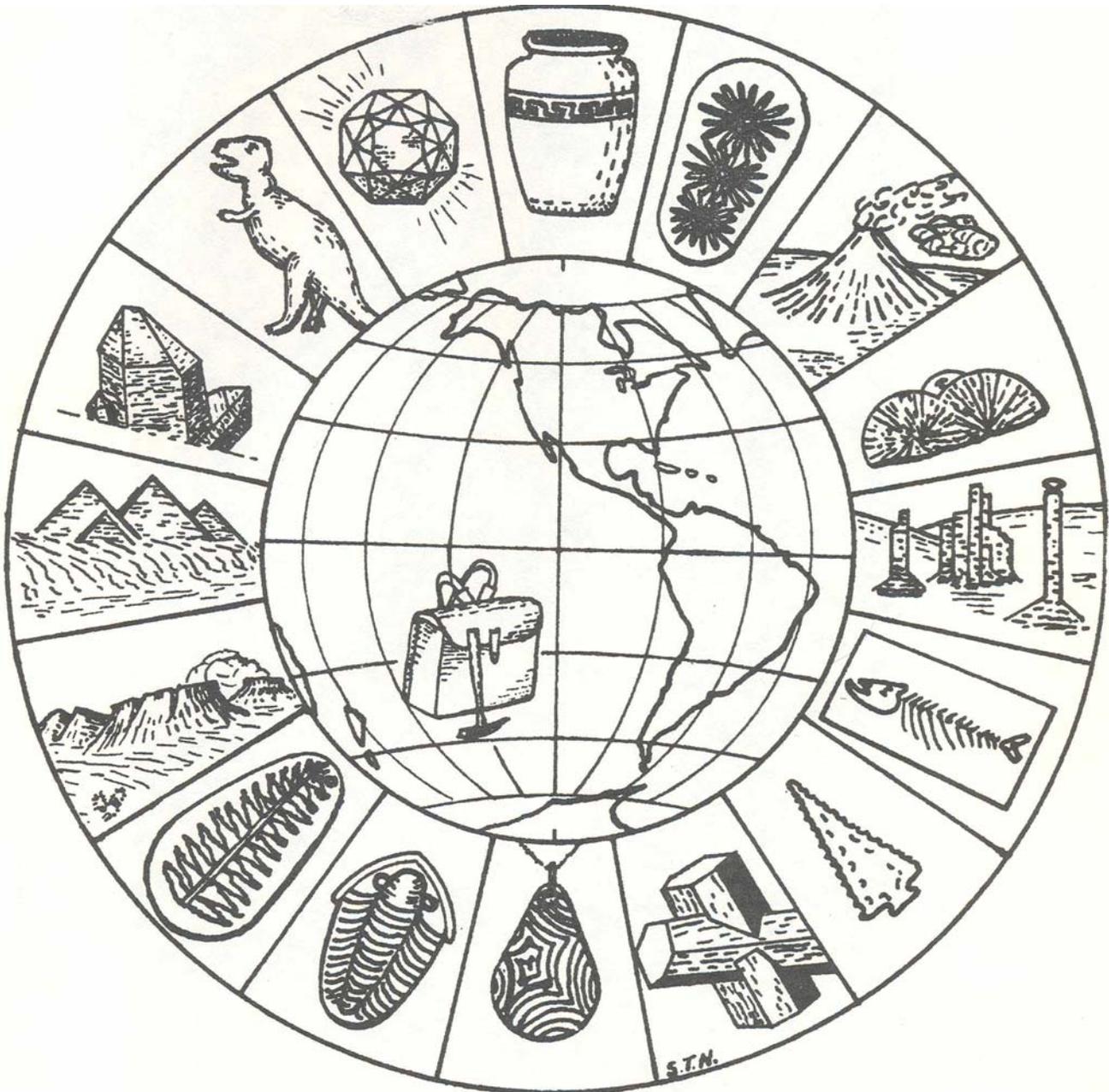


# THE EARTH SCIENCE NEWS

Volume 61

June 2010

Number 6



EARTH SCIENCE CLUB OF NORTHERN ILLINOIS

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

[WWW.ESCONI.ORG](http://WWW.ESCONI.ORG)

## EARTH SCIENCE CLUB OF NORTHERN ILLINOIS 2010

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<b>Publicity</b>	Don Cronauer	6 S 180 Cape Road	Naperville, 60540	630-357-6570
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<b>Lapidary</b>	Sheila Bergmann	401 S. Lombard Ave.	Lombard, 60148	630-629-5785
<b>Min/Micromt.</b>	Kathy Dedina	11 N. Cumnor Road	Westmont, 60559	630-969-2522
<b>Paleontology</b>	John Good	1891 Windward Lane	Hanover Park, 60133	630-483-2363
<b>Junior</b>	Open			

11/13/09

John Good & Karen Nordquist are delegates to Chicagoland Gems & Minerals Association.  
Mark Kuntz was 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 2<sup>nd</sup> 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](http://www.esconi.org)  
Web Administrator is Dianna Lord

## June 2010 President's Message

We have one more meeting before we take our summer break. There will still be some trips so keep an eye on the Bulletin and the web site for news on developments. Richard Rock has an interesting one in June in Wyoming looking for fossil fish that you might want to consider.



*Homotherium* (pictured at left), a short faced bear and much more. There is a lot to learn about the tusks of the mammoths and mastodons which can reveal a lot. Lyuba will be there all summer and then will be traveling to several more sites before she returns to her permanent home in Siberia.

I recommend that you take an opportunity this summer to visit the new temporary exhibit at the Field Museum, Mammoths and Mastodons. It is well worth the trip and has been very popular. The star of the show is a young little one month old mammoth named Lyuba who died 42,000 years ago in Siberia and is so well preserved that she is teaching us a lot about her kind. There is a lot there besides Lyuba also – a saber toothed cat,

I hope that everyone has a fun summer. We look forward to seeing everyone again in September when the meetings start up again and hearing about all your adventures and discoveries.

Karen Nordquist, President

**May 29 & 30: Wheaton, IL**

**Chicagoland Gems and Minerals Association -**

**“34th Annual Gem, Jewelry, Fossil & Mineral Show & Sale”**

DuPage County Fairgrounds, 2015 W. Manchester Rd, Wheaton, IL 60187. Dealers, demonstrations, exhibits, kids corner, silent auction, special displays. Food available. Saturday - 10 am to 6 pm. Sun - day 10 am to 5 pm. Adults \$5. Seniors & students \$3. Children under 13 free with adult. Free parking. For more information call (630) 377-0197 or email CGMA@sbcglobal.net

**We need help for all stages of this show including set-up demonstrating, admissions, kid's corner, silent auction and hospitality.**

### JUNE 2010 ESCONI EVENTS

College of DuPage (COD) Building K, Room #161 for most meetings in June, 2010, 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, June 11

James St. John, geologist/paleontologist at Ohio State University will discuss **“Weird Fossils & Fossil Oddities”** The rock record is famous for having some outstandingly bizarre fossils in terms of preservation style and body shape.

