

# M.A.P.S *Digest*

Official Publication of  
Mid-America Paleontology Society  
<http://www.midamericapaleo.org>

Volume 38, Number 1  
Jan. – Mar., 2015



**“A LOVE OF FOSSILS BRINGS US TOGETHER”**

# Calendar

## 2015

### February 14

The February MAPS meeting will be held in Room 125 of Trowbridge Hall, Univ. of Iowa.

UI associate professor Chris Brochu will present a program at 1:00 p.m.: **The Myth of the Living Fossil: The Origin and Evolution of Crocodylia.**

The regular MAPS meeting will be at 2:00 p.m.

### March 21-22

ESCONI Gem, Mineral, & Fossil Show  
DuPage County Fairgrounds, Wheaton, IL

Sat. 10:00 am—5:00 pm; Sun. 10:00 am—4:00 pm

Info: [www.esconi.org](http://www.esconi.org)

### March 28-29

CVRMS Rock, Mineral, and Fossil Show  
Hawkeye Downs Expo Center, Cedar Rapids, IA  
Sat. 8:30 am—6:00 pm; Sun. 9:30 am—5:00 pm

Info: [www.cedarvalleyrockclub.org](http://www.cedarvalleyrockclub.org)

### April 10-12

## MAPS EXPO XXXVII

**Location:** Sharpless Auctions  
Exit 249 I-80, Iowa City, Iowa

**Theme:** The Cenozoic Era

**Keynote Speaker:** Lance Grande

**Topic:** TBD

## Contributions to Digest Needed

The Digest editors encourage the members to submit articles for publication in the Digest issues. The Digest is for the members and should reflect their interests. If you have specimens that you collected and would like to share with other members or would like to describe a favorite collecting site, please write an article in Word, Times New Roman size 12 font, single spaced with one inch margins, and send to the editors. Photos and diagrams can be e-mailed separately or incorporated into the article.

**John:** [Fossilnautiloid@aol.com](mailto:Fossilnautiloid@aol.com)

**Chris:** [CDCozart@aol.com](mailto:CDCozart@aol.com)

## Call for Papers

The theme for the 2015 EXPO is the Cenozoic Era. Any paper dealing with Cenozoic geology, localities, or fossils would be appreciated. The papers should be in Word, Times New Roman, size 12 Font, single spaced with one inch margins, and e-mailed to one of the Digest Editors by the first week of February 2015. Diagrams/Photos can be sent separately or imbedded into the text.

**John:** [Fossilnautiloid@aol.com](mailto:Fossilnautiloid@aol.com)

**Chris:** [CDCozart@aol.com](mailto:CDCozart@aol.com)

## Dues are Due

MAPS dues (\$20/household) can be sent to **Dale Stout** at:

2237 Meadowbrook Drive S.E.

Cedar Rapids, Iowa 52403

**NOTE:** Please write MAPS DUES in the Memo line.

## About the Cover

Four of the dozen-or-so *Ectenocrinus simplex* crowns imbedded in a large specimen of “log-jam” crinoid-stem deposit from the Kope Formation Kenton County, Kentucky. Collected and photographed by John Catalani.

## COLLECT FOSSILS, CRYSTALS & AGATES in MOROCCO!

Join ZRS Fossils in Spring 2015 on a rock collecting trip of a lifetime! This will be the fifth year that ZRS has offered this fantastic opportunity for U.S. fossil and mineral collectors to travel throughout Morocco on a fabulous adventure to collect exciting specimens alongside of experienced Moroccan collectors. This amazing country is absolutely stunning in terms of its geology, natural beauty, photo opportunities, exotic culture, congenial hospitality, and, of course, phenomenal rock collecting experiences.

ZRS offers two individual tours this coming April / May - each accommodating a total of ten participants only.

Contact us ASAP if you're interested – EMAIL ([info@zrsfossils.com](mailto:info@zrsfossils.com)) / TEL John at 612.803.5301

ITINERARY INFORMATION - Rockin' in Morocco Original Tour:

<http://archive.constantcontact.com/fs179/1102789714446/archive/1119607595221.html>

Rockin' in Morocco – New Horizons Tour:

<http://archive.constantcontact.com/fs179/1102789714446/archive/1119608353067.html>

### **Mid-America Paleontology Society Annual Business Meeting April 5, 2014. Sharpless Auctions, Iowa City**

Board members present: Marv Houg, Dale Stout, Jim Preslicka, Charles Newsom, John Catalani, Tom Williams.

Marv Houg called the meeting to order at 5.20pm.

