

EARTH SCIENCE CLUB OF NORTHERN ILLINOIS 2010

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Liaison Rep	John Good	1891 Windward Lane	Hanover Park, 60133	630-483-2363

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Archaeology	Bryan Nugent	6621 Westmoreland	Woodridge, 60517	630-960-5147
Lapidary	Sheila Bergmann	401 S. Lombard Ave.	Lombard, 60148	630-629-5785
Min/Micromt.	Kathy Dedina	11 N. Cumnor Road	Westmont, 60559	630-969-2522
Paleontology	John Good	1891 Windward Lane	Hanover Park, 60133	630-483-2363
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.

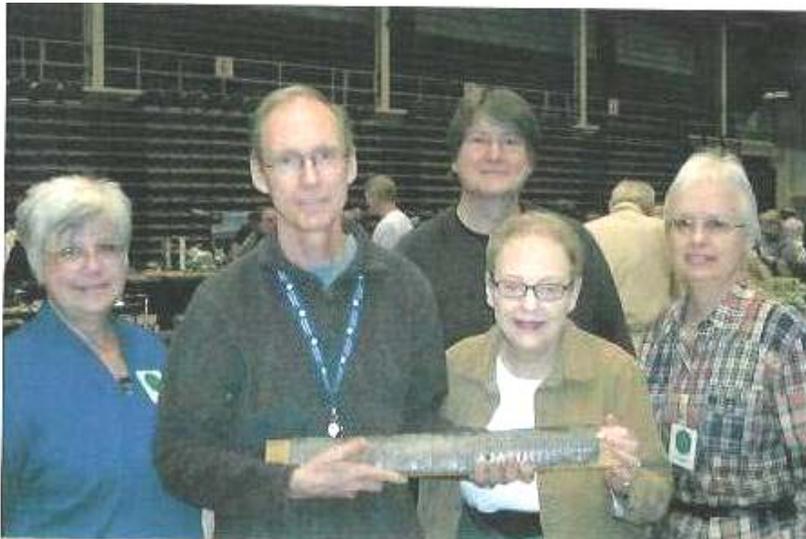
Membership is \$20.00 (which includes the Bulletin) for family membership, or \$50.00 for three years. Dues are payable either at the monthly meetings or by mailing to the **Membership Chair** listed above.

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

May 2010 President's Message

Here it is May and can summer be far away! The big Chicagoland Show is coming up at the end of the month and should be a good one. We will need your help again this year in many ways and hope that you will be able to participate in some way. You can put in a case with some of the fossils, minerals or artifacts that you have collected over the years. Share them with others who would enjoy seeing what you have found. Then come on over to the DuPage County Fairgrounds and help out in some way during the show. It is also an opportunity to see other rockhounds who show up to see what is going on. We will need help with ticket taking and with the Kids Korner. If you have some specimens to contribute we need them for the silent auction also. Let John Good or me know if you can help. We will be setting up the tables on Friday morning on May 28th and can use help then as well as Sunday after the show to help with tear down.



MAPS was a fun show and I want to thank those who helped out including Irene Broede, Eileen Mizerk, Jim Fairchild, Jack Wittry, and John Good. Congratulations to Tom Williams, John Catalani, Chris Cozart and all the MAPS folks who work so hard to put it together and make it run so smoothly. And the MAPS Digest was very impressive with nine articles on the Ordovician this year by professionals and amateurs.

It was good to see Charles Shabica there who came along to join us at the tables to talk about the Mazon Creek Project. While we were there Jack found a fossil he couldn't pass up and in appreciation for all the wonderful work he has done for the club in preparing and publishing our Mazon Creek flora book we decided to surprise him and buy the fossil for him. The photo shows us presenting the fossil to him at MAPS. It is a rare large *Calamites* stem showing several growth seasons. And plan ahead, next year MAPS will be April 1-3, 2011 and will feature the Cretaceous. And I am told by confidential sources (John Catalani) that it will feature the Carboniferous in 2012!!! Get ready Mazon Creekers!!!