**Mineral-Micromount**  
7:30 PM, June 12

**Minerals and Geology of France**

**Paleontology**

No meeting in June; plan for September

**Archaeology**  
June 6 field trip

Archaeology field trip to Kenosha Public Museum, Civil War Museum, Dinosaur Discovery Museum on June 6, 2010. Self-Guided. Museum Costs Apply. Civil War Museum (\$7)

**Junior**

Subject to reorganization.

**ESCONI Field Trips**

See Web Site, [www.esconi.org](http://www.esconi.org), and the notes on a following page details about future field trips in 2010.

**BOARD MEETING**  
7:30 PM June 4, 2010

**Note that the following meeting will be on August 27, 2010**

GROUP	GENERAL	MICRO	PALEO	ARCH	BOARD	JUNIOR
May	14	8	15	--	June 4	
June	11	12	--	--	None	
July & Aug	--	--	--	--	August 27	
DAY	2 <sup>nd</sup> FRI	2 <sup>nd</sup> SAT	3 <sup>rd</sup> SAT	4 <sup>th</sup> SAT	4 <sup>th</sup> FRI	2 <sup>nd</sup> FRI
TIME	8:00	7:30	7:30	7:30	7:30	7:00

**CGMA 34th Annual Show May 29-30, 2010**



### FIELD TRIP: KEMMERER, WYOMING Friday June 18, 2010

We will meet in Kemmerer, Wyoming at 9:00, at the visitor center, in the triangle, on Friday, June 18, 2010. We will head out of Kemmerer on Route 30 & Route 180, on the north end of town, turn right, north, onto Route 180, continue for half a mile and turn left onto Route 223. When you pass the 4 mile sign, turn left onto the next road, you may miss the road because it is around a curve. When you turn left you will cross a cattle guard, a sign says B.L.M. Road 4211, and it is small. It is 7.3 miles to the quarry. Stay on the most used road. Cross 3 more cattle guards. It is 1.5 miles to the turn off after the 4th cattle guard, left to the quarry. Check out their web pages at [www.fossilsafari.com](http://www.fossilsafari.com)

Cost is on the web page. I usually do 4 hours per day, than pack up and cut the limestone to smaller sizes. Use bubble wrap, paper doesn't protect. I put mine, standing up right, side by side, in a tote container. If they are laid flat they will break on the way home.

You can keep, any size, fish of the following: Knightia, Diplomystus, Phareodus, Mioplosus, Amphiplaga, & Priscacara. Rare fossils stay at the quarry: shrimp, most plants, insects, turtles, mammals, stingrays, birds, reptiles, paddlefish, gars, Amia, crayfish, etc. All the best stuff!

From Wilmington driving time was 19 1/2 hours, about 1,285 miles to Kemmerer, and from I-80 Kemmerer is 46 miles north. I paid \$530 for gas driving my old Dodge Ram pickup.

#### Motels:

Antler Motel 307-877-4461

Energy Inn 307-877-6901

Fossil Butte Motel 307-877-3996

Dee's Motel 307-877-6226 Fairview Motel 307-877-3938

#### Camping:

Kemmerer Public Camp (Tents Only) 307-828-2360

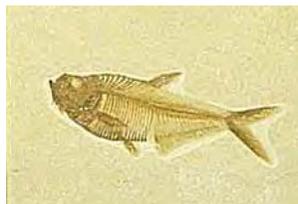
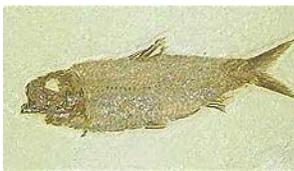
Foothills RV Park 307-877-6634

Riverside RV Park (Same as above) 307-877-6634

Kemmerer Chamber of Commerce at [www.kemmererchamber.com](http://www.kemmererchamber.com)

There are many things to do in the area, but a visit to the national monument is a MUST!! For more information see Richard Rock.

Richard Rock: Field Trip Chairman



## **General Meeting**

**April 9, 2010**

President Karen Nordquist called the meeting to order and welcomed everyone. She thanked all those who helped out at our March Show, especially Show Chairman Mark Kuntz and John Good for running the show and Irene Broede for her efforts in getting K Commons for the show location. 1<sup>st</sup> Vice President Rob Sula mentioned the speakers lined up for the next two months. Lindsay Zanno will be the featured speaker on May 14. The title of her presentation is: "The Fight for Survival: Asian Immigrants in the Dinosaurs of the American West." The speaker for June 11 will be James St. John. His presentation will cover weird fossils and fossil oddities.

John Good had flyers available for the Des Plaines Show (April 10 and 11), the Orland Park Show (April 17 and 18), and the Chicagoland Show (Memorial Day weekend, May 29 and 30). He also had forms available for anyone who wants to display items at the Chicagoland Show. He stated that a lot of help is needed at that show. Setup will start at 8:00 am on Friday, May 28. John Catalani then talked about upcoming MAPS Expos. Next year's topic will be the Cretaceous followed by the Carboniferous the year after that.

Field trips were then discussed. Mention was made that the St. Paul Quarry in Indiana has just reopened. ESCONI may be able to have a field trip there on a Friday or, possibly, Saturday. On Saturdays, collecting can only be done until noon compared to 3:00 pm on Fridays. Within a few weeks, it should be known if the trip is on. It was mentioned that update notices should be posted on the ESCONI web site so that members can find out about any events that become scheduled at the last minute. John Good then mentioned that Richard Rock will be heading a boat trip to Braidwood on May 23. There will also be a self-guided trip to the Kenosha museums on May 23. Field trips to Braceville will be held on May 15 and 16. John informed the audience that the field trip being led by the Lizzadro Museum tomorrow (April 10) is sold out. There may be a future trip to Minnesota. Richard Rock will be heading a field trip to Wyoming in June for fossil fish collecting. John then talked about the upcoming miner safety class to be held May 15 in place of the Paleontology Study Group meeting. It will cost \$10 and run from 6:30 to 9:30 pm. Anyone interested in the miner safety class needs to sign up no later than a week before its scheduled date. There will be a test at the end of the class. A sign-up sheet was available at the meeting.

Upcoming study group meetings were then discussed. Mazon Creek vertebrates will be photographed at the April Paleontology Study group meeting. Irene mentioned that all remaining meetings in April will be in K-131 except for the Paleontology Study Group that will meet in K-161. All May and June meetings will be in K-161.

Rob then introduced the speaker for the evening – Dr. Terry "Bucky" Gates, Assistant Professor, Department of Biology, Lake Forest College, Lake Forest, Illinois.

### **"Reconstructing Paleoecosystems through Microvertebrate Taphonomy"**

Bucky's presentation focused on several microsites where he has been investigating microvertebrate fossil finds. Microsites are small areas where there is a dense accumulation of fossils and at which 75% of the fossils are at less than 5 cm (2 inches) in size. Such sites can provide an overview of the ecosystems that existed at a site.

## General Meeting, Continued

Microvertebrate fossils can reveal more about an area than a single large fossilized specimen. However, there is some bias at these sites. For instance, just because a number of different individuals or species are collected at a microsite does not mean they all lived or died at the site.



