

THE EARTH SCIENCE NEWS

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EARTH SCIENCE CLUB OF NORTHERN ILLINOIS

-----E S C O N I-----

WWW.ESCONI.ORG

EARTH SCIENCE CLUB OF NORTHERN ILLINOIS 2010

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Junior	Open			

11/13/09

John Good & Karen Nordquist are delegates to Chicagoland Gems & Minerals Association.
Mark Kuntz is Show Chairman for 2010.

The aim of the **Earth Science Club of Northern Illinois** is to promote an interest in the Earth Sciences. In addition to the regular General Meeting, study group meetings are held monthly. They are held by groups of **ESCONI** members interested in the studies of Archaeology, Mineralogy, Micromounts, Paleontology, and the Lapidary Arts. There are also study sessions for Junior members to help them learn more about the earth sciences. From time to time field trips are arranged. **ESCONI** has a fine library of books on the earth sciences that are available to members.

We welcome the attendance of all interested persons at any or all sessions. The schedule is printed in this Bulletin (date, time and place of meeting). Specific information is published in this bulletin.

Membership is \$20.00 (which includes the Bulletin) for family membership, or \$50.00 for three years. Dues are payable either at the monthly meetings or by mailing to the **Membership Chair** listed above.

Deadline for Bulletin articles to the editor is the 2nd weekend of each month. Articles in this publication may be reprinted if full credit is given the author and **The Earth Science News**. Exchange bulletins may be mailed directly to the Editor.

ESCONI website is www.esconi.org
Web Administrator is Dianna Lord

April 2010 President's Message



Well I don't know about you, but I am ready for Spring! And what a March we have had! Busy, busy, busy! First, thanks to everyone who helped out at our Show, at PaleoFest and at MAPS! This is our PaleoFest crew at left including John Good, Jim Fairchild, Irene Broede and Eileen Mizerk.

We had a table at the front of the room where the talks were held so everyone had a good look at ESCONI all day each day. We did get a couple of new members and sold a few books. Thanks to John

Catalani who sold some of them. March is a test of our club and its members. Everyone is ready to get out and get going after the cold and icy winter and the shows are starting up in March. It is always good to see everyone again after the hibernation of some during this time and to see all the treasures at the shows.

Thank you to those who worked so hard to clean up and organize the warehouse in preparation for the Show. That is always an important step to help get ready for the Show to determine what material we have for the silent and live auctions.

We were saddened by the loss of one of our dealers Geodon just before the Show as they had been with us for many years. Our sympathies to her family.

Special congratulations to new grandparents, Betsy and Floyd Rogers who welcomed Zane to the family in South Africa on February 22. How exciting for Becky and Kurt. All appear to be well and happy.

Karen Nordquist, President

Dues are Due

Please send your check payable to ESCONI for \$20.00 for one year or \$50 for three years to

Eileen Mizerk, Membership
2094 Windward Lane
Hanover Park IL 60133-6183

MARCH 2010 ESCONI EVENTS

College of DuPage (COD) Building K, Room #131 for most meetings, but note that the room number is subject to change – there will be a note posted on the entrance door.

General Meeting
8:00 PM, April 9

Dr. Bucky Gates: **Reconstructing Paleoecosystems through Micro-vertebrate Taphonomy**

Mineral-Micromount
7:30 PM, April 10

Minerals of South Dakota by ESCONI members

Paleontology
7:30 PM, April 17
Building K Room 161
Note—Room Change

Burpee-Hanksville Quarry by ESCONI Members, Therese & Duane Cushing. They will show a powerpoint presentation on their Burpee Museum Field trip last year.

Archaeology
7:30 PM, April 24

Metal Detecting by Jim O'Brien. Jim will bring his metal detector and present it's uses in archaeology.

Junior

Subject to reorganization.

ESCONI Field Trips

Field Trip 1: March 27, 2010: Jacob's Geodes (See Page 3)
See Web Site, www.esconi.org, and the notes on a following page details about future field trips in 2010.

BOARD MEETING
7:30 PM April 23

GROUP	GENERAL	MICRO	PALEO	ARCH	BOARD	JUNIOR
April	9	10	17	24	23	
May	14	8	15	22	28	
June	11	12	19	26	25	
DAY	2 nd FRI	2 nd SAT	3 rd SAT	4 th SAT	4 th FRI	2 nd FRI
TIME	8:00	7:30	7:30	7:30	7:30	7:00

MAPS National Fossil Expo XXXII March 26-28, 2010
CGMA 34th Annual Show May 29-30, 2010

Field Trips for 2010

I am planning a field trip to WarField Quarry, near Kemmerer, Wyoming in June of 2010, for fossil fish. Grandson Pete and I collected there in June 2007. We were collecting at about 4,000 feet high. Finding fish was a matter of splitting soft limestone to find the fish. We found over fifty and my largest was eight inches long. We split one piece that had five fish all over three inches long. This is a pay area and you can keep 10 species of fish, any size. The National Monument is nearby and worth a couple of hours of time. I will have more on this when I set the dates. Please let me know if you are interested on going on this field trip.

Richard Rock: Field Trip Chairman

Other Future Field Trips

Field Trip #1 March 27, 2010 - Jacob's Geodes, Hamilton, Illinois 9:00 A.M. Geodes Meet at 9:00 am at 823 E. County Rd. 1220 in Hamilton, Illinois at Jacob's Geodes. \$16 for a full 5-gallon pail. Please call John Good at 630-483-2363 for reservations or e-mail at esconi@hotmail.com

Braceville—Mazon Creek Fossils May 2010

Braidwood Boat Trip—Mazon Creek Fossils May 2010

Kenosha Museums—Self Guided trip to Kenosha May 23, 2010
Public Museum, Kenosha Civil War Museum
and Dinosaur Discovery Museum

Miner Safety Training

We are looking at Miner Safety Certification Training. John McArdle of ZRS (Zoological Research Services) is approved to offer Miner Safety Certification Training and issue certificates. He has offered to teach the course. This involves a formal presentation based on a 250 page book, followed by a formal test that must be passed to receive a certificate. The training would take two (2) to three (3) hours with a break.

Quarries in Minnesota require Miner Safety Certification training. We had miner safety training at our Larson Quarry field trip in 2009. We need miner safety training for successful and safe collecting.

