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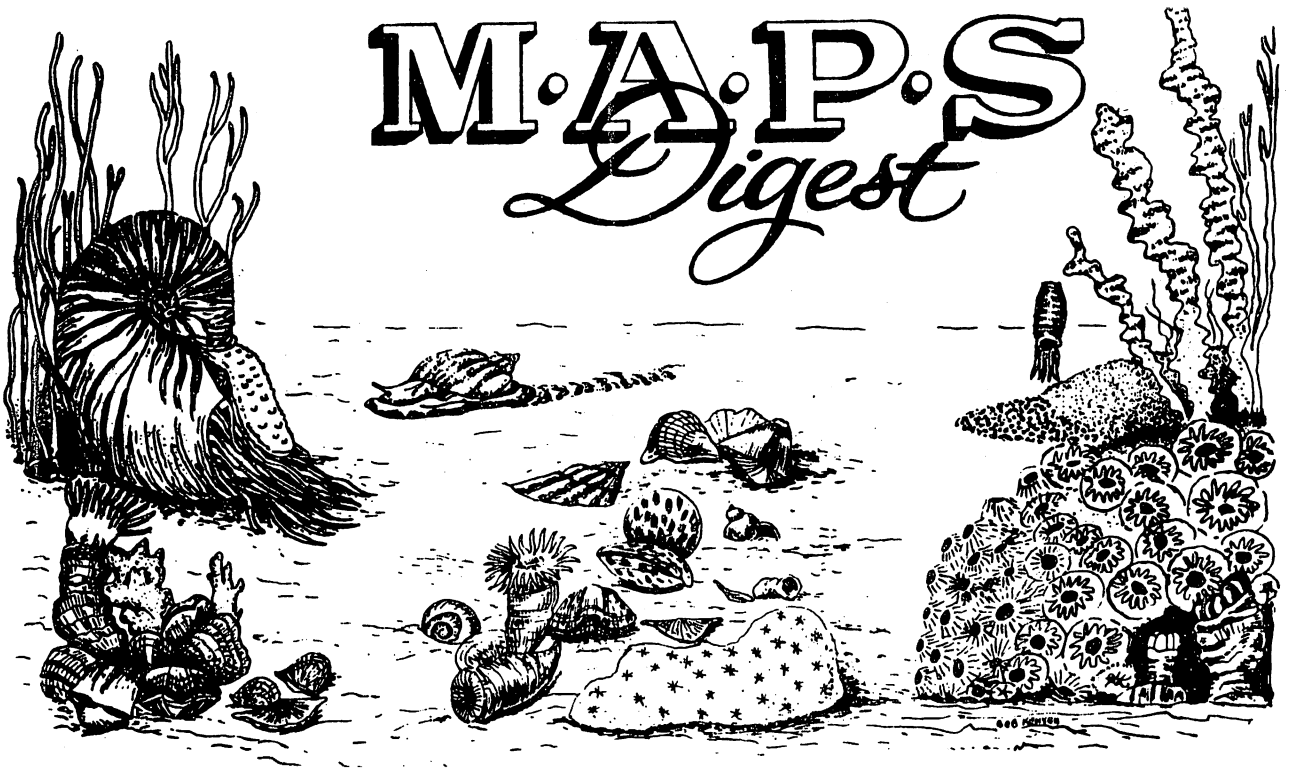


Official Publication of
Mid-America Paleontology Society

EXPO EDITION--April, 1982

HELLO FROM YOUR PRESIDENT

I guess this letter is directed more to the people who didn't make it to EXPO.

When your friends who did attend EXPO return home, you'll kick yourself because you didn't come to Macomb, Illinois. People in 19 states and several foreign countries all headed home with the wonderful fossils they bought or get in trades. These people are not only richer because of their new fossils but also because of the new-found friends. Some of the people only see each other once a year but such wonderful friendships have developed you almost feel as though they are family.

Every year fossil collectors get together in April in Macomb--for fossils, for friends, for fun. A lot of people then stay over for several days afterwards to participate in the field trips.

I would like to thank everyone who came to this year's EXPO--everyone who has been here every year and those who have come for the first time.

The Digest and EXPO are the 2 things this club has to pull its members together. Over the years, the support given to both has been wonderful.

I hope that next year even more new people can come to EXPO--it's wonderful to meet the people you've been trading and corresponding with.

One thing that would make it possible is to start planning now. We'd love to see you there.

Cheryl DeRosear, President

MARK YOUR CALENDARS

2 Apr EXPO IV -- UNION HALL
WESTERN ILLINOIS UNIVERSITY
MACOMB, ILLINOIS

1 May MAPS Meeting -- Augustana College, Rock Island, IL
1:00 p.m. Board Meeting
2:00 p.m. No Program -- Wind up of EXPO IV. Reports from all Committees

18-20 June EASTERN -- Pittsburgh, PA

24-27 June MIDWEST -- St. Paul, MN

8-11 July SOUTH CENTRAL -- AFMS, Houston, TX

20-22 Aug NORTHWEST -- Pocatello, ID

28-30 Aug CALIFORNIA -- Long Beach, CA

17-19 Sept ROCKY MOUNTAIN -- Denver, CO

SEE PAGE 4&11 for more exciting dates.

"A LOVE OF FOSSILS BRINGS US TOGETHER"

MINUTES OF THE MEETING

The March meeting of MAPS was called to order at Augustana College, March 6, 1982, by Pres. Cheryl DeRosear.

Alberta Cray reported a balance of $2,040.59 in the treasury.

Cheryl reported that the committee appointed to decide how to use Mr. Yutaka Baba's gift to MAPS had agreed that a fitting project would be a slide presentation about plants, Mr. Baba's special interest. The program will be dedicated to him.

The awards committee had met and agreed that a "President's Award" could be made annually at EXPO, at the discretion of the president.

Cheryl reported that EXPO IV plans were crystallizing. Reservations have been made for: 116 feet of displays, 71 tables by members from 19 states and 3 foreign countries.

The MAPS summer schedule will include the following field trips and their leaders: (this is a tentative schedule)

June - Bud & Alberta Cray
July - Don Good, Henderson Co
Aug - Bedford Swap, Bedford, IN
Sept - To be decided
Oct - To be decided

Don Good introduced the program speaker, Terry Frest, Ph.D. candidate, University of Iowa who lectured brilliantly on "Echinoderms of the Osgood".

Respectfully submitted
Peggy Wallace, Secretary

PROGRAM--MARCH MEETING -- T. J. Frest

At the March MAPS meeting, members and guests were treated to a very interesting lecture by T. J. Frest, doctoral candidate at the University of Iowa. Mr. Frest discussed the echinoderms, particularly the cystoids, of the Osgood formation in southeastern Indiana.

The Osgood Formation is Middle Silurian in age and composed of siltstone, shale, and limestone. Suitable outcrops for collecting are fairly uncommon. However, recent quarry operations in Ripley Co., Indiana have provided excellent exposures at this quarry, vast collections of the Holocystites fauna. Due to the excellent exposures at this quarry, vast collections have been made resulting in the discovery of a number of new species of cystoids, a paracrinoid, and perhaps an eocrinoid.

