA 52404

*** Dues are rising effective January 1.

ABOUT THE COVER

This month's cover photo was sent by Fred H. Wessman, Spring, Texas. Fred has been a member of MAPS for a number of years. He has a particular interest in trilobites and has traveled the world looking for them. This trilobite is a species of *Comura* from the Middle Devonian. The specimen was collected in Morocco, where Fred obtained it unprepared, and Gerald Kloc prepared it.

FIRST DINOSAUR EMBRYO FIND
source: The Cedar Rapids Gazette
Nov. 4, 1994, p.3A

A dinosaur named oviraptor because it was thought to feed on the eggs of other dinosaurs has had its reputation restored. Its redemption came with the discovery of an embryo in an egg like the one the first-discovered oviraptor was thought to be eating. The 80 million-year-old egg from a Mongolian desert contains the first embryo ever found of a meat-eating dinosaur.

The first fossil oviraptor was found at an ancient Gobi Desert nest in 1923. Researchers concluded that the animal died while eating eggs of some other animal and named it "egg seizer" or "egg thief." The discovery of the embryo now leads researchers to believe that the dinosaur was really protecting or brooding those eggs and not eating them, since the eggs were those of the oviraptor.

The research done by Mark Norell of the American Museum of Natural History "confirms a lot of ideas" about how some dinosaurs may have cared for their eggs and protected their nests, according to Jacques Gauthier of the California Academy of Science. It also suggests experts should be more careful about leaping to conclusions, he said.

FROM THE EDITOR

Plans for the 1995 MAPS EXPO are rolling right along. The theme is crinoids, so if you can contribute an article to the EXPO Digest, be sure to let Maggie Kahrs know: 9145 U.S. Hwy 50 East, Seymour, IN; phone--812-522-6093.

We also need to know how many exhibits will be coming. So please let Karl Stuekerjuergen know as soon as possible if you are planning to take an exhibit to EXPO: 1503 265th Ave., West Point, IA 52656-9209; phone--319-837-6690.

The January Digest will contain EXPO information.

DUES TO RISE IN JANUARY

At the 1994 MAPS EXPO, after some discussion of the budget and rising costs, the motion was passed to raise dues to \$20 per year, effective January 1, 1995.

WANTED: COVERS AND ARTICLES FOR DIGEST

Do you like to draw pictures or take photos of your fossils? If so, why not submit them for covers for the monthly Digests? Include at least basic information about the subject of the drawing/photo. Black and white images copy best, but color photos with a lot of contrast also work.

We also need articles. Anything that interests you will also be of interest to many other members.

Send covers and articles to the editor.

PARKS AND MUSEUMS DIRECTORY

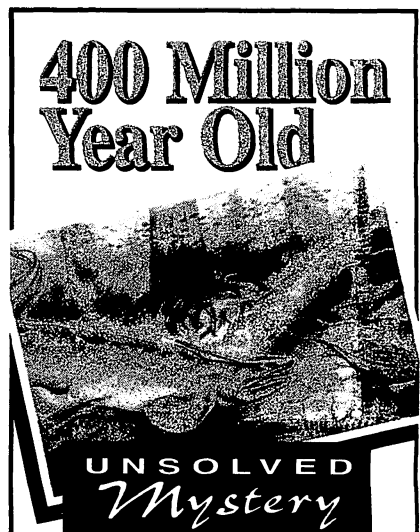
MAPS member Alan Goldstein is putting together a directory of parks and museums that emphasize fossils. If you have information on any, send the name and address to him at: Falls of the Ohio State Park, 201 W. Riverside Dr., Clarksville, IN 47129.

FROM THE PALEO SOCIETY

The Paleontological Society thanks you for the \$1000 donated by the Mid America Paleontology Society in support of student scholarships. your support of these students will help ensure the continued vitality of the science. Thank you again for your financial support.

Sincerely, Johnny Waters
Treasurer

(MAPS contributed \$1000 from the proceeds of the 1994 EXPO auction to the Paleontological Society to fund two \$500 scholarships. We have been able to do this for several years, thanks to the generosity of the EXPO exhibitors and other MAPS members who donate specimens for the auction.)