We are in the process of scheduling training.

The cost will be \$10 for each ESCONI Member. The Club will purchase several copies of the book.

More information will be on the web site and in the April and May Issue of ESCONI News.

General Meeting

February 12, 2010

President Karen Nordquist called the meeting to order and welcomed everyone. 1st Vice President Rob Sula mentioned the speakers lined up for the next few months. Bucky Gates and Lindsay Zanno will be the featured speakers for April and May, respectively. Neither speaker has confirmed the topic of their presentation. There will be no General Meeting in March. Rob mentioned that Mazon Creek molluscs will be photographed at the next Paleontology Study Group meeting. (Several of our ESCONI members will be authoring a book on Mazon Creek fauna.)

Karen then discussed upcoming shows and events. Paleofest will be held on March 6 and 7. ESCONI member John Catalani will be giving a presentation on Ordovician nautiloids at Paleofest. Members' Night at the Field Museum will be held on March 11 and 12. Our ESCONI show will be held on March 20 and 21 (third weekend of the month). MAPS will be held the following week (March 26 thru 28). The Ordovician Period will be the theme of that show.

John Good talked about the ESCONI Show. The show will be held in K Commons. There will be a lot of books for sale at the show. A sign-up sheet was available for those wanting to help or demonstrate at the show. John then discussed field trips. There was a sign-up sheet for those wanting to go on the March 27 field trip to Jacob's Geode Mine. This field trip is being held in conjunction with MAPS. There will be a field trip to Braceville in May (date not yet set). There may also be a future trip to Wyoming for fossil fish. Check the Bulletin and website (www.ESCONI.org) for information on field trips. John McArdle will give miner safety training to interested ESCONI members. Training will cost \$10.00. The date for this training is uncertain, but may take the place of the May Paleontology Study Group meeting.

Eileen Mizerk (Membership) mentioned that a number of members are taking advantage of the 3-year membership package. Andy Jansen (Library) is reorganizing the library list. He passed around a draft version of the list. The list will be available on the ESCONI website. A discussion was then held on upcoming study group meetings and on ESCONI books available for purchase. ESCONI members Joe Kubal and Jerry Drosz will be displaying minerals and fossils at Morton Arboretum on March 27 and 28.

Rob then introduced the speaker for the evening – Dr. Thomas Loebel of the Department of Anthropology, University of Illinois at Chicago. Most of Dr. Loebel's work centers on the Clovis period

“The DeWulf Site (11Hy296) and Late Paleoindian (Circa 10,000-9,000 BP) Ritual Activity in the Great Lakes Region”

Tom's presentation focused on a number of late Paleoindian sites within the western Great Lakes region that show evidence of ritual activities. The first site he discussed was the Renier Site, Brown County, Wisconsin. This site contained the cremated remains of a sub-adult and burned and broken Scottsbluff-like projectile points made of Hixton sandstone. The source of the Hixton sandstone is about 200 miles from the Renier Site. The Renier Site is the oldest documented burial site in Wisconsin (circa 9,000 BP).

General Meeting—continued

The Pope Site, Waupaca County, Wisconsin, is similar to the Renier Site. This site also contains fractured and burned Scottsbluff points. Although no human remains are found at the Pope Site, it was also probably a cremation site. Actual cremation sites from the Paleoindian period are probably under-reported because burned bone and ash can degrade over time or may be misidentified as animal remains. Also a cremation site is easily missed compared to a burial site where ground disturbance occurs.

Tom then described the Deadman Slough Site in Price County, Wisconsin. This area was a focal point for Native American settlement for thousands of years. There was a ritual offering site in the area that did not involve cremation or burial activity. However, a number of heat-fractured ceremonial bifaces (2-sided stone tools used as multi-purpose knives) were found at the site. These types of ritual activities conducted at sites without an apparent cremation or burial of a body have not been fully interpreted.

At the Gorto Site near Deer Lake in Marquette County, Michigan, 89 fragments were found. These fragments were from a minimum of 30 Scottsbluff projectile points. At the Elmwood Island Site in Dodge County, Wisconsin, two large Scottsbluff points were recovered from a pit feature covered in red ochre. This may have been an offering site as the use of powdered hematite is known as a ritual offering. The artifacts were not heat-fractured at this site.

The Crowfield Site in Ontario contains debris from normal everyday activities. However, a cremation site was also found there. Both burned bifaces and projectile points were used as mortuary offerings. Any possible human remains have decayed.

Tom ended his presentation talking about a ritual site that he is involved with. The DeWulf Site (11Hy296) is located in Henry County near the confluence of the Rock and Mississippi Rivers. Fieldwork at this site has revealed a dense, single-component surface-scatter characterized by obliquely flaked Late Paleoindian projectile points, large ovoid bifaces, and flake blanks. To date, three nuggets of copper have also been found. These were probably also part of the ritual offering. This may have been one of the earliest cultural uses of copper in the United States. Tom said that galena was also used as a mineral offering at ritual sites. The entire assemblage has been heavily burned and the bifaces and projectile points were purposefully broken prior to burning. As such, the assemblage bears a strong resemblance to those from several confirmed or probable Late Paleoindian cremation sites in the Midwestern United States and Ontario, Canada.

At most of these ritual sites, there is little or no evidence for everyday activities. Also, the ritual sites are fairly isolated and lack any distinctive features (which could be a distraction to the ritual). The bifaces and projectile points at these sites were often ritually "killed" (broken) prior to being included in the cremation burial or sacred ceremony. Also, many of the projectile points were oversized and probably made specifically for ritual use. However, there is variation among the ritual sites as to whether the artifacts were broken prior to burning, broken due to burning, unbroken, or not burned. In any case, these sacred rituals essentially involved offering material objects as a connection to another realm of existence.

Following the well-received presentation, there a series of questions and answers, the meeting was adjourned with thanks to Tom for his entertaining presentation.

General Meeting—continued

Refreshments were served. Tom remained to answer further questions. He also had a number of real fragments and projectile casts for the audience to see.

