

# M.A.P.S. *Digest*

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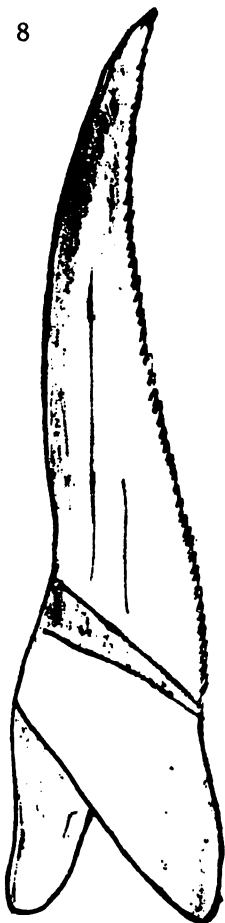
Official Publication of  
Mid-America Paleontology Society

November, 1985

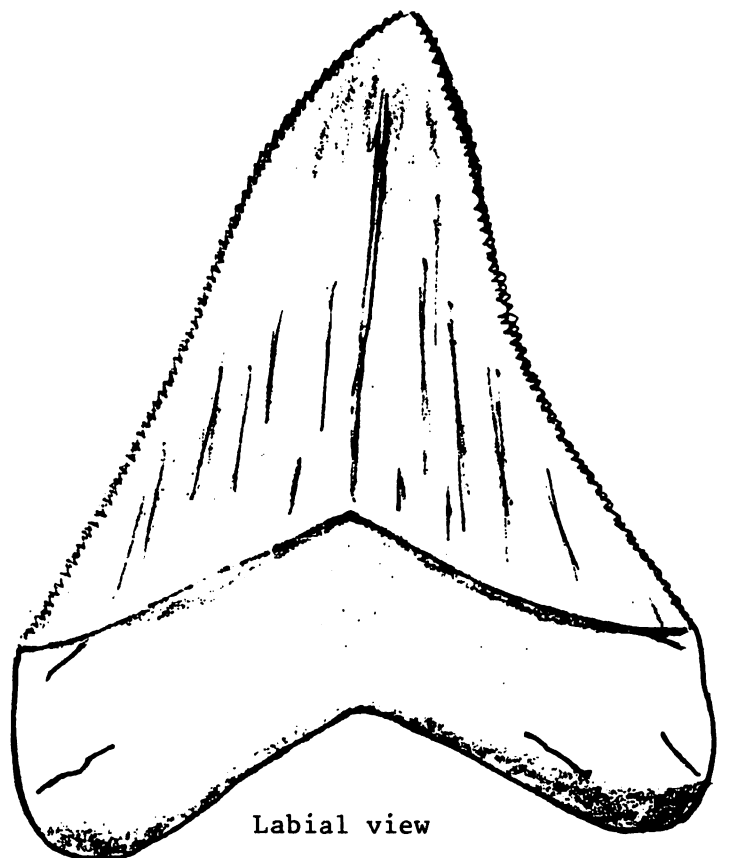
Carcharodon megalodon Charlesworth



Lingual view



Lateral view



Labial view

*Baner*

*John P. O'Brien*  
*Patricia A. O'Brien*

A LOVE OF FOSSILS BRINGS US TOGETHER



Dimensions of Figured Specimen

Greatest slant height. . . .	118mm (4-5/8")
Width across root lobes. . . .	88mm (3-1/2")
Greatest appr. thickness . . .	22mm (13/16")
Weight of specimen . . . . .	5½ ounces
Average number of serrations (1")	
Anterior edge . . . . .	39
Posterior edge. . . . .	35

The tooth was collected while prospecting the backfill windrows or spoil piles at the Texasgulf Phosphate Mine on Lee Creek, Aurora, Beaufort County, North Carolina. The phosphate ore is overlain by at least three formations. The Mid-Miocene Pungo River Fm., deposition of sediments taking place in a cool-temperate sea of about 600-700 feet at the beginning and dropping to around 200 feet at the end.

Four to five million years ago another cool-temperate shallowing sea laid down the Lower Pleocene Yorktown Fm., followed one to two million years ago by a yet shallow Croatan Fm. sea which was slightly warmer.

As the specimen was collected as float, it can be from the Pungo River or the Yorktown formation.

Besides the locality at Aurora, North Carolina, Carcharodon megalodon teeth have been collected in South Carolina, Florida, the Calvert Cliffs of Maryland, Virginia, and California.

