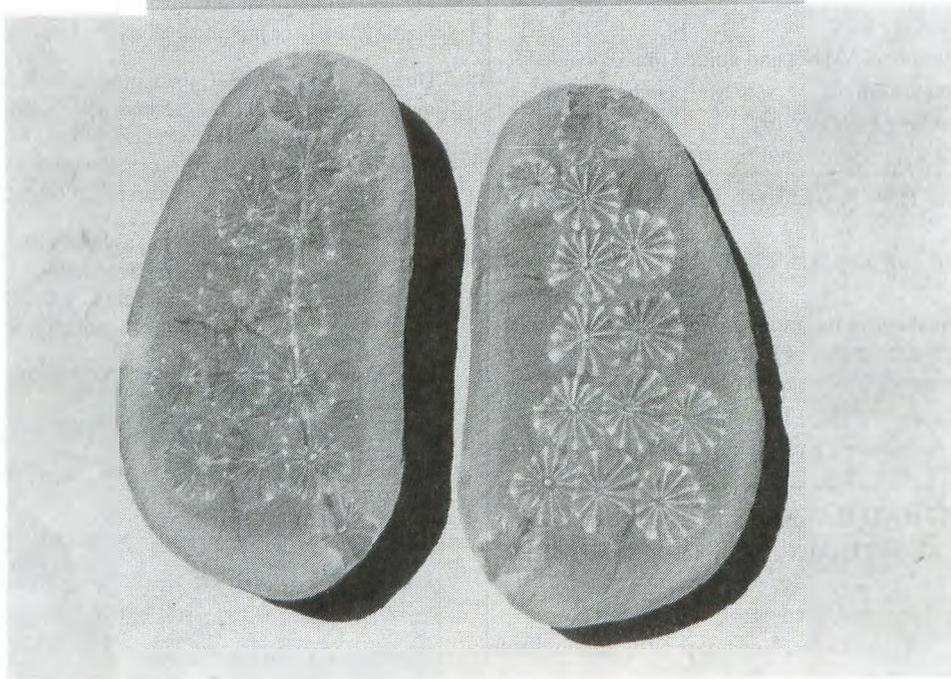
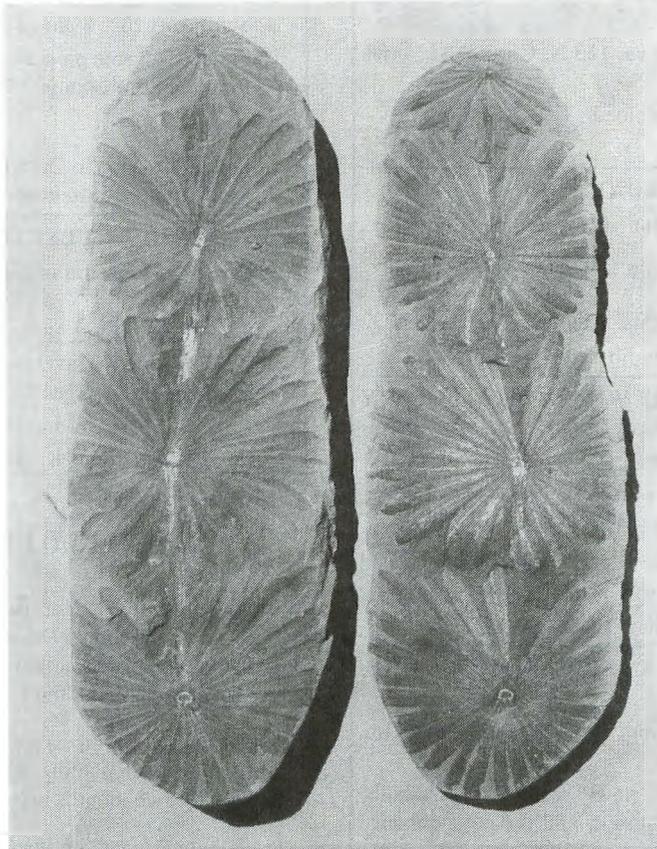


M.A.P.S. *Digest*

Official Publication of
Mid-America Paleontology Society

Volume 22, No 9 — Volume 23, No 1
December 1999-January 2000



MARK YOUR CALENDARS

Jan 22 DINOSAUR DISCOVERIES

Lizzadro Museum of Lapidary Art, 220 Cottage Hill, Elmhurst, IL

Children become dinosaur detectives to learn about the world of dinosaurs. Preschool to Adult — 50 minutes — 2:00
Members/Free; Others/\$3 Reservations: 630-833-1616

Feb 19 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

Feb 19 FAMILY FOSSIL LEARNING DAY

Paleontological Research Institution, 1259 Trumansburg Rd., Rte 96, Ithaca, NY

11 a.m. - 2 p.m.
Interactive projects for kids and parents. Members/free; Others/\$2
607-273-6623 www.englib.cornell.edu/pri

Feb 19-20 30th ANNUAL SHOW OF THE WILLIAMSON COUNTY GEM & MINERAL SOC. (Includes Fossils)

San Gabriel Park Community Center, Georgetown, TX

Sat. 10 a.m. - 6 p.m.

Sun. 10 a.m. - 5 p.m.

Austin Paleo Soc. will provide fossil identification and demonstrations of fossil cleaning techniques.

Contact: Rochelle Margolis 512-864-0334

Feb 26 ALL DAY FIELD TRIP TO AMERICAN MUSEUM OF NATURAL HISTORY

Paleontological Research Institution, 1259 Trumansburg Rd., Rte 96, Ithaca, NY

Guided tour by PRI paleontologist to newly renovated fossil halls, the world's tallest free-standing dinosaur, and the newly opened Hall of Planet Earth.

Chartered bus, admission to AMNH and guided tours included in package: Adults/Children: \$60/38 members., \$65/43 nonmembers. Register by February 19.

607-273-6623 www.englib.cornell.edu/pri

Apr 1 AMBER: THE GOLDEN GEM OF THE GEOLOGICAL PAST

Lizzadro Museum of Lapidary Art, 220 Cottage Hill, Elmhurst, IL

Doris Kemp presents theories on origin of amber and locations of major deposits. Learn different types of amber, etc. Special amber display. Bring your amber for discussion.

Slide/Lecture — Adult — 60 min. — 2:00

Free with Museum Admission Reservations: 630-833-1616

Apr 12, 13, 14, 15 CENTRAL ILLINOIS FOSSIL SHOW

DAYS INN, Hwy 67 in Macomb, IL, 1400 N. Lafayette St. Macomb, IL

Wed. and Thurs. Day and Evening

Fri. and Sat. After MAPS show hours or by appointment

For more information, contact:

Jim Wyatt, 1517 Greentree Lane, Garland, TX 75042 Tel: 972-

494-3443

Apr 14, 15, & 16 MAPS NATIONAL FOSSIL EXPOSITION XXII—TEETH

Western Illinois University, Macomb, IL

Fri., Apr. 14 8 am - 5 pm

Sat., Apr. 15 8 am - 5 pm

Sun., Apr. 16 8 am - 3 pm

Friday's keynote program on shark teeth will be given by Bob Purdy from the Smithsonian, Museum of Natural History, in Washington, DC

Full information in December-January Digest. Request copies from Dale Stout. (Address on back page).

