

Official Publication of <u>Mid-America Paleontology Society</u> Volume 20, Number 5 May-June 1997



# MARK YOUR CALENDARS

#### Jul 27 MAPS FIELD TRIP, POTLUCK PICNIC, & MEETING

At Karl & Lee Stuekerjuergen's, 1503 265<sup>th</sup> Ave., West Point, IA 52656. (319) 837-6690

- 10:00 1:00 Field trip to Burlington Formation near West Point: Crinoids, Blastoids, and Brachiopods
- 1:00 Potluck Picnic: Bring a covered dish or two and your own table service

Board & General Meeting combined following picnic

## Sep 16-19 IDENTIFICATION OF GEOLOGICAL MATERIALS

Denver Natural History Museeum

Courses provide an integrated overview of the nature, prevention, and treatment of damage to geological-origin materials, inclunding paleontology, among others. For catalogue, contact:

James Black

International Academic Projects

31-34 Gordon Square

London WC1H OPY

UNITED KINGDOM

ph. (171)387-9651; fx. (171)388-0283 email james.black@ucl.ac.uk

### Sep 20-21 FALLS OF THE OHIO THIRD FOSSIL FESTIVAL

Falls of the Ohio State Park, 201 W. Riverside Dr., Clarksville, IN

Highlights earth science as a hobby, vocation and source of neverending wonder. Features vendors, hikes, children's activities, identification, collecting, field trips, displays, teacher in-service workshops, fossil prep workshop.

> Sep 20: 9 am - 7 pm Sep 21: 9 am - 5 pm

For more information contact:

Alan Goldstein between 1-4:30 pm, Mon. - Fri. 812-280-9970, ext. 403

### Oct 24-26 FOSSILMANIA XV

Somervell County Expo Center, Glen Rose, TX

Annual sale and trade show for fossils and fossil-related items.

Fri: 9-6 Sat: 9-6

Sun: 9-2

Contact: William W. Morgan, 113 Shavano Dr. San Antonio, TX 78231

## Nov 15-16 ORLANDO, FL, FLORIDA FOSSIL HUNTERS

SIXTH ANNUAL CENTRAL FLORIDAFOSSIL FAIR

Florida National Guard Armory, 2809 S. Ferncreek Ave.

Nov 15: 9-6 Nov 16: 9-4

Contact: Terry R. Angell, 226 Palmyra Dr., Orlando, FL 32804. 407-277-8978. E-mail FOSSILFAIR@aol.com

### Apr 17, 18, & 19, 1998 MAPS NATIONAL FOSSIL EXPOSITION XX--CORALS

Western Illinois University, Macomb, IL

Fri., Apr. 17: 8 am - 5 pm Sat., Apr. 18: 8 am - 5 pm

Sun., Apr. 19 8 am - 3 pm

## **ABOUT THE COVER**

by Tom Cesario, Sugar Grove, Illinois

The cover photo of a dorsal spine of a Stethacanthid shark was taken by a collecting friend of mine, Jack Wittry. This spine was only present in the male of the species. I found this specimen in a huge slab while collecting in a Pennsylvanian period quarry in Northeastern Illinois. This slab also contained Petalodus shark teeth, as well as other fossils from that period. As of this time, the quarry has been abandoned and flooded, which makes collecting there impossible.

My identification is based on the following references:

- 1. Audubon. Field Guide to North American Fossils, p 456 picture, p 759 text.
- 2. Frickhinger. Fossil Atlas of Fishes, p 157.
- 3. Long. Rise of fishes 500 Million Years of Evolution, p 74.
- 4. The Book of Life, pp 86-87.

### 97/06 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-97/06 means 1997/May. Dues cover the issue of the Digest for the month in which they expire.

We do not sent 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 labelor 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 currently.) Library/Institution fee is \$25.

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

### EXPO XIX REVISITED

Old friends greeted one another and new friendships formed as MAPS members gathered for the  $19^{th}$  EXPO at Western Illinois University in Macomb, Illinois. Tables filled with fossils from all over the U.S. and various other parts of the world beckoned to all those in attendance. As someone observed, exactly as many fossils as came into the show went out of it; however, most had changed hands in the process.