Once again, come on out to the Chicagoland Show over the Memorial Day weekend and help out or at least visit the show and shop and have some fun. It will be a good time for one and all.

Karen Nordquist, President

MAY 2010 ESCONI EVENTS

College of DuPage (COD) Building K, Room #161 for most meetings in May and 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, May 14

Field Museum Paleontologist, Dr. Lindsey Zano, will discuss “The Fight for Survival: Asian Immigrants in the Dinosaurs of the American West”

Mineral-Micromount
7:30 PM, May 8

Minerals of Germany: ESCONI members will discuss the geology and minerals of Germany

Paleontology
6:30 PM, May 15

No study group meeting. This has been replaced by Miner’s Safety Training; See Page 5

Archaeology
May 23 field trip

Archaeology Field trip to Kenosha Public Museum on May 23, 2010

Junior

Subject to reorganization.

ESCONI Field Trips

Field Trip: Braceville May 15, 16, 2010
Field Trip: Braidwood Boat Trip May 23, 2010
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 June 4, 2010

GROUP	GENERAL	MICRO	PALEO	ARCH	BOARD	JUNIOR
May	14	8	15	22	June 4	
June	11	12	--	--	None	
July & Aug	--	--	--	--	August 27	
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

CGMA 34th Annual Show May 29-30, 2010
Gems, Minerals, Fossils and Jewelry
Dealers, Demonstrators and Displays

ESCONI SHOW 2010

The 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 Eric Gyllenhaal, the Kiamco family and others for running the ESCONI Juniors. Also thanks to Elaine Lord for running the geode splitter. More details will be included in future issues.



Hospitality (Irene Broede, Karen Nordquist, Eileen Mizerk)



The Geode Splitter



Eric Gyllenhaal and the Kids Corner



David Bergmann with his micro-minerals

ESCONI Show Pictures—Continued



The Book Crew



The Silent Auction



MAPS Pictures



Tsintaosaurus



Collecting Geodes in the Mud of Jacob Geodes, Hamilton Illinois

ESCONI Field Trips

St. Paul, Indiana Fossils

May 7, 2010 (Friday)

Meet at 8:00 am Indiana time (7:00 am Chicago Time)

Hard Hat required. An Estwing rock hammer is the best tool. Knee pads, backpacks, fanny packs are also a plus. Age limit in Indiana is 18 years.

Check the web site for details or contact John Good at 1-630-483-2363 for reservations or e-mail at esconi@hotmail.com

Braceville—Mazon Creek Fossils

May 15-16,2010

Collecting Mazon Creek Fossils on private property

Meet at 8:00 A.M. Saturday at the BP Amoco in Coal City. No Age Limit. Hard Hats not required.

Take I-55 to Exit 236 (Coal City). Take a right onto Highway 113 (Division Street). Go west to Broadway Street and Division in Coal City.

We will be collecting Mazon Creek concretions from an old spoil pile on private property. Hard hats are not required. Boots are recommended. An Estwing rock hammer is the best tool. A small shovel or pick is helpful. Knee pads, backpacks, fanny packs, extra clothes (you will get wet and muddy) are also a plus. Bring a bucket for the fossils. Also bring insect repellent.

Check the web site for details or contact John Good at 1-630-483-2363 for reservations or e-mail at esconi@hotmail.com

Braidwood Boat Trip—Mazon Creek Fossils

May 23,2010 (See Page 6)

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

May 23, 2010 12:00 PM

Kemmerer Field Trip—Warfield Quarry Fossil Fish

June 18,2010 (See Page 7)

Miner Safety Training May 15, 2010 6:30 pm to 9:30 pm

We are offering Miner Safety Certification Training. John McArdle of ZRS (Zoological Research Services) is approved to offer Miner Safety Certification Training and issue certificates. He will 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 take three (3) hours with a break. Reservations recommended due to ordering certificates in advance. Contact John Good at 1-630-483-2363 for reservations or e-mail at esconi@hotmail.com

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.