Apr 29 FOSSIL COLLECTING FIELD TRIP

Lizzadro Museum of Lapidary Art, 220 Cottage Hill, Elmhurst, IL

Trip to Braidwood, IL, to collect Mazon Creek Fossils at pit 11. Led by Don Auler. Travel by motorcoach, take lunch, wear old clothes. Rain or shine. Ages 9 - Adult — 9:00 to 3:00

Members/\$15; Others/\$20

Reservations Required: 630-833-1616 (Call Early)

990/01 DUES ARE DUE

Are your dues due? You can tell by checking your mailing label. It reflects dues received by December 28. The top line gives the expiration date in the form of year followed by month--990/01 means 2000/January. 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 and stamping 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 check payable to MAPS and mail to:

Sharon Sonnleitner, Treas.

4800 Sunset Dr. SW

Cedar Rapids, IA 52404

ABOUT THE COVER

sent by Jim & Sylvia Konecny, Prescott, AZ

This month's cover photos are nodules from Mazon Creek, Braidwood, Illinois. The upper one is *Annularia stellata* (Schlotheim), and the lower one is *Annularia sphenophylloides* (Zenker).

FROM THE EDITOR

Pages 14-16 contain all the registration and accommodation information for EXPO XXII — TEETH. Table reservations normally fill up quickly so it is wise to send yours early. There is no charge for admission to the show for those of you who might want to attend but do not want a table for selling or trading.

Maggie Kahrs is the EXPO *Digest* editor, so please send any articles on teeth to her. The past several years we have had thick EXPO issues, thanks to the generosity of the authors who contributed their articles. Please continue to support this worthwhile effort.

This issue of the *Digest* is, once again, a double issue.

As we step across the millennium line, I hope all your fossils are Y2K compliant so they do not disintegrate at the stroke of midnight on New Year's Eve.

MAIL LABEL—DUE DATE FOR 2000+

Some members have already paid dues for the year 2000 or later, and the method I am using to code due dates on the labels may not be apparent to all. Therefore, please note this explanation.

So that the computer will pick out and print address labels for members with expiration dates past 1999 as well as those in '99, I am using the form "99 / __" for due dates starting in 2000. If your due date is in 2000, your label will start with 990/__. Similarly, 992/__ indicates a due date in 2002, etc. With the system I now have the database on, I probably could revise the method, but I have not yet had time to experiment with it. And since I know this method works, I probably will be using it for quite a while.

DIRECTORY INFORMATION

Now is the time to send changes and/or corrections (including area codes) for the 2000 Directory. A complete Directory will be published this year, but it will only be accurate if all members make sure their addresses, etc., are current. Deadline is February 1.

ATTENTION AMATEURS: NOMINATE A PROFESSIONAL FOR MAPS' RICHARDSON AWARD

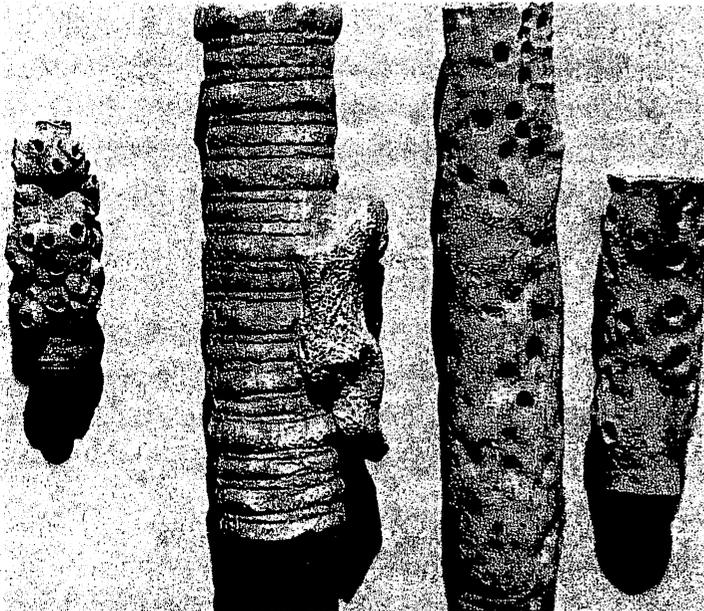
A few years ago MAPS established the Eugene Richardson Award to honor a professional paleontologist who has significantly helped amateurs in their pursuits of paleontology. So far we have honored only one person, Joseph Emeility, with the award. Although he was a very worthy candidate, he is the only person who has been nominated for the award.

We're sure there are many other professionals out there who have had a significant impact on amateurs. This is your chance to express your gratitude to them for their assistance. Since we want the award to be meaningful, we ask that candidates have shown a commitment to a number of amateurs over a period of years. If you know someone who fits that description, send us his/her name and a list of what he/she has done for you and others you know. Then contact others who have benefitted from his/her assistance and ask them to do the same. You can also ask your candidate to supply you with information on what he/she has done. Things to consider include help with identification, encourage-ment in collecting and/or in-depth study, help with or collaboration in publishing articles, sharing use of facilities and/or equipment, encouragement of young people and/or clubs, etc.

When we established this award, we did not intend for it to be a yearly award, but we do hope to recognize deserving professionals who have enabled amateurs to pursue their interests at a level that might not have been possible without the help of the professional. So please take the time to acknowledge someone who has helped you achieve a high level of success in your pursuit of paleontology.

THOSE LOWLY CRINOID STEMS

BY Jim & Sylvia Konecny



1. Crinoid stems of different ages with various kinds of fauna

Have you ever wondered why anyone would collect crinoid stems? In our 40 years of collecting we have found that 99% of the collectors that pick up crinoid stems are beginners. What about the other 1% — why do they collect them? We belong in that 1% minority. Some people call them “pop rocks” because they pop when thrown into a campfire. There certainly must be better reasons than that to collect them.

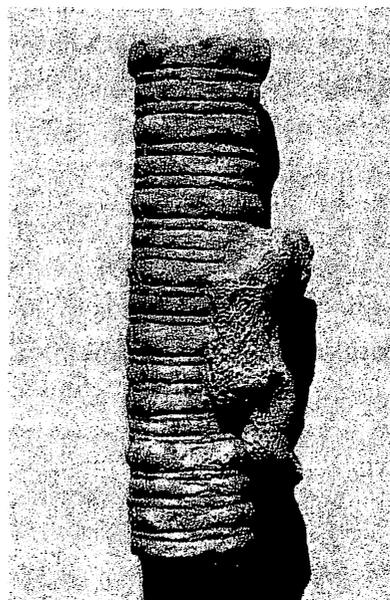
Here is the reason we collect them. Much can be learned about the ecology and the environment of an area by studying epifauna. Crinoid stems make an excellent host for these critters. Epifauna are animals that choose to live their entire life permanently attached to a firm surface. In this paper we have chosen to use the term epifauna to mean any organism that has permanently attached itself to another organism. A variety of organisms (brachiopods, gastropods, corals, bivalves and crinoids stems) have been utilized as hosts. There is a variety of reasons for animals to choose to be epifaunal. Sparks, et al^① describe these as follows:

(1) **SUBSTRATE.** The epizoan may have settled on a host shell quite incidentally because it constituted available hard surface needed for at least part of the

epizoan's ontogeny: or the settlement may have been accidental or chance, with the epizoans failing to settle upon such hard surface being casualties.