Tiffany Adrain read the 2013 ABM Minutes. Jim Preslicka motioned to approve then. Dale Stout seconded. Minutes were approved.

Jim Preslicka read the Treasurer's report.

Paula Mikkelsen (PRI) invited Mr. Jim Jenks to come up and receive the Katherine Palmer Award. Mr. Jenks gave a short speech of thanks, and Marv offered him congratulations on behalf of MAPS.

Marv Houg acknowledged the MAPS Board. Tom Williams thanked MAPS members for their help with EXPO: Jim and Amy Preslicka, Dale, Steve, Gil, Doug, John, Wanda, Tiffany, and Marv, and Vic Hurm, Don Szczdrowski and Dave Roush for help with the Silent Auction.

The speaker for next year's EXPO is not yet confirmed but the potential theme is Cenozoic. Table space is tight and there may be a reduction of tables per vendor, if necessary.

John Catalani thanked the contributors to the Expo Digest and requested papers relating to the Cenozoic for next year's Expo Digest, as well as regular Digest papers.

Old Business: none.

New Business: There had been issues with the Travelodge. Dan Cooper will work with Travelodge for next year. Motel-show vendors can contact Dan about reservations. Vendors should book rooms on the lower floor, non-vendors on the second floor.

John Catalani motioned to adjourn the meeting. The meeting was adjourned at 5.35pm.

**Mid-America Paleontology Society Board Meeting  
April 5, 2014. Sharpless Auctions, Iowa City**

Board Members present: Marv Houg, John Catalani, Tom Williams, Dale Stout, Jim Preslicka, Karl Stuekerjuergen, Gil Norris, Tiffany Adrain (scribe), Doug DeRosear.

Marv called the meeting to order at 9.30am.

Tiffany read the minutes from the January meeting. John moved to approve the minutes, Doug seconded. Minutes were approved.

Jim read the Treasurer's Report.

Current Expo:

- Motel Show: Marv welcomed Dan Cooper who will be handling all arrangements for the motel show from now on. Dan said the hotel lodging at the Travelodge was disorganized and the manager had been fired. Room bookings had been changed. Dan will handle the dealer/motel show separately with separate advertising, guidelines and rules. There will be an ad in MAPS Digest with a dealer/room directory.
- MAPS Directory: John suggested that an announcement should be put out, asking if the Directory should be in pdf format. Tom advised that the Directory should not be publically accessible on the MAPS website, but should be emailed to members.
- Show business: Gil said that desk staff should be relieved. Marv said that Amy Preslicka has a list for members to sign up for slots.
- Vendors: Tom said that the one vendor who had pulled out of the show will be at the back of the list for table space next year. Traffic to the second room is improved on last year, but vendors have requested that more announcements are made. Karl said it was good that vendors who are leaving early are in the second room. Tom said that the venue was filled and vendors had to be turned away. Dealers using more than three tables may have to be limited to two next year. There was some table squatting – Tom sorted it out.
- Advertising: Next year, posters should be printed earlier and sent to specific venues. Dan offered to take flyers to the Cincinnati show. An ad will be placed in Rock and Gem for Expo and for the Dealer Show. Dan was asked to make sure that all the dealers paid their share for the latter and that it would not be left to one person to pay it.
- 2015 Expo: Speaker either Lance Grande or Warren Allmon? If neither, the topic will reflect whoever can be secured. John said he would put out a call for papers for the 2015 Expo Digest as soon as possible. Tom, John and Marv will organize the speaker and theme, and report back to the Board.
- Auction: more donations needed for the live auction.

The Board discussed the possibility of an additional meeting post-Expo.

John moved to adjourn the meeting. Tom seconded. Meeting adjourned 9.50am.

## CALVERT MARINE MUSEUM

P.O. Box 97 • 14200 Solomons Island Road  
Solomons, MD 20688  
*Traci Cimini* • 410-326-2042 x62

CMM-PR-14-49

November 6, 2014

***For Immediate Release***

### **FIRST FOSSIL SNAGGLETOOTH SHARK SKELETON EVER FOUND!**

Calvert Marine Museum (CMM) paleontologists excavated an extremely rare fossilized skeleton of a 15-million-year-old shark on October 31, 2014. Uncovered by the Gibson family on their property in Chesapeake Beach Maryland, this snaggletooth shark skeleton is the first of its kind ever found.

Shawn Gibson contacted Dr. Stephen Godfrey, Curator of Paleontology at CMM, about a fossil find that his brother, Donald, discovered. Donald found fossil shark vertebrae while digging footers for a new sunroom at the home of his parents, Donnie and Jo Ann Gibson. He contacted Pat Gotsis, a family friend who has collected fossils for over 40 years. Pat knew immediately it was something special. After a day of digging, Shawn, with help from his 7-year-old son Caleb, excavated over 50 vertebrae. When they realized that the vertebrae led up to the shark's skull with jaws full of teeth, Shawn called the museum for help.