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DETAIL OF PAINTING SHOWN ABOVE - FULL IMAGE AREA 8 1/2 x 13 1/2. *QUALITY OF FOSSIL TOOTH MAY VARY

BIG BUGS AND CHICKEN'S FEET

by John H. Hunter II

Spokane, Washington

So here you are, sitting at your sell/swap table at the local rock show or maybe even the MAPS Expo. A few people have been coming up and asking intelligent questions about some of the nicer fossils on your table. Things seem to be going quietly. Just about this time, a family strolls up and notices your beautiful Indiana crinoids. "Hey, look at that, a petrified chicken's foot," one says to another. "Yeah," yet another says, "and here's one that's a plant--see the long stem." You start to explain in a polite but tired voice that they are all animals, echinoderms to be exact, distantly related to starfish. By this time, one of the smaller children has just picked up your prize trilobite and is about to give it flying lessons. As you snatch the fossil away, a teenager in the bunch comments on the strange looks of the "rolley-polley bug" you are now holding. "Yes, it is a strange one," is the only comment you can muster. They ask more questions, you answer, time seems to drag on slowly, and finally the family departs.

Explaining the nature of fossils to the unknowing masses at rock and/or fossil shows is a ritual that some people like. Many others have grown tired of answering the same questions over and over. Yes, some of the questions seem ridiculous and stupid. But it's easy to see how the average person on the street could mistake a crinoid for poultry parts or a trilobite for a bug. Even great scientists can (and have) made seemingly absurd mistakes in fossil identification.

It all started quite some time ago. Fossils had been discovered in Europe many centuries before scholars began to write about them. Many of the earlier accounts were made in the British Isles. Edward Lhwyd (I think the last name is pronounced like "Lloyd," but don't quote me on it) wrote a paper that I believe contains the earliest known formal reference to trilobites. The paper was originally part of a letter written by Lhwyd to his close friend Dr. Martin Lister, and later was

printed in the Philosophical Transactions of the Royal Society of London for 1698. In his paper, Lhwyd gave a description of an apparently complete skeleton of some type of animal which he had found in rocks near the village of Llandeilo in Wales. He also described weird fragments of another very strange creature in the same rocks. he decided that his complete specimen must be the skeleton of an unknown type of fish. But the weird fragments were "quite confounding," and Lhwyd decided to call them Trinuclei.

The next year, in 1699, Lhwyd published his book Lithophylacii Britannici Ichnographia. The work contained a catalogue of the English fossils and also presented several essays on fossils. In one of the essays entitled "Epistola I de lapidibus quibusdam Germania acceptis," Lhwyd wrote about his unknown fish skeleton and noted its roughly similar appearance with another peculiar fossil which was found by one of his colleagues. Lhwyd states "this ichthyomorphous stone swims spread out on its side, although it does not correspond to any specimen heretofore discovered; it does not agree in its external outline to your fossil, but represents the skeleton of the same or of a sole, only the specimen is striated on the circumference. The figure belongs to *Buglossium*, or the sole fish, except it is somewhat larger and less compressed at its extremities, but it wants the tail of a fish." To interpret, Lhwyd was fairly sure his fish-like stone represented the remains of a sole (a flounder-like flat fish) but the skeleton had bones in strange places and the "fish" had no tail.

The "sole-fish" was later redescribed as the trilobite *Ogygia*. The weird, confounding fragments Lhwyd had described in 1698 were later identified by Dr. R. I. Murchison as parts of a trilobite which he named *Trinucleus* in honor of Lhwyd's original name for them. *Trinucleus* is an obsolete name for trilobites now generally known by newer names such as *Cryptolithus* or *Lloydolithus*.

Incidentally, the term "trilobitae" was not used until 1771, when it was first proposed by J.E.T. Walch, a German naturalist. Some notable scientists of the day did not like the term and used their own names. In the end, however, the shortened name "trilobite" was accepted and is now used by everyone who studies these extinct creatures.

Dr. E.M. De Costa was an early contributor to the scientific study of petrified creatures. He wrote about a certain fossil from Dudley, England, and his letter appeared in the Philosophical Transactions of the Royal Society of London for 1753. This particular petrified animal was widely known in Europe and was simply called the "Dudley fossil," but DeCosta officially named it *Pediculus marinus major trilobus* and declared it to be a "crustaceous animal nearly related to the living *Isopodes*" (creatures like the modern-day sow bug). DeCosta republished his views in the short article "Description of a curious fossil animal" which appeared in 1754 in Gentleman's Magazine.