- (2) **PROTECTION.** The shell of the host may have been a substance which could be bored into or dissolved away to provide a safe haven for the developing epizoan.
- (3) **FEEDING ADVANTAGE.** Some organisms may have benefitted from feeding currents generated by the hosts.
- (4) **SOURCE OF FOOD.** Settling upon selective areas of the host's shell may have provided the epizoan with anchorage from which it could conveniently eat away at the soft tissues of its host.

The relationship between host and epifauna can be symbiotic, mutualistic or parasitic. In most instances it is impossible to determine to which of these relationships the epifauna belong since it is not known whether the attachment was made while the host was living or dead.

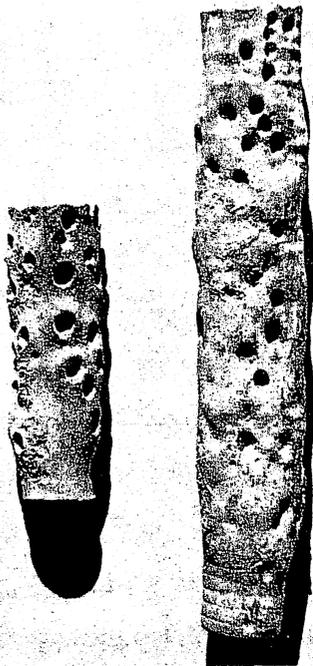


2. Bryozoa encrusting Devonian crinoid stem, Tennessee.

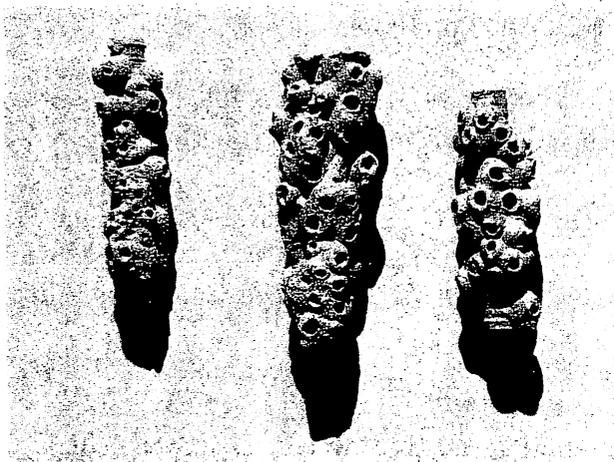
We have found epifauna on crinoid stems from the Ordovician to the Permian. The most common organism that we have found is Bryozoa, fig.2. We have found them on specimens from all of the above ages.

Crinoid stems with perfectly round borings with no or very little swelling around them, fig. 3, are attributed to be gastropod borings according to Pabian.^② We have found these borings on Mississippian, Pennsylvanian and Permian age specimens. This is not to say that they did not appear on specimens of other ages — we just haven't found them.

Then there are the scars which are the work of worms. These appear as perforated lumps that are irregularly spaced, fig. 4. They generally are clustered and sometimes are so close together as to completely obscure the crinoid stem.

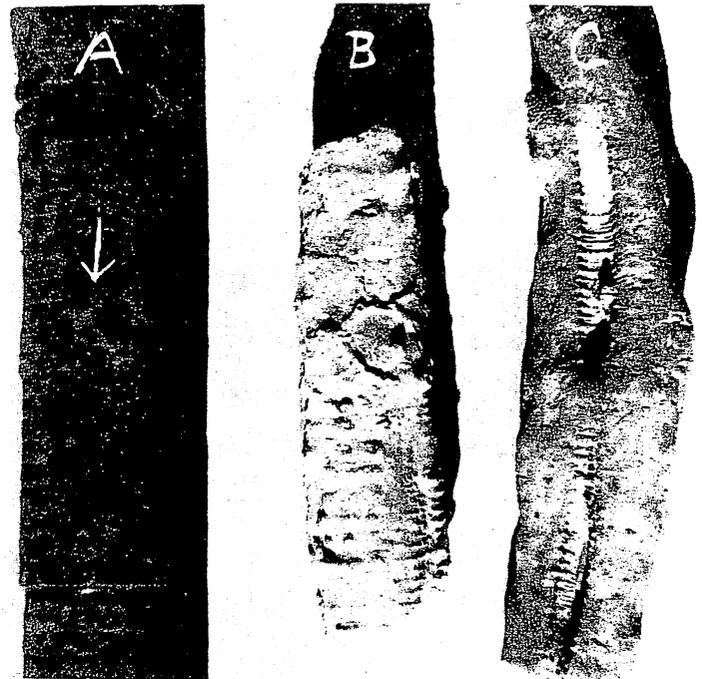


These are attributed to parasitic worms of the Phylum Platyhelminthes² and are akin to the present worms of the genus *Myzostomum*.³ The round holes were made by the worms, but the lumps are the work of the crinoid trying to mobilize against the invader by producing tissue growth. They have been placed in the genus *Myzostomites*, and although they are reported to appear from the Ordovician to the Jurassic, we have found them in Pennsylvanian and Permian deposits only.



4. The work of parasitic worms on Pennsylvanian age stems, Texas.

Inarticulate brachiopods, fig 5A, are also frequent "guests" on crinoid stems. Most of these belong to the genus *Crania* or *Petrocrania*. These can be found as individuals or in small clusters.



5A. Inarticulate brachiopod, Pennsylvanian of Illinois
 5B. Coral on Devonian specimen from Tennessee.
 5C. Work of unknown organism, Devonian of Tennessee

Corals are also found attached to crinoid stems, fig. 5B, although not as frequently as the preceding animals. We have found a number of genera, both colonial and solitary, on stems of Devonian age.

Fig. 5C shows a fairly deep channel or trench. We have seen small irregular canals on brachiopod shells that are the work of sponges, but this one on a Devonian stem appears to be too large for the work of a sponge. It remains unidentified.

We have also found small articulate brachiopods, algae, tube-building worms and even a crinoid holdfast as guests on these stems. Some stems display multiple infestations. One specimen in our collection has a coral, bryozoan and an inarticulate brachiopod attached to it.

In general, the presence of epifauna is an indication of nutrient rich water. However, many questions have arisen from our collecting experiences. Some locations have produced epifauna on a variety of organisms, including crinoid stems, while others have produced epifauna on crinoid stems only, and others on organisms excluding crinoid stems. Some locations have a variety of epifaunal while others may have only one or two. What elements are responsible for these differences? Answering this question can result in a

very long and thought-provoking study.

So you see, many interesting things can be found on crinoid stems. Give them a look — you may be surprised. They may have borings on them, but they are not boring.

REFERENCES:

1. Sparks, Diane K., Richard D. Hoare & Robert V. Kesling. 1980. Epizoans on the Brachiopod *Paraspifer bonockeri* (Stewart) from the Middle Devonian of Ohio. University of Michigan, Papers on Paleontology, No. 23.
2. Pabian, Roger K. 1970. Record in Rock. University of Nebraska, Educational Circular No. 1.
3. Turek, V., J. Marek, & J. Benes. 1990. Fossils of the World. Arch Cape Press.