The cost will be \$10 for each ESCONI Member payable at the door to John McArdle. The Club will purchase several copies of the book.

PIT 11 FOSSIL TRIP SUNDAY MAY 23, 2010

OUR 4th ANNUAL FIELD TRIP TO PIT 11

We are pleased to plan this year's boat trip to Pit 11 for Sunday May 23, 2010. This year's trip will be for members only of ESCONI (Earth Science Club of Northern Illinois) ONLY. You must be a member in good standing to go on this field trip, NO GUESTS. WE RESERVE THE RIGHT TO NOT ALLOW SOMEONE ON THE TRIP DUE TO POOR HEALTH, NOT LISTENING TO THE BOAT CAPTAIN, OR ANY REASONABLE REASON. All children MUST be accompanied by a parent. No more than TWO children per adult. All children MUST wear a safety devise at all times in the boat.

The first boat will leave the Pit 11 dock at 9:00 AM, and will make round trips until everyone is on an island. You may possibly have a choice of islands this year, depending on how many people attend. You will be able to collect for four hours; however you may leave at any time before. The boat will be making trips every few minutes. This trip will NOT be canceled because of rain, however it will be canceled because of high waves, lightening, or at the discretion of the boat Captains.

Coming from the north; south on I-55 to first exit after the Kankakee River, it is the only left exit on I-55. Continue to Braidwood's new stop lights, turn left cross the railroad tracts and stop. Turn right onto Route 53, south, to Godly, turn left at the Stumble Inn Tavern, which is Kankakee Road. Continue to left onto Dondanville Road (6000 N. Road). Continue to parking area and boat dock.

By attending this trip field trip YOU agree to not sue the boat Captains, ESCONI, DNR, Com Ed, or Mazonia. We are not responsible for loss of property, including but not limited to, personal property, injury, being left on the island because you collected too long, water bacteria, etc. Strip mines can be a dangerous place, be careful climbing hills, Getting into and out of a boat moving because of waves, etc. can cause you to fall, be careful getting in and out of the boat. NO digging is allowed by the DNR, anyone caught digging will be referred to the DNR.

You can bring a small cooler for lunch and drink, insect repellent for ticks mosquitoes, sun tan lotion, hammer, bucket or bag to carry your concretions. GOOD LUCK and enjoy the collecting.

Because of the increase of insurance, gas, oil, etc., Adult cost is \$25, Children 12 or younger \$15. Children 9 or younger by pre-permission ONLY! Please make checks out to Richard Rock, PO Box 726, Wilmington, Illinois, 60481. Questions call Richard at 1-815-476-7040. Closing date to sign up May 8.

I agree to the above by signing this waiver.

Name (Print) _____ Sign(Clearly) _____

Address: _____

Home Phone Number _____ Cell # _____

E-Mail: _____ Number Of Adults _____ Child ren _____

MAIL TO: RICHARD ROCK, PO BOX 726, WILMINGTON, IL 60481



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

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 1-80 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

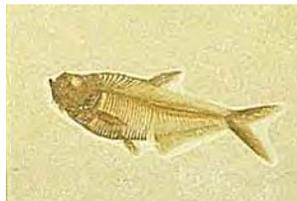
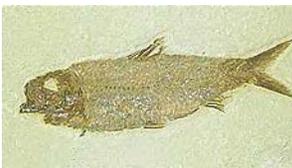
Riverside RV Park (Same as above) 307-877-6634

Kemmerer Chamber of Commerce at www.kemmererchamber.com

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

Fossil fish from Warfield



BOARD MEETING
February 26, 2010

President Karen Nordquist called the meeting to order. 1st Vice President Rob Sula named the speakers planned for the General Meetings through June: Bucky Gates in April, Lindsay Zanno in May, and Cary Easterday (or one of his associates) in June. Due to the ESCONI show, there will be no General Meeting in March. Bucky Gates will address resurrecting paleoecosystems through microvertebrate taphonomy. The other speakers have not yet identified the topics for their presentations. Rob is going to start looking for speakers for the fall general meetings.