Existing evidence shows that the cystoids probably lived in fairly calm water about 80 feet in depth. Sedimentation was rapid enough to prevent crinoids from being the dominant echinoderm, yet not so rapid as to bury the "stemless" cystoids. There is some evidence of periodic disturbances which resulted in masses of detritus which in turn provided a needed hard substrate for the "thick-stalked" species by cystoids. Those species with more of an aboral stem like projection were probably living in the surrounding areas of softer substrate. Most of the cystoids (perhaps 90%) were preserved after death as evidenced by the majority of the specimens being filled with clay rather than calcite.

Identification of the various cystoids is based primarily upon: shape of the theca, peri-oral plate arrangement, facetal arrangement, position of the gonopore, and the various types of pore structures present. Among some of the slides shown were some new species of cystoids which were found my MAPS members Don Bissett, Dan Cooper, and Bruce Gibson. These species will be named after the above-mentioned individuals for their outstanding contributions to Mr. Frest's study of the Osgood Formation.

Mention was also made of the epifaunal elements associated with the cystoids such as borings, worm tubes, bryoza, and crinoid root systems. Also discussed were other associated fossils found in the Osgood Formation and correlations were made with the Racine Formation and the Waldron Shale.

Thanks to Doug DeRosear

Increased melting of sea ice has reduced the Antartic ice pack nearly a million square miles since the early 1970s, according to researchers at Columbia University. The dramatic change, possibly the first physical evidence of a global warming trend, is attributed to the buildup of carbon dioxide.

Thank you Lloyd Millhorn

GENERALIZED OUTLINE FOR TAXONOMIC SLIDE PROGRAMS ON THE INVERTEBRATES

I. Title

II. Invertebrate Evolutionary Tree

III. Generalized Characteristics of the Phylum

- A. Hard part anatomy including symmetry
- B. Phylogeny & morphology
- C. Habitat
- D. Geologic range
- E. Food supply and predation
- F. Miscellaneous information

IV. Classification

- A. Class } or whatever subdivisions are
- B. Order } warranted for your particular phylum. Representative species of particular locations

V. Type of Preservation

Standard book source: THE INVERTEBRATE FOSSILS by Moore, Laliker, & Fischer.

(Ed. Note: Presented at EXPO IV will be a slide program on Brachiopods the format of which is designed with the above outline. It is the hope/plans of the board that this is to be just the beginning. Another program is already begun. Within our membership are many very qualified persons who could develop programs on a phylum of his/her love. The above outline should be used to cause the finished product of these resources to be consistent in information. Already we need someone who might be interested in working on a slide presentation about plants. What would be your choice?)

Thanks to Don Good

WANTED -- NEEDED

A person with a desire to learn about plant fossils to produce a teaching slide (and script) program in honor of Yutaka Baba.

This requires someone willing to study a collection or have access to one. Photography ability is not required as members have volunteered to produce the slides of fossils needed for this program.

The responsibility would be to decide what slides are needed, then create the script with exact identifications.

Please notify Don Good of your interest to lead this project.

Thanks to Gil Norris

MIDWEST SHOW 

In response to a letter asking "Will there be swapping at the Midwest Show?" we have been notified there will be NO swapping area at this show. At the time of our letter no fossil dealer had booked dealer space.

If any member has up-to-date information that differs from the above, please contact a board member.

Thanks to Gil Norris

FOSSIL DISPLAYS -- WESTERN ILLINOIS UNIVERSITY

The following are displays in Tillman Hall (south of Union--Seal Hall--north of Sherman Hall Administration--has white bell tower). It is hoped Tillman Hall will be open part of Saturday, April 3.

1. Diorama--painting--fossil exhibits--Precambrian to Pleistocene
2. Diorama--arthropods
3. Diorama--origin of rocks
4. Diorama--plate tectonics
5. Cephalopod exhibit
6. Fossil mammal & turtle exhibit
7. Fossil reptile exhibit
8. Dinosaur vertebrae--Diplodocus
9. Mississippian age fossils
10. Fossil plant exhibit
11. Petrified wood

*12. Fossil preservation

*13. Ozark Plateau minerals

14. Moon mineral exhibit

24. Glacial history of Illinois

*New

Thanks to David F. Hess
Western Illinois University

SEDIMENTARY NOTES

For some reason, I have not seen any mention (Ed. note, in the Digest) of the new book LUCY about the origin of humans. It is very interesting reading, written by Donald Johanson and Maitland Edey, and done in three parts...

Johanson was not raised in a fossil collecting family, but when he was bitten by the bug, it starts to sound just like the rest of us. Young

(continued next page)

SEDIMENTARY NOTES, continued

people sometimes have enthusiasm and a big ego, and Johanson was blessed with both. He was exposed to anthropology as a boy, studied chemistry in college, but then found an opening that led to anthropology as a career. The book gives a good coverage of other collectors and their work, but the major rivals are the Leakey family Then Johanson meets another strong will in the person of Tim White, together they lay their plan to challenge the world. They compare their work with the DNA--Double Helix Competition--since it is similar.

There is a little political trouble in Ethiopia to worry about, and the usual field problems... The best part of the book from our standpoint is the time spent in collecting and study. You also learn about the complications of dating homo material and backing your ideas. Part three gets into the why of it all, it's interesting if you stick with it to see why they believe what they do. The book cost is seventeen dollars now, but will probably come out in paperback.
(Ed. note--If someone would care to synopsize a story of LUCY, I have had for some time her story written in the magazine section of a Sunday paper. It surely should be recorded in the Digest.)

Thanks to Lloyd Millhorn

NORTH-CENTRAL GEOLOGICAL SOCIETY OF AMERICA

Meetings at West Lafayette, Indiana on the Purdue University Campus. The North-Central section of the Paleontological Society will also meet at this time.

Two days of talks, Thursday, April 29 and Friday, April 30. There will be some ½ day and full day field trips on Saturday.

Early registration is $25. Field trips are extra.

Anyone interested in attending can contact:
Purdue University, Continuing Education
Administration Business Office
110 Steward Center
West Lafayette, IN 47907

There will be quite a few paleontological talks and many midwestern professional paleontologists at the meeting.

Thanks to Gary Lane
Indiana University

CONFERENCE ON SEDIMENTOLOGY AND PALEONTOLOGY OF MID-CONTINENT BLACK SHALES

Co-Sponsored by Cleveland Museum of Natural History & Department of Geological Sciences, Case Western Reserve University

Cleveland, Ohio, May 7-8, 1982

Organic-rich shales of Devonian to Pennsylvanian age underlie much of the Appalachian Basin and contiguous areas. Renewed interest in these enigmatic deposits has greatly increased our knowledge of their characteristics. However, puzzles and controversies persist regarding their origin and environment of deposition, the significance and modes of preservation of faunal and floral assemblages, causes of widespread anoxic conditions, and related issues.