DeCosta's specimen was in reality a trilobite. In 1822, the famous naturalist Alex. Brongniart gave this fossil the name by which we know it today, *Calymene blumenbachii*. Whole specimens and parts of this animal were once so common at Dudley that a drawing of a nice complete *Calymene* was (and still is) prominently featured in the town's coat-of-arms. Nowadays, little remains of the enormous outcrops of fossiliferous rock which were once exposed in the area. The limestones were quarried away during the last few centuries and melted down to help make iron.

Carl Von Linne, the eminent Swedish botanist, gave the name *Entomolithus paradoxus* to several fossils which actually turned out to be different trilobite species. One of these was pictured in a woodcut in his 1745 work Olandska och Gotlandska resa. The fossil was actually the triangular phygidium (tail) of the trilobite *Asaphus expansus*. By the way, *Entomolithus paradoxus* literally means "insect-rock-paradox."

Charles Littleton, in a letter published in the Philosophical Transactions of the Royal Society of London for 1750, wrote "on a nondescript petrified insect" which turned out to be none other than *Calymene blumenbachii*.

The German doctor and naturalist Johann F. Blumenbach was another contributor to the description and study of fossils. In his work Abbildungen naturhistorischer Gegenstande, published in 1810, he described a fossil from the Dudley Limestone in west England. He figured the specimen and stated "according to all analogy it must have been without doubt the petrification of some species of insect without wings." Once again, the "bug" turned out to be *Calymene blumenbachii*.

Trilobites were not the only peculiar fossils which were erroneously grouped with modern creatures. In 1818, a paper was published by Samuel L. Mitchell titled An Account of the Impressions of a Fish in the Rocks of Oneida County, New York. He described the fossil animal as "separated into plates, like those of an insect or crustaceous animal, reaching from side to side quite across the back." He goes on to state that these plates "are not so broad near the head and thorax as they are on approaching the tail; for between the pectoral fins they fall short of a quarter inch, while on approaching the caudal fin they gradually enlarge." It is interesting to note that Mitchell called it a fish in the paper's title and used fish terminology in describing the "pectoral fins" and "caudal fin." However, he also discussed the segmentation of the body into plates, like those of a crustacean. The critter would certainly have to be unlike any fish ever known, and no doubt Mitchell must have found this fossil quite confusing. Today, anyone who knows much about fossil arthropods would easily recognize the specimen as the sea scorpion *Eurypterus remipes*.

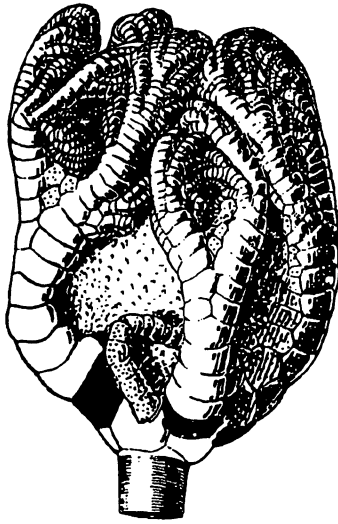
Mitchell was certainly not the only scientist misled by these extinct sea creatures. A chap by the name of P.B. Brodie, in his History of Fossil Insects in the Secondary Rocks of England (1845), described and figured a fossil from the

Silurian Coalbrookdale rocks in England. He wrote that the animal resembled the caterpillar of the Emperor moth, but no doubt his view was influenced by his primary interest in studying insects. The great British scientist Dr. J.W. Salter later correctly identified the creature as a sea scorpion and named it *Eurypterus ferox*.

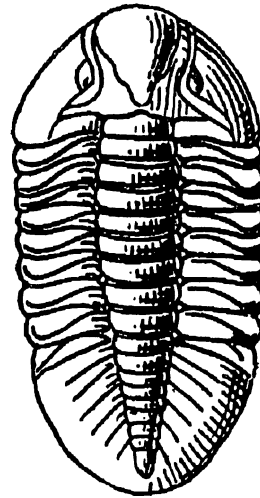
The list goes on. It's obvious that many of these very early paleontologists were stumbling around in the dark when it came to classifying critters that were long

extinct. Mistakes were made because there were no modern-day animals to compare them with and nobody knew any better (later on in the late 1800's, some big mistakes were made by folks who should have known better--American paleontologist S.A. Miller immediately comes to my mind--but that is another story).

