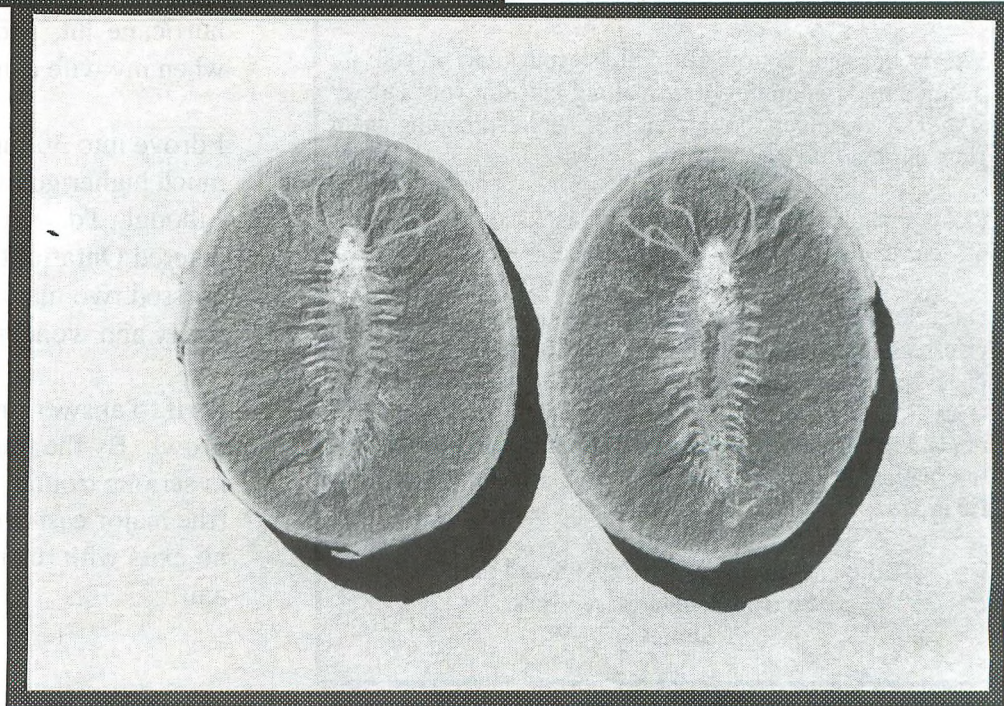
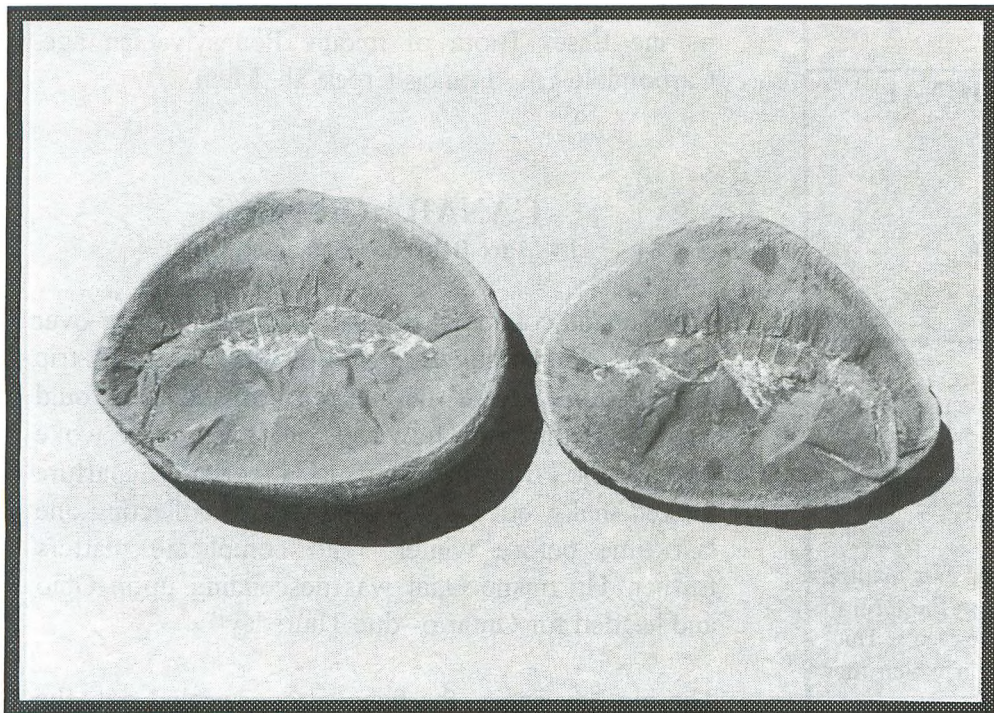