Respectively Submitted, William S. Vinikour, Recording Secretary



Dr. Thomas Loebel



Projectile casts and Artifacts

BOARD MEETING
January 22, 2010

President Karen Nordquist called the meeting to order. 1st Vice President Rob Sula identified the speakers planned for the General Meetings through June. These include Joel Palka in February, Bucky Gates in April, Lindsay Zanno in May, and Cary Easterday (or one of his associates) in June. Due to the ESCONI Show, there is no General Meeting in March. Joel will discuss fossil use in Mayan religion and culture; topics for the other speakers are uncertain.

2nd Vice President Irene Broede informed the Board that all meetings in February will be in K-131. All March and April meetings will also be in K-131 except for the Mineralogy and Micro-mount Study Group meeting on March 13 and the Paleontology Study Group meeting on April 17. Those meetings will take place in Room K-161. Irene also announced that we may be able to have the ESCONI Show in K Commons rather than at the Student Resource Center. Karen then mentioned that the ESCONI Board members present at the January General Meeting approved a motion to provide funding support for a speaker at PaleoFest.

Howard Svoboda, Circulation, stated that he will mail the newsletter on Monday (January 25). He presented the ESCONI Circulation Data for 2009. The annual bulk mail permit fee will be \$185, up from last year's \$180. Domestic mailing costs per newsletter last year were 16.2 cents prior to May and 17.2 cents since May.

John Good, Treasurer, presented the ESCONI 2009 Profit and Loss Statement as of December 31, 2009. After a brief discussion, his report was accepted. He mentioned that he sent in payment for the support of a speaker at PaleoFest.

Membership Chair Eileen Mizerk informed the Board that there are currently 217 family members. There were 225 labels printed for the newsletter. She mentioned that there is a 50 cent charge on change of address returns (there have been three returns to date). A notice will be placed in the newsletter letting members know that they should notify us when they move.

John Good stated that the next Chicagoland meeting will be on March 2. The Chicagoland Show will be on Memorial Day weekend (May 29 and 30). Helpers are needed for the show. Our webmaster, Dianna Lord, said that she received an e-mail offering a payment to ESCONI if we would provide a link to their site. The Board decided to decline the offer as the organization was not earth-science related. A discussion followed on having earth-science related links on our website. Dianna will look into this issue. Billing for both the 6-month website hosting and domain name are due. Dianna will send in payment for these fees. A discussion on giving presentations (e.g., to school groups) was then held.

John Good would like to know the location for the ESCONI Show by next week so that the show flyers will have the correct location. He wants to mail the flyers to dealers and others by early February. There will be eight dealers at the show (two of the dealers will be splitting a normal dealer space). A work day will occur at the warehouse to get items ready for the show.

Under old business, Irene Broede reported on ESCONI Associates. John then talked about the newsletter. His goal is to have the newsletters about 20 pages long. Rob mentioned that an ESCONI member made a suggestion that ESCONI meetings be rotated to various locations (e.g., hold some at Lewis University). This suggestion did not meet with Board approval. John then discussed upcoming field trips. These included a trip to Jacobs Geodes in Hamilton, Illinois on March 27, and two trips to Braceville in May.

The meeting was adjourned.

Respectfully submitted, William S. Vinikour, Recording Secretary

February Paleontology Study Group

Paleontology Chairman John Good called the meeting to order and Jim Fairchild announced that photos for the Mazon Creek book would be vertebrates in April including eggs. In May photos will be taken of tully monsters, H's, Y's, and trace fossils. Bring your best fossils to those meetings for possible inclusion into ESCONI's new fauna book. Kathy Dedina is hostess for tonight's meeting and a hostess is needed for April. There will be no Paleontology meeting in March due to the Show. In April we will study the Pennsylvanian but we need someone to do presentations. John mentioned that we have lost a dealer due to health problems and will need a replacement. Tom Williams mentioned the MAPS Fossil Show at the end of March in Macomb Illinois. It should be a good show. Anyone who wants to have a table there needs to order it very soon now. The digest should be a very good one this year.

The field trip scheduled for May 22 is changed to May 23. There is a geode trip to Jacob's during MAPS. Richard Rock is going fishing in Wyoming for fish fossils in June. John Catalani is still waiting to hear about the possibility of going to the St. Paul quarry in Indiana. John Good is waiting to hear from John MCardle about our miner safety training that may take place on May 15 or May 31. It would cost \$10 per person and help assure us access to some quarries in Minnesota. John is looking into a field trip to a Kenosha Museum also. He reminded us of Burpee PaleoFest coming up. He then turned the meeting over to Karen Nordquist and Irene Broede who talked about their visit last September to England and Wales.

A Trip to Bristol England and Wales

In September of 2009 we visited Bristol England for the Society of Vertebrate Paleontology meeting and took a couple of side trips along the way. We saw a little bit of Bristol, took a day trip to Bath, went to spend a day in London, took a field trip to fissure sites in Wales and England and then joined the SVP meeting in Bristol. This is a brief summary of our adventures along the way.

Bristol has a population of about 421,000 with over a million in the area. They obtained their Royal Charter in 1155 and became a County in 1373. It is located on the River Avon and has a coastline on the Severn Estuary flowing into the Bristol Channel. It was a busy seaport and is now involved in the electronics and aerospace industry with companies like HP. The docks are now a center of heritage and culture. Did you know that Bristol has the second highest tide in the world – second only to the Bay of Fundy. Some introductory slides of Bristol showed the SS Great Britain which was built by Isambard Kingdom Brunel and the Great Western Steamship Co. in 1843. At the time it was the largest ship afloat and the first screw propeller iron body ship ever. It was 322 feet long, 5 foot 6 inches wide with four decks, 120 crew and 360 passenger capacity. It was quite the ship and sailed for years before it sank in the Falklands. It was raised and is now a tourist attraction in Bristol. The famous Clifton Suspension Bridge stands high over the River Avon and wasn't completed until 1864 after its designer Brunel had died. It is 702 feet long and 245 feet above the river at high tide. Many have jumped to their death from its heights, but one lady was saved when her billowy skirts became a parachute and gently floated her safely down.

Bath is a world Heritage Site 15 miles from Bristol and is the only thermal springs in the UK. The Romans built a suite of public buildings to enclose the baths and the temple to Sulis Minerva, the goddess of the spring. The Great Bath is the largest pool in the bath complex with a flat bottom lined with lead sheets.