Maggie Kahrs did another great job of editing the EXPO edition of the *Digest*. Warren Allmon, from the Paleontological Research Institute, gave a very informative keynote address on extinctions and pointed out that extinctions are not a thing of the past, as species are becoming extinct in our own time. The combination of silent and live auctions brought in a good sum of money for our scholarship donation to the Paleo Society.

Thanks to Karl Stuekerjuergen and Doug DeRosear for organizing the show and to the MAPS officers and members who helped with such things as running the front desk and stuffing packets.

Already we're thinking about our 20<sup>th</sup> show--Corals. If you can contribute an article for the EXPO Digest, be sure to let Maggie Kahrs know.

## **"TURRITELLA" AGATE MISNAMED**

The March issue of the *Digest* carried an article about "Turritella Agate." However, it was brought to my attention at EXPO that the "Turritella" agate was *Goniobasis carterii*, then renamed *Oxytrema temera*.

(I can't remember who gave me the note.)

### BEWARE!!!

If you get a phone call offering you Oklahoma trilobites, make sure you get the fossils <u>BEFORE</u> YOU PAY. At least one member reports not getting the fossils they paid for.

## LOST AT EXPO

Lost: reading glasses in case. Last seen at front desk. If anyone found them, please return to Sharon Sonnleitner, 4800 Sunset Dr. SW, Cedar Rapids, IA 52404. (319) 396-4016.

### SEDIMENTARY NOTES

Eric Göhre, Oroville, California, writes: ...I really enjoy the EXPO *Digest*, especially the topics related to the area of the western United States. I do hope more people from Northern California will join MAPS. I feel sort of isolated. I have been in contact with MAPS members Danny Steward or Seattle and David Cassel of Watsonville, California. Both meetings have been very enjoyable experiences and would never have happened without MAPS. Most collectors have their own unique and interesting collections to share.

Dear Sharon,

Just a few lines to thank you and the rest of MAPS officials for another good Expo. I know it entails a great deal of work. I really appreciate it. I think that I have only missed two since it was started. I look forward to it every spring. I had pretty good success selling and trading the fossils that I brought. I enhanced my collection considerably and didn't have much money left by the time we got home. It is a good thing that my wife comes with me. She minds the tables while I rove around looking at other people's specimens wondering which ones to acquire. It takes a lot of decisions.

I am just waiting to get out and do some gardening, but it has been so wet and cold, a very unusual spring.

Sincerely, Les Harris Ontario, Canada

## OHIO FOSSILS BOOK AVAILABLE from *Dry Dredgers*. Greg Hand, ed., My 97

Steve Schafersman reports that the newly revised—and long anticipated—*Ohio Fossils* book has arrived at the Ohio Geological Survey. The \$18 book (tax and handling are extra) updates a much loved, but much out-dated publication of the 1950's. The new *Ohio Fossils* book can be ordered by phone from the Survey at 614-265-6576.

..."The book is very impressive," (Steve) writes. "The plates are excellent. I was surprised at the diversity of fossils occurring in Ohio; I am not that familiar with the state other than the local fauna. However, I expected more plates of Cincinnati brachiopods—I thought this section a little thin, considering the number of species that occur here.

## **VERTEBRATES...WHERE DO "WE" START??**

by Nicholas Angeli, Fenton, Missouri

The most commonly selected answers to this question would be *Homo sapiens*, *Neanderthalenis*, *Cro-Magnon*, *Homo habilus*, and even *Australopithecus*. Individuals with greater knowledge on the subject of early man might even give answers ranging through all the species of *Australopithecus*. Then there would be those who know of the very first anthropoids, like *Dryopithecus* or *Oreopithecus*, the ancestors to all higher primates. There we stop! I suppose man does not like being related to quad pedal and non-sentient relatives. So the trail ends here, and for most of us, man begins. Simple enough? Not really. It goes back a lot further, deep into geologic time, justified as far a 460 million years ago, and could feasiblely cross the PreCambrian boundary.

Chordates that have been landlocked for millions of years can retrace their ancestral steps back to the seas of the Paleozoic Era. The fossil record leads us on a doubtless trail back to middle Ordovician times. Here we find clues of some of the first bona fide vertebrates ever recorded geologically. These, of course, are the primitive fishes of the Class Agnatha, collectively called Osteostraci (Ostracoderms). Jawless, sightless and covered with bony plates, they were some of the first chordates. From the sediments of Bolivia and Australia, three dimensional specimens named Sacabambaspis have been recovered. It is from this established point in time that we can "document" the beginnings of the vertebrates. Some upper Cambrian and lower Ordovician bone-type remnants have been discovered in North America. These armor-like plates are thought by some to agnathans, but by others to be arthropod fragments.