Shawn Gibson's phone call describing their find was so unusual that John Nance, Assistant Curator of Paleontology, and Dr. Godfrey investigated immediately. "We were wonderstruck at seeing the articulated shark skeleton!" said Dr. Godfrey.

Aside from their teeth, shark skeletons are made of cartilage, which does not fossilize nearly as well as bone. Typically after animals die if parts of their skeleton do not disintegrate immediately, they are scattered by scavengers. In this case, most of the teeth and skeleton stayed together in a life-like way as it became buried in sand on the ocean floor.

Godfrey told those gathered that he had never seen anything like it and would probably not live long enough to see another. "We are very grateful that the Gibson's stopped digging when they did and called the museum for help." The rest of the skeleton was excavated that evening and trick-or-treater's watched as the team worked to put a protective cast around the fossilized shark skeleton. Robert Cantrell ([AllFinsOn.com](http://AllFinsOn.com)) filmed and photographed the excavation and the skeleton is now at the Calvert Marine Museum where it will be prepared for display and research.

This skeleton, the first one of this kind of shark ever found, belongs to the extinct snaggletooth shark, *Hemipristis serra*. Over 80 vertebrae and hundreds of teeth from one individual were found. The shark would have been 8 to 10 feet long. The jaws and teeth were preserved mostly intact after the shark came to rest upside down on the ocean floor 15 million years ago during the Miocene epoch. Even more astounding, is the presence of delicate jaw cartilage which is almost never preserved.

The closest living relative to this extinct Miocene shark is also known as the snaggletooth or weasel shark (*Hemipristis elongata*; Family Hemigaleidae). It is found in the Indo-West Pacific, including the Red Sea, from southeast Africa to the Philippines, north to China, and south to Australia, in coastal waters at depths of 4 to 400 feet. The living snaggletooth shark grows up to 8 feet in length, and preys upon crabs, cephalopods, other sharks, rays, and fish. The teeth of the extinct snaggletooth shark are so similar to those of its living relative that they probably had a comparable diet.

For more information or questions about this rare fossil find, please contact Stephen Godfrey 443-624-7610 or John Nance 410-326-2042, ext. 40.

**Additional information:**

During the Miocene epoch, global climate was warmer on average than it is today and polar ice caps were smaller to non-existent. That extra water in the oceans flooded low-lying continental areas. At that time, much of the coastal plain was covered by the Atlantic Ocean. For millions of years, sediments eroded from the Appalachian Mountains were carried by rivers flowing into the Atlantic Ocean and laid down over the coastal plain (then the Miocene sea floor) entombing trillions of fossils in the process, including the snaggletooth shark just found.

More than 600 species (most of which are extinct) have been identified as fossils from along Calvert Cliffs. These include the fossilized remains of microorganisms like diatoms, dinoflagellates, and foraminiferans, and of larger organisms like corals, mollusks, crustaceans, barnacles, echinoderms, sharks and rays, bony fishes, turtles, crocodiles, birds, seals, sea cows, dolphins and whales, and fragmentary remains of large terrestrial mammals (peccaries, rhinos, antelope, camels, horses, and gomphotheres - an extinct group of elephants).



Standing around the fossilized shark skeleton (from left to right) are John Nance, Donald Gibson, Shawn Gibson, Jo Ann Gibson, and Pat Gotsis. Upon arriving at the Gibson's home, Donald Gibson (second from left) describes to John Nance (left) how he found the first shark vertebra. (Photo by S. Godfrey.)



A mouth-full of fossilized Miocene snaggletooth shark teeth as they were first unearthed. Patches of delicate shark skull cartilage are also preserved. (Photo by S. Godfrey.)



Life drawing of what the extinct 8-foot-long snaggletooth shark might have looked like. (Art by J. Schafer; CMM.)



Robert Cantrell

Stephen Godfrey (left) and Shawn Gibson continue to excavate down and around the fossilized shark skull so that a protective cast (a field jacket) can be placed over it before being moved to the museum. (Photo by S. Godfrey.)



Robert Cantrell

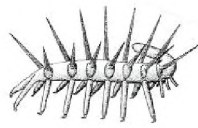
Final bandage-layers are smoothed out to create a rigid cast. (Photo by S. Godfrey.)



Robert Cantrell

A final shark vertebra unearthed Halloween night. (Photo by S. Godfrey.)