Paleontology Study Group Continued

The hot spring water flowed constantly into the Great Bath through a lead box culvert at the northwest corner and the excess was taken away through a sluice controlled drain in the north-east corner. The water flows at about 250,000 gallons per day and is at 115 degrees F. There are 43 minerals in the water with calcium and sulfate being the primary ones along with sodium and chloride. It also contains dissolved iron. It can be tasted in the Pump Room where we had a delicious lunch also. Before the Romans arrived in Britain this area was ruled by a tribe called the Dobunni. By AD 44 the Romans occupied the area. The native goddess was Sulis. In order to build the Baths the Romans blocked the natural stream that was draining the spring to the River Avon. They built a stone lined drain to channel the water away to the east. This directed the drainage away from passing under the heaviest part of the building. By 75AD the construction was completed.

Our trip to London was to see the Natural History Museum. They have quite a display of dinosaurs and marine reptiles. A large *Apatosaurus* greets you in the main hall while many others are strung from the ceiling in another hall. Mary Anning is an important paleontologist who discovered the first marine fossil and there are many walls lined with such fossils in this museum that are just amazing. Darwin sits at the end of the main hall watching over it all. And there was a temporary display with a cast of the recent controversial fossil *Ida* that we were able to see while we were there.



As part of the SVP meeting we participated in a field trip with a group from all over the world. It all began in 1858 when Charles Moore discovered Mesozoic material amidst Carboniferous age rocks. He searched around and found other quarries with other fissures with infilled material and extracted some fossils from it. He found a lot of shark teeth and then some mammal bones. Another site known as Durdham Down near Bristol may have been a collapsed cave is well known for the remains of the 4th named dinosaur, *Thecodontosaurus* (used as the logo for the SVP meeting). It is known as the Bristol dinosaur. This material was first discovered in 1834 and was the first Triassic reptile to be published in 1836. They also found a sphenodontid and phytosaurs at this site. Others came to these sites and found mammal material over the years including mammal and reptile remains, mostly disarticulated and broken, but well preserved. They included mammals *Morganucodon*, and *Kuehneotherium* named after one of the researchers. They also found a lepidosaur *Gephyrosaurus*. The first quarry we visited was Pontalium Quarry which is still an active one. The quarry

people are usually very helpful and when they come to a fissure they call the research people and let them study it before they work it out. The first fissure found at this quarry was in 1955 and it contained almost all bones of *Kuehneotherium*. One of the fissures we saw is pictured here.

The second quarry was the Pant Quarry and there in 1955 they found a fissure with many specimens mostly of *Morganucodon* and *Gephyrosaurus*. Later parts of the fissure revealed bones of *Kuehneotherium* in 1959.

Paleontology Study Group Continued

As the years went by they found more fissures and more bones from more mammals and reptiles. The Pant fissures tend to be more narrow vertical slots while Pontalum are more variable



in size. In the Pant quarry about 70% of the bones are from a new sphenodontian species of *Clevosaurus*. They have even found some pterosaur teeth and some teeth of a small theropod. This areas has been identified as St. Bride's island and it was subtropical with heavy seasonal rains and a cyclical climate that eventually flooded. It is pictured with reproductions of the animals that have been found in the fissures.

The third quarry we visited is no longer active and is Cromhall. It is located back in Gloucestershire about 25 km north of Bristol in England. Most of these are fissures although some are cave formations in the Carboniferous limestone formations. They have found Late Triassic reptiles



but no mammals so far in these quarries. They are disarticulated brown or black bone. They have found about 7 new species of reptile including the interesting *Kuehneosaurus* which is the reptile with the wide ribs that is believed to have been a soaring or gliding reptile.

Our final stop was at a working quarry near Cornhall called Tytherington which began in 1975 with the discovery of dinosaur bones – *Thecodontosaurus* bones. They are now held in the Wills Memorial building at the University of Bristol. This was the first significant collection of this dinosaur bones since Durdham Downs in the 1830's. Later during the meeting we were able to visit the laboratory at Wills Hall at the university to see many of the bones that had been collected at these quarries over the years. We saw many teeth, jaws, long bones and other bones under the microscope that had been identified and sorted from years of careful collecting. It was very impressive.

We visited the Bristol Museum which is next to the University of Bristol. It was founded in 1823 as a private museum for the elite. It has the first complete plesiosaur skeleton of Mary Anning. It became the Bristol City Museum in 1894 and was bombed in November 1941 when most of the fossils were destroyed.

Paleontology Study Group Continued

There were many talks at the SVP meeting itself with several sessions going on simultaneously. There was one session just on marine reptiles to honor Mary Anning. We did hear Daniel Fisher talk about Lyuba the baby mammoth that is coming to the Field Museum this March. Steve Brusette did give two talks, one of the new *Alioramus* and *Raptorex*. Peter Makovicky also talked about his two new coelurosaurs from Mongolia.

We also spent some time on the beach at Severn Beach at low time collecting. Here we found some Jurassic gryphaea and some Carboniferous crinoids and mollusks which we brought to show. Irene also had a sample of the fissure material from one of the quarries we visited in Wales with a brachiopod. The rest of the material we brought back is at the Field Museum being processed with little prospect of having anything of interest in it. We did not have enough time to find much during our short time there.

The meeting was adjourned for refreshments and further discussion.

Respectfully submitted, Karen Nordquist, Secretary

Florida Geology By Kathy Dedina (presented at February Mineral Study Group)

Florida geology helps explain Florida's mineral and fossil wealth. Most surface rocks in Florida are of relatively young age dating from the Eocene (55 mya) to the Holocene (10,000 ya to present). Basement rocks are very old with the oldest dating to the late Precambrian (700 mya). Ordovician, Devonian Triassic and Mesozoic rocks are also present. These are often studied through drill cores.

During the early Ordovician (530mya) volcanic activity and marine deposition started the formation of the Florida Platform upon which Florida sits. The platform was attached to Northwest Africa near Senegal. During the late Carboniferous (300mya) and the formation of the supercontinent Pangaea, Florida was between Africa and North and South America. By the Triassic-Jurassic boundary (210 mya) Pangaea began to split. The split was probably complete by the Middle Jurassic with Florida sutured to North America in southern Georgia. A long period of carbonate deposition in a marine environment followed which helped to form the Florida Platform. This process is still continues on the Florida Platform.