Bucky first showed some slides of the laboratory area where his samples are processed. Sample processing depends upon the matrix in which the microvertebrate fossils occur. For sand and small rock matrices that do not swell when wet, the samples are washed through a series of various sized meshed screens. His volunteer workers, such as are own Karen Nordquist, then sort through the washed materials to pick out the microvertebrate fossils.

The first microsite that Bucky discussed was from the Sue Quarry in Faith, South Dakota. This is a late Cretaceous (Maastrichtian) site about 68 to 69 million years old. First he showed a slide of some of the macrofossils found at the quarry. These larger-sized fossils were from a *Thescelosaurus*, a primitive hadrosaur-like dinosaur about 15 to 20 feet long; a fern; a juvenile *T. rex*; a shark; and a turtle.

Bucky then showed a slide of a micro-tooth that was probably from a shark that lived in the river associated with Sue. He then showed a slide of a tooth from the shark *Cretoxrhina mantelli*. This is a marine shark possibly consumed in the area of an ancient sea and then deposited at the Sue Quarry in the consumer's "deposit." He then showed a series of slides of various microvertebrate fossils from an amphibian, *Chamops* (a skink-like lizard), an unknown lizard, and a theropod that might be a *Velociraptor* relative.

Overall, the terrestrial fauna found at the Sue Quarry included a multituberculate mammal (a rodent-like species), theropod and ornithomimid dinosaurs, two lizards (*Chamops* and an unknown species), a baenid turtle, a crocodile, and several amphibians (*Albanerpeton*, *Opisthotriton*, and *Habrosaurus*). Aquatic fauna found at the site included gars, amiids, albulids (*Coriops*), sharks (*Lonchidion*, *Chelioschyllium*, *Cretoxrhina*, and *Ischirhiza*), rays (including *Myledaphus*), and other teleosts (bony fishes).

Bucky then discussed Lindsay's Site, a microsite from the Cedar Mountain Formation. This formation is from 124 to 98 million years ago and is located in central to eastern Utah. The microsite is from the Mussentuchit Member which is the uppermost member of the formation. He showed several slides of the general area where the microsite occurs and of field crew hard at work collecting samples. Some of the species collected from this site include pholidosaurid and atoposaurid crocodiles, ornithomimid and theropod dinosaurs, teleosts, and many other taxa currently unidentified.

### General Meeting, Continued



Bucky also discussed Akiko's Site. This microsite does not have a high diversity of species, but has many crocodile teeth of various sizes. Pholidosaurid, atoposaurid, and eusuchiaian crocodiles and amiid fish are present at this site. This site may be the result of a flood that ripped apart nests at a crocodile breeding ground.

Following the well-received presentation, there a series of questions and answers. The meeting was adjourned with thanks to Bucky for his entertaining presentation. Refreshments were served. Bucky remained to answer further questions. Rob Sula also brought in some of his microfossils for the audience to see.

### **Notes about Bucky's Title "Reconstructing Paleoecosystems through Microvertebrate Taphonomy"**

Paleoecosystems – prehistoric communities together with their environment.

Microvertebrate fossils– tiny fossilized scales, teeth, and bone fragments extracted from rock matrices.

Taphonomy – the study of the conditions and processes by which organisms are fossilized.

Respectively Submitted, William S. Vinikour, Recording Secretary

### **2010 ESCONI Gem, Mineral and Fossil Show Demonstrators and Exhibitors** by John Good

The 2010 ESCONI Gem, Mineral and Fossil Show at the College of Dupage on March 20 and 21 chaired by Mark Kuntz was a great success. Special thanks to the demonstrators and exhibitors who contributed to the show. Also thanks to Elaine Lord for running the geode splitter.

Demonstrators were David and Sheila Bergmann, Jeanine Milecki, Don Cronauer and Bruce Nordstrom.

Exhibitors were Archaeology Study Group, Dick Ade, Robert Beadle, Larry Bertsch, Davd and Sheila Bergmann, Joan Bledig, Kathy Dedina, Mike Erickson, Field Museum, Kathy Filas, Lizzadro Museum, Andy Jansen, Mark Kuntz, Jeanine Mielecki, Mineral-Micromount Study Group, Bill Morse, and Richard Rock. I hope I got them all.

Many thanks to the College of Dupage for the use of their facility.

ESCONI SHOW PICTURES by Dianna Lord and John Good



DISPLAY CASES



FLUORITE



MAZON CREEK FOSSILS



TRILOBITES



PYRITE UNDER A MICROSCOPE



MINERAL STUDY GROUP

**BOARD MEETING**  
**April 2, 2010**

President Karen Nordquist called the meeting to order. 1<sup>st</sup> Vice President Rob Sula named the speakers planned for the upcoming General Meetings. On April 9, Bucky Gates will talk on reconstructing paleoecosystems through microvertebrate taphonomy. On May 14, Lindsay Zanno will give a presentation entitled: "Fight for Survival: Asian Immigrants and the Dinosaurs of the American West." The June speaker is uncertain at this time but could possibly be Cary Easterday from the Department of Earth Science, Northeastern Illinois University.

2<sup>nd</sup> Vice President Irene Broede informed the Board that she paid the February room rentals on March 28. The April 17 Paleontology Study Group meeting will be in Room K-161; all other April meetings will be in Room K-131. All May and June meetings will be in Room K-161.

The February Board Meeting minutes were reviewed and approved, as amended. Karen mentioned that Jim Fairchild, Corresponding Secretary, will need to send thank you letters to the Field and Lizzadro Museums for the exhibits they provided for display at our March Show.

Treasurer/Chicagoland Liaison John Good could not attend the Board Meeting, but did e-mail information on income for the March Show. He also mentioned that he would pick a Saturday-Sunday field trip to Braceville that would not conflict with Richard Rock's boat field trip to Braidwood. These field trips would occur sometime in May. Miner safety training will occur on May 15 (replacing the Paleontology Study group meeting). It will run from 6:30 to 9:30 pm. Reservations need to be made in advance to attend the training session. John also stressed that help is needed for the Chicagoland Show that will be held on Memorial Day weekend.

Howard Svoboda, Circulation, stated that he mailed the April Bulletin. He expressed concern that the post office would not accept an ESCONI check for postage payment because it did not have an imprinted ESCONI mailing address. This issue needs to be resolved before new checks are printed. Howard said that he would talk to John Good about this concern. Mailing costs are running about \$40 per month.

Eileen Mizerk, Membership, informed the Board that we obtained 10 new family memberships at the March Show and one at MAPS. She stated that the next set of labels she prints will be the culled list (the mailing will exclude past members that have not paid membership dues for 2010). Under old business, Irene Broede reported on ESCONI Associates. Under new business, there was discussion concerning a suggestion received at the March Show that ESCONI should send out a mailing list to notify people about the show. While this proposal is cost and time prohibitive, the Board members acknowledged that we do need to come up with better ways to market the show.

The meeting was adjourned.