Vertebrates are actually a subphylum of the Phylum Chordata, although the two are often used interchangeably. Correctly, some chordates have no vertebrae and only possess the notochord (flexible rod-like cord providing an axis for muscles to attach). These phyletic terms are often used as synonyms, which can be misleading. Since my high school days (late 60's), a multitude of discoveries and new theories have been made in the field of paleontology. Theories

once etched in stone crumble as our database expands. Other than the subphyla protochordates, was there kinship to a closer phylum? other some Paleontologists now say yes. Surprising to many, one of these ties is to the Echinoderms. Their morphology, including structure, is very distinct and not like any other of the invertebrates. This connection to vertebrates is established in the larval. These early stages of life tend to be insulated from evolutionary changed, and it is in these stages that we are able to make some relationships. Two levels of thought exist in this theory:

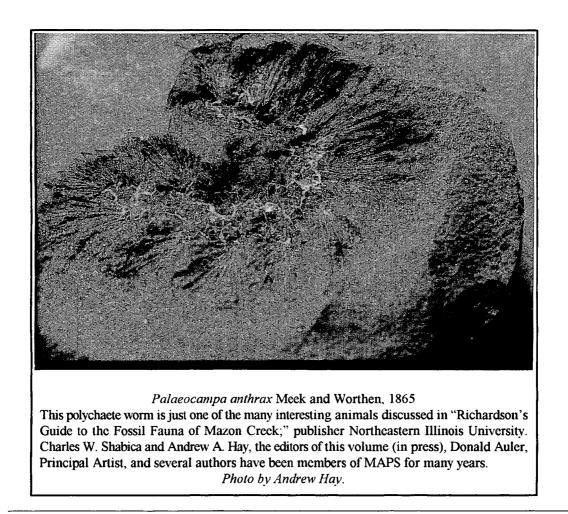
- 1. Early vertebrate stages represent echinoderms
- 2. As per the fossil record, echinoderm and chordate larval forms are hard to distinguish from each other.

Keep in mind that echinodermata is not a class of the Phylum Chordata, but an ancestor of the latter which evolved separately. Although these chordates and non chordates have very obvious similarities, their exact relationship has not been pinpointed. There are some theories on this transition from echinoderms to the chordates. One involves the echinoderm fossil Cornuta. These creatures were stalked animals similar to the primitive attached echinoderms, carpoids. Removing it from its sessile life style and repositioning it horizontally, perhaps on a mud flat, one might conclude that its locomotion was derived from "tail wiggling." Common elements found in both primitive echinoderms and chordates are gill slits, mouth, anus, postanal tail and an internal supportive framework, all found in early human development.

Another candidate worth mentioning that evolved around this subject was a group of echinoderm, the *Stylophoras*. Briefly, this fossil shares some affinities with chordates. Similar characteristics include branchial slits with a flap type covering, postanal tail with a notochord-like center and a nerve cord. It is thought that these organisms used their gill slits for filter feeding as do some primitive chordates. In either situation, and as a whole, the morphology of chordates exhibits a close relationship with echinoderms.

## **MAPS DIGEST**

Expansion of the fossil record has enabled us to hypothetically push the origin of chordates in Cambrian times. Preserved in the Burgess Shale of British Columbia, we find worm-like organism termed *Pikaia*. Typical trademarks are the notochord and zigzag muscle bands. Other obvious details preserved are a distinct trunk, head, and fin wrapped around the postanal tail. *Pikaia* not only pushed chordates back into early Paleozoic times, it surprisingly put them in the same time sequence with invertebrates for one of Earth's major episodes, the explosion of life, the Cambrian Radiation Event. So the trail ends here? Not really. Who are the ancestors of *Pikaia*? Was the latter an evolutionary experiment? Does the possibility exist that chordates breached the PreCambrian boundary? Is it a dead end or are "we"related? Obviously, the nature of these relationships is not all known, and this hotly debated subject will continue. Again, these may be some of the sought after relatives that we seek to understand and link to, perhaps, ourselves. Truthfully, we may never know.