EDIACARIAN FOSSILS

by Bruce L. Stinchcomb

This is a note in reference to comments made by MAPS members F. H. Lewis and Frank Holmes in the July-Sept. MAPS *Digest*. First, regarding the high level taxonomic position of Ediacarian fossils: there is no “officially recognized” designator or designation of these fossils as to what they are. Science doesn’t work that way with official “gurus,” whose pronouncements are the “final word.” Rather, it works in a more democratic (and messy) way through publications which are reviewed and refereed by other scientists. Redundant, inaccurate or trite information is blocked by the review process, but legitimate differences of opinion or interpretation which is based upon bonafide new information will allow controversial opinions into the “literature.” Ediacarian fossils are controversial and are open to multiple interpretations as to what they represent. This controversy on them currently falls into two main camps.

4. Those authors who consider Ediacarian fossils to be Precambrian representatives of modern phyla.
5. Those authors who consider Ediacarian fossils to be representatives of a totally extinct group of organisms. This designation suggests that Ediacarian organisms may not even have been plants or animals but possibly representatives of another kingdom (fungi, protists). This is the reason these fossils are often referred to as the Ediacarian Biota. Fauna=animals, flora=plants, biota=all other kingdoms.

Regarding Frank Holmes specific comments in the July-Sept. MAPS *Digest*:

1. His spellings of the generic names are correct.
2. In reference to *Kickinsonia*, I refer to its application to the Newfoundland Ediacarian fossils.
3. The Mistaken Point fossils have not been named. They are also quite distinct from other Ediacarian occurrences. Some forms are elongate like *Dickinsonia* but do not represent that genus.
4. As Frank Holmes points out, the names themselves are valid names, but their application to the Mistaken Point fossils is not.

Some publications of interest on Ediacarian fossils and organisms:

- Glassner, M. F. The Dawn of Animal Life. Cambridge University Press.
- McMenamin, Mark A. S. The Garden of Ediacara. Columbia University Press.
- Life Grown Up. National Geographic, Vol. 193, No. 4 April 1998.
- Evolution’s Odd Experiment. Discover, March 1997

CHEMICAL FOSSIL CLEANING

from *The Rockfinder*, Tom Noe, ed. 10/99. via *The Tully*, Sam Maselli, ed. 11-12/99 - 1/00

KEROSENE

Kerosene is a more expensive than gasoline, but it is much less flammable. It is also less expensive than solvents such as Stoddards Solution or Varsol. It can be used for removing fossils from many soft shales, siltstones, and limestones with a high silt-clay content (not for hard shales or fissile shales).

1. Dry the rock and fossils at room temperature or slowly heat in an oven. Rapid heating may cause the fossil to break.
2. Place the hot or cold rock and fossil in a container with kerosene. Add enough kerosene to cover the specimen. Kerosene enters the pore spaces of the rock but will not affect its hardness. Allow to stand for a few hours.
3. Pour off the excess kerosene. This can be reused.
4. Add water to the container (rock+fossil+water).
5. The kerosene will leave the pores of the rock as the water enters. The rock breaks into small pieces and starts forming a mud. After an hour (or a day), the fossil can be removed from the mud and washed. This method works well for separating microfossils (foraminifers, ostracods, conodonts, etc.) from the rocks.

HYDROGEN PEROXIDE

For disaggregating shale surrounding fossils. A bottle of 30% H₂O₂ may be purchased from a local drugstore. Dilute the 30% solution 50-50 with water.

Place wet or dry shale into a container and add enough of the 15% (diluted) hydrogen peroxide to cover the specimen. H₂O₂ decomposes forming water and oxygen gas which bubbles rapidly and the shale is broken into a mud. This is more expensive than kerosene, but it will also remove organic matter.

HYDROCHLORIC ACID

To be used when fossils have been replaced by quartz or pyrite and for removal of scolecodonts from a limestone matrix. Works best on limestone or dolostone or rocks having a calcium carbonate cement. Technical grade HCl is called muriatic acid. Care must be taken in the use of HCl because many fossils are of

a carbonate nature and are dissolved by the acid. Very good results can be achieved with a 5% solution of the acid. A 10% solution works faster, but the vigorous bubbling may damage fragile fossils.

1. Place the rock and fossil in a glass, porcelain, or plastic container with a wide opening. Cover the rock with the 5% acid. Reaction with the carbonate produces water, carbon dioxide, and calcium chloride.
2. When bubbling ceases, a small amount of the concentrated acid can be added. A spoon or tweezers can be used to remove the free fossils from the solution.
3. When freed from the matrix, the fossils should be washed thoroughly in water.

Phosphate and phosphatic fossils are also dissolved by HCl. Although the dilute acid poses no serious problems to skin or clothing, care should be exercised, and spills should be wiped up with plenty of water. Acid should be immediately washed from the skin.

ACETIC ACID

Acetic acid (the acid in vinegar) can be purchased in photographic supply stores. A 10% solution of glacial acetic acid (concentrated) does very well on the same kinds of rocks as the HCl. However, the reaction is a lot slower, producing less damage to the fossils, but requiring a much longer time. Some minerals, such as phosphate, dissolved by HCl, are not affected by the acetic acid. Care should be exercised with this acid, as it can cause painful burns to the skin. Rubber gloves are recommended.

CLEANING STAINS

1. Soaking the fossils in a solution of super strength denture cleaner will remove most black, organic stains and will minimize rust or iron oxide stains. This will only take about 10 minutes.
2. Rust stains can also be removed using a solution of stannous chloride, radiator cleaner, or SaniFlush.

A SLIDE MOUNT FOR MICRO-SIZED FOSSILS

by Donald Sabo

from *Alberta Palaeontological Society Bulletin*. Wayne Braunberger, ed. 9/89

My collection is comprised mainly of vertebrate fossils which can reach sizes of 30 cm or so in length. Realizing there could be a problem in storage and the rarity of large specimens, I concentrate on collecting at microvertebrate sites where the specimens range in size from a few millimeters to 7 cm in length.

When curating and writing a registration number on these specimens, I was safe to about 1 cm in length, but for specimens below this size I was having a difficult time of it. The specimen was either being entirely covered with a number, or the size made it physically impossible to write on. You could get around this problem by putting the registration number on a card in a small box with the specimen; however, it would be too easy to have the specimen put back into the wrong box with the wrong number.

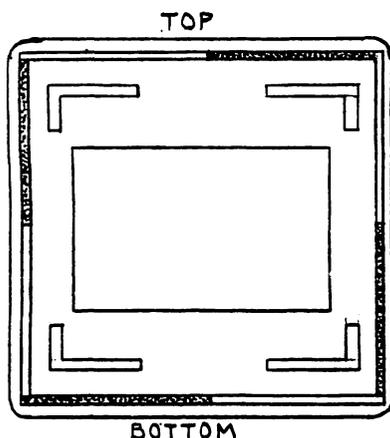
One method I have developed to solve this problem, which seems to work well for me, is to use a plastic 35 mm slide mount in conjunction with a small plastic bag as the slide window. I use the Swedish glassless slide mounts by Gepe which are 24 x 36 mm by 2 mm thick and are available in a box of 100 for about \$9.00. These or a similar variety can be purchased from most private camera stores. This method can be used for both vertebrate and invertebrate fossils.