The Conference on Sedimentology and Paleontology of Mid-Continent Black Shales will be a forum for assessing the current status of geologic knowledge concerning these units. The first day will consist of technical sessions held at the Cleveland Museum of Natural History. Field trips to Devonian shale localities in the Cleveland area will be taken on the second day.

For information write to:

Philip Banks
Dept. of Geological Sciences
Case Western Reserve University
Cleveland, Ohio 44106

(216) 368-3679 or (216) 363-3690

Under aids and grants. From the U. S. Department of the Interior's Office of Surface Mining: $1,007,188 to the state of Indiana to enforce its interim surface-mining regulatory program and to develop its first abandoned-mine-lands work plan.

This last item might not mean anything to most people, but I have been telling people for 20 years that it was only a matter of time.

Ohio and Illinois cannot be far behind, but Kentucky will have to wait for years yet. Each of these states have a lot of surface mines that were stripped prior to the reclamation law. In time, this land will be reclaimed at taxpayer expense, also at the expense of any fossil collectors in the area.

Thank you Lloyd Millhorn

A SALUTE TO NATIONAL FOSSIL EXPOSITION IV

Can you hear the band, do you see the fireworks, can you feel the throb of love as you get nearer and nearer to all our MAPS Family? And what about those treasures from ancient seas?--mute testimony to the ongoing evolving processes of this aged planet Earth. There's a mysticism here that they lay embedded for millions of years, absolutely perfect condition, until you happened by to dig them up. Slowly their fascinating mysteries become unravelled and each step produces another page of an intriguing tale. Lucky we are to spend 3 days gathered among these awesome treasures.

SOOOOOOOOOOO Let the show begin with --

A MOST HEARTY WELCOME TO EACH OF YOU !!!

REPTILES OF THE PLANT WORLD--THE OLDEST SEEDS

Primitive seeds dating back 360 million years have been reported from a West Virginia site. These are the earliest seeds discovered so far, geologist William H. Gillespie of the U.S.Geological Survey told SCIENCE NEWS. The seeds, encased in cup-like structures called cupules, are "just about as primitive as could be and still be called seeds." He explains that the outer layers of the seed are only partially fused, so there is no completely closed seed coat.

"Threee hundred sixty million years ago most plants reproduced by spores. Seeds were something new and turned out to be very successful," Gillespie says. The gradual evolution of seeds from spores included increasing the size and decreasing the number of female reproductive cells, enclosure of the cells by a protective circle of branches (and eventually a seed coat) and longer retention of the reproductive tissue on the female plant.

The newly discovered cupules are from a primitive group of seed ferns, Gillespie says. The seeds were found associated with 15 to 20 types of plants; the scientists are now trying to pin down which plants were the parents. Because the West Virginia site was once near a coastal swamp the deposits contain--in addition to the seeds and a variety of plants--fish scales, invertebrate shells, pollen and spores. These remains were all used to assign a date to the seeds. "It really pins it down," Gillespie says.

An exciting aspect of the find is that the internal anatomy of the cupules has been preserved. Gillespie and colleagues Gar W. Rothwell of Ohio University and Stephen E. Scheckler of Virginia Polytechnic Institute plan to examine the structures cell by cell. The scientists, whose work appeared in a recent issue of NATURE, propose that study of other plants of the site should reveal "the paleoecology of these earliest seed plants."

Paleobotanist Leo J. Hickey of the Smithsonian Institution calls the finding "a minor range extension." He says the seed structures found are consistent with those of slightly younger plants discovered previously.

The primitive seed plants gave rise to all seed plants in existence today. The seed internalized reproduction for the plants, as the amniotic egg did for animals. Hickey says that in earlier days of terrestrial plants, "the body had conquered land, but reproduction was still tied to the water." He summarizes, "Seed ferns are the reptiles of the plant world.

Thank you Konecnys, Arizona
and Doug Johnson, Iowa

DINOSAURS, MAMMOTHS AND CAVEMEN: THE ART OF Charles R. Knight

Extinct creatures that once inhabited Planet Earth will reappear at the Natural History Museum beginning March 5 in a special exhibit of paintings, drawings and sculptures by Charles R. Knight. The exhibit will continue through May 30, 1982.

Brontosaurus, Stegosaurus--even the mighty Tyrannosaurus rex--were but dusty assemblages of petrified bones until Charles R. Knight combined his love of nature, artistic ability and scientific skill to realistically recreate thesefantastic beings from millions of years ago.

Knight's works illustrate the beginnings of lif on Earth and the appearance of strange pre-

THE ART OF KNIGHT, continued

historic creatures, culminating in the emergency of primitive man. Although his first works were completed before the turn of the century, the majority of his work was done in the 1930s and 40s and his visual conceptions of the creatures that once inhabited this planet have never been surpassed. In his own words: "I never think of a fossil animal as being dead, but always picture it in my mind's eye as alive--an animated, breathing, moving machine which stands, walks, fights, or otherwise conducts itself after the fashion of a living creature."

Knight's talents were sought after by many museums including the American Museum of Natural History, the Field Museum and--in Los Angeles--the Natural History Museum. With his associates Knight pioneered new and revolutionay concepts for the display of fossils, moving away from traditional idea of mounting a skeleton by simply stringing the vertebral column along a straight length of steel rod to the mounting of skeletons in exciting, realistic poses. Knight's paintings of dinosaurs and other prehistoric creatures accompanied and gave greater meaning to the fossil exhibits. Included in the exhibit is one of Knight's best known paintings, undertaken for the Natural History Museum, which depicts prehistoric life as it might have been 15,000 years ago at Rancho La Brea.

The exhibit will coincide with the release in Los Angeles of a photographic retrospective of Knight's major works. Dinosaurs, Mammoths and Cavemen: The Art of Charles R. Knight, authored by Sylvia Massey Czerkas and Donald F. Glut, published by E. P. Dutton, will be available in the Museum Book Shop. After its Los Angeles showing, the exhibit will travel to the Palentological Museum and Research Institute in Alberta, Canada.

The Natural History Museum in Exposition Park is open Tuesday through Sunday, 10:00 a.m. to 5:00 p.m. Closed Monday. Adults $1.00; students and senior citizens over 62 and children 5-17, 50¢. Free admission the first Tuesday of each month. Parking available.

Thank you Ron Ratkevich
Alamogordo, NM

HUGE CRASHING METEORITES MAY EXPLAIN CONTINENTS

ST. LOUIS, MO (AP)-- Scientists have uncovered evidence that huge meteorites, some the size of the state of Delaware, may have given birth to the continents of Earth billions of years ago.

"We've uncovered patterns in gravity density which which lead us to believe that North America was formed after a giant meteorite crashed into what is now central Canada," said Klaus Jurgen Schultz, a fellow of the McDonnell Center for Space Sciences at Washington University in St. Louis.

"North America should not be unique," Schultz said, "so we're now trying to find gravity date for other continents of comparable quality to what we have for North America."