M.A.P.S. *Digest*

Official Publication of
Mid America Paleontology Society

Volume 19 Number 9
December 9, 1996



MARK YOUR CALENDARS

Jan 11 MAPS MEETING. The Cove Restaurant near Tipton, Iowa. On the south side of I-80 at Exit 266.

12:30 Luncheon Meeting
Board and Regular Meeting Combined
There will be no program.

Feb 8, 1997 MAPS MEETING. Trowbridge Hall, the University of Iowa.

Apr 18, 19, & 20, 1997 MAPS NATIONAL FOSSIL EXPOSITION XIX--EXTINCTIONS

Fri., Apr. 18: 8am - 5:30pm
Sat., Apr. 19: 8am - 5pm
Sun., Apr. 20: 8am - 3pm

96/12 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--96/12 means 1996/Dec. 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 photos were sent by Jim and Sylvia Konecny, Prescott, Arizona. The top specimen is the shrimp *Kellibrooksia macrogaster* Schram, and the bottom specimen is the marine worm *Fossundecima konecniorum* Thompson. (I assume the latter species name indicates this specimen was named for the Konecnys, although they didn't say.) Both Mazon Creek nodules are from the marine Essex Biota of middle Pennsylvanian age, Carbondale Fm., Francis Creek Sh. Mem.

CANADA OR BUST

by Marc Behrendt, Somerset, Ohio

The Canada collecting trip had been planned for over a month. My daughter, who already caused 2 trip cancellations due to the chicken pox and flu, would not thwart this trip. However, on Tuesday she woke up with the flu again. Thursday's morning departure looked shaky, but I was resolved to go collecting one last time before winter. To complicate matters further, Hurricane Opal was descending upon Ohio and headed for Ontario--due Thursday!

The big day came, the baby-sitter canceled out, the hurricane hit, and I finally started out at 4:30 p.m. when my wife came home from work.

I drove into 30 mph sustained northeast winds with much higher gusts, with torrential rain the entire trip. I thought I'd seen the worst of the storm, but as I entered Ontario, the sustained winds increased! I crossed two major causeway bridges, questioning my sanity and wondering how things could get worse.

As if to answer my thoughts, my stomach began to growl. By the time I entered Toronto, I knew I was in serious trouble. I never noticed before now: 401 (the major east-west highway through Toronto) has no exits with restroom facilities, especially at 1:00 a.m.!

Continued on p. 6

EXPO XIX—EXTINCTIONS

The January issue of the *Digest* will carry all the registration, travel and accommodations information for the MAPS 1997 EXPO, which will be held April 18-20 on the campus of Western Illinois University in Macomb. We hope you're saving the dates, cleaning your fossils, getting your articles on Extinctions to Maggie Kahrs, and planning to attend the big show.

For those of you new to MAPS, EXPO is the largest strictly fossil show in the U.S., with people coming from all over the Continental U.S., Hawaii, Alaska, Canada, and several overseas countries in past years. There's always a wonderful array of fossils and fossil-related material for viewing, buying, selling and trading. It's amazing to see the new things that turn up each year. Friday night features a keynote speaker and Saturday night a live auction. New this year will be a silent auction during the show Friday and Saturday to enable more people to participate and to reduce the length of the live auction.