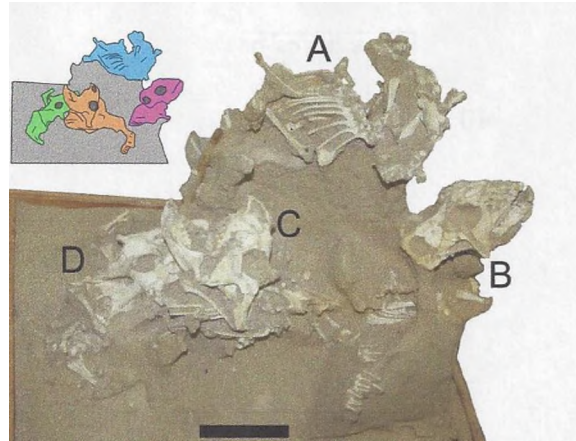
# Paleo News Items



By Karen Nordquist

## New Mass Mortality of Juvenile *Protoceratops* from Mongolia

Social behavior has been represented by occasional monospecific bone beds for non-avian dinosaurs. There is evidence from track sites, nest sites and bone beds, although some of them may have been due to taphonomic processes, drought assemblages or predator traps. This new site contains four specimens of *Protoceratops andrewsi*, all of whom are mid-sized juveniles (as seen in the photo and drawing here), along with two subadults nearby. They are from the Djadokhta Formation of Mongolia. They are well preserved but the A specimen has suffered from erosion and disarticulation of some parts. There are no signs of scavenging, but there are some holes from insects. All four have large orbits, unfused skull sutures and small frills indicating their young age. They are about one quarter the size of large individuals known. The two subadults have more developed frills and larger size. The upturned heads of the four fossils indicate that they were alive when buried, perhaps in a sand storm or dune collapse. Care must be taken when inferring sociability with bone beds as the associations may represent temporary groupings rather than habitual gathering. Since age aggregations are known for *Protoceratops* at various ages now, it may have been a social animal – the first example of the first non-avian dinosaur to show this behavior throughout their lives. (Hone et al in **PLoS One**, November, 2014)



## Rhino, Horse Origins in India – *Cambaytherium*



Perissodactyls are odd-toed ungulates with an uneven number of toes on the hind feet and they include three extant families: Equidae (horses), Tapiridae (tapirs) and Rhinocerotidae (rhinoceroses). Their evolution has been uncertain though they did originate about 56 Mya in the Eocene. There is now a new fossil from India that suggests that perhaps several groups of mammals including perissodactyls, even-toed ungulates and primates may have begun here. The new fossil has been named *Cambaytherium thewissi* and was found in the Cambay Shale Formation in Gujarat,

India. It was about the size of a pig and might have weighed 25 -30 kg (55-66 pounds). They are the oldest perissodactyl at 54.5 Mya. Many features are intermediate between modern animals and more primitive animals. The reconstruction seen here is by Elaine Kasmer. At this time, India was still an island with evolution occurring in isolation before it hooked up with other land masses. (Rose et al in **Nature Commun.** 2014)

### How Oviraptors Sat on Nests



One of the many problems dinosaurs had to overcome was how to sit on their nests of delicate eggs without breaking them. There are now many fossils of nests, some with eggs from large oviraptorosaurs that help to solve this problem. Some even include a parent fossil alongside the nests. Researchers compared the porosity of fossil eggs compared to eggs from extant species that buried their eggs and others that had open nests and brooding (more porous eggs could be incubated underground where less water would

escape). They turned out to be less porous than previous studies had suggested, indicating that they were probably from open nests. Studies also showed that the eggs of small and medium oviraptors could sustain the weight of the parent, but the larger animals would break the eggs. The smaller nests were arranged daisy like with the eggs packed closely together. However, the larger nests of the larger animals arranged the eggs around the outer ring of the nest as seen in the photo here. The weight of the parent would have been on the ground in the center instead of on the eggs directly. (Tanaka et al in **SVP Abstracts**, 2014)