Gravity data on this continent has long been available, Schultz said, but until recently no one had looked at it on a large scale.

What such a study revealed to Schultz, John Klasner, a geophysicist at Western Illinois University, and William Cannon, a geologist with the U.S. Geological Survey, was a huge bull's-eye ripple effect with the center smack in the middle of Canada.

Schultz, who interpreted the data, said it showed underground impact rings stretching for 1,700 miles from what is now Hudson Bay in the north to below the present location of the Great Lakes in the south.

The scientist pointed out that the moon and other planets in our solar system show that large meteorites pelted them early in their lives, and there is no reason to believe the Earth escaped unscathed.

The difference, Schultz said, is that planets such as our moon were cold, while the Earth has a thin crust covering molten stone and metal.

Schult's meteorite impact theory holds that the meteorite that struck Canada was some 60 to 90 miles in diameter. It set off a chain of volcanic eruptions lasting millions of years and planting the granitic rock that would become the North American continent.

The theory itself is not new, but what had been lacking was physical evidence to support it.

Scientists believe the Earth is 4.6 billion years old, but the oldest rocks to be found date back only 3.8 billion years, leaving an 800 million-year gap that has remained a mystery.

DES MOINES REGISTER
Thank you

Courage, like steel, is forged on the fires of adversity.

--Neil R. Murphy

THE PROFESSIONAL'S CORNER --

LOST LOCALITIES

N. Gary Lane
Geology Department
Indiana University
Bloomington, IN 47405

One of the most intriguing and frustrating parts of paleontology is trying to track down old fossils localities, especially ones that were collected in the 19th centruy. During the 1800's the middlewestern states were first seriously explored for fossils. The first state geological surveys were formed in the early 1800's. There followed several decades during which many new genera and species were named. Most paleontological publications of that time dealt solely with naming, describing, and illustrating new fossils. There was often intense competition to first name specimens from a newly discovered site. Some paleontologists jealously guarded locality information and published records are often quite vague. I have seen some old specimens labelled simply "Indian Territory". In addition, maps were often not avilable or were generalized and on too small a scale to be useful in pinpointing a locality. I suppose in some instances it was assumed that anyone interested would know where the locality was anyway.

For these reasons trying to re-discover old localities involves a certain amount of detective work. Success is never guaranteed because some old sites were completely exhausted of fossils, especially where specimens occurred in localized pockets that could be completely mined out. The spot may have become slumped over or overgrown with vegetation even if one knows exactly where to look. On the other hand some old sites that have been known and collected for years are still remarkably productive.

In addition to obtaining specimens for study, old localities are important because early workers were typically obscure as to the exact stratigraphic position of many fossils. For instance, many of the early crinoid species described from Indiana were said to be from the "Keokuk". Now the Keokuk Limestone of Iowa, Illinois, and Missouri does not occur in Indiana at all. Rocks of the same age as the Keokuk in Indiana include the Edwardsville Formation of the Borden Group, and the Ramp Creek. Leesville and Guthrie Creek Members of the Harrodsburg Limestone. All of these rock units yield crinoids at one place or another in Indiana. Old collections said to be from the "Keokuk" could have come from any of them. Obviously it is important in modern evolutionary studies to determine which of these units yielded which species of fossil. Lack of this information may render old collections virtually useless for modern paleontological research. Failure to record this kind of information is the single most common feature of amateur collections that drastically reduces their scientific value.

How does one go about trying to re-discover old localities? Examination of old fossil collections may commonly give a clue--the color, completeness, or nature of rock matrix adhering to the fossil--as to the stratigraphic placement of the fossil. The rock matrix tells whether a shale or a particular kind of limestone yielded the fossils and this matrix can be matched with known characteristics of rock formations that one suspects may have yielded the fossils. If one can narrow down the stratigraphic interval from which the fossils came, this also narrows down the geographic area that might include the old site.

Sometimes old localities are cited in terms of landowners--in one 1911 paper a locality is given simply as "George Palmer's Farm, Clark County, Kentucky". Search of old land records at the appropriate county courthouse may be helpful in determining potential areas of search.

Search of collateral older literature that does not specifically deal with fossils but rather with the general geology of an area, can sometimes be very useful. For instance, one may know the county in which an old locality was situated. An old county geological report or map may include the locality or provide clues as to where to start looking.

Finding an old locality and being able to collect topotype fossils from it can be a real thrill. Topotypes are specimens from the same locality as the type specimen on which the species name is based.

* * * *

Man need not climb the mountain to see into the valley. All things to be seen can be found in a simple shared bowl of rice.

THE PROFESSIONAL'S CORNER continued -- Harrell Strimple

The University of Iowa
Department of Geology
Trowbridge Hall
Iowa City, IA 52242

SUPPLEMENTAL NOTE

In an article published in the November, 1981, issue of MAPS Digest I touched on microcrinoids from Lake Valley, New Mexico and several members have exhibited an interest. Considering they range from smaller than the dot over an "i" to somewhat larger one must have good optical assistance to find or study them. Even so microfossils can be great fun and require minimal storage space. Nikon has a good student zoom binocular microscope and it is the sort of thing one need only purchase once in a lifetime. There are several relatively inexpensive (not cheap) binocular microscopes for this type of study. Spencer and Bausche and Lomb zoom binocular scopes are good but somewhat more expensive than Nikon. Inclined eye pieces will save one a lot of strain on neck and shoulders. With eye pieces X10 the zoom power is commonly from X7 to X30. A screw on lens X2 will double that or one at X0.5 will halve it. They are seldom, if ever, needed. They have a dual purpose and are indespensible for careful cleaning of macro-fossils or even careful examination of them at low power.

I have three friends in north central Iowa who are serious collectors and they pooled their money to purchase a zoom binocular (the "zoom" is a dial which can be turned to increase or decrease the magnification). They share the instrument, passing it around from time to time with the main use for small fossils as well as study and preparation of larger ones.

In the event some of you might be interested in preparation of a fossiliferous shale for 'picking' a simple technique is given here, which also works if one is just looking for small specimens. Fill a coffee can or an old pot about half way with shale, add water, and bring to a simmer (not boiling). Add a table spoon of baking-soda and let it simmer for about five minutes, turn off fire and allow to settle down, then slowly pour off the water. Don't get in a hurry or you will also pour off the microfossils. Add water and decant, slowly, time and again until the water stays clear. Do not do this in your home unless you have a special trap for silt and even that might not be infallible. You will most certainly end up with a plumbing bill unless you do this in your yard. Allow your sample to dry and spread out on a newspaper. For size separation of the residue take hold of one end of the paper and lift. As the residue rolls back and forth the "fines" will sort to the bottom and the course to the top of the ridge. Years ago I used a teaspoon to pick up some of the fine and tap a bit out on a flat surface and put that under the microscope. If rich a teaspoon partially full can provide many hours of pleasure. To "pick up" the microfossil a very fine camel-hair brush is used. For a specimen container a capsule can be used. I would punch a few holes in a cardboard tray and place half a capsule in each. All of this is very primitive and there are many alternative, more effective processes, like washing through a nest of screens after the shale is broken down. A final very fine screen is obviously needed to catch the minute specimens. The mesh should be 150 micrometer (=.0059 inches) or U.S. Standard No. 100.