The process I use is as follows. The plastic slides come with a white front and a black back that have raised and recessed ridges so that they can snap tight into one another.

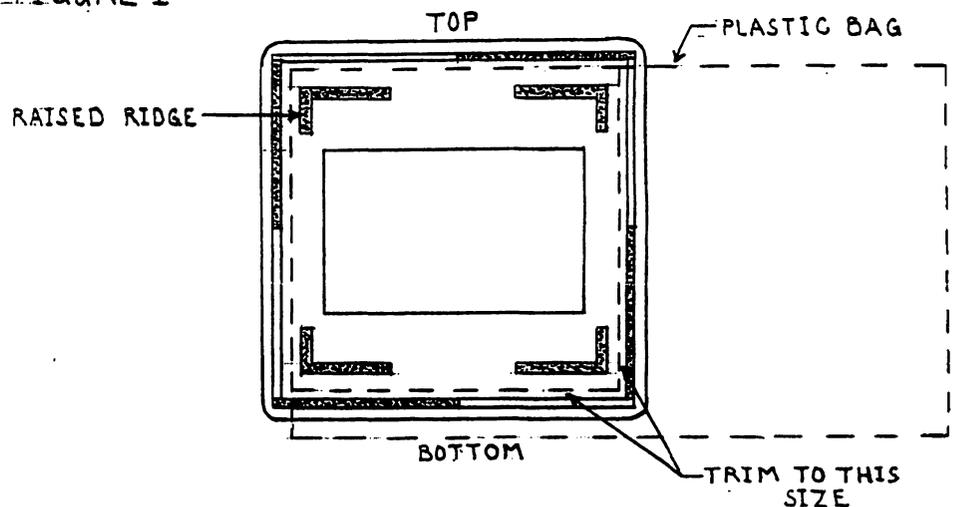
This acts as a frame over the plastic bag, which is the window that the specimen sits inside of. First lay the back of the black half on a flat surface, and then lay a 6.5 x 5 cm plastic sample bag (available from most lapidary supply stores) over the inside of the black half of the slide and position one corner of the bag against the upper inside left corner ridge of the slide. Then mark off with your fingernail the inside right and inside bottom side of the slide on the bag (see Figure 1). Take a pair of scissors and trim the bag to the size measured. Insert your micro-sized specimen with its front up into the trimmed plastic bag and lay it within the ridges on the inside of the slide's black back half. Now position the white front half of the slide over the corresponding raised and recessed ridges of the back and snap into place. I usually tap the edges of the slide with the handle of the scissors to make sure the interlocking edges are tight. With the white half of the slide now the front, the upper right hand corner makes a perfect spot to write on the registration number with India ink and then protect it with a clear lacquer so it will not be rubbed off (Figure 2).

You now have a finished slide on which a micro-sized specimen normally too small to be labeled or even handled by hand is clearly labeled with a registration number and can be easily handled and viewed from front and back. The specimen is also easily removed from the slide for more detailed work and can be returned to the same slide. With this method you can also store dozens of micro slides vertically in a small box rather than in numerous individual specimen boxes that take up valuable drawer space.

FIGURE 1

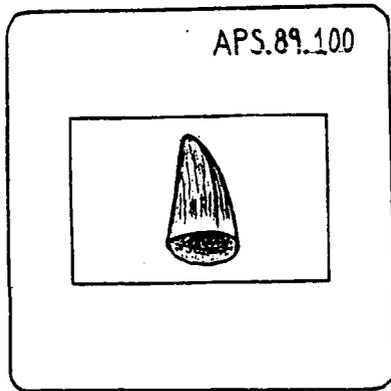


INSIDE FRONT (WHITE) COVER



INSIDE BACK (BLACK) COVER

FIGURE 2

COMPLETED SLIDE
WITH SPECIMEN

JUVENILE T. REX SKELETON FOUND IN SOUTH DAKOTA

by Malcolm Ritter, Associated Press Writer
excerpts from article in *Rapid City Journal*. 1/1/99
sent by David Jones

The first nearly complete skeleton of a juvenile *Tyrannosaurus rex* has been found in South Dakota and is being prepared for study in a Texas laboratory, researchers said Tuesday. . . .

The skeleton, which (paleontologist Robert T.) Bakker estimated could be 75 percent to 90 percent complete, was found north of Belle Fourches, S. D., in the summer of 1998, said Ron Frithiof, an amateur fossil-hunter and a rancher near San Antonio.

The dinosaur, most of it still encased in rock and other material, is now at a lab that Frithiof owns. . . . He and others have been painstakingly exposing the bones so the dinosaur can be studied.

Frithiof, a member of the discovery team, said the team was led by a private Houston paleontologist,

Mike Harrell (a former MAPS member), who died recently. . . .

Previously, scientists never had found a complete skeleton "or even a good skeleton" of a juvenile *T. rex*, although fairly complete skeletons have been found for juveniles of other tyrannosaurs, said tyrannosaur expert Thomas Holtz Jr., of the University of Maryland at College Park. . . .

The finding should help scientists study such things as growth patterns in *T. rex* and whether a skull found some time ago represents a new species or just a young *T. rex*, he said.

Bakker . . . said the specimen was about 66 million years old. The animal probably weighed about a quarter "as much as Dad," he said. It might have weighed about 1,200 pounds to 1,500 pounds and measured about 23 feet from tip of tail to snout, he said.

It is clearly a juvenile because of some unfused backbones, he said. The specimen shows that juvenile *T. rex* was "quite gangly, particularly long in the shin and ankle," he said. . . .

But "the jaws are 100 percent adult," armed with "massive bone-crushing teeth." That suggests it ate an adult diet even though it didn't appear strong enough to wrestle large prey to the ground, he said. So apparently, Mom or Dad hunted the meals, and Junior showed up later to munch, he said.

Holtz said that's a possibility, but not the only one.

MULE CANYON MIOCENE MICROFOSSILS

by Alberta Hare

from *Tumbler* 4/94, via *Dinny's Doin's*. Vicky Van Why, ed. 11/96

Mule Canyon is an area in the Calico Mountains, a few miles north of Barstow in the Mojave Desert, San Bernardino County, California. Although volcanic deposits are found in this region, they cover layers of lacustrine sediments that had built up in an ancient lake bed during the Miocene period, 15 to 18 million years ago. These sediments later faulted, tilted and folded, and are exposed in certain places in Mule Canyon. Some of the layers contain special "nodules" or stromatolites of layered rock, built by calcium carbonate-precipitating algae or bacteria. These stromatolites are usually about ½ to 2 inches in diameter, rounded on the lower end with upper end somewhat flattened or concave. Trapped in them are non-marine arthropods, most of them insects, from the mid-Miocene period. The fossils are three-dimensional and appear to have been preserved inside stromatolites until petrification was complete. Most are coated or surrounded by calcium carbonate and the tiny organisms inside are usually silicified.

To remove the microfossils from the stromatolites, an acid treatment is used. The nodules are put into plastic tubs, water is added to barely cover the rocks, and muriatic acid is poured in very carefully. The solution will fizz furiously for a while, dissolving the calcium carbonate portion of the stromatolites. Do this outdoors. When only sediment remains, pour off the solution very carefully, rinse gently with water several times until the water is clear. After draining the residue the last time the fossils, being heavier than water, will remain on the bottom when the water is poured off carefully. Let the residue dry thoroughly before examining for the fossils.