During the Cenozoic (65 mya to present) deposition and sea level fluctuated. In the Miocene the erosion of the Appalachians reached Florida with a source of silicate material. Deposition is now more quartz sands, silts and clays with some limestone and dolomite except in South Florida. It is at this time that phosphates are deposited in parts of Florida. It is believed that an upwelling of cold nutrient and phosphate rich water from the deep ocean occurred. This allowed for the rapid growth of marine organisms which died and added large amounts of organic matter to the sediment which when reworked and concentrated formed the economic phosphate deposits of Florida.

Florida Geology By Kathy Dedina—Continued

The Quaternary Period (1.8 mya to present) was a time of glaciation and widely fluctuating sea levels. Sea levels dropped as much as 400 feet. This increased the size of Florida dramatically. The shoreline was 100 miles west of the present at the lowest level. Large quantities of sand and sediment were transported to the state by rivers and currents during this period. Much of Florida's sandy beaches and heavy metal deposits are traced to the erosion of the Appalachians. Florida was home to a rich diversity of animal life from the Miocene (25 mya) to the Pleistocene (1.8mya to 10,000). During glaciation many animals migrated to Florida to escape the icy conditions further north. These are found as fossils in many Pleistocene deposits. The first humans reached Florida around 10,000 to 12,000 years ago.

Florida is covered by huge carbonate deposits. Limestones dissolve but very slowly when exposed to acidic water. Rainwater picks up carbon dioxide and nitrogen gases as it falls through the atmosphere. This slightly acidic water becomes more acidic as it comes in contact with organic matter. It dissolves the limestone as it works its way through cracks in the limestone enlarging the openings. This leads to formation of caves, caverns, sinkholes and swales. Caves are interesting to explore and have some mineral deposits. On the other hand, sinkholes are a real hazard as seen in the recent headlines from Florida. The karst landscape with its weathering limestone also explains disappearing rivers and lakes.

References

- The Geology of Florida edited by Anthony F. Randazzo and Douglas S. Jones, Florida's Geological History and Geological Resources Special Publication #35 edited by Ed Lana.
- The Hall of Florida Fossils Geological History on website of Florida Museum of natural History

Florida Phosphate Minerals by Jim Daly Presented at the February Mineral Study Group Meeting

The phosphate mining industry is mainly in Polk County, about 40 miles east of Tampa. There are many phosphate mines there, but most are quite uninteresting, with no mineralization other than phosphate rock, an impure apatite.

Only three mines are listed in Mindat with other minerals. These are the Payne Creek-Palmetto Mine, the Homeland Mine and the Clear Spring Mine. There's also the Noralyn Mine, which is listed in Mindat, but shows no phosphates, other than apatite, in the minerals found there. It has, however, produced some phosphate species.

The Payne Creek-Palmetto Mine has beraunite, cacoxenite, vivianite and wavellite. The Homeland Mine has apatite-(CaF), carbonate-apatite, crandallite, millisite and wavellite. The Noralyn has wavellite, variscite, cacoxenite and rockbridgeite. The most interesting mine, though, is the Clear Spring Mine. We'll mainly talk about that one.

The Clear Spring Mine was a huge open pit operation on the southeast side of Bartow. The interesting phosphate minerals were found in one of the deepest parts of the mine. When mining stopped, this part of the mine flooded. When I visited it, that portion was a lake. Shortly after that visit, the entire site was reclaimed. Now it is all pasture land, and you would never know there had been a mine there.

Florida Phosphate Minerals by Jim Daly—Continued

Let's look at the phosphate minerals from this district. Most are easily identified. Since I don't have specimens of all of them from Polk County, and Mindat didn't have any, either, I've used pictures from other localities as needed.

Apatite-(CaF) is one we're all familiar with- hexagonal prisms. There's also a carbonate-rich variety, known as "francolite". That's found as white earthy masses.

Beraunite is red-brown, and occurs as radial aggregates. The picture is of a specimen from Indian Mountain, AL.

Cacoxenite is yellow, and forms radial, almost fibrous groups. The picture is from les Montmins, France.

Crandallite is dull yellowish-white, in crude prisms or massive.

Cyrilovite is orange, as pyramids or tabular crystals. The pictured specimen is from Hagendorf Sud, Germany.

Ferrostrunzite is yellow to light brown acicular crystals. The picture is from Cornwall, England.

Jarosite forms dark amber wedge-shaped crystals, a lot like some of the sphalerite crystals found in the limestone quarries in Indiana & Ohio. This specimen is from Laurium, Greece.

Metavivianite comes in green to brown striated prisms. It can form pseudomorphs after vivianite.. This picture is from the Ukraine.

Millisite is another dull white crust. This picture is from Clay Canyon, UT.

Rockbridgeite is black or very dark green balls or crystals. This specimen is from Kings Mountain, NC.

Siderite isn't a phosphate, but is fairly common here.

Strengite comes in clear violet lath-like crystals, in sheafs. This picture is from Indian Mountain, AL.

Variscite is various shades of green, usually massive. This picture is from Clay Canyon, UT.

Vivianite is the most famous of the Florida phosphates. It forms usually long prisms, which are almost colorless when fresh, but rapidly turn green, then dark purple, and finally bluish black. This is not reversible.

Wavellite is in colorless to yellow-brown minute radial acicular groups.



Clear Springs Mine

PaleoFest 2010 Report

The Burpee Museum hosted the PaleoFest weekend for the 12th year and once again it was a successful time with a good lineup of speakers. ESCONI was there with a table to talk with visitors about membership and our books and this year because of construction we were right in the room where the talks were held. So everyone saw us. It was a little crowded this year but next year the expansion should be completed and should be great. They have big plans for 2011 with the headline speaker set as Paul Sereno and it will include the Project Exploration Traveling Exhibit: Giants: African Dinosaurs. So set aside the first weekend of March in 2011. There were eight main talks this year and they were all interesting. I will review a few of them here.