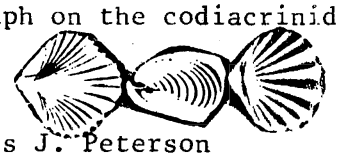
* * * * * * * * * * *

The saga of Tytthocrinus Weller (1930, p. 35) is finally resolved to my satisfaction thanks to the swarm of specimens picked by my wife Christina from the marl we obtained at Lake Valley, New Mexico. I was almost certain that the smaller specimens possessed three circlets of plates and lost the lowermost circlet during growth which turned out to be an illusion caused by the shape of the basals at the younger stage. So it is that juveniles have only two circlets of plates (three basals and five orals). Eventually five small radial plates appear between these two circlets, although they were probably never functional as arm bearing elements, and the genus Amphisalidocrinus Weller (1930, p. 34) became the mature form of Tytthocrinus. The genus Octocrinus Peck (1936) has already been referred to (synonomized with) Tytthocrinus (see Treatise on Invertebrate Paleontology, p. T 604). Note that Tytthocrinus was proposed in 1930 by Weller on page 35 and Amphipsalidocrinus on page 34. The rule of "page priority" applies in this instance so Amphisalidocrinus will be the surviving genus and the other two genera will be placed in synonomy with it.

It has been very difficult for me to accept the fact that plates may be intercalated in post-larval stages of growth, that is, after the skeleton has been formed and articulated even though I have known for many years that the phenomonon takes place in the Acrocrinidae. Yury Arendt in 1979 demonstrated the

THE PROFESSIONAL'S CORNER, STRIMPLE, concluded

the late appearance of radial plates in an excellent growth series of the microcrinoid Cranocrinus from Russia. As a matter of fact the Arendt monograph on the codiacrinids is one of the most comprehensive studies ever attempted for this group.



GEOLOGICAL GUIDBOOKS OF THE WESTERN UNITED STATES

-- Charles J. Peterson
Department of Physics & Astronomy
223 Physics Building
Columbia, MO 65211

There is no question that the geology of the western half of the United States presents a more spectacular topography than the older eastern part of the country (that the author grew up in the Pacific Northwest should not be construed as lending a bias to his viewpoint). The internal dynamic forces which shape the outer surface of our planet are in evidence in many regions. Off the coast of California the crustal plate which underlies the Pacific Ocean dips below the California continental plate, which results in a crumpling of the surface into the young Sierra Nevada range and further north in Oregon and Washington, the Cascade Mountains. As the crustal plate upon which rides Los Angeles slowly moves northward towards San Francisco its slow, erratic motion results in often destructive earthquakes. The explosive detonation of Mount St. Helens last year provided another unwelcome reminder that the Cascade volcanoes from Mt. Shasta and Mt. Lassen (which itself erupted 70 years ago) in northern California, to Mt. Hood overlooking Portland, and Mt. Adams, St. Helens, Rainier, and Baker in Washington are not dead, but merely dormant until the next cycle of activity. The height and ruggedness that make the grandeur of the Rocky Mountains are a fuller testimony to the powerful forces of the earth, acting to create high peaks in the face of equally persistant forces of erosion by wind, ice and water.

To meet the geological interest in the western states, numerous guidebooks have been written for the non-professional covering specific regions, states, and even larger areas. Many government publications, of course, are available at the national parks in the West and these are excellent sources of information on not only the geology, but also the history, geography, botany, and zoology of the regions. Many states, too, publish guidbooks as do a number of commercial publishers. We have found that these provide detailed information, particularly when keyed to specific highways, that has greatly enhanced our travels through the west and often has dictated our routes and destinations. As an aid to readers of the MAPS DIGEST who might also wish to increase their vacation travel enjoyment by use of geologic guides, we have compiled a list of items useful for this purpose.

General

Geology Illustrated, by John S. Shelton (W. H. Freeman & Co., San Francisco, 1960; $22.00). This book should be in the library of any person interested in earth science. It is profusely illustrated showing the geological results of our restless earth. Although not a highway geologic guide, the great majority of the photographs, mostly aerial views, are of regions in the western states.

Geology of National Parks, by Ann G. Harris (Kendall/Hunt Publishing Co., Dubuque, Iowa, 1977; $12.95). Thirty-eight national parks, both in the West and in the East, are described with both the geological and non-geological aspects discussed. The parks are grouped into categories on the basis of the geological forces which have played the most prominent role in shaping the features of each protected area.

California

California's Changing Landscapes, by Gordon B. Oakeshott (McGraw-Hill, San Francisco, 1978, $16.95). Of all the states in the country, California has the greatest diversity of landforms and landscapes, topography and climate. This well-illustrated volume is a textbook written for college geology students and the more interested non-professional.

Earthquake Country, by Robert Iacopi (Lane Publishing, Menlo Park, California, 1971; $5.95). With its numerous maps and photographs, this book will guide you to the results of earthquake activity in California.

Geology of the Sierra Nevada, by Mary Hill (University of California Press, Berkeley, 1975; $5.95). This field guide will take you along roads from which can be seen the many features of the natural history of mountains,

THE PROFESSIONAL'S CORNER, PETERSON, continued

including volcanoes, uplifted seabeds, and glacially eroded valleys.

Geology Field Guide to Southern California, by Robert P. Sharp (kendall/Hunt, Dubuque, Iowa, 1976; $7.95). This is one of the several excellent guidebooks that have been produced by the publishers. Road logs are keyed to maps, and features to be seen are illustrated with both photographs and diagrams. This volume gives field guides along highways in the southern part of California.

Roadside Geology of Northern CAlifornia, by David D. Alt and Donald W. Hyndman (Mountain Press Publishing Co., Missoula, Montana, 1975; $7.95). Mountain Press is another publisher that has in print a number of field guides which well serve the traveler. All the major northern California highways, Interstate 5, U.S. 101, and California 8 and 89 are covered.

The California Division of Mines and Geology also publishes a number of more technical geological surveys and maps. An index and pricelist can be obtained from their office in the Ferry Building, San Francisco 14794.

The Southwest (Arizona, New Mexico)

Field Guide to Arizona Fossils and Field Guide to New Mexico Fossils, both by Ron Ratkevich (Dinograph Southwest, Inc., Alamogordo, New Mexico, 1979, and 1978, respectively; $4.95 each). These two books are very nicely prepared. Of special interest are the lists of generalized fossil collecting areas in two states that provide many opportunities to augment one's collection.