Outside the U.S. teeth have turned up in South America, the West Indies, New Zealand, Europe, Africa and Eastern Asia.

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## MARK YOUR CALENDAR

2 Nov -- MAPS MEETING -- Iowa Hall  
 McBride Hall, The University  
 of Iowa, Iowa City, Iowa.  
 1:00 Board Meeting, Room 118 B  
 Mac Bride Hall  
 2:00 MAPS Meeting -- Meet Room  
 118 B for a tour of Iowa  
 Hall  
 Probably best to park in the park-  
 ing facility across from Trow-  
 bridge Hall. MacBride Hall is lo-  
 cated on the Northeast corner of  
 the Pentacrest.

7 Dec -- MAPS Meeting -- Augustana College  
 Fryxell Museum, Rock Island, Il  
 1:00 Board Meeting  
 2:00 MAPS Meeting -- Slides and a  
 display from the Munich Show.  
 Thank you, Gil Norris.

EXPO VIII - April 11, 12, 13, 1986

( ☺ ☺ ☺ )

## GUESS WHO'S COMING TO EXPO

MAPS is honored to announce the Keynote  
 Speaker for EXPO VIII will be Dr. R. A. Robi-  
 son, Professor, Department of Geology, The  
 University of Kansas. Dr. Robison is also  
 Editor of The Treatise.

Dr. Robison will address the MAPS audience  
 Friday evening, April 11.

Trilobites will be the highlight of EXPO VIII.  
 It's not too soon to begin to crystallize  
 your plans for this extraordinary show.

( ☺ ☺ ☺ )

## THAT'S NOT ALL

One other bit of special news, MAPS has re-  
 ceived a communique from the British Museum,  
 London, requesting membership.

Both the above incidents would not have hap-  
 pened except for you, the members. Your  
 generosity to science, your contributions to  
 museums and to students working on advanced  
 degrees has earned MAPS the reputation of a  
 scientific resource.

You are to be commended for your generosity  
 and for your willingness to share your know-  
 ledge through the pages of the Digest.

Thanks also must go to Harrèll Strimple who  
 took the initiative to introduce MAPS to the  
 Professional Paleontological Societies, and  
 to Fred Collier, Collections Manager, National  
 Museum of Natural History, who took a chance  
 and came to an EXPO. He liked what he saw  
 and the people he met. He has contributed a  
 great deal of expertise to our EXPOS. If you  
 come to Macomb in April, you will share in  
 his most recent gift.

( ☺ ☺ ☺ )

## TIDBITS FROM MUNICH

Good hunting. No wash cloths and rough towels.  
 Isn't bothering anyone too much. Amazing  
 fossils. Collecting in classic fossil local-  
 ities and seeing fantastic specimens in small  
 local museums. Impressed with their "wonder-  
 ful tour leader".

Hunting mostly ammonites, but Carlos Bazan  
 found echinoids--lucky. Roz Johnson, Grande  
 Dame of the tour, found exciting things, also.

Next month should be a recap of that exciting  
 trip and something about the Munich Show.

( ☺ ☺ ☺ )

## FOSSILMANIA -- ALL SYSTEMS GO

Many of our friends are in Texas or about to  
 be as we go to press.

Fossilmania gets better each year. A small  
 group of very turned on fossil lovers  
 work hard all year to make this a successful  
 show. We'll hear more.

What's a potato bust? Those unbelievable oy-  
 sters. Incredible glass mountain fossils,  
 sponges. It all makes the mouth water.

( ☺ ☺ ☺ )

DUES ARE DUE --- DUES ARE DUE --

It's that time of year again. Remember we  
 voted to increase the cost from 7.00 to \$10.00

Send your check payable to MAPS to Treasurer  
 Allyn Adams, 612 W. 51st Street, Davenport,  
 IA 52806

DUES ARE DUE

## A REQUEST FROM BOB DURNAL

The increasing interest and growing membership in MAPS has caused a greater demand for tables at EXPO. There were original requests for 141 swap and display tables for EXPO VII. Late requests required the use of every available table.

Many hours of effort are expended in developing the floor layout, trying to accommodate requests of MAPS members. To preclude last minute rearranging and searching for more tables, please send your requests as early as possible.

