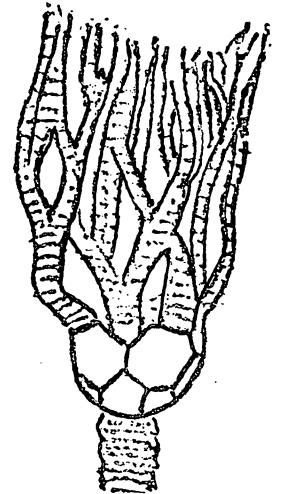


# M. A. P. S.

# DIGEST

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CYATHOCRINITES

## FROM THE SECRETARIES NOTES

The 2 September meeting was held in conjunction with the Proria Gem and Mineral Club show, with thirtyfive members and guests present. Two of our guests later became members.

The first official field trip of the society was planned for 14 October, with the Eastern Missouri Society for Paleontology participating.

Treasurer JoAnn Good reported a balance of \$290.74, and 89 members.

Details as to the space and costs of our NATIONAL FOSSIL EXCHANGE for 1979 were given by Wallace Harris. Complete details will be given to you in a future issue of the DIGEST.

Helen Asher presented a slide program on Pit 11 of the Peabody Coal Company collecting area at Braidwood Illinois, as it was when collecting was at its best many years ago, and also included some of the fine specimens this area has produced.

Bob Cooper of Peoria, Illinois will present the 4 November program on "Living Fossils".

## SOCIETY NEWS

Gil and Jerry Norris of Rock Island made the trip to the Swap/Buy/Sell activity of the Indiana Geology and Gem Club of Indianapolis, held at Greenfield on the weekend of September 16th and 17th. They report that not too much swapping was going on, mostly buying and selling. The MAPS information sheets were quite in demand once the fossil-lovers there found out about them.

Gil is planning to attend a show in Cleveland, Ohio on November 7th, at the invitation of the Ohio State Director for the MWF to promote MAPS. Dick Johannesen will be making contacts for MAPS with several California clubs when he is there on vacation during October. Amel Priest has passed along our MAPS information sheets to a number of his friends, who later became members.

As of today, 24 September, we number 94 fossil lovers in our ranks, including one each in Germany, Italy, and Japan.

The Rock Island (Illinois) Argus recently carried a full-page article on our new president, Gil Norris.

Concerning dues: they are \$6.00 per year for a family; \$5.00 for an individual; and \$3.00 for a junior, age 8 thru 16. Any member of MAPS who joined AFTER 1 JUNE 1978 is already "paid up" for the year 1978-1979. But for the rest of us .....

**DUES ARE DUE!**

"A LOVE OF FOSSILS BRINGS US TOGETHER"

## FOSSIL "TYPE" SPECIMANS

If you have ever searched thru a scientific report or publication trying to determine the identity of a species of invertebrate fossil, you sometimes see these terms: holotype - neotype - paratype - topotype - etc., and have wondered just what they meant, then you will be interested in learning the meaning of these terms.

And since scientists have been describing and classifying fossils since the turn of the century, it is not surprising that some of the terms used in those early days are no longer used by present-day paleontologists.

The "Holotype" is the one specimen singled out by the author of the description to best represent all the characteristics of this particular genus or species, as it might be. The holotype must be in a repository and available to other paleontologists who, on finding a specimen, might wish to compare it with the original to see if theirs is the same or possibly a new genus or species.

A "Paratype" is an additional specimen, one or more, used to support the holotype.

A "Syntype" refers to a number of species of equal stature with a holotype which is no longer used; and an author who is re-describing or adding additional information about a species where there are syntypes will choose one which is then called a "Lectotype", and this new specimen will then become the "type" specimen.

Sometimes in the early days workers described species in private collections because collectors hated to part with prized finds, and because new things needed to be pictured and described. In this manner many holotypes have been lost. Fire and theft have also taken their

toll of holotypes and other "type" specimens. When this happens, and no specimens are left, and at a later date more specimens are found, perhaps in some other locality, then the author doing the research on this species will re-describe an already described species. Such a new specimen is then known as a "Neotype". So it is important that new species be given to the proper authorities, who will see to it that the specimens will be taken care of so that workers one hundred years from now will have the "type" specimen to refer to.

Sometimes a collector can go to a locality where an original specimen came from and find a similar species. Such a specimen is called a "Topotype", same locality, same formation.

Should the author of a new species give you a topotype specimen, your gift is now a "Metatype", a species collected or identified by the author and from the original locality.

I have noticed in Geological Enterprises catalogs that Craffham offers metatype specimens occasionally, probably because he co-authored the papers on the species, or perhaps because the author sent him some surplus specimens.

There are many more terms defining types but the ones named are the main ones used in present-day descriptions of "type" specimens.

By Amel Priest

From The Typewriter

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Editors note:

You will have noticed that no reference has been made to the October MAPS meeting. This omission has been necessary because the November issue of the DIGEST is being prepared in mid-September. Your Editor will be on vacation in California-Oregon-Washington for the entire month of October.