2nd Vice President Irene Broede informed the Board that she signed the contract for the ESCONI show. Lisa Sago from the College of DuPage (COD) needs to know the number of tables and table layout for the show. All March and April meetings will be in K-131, except for the Mineralogy and Micromount Study Group meeting on March 13 and the Paleontology Study Group meeting on April 17. Those meetings will take place in Room K-161. The March Board Meeting has been moved to April 2 due to conflicts on March 26 with the MAPS Show.

The Board Meeting minutes for January were reviewed and approved with changes. John Good, Treasurer, presented the revised ESCONI 2009 Profit and Loss Statement. The revised statement included interest from Republic Bank for the Juniors' Fund and the refunding of a dealer's fee (Geodon). The dealer refund was approved by the Board members present at the Paleontology Study Group meeting. Silvertown Fine Jewelry will replace Geodon at the March show. The revised Treasurer's report was approved.

John mentioned that the Daily Herald had a one paragraph publicity piece for an ESCONI presentation, but it was for the Mayan talk rather than the presentation actually provided. Librarian Andy Jansen passed around the latest checklist of the ESCONI library holdings. The library holdings total over 500 books, papers, and so forth. Some items (e.g., duplicates) will be removed from the library and sold at the March Show. A discussion was held concerning the more valuable books in our library. This included questions on what to do with some of those books: (1) should we sell some of them on an auction or bookseller site, (2) what checkout policy should be used for the more expensive books, and (3) which books do we definitely want to keep in the library?

Jim Fairchild and Rob mentioned that a lot of work was accomplished at the shed. The area was organized and a lot of items were identified for the live and silent auctions for the March show. A discussion was then held on what to do with "flea market" quality items, as it is too cost prohibited to have a flea market show at COD. A decision on this topic was not reached. John stated that he will have a donation sheet added to the ESCONI web site so that people can fill them out in advance of the March Show.

Other than the trip to Jacobs Geodes on March 27, no other field trips are confirmed. Richard Rock may lead a trip to Braidwood. There may be a field trip to Braceville in May. John may also lead a field trip in May to the museums in Kenosha. There will be miner safety training on either the third Saturday of May (instead of the Paleontology Study Group meeting) or on Memorial Day (Monday May 31). Cost for the training will be \$10.

Howard Svoboda, Circulation, stated that the Newsletter was mailed on February 19. John mentioned that the deadline for submittals for the next Newsletter will be the second weekend of March.

Board Meeting—continued

John Good stated that the next Chicagoland meeting will be on March 2. A dealer to replace Geodon at the Chicagoland show needs to be found. John mentioned that there is an issue with clubs that do not participate in the Chicagoland meetings. Their absence makes it difficult to have a quorum at the meeting. The Chicagoland show will be on Memorial Day weekend (May 29 and 30). Helpers and donations are needed.

John will be getting a layout for the ESCONI show to Show Chairman Mark Kuntz. COD's Public Safety will put out our show signs on the roadsides rather than having this done by ESCONI members. Set up for the ESCONI show will be 3:00 on Friday. Flyers were available for the March show.

Our webmaster, Dianna Lord, said that she renewed the domain name for the next three years. About two weeks before the show, she will add the flyer for the March show as a major banner on the web site.

Under old business, Irene Broede reported on ESCONI Associates. Andy then talked about options for bags or other products to sell with the ESCONI logo. A discussion then followed on types of bags, logo design options, and so forth. Rob may do a mockup of the trilobite design as an option to the ESCONI logo to use on the bags.

The meeting was adjourned.