Most of these fossils are only ¼ to 7 millimeters in size, so a microscope is required to look for them. A portion of the dry residue is placed on a piece of black

paper and examined under the microscope, using low power at first. The fossils are frosted white, translucent or clear. To pick up and transfer the microfossils, use a fine sable brush, dampening the tip first before touching the fossil specimens. Place or mount them in small plastic containers on a black surface.

A California Federation of Mineralogical Societies Earth Science Seminar is held each spring at Zzyzx Soda Springs, 40 miles northeast of Barstow. Here John E. Jenkins of the Orange Belt Mineralogical Society presents a slide lecture on these microfossils, leads a field trip to the site to collect the special nodules in which they are found, shows how to extract the fossils and helps identify them. Eventually I acquired 210 stromatolites from the Mule Canyon area, over half of them from my trip to Zzyzx. After I obtained a microscope, it was time to see what I could find in mine. Of these 210 specimens, one would not dissolve in muriatic acid, even when used full strength. Seventy-two had no microfossils in their sediments. Two contained only a partial dragonfly nymph with leg fragments. Sixty had four or more microfossils with predaceous diving beetle larvae and/or midge pupae and half of them had other microfossil species, too. The rest contained three or less. I made drawings of various kinds of microfossils observed from my records. For microfossil identification, general books on insects helped identify some of the arthropods by Class and Order. Photographs in the articles helped me identify others. Some are still unidentified. Among those I found are (the specimens on the following page).

It was quite an experience finding my Miocene microfossils. I look forward to obtaining some more stromatolites some day and see what else I can find.

REFERENCES:

- Jenkins, John.** "Miocene Invertebrates from the Calico Mountains," San Bernardino County Museum Assoc. Quarterly, Winter 1986.
- Jenkins, John E.** "The Reluctant Amateur Paleontologist," GEMS AND MINERALS. January 1980.
- Palmer, Allison R.** "Miocene Arthropods from the Mojave Desert, California," Geology Survey Professional Paper 294-G



#1 Fairy shrimp mandibles
 #2 water mites (size: 1/4 mm)
 #3 spider (3 1/2 mm)
 #4 dragonfly nymph (only 15 mm present)
 #5 Thrips (1+ mm)

Class Crustacea, Order Anostraca: fairy shrimp (#1) Only mandibles, few eggs.

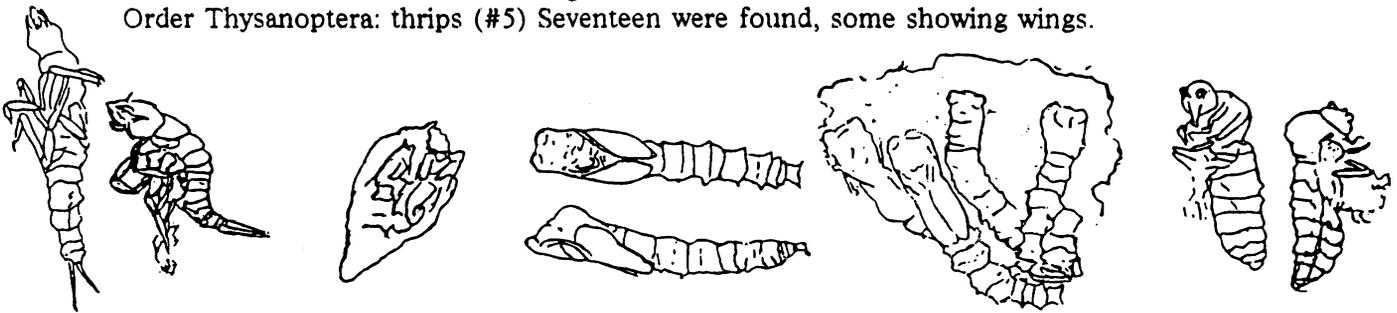
Class Arachnida, Order Acarina: water mites (#2) Found eight, two species?

Order Araneida: spiders (#3) Lucky to find a good one!

All the rest were in Class Insecta.

Order Odonata dragonflies (#4) Only two partial dragonfly nymphs seen. Note undeveloped wings and fat abdomen of this stage.

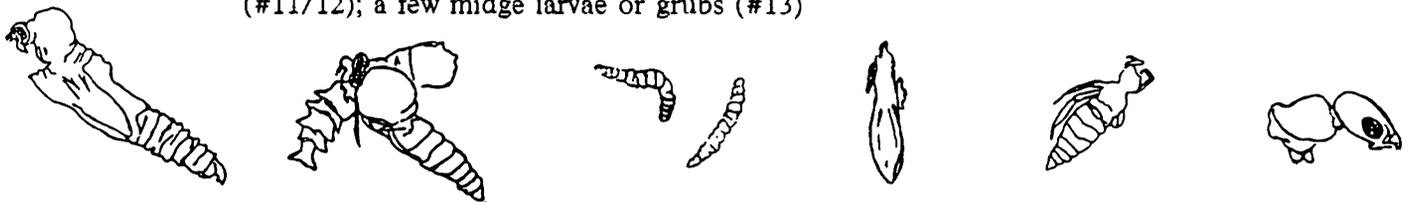
Order Thysanoptera: thrips (#5) Seventeen were found, some showing wings.



#6 Predaceous water beetle larvae (4 mm)
 #7 Hister beetle (?) (7 mm)
 #8 Midge pupae (4 mm)
 #9 Cluster of midge pupae
 #10 Adult midges (1- 1/2 - 2 mm)

Order Coleoptera: predaceous diving beetle, larval stage specimens (#6) with about fifty almost complete specimens and many fragments seen. One possible Hister beetle observed (#7)

Order Diptera: midge or gnat, pupal stage (#8) About fifty of these found including a cluster of four together (#9), and many fragments. Twelve adult midges (#10), two emerging from pupae (#11/12); a few midge larvae or grubs (#13)



#11 Midge emerging from pupa case
 #12 Midge beside pupa case
 #13 Midge grubs or larvae (1 mm)
 #14 stonefly (?) (2 mm)
 #15 Leafhopper (1 mm)
 #16 Ant head (2 mm)

Order Plecoptera: stonefly (#14) one questionable stonefly found.

Order Ephemeroptera: mayfly. Some egg clusters noted.

Order Homoptera: leafhopper (#15) One ? immature specimen seen.

Order Hymenoptera, Superfamily Formicoidea: ants (#16) Found a head of one!

