M·A·P·S Digest

Official Publication of
Mid-America Paleontology Society

Volume 18 Number 2
February, 1995

A LOVE OF FOSSILS BRINGS US TOGETHER

MARK YOUR CALENDARS

FEB NO MAPS MEETING

4 MAR 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: Someone from the University will be giving the program.

25 MAR TAMPA BAY FOSSIL CLUB SHOW
26 Eighth Annual Fossil Fair featuring "Ice Age Mammals.

Saturday: 9:00 am to 6:00 pm
Sunday: 10:00 am to 5:00 pm

Fort Homer Hesterly Armory
504 N. Howard Avenue, Tampa, FL

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

Fri., Apr. 7: 8am - 6pm
(Keynote speaker: Dr. Thomas Guensburg - evening.)
Sat., Apr. 8: 8am - 5pm
(Business meeting and auction following.)
Sun., Apr. 9: 8am - 3pm
(Many people leave by noon on Sunday.)

For registration contact:
Karl Stuekerjuergen, 1503 265th Ave, West Point, IA 52656
(319) 837-6690

PLEASE NOTE: THE DATES ARE INCORRECT IN THE 1994 DIRECTORY

*** 95/02 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--95/02 means 1995/Feb. 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 **$20 per U.S./Canadian** household per year. Overseas members may choose the $20 fee to receive the *Digest* by surface mail or a $30 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

ABOUT THE COVER

This month's cover drawing was done by MAPS member John Standley, Stormville, New York. The illustration dipicts the dinosaur Parasaurolophus.

DINOTOUR 1995
TEXAS DINOSAURS - FROM BEGINNING (TRIASSIC) TO END (CRETACEOUS)

MAPS member Jim Gabriel reports that as of January 24 there were still openings for this tour, which was detailed in last month's *Digest*. He also adds that it takes persistence to reach the Dinotour leaders by phone.

POST OFFICE TO ISSUE STAMPS FEATURING PREHISTORIC MAMMALS

MAPS member Tony Verdi, who for several years has led a campaign to pursuede the Post Office to issue a series of stamps dipicting some of our fossil heritage, reports that four stamps featuring prehistoric mammals will be issued this year. The mammals are: (1) Saber Tooth Cat, (2) Woolly Mammoth, (3) Eohippus (early hourse), and (4) Mastodon. Tony sends his thanks to "the folks who sent letters to the Post Office requesting stamps picturing fossils."

EXPO XVII--CRINOIDS

April and EXPO XVII are less than two months away now. Table sales are brisk. We hope you've made your plans to attend.

A special note about the live auction held at EXPO: the proceeds of this auction go to the Paleo. Society to provide scholarships to graduate and post graduate students for research. For the last three years we have been able to provide two $500 scholarships. We depend on donations of quality specimens from the membership to make the auction a success. We ask all exhibitors at EXPO to contribute and also welcome contributions from members who are unable to attend EXPO. Specimens can be sent to Auction Chair, Paul Rechten, 7405 Shields, Harvard, IL 60035, (315) 943-4178. Please provide pertinent information about the specimen along with the donor's name.

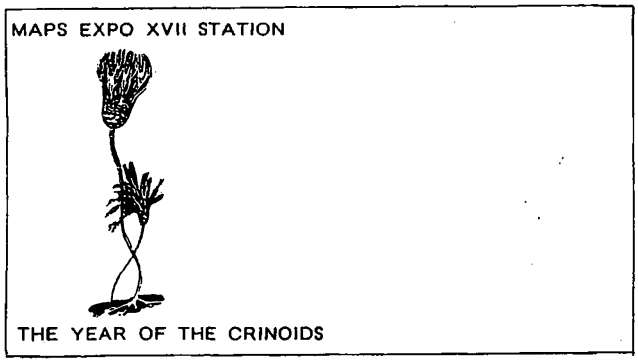
EXPO CANCEL

Tony Verdi has again designed an envelope and postal cancel depicting the EXPO theme. Both will be available at the show. Those of you who want the cancel and envelope but cannot attend the show can send a request to: Tony Verdi, 1225 Ledge Rd., Hinckley, OH 44233.