MEET YOUR 1997 OFFICERS

Election of officers for 1997 took place at the November MAPS meeting with the following results:

President--Marvin Houg
 1st Vice President--Dale Stout
 2nd Vice President--Karl Stuekerjuergen
 Secretary--Alberta Cray
 Treasurer--Sharon Sonnleitner
 1-yr. Director--Blane Phillips
 2-yr. Director--Allyn Adams
 3-yr. Director--Tom Walsh
 Immediate Past President--Gil Norris

The above officers were all re-elected to their positions, except for the Directors who are elected for 3-year terms and the Immediate Past President who is a member of the board by virtue of having been the last President. Tom Walsh, whose term expires in December, was re-elected for another 3-year term.

VIDEOS AVAILABLE

by B. L. Stinchcomb

Videos put together by MAPS members Gil Norris and B. L. Stinchcomb are available for purchase. These tapes are amateur productions! They don't have the "polish" of professionally produced productions; however, they do cover a broad range of paleontology. Tapes made by Gil Norris come with accompanying study guides.

MAPS Videos by Gil Norris:

- I. Arthropods (Crustaceans and Trilobites)
 Mollusks (Cephalopods) and other classes.
 The fossil story and Wyoming stone fish.
- II. Echinoids and some other echinoderms.
 Crinoids
 Brachiopods, Bryozoans and Sponges.

MAPS Videos by B. L. Stinchcomb

- III. A Geologic tour of Route 66--1950.
 A 2,000 mile journey on famous U.S. Route 66 as it was in 1950. Emphasis is on geology and paleontology with human interest. Famous paleontological areas such as the Braidwood fossil occurrence, Ozark fossils, Springfield Missouri crinoids, Permian and Triassic redbeds and strata of the Grand Canyon, Pleistocene extrusives and fossils, Barstow California Miocene "bugs" and Kettleman Hills Miocene fossils are featured.

Also on the tape are shorts on the geologic time scale, Coosa River Cambrian, Dominican Republic amber fossils, Labrador archeocyathids, St. Croix River Precambrian and Cambrian, plus addendum to study videos by Gil Norris.

Specify which tape you want, No. I, II or III.
 Each tape approx. 100 min. in length. \$12.00/tape.
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HOW TO WRITE & DECIPHER FOSSIL DESCRIPTIONS

by Eric S. Kendrew, Valrico, Florida

No matter what fossil you are writing a label for, you will write them all the same way. The most common way is the way we will be discussing. Labels should be made by starting with the *Family name*, the *Genus name*, then *Species name*, then *Author name* and *Date*, *Age*, *Formation* and *Location*. It takes much research to even get this far in a lot of cases. One who is doing research in a particular field of study will go even farther than this by using *Class*, *Subclass*, *Cohort*, *Sub-cohort*, *Super-order*, *Order*, *Suborder*, *Subfamily*, *Super Family*, etc., etc.. Labels usually look like this, as an example:

Family:
Genus:
Species:
Author:
Age:
Formation:
Location:

So what does each one mean and how do I obtain the information required for each area on the label? For one thing, you will have to learn how to do research. It's not going to come to you. You will have to go to it and search it out. Examples of where to look are: Public Libraries, Museums, Research Institutions of Natural History, Colleges, Universities, Book Stores, Natural History Book Dealers, Someone You Know who is doing research on the fossils you are trying to label, or a Computer (On Line Service).

LABELING:

FAMILY: Descendants of one common ancestor. Group of fossils within an order or subdivision of an order. Common name, written in Latin. *Example:* If it's a Murex (Gastropod), the family name is written as *Murexidae*.

GENUS: There may only be a few Genera within a Family name, or there can be a lot. *Genus*, means kind or class, and usually contains a number of species having like characteristics.