The states of Arizona and New Mexico also publish guidbooks and road logs for various highways. For a list of Arizona publications, you can write to the Bureau of Geology and Mineral Technology, Publications Office, 845 North Park Avenue, Tucson, 85719. For New Mexico, write to the Bureau of Mines and Mineral Resources, Publications Room, Socorro, New Mexico 87801. In particular, they have 12 guidebooks, some of which are Santa Fe (#1 in the series), Trail Guide to the Upper Pecos (#6), Albuquerque--Its Mountains, Valleys, Waters, and Volcanoes (#9), and Cumbres and Toltec Scenic Railroad (#11) for those of us who combine our geological appreciation with an excursion on the state-operated narrow guage steam railroad that runs on the old DRG&W roadbed between Antonito, Colorado, and Chama, New Mexico).

The Pacific Northwest (Oregon and Washington)

Cascadia: The Geologic Evolution of the Pacific Northwest, by Bates McKee (McGraw-Hill, San Francisco, 1972; $19.00). Trip guides include parts of Oregon and Washington, as well as Idaho and British Columbia.

Fire and Ice: The Cascade Volcanoes, by Stephen L. Harris (The Mountaineers, Seattle, Washington, 1980, $7.95). Published before the Mount St. Helens eruption, the book could have served as a prediction that renewed volcanic activity should not have come as a surprise. There are no maps, but many photographs and drawings to illustrate the text.

Fossil Mollusks of Coastal Oregon, by Ellen James Moore (University of Oregon, Eugene, Oregon, 1971; $3.00). The beaches and coastal areas of Oregon have many exposures for Cretaceous and Tertiary fossils

Geology of Oregon, by Evart M. Baldwin (Kendall/Hunt, Dubuque, Iowa, 1968; $6.95). Originally published by the University of Oregon, this revised edition joins the Kendall/Hunt series. The book is a well-illustrated summary of Oregon's geology written from a historical perspective and with data on the current interpretation of the state's geological formations.

The Magnificent Gateway: Geology of the Columbia River Gorge, by John E. Allen (Timber Press, Forest Grove, Oregon, 1979; $8.50). The Columbia River cuts through the Cascade Mountains from the arid eastern slope to the Pacific Ocean. This volume gives a mile-by-mile guide along the Columbia River Gorge.

Roadside Geology of Oregon, by David D. Alt and Donald W. Hyndman (Mountain Press, Missoula, Montana, 1978; $7.95). Another of the useful Mountain Press guides, covering the major highways that traverse Oregon.

Scenic Geology of the Pacific Northwest, by L. C. Ekman (Binfords and Mort, Portland, 1970; $7.95).

Many brief, but useful, pamphlets on local geology and fossils are available from the Oregon Department of Geology and Mineral Industries, 1069 State Office Building, Portland 97201.

The Great Basin (Nevada and Utah)

Roadside Geology of U.S. Interstate 80 Between Salt Lake City and San Francisco (American Geological Institute, 5205 Leesburg Pike, Falls Church, Virginia 22041, 1975; $3.00). The text and photographs are keyed to the maps between these two major western cities.

The department of Geology, Brigham Young University, has published road logs for many highways in Utah as part of their "Studies for

THE PROFESSIONAL'S CORNER, PETERSON, CONCLUDED

Students" series. A pricelist can be obtained by writing to the department in Provo, Utah 84601. Other guides may be obtained from the Utah Geological and Mineralogical Survey, University of Utah, Salt Lake City 84112.

The Rocky Mountain States (Colorado, Idaho, Montana, and Wyoming)

Fieldguide: Middle Rockies and Yellowstone, by Willard H. Parsons (Kendall/Hunt, Dubuque, Iowa 1978; $7.95). The Yellowstone area, central Wyoming, southwestern Montana, and eastern Idaho are described.

Fossils of Wyoming, by Michael W. Hager, and Traveler's Guide to the Geology of Wyoming, by D. L. Blackstone, Jr. (Geological Survey of Wyoming, Laramie, Wyoming, both 1971; both $3.50). Both booklets detail the geological history of the state as well as the past life which has left its remains in the rocks.

The state Geological Survey also publishes more technical reports.

Roadside Geology of Colorado, by Halka Chronic (Mountain Press, Missoula, Montana, 1980; $7.95) This guide gives the geological descriptions to routes along freeways and other major highways in Colorado. The book is well-illustrated and mapped as are the others in this series.

Roadside Geology of the Northern Rockies, by David D. Alt and Donald W. Hyndman (Mountain Press, Missoula, Montana, 1972; $7.95). The major highway routes of Idaho, western Montana, and the Yellowstone Park corner of Wyoming are covered.

P R E S S R E L E A S E

PALEONTOLOGICAL RESEARCH INSTITUTION

1259 Trumansburg Road
Ithaca, NY 14850-1398

A new exhibit, titled "The P. R. I.", will open at the DeWitt Historical Society's Museum in the Clinton House on Tuesday, April 6, 1982. The exhibit reviews the purpose and work of the Paleontological Research Institution, an Ithaca-based international organization dedicated to the study of fossils. Included are memorabilia of the founder, the late Prof. G. D. Harris, and examples from the collections and publications of the Institution. The exhibit also includes many fossils, and explains how these are used by paleontologists.

The Clinton House is located in downtown Ithaca at the corner of Seneca and Cayuga Streets, and is open to the public from 12:30 pm to 5:00 pm, Tuesday through Saturday. The exhibit will run through the end of June...

Contact the DeWitt Historical Society, at 607-273-8284, or the Paleontological Research Institution, at 607-273-6623, for details.

Dr. Peter R. Hoover, Director
Paleontological Research Institution

GIANT CRACK ACROSS COUNTRY FOUND

Space-age technology uncovered a giant crack across America and geologists are trying to figure out what it means.

"Our first reaction was: 'it just can't be-it's just too big," Associate Professor Raymond E. Arvidson said in an interview at Washington University. "But there it is."

Arvidson said the crack--some 1,700 miles long, nearly three times the length of California's San Andreaus Fault--could be one of the world's continental rifts.

It begins in Washington state and stretches across south-central Missouri to the southern tip of the Applachians. At its widest, it is 90 miles across and extends deep into the earth's crust.

Arvidson, 33, said the rift poses no danger, and would not be noticed by someone standing on top of it. He said it is unlikely to become an active fault again because the stresses that created it disappeared eons ago as the crack was filled with low-density rock..

Arvidson said the discovery may unlock secrets about how the continents respond to stresses between plates in the earth's crust. It could also help explain why earthquakes persist in the Missouri Bootheel, the site of the devastating New Madrid quakes of 170 years ago, which changed the course of the Mississippi River and were felt as far away as Boston. The crack intersects with the New Madrid fault, creating a hot spot that is a frequent source of small quakes.

Arvidson, director of MASA'S Regional Planetary Image Facility, said he and a team of researchers made the discovery by using computer tech nology developed in the Viking mission to Mars.

They combined 600,000 gravitational figures with topographical data to produce a "simulated spaceview" of the United States...The gravitational data was collected on Earth by the

GIANT CRACK ACROSS COUNTRY, continued

Defense Mapping Agency, and the topographical information was collected on earth by the National Oceanographic and Atmospheric Administration.