January is the time for requesting tables, but a word now will cause us all to think and try to accommodate Bob who works very hard to create minor miracles on the floor of EXPO. People always say it runs so smoothly, but behind the scenes are conscientious people like Bob. Crystallize your plans. Get a table(s) of your choice.

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## NATIONAL GEOGRAPHIC SOCIETY

Article: Fossils: Annals of Life Written in Rock NATIONAL GEOGRAPHIC: August 1985, Available \$1.90 per copy

Address requests to: National Geographic Society, Paul Tyler, Manager, Member Relations, Washington, D.C. 20036

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## SHARPEN YOUR PENCILS -- AGAIN

The following is a quote from a letter by Helen Tappan Loeblich, President, The Paleontological Society, sent by Harold Tichenor, 2440 W. Estes, Chicago, Il 60645.

. . .In 1982, the BLM published proposed regulations for paleontology in the Federal Register. These proposed regulations were drafted by non-paleontologists, with virtually no input from those knowledgeable in the science of paleontology. The proposed regulations were subsequently withdrawn, after BLM received many hundreds of letters pointing out the naivete and amateurish nature of the regulations. However, the BLM now has a 46-page draft document, on Management of Paleontological Resources, planned to be published as a BLM Handbook, and abstracted for the BLM Manual. As another attempt to regulate fossil

collecting, it also was drafted by persons who have no knowledge of field paleontology, and who provided no vehicle for public comment. The cover of the report is indicative of the content; it shows a large carnivorous dinosaur holding a small dead dinosaur, and staring at a sign with the BLM logo that reads "No Grazing Beyond This Sign." . . .

The Paleontological Society, the Society of Vertebrate Paleontology, and the State of New Mexico, all volunteered to help the BLM draft an informed policy, but all offers of help were rebuffed.

The State of New Mexico has in effect a plan for paleontological collecting on State Lands; it is the only such plan available in the Nation. It could serve as a model for the BLM plan, or as an interim BLM plan, while the National Academy of Sciences Committee on Guidelines for Paleontological Collecting formulates permanent guidelines. The National Academy of Sciences Committee is a professionwide group, and includes a paleontologist who is a member of the Academy, several professional field paleontologists, and State and Federal Government employees.

In 1984, the Department of the Interior received only 40 to 50 permit applications to collect fossils on Federal Lands. The BLM proposes a budget of \$400,000 in FY 1986 to process its share of those permit applications. This would be a cost of \$8,000 to \$10,000 per permit application if all were submitted to the BLM. The BLM would involve all of their State and District Offices in the permit processing procedure, and administer the program from Washington. This very cumbersome procedure was devised by people with no knowledge of field paleontology. Administering 40 to 50 permit applications a year is not a full time job for one person, much less a manager with staff in Washington, and a dozen or more persons in BLM State Offices.

The Department of Interior does have excellent professional paleontological expertise in the United States Geological Survey (USGS). These USGS paleontologists have full time jobs in this field, most hold PhD degrees, and have long experience and outstanding reputations in research and field paleontology. The Department of Interior permit application program for collecting fossils on Federal Lands should be housed in the USGS, and coordinated with the individual needs of each of the land managing agencies. Certainly each Bureau in the Interior Department need not develop a separate paleontological program, as the paleontological expertise already resides in the USGS. This

"rediscovery of the wheel" procedure is unnecessary, expensive, and a duplication of effort. There is no need or excuse for BLM, the Bureau of Indian Affairs, National Parks Service, Bureau of Reclamation, etc. each to develop a program for processing paleontological permits, when these total only 40 to 50 applications annually. . . .

From SCFMS Newsletter--Whether or not the proposal is introduced as a bill depends largely on public reaction to it. . . .

Keep your letters as brief as possible -- contain it to only one subject -- and be polite! . . .

You are urged to bury the BLM under a mass protest, as was done in 1982. Individual letters are preferred as opposed to one letter with many signatures. Write to:

Mr. John Svaha, Assistant to the President for Policy Development, The White House, Washington, DC 20500

The Honorable U. S. Senator Jim McClure, 304 N. 8th St., Room 149, Boise, Idaho 83702 or call 208-334-1560

Robert Burford, Director BLM, 18th & C Street NW, Washington, DC 20240

R. Max Peterson, Chief, U.S. Forest Service, 14th & Independence Ave. SW, Washington, DC, 200205.

(Thanks also to Austin Paleo Newsletter, Austin Texas for information from SCFMS and addresses.)