This is the start of the separation of all the different types of fossils. Years ago, the name was used twice: once in the Family name and once in the

Genus name. Of course, this was happening to many other fossils worldwide. With new studies being done, it has been essential to separate the two names and to give the Genus name its own unique name (classification). This is very helpful when separating fossils that have their own unique structure.

SPECIES: A subdivision of a genus. Showing the differences from other groups of fossils. Last name given, classifies its true name. Has its own unique features.

You can go on and on describing what species means. The name given separates it from all other forms. Within this area of labeling, you will see several other features in the labeling process. If you see or write *{sp.}*, it means you are sure this particular fossil has been described because of the amount of fossils that have been found, but you have not been able to find the name yet. Some people will write this just to get out of researching the material. If you see *{cf.}* prior to a species name, it means this particular fossil looks very, very close to this species and usually needs more study and more material that looks exactly like this one in order to receive its own name. If you see *{subs.}* after the species name, it means subspecies, a very close relative which may need more research. *{Var.}* following the species name means variety or variant. It usually results from an environmental change within or in a different habitat--same species, but a slightly different form from the Holotype. Holotype means the exact specimen that was first described. *{Juv.}* following the species name means juvenile. *{Dwarf}* following a species name, is self explanatory; it usually results from environmental changes. *{Indeterminate sp.}* means this fossil may or may not have been described, which means it needs more research.

AUTHOR: In most cases, it is usually the name given to the first person who described a particular fossil and the year in which it was first described.

From the late 1700s to the early 1900s there wasn't a lot of collaboration between *Authors* who were describing fossils. Many of the same species were being described over and over again. Arguments persisted into who had described a particular

fossil first. It was a race to see how many species one could describe. So the *Genus* name was never placed into the right content or was overlooked. Giving a fossil a new species name was more important. The *Authors* always gave a very good description of the fossils they were working on and produced many beautiful hand drawings. So if you see an *Author's* name with parentheses around it [for example: (Conrad)], this means the *Genus* name has been changed and not the species. Many fossils were given the same names as recent material because they looked like the same thing, but in essence, were totally different species. In this case a new *Author* and a new name will be given. (A problem I have noticed is that a lot of people will write down the *Author's* name from the oldest date. But, if you have seen many names given to the same species, you will have a clue that there may have been something wrong with the first description. This is where you need to concentrate on your own research.)

AGE: The time of deposition.

The time the animal, plant, etc., died. This is usually written down as the period of time. Also, it is written for an Epoch, Series, Stage, North American Stratigraphic Unit or Global Stratigraphic Unit. The state or country you live in will determine the way a Geological Stratigraphic Chart has been put together. North American Stratigraphical Charts are usually based on the name of the rock units within that State. *Epochs* are mostly dealing with Upper, Middle and Lower stages of a period. The **Tertiary Era** has been split into the *Neogene Period*--Pliocene and Miocene--and the *Palaeogene Period*--Oligocene, Eocene and Paleocene. These *Epochs* are split up even more by Upper, Middle and Lower or Late, Middle and Very Early, Late Early, Early Middle, Late Middle, Early Late and Very Late. These are used to separate the (NALMA): meaning North American Land Mammal Ages. During the Jurassic Period, the *Epochs* are separated into the Upper--called the Malmian, the Middle--called the Dogger, and the Lower--called the Liassic. These are the only Periods that are give *Epoch* names. (A problem that I have seen is when the letter L is used. It can be used for Late or Lower. It is best to write these out so it is not confusing for others.)

FORMATION: The geological name given to the (*Stratigraphic unit*) or (*Lens unit*) rock layer, clay layer, sand layer, etc., etc., that the fossil is found in.