"We used space technology on existing data--data that's been around for at least 10 years," Arvidson said.

St. Louis (AP) Winona Daily News via Pebble Pusher

TRESPASS

No, I had set no prohibiting sign,
and yes, my land was hardly fenced.
Nevertheless the land was mine;
I was being trespassed on and against.

Whoever the surly freedom took
Of such an unaccountable stay
Busying by my woods and brook
Gave me strangely restless day.

He might be opening leaves of stone,
The picture-book of the trilobite,
For which the region round was known,
And in which there was little property right.

'Twas not the value I stood to lose
In specimen crab in specimen rock,
But his ignoring what was whose
That made me look again at the clock.

Then cam his little acknowledgment:
He asked for a drink at the kitchen door,
An errand he may have had to invent,
But it made my property mine once more.

--Robert Frost

Thanks to Kathleen Morner

ABOUT THE MEMBERSHIP LIST

There are some errors, we apologize.

We have solicited the help of a computer expert--but he is NOT a fossil lover. One can only imagine the pure dilemma when confronted with all those strange words.

As might be expected, there are some errors. Check your nodule, address and phone number. If you find an error, please be patient as you always are, but send us the correction and we will get it straightened out.

Thanks.

Love you Madelynne

ETHICS

MAPS has done much to encourage the trading of fossils among its members. However, we do not remember that at any time that anything has been written about rules or ethics for the exchanging of fossils. We have done considerable trading both in the U.S. and foreign countries and have been disappointed on only two occasions Needless to say we terminated our correspondence after the first exchange. The material from one of the aforementioned trades was so poor we honestly threw it in the driveway. We're quite sure we are not the only ones to have suffered such consequences.

We believe that a good rule of thumb is "if you wouldn't have it in your own collection--don't trade it to someone else." After our material is washed and cleaned we make it a point to higrade the material into three categories--keepers, give-aways and throw aways. The throw aways are usually taken back and discarded at their point of origin. The give-aways are given to school age children where we have given presentations at various schools, scout meetings, etc. From the keepers we naturally select the best for ourselves, the remainder are stored for trading.

From the localities that provide only fair or mediocre fossils we make it a point to mention this in our trade. For example, the literature describes a pelecypod from one of our Arizona locations in the following manner--"Most of the specimens have only the left valve well preserved--26 out of 35. The right valve is commonly exfoliated and only partially preserved or missing entirely, being represented by the internal mold, which indicates that both valves were originally preserved together. The right valves are thinner and presumably more subject to destruction by weathering or solution than the left valves."[1] When we trade this particular pelecypod we inform the recipient about this condition.

After all the intent of MAPS is to promote good will and a means for members to expand their collection by way of trading. The sending of poor material certainly does neither of the above.

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[1]Brew, C. C. & S. S. Beus. 1976. A Middle Pennsylvanian Fauna from Naco Formation near Kohl Ranch, Central Arizona. Journal of Paleontology, vol. 50 no 5.

Thanks to Jim & Sylvia Konecny, AZ

I read with interest the article on Paleoastronomy in the MAPS Digest, February, 1982. In my Historical Geology classes I devote a short session to this subject. A few years ago one of my students devised the accompanying articles to simplify understanding the subject.

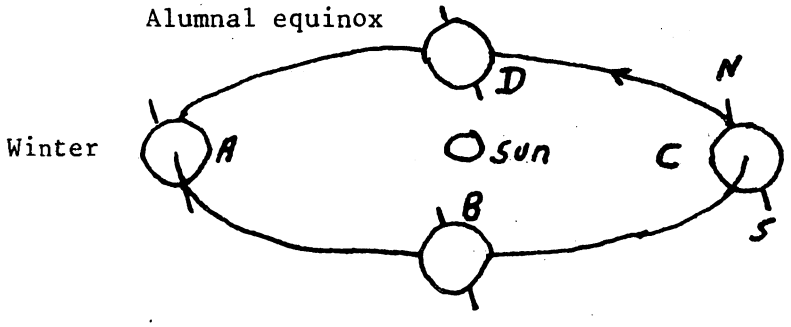
Jim Konecny, AZ

THE SEASONS Courtesy Vincent Varga

Astronomy is the science of the heavenly bodies. When man was nothing more than a savage it was necessary for him to pay attention to astronomical occurrences, even if only to the extent of recognizing the daily return of the sun or the growth of vegetation, and the seasons.

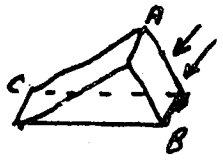
At a later stage of development he uses the day, month and year as units of time, and many religious observances were timed by the position of sun or moon in the sky. So far as can be determined, astronomy was the first of the sciences to be developed by the ancients. Astronomy is the only one of the sciences which gives man some knowledge of the entire visible universe; it utilizes the information gathered by the students of physics, chemistry, geology, biology and all the resources of mathematics.

The Seasons: If the axis of the earth were perpendicular to the plane of the ecliptic, the sun would always be on the celestial equator, and hence days and nights always equal in length. Under the conditions there could be no change in seasons as is now the case.



Since the axis of the earth is tipped 23°.5 from the perpendicular to the plane of its orbit, it is evident that when the earth is at C in its orbit the sun shines perpendicularly on a point 23°.5 north of the equator, shines past the north pole 23°.5, and fails by a like amount of shining on the south pole. Three months later, when the earth is at D, sunlight just reaches both poles, and falls perpendiculary at the equator. Three months later when the earth is at A, conditions are just the opposite of what they were at C, while after another interval of three months, when the earth is at B, sunlight again just reaches both poles. At C, the northern hemisphere has its summer, the southern its winter .

The season at any point on the earth depends upon the amount of sunlight that region receives, the more sunlight the warmer the season. The daily amount of sunshine per unit of area depends upon two factors, the elevation of the sun above the horizon, and the duration of the daylight.



It is evident from the adjacent figure that if the incoming rays fall on surface AB, which is perpendicular to them, each unit of area AB will receive more heat than a unit of area of a surface CB which is not perpendicular to them. A low sun, shining through a long day, may furnish more heat in the course of such a day than a high sun shining for a shorter time. Thus, neglecting atmospheric absorption, during the long days of summer the north pole actually receives more heat from the sun in the course of 24 hours than does a region near the equator.

* * * * *

THE TIDES Courtesy Vincent Varga

The Tidal Forces--In Fig. 1 let A,C and B be three points on a diameter of the earth, and in line with the direction to the moon

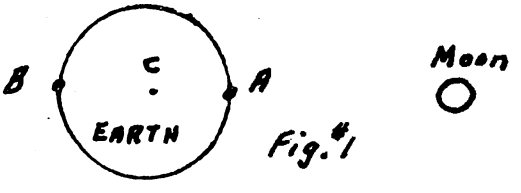
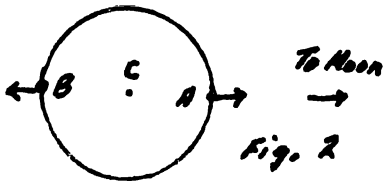


Fig. #1

Cause of tides

Since A is nearer the moon than C, it is evident that the moon will attract it more strongly than C, and C more strongly than B. The effect of this attraction will be to lengthen the diameter BA if the earth is not absolutely rigid.