( ¶ ¶ )

A D V E R T I S I N G   S E C T I O N

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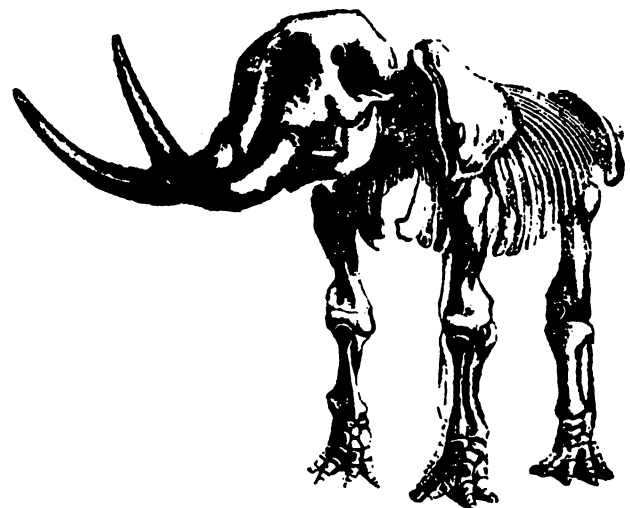
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Richard McCoy  
1119 Michigan Avenue  
St. Joseph, MI 59085

( ¶ ¶ ¶ )

VENICE, FLORIDA FOSSIL SHARK TOOTH HUNTING -- B. Clay Cartmett  
 Natural Science Research  
 2307 Manchester Road  
 Ann Arbor, MI 48104

With ample justification, Venice, Florida has been labeled by some as the "Fossil Shark Tooth Capital of the World". Located on the relatively shallow coastal waters of the Gulf of Mexico, hundreds of thousands of fossil teeth have been collected from here. The vast majority have been recovered on the surf-smoothed, dark sand beaches themselves or in the shallow near-shore waters. Importantly, the tidal part of these beaches--where these fossil teeth are still found in substantial numbers--is public property. So this prime collecting area remains open to fossil hunters. And despite people collecting along this coast for several decades, it is still not unusual for a knowledgeable person to find 100 or more fossil teeth in a day's hunt. My own experience has shown about two-thirds of these will be chipped or otherwise marred and the remaining one-third intact and worth collecting.

Depending on the particular shark species involved, the fossil teeth from here typically run from  $\frac{1}{2}$ " to  $1\frac{1}{4}$ " long. But every once in awhile, a really monstrous one is found. Nearly always, it is Carcharodon megalodon, the huge but now extinct predecessor of today's man-eater, the Great White shark. These teeth can run to 6" or more in length. They dwarf those taken from the largest extant Great White ever landed, 29 $\frac{1}{2}$  foot, over 10,000 pound monster taken off the Azores in mid-1978.

What is unusual about Venice's beaches is that they are fossiliferous. As opposed to the white or even pinkish color of calcium-carbonate or quartz sands, many areas of these beaches are composed in part of black sands. This is characteristic of a fossiliferous composition. Off-shore from here, the ancient sea floor deposits contain an unusually rich abundance of marine deposits, particularly the hard durable fossil shark teeth. Why they are so concentrated in this particular region is not known for certain. Sea currents may have played an important role. Nevertheless, they are concentrated here in the hundreds of thousands; they continue to be washed up on the Gulf beaches almost daily. Generally, it is believed the churning action of the sea constantly erodes these off-shore deposits--primarily Miocene--then washes the freed material toward shore. I've found broken-off, baseball-size pieces washed up on the beach with entrapped fossil teeth and other marine deposits.

While fossil shark teeth are this area's most abundant and most sought after collectables, the bones and teeth of Ice Age creatures are also found from time to time. Among these have been the huge grinding teeth of mammoths, bones from camels, fragments of turtle shells and skeletal parts from various marine mammals. Today, finds of this sort are almost exclusively recovered by Scuba divers working the modestly

deeper off-shore waters. These same divers are now also recovering a high percent of the hand-size Carcharodon shark teeth still being found. Whereas the Carcharodon fossils found on the beaches are often badly sand-worn or chipped, a surprising number of specimens taken by divers look as fresh as the day they came to rest on the sea-floor bottom millions of years ago. The fine, cutting-edge serrations are often in perfect detail. Typically, these teeth have a coal-black base with enamel a pale, whitish-grey.