## INDIANA FOSSIL COLLECTING SITES by Paul Godollei

## from Rock Chatter, via Dry Dredgers, Greg Hand, Ed., Ja 95

You can find a whole acre of crinoid stems up to one inch in diameter 1.5 miles southwest of New Ross, Indiana, in southeastern Montgomery County. The dump is next to an old water-filled quarry. Take the road south and west out of New Ross past the cemetery; turn on the first road leading west and continue west 0.5 miles. Where the road turns north, look for the quarry west of the road, behind a house near the corner and east of Raccoon Creek. Be sure to ask for permission to look for fossils.

The old swimming hole that used to be the Silverville quarry in western Lawrence County is known for its Mississippian fossils. Many are located in the massive limestone ledges at the west end of the quarry, and in the rubble nearby. Look for the quarry immediately north of Indiana Highway 158, east of Silverville 0.8 miles.

If you like "Indian Beads," look in the Stobo lens near Bloomington. This reef-like lens is a mass of limestone, shale, and Mississippian fossils. The lens is exposed in the road cut at Highway 46.

The abandoned Seymour Gravel Co. Quarry in southwestern Jackson County is a fine place for ... Mississippian marine fossils. Go in late summer or fall to avoid the mud on the quarry floor. Go three miles straight west from Medora to a T junction. The quarry is on the south side of the side road and 0.1 miles east of the main road. There is an old quarry road

leading to the spot.

The Salem limestone of Mississippian age is exposed where the Chicago, Indianapolis and Louisville RR cuts through Spergen Hill just south of the village of Harristown, east of Salem in Washington County. Go 2.7 miles west of South Boston along Indiana Highway 160 and turn north 0.5 miles. The cut is east of the secondary road. Many micro snails ... are found there along with trilobites, sea lily stems and brachiopods and corals.

The crumbled rock that slumps down from the cut is full of microfossils. Take a sackful home and boil it for half an hour in water with strong detergent or washing soda. Strain through a cheesecloth and sort out the microfossils under a powerful magnifying glass or stereo binocular microscope. Life out the fossils with a moist fine watercolor brush and mount on cardboard microslides with adhesive.

## MAKE A MOLD FROM YOUR SPECIMEN by Glen Kuban, paleo@ix.netcom.com, Cleveland, Ohio

from Paleo Newsletter, Jean Wallace, Ed., Jan 97

Sometimes we want to have our cake and eat it, too. That is, we want to keep a specimen in our collection AND to make something with the specimen—jewelry and the like. The solution is to make a mold of our specimen and then make casts for other uses. This way, we can keep our specimen for show, too. Of course, if we want pewter or silver or gold casts, we can use the first cast to make a mold of material suitable for metal casting.

A good way to make molds from your collection for further casting is to use any number of RTV (Room Temperature Cure) silicone compounds that are mixed as liquids in two parts (base and catalyst) and poured over the specimen. RTV silicones produce flexible, durable, long-lasting, highfidelity molds that pick up microscopic detail. Most cured silicones are somewhat less elastic than latex molds, but still plenty flexible for most molding applications. And they have a number of advantages. Unlike latex (a natural material made from trees), cured RTV silicone is much less prone to decay, and will resist temperature extremes, chemicals, and harsh casting compounds (such as resins and urethanes). Some will also release well with little or no release agent. Different varieties of RTV silicones and catalysts are also available to provide different cure rates and viscosities (some are thin and easily poured, others

thick and paste-like). Major RTV silicone manufacturers include GE, Dow Corning, Silicones Inc., and Rhordosil. GE and Dow make the most expensive ones, but they are very high quality. There are some silicones that withstand higher temperatures than the specific ones I mentioned, which might be better suited for some direct metal casting.

For best results silicones should be de-aired (put in a vacuum to remove air bubbles) before pouring, but this is not practical for most home and field situations, and one can get good results by using the thinner viscosity silicones (such as Dow 3110, GE11, or Silicones Inc. GI-1000). It also helps to pour it in a thin stream (so the bubbles break on the way down) and to temporarily incline the specimen so that the silicone flows across it, and to vibrate the mixed silicone before and after pouring (before it starts to set up). If necessary, one can also brush the silicone into tine nooks and crannies before pouring the rest.