Respectfully submitted, William S. Vinikour, Recording Secretary

Winfield Mounds Field Trip

Winfield Mounds Forest Preserve, located at Winfield and Geneva Roads in Winfield, was named for burial mounds of pre-historic Native Americans who lived along the West Branch of the DuPage River. The 359-acre preserve contains three dome-shaped mounds set in a triangular pattern constructed 1000 years ago. These are the only documented Native American burial grounds found in DuPage County. Join Forest Preserve District of DuPage County (FPDDC) Naturalist, Jack MacRae on a hike to the mounds and hear the compelling story of the people who built the mounds and lived in the associated village.

This field excursion, which is limited to 25 individuals, is scheduled for Saturday, August 7, 2010 between 10:30 a.m. and 12:00 Noon. Cost for the hike is \$3.00 for adult members and \$1.00 for Juniors. The event is costing ESCONI a total of \$40.00; any additional funds collected beyond \$40.00 will be donated to the FPDDC's Willowbrook Wildlife Center. As always, you must be a club member to participate in any ESCONI field trip. Please send your checks in advance to Joseph Kubal, ESCONI Event Planner, 30W600 Sunrise Road, Naperville, IL 60563.

The hike is on a crushed limestone path and the walking distance is about one mile roundtrip. In the event of inclement weather, the hike will be rescheduled to Saturday, August 14, 2010 between 10:30 a.m. and 12:00 Noon. There are no parking lots nor restrooms at the preserve. People should park on the west shoulder of Winfield Road, immediately south of Geneva Road. The shoulder is wide enough for about 20 vehicles. Mr. MacRae will meet the group there.

If you need additional information, please contact Joe at 630-983-6159 or e-mail to SMKubal0712@aol.com.

MINERALOGY/MICROMOUNT**April 10, 2010**

The meeting was called to order at 7:30 PM by Kathy Dedina. Announcements were made regarding upcoming field trips and shows: Chicagoland on Memorial Day weekend. Bloomington (IN) June 25-27. The MSHA training will be on May 15 at 6:30 PM in Room K161. There will be a trip to Braceville in May.

The program for May was changed to Germany. Jeff Lord will do silver mining. Carlos Blanco will talk about agates, Jim Daly will discuss the Clara Mine, and Kathy Dedina will talk about the Eifel region. The June program will be France. Assignments will be made in May.

This month's program was on South Dakota. Diane Lord gave an overview of the geology of South Dakota, Kathy Dedina talked about the gold mining in the northern Black Hills, and Jim Daly described the minerals of South Dakota, primarily the Black Hills.

Jim Daly had some free micro material for distribution, and there was a silent auction of Study Group material.

Kathy Dedina provided refreshments.

Submitted by Jim Daly

Mineralogy - Radioactivity by Jim Daly

Radioactivity emanates from the nucleus of the atom. To understand it, we need first to remind ourselves of the structure of an atom.

The nucleus of an atom is made up of protons, which have a positive charge, and neutrons, which have no charge. The nucleus is surrounded by electrons, which have a negative charge equal to the positive charge on a proton. The number of protons is called the atomic number, and defines the element. For example, we speak of uranium as element number 92, because it has 92 protons in its nucleus.

Neutrons have about the same mass as protons. The sum of the protons and neutrons is called the atomic weight or atomic mass. The mass of the electrons can generally be ignored, since they are so much smaller than protons or neutrons. Atoms having the same number of protons, but different numbers of neutrons are called isotopes. For example, there are three isotopes of uranium found in nature, U-238, U-235 and U-234.

Some isotopes of some elements are unstable, and throw off particles to get to a more stable state. This has to do with the energy level of the nucleus. When this occurs, it is called radioactive decay, and results in that atom becoming a different element, which might often also be unstable and decay to some other element. Eventually the result is a stable atom. In many cases, the intermediate species are so short-lived that they decay almost as soon as they are formed.