While based on my own observations, I've found the Venice Public Beach to be the center point for collecting. It's at the Gulf end of east-west running Venice Avenue. There is free parking. It does, however, become crowded, particularly later in the day. From the lot, it is just a short walk to the Gulf. From this starting point, I've found fossil teeth as far as 15 miles to the north on Siesta Key and even further south on Boca Grands Island. But at these more distant points, the ones I found have been badly worn and of little interest as collectables.

Along the Venice beaches, the most frequently found teeth are those of the Lemon (Negaprion) Bull and Dusky (Caraharhinus) and Sand (Caracharias). Among those less frequently encountered are Tiger's (Galeocerdo), Mako's (Isurus), White's (Carcharodon) and Hemipristis serra's (now extinct in this part of the world). Many of these finds are of jewelry-grade and are used as such.

Finding a substantial number of fossil teeth is by no means a "sure thing". Recent off-shore weather conditions, tides, coastal currents and shifting beach conditions are all factors to be considered. It's the old story of being at the right place at the right time. A section of beach may be a broad

expanse of nothing but sea-smoothed sand most of the day then, for a few hours, have what is called a "wash-in". Shell fragments, rocks and other sea-floor deposits are carried by the surf up onto the beach. They're also likely to include fossil teeth.

When I was on the beach in April, 1984, there was an excellent wash-in right on the Venice Public Beach. Those hunting at the right time--and many were--found numerous beautiful specimens and in good quantities. Included was an occasional Carcharodon, Isurus, and Hemipristis. I, in fact, was fortunate enough to add a nice nearly 3" Carcharodon to my own

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#### THE COLLECTING AND CLEANING OF FOSSILS FOUND IN SOFT SEDIMENTS -- Wayne Barnett

20922 Harvest Hill Ln.  
Houston, TX 77073

One of the most productive type of rock to find fossils is in soft uncemented matrix. These types of rocks include sandstones, shales and in many cases limestones. An efficient collection of the specimens found in such rocks will include not only the specimens that are found on the surface but a mass collection of the matrix for recovery of the smaller specimens. The methods that are outlined herein were developed over a number of years collecting in such rocks.

The first thing that a collector should do upon visiting an outcrop is to determine the type of matrix and the degree of cementation that exists in the outcrop. In many cases the matrix can be screened on location if there is water available at the outcrop. If the matrix is very sandy with very little clay it will usually fall apart with very little effort. After the surface has been inspected and all the fossils are collected from the surface screening or mass, collections should be made for the less-visible material. If the material has to be carried a long distance the amount that can be collected on a trip will be limited to what can be packed out. In this situation it is usually more efficient to wash as much of the matrix on the site before packing out your collections. The best method to use in such a situation is a screen that is made of a mesh that is used for window screens. This size mesh will retain most if not all of the specimens you will usually be looking for. If you are interested in collecting microfossils a small sample of the matrix should be collected and retained for later processing. As each screening is completed set the screen at an angle to let as much of the water drain out as possible. This prevents the pack from getting too wet and cuts down on some of the weight, the object of the exercise in the first place. After the water has been drained, sack the remaining material in cloth or heavy plastic bags. Label each bag with the location of the

collection. But the wash-in only lasted a few hours. After that, only a few badly worn smaller teeth could be found.

Should you want to know more about collecting along this area's beaches, how to identify the more commonly found fossil shark teeth and background on shark's themselves, I suggest you buy a copy of my 80-page, extensively illustrated booklet, "Let's Go Fossil Shark Tooth Hunting", while in Venice. Or send \$2.95 plus 55¢ postage to Natural Science Research, 2307 Manchester Road, Ann Arbor, Michigan 48104 for a mail order copy.

of the collection as it is filled so as not to forget to do it later. If the matrix is easily removed the amount of collecting that can be done on an outcrop is greatly increased. If the outcrop has material of greatly varying sizes a series of two screens can be used to eliminate the larger material on the outcrop. In this type of situation I use a ½ inch mesh on top of the window screen and pick out the larger material on site. In this manner I only have the smaller fraction to pack out. The larger specimens are packed in smaller containers to help eliminate breakage.