FOSSIL REGULATION — TWO VIEWS AND A COMMENT

LAWS, REGULATIONS, POLICIES, CONVENTIONS AND HAZARDS IN PALEONTOLOGICAL COLLECTING, BUYING AND SELLING

WOLBERG, Donald L., Natural History Development Company, 1013 John Paul Jones Drive, Aquia harbour, Stafford, VA 22554, U.S.A.; REINARD, Patsy D., Attorney at Law, 206 neel Avenue, Socorro, NM 87801, U.S.A.
from abstracts — Sixth North American Paleontological Convention — 1996

In an age of complex interactions and contentiousness, the concerns of some interest groups are almost certain to collide with those of others. Two characteristics describe these conflicts — each group is certain of the correctness of its value system and each group seeks a political/legal remedy. Paleontology depends on access to fossils. Fossils are collected by a variety of people — paleontologists directly involved in paleontology, geologists indirectly concerned with fossils, commercial paleontologists, amateur paleontologists, a variety of nonpaleontologists for whom discoveries are serendipitous, and the interested public for whom fossils are of educational or entertainment interest. Fossils have educational, commercial, and artistic values, occur as part of mineral or other commercially valuable deposits on public lands managed for varying purposes and on Native American and private lands. Given the employment outlook in paleontology, the boundaries between interest groups is blurred and increasing numbers of individuals will move between groups at different stages in their careers.

Large portions of the western U.S. consist of federally managed public lands with responsibility held by a number of different agencies. Public lands are organized and regulated for grazing, mining, oil and gas, wilderness, wildlife refuges, etc. A subset of these categories includes plant, animal, and cultural resources, especially archeology. The introduction of paleontology to these subsets is a new event that is hard to resolve within the regulatory framework. The efforts to try to regulate paleontology result from a belief that access to and disposition of fossils is unregulated, substantive abuses exist, much scientific information is lost and legislative initiatives are needed. The counter position maintains that most

fossils are lost to erosion not unregulated collecting, more benefits accrue from commercial activities than are ever lost, and regulations should codify these realities. Industry responses indicate that academic/research interests are attempting to define paleontology from an exclusive, noncommercial perspective of who can or cannot be a paleontologist. They maintain that commercial paleontologists have always been a part of paleontology and have made substantive contributions.

Much of the interest in legislation appears to be directed at the commercial paleontology industry. Concern has been expressed that this industry utilizes fossils for other than scientific/educational purposes, drives up prices paid for fossils, or illegally obtains fossils. Based on available information, the commercial industry is a negligible economic force and consists of about fifty companies that actively collect fossils in the U.S. with total annual cumulative sales of less than 30 million dollars. Data indicate that almost all “major” commercial specimens are sold to public institutions. As in academia, despite the general popularity of fossils, commercial paleontology is in decline.

Access to lands and fossils already are impacted by a variety of laws, regulations, policies, contracts, and informal agreements. Most recent legislative initiatives have mirrored archeological legislation. However, a current draft bill is uniquely paleontologic in structure, intent, and content.

FOSSIL COLLECTING ON FEDERAL PUBLIC LANDS

WOODBURNE, Michael, O., Dept. Of Earth Sciences, University of California, Riverside, CA 92521, U.S.A.
from abstracts — Sixth North American Paleontological Convention — 1996

Federal policies regarding the collecting of fossils from Federal public lands are in accord with U.S. citizenry's views of these matters. In that our national fossil heritage as preserved on public lands belongs to all people of the United States, individual ownership is not condoned. Thus, policies that recognize the importance of conserving for the public domain and for

posterity our national fossil heritage provide that the collecting of such fossils be done under permit by representatives of universities, museums and other public institutions. The public benefits from this process by the dissemination of information obtained from fossil specimens by trained professional paleontologists. Constructive commercialization of our fossil heritage comes from translation of factual information to the media, public institution display, development of movies, documentaries and the like for the cinema and television. Marketing of products based on interpretation of body reconstructions, life styles and the like of prehistoric animals furthers not only the commercial process but also the enjoyment by the consumer. All of this results from legitimate exercise of the results of the scientific/educational process. On the other hand, commercial collecting of public domain fossils for sale is inimical to the scientific-educational process and is properly disallowed under current Federal statute. Avocational paleontologists are not enfranchised, as individuals, for collecting fossils on public lands. At the same time virtually all major and many smaller public museums and institutions carry out strong outreach programs to encourage avocational paleontologists to enter in partnership so as to enhance the avocational access to, and enjoyment of, our national fossil heritage.

COMMENT

by Bruce L. Stinchcomb

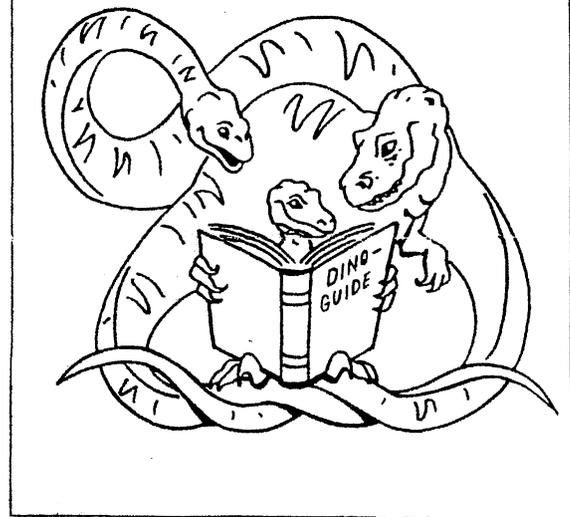
It is unfortunate that seemingly disproportionate amounts of resources seem to be being used to regulate and *disenfranchise* the avocational paleontologist (amateur collector). Possibly one of the greatest resources paleontology has is the highly motivated individual who often encounters paleontology through personal collecting. Nature herself puts up formidable barriers for the discovery of scientifically new fossils. Man-made barriers, like funding and the over-regulation of the past few years may be the "straw that broke the camel's back" in the discouraging of those motivated individuals from entering serious paleontology.

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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 can be printed in different sizes of type to fit a 1" space.

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chunlin@aol.com

Geologist. Will trade. Major interest Chinese fossils. Member of AAPS. Wants to meet more members of MAPS.

NATIONAL FOSSIL EXPOSITION XXII—2000

LOCATION AND TIME EXPO will be held at the Student Union, in the Grand Ballroom, on the campus of Western Illinois University, Macomb, Illinois. The simplest way to the site is to turn off IL 67 west on University Drive, then go south to the Union. (Follow the signs.) Set-up is permitted on Friday, April 16, at 8:00 a.m.

EXPO HOURS: Friday, April 14—8:00 a.m. - 5:00 p.m.
 Saturday, April 15—8:00 a.m. - 5:00 p.m.
 Sunday, April 16—8:00 a.m. - 3:00 p.m.
 (Many people leave early Sunday)

TRANSPORTATION There are 2 highways leading into Macomb—**IL 136**, an E-W route, and **IL 67**, a N-S route. There is **no plane service to Macomb** at this time, but you can fly into **Moline, IL, St. Louis, MO, or Peoria, IL**, and rent a car and drive to Macomb.

LODGING **Macomb area code—309; Macomb zip code—61455**

★**MOTELS** We have been informed that most Macomb motels have different prices for weekends than for weekdays, so check prices if you are concerned about costs.

Motels are listed according to what has generally been the highest-priced one to the lowest-priced one except those marked*. It has been reported that some of the hotels raise the price for EXPO weekend, so you might want to check prices.