Mineralogy - Radioactivity, Continued

Radioactive decay takes place with the emission of three types of emanation:

- Helium nuclei are composed of two protons and two neutrons and are called alpha particles, or alpha radiation.
- Electrons, which are called beta particles, or beta radiation.
- Gamma waves, or gamma radiation, are very short wavelength electromagnetic energy; it accompanies both alpha and beta radiation.

The degree of radioactivity is correlated with the isotope's half-life. This is the time it takes for half the isotope to decay. This can be calculated from the number of clicks per second on a Geiger counter, if you have a pure isotope of known weight.

All elements heavier than lead are radioactive. A few elements lighter than lead have one or more radioactive isotopes. Thus, generally, minerals containing uranium or thorium are the only ones with significant radioactivity.

The primary uranium and thorium minerals, uraninite and thorianite, respectively, aren't very interesting or attractive. Both are simple black cubes. One feature to be noted is the "halo" of degraded material often found around them.

The secondary uranium minerals are a different matter entirely. Most are brightly colored, yellow, green and orange. Many also fluoresce yellow or green.

They are very difficult to distinguish from one another. Sometimes fluorescence, or lack of fluorescence, can be a clue. For example, autunite and torbernite look very much alike, in yellow to green square tabular crystals, but autunite fluoresces and torbernite doesn't. These are the most common secondary uranium minerals, along with carnotite and uranophane. Carnotite and uranophane are both usually yellow. Carnotite forms small rhombs or platy crystals, while uranophane is in needles, often radiating. Uranophane crystals fluoresce weakly, but massive material does not. Carnotite never fluoresces.

There are many secondary uranium minerals. The following are a few of them:

- Sklodowskite is found as fine pale yellow matted needles. It does not fluoresce.
- Cuprosklodowskite is green, and is found as matted needles or massive. It does not fluoresce.
- Schoepite forms yellow elongated prisms.
- Liebigite can be yellow or green, in grains or indistinct rounded prisms. It fluoresces green.
- Uranocircite is yellow thin plates, and fluoresces green.
- Tyuyamunite forms yellow radial groups, and fluoresces yellowish-green, weakly.
- Saleeite ranges in color from yellow to green, or gray. Crystals are blocky. It fluoresces yellow-green.
- Weeksite comes in yellow rods or spherules.
- Zippeite is in yellow or orange grains. Fluorescence is variable, so it can't be relied on for identification.

Uses of Radioactive Minerals

By Kathy Dedina

Some radioactive minerals are used as ore sources for uranium. The primary ores are pitchblende and uraninite. Secondary ores include carnotite, torbernite, coffinite, autinite and uranophane. The uranium is enriched to produce energy in controlled reactions either for weapons or for electrical power. Nuclear reactors produce 20% of electricity in the U.S. and 16% worldwide. Nuclear reactors power submarine and ships in the military. Nuclear reactors also produce some radioactive by products that have commercial uses. Americium 241 is found in a type of smoke detector. Alpha particles from Americium decay ionize the air between two electrodes producing a weak current. When smoke absorbs the alpha particles no current is detected and the alarm goes off. Americium is also a portable source of gamma radiation. It is used in aircraft fuel sensors, distance sensing devices and thickness gauges. Cesium 137 is produced in the fission of uranium and plutonium. It is used in gauges measuring thickness, moisture density and leveling. It is used in cancer treatment. Cobalt 60 is another by product but is commercially produced in linear accelerators. Cobalt 60 is used as a gamma source. The gamma knife used beams of gamma radiation to destroy tumors in parts of the brain. Technetium 99 is produced in a nuclear reactor from decay of zirconium 99 which is a by product of uranium and plutonium fission. It is the most widely used radioactive isotope in diagnostic tests. Other isotopes for medical and industrial uses are produced in particle accelerators or cyclotrons.