Andrew Milner of the St. George Dino Discovery Site at Johnson Farm in Utah talked about the wonderful dinosaur track ways that have been found in the southwest corner of that state. It started in 2001 when the landowner Sheldon Johnson started seeing the footprints there and now they have thousands of tracks, but not just theropods which include foot prints, swim tracks, tail drags and the famous sitting track mark. They also have found some with skin impressions. They also have fish trails from the caudal fin of fish. There are also mud cracks, ripple marks and wave marks and invertebrate burrows and trails and conifer branches. It is a wealth of information that they have found here. They have found some fossils as well that include teeth including spinosaurus-like teeth, and coelacanth fish. These have all given them information that help give them a picture of what life was like at Lake Dixie back in the Early Jurassic.



Steve Brusatte from the American Museum of Natural History and Columbia University gave an overview of Tyrannosaur evolution including a look at some of the recent additions to the family, some of which he has been involved with. He reviewed much of the new research going on in the field including the bone histology work, bite force work and soft tissue work going on recently.

He himself is interested in phylogeny and tyrannosaurs are an older group than was thought going back to the Middle Jurassic. They started as smaller animals in general. There were five new ones in 2009 which he discussed. *Raptorex*, the pygmy T. rex, with its large deep skull and small arms caused a stir with its features and its 125 year old age. *Alioramus* had a long gracile snout from Mongolia, had more teeth, was very pneumatic and had a prominent cheek horn. It is pictured above in a resin reproduction done by Tyler Keillor for the silent auction. It also had thin teeth and a lot of ornamentation. It was half the size of T. rex. It looked like *Tarbosaurus* and lived alongside it, but was half its size. *Sinotyrannus* lived about 125 MYA and was large at about 9-10 meters long, but was very primitive like *Guanlong*. *Xiongguanlong* lived about 100 MYA was found by Makovicky and was mid-sized. It had a long snout with a long low skull. And the newest one announced recently was *Bistahieversor* from New Mexico with a deep snout like *Raptorex*. As more discoveries are made we will continue to learn more about these fascinating animals.

PaleoFest Continued



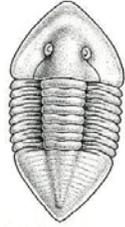
Jason Head from the University of Toronto discussed two new and interesting snakes that have recently been in the news. They are fascinating creatures as predators with no hands. In the Early Cretaceous when India was crashing into Asia Titanosaurs were nesting in the area. Now abundant fossil nesting areas are found there and in one nest clutch some different vertebrae were found. They were identified as snake bones and taken to the University of Michigan with Jeff Wilson for preparation. Along with the eggs and a hatchling titanosaur a new madtsoiid

snake was identified wrapped around among the dinosaur eggs. This is a type of snake that is able to separate its lower jaw to enable it to swallow items larger than its mouth. It does not unhinge its jaw as popularly thought, but it instead separates its front lower jaw to accommodate larger prey. The question comes in interpreting what the snake is doing in the nest. Did it float in dead or was it there awaiting the hatching of the dinosaurs? The new snake has been named *Sanajeh* and it is a link between old and new snakes. It was about 3.5 meters long and they did find 2 other snakes in other nests nearby. They could not have swallowed the eggs themselves so were probably waiting for the hatchlings. Again it was fortunate that Tyler Keilior had been able to do a reconstruction of the fossil and it is pictured above. The second snake he discussed was found in Colombia and it lived about 60 MYA. It was about 13 meters long compared to a big Anaconda today at 7.3 meters long. Jason is using this huge snake to estimate the Mean Annual Temperature (MAT) near the Equator at the time which he estimates at 32 degrees compared to the 27 degrees for the Anaconda. He hopes to use this method for other fossils also.



John Catalani presented the Ordovician that he knows so well as the time period of the greatest diversification of life on Earth. He showed us the Platteville and Galena rock groups in our area that contain fossils of interest to us. Some of the quarry formations are difficult to tell apart, but the fossils can help there. John described cephalopods and their classification and morphology, describing their structure. He also talked about the controversy about their orientation in the environment. It is now agreed that they are horizontal. Their identification involves a number of characteristics including shape, the siphuncle, sutures and ornamentation.

John's personal collection is extensive with 49 species in 29 genera of published nautiloids including 9 of the 10 nautiloid orders of the Ordovician. One of them is pictured above. Contrary to popular belief the straight shelled forms are not the most common nautiloids in the Platteville. He showed us one slide full of small coiled fossils. They are still here today in the form of two extant taxa so they are still with us today.

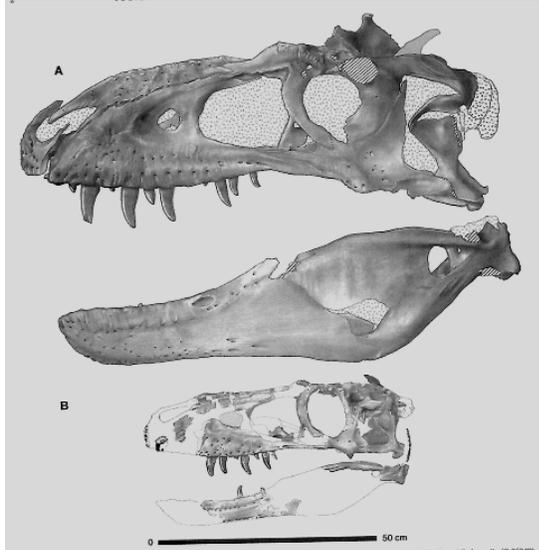


Karen's Komments



A New Tyrannosauroid from New Mexico – *Bistahieversor*

A new fossil find that includes an adult and juvenile skeleton of a new genus and species of tyrannosauroid from New Mexico adds to an already increasing taxon. It has been named *Bistahieversor sealeyi* after Bistahi or place of the adobe formation in Navaho in reference to the Bisti Wilderness area and in Greek “eversor” for destroyer for its predatory habits. Its species name is in honor of Mr. Paul Sealey the director at the New Mexico Museum of Natural History who discovered the specimen. It was found in the Upper Campanian Hunter Wash Member of the Kirtland Formation in northwestern New Mexico and is still being prepared. The juvenile skull is badly crushed but has the nasal processes and features to identify it. The skull measures about 1070 mm (3.51 feet) long. The dentary and surangular of the left mandible locked into place indicating that like other derived theropods there was no flexion in that joint. The drawing at left from the article



shows the holotype adult skull on top and the juvenile on the bottom with some bones reversed from the other side. They have not prepared the front arms yet but assume that they will be short if they are found as most derived tyrannosauroid arms are. Some other fossil finds have been referred to this taxon as they have been fragmentary and previously unidentifiable. (Carr & Williamson in **JVP** Vol. 30/1 2010)

Earliest Beetle Identified from Mazon Creek – *Adiphebia*



There was a Triassic radiation of beetles but now a very early one has been identified from fossils from the collections of the Smithsonian and the Field Museum which predates that by some 65 MY. Identification is often difficult since there is often little to go on – in this case there are insect wings to identify that were identified as something else in the past.