Respectfully submitted, William S. Vinikour, Recording Secretary

# April Paleontology Study Group

Chairman John Good called the meeting to order. Sheila Bergmann and Kathy Dedina were hostesses for the meeting. Next month May 15 will be Miner Safety Training and will be from 6:30 to 9:30. The cost will be \$10 per person and there will be a test to become certified. It will be in Room K-161. It will be run by John McArdle from Minnesota. There is already a good signup for the training.

John reported on the future field trips including a May 7 trip to the St. Paul Quarry at 7:00 AM that has been set up by John Catalani. On May 14 and 15 there will be trips to Braceville. Archaeology is sponsoring a self guided trip to Kenosha Wisconsin to the Civil War Museum on May 23. There is a boat trip to Mazon Creek on May 23 with Richard Rock that costs \$25.00. Richard Rock is also leading a fossil fish trip to Kemmerer Wyoming on June 18 this summer to the Warfield Quarry and other sites. John Good reminded all of the ChicagoLand Show on Memorial Day weekend. Help is needed for set up, ticket taking and Kids Korner. Tonight Jack Wittry and Jim Fairchild are taking photos of vertebrates for the new Mazon Creek fauna book during the meeting.

John then introduced ESCONI members, Duane and Therese Cushing, who described a field trip they took last year.

## Burpee-Hanksville Quarry

We joined the Burpee Museum of Natural History in 2009 at the dinosaur Quarry in Hanksville, Utah which is located in central Utah. It was a uranium mining area years ago and not much else. An interesting sight was a gas station built right into a hill. Blondie's Restaurant was a popular meeting place for the locals. The red rocks around the area make it look a lot like Mars and so it is often used as a movie set for Martian movies. There is a Mars research station run by NASA nearby.



The site itself was only 8 minutes off the highway and has a Cretaceous layer with oyster shells all over the top, some of which we collected. We could also collect some of the wood around the site – up to 25 pounds a day per person is legally allowed as well as invertebrate fossils. The site where we worked contained a *Barosaurus* dinosaur and they have found 40% of it so far. There are only two of them on display in all the world. It is in sandstone from a braided river environment that covered the fossils. They needed some heavy equipment to work on the very hard rock. And they also had some fans to keep the pesky gnats away. One of the problems we encountered was the proliferation of bones; before we could get one bone all the way out we would find more bones that would complicate the extrication. There were bones piled on bones. We learned how to plaster the bones to prepare them for transport.

### Paleontology Study Group, Continued

There were bones of *Allosaurus* there also. This quarry itself was in the Jurassic dated to about 145 million years ago. They found a *Diplodocus* site that had a series of neck bones that were articulated. That was very exciting because that is a rare find that will be studied in detail to help determine how they held their necks.

A sand bar section had conifer trees in it, some that were up to five feet long. They had to be careful and watch for rain while they were there as a little rain could trap you with flooding.

There were other dig sites they visited including the South Dig Site. This one is about 10 miles south of Hanksville and here they have found *Allosaurus* bones coming out of a hill. They found a very long rib bone which has been left there for future excavation. There is so much to dig out there that they must be careful to plan their work to get the bones out efficiently.

They were lucky to visit some places of interest while they were out in Utah and shared some of these with us. They visited beautiful Arches National Park near Moab with its amazing natural structures. They also saw petroglyphs in Capital Reef National Park. There is a uranium mine there where many miners died. Goblin Valley State Park is famous for its interesting hoodoos. Movies have been filmed on the San Rafael Swell where it looks like the planet Vulcan. They will be filming the new *Martian Chronicles* movie there as well. They brought samples of some of the interesting rocks and minerals that they found on their adventure to share (pictured on previous page).

The meeting was adjourned for refreshments and more conversation.

Respectfully submitted, Karen Nordquist, Secretary

### **Junior's Mini-Field Trip to Devil's Cave**

Devil's Cave is the only naturally occurring cave located in our area of Illinois. Although small, it carries with it an interesting legend. Located on the Fox River, Native Americans once lived nearby. But in order to hear the rest of the story, you will have to come out to Red Oak Nature Preserve.

This free mini-excursion is open to all, but we are focusing this one for our Junior group. The date is Saturday, July 24, 2010 and we will meet in the nature center at 10:30 a.m. Juniors will be encouraged to see the sights at the museum which highlight a "shrinking room," a bee colony, a hands-on area, and a room filled with live animals native to the region. Afterward, we will have a 9-minute video presentation about the nature preserve which includes the legend of Devil's Cave. Then we will walk down to the cave and Juniors will have time to explore it. Finally, for those that wish to join us, we will be stopping at a nearby A&W Root Beer restaurant for a quick bite to eat.

As always, individuals must be club members to participate in any ESCONI Field Trip. There is no pre-registration for this trip; just show up. The Red Oak Nature Center is located on Route 25 on the Fox River about a mile north of Butterfield Road (Route 56) in North Aurora. The telephone number there is 630-897-1808 and the mailing address is 2343 S. River Street, Batavia, IL 60510 for those that wish to Google directions. For further information contact Joe Kubal, ESCONI Event Planner at 630-983-6159 by telephone or SMKubal0712@aol.com by e-mail.

## **Minerals of South Dakota**

By Jim Daly

With a few unimportant exceptions, the minerals of South Dakota occur in the far western part of the state, the Black Hills and surrounding counties. This would be expected, since the rest of the state is flat, indicating sedimentary rock.

The Black Hills, covering mainly Custer, Pennington and Lawrence Counties, are pegmatite dikes. They were initially mined for gold. This will be covered separately.

There have been 379 species of minerals found in this region. It is the type locality for 27 of them. As a sidelight, we usually think of the type locality for a mineral as the locality where it was first discovered. This is usually the case, but not necessarily so. Technically, the type locality is the locality for the material used for the formal description of the mineral. A good example of this is the mineral whitmoreite. It was first discovered by Bill Roberts at the Big Chief Mine near Keystone. Gunnar Bjareby also found it at almost the same time at the Fitzgibbon pegmatite in New Hampshire. Paul Moore, who did the characterization and description, however, decided to use material found somewhat later by Bob Whitmore at the Palermo #1 Mine in New Hampshire, and named the mineral after Whitmore.

After the period of gold mining, the next phase of mining was for mica. Muscovite, phlogopite, biotite and lepidolite are all found in the Black Hills. Muscovite is the one that is of economic interest. Crystals of muscovite are typically 2-8 inches in diameter and 1-5 inches thick. One book was found at the White Spar Mine that was 3 feet wide by 4 feet long!

In 1883 tin (as cassiterite) was discovered at the Etta Mine. Mining for tin only lasted about 10 years, though. It turned out to be uneconomical, and to a great extent was a stock scam by the company doing the mining. This venture did, however, find and explore many previously unknown pegmatites. This was the basis for the next stage of mining, for beryllium and lithium.

Lithium in the Black Hills occurs in spodumene, amblygonite-montebrazite, lepidolite and triphlite. Spodumene occurs in huge crystals. One was found in 1904 at the Etta Mine that was 42 feet long and 3 feet by 6 feet in cross-section. An interesting sidelight to the lithium story is that we think of the lithium battery as a fairly new invention. Actually, Thomas Edison invented the lithium battery over 100 years ago, using lithium from the Black Hills.