So the next time an unsuspecting neophyte makes a laughable observation about one of your fossils, just remember that great scientists made the same mistakes long before any of us ever did.



A detached arm or two from this *Onychocrinus* could reasonably be interpreted as the foot of a chicken by someone who'd never seen a crinoid before. (from *Crinoidea Flexibilia*, F. Springer, 1920)



It doesn't take much imagination to see how this trilobite could be mistaken for some kind of wingless insect. (from *Invertebrate Fossils*, R.C. Moore, 1952)

DINOSAUR DIGGING VACATIONS

AAA Home and Away Magazine, July/Aug 1994
sent by David Jones, Worthington, MN

Do you want to dig dinosaurs during your vacation. The following are some possibilities:

Paleontology Field Program, Bozeman, Mont.

Daylong and weeklong excavation sessions are available. For information on the 1995 schedule, contact the Museum of the Rockies, Montana State University, Bozeman, MT 59717; (406-994-2251).

Dinosaur Days, Grand Junction, Colo.

Held July 21-24, this dino-filled event includes a Kids' Day at the Quarry, a Pteranodon Ptrot (5K race); special lectures, a dinosaur egg hunt, tours of paleontological sites and more. Most events are free. Call the Museum of Western Colorado for more information; (303) 242-0971.

The Mammoth Site, Hot Springs, S.D.

Twenty years ago, construction workers scraped the surface of this ice-age sinkhole where up to 100 Columbian and woolly mammoths died. To date, 48 mammoths have been discovered, as well as
(CONTINUED ON PAGE 7)

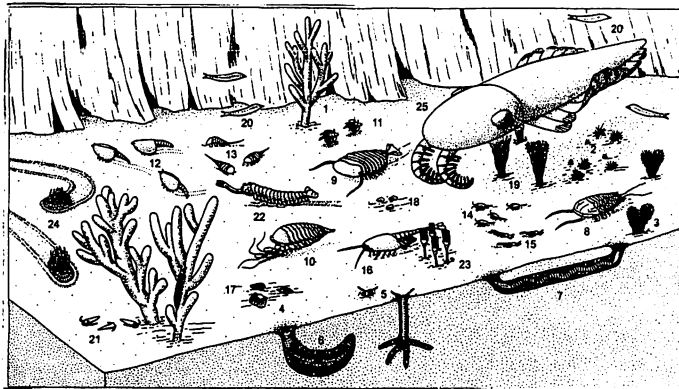
BOOK REVIEW
by Karl Stuekerjuergen

THE FOSSILS OF THE BURGESS SHALE
by Derek E.G. Briggs, Douglas H. Erwin,
& Frederick J. Collier

Release date: November 1994
272 pages, 199 photographs & illustrations
Distributed by: Smithsonian Institution
Press

Since their discovery in the early 1900's, the fossils of the Burgess Shale have been described by many as the century's most significant fossil discovery. Their discovery is a window into many of the early life forms on earth.

This book begins with the history of the Burgess locality and the fossil beds



discovered by Charles Walcott and his family. It moves on to discuss the geologic setting and the softbody preservation of fossils of the Burgess Shale. Next comes a discussion of the Cambrian radiation, where almost all modern life forms have evolved.

The real significance of this book, is the remaining 2/3rds. It contains the first comprehensive set of photographs and illustrations of the life forms discovered in the Burgess Shale. It contains 124 photographs and 75 illustrations. Along with a complete species list of all currently described fossils of the Burgess Shale.

(Fred Collier is a MAPS member. See order form below for this and other titles from the Smithsonian Institution Press.)