A formation can be divided into units, members, groups, and faunas. It can even be divided into units within a fauna, a group within a fauna, a member inside a group, etc., etc. These are names that are given to the geological strata within a particular formation. Each layer within a *Formation* represents an age and a sequence in time that tells a story. *Example:* Peace River Formation, Upper Bone Valley Fauna or Okeechobee Formation, Caloosahatchee Fauna, Unit 4--much like reading tree rings. From an amateur stand point, if you do not know the formation you are collecting in, by all means collect some of the matrix that your fossils are found in. Try to keep your fossils separated if you are collecting in several different layers. Scientifically, this is very important. Sometimes this is hard to do when you are collecting in spoil piles, where all the different stratigraphic units are mixed up.

PLACE: This is the area in which you have found your fossils.

Most people are very secretive about the exact location of some of their finds, due to commercial values. For labeling at shows, most people will use the town and state the fossil was found in. We go even farther. We catalogue all our fossils at home on the old computer. Whenever possible, we enter all available information, such as: Quarry name, Property Owner name, Township and Range Number and how far it is from a given location. This way we always have available the information needed for scientific research. Sometimes you can obtain the Township and Range number from the Property Owner. If not, your public library may have maps on hand for this. You can also purchase maps from your State Geological Survey.

I hope this will help those of you that want to label your fossils correctly. I have left a lot out, but it is not really necessary unless you are a scientist. I have seen many university and museum collections in the country that do not label their fossils as well as this.

ORIGIN OF THE FECES

Originally from Discover Magazine by Karen Wright

Summary of San Jose Mercury News item 7-23-96

via Breccia, Santa Clara Valley G&MS, Aug 96

via Paleo Newsletter, Austin Paleo Soc. Sep 96, Jean Wallace, ed.

By studying coprolites, a University of California Santa Barbara doctoral student hopes to find evidence of feeding habits and behavior available from no other fossil source. She expects to discover the diets of ancient creatures so that paleontologists may one day reconstruct ecological webs from the very bowels of prehistory.

Karen Chin has been analyzing and categorizing hundreds of fossilized leavings. Her specialty does not yet have a formal name; however, paleoscatology comes to mind.

Her specimens come from around the world and across epochs. They include 300-million-year-old fish feces; dinosaur dung from the Triassic, Jurassic and Cretaceous; and a sloth stool issued during the last ice age.

Formation

Coprolites form much the way bone fossils do when minerals invade the microscopic interstices in organic matter and grow into crystal there. Sometimes mineralization helps preserve the living material itself. Other times, the crystals replace the original template. In any case, the more readily a substance decomposes, the less likely it is to remain intact long enough to become fossilized.

Chin, a botanist and ecologist, has provided a context in which to evaluate coprolites by devising schemes for identifying and classifying the phenomena of interest. Ideally, coprolites would be classified and compared according to their organism of origin, just as fossil bones are. However, because of the "detached nature of feces," it is almost impossible to match droppings with droppers.

Shape Doesn't Tell

Spiral coprolites are thought to be the exclusive province of primitive fish, including sharks, lungfish and some taxa. Fish had (and have) spiral intestines. Because droppings from the same dropper can change over time, shape is not a sure indicator. Shapes of logs, pellets and piles are generally distributed by and among all manner of vertebrate life forms.

Size Doesn't Tell

Many large Mesozoic coprolites are attributed to dinosaurs because paleontologists assume that nothing else alive could have manufactured mounds of such breadth. However, size is not a sure thing. A 1,000 pound moose leaves morsels no more than an inch long.

Disregard Appearance

Since appearance is misleading, Chin cuts the specimens open, pulverizes them and examines them with an electron microscope and makes exhaustive inventories of their contents--animal, vegetable or mineral. She's run geochemical analyses to characterize organic matter in the fossil, and elemental and mineral profiles to examine the processes by which they became fossilized.

Inclusions

Chin has found that coprolites offer a cornucopia of intestinal itinerants in addition to wood and shellfish. Sections of specimens have revealed teeth, bones, seeds, leaves, stems, spores, fish scales, snail shells, and shards of volcanic ash. Some of these items in the specimens may have arrived ex post facto. She's begun examining some of the bioclasts for samples of gastric etching, evidence that they had passed through the gut.