Include $1.25 for each envelope plus a sealed, addressed, and stamped #10 envelope. Deadline for requests is March 31.

Cancel

Envelope



SEDIMENTARY NOTES

New members **John and Gloria Cornish**, Port Angeles, Washington, sent a news clipping from *The Morning News Tribune* about an Oligocene whale that they discovered in July 1993 in Pysht, WA. "Oligocene whales--former dinosaurs in transition between land and sea--had hind legs and big front legs, lightly developed into flippers." The 30-million-year-old fossil was excavated by scientists from Seattle's Burke Museum.

WHAT'S THE STATUS OF THESE STATE FOSSILS?

MAPS member, Sally LaBerge, who is Midwest Federation Paleo Chair, would like to know the status of the following state fossils:

1) Florida--sea urchin
2) Idaho--the horse
3) New Jersey--Hadrosaurus?
4) Virginia--the clam

Contact her at 4417 Honeysuckle Ct., Oshkosh, WI 54904.

PREHISTORIC, ICE AGE CREATURES ON EXHIBIT

Great Explorations, The Hands On Museum, 1120 Fourth Street South, St. Petersburg, Florida, is displaying the **After The Dinosaurs: Into The Ice Age** robotic exhibit until April 16. The presentation centers around nine groupings of a total of 21 Ice Age mammals, including the Woolly Mammoth and Saber Tooth Cat, that look, move and sound like their real-life ancestors of millions of years ago.

A display of fossils on loan from the Florida Museum of Natural History at the University of Florida, as well as from private collectors and other sources, complement the beasts. The fossil display includes: a Saber Tooth Cat skull unearthed in California'a LaBrea tar pits in the early 1900's and estimated to be 25,000 years old; a skull and shell of a giant armadillo estimated at 700,000 years old and originally discovered in Tarija, Bolivia; a 50,000-year-old Woolly Mammoth tusk, unearthed in Alaska; the lower jaw of the same species found in Aucilla River, Taylor County, Florida; a cast skull of the Australopithecus accompanied by a display of early hominid tools, on loan from the National Museum of Kenya.

ANCIENT DNA

by Mark Marshall, Ph.D., Carmel, Indiana

With the recent video release of Jurassic Park, the minds of fossil enthusiasts once again return to thought of "could this really happen?" The original book by Michael Criton was in fact based, in part, on actual scientific studies in which DNA was purified and studied from extinct organisms ranging from several hundred to 120 million years old. In this article I will attempt to explain the nature of DNA, what it can tell us about extinct creatures, and how it is obtained from well preserved fossils.

What is DNA?

The best layman's explanation I have ever heard on the nature and role of DNA is in the first half-hour of the movie Jurassic Park. If you haven't seen the movie, read on. If you have seen Jurassic Park, feel free to skip a paragraph. The word "DNA" is an abbreviation for the chemical name "deoxyribonucleic acid." In essence, DNA is a long polymer found in all living cells and viruses. The chromosomes in our own cells are nothing but long coiled strands of DNA. If each chromosome in a single human cell was uncoiled and the DNA strands placed end to end they would stretch three feet! DNA is composed of seemingly random combinations of the repeating chemical subunits "adenine," "cytosine," "guanine," and "thymine" (A, C, G, and T for short). In reality, the order of these subunits is not random and specifies an easily read code which we call the "DNA sequence." Each chromosome has thousands of different coded messages organized in separate units called "genes." The genes lead to the synthesis of a specific protein and determines whether a cell will be part of a plant or an animal. Think of DNA as a blueprint for life and you've got the idea.

Why study DNA from extinct animals?