Ameri Host	1646 N. Lafayette	837-2220
Holiday Inn Express	1655 Jackson St.	816-6700
Macomb Inn (Days Inn)	1400 N. Lafayette	833-5511
Super 8	313 University Drive	836-8888
Pineapple Inn	204 Jefferson Street	837-1914
Travel Inn	Hwy 136 West	833-4521
Time Out Motel	Hwy 67 North	837-4838
Star Motel	Hwys 67 S and 136 E	837-4817
	1507 E. Jackson Rd.	
Brockway House (Bed & Bkfst)	331 E. Carrol	837-2175*

If you plan to stay in a motel, we urge you to make your reservations early.

Local motels are generally filled during the weekends.

★**CAMPERS** Persons traveling in self-contained camping units may park on the parking lot. See Public Safety located in the Union. **IDENTIFY WITH MAPS**

★**MOBILE HOME PARKING** is offered at **TILL JORDAN MEADOW MOBILE PARK** by calling **309-837-2883**, for those who wish utility hook-up.

★**UNION**—Contact **Gilbert Norris (309-786-6505)**, 2623 34th Ave. Ct., Rock Island, IL 61201 to see if rooms are available. *(There are a limited number.)* Rooms are to be paid directly to the University Union when you check in or out. These rooms must be rented for both Friday & Saturday. You must request rooms early. You may wish to be on standby.

★**OLSON HALL**—Dormitory-style housing is available at the University in Olson Hall—Dorm rooms with community bath on floor. **CONTACT THE UNIVERSITY directly at 309-298-3500 for reservations.**

IN ALL CASES, IDENTIFY WITH MAPS

PARKING For those living in the Union, parking will be east of the Union with room permits. For others, get visitor permits from Public Safety. Park in specified lots. After 4:00 p.m. Friday, ample parking is available. Before 5:00 p.m., patience is needed.

MEALS Meals are available in the Union: fast food in the lower level and a deli in the basement. Ice cream is also available! There are many restaurants in town and a deli bar in a nearby grocery store.

EXPO REGULATIONS Everyone is requested to make advance registration by March 31, 2000. Mark your calendars now so you don't forget! Registration forms are found on page 18 in the Digest for your requests for tables, display space, etc. Send these forms and your check made payable to MAPS to: Doug DeRosear, Box 125, Donnellson, IA 52625. Please send dues to Treasurer before EXPO—It is a lot of extra work for us to accept them at EXPO.

ALL TABLES WILL BE ASSIGNED Cost of the tables is \$15.00 each for a 6' table in the Ballroom for the weekend; \$15/table in the Lobby. (Lobby tables will be used only for overflow.

MAXIMUM of 2 tables per person/membership initially. Over 2 tables wanted? You may request extra tables, and if they are available, you will be notified after March 15th (pay for these at EXPO). Requests for extra tables will be filled in rotation—one table per person per round until all space is gone. Also, those with special needs for more than 2 tables may apply to the Board by March 1 for an exception. All decisions will be made as soon as possible, with all decisions made by March 15. MAPS memberships will have first chance at all tables requested before March 1. **(No more than 4 tables will be allotted to a person, family or group, whichever is the larger unit.)**

The Committee insists that all materials be fossil or fossil-related. Mountings, gemstones, minerals, Indian artifacts, etc., are not permitted! AISLES MUST BE KEPT CLEAR AT ALL TIMES.

DISPLAYS EXPO is special because of displays. They are a gift. They give us all a look at the ancient epochs of the world. Display tables are provided at no cost—8 ft. limit. Bring your own lights, if you need lighting.

ALL RESERVATIONS WILL BE ACKNOWLEDGED

OTHER ACTIVITIES FOSSIL TEETH will be this year's theme. Friday's Keynote Speaker will be Bob Purdy, from the Smithsonian, Museum of Natural History, Washington, DC. His program will be on shark teeth. A live auction will follow a short business meeting and awards presentation on Saturday evening. Silent auctions will be held Friday afternoon and Saturday. Proceeds from the auctions go to a paleontology scholarship. Each dealer is encouraged to contribute a specimen/specimens equal to or greater than the cost of the tables he/she has rented in order to assure consideration for table space at the next EXPO. Include full data and the name of the fossil donor. Specimens can be left at the information desk until 3:00 p.m. Saturday. If you wish to mail a specimen, send it with pertinent information to Paul Rechten, 7405 Shields, Harvard, IL 60035. Paul will send a postal acknowledgment on receipt of the specimen.

Show Chairman-----	Allyn Adams, 612 W. 51 st Street, Davenport, IA 52806-----	(319) 391-5443
Co-Chairman-----	Karl Stuekerjuergen, 1503 265 th Ave., West Point, IA 52656-----	(319) 837-6690
Table Reservations-----	Doug DeRosear, Box 125, Donnellson, IA 52625-----	(319) 835-5521
Auction-----	H. Paul Rechten, 7405 Shields, Harvard, IL 60035-----	(815) 943-4178
Publicity-----	Tom Witherspoon, Sr., 6611 Miller Road, Dearborn, MI 48126-----	(313) 582-3139
EXPO DIGEST editor-----	Maggie Kahrs, 9145 U.S. Hwy 50 East, Seymour, IN 47274-----	(812) 522-6093

EXPO AUCTION INFORMATION

A live auction will be held on Saturday evening of EXPO, following a brief business meeting and awards presentation. Also during show hours, a silent auction will be held to shorten the live auction. As part of your table fees, you are encouraged to donate a correctly labeled, quality fossil(s) or fossil-related item(s) to the Auction. Information to include with the specimen is as follows: Brief description and common name, species information, location, and time period. A minimum guide to the value of your donation would be something equal to your table fee. In other words, if you have one table, the donation should have a minimum value of \$15; two tables, \$30; and so on.

Preference on future table assignments will be given to those who make a donation to the auction as suggested above.

Most proceeds from the auction go to the Paleontological Society Scholarship Fund. As an interesting note, a number of Auction donations are made by individuals who do not have tables, or who are unable to attend EXPO or the Auction.

The many generous donations in preceding years have allowed us to contribute \$3,000 to the Paleo Society for both 1998 and 1999, \$2,000 in 1997, and \$1,000 per year for several preceding years. In 1999 we also donated \$500 to the Paleontological Research Institute (PRI). We hope to continue the trend.

NATIONAL FOSSIL EXPO XXII—REGISTRATION FORM

Please complete the form below, enclose a check payable to MAPS, and mail to Doug DeRosear, Box 125, Donnellson, IA 52625, before March 31, 2000.

NAME: _____ PHONE NO.: (____) _____ - _____

ADDRESS: _____ CITY _____ STATE ZIP _____

____ Yes, I will provide a display for EXPO. It will require _____ linear feet of table space—8 ft. Maximum display.

____ I request _____ (number) of 6 ft. Tables for selling and swapping. Cost is \$15.00 per table. 2 tables/person/membership maximum initially; maximum limit of 4/family or group in all (assigned only in special need cases or if extras are available.) Check enclosed: \$ _____ (Only send payment for up to two tables per person.) Any extras assigned through request will be paid for at time of notification or at EXPO.

____ Number of chairs I will need.

____ Yes, I will help run EXPO:

Front desk—Fri. _____ a.m. _____ p.m.; Sat. _____ a.m. _____ p.m.; Sun. _____ a.m. _____ p.m.

NO ONE EXCEPT THE GUARD IS ALLOWED ON THE FLOOR FOR ANY REASON AFTER HOURS!

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 \$20.00 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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