AMMONITES OF MONMOUTH COUNTY, NEW JERSEY

The heteromorph group is one of the characteristic groups of ammonites at the end of the Upper Cretaceous. They show the great radiation in form from the simple coiled ammonite form of earlier times. This is possibly what led to their downfall, for very specialized forms such as these are not very tolerant of changes in the environment, and therefore they are quickly extinguished.

Perhaps the most interesting and the most researched group of ammonites in Monmouth County are the famous heteromorphs immortalized in the "Ammonites from the Navesink Formation at Atlantic Highlands" report by Cobban. These ammonites have been known to scientists since the turn-of-the-century but only recently has any of the pioneer work on classifying them been done, and many of them are still unpublished.

Hence if you should find a heteromorph there is little chance of identifying it unless it is taken to an expert. Nonetheless, an attempt to make an easy identification will be made here.

As can be seen in the diagrams following, the growth habits of the heteromorph are somewhat varied.

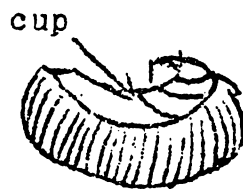
In fact, the name "heteromorph" means "varied forms", referring to the variety involved.

These unusual growth styles have led to some controversy over the life-habits of these animals. It is now generally assumed that the heteromorphs for the most part were free-floating plankton feeders with many fine tentacles for grabbing food as it passed. Mobility was limited, and this was accomplished by a hyponome that spurted water like a jet propulsion system.

With such awkward living predation must have been heavy. However experts on the subject as well as local collectors agree that for a predator to eat a Nostoceras or a Didymoceras it would have to be able to ingest a lot of shell, for most of the mass of the animal was in its shelly living chamber. However, it is known that at least some of the heteromorphs had problems with parasites, these including the "blister disease" which causes the strange bulges inside the living chambers of the ammonites, and also with the boring-clam Lithophaga.



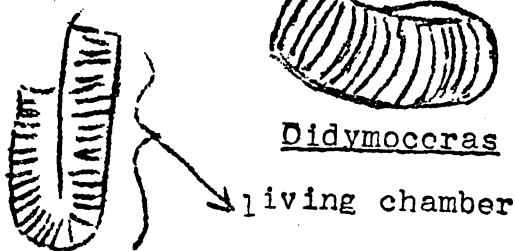
Exiteloceras



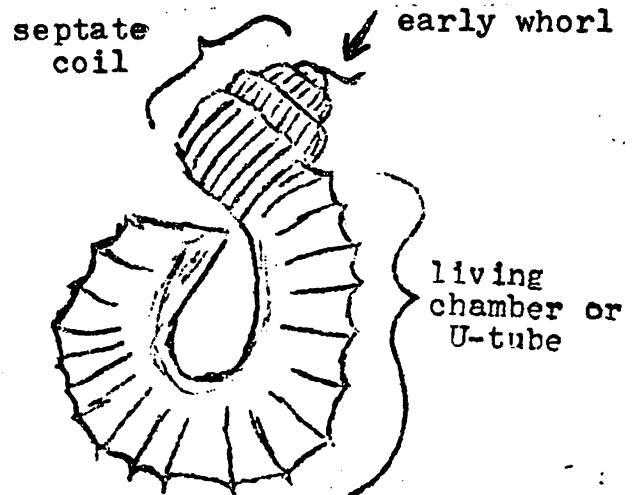
Nostoceras



Didymoceras



Oxybeloceras growth style



Nostoceras/Didymoceras growth style

Whole specimens of the heteromorphs are very rare. Usually they floated a lot after the animal had died and eventually the shell broke into the fragments as found as fossils today. It is interesting to note that there are three characteristic sections of the shell found, thus indicating that there must have been stress points in the shell where breaking was accomplished more easily.

Perhaps the largest and the most common of these are the living chambers. These are the familiar U-tubes of Nostoceras and the hairpins of Oxybeloceras. These sections are most likely preserved because of their open nature and the thick shell wall which made them more easily filled with sediment and thus resistant to ground pressure.

In Monmouth County the one and only site where heteromorphs are found in any numbers is at Atlantic Highlands.

The Mid-Atlantic Paleontology Society research group headed by Ralph Johnson, and the ammonite expert Harold Mendryks have done much of the pioneer work on this group. One of the interesting things Mr Johnson showed the author recently was a number of freak specimens of Nostoceras hyatti from this site, some of which were missing nodes, some with few or many ribs, in all, many variations.

This would seem to indicate the beginning of the end of the heteromorphy, for these mutations usually occur in areas where genetic variability is restricted and the gene pool is closed. Therefore by their own life habits the Nostoceras had evolved to such a state that genetically they were no longer able to adapt.

In Monmouth County the common ammonites in this group are:

Nostoceras - characterized by the form pictured, and in most, a cup at the point of contact with the septate coils.

N. hyatti - commonest at Atlantic Highlands, and restricted mostly to the lower beds of the basal Navesink Formation. Large size and a double row of ribs centrally spaced are characteristic of this species.