Since the DNA in a cell determines the nature of the organism, it becomes obvious that DNA from one animal must have a different sequence of A, C, T and G's than DNA from a different animal. In fact, the theory of evolution predicts that DNA sequences change randomly across the eons of time resulting in the evolutionary changes observed in the fossil record. By studying DNA from ancient sources, the rate of evolution of one species to a new species can be directly measured as changes in the sequence of the DNA. Perhaps the most useful reason to study ancient DNA is to help classify extinct creatures. DNA sequences isolated from a Tyrannosaurus rex bone (discussed below) would certainly end the debate as to the relatedness of dinosaur theropods to modern birds! Today there is concern over the loss of biodiversity. By examining DNA from extinct plants and animals it is theoretically possible to re-diversify present day life by the reintroduction of lost gene sequences. For example, certain proteins in exotic plants produce compounds with medicinal uses. Genes which make related, yet presently extinct, proteins could be isolated from ancient plants in amber and used to make new drugs by genetic engineering of modern plants.

DNA from extinct plants, insects, birds, and mammals

Scientific reports have been published detailing the isolation and partial characterization of ancient DNA from many diverse sources. The first attempts involved the recovery of DNA from the hides and bones of recently extinct animals such as the quagga and Tasmanian wolf kept in museums. Extending the technique by thousands of years, DNA has also been isolated from the Moa bird, a giant ground sloth, mammoths and a sabre-toothed tiger. The information from these studies was strictly phylogenetic--that is, it showed the relationship between these extinct animals and modern animals. Ancient DNA is obtained with relative ease from samples 20,000=40,000 years of age.

As DNA ages, it is normally degraded by extended contact with water. After the passage of millions of years, the probability of identifying useful DNA is

nearly zero. Fortunately, under extraordinary conditions of fossilization, a few specimens of plants, insects and animals have been discovered with sufficient DNA intact for study. Several laboratories have independently published chloroplast gene sequences isolated from plant specimens from the Miocene Clarkia deposit (17-20 Myr old). This was surprising and still considered controversial since the plant material is fossilized in shale. Less controversial is the work published by the laboratories of Rob DeSalle and Raul Cano detailing the isolation and characterization of DNA from amber entombed insects and plants. George and Roberta Poinar discovered that Dominican amber (20-40 Myr in age) acts as an excellent preservative, capable of preserving the tissue, individual cells and even nuclei of embedded insects. Extending these observations, the Poinars collaborated with Cano and isolated DNA from a Cretaceous (120 Myr) weevil in Lebanese amber. This accomplishment proved that DNA could be recovered from dinosaur age specimens.

It should be mentioned that the technique used to recover DNA from fossil specimens is extremely sensitive (ask OJ's lawyers) and very easily contaminated by as much as a single skin cell. For this reason paleo-DNA jockeys have more than their fair share of critics. In my own laboratory at the Indiana University School of Medicine, we have been attempting to reproduce the result of Cano and Poinar. To date we have successfully recovered DNA from 30 Myr old plant material preserved in Dominican amber, but have as yet failed to obtain DNA from insect inclusions. Part of the 18S rRNA gene DNA sequence obtained is shown below compared to a present-day flowering plant (Pisum sativum) and human DNA.

```
30 Myr
plant: TAATACGTGCAACAAACCCCGACTTCTGGAAGGGA
Modern ||||||||||||||||||||||||||||| |||||||||
plant: TAATACGTGCAACAAACCCCGACTTTTGGAAGGGA
       |||||| ||| ||   | | |||  |       ||
Human: TAATACATGCGACGGGCGCTGACCCCCTTCGCGGG
```