The beryllium was mined as beryl. Although beryl is uncommon worldwide, it's quite plentiful in the Black Hills. Excellent specimens of doubly-terminated beryl crystals up to 5 inches long have been found at the Crown Mica Mine, among others, and crystals up to 10 feet long have been found at the Tin Mountain, Bob Ingersoll and Big Chief Mines.

In 1923 rail shipping costs had decreased to the point where it was economical to mine feldspar in the area for ceramic use. The main feldspar mineral mined was microcline, although there was also a lot of albite.

Uraninite and associated secondary uranium minerals such as becquerelite, fourmarierite, vanderriescheite, uranophane, autunite and kasolite have been found at the Bob Ingersoll and Tin Mountain Mines, but I've seen no record of commercial mining of uranium.

### Minerals of South Dakota, Continued

In more recent times, the big interest in the Black Hills has been the phosphate minerals. While of no economic value, they are a micromounters dream. There are more phosphate minerals than we can discuss in detail- about 100. The Black Hills are the type locality for 27 of them.

In Fall River County, which you may or may not consider part of the Black Hills, there are extensive deposits of uranium and vanadium minerals. The vanadium minerals do not include vanadinite. These are the grungy brown ones, like hewettite and corvusite.

References:

Roberts, W. and Rapp, G., Mineralogy of the Black Hills, Bulletin No. 18, South Dakota School of Mines (1965)

[www.mindat.org](http://www.mindat.org)

[www.dakotamatrix.com/Black\\_Hills\\_pegmatites.asp](http://www.dakotamatrix.com/Black_Hills_pegmatites.asp)

Jahnsite



Schorl

## **Gold in South Dakota, Mineralogy Study Group**

By Kathy Dedina

Gold is a magic word that has caused men to leave home and family and endure untold hardships for flakes of this precious metal. The story is the same in South Dakota. Rumors that gold was found in the Black Hills circulated in Eastern South Dakota as early as the 1840's. The Black Hills were considered sacred by the Lakota Sioux. In 1868 the U. S. Government signed the Laramie Treaty that gave the Sioux the land west of the Missouri River and forbade entrance into that land without permission. Talk about gold and other wealth in the area continued. In 1874 George Custer led a 1000 man expedition to the Black Hills for the expressed purpose of finding a location for a fort. Included in the expedition were two miners and a geologist. The miners found placer gold in French Creek near the town of Custer in June of that year. Settlers rushed to the area as word of the find spread. In 1875 another expedition was charged with assessing the mineral wealth of the Black Hills. In that same year the Government tried unsuccessfully to reach a settlement with the Sioux over ownership of the Black Hills. A 1980 lawsuit awarded the Sioux over \$100,000,000 for the original 1875 settlement plus interest. At this time the settlement is approaching three quarters of a billion dollars with many Sioux wanting return of the land not money. Clashes between Indians and settlers were bound to happen as the miner population increased from 800 in 1874 to over 10,000 in 1876.

The original mining camps were located in the southern part of the Black Hills. The camps moved northward as claims ran dry. The first miners at Deadwood and Whitewater creeks found a fortune in gold. Experienced prospectors knew that the gold in the creeks was washed down from a source upstream. They looked for quartz rocks that were the source. Four men had found a gold bearing outcrop near Lead and staked a lode claim for the Homestake Mine by April 9<sup>th</sup> of 1876.

The host rock for the Homestake Mine is Precambrian in age about 2 billion years old. About 62 million years ago around the Late Cretaceous or Early Tertiary this rock was uplifted in a mountain forming event that formed peaks to 15,000 feet. Over time overlying rock layers were eroded eventually exposing the host rock in outcrops. The gold is found in and around quartz veins mineralized during the Precambrian.

Five thousand dollars of gold was mined in spring of 1876 from the claim. This would turn into the Homestake Mining Company incorporated in 1877 by William Hearst and 2 other investors. They paid \$70,000 for this claim and the Gold Star claim. Eventually other claims were incorporated into what would be the oldest, largest and deepest gold mine in the western hemisphere that produced over 40 million ounces of gold in its 125 year history. This is one tenth of world gold production. It reached a depth of over 8,000 feet and covered about 8,000 acres. The mine closed in December, 2001. The Homestake was the best known but not the only gold mine in the Black Hills. Mines were located in other parts of Lawrence county and in Pennington county. Gold from the Homestake Mine area was easily removed from the base rock by crushing and mercury extraction. Gold from other areas required more treatment with cyanide extraction commonly used after 1900.

### Gold in South Dakota, Continued

It is interesting to note that while a large quantity of gold was produced from the Homestake Mine specimen gold is rare. On Mindat 40 minerals are listed from the Homestake with 12 pictures. Five of the pictures are of gold all of which is micro in size. South Dakota gold is not included in any of the special issues on gold by the Mineralogical Record. However a 1985 Rock and Mineral article on South Dakota locations by Campbell and Roberts states that the Homestake and several other mines did produce quality gold specimens. The web lists a number of creeks in the Black Hills as possible gold panning locations. Web sites also describe a number of gold mine tours including a surface tour of the Homestake. The Homestake Mine is now being developed into the Sanford Underground laboratory for Science and Engineering associated with The University of California at Berkeley. Experiments on neutrinos are part of this program.

#### References:

Mineral Localities in the Black Hills of South Dakota by Thomas J Campbell and Willard L Roberts in Rocks and Minerals Volume 60 No.3  
Geological Overview of the Black Hills by Thomas Loomis on Dakota Matrix Minerals website  
Synopsis of Homestake Mine Geology by Thomas J Campbell on  
Gold Mining in the Black Hills by David Wolff on Black Hills Visitor website  
Black Hills Pedia website  
Gold Mining in South Dakota on Digital Rockhound website  
The Geology of South Dakota by Martin J Jarrett on NorthernEdu/natural resources website  
History of the Homestake Gold Mine by Trudy Severson on Homestake tour website  
Synopsis of Homestake Mine Geology by Thomas J Campbell on Homestake,sdsnt.edu website

### **MINERALOGY/MICROMOUNT            May 8, 2010**

The meeting was called to order at 7:31 PM by Kathy Dedina.  
Announcements were made regarding upcoming field trips and shows:  
MSHA training will be on May 15 at 6:30. Cost is \$ 10.00.  
There will be a trip to Braceville on May 15. The Chicagoland Show is May 29 & 30. Help is needed. The Lawrence County Show is in Bloomington, IN June 25-27.

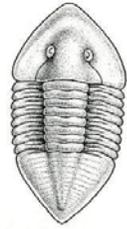
Jim Daly announced that there was free material from various localities available after the meeting.

The program for the June meeting will be France. Assignments were made: Jeff and Elaine Lord will describe the St. Marie-aux-Mines mines. Sheila Bergmann will describe the minerals found at the Trimouns Quarry. Kathy Dedina will talk about the Rabejac Mine.