In those outcrops where the matrix is composed of sand with enough clay to hold it together or there is no water available to wash the samples, the mass collection must be packed out. In these cases the surface should be collected then mass samples taken from as many of the layers as possible. The first collections should be made in those layers that appear to be most productive. Return trips can concentrate on other layers in hopes of finding material that is not represented in your first collections. As you develop your goals for your collection you will be able to determine the number of times that a site should be visited in order to complete the sampling needed to make your collection complete.



Once the collections are made and the samples are brought home they should be dried so that final processing can be completed. Drying of the samples is important because of the content of the contained clays. When the samples are dried the clays shrink. When they are rewetted the clays expand and in the process they fall apart. It is important to dry the samples as thoroughly as possible. In order to do this put them in the sun for several days. After the samples are dried they can be sprayed with water or put in buckets of water and allowed to soak overnight. In most cases the overnight soaking is best because the clays that are in the sample take a while for the water to penetrate if the size of the pieces are very much larger than an inch. After soaking overnight the matrix should be a mixture of clay and water slush, specimens and undisaggrated matrix. At this point it is time to wash the clay slush through the screen with a gentle current of water.

The results of this first wash should result in the removal of most of the matrix from the specimens. If the first breakdown does not result in an adequate concentration of the contained fossils an additional drying and soaking cycle(s) may need to be done. Some samples may take several cycles of washing to achieve the desired effect. As the sample is broken down the larger specimens may be picked out in order to help eliminate damage to them by further handling. When the desired concentration has been achieved the sample should be dried and the sample picked for the contained fossils.

Processing samples in this manner gives the collector several advantages. The first being the concentrated material is stored more efficiently. Instead of having to store a large volume of material the collector needs to store the material that contains the fraction that contains the fossils that they are interested in keeping. The second advantage is that it allows the picking of the material to be done more efficiently. Since all or most of the matrix has been removed the segregation of the desired specimens can be done in a fraction of the time than if all of the matrix had to be sorted through. The third advantage that the collector will realize is that some of the smaller specimens that would be missed will become more evident when the material is washed of the matrix. When only the surface of an outcrop is collected much of the smaller material is missed because it is not properly exposed. I have made several

collections on outcrops that were only surface collected by other workers. By using the above methods I was able to determine that the smaller material that the outcrops contained were far more dominate than previously believed. In one case it was determined that a small clam that had been reported in only small numbers was the dominate species numerically. The fourth advantage of these methods is that the amount of matrix that can be searched is greatly increased, thus making your collections more complete in a shorter time and in fewer trips to the outcrop. If the concentration is done on the outcrop and 70% of the matrix is removed that means that much more material can be packed out per trip. . .

These methods of collection and concentration can be used only in those situations where the contained specimens can withstand the drying and wetting process. IN those cases where the contained fossils cannot withstand the process you will have to collect the outcrop for the exposed specimens and make several trips to get as complete a collection as possible. These methods have also been very useful when collecting in limestones and in shaly limestone. Many times these types of matrix are not cemented and can be broken down in a manner similar to pure shales. The use of wetting agents can also be used to help speed the process. I usually do not use a wetting agent until the second or third cycle of processing.

After the samples are concentrated I usually size the residues so that picking the contained material can be done most efficiently. Usually screening through a 1/4 inch screen is adequate. The larger fractions are usually picked first because it will eliminate the greatest volume of trash and it is usually faster to pick. The smaller fraction is usually picked under some sort of magnified so that the strain on the eyes is lessened. Another advantage of picking under magnification is it is easier to determine what are the complete specimens verses the broken shell hash.

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DUES ARE DUE

Allyn Adams, Treasurer, 612 W. 51st Street  
Davenport, IA 52806

Checks payable to MAPS -- \$10.00

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: January 1 through December 31 is \$10.00 per household.

MAPS meetings are held on the 1st Saturday of each month (2nd Saturday if inclement weather). September, October, May, June, and July meetings are scheduled field trips. The August meeting is in conjunction with the Bedford, Indiana, Swap sponsored by the Indiana Society of Paleontology, the Indiana Chapter of MAPS. November through April meetings are scheduled for 2 p.m. in the Science Building, Augustana College, Rock Island, Illinois. MAPS Annual International Fossil Exposition is held in the Spring, and a second show in the Fall, Fossilmania, is sponsored by Austin Paleontological Society, a MAPS Affiliate.

MAPS official publication, MAPS DIGEST, is published 9 months of the year--October through June.

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## CYATHOCRINITES

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Dated Material - Meeting Notice