Dinosaur DNA

The critical question in the minds of most ten year olds (and a certain 38 year old) is "can DNA be found in the bones of dinosaurs?" Two laboratories have answered this question as "yes!" Scott Woodward, working out of Brigham Young University, obtained Cretaceous-aged bone fragments from a central Utah coal mine. The bones, presumed to be dinosaur, were found to be preserved as true bone and were not mineralized. Exhaustive experimentation yielded minute amounts of DNA with a sequence as closely related to mammals as to birds or reptiles. Woodward's findings were met cautiously since the DNA sequence was not related to the DNA's of present-day animals thought to be distantly related to dinosaurs. Mary Schweitzer, a graduate student in Jack Horner's laboratory at the Museum of the Rockies, has been studying T. rex bones from the Hell Creek formation. Amazingly, the bones of this particular animal were never mineralized and have retained the properties of natural bone. Schweitzer reported, at last year's DinoFest in Indianapolis, that the blood canals in these T. rex bones contain spherical objects which look like blood cells. Furthermore, the "blood cells" were red (like hemoglobin) and stained with a dye which binds to DNA. Jack Horner has gone so far as to make press releases stating that they have recovered DNA from the T. rex bones and that it is similar to bird DNA. However, until the scientific data is published, these conclusions cannot be properly evaluated. It will be extremely important to compare the DNA sequences found by the two laboratories to confirm their relatedness and their identity as true dinosaur DNA.

From our own experiments with dinosaur bone (performed at the I.U. School of Medicine), we have confirmed the presence of DNA in a hadrosaur tibia obtained from the Cretaceous Judith River formation. Like Horner's T. rex, this bone is poorly fossilized and appears to be normal bone. The question which must now be answered is whether the DNA in the bone is from the hadrosaur or from contaminating organisms. We hope to have an answer soon.

Prospects for the future

Molecular paleontology has opened up avenues of research unthought of ten years ago. Can these studies lead to the resurrection of extinct life? Probably not. DNA extracted from even the best fossil material is horribly fragmented and deteriorated. Only very small pieces have been retrieved, sequenced and cloned. To piece ten million small fragments of DNA into a large chromosome is nearly impossible by today's technology. However, the discovery of better preserved fossil material (there are reports of frozen dinosaur bone found in Alaska) and advances in animal cloning procedures could one day lead to extinct modern animal hybrids. More likely is that we will better understand the marvelous nature of life and its ability to adapt and survive under constantly changing conditions.

NAPC 96
from Ellis L. Yochelson
Department of Paleobiology
National Museum of Natural History
Washington, DC 20560

The Organizing Committee for the 6th North American Paleontological Convention cordially invites you to Washington, D.C., Sunday, June 9 to Wednesday, June 12, 1996. This event is part of the 150th anniversary celebration of the Smithsonian institution and is sponsored by the National Museum of Natural History. It is co-sponsored by the Departments of Geology of the George Washington University and the University of Maryland, and by the Maryland Geological Survey, the Branch of Paleontology and Stratigraphy of the U.S. Geological Survey, the Geological Society of Washington, and the Paleontological Society of Washington. Anyone who is interested in fossils is welcome!

Scientific Program

Several guidelines have been established. **First**, a person will be allowed to make only one presentation, either oral or poster. However, the same person may co-author more than one abstract. *Second*, poster sessions and presentation of specimens are particularly encouraged. *Third*, the oral program will consist overall of about one-third symposia and two-thirds contributed papers; five or six concurrent oral and poster sessions are anticipated each morning and afternoon. *Fourth*, for those who have an oral presentation, one slide projector only will be available.

To date, the following symposium topics and theme sessions have been suggested:

Invertebrate pleoetholgy (behavior)
Land access issues in paleontology
Fossil DNA & other biomolecules
Origin & evolution of terrestrial herbivory
Ecological competitiveness in migrations
Biological recovery after mass extinctions
Paleontological data used in solving practical problems
Morphospace concepts in paleontology
Community unity?
Fossil data in climate change studies
Dinosaurs!
Pan-American paleontological perspectives
Integration of chronostratigraphic zonations for regional & worldwide applications
Biologic signatures of sequence-stratigraphic units
Paleontological databases: applications & accessibility
Quantitative stratigraphic paleontology
Origin & early evolution of whales
Estimating salinity from the geologic record
History of American paleontology
Predictive stratigraphic analysis of ancient ecosystems
Comparative origins of body plans

The organizing committee is particularly interested in topics which will cut across interdisciplinary lines in paleontology. Please contact the organizing committee as soon as possible with specific ideas if you would like to see other topics included in the program, and especially if you are willing to organize a symposium or theme session. Volunteered abstracts on other topics will also be included.