The fossil at left is FM PE 3416 which shows two folded wings in resting position. Features that are found in these fossils include main veins that are straight and parallel, a heart-shaped pronotum (shown clearly on the fossil at left at the top of the wings), and intercalary veins that are distinctive to beetles. In other insects that have intercalary veins it does not occur where it does in the wings of *Adiphebia lacoana*. There are five specimens of *Adiphebia lacoana* among hundreds of insects collected from Mazon Creek and there are none from other similar sites of the same date. Throughout the Permian the ratio of beetles to other insects is low and their diversity grows in the Middle Triassic. (Bethoux in **J. of Paleontology** Vol. 83/6 2009)

Local Calendar of Events

LIZZADRO MUSEUM OF LAPIDARY ART

May 4 through September 5, 2010 Special Exhibit "The Rock Café"

Chicago area lapidary hobbyist, Sylvia Josefeck collected rocks and minerals that resembled food and created the Rock Café, featuring 3 balanced meals made of stone. Warning: Eating rocks will lead to broken teeth!

Regular Museum Hours and admission.

April 10 "Mazon Creek Fossil Collecting Field Trip" Join us on a trip to Braidwood, Illinois to collect Mazon Creek fossils at the world famous site Pit 11. Learn what to look for when collecting these special fossils and how to open them. Travel by motor coach, bring a sack lunch and get ready to collect. Make reservations early this field trip fills up fast!

Field Trip - 8 yrs. to Adult - 9:00 a.m. to 3:00 p.m.

\$30.00 per person, Museum Members \$25.00

Reservations Required: (630) 833-1616

April 24 "StarLab: Introduction to the Constellations" Diane Szipiera of the Planetary Studies Foundation presents the major constellations in a unique planetarium setting. Using the well-known constellation identification system of author H.A. Rey, this entertaining and educational program provides children and adults the opportunity to see the basic constellations, hear mythological stories and learn astronomy facts. This program qualifies for Scouts earning their Astronomy Badge.

Lecture - 8 yrs. to Adult - 50 minutes - 2:00 p.m.

Admission: \$5.00 per person, Museum Members \$3.00

Reservations Required: (630) 833-1616



Paleolithic Cave Art

Saturday April 10, 2010 1 p.m.

Free with Museum admission. Pre-Registration Not Required

Join the The Field Museum and The Leakey Foundation for a presentation by prominent French prehistorian Jean Clottes. Dr. Clottes, a Leakey Foundation grantee, took a leading role in the study of two of the most famous prehistoric painted caves discovered to date: the underwater Cosquer cave, discovered in 1985 in cliffs at the shore near Marseille; and the spectacular Chauvet Cave, discovered in 1991. Clottes will explain the complexities of the subject, his experience and knowledge gained from viewing cave paintings around the world.

Mammoths and Mastodons: Titans of the Ice Age Exhibition runs March 5, 2010—September 6, 2010

Millions of years ago, colossal mammals roamed Europe, Asia and North America. From the gigantic mammoth to the massive mastodon, these creatures have captured the world's fascination. Meet "Lyuba," the best-preserved baby mammoth in the world, and discover all that we've learned from her. Journey back to the Ice Age through monumental video installations, roam among saber-toothed cats and giant bears, and wonder over some of the oldest human artifacts in existence. Hands-on exciting interactive displays reveal the difference between a mammoth and a mastodon, offer what may have caused their extinction, and show how today's scientists excavate, analyze, and learn more about these amazing creatures.

Local Calendar of Events

45th Annual Show Des Plaines Valley Geological Society April 10-11, 2010

Des Plaines Park District Leisure Center, 2222 Birch St. Sat 9:30 a.m. - 5 p.m. Sun 10 a.m. - 4 p.m. Adults \$3, Students with ID \$1, Seniors \$2, Children under 12 free with adult. Educational exhibits, live demonstrations, kids' room, silent auction, dealers, raffles, door prizes. Contact Lois Zima or Jeanine Mielecki (847) 298-4653 jaynine9@aol.com; www.desplainesgeologyclub.org

Orland Park Rock, Fossil, Gem & Mineral Show April 18,2010

Orland Park Civic Center
14750 Ravina Ave
Orland Park, IL 60462
Admissions \$2—Kids 12 and under free

Jewelry, Fossils, Minerals, Beads,
Pearls, Gem Stones, Unique Gifts,
Demonstrations

Chicagoland Gems & Minerals Association 34th Annual Gem, Jewelry, Fossil and Mineral Show

Memorial Day Weekend 2010
Saturday, May 29: 10 AM— 6 PM
Sunday, May 30: 10 AM—5 PM
Dupage County Fairgrounds
2015 W. Manchester Road
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info: www.Chicagolandgemshow.org or e-mail: CGMA@sbcglobal.net or
call 1-630-377-0197

Do You Have "Bugs?"

Fullersburg Woods Nature Center in Oak Brook is looking for volunteers to exhibit their fossil insects at their annual public Bug Bash to be held on Sunday, August 29, 2010 between 2:00 p.m. and 6:00 p.m.. Naturalists at the event will be incorporating activities on metamorphosis, aquatic invertebrates, food chains, "Bug Olympics," and bug identification with their new video scope. It was hoped that ESCONI members could add a booth on fossil "bugs."