The program for September will be a video and informal presentations on members' summer collecting experiences.

This month's program was on Germany. Jeff Lord spoke on silver mining in Germany, at a variety of localities. He covered the history, going back to about 1000 AD. Jim Daly described the history and minerals of the Clara Mine near Oberwolfach and in some cases, how to identify some of the minerals. Carlos Blanco talked about the agates from the area around Idar-Oberstein, and Kathy Dedina covered the Eifel volcanic region.

Kathy Dedina and Diana Lord provided refreshments.  
Submitted by Jim Daly



# Karen's Komments

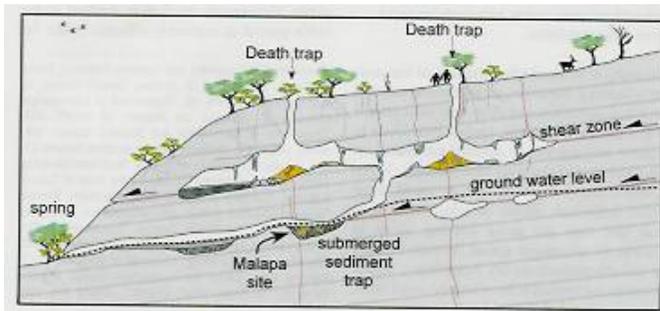


## New Human Ancestor Found in South Africa – *Australopithecus sediba*



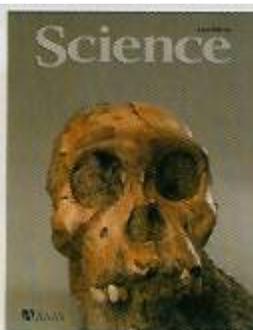
Researchers were looking for fossils in caves in the area where others have been found like Sterkfontein when 9 year old Matthew Berger called out that he had indeed found a fossil. And what a fossil it was! He is shown at left with it on the day of discovery. It turned out to be a collar bone of a hominin with a lower jaw on the reverse side. Further exploration of the cave uncovered the remains of 4 individuals, a nearly complete skull and partial skeleton of a boy of about 11 or 12 years old and an adult female skeleton and two others that will be reported on later. They are an infant and another adult female. The authors have named the fossil *Australopithecus sediba* which means “fountain” or “wellspring” in the seSotho language. The bones show both Australopithecine and *Homo* features and appears to be intermediate in evolution. They were found at Malapa 15 km northeast of Sterkfontein. The cave system there is of dolomite with

chert-filled fractures with subterranean caverns. There was some minor limestone mining in the area exposing the site area in the early 20th century. The figure above shows an illustration of a Pliocene cave and the Malapa site.

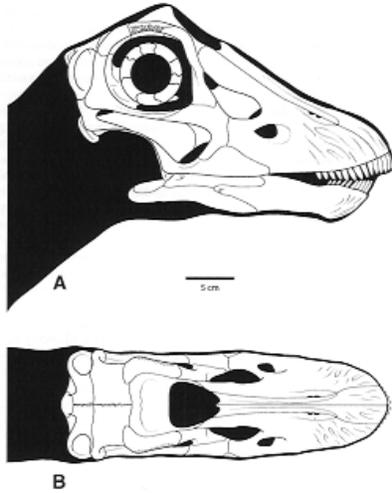


Victims could have fallen into the cave system, died and the bodies carried lower into the system by water flow during a storm. There was no sign of carnivore activity on the bones. There were 209 nonhuman specimens collected including those from felids and hyenas among them. The clastic elements around the bones have been U-Pb dated to 2.026 MYA. The paleomagnetic data indicate that deposition occurred between 1.95

and 1.78 MYA. The authors see this fossil as the piece between *A. africanus* and *Homo* because of its mix of features but not all agree with them.



The boy’s brain has a size of 420 cubic centimeters compared to the smallest *Homo* brain of 510 cc. They both have relatively small body size (1.3 m or 4.3 feet) and relatively long arms. But like *Homo* it has smaller teeth and less pronounced cheekbones and a more pronounced nose, longer legs and a pelvis more like *Homo erectus*. The youngster is pictured on the cover of **Science** at left. Susan Anton and Don Johanson feel that it should be *Homo* based on the features. Others like Tim White feel that it might be *A. africanus*. The discussion will continue. Berger et al; Dirks et al; Balter in **Science** Vol. 328 4/9/10)

Karen's Komments, ContinuedSkull of Juvenile *Diplodocus* Described

Marsh first described the skull of *Diplodocus* in 1884 and there have been several others found since then. Cranial characters are important in supporting diagnosis of the group. The skull is elongated in front of the eyes with broad jaws terminating in a blunt square snout with narrow crowned teeth. It is now suited to chewing or biting through stems. This juvenile skull is different in its shape with a more narrow and rounded shape rather than the square blunt shape of the adult. The skull (CM-11255) was actually collected by Earl Douglas in 1921 near the Carnegie Museum Quarry in Dinosaur National Monument. That quarry is where the complete adult *Diplodocus* skull was collected by Douglas in 1912. The early age is determined by the small size of the specimen and by a suture between the parietal bones. It measures 29.2 cm (11.5 in.) long and is about 58% of an adult skull in length. The teeth showed no sign of wear and were

more pointed than adult teeth. They started farther back in the mouth and were more rounded. There are several sets of replacement teeth in this individual which may explain the projecting chin of the animal. The replacement teeth begin to form on the mandible just below the preantorbital fossa. This probably indicates a rapid replacement rate. The drawing above shows a reconstruction of the juvenile *Diplodocus* based on the teeth, the skull elements and the shape of the dentary. The authors suggest that the juveniles were probably more selective browsers while the adults were non-selective browsers. Thus feeding strategies might explain the differences seen in the skulls of the juvenile and adult *Diplodocus*. (Whitlock, Wilson & Lamanna in **JVP** Vol. 30/2 March 2010)

New Human Species Detected From Fossil Finger

A fossil finger was found in an isolated Siberian cave in 2008 and was assumed to have been from a Neanderthal because of the tools found with it that were dated from 30,000 to 48,000 years ago. The DNA, however, tells another story. It does not match the DNA of Neanderthals or of modern humans that also lived nearby. Does this mean that there was another species? The site where the finger was found is the Denisova Cave in Siberia in the Altai Mountains where they have found many Mousterian and Levallois artifacts attributed to Neanderthals. The DNA from Neanderthal differs from *Homo sapiens* at 202 nucleotide positions on average and the new finger bone differs on average of 385 positions. This would imply that the new Siberian ancestor branched off the human tree some one million years ago. That was well before the Neanderthal split occurred. They have waited to name the new species until more bones are found or until they have a better picture of its relationship to modern humans. The bone has been aged at 30,000 to 48,000 years ago. There was also a fragment of a bracelet found near the finger but few other elements found with it that has been reported yet. (Dalton in **Nature** Vol. 464 3/25/10)

Karen Nordquist, Paleontology

## SUMMER EVENTS

**5th Annual Ben E. Clement Gem and Mineral Show With Digs  
June 5 & 6, 2010  
Crittenden County High School Rocket Arena  
West Elm Street, Marion, Kentucky**