Field trips are planned for June 8 and June 13. These trips can also be run on June 9, if needed. One trip will examine the Tertiary stratigraphy of Maryland. The other will make a transect of the Paleozoic rocks in the Appalachian mountains.

(SEE PAGE 7 FOR FORM FOR MORE INFORMATION)

LIVING FOSSIL TREES FOUND IN AUSTRALIA

sources: "Tree-mendous find...," by Peter James Spielmann in *The Courier Journal*, Louisville, KY, Dec. 15, 1994 (sent by Alan Goldstein)
'Jurassic Park' Forest Found, *The Prescott Courier*, Prescott AZ, Dec. 14, 1994 (sent by Jim & Sylvia Konecny)

A Parks and Wildlife Service officer, on a hike into an isolated grove in an Australian rain forest preserve, ventured off the beaten path and discovered trees thought to have been extinct for millions of years. "The discovery is the equivalent of finding a small dinosaur still alive on Earth," said Carrick Chambers, director of the Royal Botanic Gardens.

The trees were found in August in a remote part of Wollemi National Park, about 125 miles west of Sydney in the Blue Mountains. Their home is a 1.2-acre grove of rain forest in the 1.2 million-acre park.

So far, only thirty-nine trees have been found, 16 of them juveniles. The biggest one is 130 feet tall with a girth of 10 feet, indicating it is at least 150 years old. The California redwoods, in contrast, can grow to more than 300 feet tall.

The trees are covered in dense, waxy foliage and have a distinctive knobby bark that makes them look as if they were coated with bubbly brown chocolate. They were named the Wollemi Pines from the Aboriginal word meaning "look around you."

The Wollemi Pines once grew over vast tracts, but their numbers dwindled as the climate changed. The few remaining apparently were protected from fire and other hazards by the damp gorge. Their closest relatives died out between 190 and 65 million years ago.

Botanist Ken Hill of the botanic gardens called the find "probably one of the most significant botanical finds of this century. It's a very exciting find, and it's a real living fossil."

TOUGH TIMES IN THE TAR PITS

by Blaire Van Valkenburgh
Natural History, April 1994
via *Paleo Newsletter*, Jan 95
Jean Wallace, ed.

The asphalt-saturated quicksands of the La Brea tar pits are world-famous as a Pleistocene fossil deposit. They are also unusual in that they selectively concentrated the bones of carnivores which were attracted to the dying animals trapped in the tar. Studies of the teeth of those carnivores indicate that during the time when the fossils were accumulating, competition was much stiffer than before or since.

Animals which habitually crush bone to get at the marrow, such as hyenas, break their teeth more often than animals who do not. Many animals will try to crush bones if that is all that is left, and most of them have weaker teeth to begin with than hyenas do. Fully a quarter of the dire wolves, sabertooths, lions, and coyotes fossilized in the tar pits have at least one broken tooth, and the rate for hyenas is 50%. These Pleistocene animals sported broken teeth at 3 to 5, the rate seen in modern carnivores, even hyenas. Also, things go worse over time; fewer broken teeth are seen 40,000 years ago than 10,000 years ago, just before many of these animals went extinct.

The conclusion the author draws from this is that as time went on and the big game animals were growing scarcer, competition grew more intense and predators had a harder time feeding themselves. They had to resort to cleaning carcasses more thoroughly, which meant crushing the bones and breaking their teeth in the process. Things finally go so bad that of the carnivores studied only the coyote survives today.

ADVERTISING SECTION

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.