Located high in the Canadian Rockies, the Burgess Shale area was beneath water during the early Cambrian Period, 540 million years ago. This restoration depicts some of the Burgess Shale species living on, above, and in the muddy sediments at the foot of a submarine cliff.

sponges: 1. Vauxia, 2. Choia, 3. Pirania, **brachiopod**: 4. Nisusia, **polychaete worm**: 5. Burgessochaeta, **priapulid worms**: 6. Ottoia, 7. Louisella, **trilobite**: 8. Olenoides, **non-trilobite arthropods**: 9. Sidneyia, 10. Leanochoilia, 11. Marrella, 12. Canadaspis, 13. Molaria, 14. Burgessia, 15. Yohoia, 16. Waptia, 17. Aysheaia, **mollusc**: 18. Scenella, **echinoderm**: 19. Echinocrinus, **chordate**: 20. Pikaia, **miscellaneous**: 21. Hyolithes, 22. Opabinia, 23. Dinomischus, 24. Wiwaxia, 25. Anomalocaris

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Ads are \$5.00 per inch (6 lines x 1 column--43 spaces). Send information and checks payable to MAPS to: Mrs. Gerry Norris, 2623 34th Avenue Ct., Rock Island, IL 61201. Phone: (309) 786-6505.
This space is a \$5.00 size.

To extend currently running ads, please send request and remittance to **Editor** by the 15th of the month. We do not bill. Ads do not run in the EXPO issue (April). Ads up to 8 lines by 54 spaces can be printed in smaller type to fit a 1" space.

WANTED TO BUY: Micro sandblaster
Collector wishes to purchase used Comco or perhaps MPM brand machine. Please contact Jerry Rush, 4124 Floral Ave, Norwood, Ohio 45212. Phone/FAX 513-531-5047

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(CONTINUED FROM PAGE 5)

28 other species of animals. Ages 7-15 can dig replica bones in a pit next to the actual "in situ" (bones left as found) exhibit where Earthwatch volunteers excavate the real thing. Junior program, 9 to 11:30 a.m. and 5:30 to 8 p.m. daily, June 15-Aug. 15, \$5. Earthwatch excavation, July 4-30. Mammoth Days, July 15-17, includes a picnic, ice-age costume parade, games and a talent show; (605) 745-6017.

Royal Tyrrell Museum of Paleontology, Drumheller, Alberta, Canada

This hands-on museum has the world's largest collection of dinosaur skeletons. Two-hour Dig Watch tours are scheduled twice a day in July and August; adults \$8, under 16 \$6, under 6 free. Day Digs for those over age 10 include lunch, transportation and on-site excavating; adults \$75, under 16 \$50. Advance reservations necessary; (403) 823-7707.

STROMATOLITES

by Gordon Bell

from *PaleoDiscovery*, Aug. 1994,
Earl Campbell, ed.

The Canadian Shield including the early Bear-Slave continent includes a vast exposure of some of Earth's oldest rocks. This region also includes mat-like stromatolite colonies, on of the oldest forms of life on earth, which began about 2,500 million years ago.

The atmosphere was at a stage in its evolution when its carbon dioxide content prevailed over its oxygen content. However by 1,850 Million years ago, when the Slave continent rammed into the Churchill Province, the proportion of oxygen to carbon dioxide had begun to switch. The increased oxygen in the atmosphere resulted in the explosive evolution of life that occurred at the end of the Precambrian, 570 million years ago.

A number of processes changed the carbon dioxide-based atmosphere we depend on today. But it is thought that the main factor was the prolific development of mat-like stromatolite colonies of blue-green algae, that early form of life on earth.

With the aid of sunlight and photosynthesis the algae could separate the hydrogen and oxygen atoms in a molecule of water to release oxygen atoms as waste material. Simultaneously, they could combine the hydrogen atoms from water with carbon dioxide molecules from the atmosphere to form organic molecules--the carbohydrates, including the sugars, the starches, and the celluloses essential to animal life.

There were no animals around to eat the algae and an ideal situation for algae growth developed whenever on earth the right conditions of warmth and sunlight and adequate water occurred. The right conditions existed on the edge of the Slave continent as shown by the extraordinary size of the ancient limestone fossil

reefs. Stacks of millions upon millions of the mat-like stromatolite colonies are exposed in the broad extensive reefs.

As mentioned above Stromatolites had no competitors and greatly multiplied whenever there was shallow saline water and warmth. They contributed largely to a change in Earth's atmosphere to an oxygen base. This change allowed multicellular life forms of life to evolve and thus led to the complex forms of life as we know it today.

REFERENCES

- 1) Redfern, Ron, 1983, "The Making of a Continent, Random House, Inc. New York.
- 2) Historical Geology text books.