Glen's background: "I have a BA in biology and teaching certificate from the College of Wooster, but currently am working as a computer programmer. I also have a small business making and selling PaleoScene." I'm a lifelong fossil enthusiast and have done extensive work on dinosaur tracks i Texas, where I helped resolve a controversy about tracks. A web site on my track is at http://members.aol.com/paluxy/paluxy2.htm. Currently I'm president of the Fossil Society of the Cleveland Museum of Natural History, and am a member of MAPS and several other paleo societies."

## MAPS DIGEST

## **ADVERTISING SECTION**

Ads are \$5.00 per inch. Send information and checks payable to MAPS to : Mrs. Gerry Norris, 2623 34<sup>th</sup> 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  $15^{th}$  of the month. We do not bill. Ads do not run in the EXPO issue (April). Ads can be printed in different sizes of type to fit a 1" space.

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+(Plus)	\$2.50 ea. Fo	r shipping & handling.

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Donald W. Crum 7028 Georgetown Rd Nashville IN 47448 812-988-6691 NodMurc@.AOL.com

John D'Orazio 95 Hill Street Bloomfield NJ 07003

Ron Dalton 320 Lawton St. Pottsville PA 17901-2620 717-622-4509

Michael J. Davis 5875 Fawnridge Ct Cincinnati OH 45239 513-923-1650

Don Franchi 854 Garlow Blvd Pittsburgh PA 15239 412-793-1651

Virginia Friedmon 903 Red Oak Dr. Mansfield TX 76063 817-473-6859

Alan Goldenberg 111 Artesia Ln. Oak Ridge TN 37830-7818 423-482-1896

Rynn Hollrah 8 Norwesca Rd. Chadron NE 69337 308-432-5877 Commercial Artist. Will trade. Wants info on sites, trips, etc.

Sheet Metal Worker. Major interest fossils of northeastern IL. Chicago area. Member of Greater Oaklawn Diggers, Oaklawn, IL. Wants to learn more about the fossils he collected.

Institutional Science Teacher. Will trade. Major interest crinoids, blastoids. Has for trade crinoid stems.

Fossil Collector. Looking to correspond with other MAPS members. Buy, sell and trade fossils.

Delivery Person. Will trade. Major interest dinosaurs, all areas of paleo., fossils and replicas. Has for trade ferns, Carboniferous; brachiopods, mid-Devonian; all from PA. Member of Dinosaur Soc. Soc. of Vert. Paleo., and PRI. Wants to broaden his resources in contacting other serious hobbyists and learn more.

Gem cutter. Wants to get in contact with other collectors.

Draftsman

Wholesaler--fossils, minerals.

Dealer. Will trade. Specializing in White River Oligocene vertebrate fossils, casts, and models. Interested in all fossils.

Henry Hoppe 14990 Rome Rd Manitou Beach MI 49253 517-547-3754	NL Programmer. Major interest dinosaurs. Wants to keep informed and up to date on shows and new finds; meet new collectors.
Ben S. Jaffe 414 E Burdick Chesterton IN 46304 773-375-7800	
Ewin Knezevich 2430 Orchard Lane Godfrey IL 62035-4006 618-466-1081	Retired. Member of Eastern MO. Paleo. Soc.
Carol Lahy 325 San Miguel Ct. Winter Springs FL 32708-2502 407-327-7050	Glass Artist. Will trade. Interested in all fossils. Has for trade Eupathagus antillarum (echinoid). Member of Florida Fossil Hunters. Wants to learn new places to hunt while traveling on business.
Mark W. Laugesen 56 Ford East Dubuque IL 61025	Computer Modeling Technician-John Deere. Will not trade. Major interest Invertebrates, esp. trilobites, crinoids, and ammonites. Paleozoic era. Wants to keep up on latest discoveries.
Dave Mielke P.O. Box 380 Botkins OH 45306-0580 937-693-6011	Teacher. Will trade. Major interest trilobitcs, blastoids, sharks. Wants to learn more about paleontology.
Mark & Robyn Peterson 550 Glacier Lane N Plymouth MN 55447 612-473-0428 fx: 612-625-2174 PETER026@MAROON.TC.UM	Scientist. Major interest trilobites. Interested in collecting. N.EDU
Lori Kay Phipps 6074 W. Horseshoe Rd. S. Morgantown IN 46160 812-597-2028	Domestic Engineer. Wants to learn more about paleo.
Charles & Susan Piovarchy P.O. Box 353 Chippewa Lake OH 44215	
Stan Pogorelskiy 63 West 68th Street #8 New York NY 10023 212-501-7074 Stanrps@aol.com	Student (97). Will trade. Has for trade trilo- bites from Russia. Member Russian Paleo. Soc., St. Petersburg, Russia (office in NY).