FOR SALE: Quality Fossils: Crab (coeloma sp.) from Italy in matrix. Eurypterus Remipes. Rare--Leptauchenia oreodont skull. Paradoxides trilobite plate (7 trilobites). Segnosaurus nest (two eggs) with impression. Two leg bones of Merychippus calamarius both in matrix (sold as a pair)
Kathy Filas: 708-545-2667

GOOD OPPORTUNITY. Attention all collectors. Canadian and European fossils for trade at MAPS EXPO. **Friday** and **Saturday.** For more information write to Jean-Guy Pellerin. See directory 1994 p. 68 for address.

WANTED: Quaternary O chemical, or chemical formula to make Quaternary O.

Please contact: Marc Behrendt, 421 S. Columbus St., Somerset, Ohio 53783 (ph.614-743-2818)

95 LIST Available listing 25 good collecting sites in the Iowa region. Updated, accurate, first-hand information. 94 LIST for $8. Make checks for $10 payable to Robert Wolf, 3521 10th Ave. N., Fort Dodge, IA 50501.

FOSSIL BOOKS. 135 in-print titles, including many state collecting guides. Fossil preparation supplies/equipment. Catalog $3.00. U.S. orders only. Retail only. **PALEO BOOKS & PREP SUPPLIES,** P.O. Box 542MD, Hot Springs, SD 57747. Tel. 605/745-5446

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NAPC-96
National Museum of Natural History
Dept. of Paleobiology - MRC121
Washington, DC 20560
SEND REPLY FORM TO ADDRESS ABOVE TO RECEIVE MORE INFORMATION

NAME_____
ADDRESS_____
_____
_____
_____

I EXPECT TO PRESENT:
an oral presentation Yes_____ No_____
a poster Yes_____ No_____

I WOULD LIKE TO ATTEND A FIELD TRIP
Yes_____ No_____
Tertiary Coastal Plan_____ Appalachians_____
Preferred date (circle one):
June 8 June 9 June 13

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

Samuel J. Ciurca Jr.
44 Stonington Drive
Pittsford NY 14534

Jerome (Jay) Duluk, Jr.
950 North California Ave.
Palo Alto CA 94303
415-857-1117

President, Silicon Engines, Inc. (computer hardware design, VLSI). Nothing to trade yet. Major interest cephalopods, echinoderms, "classy" specimens. Wants to become a collector again (had an AFMS National Educational trophy at age 13, plus wrote an article for Lapidary Journal, and did research on comparison of Devonian deposits of the Silica Formation.

Ronald M Ison
1254 Cronin Drive
Woodbridge VA 22191
703-491-4241

Will trade. Major interest Tertiary marine fossils, especially sharks. Also echinoids. Has for trade Tertiary marine fosils. Some Cretaceous and Carboniferous fossils. Member of Maryland Geological Soc., Baltimore, & American Fossil Federation (VA & MD). Wants fellowship with other collectors and to extend his knowledge of fossils.

Herb & Phyllis Luckert
221 Marquette Avenue
South Bend IN 46617

Ravi & Nancy Mathura
3925 Lk. Oakland Shr. Dr.
Waterford MI 48329
810-673-9637

Son/Mother. Engineering student--U. of Mich/RN. Major interest vertebrates--esp. mammals. Collect in Florida several times a year. Ravi went to the White River badlands of Nebraska summer of 94. Members of Florida Paleo. Soc., Gainsville, & Tampa Bay Fossil Club. Want to add to their knowledge and collection.

George & Marian M. McNabb
P.O. Box 56
311 Sweet Ave.
Linn Grove IA 51033

Retired Militry (U.S.N.) now a Chemical Engineer/ Horticulutrist. Spend a lot of time giving Fossil and Rock classes to schools; have spoken at libraries and museums. Would lead others on fossil and rock hunting trips in Iowa, Missouri, South Dakota, and Texas.