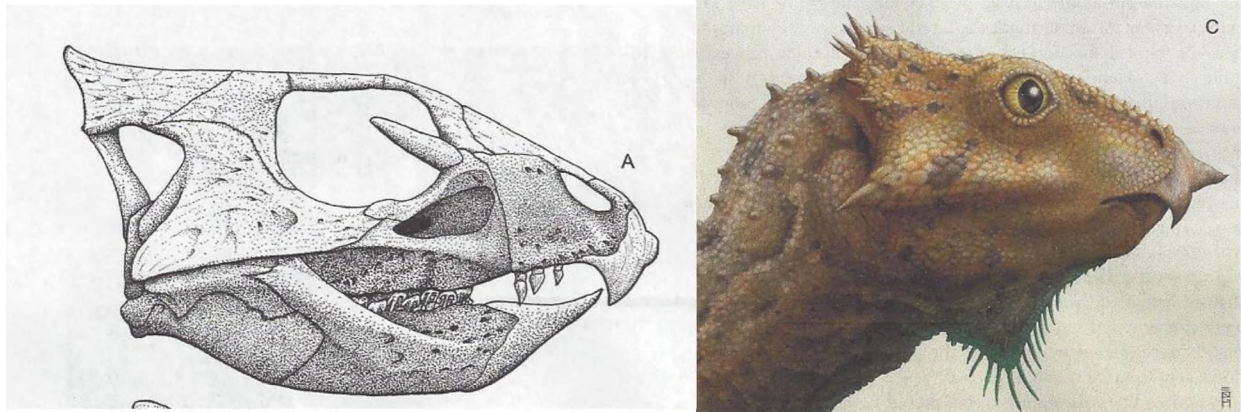
### Horse Fossil with Preserved Fetus Found In Germany – *Eurohippus*



The fossils from Messel Germany continue to amaze with their wonderful preservation. This specimen of *Eurohippus messelensis* was found some 15 years ago and was dated to 47 Mya. It had four toes on each foreleg and three toes on the hind legs and was about the size of a fox terrier. But new analysis by micro x-ray analysis reveals a new secret – it was pregnant. They found a broad ligament that connects the backbone to the uterus to help support the

developing foal. The fetus is almost all still articulated and was developed almost to birth with milk teeth formed and in place. However, it was not in birth position with the forelegs facing out. (Franzen et al in **SVP Abstracts**, November 2014)

### New Ceratopsian from Montana – *Aquilops*



Many dinosaur taxa migrated from Asia to North America in the Early Cretaceous, but the sketchy fossils of ceratopsians have been unable to confirm the first ones in North America. Now there is a new partial skull from the Cloverly Formation (104-109 Mya) of Montana that is the earliest identifiable neoceratopsian to date. It has been named *Aquilops americanus* from the Latin “aquila” meaning eagle and the Greek “ops” meaning face. It was about the size of a bunny with a length of about two feet and an estimated weight of three and a half pounds. The ventral edge of the rostral has a definite hook as seen in the reconstruction by Brian Engh, which may indicate that it was eating specific vegetation. There are three back facing tear-drop shaped premaxillary teeth without serrations. There are nine closely packed maxillary teeth after a diastema, and twelve closely packed teeth in the left dentary. All of the teeth are well worn with little enamel left and there are two replacement teeth developing. It is classed as subadult and is about 60% the size of *Liaoceratops*. Although it is difficult to place this new fossil, it is a basal neoceratopsian. (Farke, Cifelli et al in **PLoS One** Vol. 9/12, Dec. 2014)

### Burpee Museum Has New Dinosaur Find in Montana – *Anzu*



This dinosaur made the news earlier this year when the Carnegie Museum announced their discovery of *Anzu wyliei* from South Dakota. Now Burpee Museum has found another specimen on their summer digs in Montana in 2013. It is a caenagnathid oviraptorosaur and the fossil consists of the toe, foot, ankle, lower leg, hip bones and vertebrae. In 2014 they found more bones including more toe bones, metatarsals and a complete fibula, more hip bones and vertebrae and

some skull material. Its nickname is Pearl and is said to be a parrot on steroids as seen in the reconstruction by Julius Csotonyi. It is estimated to have been 7 feet tall and 12 feet long and lived in the Late Cretaceous. (WIFR Newsroom)

The **M**id-**A**merica **P**aleontology **S**ociety (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: \$20.00 per household covers one year's issues of DIGESTS. All Canadian and Overseas members receive the DIGEST by air letter post. For new members and those who renew more than 3 issues past their due date, the year begins with the first available issue. Institution or Library fee is \$25.00.

MAPS meetings are held on the 2nd Saturday of October, November, January, and February and at EXPO in March or April. A picnic is held during the summer. October through February meetings are scheduled for 1 p.m. in Trowbridge Hall, University of Iowa, Iowa City, Iowa. One annual International Fossil Exposition is held in late March/early April.

The MAPS official publication, MAPS DIGEST, is published 5 times per year – Jan-Mar, EXPO EDITION, May-August, Sept-Nov, Dec. (EXPO Materials). View MAPS web page at: <http://www.midamericapaleo.org>

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