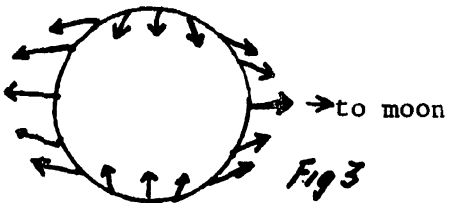
If we consider the action of the moon with reference to the center of the earth C, then both B and A are, in effect, moved away from C just as if there were two forces directed toward A and B respectively from C. As seen



Tidal forces at two ends of a diameter when referred to center

from C, therefore, we can indicate this effect by arrows as in Fig. 2.

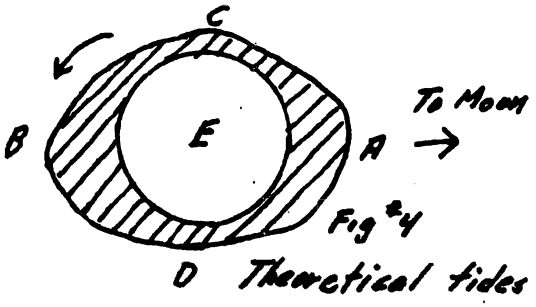
The force at B is slightly less than at A, since B is farther from the moon than A. When the forces with reference to C are analyzed for many points we get a result as indicated in Fig. 3.



Tidal forces around a circumference referred to the center of the earth

THEORETICAL TIDES Courtesy Vincent Varga

If the earth were entirely covered by the ocean the effect at the tidal forces would be to move the waters of the ocean into two bulges as shown in Fig. 4 The bulge on the side toward the moon being a little greater than the one opposite. Water would be deeper near A and B, and shallower around the circle CED.



If the earth rotated on an axis perpendicular to the plane of the page, and in the direction of the arrow, a point, which at one time would be under A, would be under C, B, D and again under A in the course of one rotation. In this time the point in question would therefore have experienced two high and two low tides. Since the moon revolves around the earth in the same direction as the earth rotates on its axis the line joining B and A to the moon would have turned through the angle which the moon has moved; this amounts to 13° a day. Hence the time when a point would be under A until it returns to the same position again would be $24^h\ 51^m$, the additional 51^m being the time required for the earth to turn thru the 13°.

Solar Tides The sun will cause tides like the moon, except that since the tide-raising forces of the sun are less than those of the moon, the solar tides are not as high as lunar tides, being 4/9th of the latter. At new moon and full moon, solar and lunar tides are superimposed while at first quarter or third quarter the crest of one tide is the trough of the other.

Actual Tides The comparative shallowness of the oceans, and presence of the continents make the real tides different from the theoretical situation. A tidal wave, once started will move at a speed depending on the depth of the ocean, and in a direction depending on the direction and slope of the continental shores. The range of the tides from high to low at a port depends upon the shape of the shoreline, and the shape of the bottom. The range along a comparatively straight coast is much less than at the head of a funnel-shaped bay.

The siderial month is the time it takes the moon to make one revolution about the earth with reference to the stars; that is, the time required to move around the sky from any particular star until it again reaches it. The siderial month has a length of $27^d\ 7^h\ 43^m\ 11.5^s$.

Since the moon revolves around the earth in the same direction as the earth rotates on its axis, the line joining B and A to the moon would have turned thru the angle which the moon has moved: approximately 13°/day

The earth rotates on its axis once a day, the moon revolves about the earth once a month.

E - 360°/day

M - 28 day $\frac{360°/day}{28/day} = 12.857°$

approx 13°/day

--Vincent Varga
1903 Forest Meadows
Prescott, AZ 86301

(Editor's note--So there's the explanation of what happens when one sees that giant moon in the evening sky.)

Please add the following to your membership list:

John R. Curtis
165 Broadview Road
Springfield, PA 19064
215-543-4126

Retired engineer and management consultant. Will trade Interested in vertebrates. Wants Paleozoic brachiopods, trilobites, crinoids, ammonoids, blastoids, corals. Wants to meet people, learn, and swap. Hopes to build a modest collection of fossils, with pictures, to use as display for schools and Senior Citizen groups.

Lyle E. Machin
1111 Lincoln Street
Russell, KS 67665
913-483-2214

Retired. Cannot trade yet. Beginning a new hobby.

Gilbert Parker
13301 E. 40th Terrace
Independence, MO 64055
816-252-8460

Biochemist. Collecting 30 years. Primary interest vertebrates, then invertebrates. Would like to trade ideas and specimens, willing to host travelers to KC area.

John Perencevic
5543 S. Disch Avenue, Apt. 7
Cudahy, WI 53110
414-482-4758

Expeditor. Cannot trade at this point. Wants to learn more about fossils and collecting.

Edward M. Apodaca Family
P.O. Box 220
Nocatee, FL 33864
813-494-5071

Hvy. Equip. Operator. Will trade. Interest shark teeth and related material. Has vertebrate & invertebrate fossils for trade (Florida). Wants to share interests with others trade or buy specimens.

Frank Bukowski
1441 E. Oxford Street
Philadelphia, PA 19125
215-425-0309

General Manager Belt Mfg. Plant. Will trade. Major interest vertebrates especially Mosasaur, dinosaur & shark remains. Has Miocene & Cretaceous shark teeth and invertebrates. Wants to expand knowledge and meet others to trade specimens.

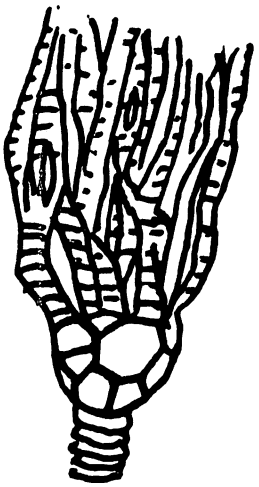
A D V E R T I S I N G S E C T I O N

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.

MAPS is affiliated with the Midwest Federation of Mineralogical and Geological Societies, and with the American Federation of Mineralogical Societies. Membership in MAPS is open to anyone, anywhere who is sincerely interested in fossils and the aims of the Society.

Family membership $7.00; individual membership $7.00; junior membership $5.00 (between ages 8 and 16).

MAPS meetings are held on the 1st Saturday of each month (2nd Saturday if inclement weather) October through May at 2p.m. in the Science Building, Augustana College, Rock Island, Illinois.



CYATHOCRINITES

FIRST CLASS MAIL

MID-AMERICA PALEONTOLOGY SOCIETY

Madelynne M. Lillybeck
MAPS DIGEST Editor
1039 - 33rd St. Ct.
Moline, IL 61265

Dated Material - Meeting Notice