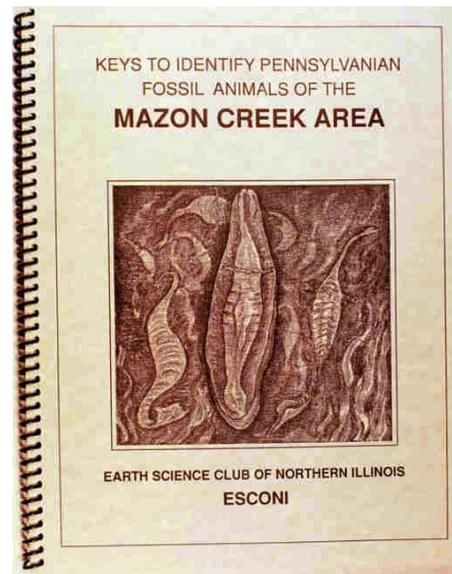
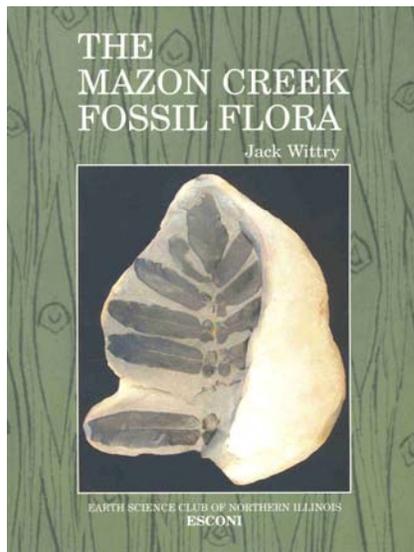
As hyped in the *DuPage Conservationist*, "They crawl, they fly, they swim, they even sing! They outnumber us 200 million to one and have been on our planet for 390 million years. Experience the incredible world of bugs at Fullersburg Wood's annual Bug Bash event. Meet a bug, be a bug, or just go on a bug hunt. You may just make some new multi-legged friends!" For additional information on the event and on volunteering, please contact Ms. Nikki Dahlin, Naturalist, Office of Education – Fullersburg Woods Nature Center, Forest Preserve of DuPage County, 630-850-3723 x8122, ndahlin@dupageforest.com. Nikki also is an ESCONI member

ESCONI'S Next Book Undertaking!

ESCONI first published Keys to Identify Pennsylvanian Fossil Animals of the Mazon Creek Area in 1989. With the success of the publication of The Mazon Creek Fossil Flora, it is time to consider updating our twenty-year-old publication of Keys to Identify Pennsylvanian Fossil Animals of the Mazon Creek Area. Jim Fairchild, Jack Wittry, Rob Sula, Chris Cozart, and John Catalani have come together with a goal to produce a quality publication that could complement The Mazon Creek Fossil Flora. In this updated version, the publication will not only utilize existing illustrations, but will also include photos to represent this diverse fauna. One difference is that the flora book presents major revisions to the classification of Mazon Creek plants, requiring museum specimens to be pictured. The new fauna book, will not present major revisions to species which will allow us to picture specimens from private collections. This provides all Mazon collecting ESCONI members with an opportunity to be a part of this new publication. We envision that each species will be represented by photos of one exceptional specimen and two typical specimens. By doing this we hope to show the reader examples of fossils that are representative of those they are attempting to identify.

On September 19th, we began by examining Mazon jelly fish fossils at the first paleo meeting. We'll keep updates in the bulletin as the book evolves so examine your Mazon Creek collections over the next few months and consider any possibilities you may have to contribute to the new book.

Any questions? Contact Jim Fairchild at 630-497-6278



The Mazon Creek Fossil Flora by Jack Wittry
313 color pictures, 113 taxa, 145 drawings
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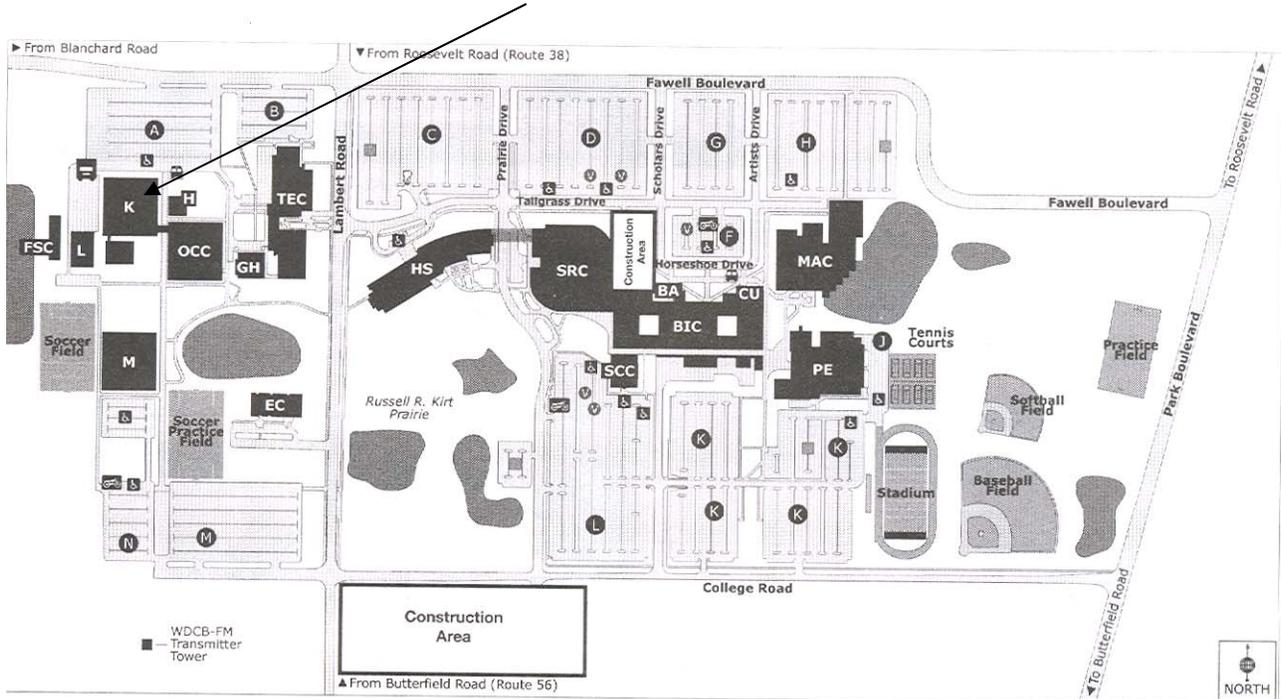
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