Ivo & Ingeborg M. Poglayen
1765 N. Indigo Ave.
Tucson AZ 85745

Ronald Ruschman
9 Alpine Village (Box 120)
L. Switzerland NC 28749
513-241-1186

Lapidary/Natural History Sales. Will trade. Major interest all types of fossils, Cambrian through Pleistocene; collection, preparation and pres. of collecting sites. Has for trade Cincinnatian fossils Badlands vertebrates, some mesozoic reptiles. Member of Dry Dredgers, Cincinnati, OH. Wants constant flow of fossils and to keep updated on Paleo. studies and information.

David & Janet Swanson
2850 13th St.
Grove City FL 34224
813-697-0244

Metal Framer. Will trade. Major interest vertebrates & invertebrates all ages fossils; sharks teeth; corals. Has for trade Florida fossil, shark teeth, echinoids, corals, shells, starfish Paleocene to to Pleistocene, vertebrates. Member of NC Fossil Club, Durham, NC, & SW Florida Fossil Club. Wants to further his knowledge and collection of fossils.

Joseph LeBlanc
3307 12th Ave SW
Calgary Alberta
CANADA T3C 0S7
403-278-3482

Economist. Will trade. Principal interest is dinosaur fossils. Also collects Western Canada invertebrates. Would like to exchange club bulletin, newspaper clippings and collection photos with fossil enthusiasts. Glad to send info on Alberta Officer of Alberta Paleo. Soc.

PLEASE NOTE THE FOLLOWING CHANGES OF ADDRESS OR CORRECTIONS:

Rick Batt
53 Ardmore Pl., L. Rear
Buffalo NY 14213
716-878-4736

Paleontology professor at Buffalo State College. Major interests ammonoid ecology, Devonian faunal dynamics and microstratigraphy, dinosaurs.

Pearl Burden
3897 SW Indianola Rd.
Benton KS 67017-9084

Paul L. Burdeno
515 Tamarack Court
Lompoc CA 93436

Member Paleo. Society, PRI, So. Cal. Paleo. Soc. Enjoys field work, preparation, and study. Major interest Paleozoic fossils and environments. Will trade trilobites, ammonites, and echinoderms from western U.S.

Gary D. Chilson
11861 NW 11 Street
Davie FL 33328-1220

Michel B. Davis
2520 Crestmoor Dr.
San Bruno CA 94066
415-873-4443
Email: Mike B Davis (AOL)@.

Electrical Contractor. Has been collecting since 1982. Interested in all ammonites. Will trade.

Paul E. Drez
8816 Cherry Hills Road, NE
Albuquerque NM 87111

Environmental Chemist. Will trade. Major interest invertebrates, particularly mollusca. Has for trade Tertiary invertebrates from TX, N.W. FL, AL, & VA; and New Mexico Pennsylvanian invertebrates.

Kathleen A. Filas
K. Fossils and Minerals
485 N. Main St.
Glen Ellyn IL 60137
705-545-2667

Owner of Rock Shop/Psychotherapist. Has some quality fossils to sell. Fun place to visit. May trade also Main interest dinosaurs and trilobites.

John J. Gorski
Rt. 2 Box 192A
Mannington WV 26582
304-795-4301

Maurice (Maury) E. Kaasa, Jr.
36 Third Street
Johnson City NY 13790-1817

Gary Kmett
P.O. Box 3458
Tuba City AZ 86045
602-283-6872

Geologist. Will trade. Has also fossil casts for sale and trade from around the world. High School & College Geology instructor with Natural History museum.

Bob Levin
117 Ewing
Smith Center KS 66967-3217
913-282-6904

Gerhard G. H. Muehle
11 E. Inverness Pl.
Tucson AZ 85737

Daniel Vento
17052 Hampton Chase
Strongsville OH 44136

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 $20 per household. Institution or Library fee is $25.00. Overseas fee is $20.00 with Surface Mailing of DIGESTS OR $30.00 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.

CYATHOCRINITES

MID-AMERICA PALEONTOLOGY SOCIETY

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FIRST CLASS MAIL

Dated Material - Meeting Notice