N. helicum - very rare; found only in the lower bed of the basal Navesink at Atlantic Highlands; this species has many more ribs per inch than N. hyatti and the nodes are placed differently

N. pauper - another rare species; found in both the basal Navesink and the Upper Wenonah Formations; living chamber rarer than the septate coils; coils have rows of nodes in the center and the lower quarter

N. mendryki - also rare; found only in the basal Navesink; has oval nodes in the same positions as N. pauper.

Didymoceras - septate whorl is told from Nostoceras by the lack of a cup above it. This species is occasionally encountered in the Wenonah Formation.

D. navarroense is a rare form found in the basal Navesink only and not likely to be seen by the average collector.

Exiteloceras oronensi - another rare form, found only in the basal Navesink at Atlantic Highlands; the whorl has a squared cross-section and the growth habit is distinctive.

Hairpins - the hairpin ammonites Solenoceras and Oxybeloceras occur in the Atlantic Highlands area. However, all the species found in Monmouth County have not been described, and all are very rare.

Written by and submitted by Wayne Cokeley.

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Articles, original or from news papers or magazines will be welcomed from all MAPS members. Use your eyes to search out good fossil articles for the rest of us to enjoy. Please send to my home address.

Dick Johannesen

## GEOLOGISTS FIND DINOSAUR BONES

Princeton, N J (AP) A team of geologists has found the 90-million year old skeletons of baby duckbill dinosaurs in Teton County, Montana, Princeton University officials have just announced.

The team, led by Princeton research assistant John Horner, said the nest dates from the late Cretaceous period, this according to George Eager, the university spokesman. He said Horner's team found the skeletal remains of 15 to 17 individuals, babies that apparently died just after hatching.

Each skeleton is about two and a half feet long and ten inches high. Unfortunately no intact eggs were found but about one hundred yards away an adult dinosaur skull was found; this might have been the babies mother. Exact identification of the skull has not yet been made.

"The significance of this find is that it gives some information to us about the social structure among dinosaurs, in that there might have been parental care of the young" said Eager.

From the Dallas Morning News  
16 August 1978. Contributed by  
Dr Carlos Bazan

## ANCIENT GREENERY AWES SCIENTISTS

New York, N Y (NY Times) Tree leaves that look as fresh today as they did as long as 36-million years ago have been found in Oregon, the most perfectly preserved specimens of living tissue ever found from the distant past.

Discovered by a team of botanists from the N Y Botanical Garden and the University of North Carolina, the leaves are 16 to 36 million years old..... but remain green and intact down to the membranes, organelles and other microscopic structures inside the cells.

Analysis of the leaves has led the researchers to suggest that they may

have been preserved when compounds that are normally isolated in certain parts of the cells were released to act as a kind of self-embalming fluid. It has been suggested that if this mechanism could be understood and initiated by human action, it could provide a new method of preserving foods for human consumption.

The discovery that the leaves remained green after millions of years was reported last year after they were recovered from volcanic ash deposits in eastern Oregon. But now, after more detailed examination of the leaves with electron microscopes, the researchers have discovered that far more was preserved than simply the leaves shapes and colors.

"The preservation is just simply astonishing" said Dr Karl Niklas of the Botanical Garden. "As far as we've been able to determine nothing like this has ever been seen for certain in any other tissues from the past".

Ordinarily, living tissue that is somehow trapped and preserved undergoes a fair degree of alteration. The best known is mineralization, a process in which molecules of mineral replace molecules of tissue. Petrified wood is an example, in which stone has formed, often duplicating detailed structures within the wood. Under other conditions however, there may be no mineral substitution but rather a compression of the tissues and a form of decomposition that converts the plant tissues into oil or coal.

What Niklas and his colleagues have found, however, is that under very dry conditions that apparently kill any decay organisms, leaves may simply be trapped and merely desiccated.

Sealed off, the leaves rest undisturbed. Niklas also suspects that the entrapping volcanic ash may have somehow released certain organic acids within the cells, perhaps tannins or chlorophyll derivatives that prevented decomposition.

# NATIONAL FOSSIL

## EXCHANGE PLANNED

The first "Exchange" (last July) having been such a success, MAPS is now planning for its second, and hopefully annual "NATIONAL FOSSIL EXCHANGE".

This will be held on the campus of Western Illinois University, Macomb, Illinois, the weekend of March 31st - April 1st 1979. The exchange/show chairman is yet to be selected. This activity is being sponsored by MAPS with the assistance and participation of ESCONI and the Eastern Missouri Society for Paleontology.

This event is open to any and all fossil lovers who are also invited to bring a display in their own case and thus share their treasures from the past with the rest of us. Exchange of specimens however is the key to this activity, either by trading, by buying, or by selling. No professional dealer space will be available, the "Exchange" is planned for the private collector, not for dealers.

So mark your calendar, and plan to bring a case and a display as well as specimens to exchange with your fellow fossil-lovers.

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