Please ADD the Following NEW OR REJOINING MEMBERS to Your Directory:

Jerold C. Bastedo S-5215 Orchard Avenue Hamburg, NY 14075 716-627-3481	Environmental Geologist. Major interest invert. fossils--Devonian and Silurian. Interested in paleo, collecting, preservation of collecting localities, preparation of specimens, etc.	
Gary Gittis 1100 West Chester Pk. #E6 West Chester, PA 19382 610-429-1431	Teacher. Will trade. Major interest mastodons and mammoth material, trilobites, ammonites. Has for trade PA plant materials, Nova Scotia plants, NE trilobites. Travels the country collecting for his own enjoyment and the enjoyment of his students.	
David W./Georgette R. Hague 10001 Shepard Road--Twinsburg Macedonia, OH 44056-1129 216-468-2882	Business Owner/Gemologist--Office manager. Members of Fossil Society--Cleveland Museum of Natural History. Want contact with other collectors and info on meetings & shows, etc.	
David J. Kaplan, Ph.D. 11729 15 Mile Rd. 2B Sterling Hts., MI 48312 810-268-6578	Scientist (Wayne State U.). May trade. Major interest evolution, dinosaurs, amber, molecular paleo. Wants to learn more about paleo. from members.	
Jim & Glori L'Ecuyer 5777 DeGiverville Ave. St. Louis, MO 63112 314-361-4504	Real estate broker/teacher. Will trade. Still learning taxonomy & preparations. Collecting has been limited to Paleozoic, but looking to larger specimens of the Mesozoic & Cenozoic (94). Nothing to trade at this time. Member of Eastern MO Soc. for Paleo. Want to expand knowledge and collection areas and ideas.	
Michael R. Martin 1851 Leonidas Tr. Marietta, GA 30064 404-422-2373	National Sales Mgr. Major interest fossil collection, sites...	
Michael Nipper 837-49th Ave N St. Petersburg, FL 33703 813-521-2869	Fossil restoration & reproduction. Will trade. Interested in all types of fossils. Has for trade Florida vertebrate fossils. Member of Tampa Bay Fossil Club. Wants to meet people across the U.S. interested in fossils.	
Glenn F. Rockers PaleoSearch Box 621 Hays, KS 67601	Rejoin	
Joe Turon 304 Ferry Coulee Dam, WA 99116	Interested in all kinds of plant and animal, as well as well as trace fossils for trade or buying. Has good collections of leaf material, bird tracks, and other things from Montana, Idaho, Oregon and Wyoming areas.	
PLEASE NOTE THE FOLLOWING CHANGES OF ADDRESS OR CORRECTIONS:		
Maureen Cook Marcia & Michelle 5015 Rockhampton Ct. Yorba Linda, CA 92687	Pediatric occupational therapist. She and daughters aged 10 & 6 ('94) have general interest in paleo and enjoy learning about the field. Introduced to fossils by brother-in-law, James Cook.	
Paul Demkovich 7073 Mill Run Cir. Naples, FL 33942-7214	Tim & Margaret Sheffler P.O. Box 731 Keokuk, IA 52632-0731	Richard D. Swigart 2613 N Linn St Peoria, IL 61604-3631 309-682-7950
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The Mid-America Paleontology Society (MAPS) was formed to promote popular interest in the subject of paleontology; to encourage the proper collecting, study, preparation, and display of fossil material; and to assist other individuals, groups, and institutions interested in the various aspects of paleontology. It is a non-profit society incorporated under the laws of the State of Iowa.

Membership in MAPS is open to anyone, anywhere who is sincerely interested in fossils and the aims of the Society.

Membership fee: One year from month of payment is \$15.00 per household. Institution or Library fee is \$25.00. Overseas fee is \$15.00 with Surface Mailing of DIGESTS OR \$25.00 with Air Mailing of DIGESTS. (Payments other than those stated will be pro-rated.)

MAPS meetings are held on the 1st Saturday of each month (2nd Saturday if inclement weather). October & May meetings are scheduled field trips. The June meeting is in conjunction with the Bloomington, IN, Gem, Mineral, Fossil Show & Swap. A picnic is held the fourth weekend in July. November through April meetings are scheduled for 1 p.m. in the Science Building, Augustana College, Rock Island, Illinois. One annual International Fossil Exposition is held in the Spring.

MAPS official publication, MAPS DIGEST, is published 9 months of the year--October through April, May/June, July/August/September.

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