New Techniques

With organic geochemist Simon Brassell at Indiana University, Shin has used biogeochemical analysis to detect the carbon skeletons of organic compounds that can persist in coprolites even when gross structures such as plant cells have degraded.

She relies on x-ray diffraction to determine the mineral content of her fossils. Mineral analysis can reveal the preservational environment of a coprolite as well as what manner of manure was preserved.

Just A Beginning

"I still can't say for sure which animal did what," Chin says. "These new techniques release you from the inaccuracies of size and shape. It's a place to start."

**Electron microscope
analysis of coprolites may
reveal feeding habits, diets,
behavior of ancient
creatures.**

CANADA OR BUST--CONTINUED FROM P.1

This story is actually about trilobite collecting. After a sleepless night, I ventured to the first of several quarries I planned to collect. All the quarries were preparing for winter and had fresh material everywhere. The previous night's rain and wind left a legacy of pristine, hydraulically cleaned dustfree rocks to check out!

Even from a distance I could see pieces of trilobites everywhere. If only I could bend over without stimulating last night's symptoms. Although I found several beautiful *Isotelus*, the negatives were needed to fill in all the missing pieces. Also found were several probably partial *Ceraurus* and *Ceraurinus*, a cystoid, and a big conularid. The trilobite negatives were nowhere to be found. I sure wish I was healthy, because I covered only half the exposed new material by dark.

The next day I visited two more quarries. The first quarry's material was not rich in trilobites, the second stop showed more promise. The fresh rock was predominantly shale, much like the butter shale of Cincinnati. The 4" rain literally dissolved the shale into mud. Wherever I looked, I found complete *Isotelus* that had broken up due to no supporting matrix. I hoped to find some enrolled *Flexicalymene*, but none were evident in this layer.

My last day sent me to Bowmanville. I began the day by finding three single *Pseudogygites* and a multiple piece with seven *Pseudos*, all in the first few minutes! As I searched other layers, I found many pieces, but no complete bugs. Most incredible was a perfect negative from a fresh blast site. Side by side were a *Ceraurus* and *Isotelus*. I searched for the positive with the assistance of another collector for over two hours with no success.

In the end, I found many partial trilobites, but nothing complete, except for the *Pseudos*. Or so I thought. My trip home was uneventful. I began prepping out the specimens right away.

After several *Isotelus* bodies with no cephalons, I started on the *Ceraurinus*. The only exposed portion

was the right genal region and part of the glabella with several unsightly thoracic segments lying on top of and all over anterior to the cephalon.

I dusted off the exposed cephalon, seeking to expose the border. But as I traveled around, there were no fractures or breaks. All the fragments seemed to come from another trilobite! I began to remove the matrix covering the specimen. Debris layered the entire trilobite--crinoid stems, brachs both intact and broken, and trilobite shell fragments. The removal process was tedious, but slowly the trilobite became exposed. I had an intact *Ceraurinus* 8 cm long and 5 cm wide!

One spot troubled me. The hidden left genal region had a dime-sized complete bryozoa colony I'd never seen before. I labored to expose that without burning its delicate shell. Good thing I did, for as I carefully removed matrix with low air pressure, I exposed an odd spine leading underneath the bryozoa, then two, all connected to a piece of shell. I worked around this, and before long, I exposed a pygidium to a tiny inverted, spiny trilobite!

My attention now focused on this new development, I worked through the evening into late night, fully exposing and finishing the big *Ceraurinus marginatus* and the 6 mm inverted, spiny (now complete) trilobite on the left cheek.

I have not identified the spiny trilobite, although I am sure it is an Odontopleurid of some sort, perhaps a *Primaspis* or *Odontopleura*. Being inverted makes identification difficult.

I am sure several morals can be exhumed from this story--I shall leave that up to you, the reader. What I have learned is never assume a trilobite is partial, when it is covered with matrix, and always be alert for hidden treasures when prepping out any specimen.