Saturday 9AM—5 PM Sunday 11 AM—5 PM

Museum Tours, Field Trips for Fluorite and Fluorescent minerals, Event speakers and dealers.  
Contact Tina Walker, P.O. Box 391, Marion, KY 42064, (270) 965-4263; e-mail: be-clement@kynet.biz; Web site: clementmineralmuseum.org

**45th Annual GEM MINERAL – FOSSIL SHOW – SWAP  
June 25, 26, 27, 2010 Sponsored by Lawrence County Rock Club, Inc.**

Wide Variety of Gems, Jewelry, Minerals, Fossils, Rocks, Gifts, Lapidary Supplies,  
Rockhound & Prospecting Supplies, 4-H Project Material, Science Project Material

Show and Swap Schedule - EDT

Friday 25th 10:00 AM to 6:30 PM Saturday 26th 9:00 AM to 6:30 PM

Sunday 27th 10:00 AM to 4:00 Pm

Held: Monroe County Fairgrounds, West of Bloomington, IN

Directions: From the Junction of IN 37 and IN 45S, go south on IN 45S for 1.2 miles, turn right (west) on Airport Road for 0.7 miles. Fairgrounds are located on the right.

For additional information call: 812-295-3463 or 812-247-3780

**35th Annual Upper Peninsula Gem and Mineral Show  
Ishpeming Rock and Mineral Club August 6-8 2010**

Ishpeming Elks Club Hall  
597 Lake Shore Drive  
Ishpeming, Michigan  
Free Admission

August 6 Field Trips to Local Quarries for micromount. Hard Hat and Goggles required.

August 7 - Show with demonstrations, display, dealers and silent auction

9:30 a.m. to 4:30 p.m. (All times are Eastern Daylight Savings Time)

August 8- Field Trip to Lindberg Quarry for Kona Dolomite. Hard Hat and Goggles required.

**Copper Country Mineral Retreat  
August 8 to 15, 2010  
Houghton, Michigan  
A Week of Mineral Collecting and More**

Prepared surface collecting, photography workshop, underground collecting, mineral banquet & auctions, brag session and social speakers

Check here for more details [http://www.museum.mtu.edu/copper\\_country\\_mineral/index.html](http://www.museum.mtu.edu/copper_country_mineral/index.html)

## Local Calendar of Events

### 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.”

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

## 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.**

### June 5 “Stone Hunt”

This hands-on activity allows children and adults to search for gemstones and mineral specimens among more common rocks and minerals. Learn the difference between rocks and minerals and how to distinguish between them. Each rock or mineral found is identified and can be taken home.

*Activity - Ages 5 yrs. to Adult 45 minutes 2 p.m. \$4.00 per person Museum Members Free*

**Reservations Recommended**

### June 26 “Create A Gem Tree”

Lapidaries Bill and Lois Zima of the DesPlaines Valley Geological Society teach how to create a small tree using gemstones and wire. These beautiful trees never need water and make a great gift. All materials are included.

*Activity - Ages 9 yrs. to Adult 1 p.m. to 3 p.m. Fee: \$20.00 per person Museum Members \$15.00*

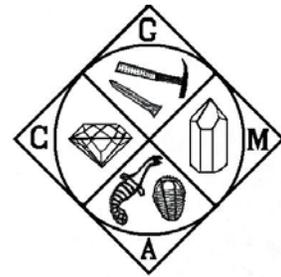
**Reservations Required: (630) 833-1616**

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



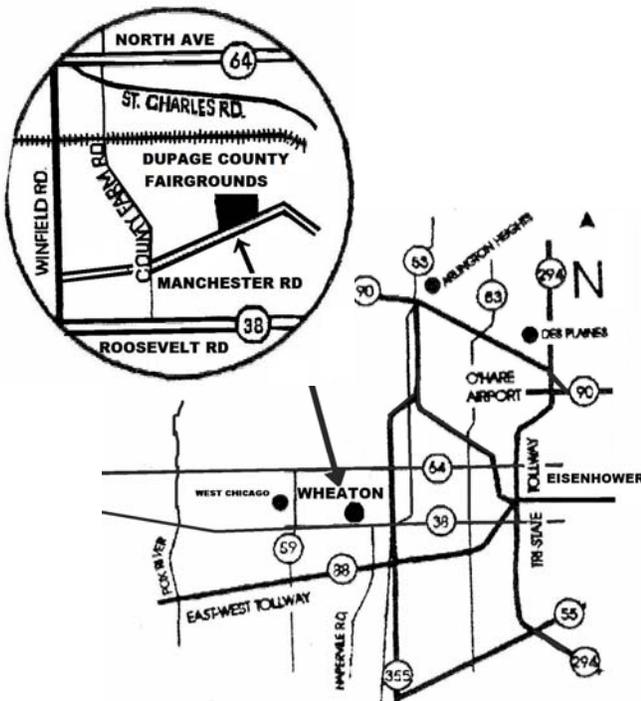
Millions of years ago, colossal mammals roamed Europe, Asia and North America. From the gigantic mammoth to the massive mastodon, these creatures have captured the world’s fascination. Meet “Lyuba,” the best-preserved baby mammoth in the world, and discover all that we’ve learned from her. Journey back 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.

# 34th ANNUAL SHOW



Chicagoland Gems & Minerals Association (CGMA)

## BEADS - CRYSTALS - GEMS JEWELRY - FOSSILS - MINERALS



*Save The Date!*

### Memorial Day Weekend

Saturday, May 29, 2010 10 AM - 6 PM

Sunday, May 30, 2010 10 AM - 5 PM

Dupage County Fairgrounds  
2015 W. Manchester Road  
Wheaton, IL

**20+ Nationally Known Dealers:** Details on Back

**Exhibits:**

Adults - \$5.00

**Silent Auctions:**

Seniors - \$3.00

Students - \$3.00

**Children's Activities:**

Children (Under 13) - FREE!

Service Personnel w/ID - FREE!