e L Kelly Ramage 2522 Community Ave Glendale CA 91020 818-248-3137 Chondrite@AOL.com

Gary D. Rošenberg Geology Dept. Indiana/Purdue University Indianapolis IN 46202-5132 317-274-7484 fx 617-274-7966

Ralph & Sandi Russell 248 Wekiva Park Drive Sanford FL 32771 407-322-4542 Classical Numismatist. Will trade. Major interest amber, Permian vertebrates. Has for trade Permian vertebrate material. Wants to help support field of paleontology.

Geology Professor. Will not trade. Major interest molluses and brachiopods. Also looking for community and stratigraphic collections for use in paleontology classes. Wants contact with collectors.

Retired police chief. Will trade. Major interest skulls, teeth, marine material. They love all fossil material. Also make reproductions. Have for trade shark teeth, dugong, elephant material. Members of Central Florida Fossil Hunters. Want to broaden knowledge and interest with people all over the country who love fossiling and have a desire to preserve these treasures.

#### PLEASE NOTE THE FOLLOWING CHANGES OF ADDRESS OR CORRECTIONS:

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John Ashburn, Jr. 95 Quail Hollow Ct. Naperville IL 60563 630-983-5503

Jenny Barnes 3138 Braeburn Circle Ann Arbor MI 48108 313-971-0237

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David M. Cassel P.O. Box 2858 Aptos CA 95001 408-661-0310

David Galusha 2670 Lehman Rd. #704 Summit View Apartments Cincinnati OH 45204

Charles Gaus 16280 W. 6000 S. Rd. Buckingham IL 60917 Attorney. Will not trade. Dealer, amber and other fossils.

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Mr. R. D. Hamell Monroe Community College 1000 E. Henrietta Road Rochester NY 14623-5780 716-385-4542 fossils@frontiemet.net

Bess Hamers 652 Benjamin Way Phoenix OR 97535-7714 541-535-6269

Michael Henderson Burpee Museum of Natural Hist. 1213 La Belle Ave. Rockford IL 61103 815-965-3132

Nigel C. Hughes Cincinnati Museum Center 1720 Gilbert Avenue Cincinnati OH 45202 513-345-8509

Gerald J. Kloc 1407 Genesee St. Rochester NY 14611 716-436-4889 KLOG@db1.cc.rochester.edu Graphic designer. Wants info on sites, etc.

Todd Sanders 1227 South Main St Princeton IL 61356 815-875-3761 wk: 815-875-2001 fx: 815-875-2031 nashman@theramp.net

Anna Stanley Wil 16803 Hartwood Way Cre Houston TX 77058 281-286-2205 Anna.Stanley@Tenneco-Energy.Com

W. Duane Williams P.O. Box 941335 Maitland FL 32794 407-831-2235 407-260-8893 Duaneteg@Sprintmail.Com Will trade. Major interest marine inverts., Cretaceous, TX.

Marketing Communication Specialist. Will trade. Major interest vertebrate and invertebrate. Member of Florida Fossil Hunters. Wants continuing education and communication with other amateur paleontologists.

> North Coast Fos.Club c/o Glen Kuban 14139 Pine Forest Dr. #310 N. Royalton OH 44133 216-237-4508

Ken Olson 1009 W. Boulevard Lewistown MT 59457 406-538-5123

Jean-Guy Pellerin 2288 De Lorimier Montreal, Quebec CANADA H2K-3X3 514-524-7836

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Stephen A. & Roxane Wilson & Tracy P.O. Box 1308 Arcadia FL 33821 813-993-1649 Name Change: was Friends of Cleveland Museum.

Collecting since 1972.

### **MAPS DIGEST**

### Volume 20 Number 5

#### May-June 1997

The <u>Mid-America</u> <u>Paleontology</u> <u>Society</u> (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 \$20.00 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 2nd Saturday of October, November, January, and March and at EXPO in April. A picnic is held during the summer. October through March meetings are scheduled for 1 p.m. in Trowbridge Hall, University of Iowa, Iowa City, Iowa. One annual International Fossil Exposition is held in April.

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

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### Dated Material - Meeting Notice



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