BOOK REVIEW:

Alan Goldstein, Falls of the Ohio State Park, Clarksville,
Indiana

Devonian Paleontology of New York

David M. Lindsley

Paleontological Research Institution

1259 Trumansburg Road, Ithaca, NY 14850-1398

Special Publication 21, Paperback, 472 pages

\$24.95 + \$5 shipping

Have you wanted to own some of the original paleontology books by James Hall and John Clarke, but couldn't afford them on the rare occasion they appear on the market? Have you wanted a compilation with the updated names of the fossils? David M. Lindsley's *Devonian Paleontology of New York* does just that, and at a fraction of the cost of purchasing just *one* original volume! The key feature of this publication is its 342 plates. Reproduced from Hall's and Clarke's original works, they cover hundreds of species of brachiopods, bivalves, rostroconchs, gastropods, tergomyans, ammonoids, trilobites, eurypterids, phyllocarids and more. The book does not cover the diverse coral and bryozoan fauna described by Hall.

What is tergomyan? I have always known them as monoplacophoreans. Granted, tergomyan is a shorter name. But I just reached the point where I can spell and pronounce monoplacophorean correctly! (For those without interest in invertebrate fossils, it is a type of snail!)

This book is for anyone that collects and studies Devonian fossils (like this reviewer). Experienced collectors are aware that many fossils can be found in similar-aged strata across a wide geographic range. Devonian fossil species from the Louisville area may be found in southern Indiana, central and northern Ohio, parts of Michigan, western New York and southern Ontario. It is certainly true that there are variations of species between the more distant locations. However, these variations are also helpful for identification and occasionally the odd-fossil might be found quite far from its known range. (Those are important finds.) We don't have the diverse mollusk fauna found in New York, but we do

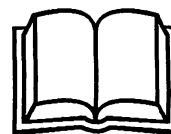
have a lot of brachiopods and (with careful collecting) trilobites.

New York is the "type" area for North American Devonian stratigraphy. It has been studied more thoroughly than anywhere else. Unless you live or collect in New York, or have knowledge in stratigraphic correlation, the section on stratigraphy may not be of interest to the casual collector. Formations are interpreted by their facies and depositional environments--a valuable addition to the book.

The book has four principal parts: an introduction and description of fossils (geared for beginners), stratigraphy (geared for students of geology), and the plates. The purchase price is worth the plates alone. The 19th century artists who prepared the lithographs for James Hall were talented craftsmen. Look at the detail of "*Cornellites*" *textilis* on plate 185 or huge pygidium of *Coronura myrmecophorus* on plate 300.

The book is not built for endurance. I have had my copy for a few days; the cover and first few pages are already starting to curl in the right corners. It might be worth the investment to have the book rebound with a hardback cover or get a second copy which can be "sacrificed" to the potential mistreatment and dirt of field collecting.

I can highly recommend this book to collectors with an interest in Devonian fossils or who appreciate the publications by James Hall and John Clarke. For those collectors who try to identify fossils with illustrations instead of the cryptic descriptions used by paleontologists, this book will be a welcome addition to your library. It is one of those books that you can say, "Don't borrow mine. It's inexpensive--buy your own copy!"

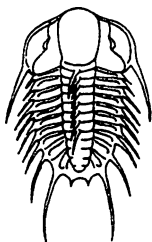


ADVERTISING SECTION

Ads are \$5.00 per inch. 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 can be printed in different sizes of type to fit a 1" space.

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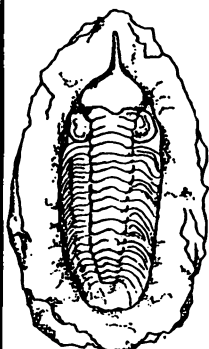
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reptiles, and amphibians. Has for trade Permian
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Steven Wagner
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Alexandria VA 22306

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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