FREE PARKING  
INDOORS - AIR CONDITIONED - FOOD AVAILABLE  
CAMPING AVAILABLE - Call

CALL 630-377-0197 EMAIL [cgma@sbcglobal.net](mailto:cgma@sbcglobal.net) WEBSITE [www.chicagolandgemshow.org](http://www.chicagolandgemshow.org)

# CGMA (Chicagoland Gems & Minerals Association)



## 20+ Nationally Known Dealers:

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Agate & Wood  
Amber America  
Bernie's Gems  
Blackberry Creek Minerals  
Blue Fin  
Carved Opal & Obsidian  
Caveny Creations  
Costigan's Minerals  
The Crystal Circle, LLC  
DB Opals  
Eagle Lapidary  
Exclusive Inspirations  
Galena Rock Shop  
Geode Junction  
Imperial Gems  
The Jewelry Shoppe  
Lavin's Gems & Jewelry  
Mineral Miner  
Moorehead Enterprises  
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Ruth Ann's Southwest Treasures  
Schooler's Minerals & Fossils  
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Wrap N' Rock Gems  
Zoological Research Service

Natural Stone Beads, Lapis  
Agates  
Amber  
Faceted Stones  
Minerals  
Geode Cracking & Minerals  
Opal & Obsidian  
Findings  
Minerals  
Minerals  
Opals  
Cabochons  
Jewelry  
Agates, Specimens, etc.  
Minerals & Fossils  
Beads & Bone Carvings  
Jewelry  
Gems & Jewelry  
Minerals & Air Plants  
Tools & Equipment  
Fossils  
Trees & Beads  
Indian & Turquoise  
Minerals & Fossils  
Jewelry  
Faceted Stones  
Russian Cabs, Minerals  
Wiring Wrapping on site  
Fossils

## CGMA MEMBER CLUBS

**C.R.M.S.**  
Chicago Rocks & Minerals Society  
PH: (708) 795-7539

**D.P.V.G.S.**  
Des Plaines Valley Geological Society  
PH: (847) 298-4653

**E.R.A.M.S.**  
Elgin Rock & Mineral Society  
PH: (847) 742-9244

**E.S.C.O.N.I.**  
Earth Science Club of Northern Illinois  
PH: (630) 483-2363

**F.V.R.M.S.**  
Fox Valley Rock & Mineral Society  
PH: (630) 896-7133

**S.S.E.S.C.**  
South Suburban Earth Science Club  
PH: (708) 747-3536

**W.S.L.C.**  
West Suburban Lapidary Club  
PH: (630) 377-0197

## Demonstrations:

Geode Cracking  
Cameo Carving  
Dichroic Glass Fusing  
Wax Casting  
Beading Design  
Rock Painting  
Gem Trees & Eggs

Flint Knapping - (Arrowheads)  
Cabochon Cutting  
Jewelry Design  
Silver Smithing  
Beads & Agate Forms  
Fossil Cleaning  
Wire Wrapping

Opal Cutting  
Cutting Star Stones  
Mineral Identification  
Micromount Displays  
Wing Ming Trees

**Exhibits: Crystals, Fossils, Lapidary, Minerals, & Opals**

**Silent Auctions: Rocks & Minerals**

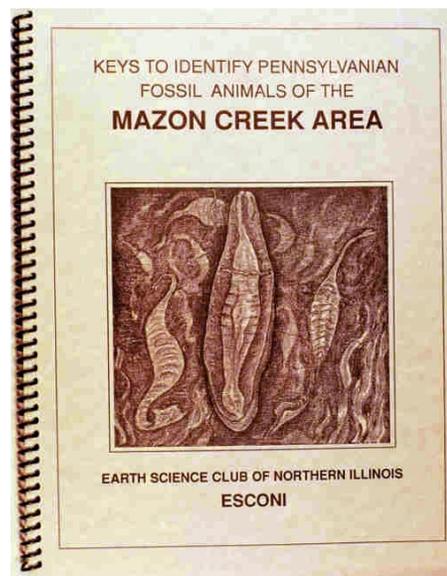
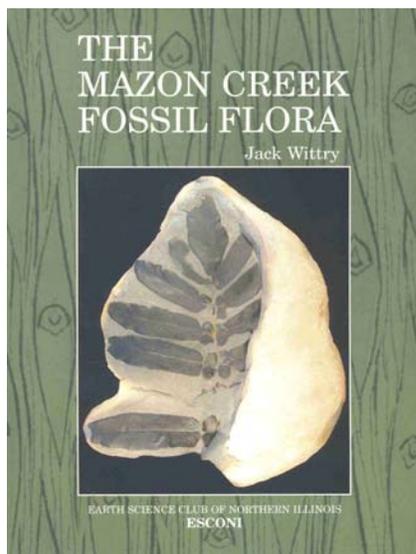
**Children's Activities: in the "Kids Korner"**

### 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  
\$65 hard covers for ESCONI Members  
\$35 soft and \$6 to ship  
Make check out to  
ESCONI Associates

**Keys to Identify Pennsylvanian Fossil Animal  
of the Mazon Creek Area**  
125 Pages, 212 Black and White Drawings  
\$12.00, \$5 to Ship

Andrew Jansen  
2 Langford Ct.  
Bolingbrook, 60440  
630-739-7721  
esconibooks@aol.com

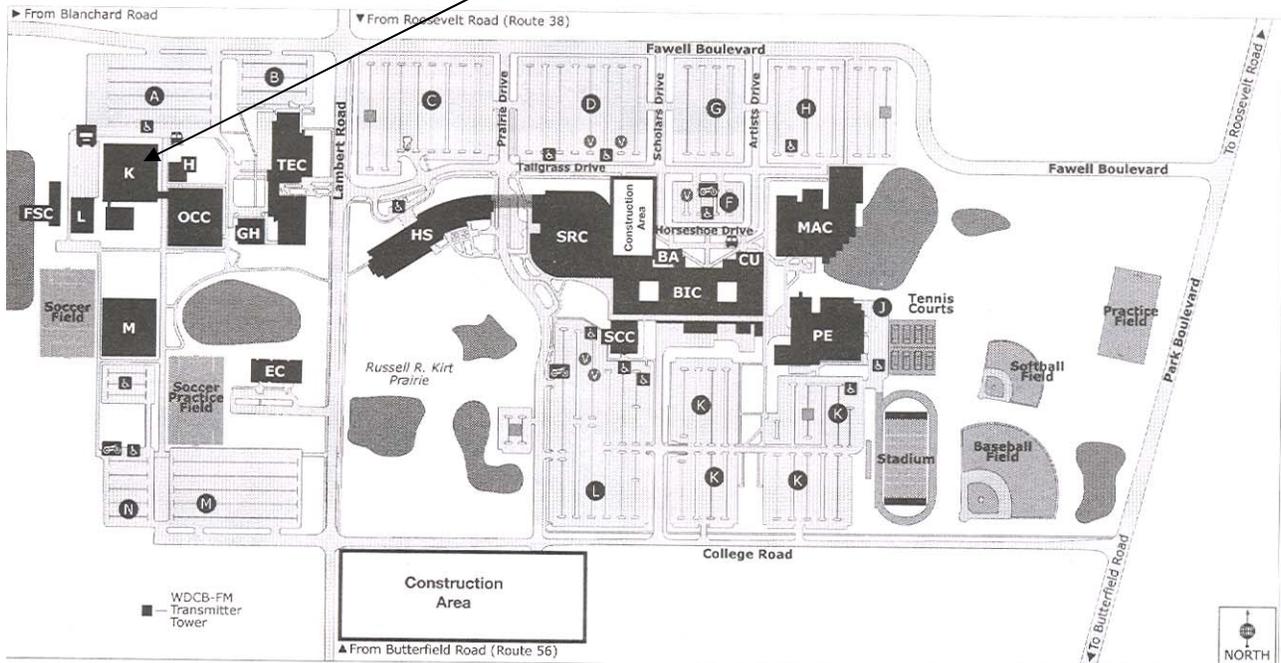
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## Building K Room 161 — E.S.C.O.N.I. Meetings



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