Uranium has other uses besides nuclear energy. Uranium is very dense and heavy. This can be a useful property. Depleted uranium (DU) is used as shielding for tanks and as parts of bullets and missiles. It is a counter weight on wing parts of airplanes and helicopters. Uranium salts have been added to glass and ceramics for color. Vaseline glass produces from the middle 1800's used uranium to produce a yellow green color that also is fluorescent. Some Vaseline glass is still made today. Some early Fiesta Ware dishes were colored with uranium containing pigments to make orange. This practice stopped in the 1940's. It is a contaminant of phosphate fertilizers occurring naturally with the phosphate minerals. It is interesting to note that an EPA website lists mineral collections as a use of radioactive minerals.

Monazite, thorite and thorianite are mineral sources of thorium. Thorium had been used for brightness in lantern mantels. It had also been used to make some X-ray photographs. It has been replaced for these uses. Thorium was also used in ceramic glazes. Thorium is an alloy in the aerospace industry. It improves the quality of ophthalmic lenses.

Radium occurs naturally in mineral sources of thorium and uranium. It was made into luminous dials for watches and clocks. The practice stopped when the high bone cancer rate in painters of the dials was attributed to exposure to radium.

Many radioactive isotopes are artificially produced for medical or industrial use.

The website of the EPA on radiation and radionuclides is a good source of information on the uses of radioactive materials and safety factors associated with them. The agency also has a fact sheet on radioactive materials in antiques. The NRC (Nuclear Regulatory Agency) website explains the medical uses of radioactive materials. Argonne National Laboratory has a human health fact sheet on Americium.

Tampa Bay Coral **By Kathy Dedina**

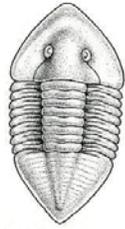
The quartz-chalcedony found in Tampa Bay coral is likely to be the only Florida mineral specimen in most collections. Calcite is found as crystals in some limestone deposits and as stalactites and stalagmites in caves. Recently it was discovered lining clam shells in Rucks' Pit in Okeechobee County. Some additional minerals are found in specialized collections of sands or microminerals. About 55 minerals are listed from Florida on Mindat. Tampa Bay Coral became the official Florida State Stone in 1979. It is described as "a chalcedony pseudomorph after coral, appearing as limestone geodes lined with botryoidal agate or quartz crystals and drusy quartz fingers, indigenous to Florida. Calcium mineral in the skeleton of the corals is almost simultaneously dissolved away and replaced by silicate material. The exterior of the coral retains its original shape but the interior detail is often lost in the replacement by chalcedony. This leaves geodes with a chalcedony or quartz crystal interior. They are of interest to both mineral and fossil collectors and lapidary artists.

Most agatized coral is found in upper Oligocene or lower Miocene deposits of marine limestone or marl. Florida was covered by shallow seas at that time. Coral reefs with the associated animals such as clams flourished. Silicate material weathering from the Appalachians was carried to the reef area. This supplied the silicate for agatizing the coral. The best collecting locations stretch from the Florida Panhandle to western and central areas as far south as Sarasota County. There also is a collecting location in southern Georgia. Almost all sites are subsurface. Human activity such as mining, dredging and building can bring corals to the surface. River channels also are good locations. The classic site was Ballast point on Tampa Bay. References to Ballast Point date to the late 19th century. The Tampa Formation extends 60 miles north and south and 40 miles east and west of Tampa. It extends into the Gulf of Mexico. During the 50's Ballast Point was part of a park. Collecting was messy but accessible. Dredging of the area helped bring corals to the surface. Other good collecting sites are along the Econfina, Withlachochee and Suwannee Rivers. Many sites have now been covered with lawns and parking lots or are closed to collecting. Specimens have become less common and pricier with this restricted collecting.

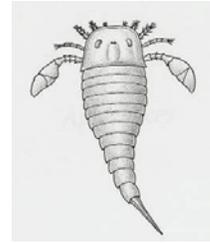
Agatized coral is found in two shapes. One is the typical finger shape in which the length is greater than the width. Four to seven inches is an average length. Larger sizes are prized and pricey specimens. The other shape is rounded like a coral head would be. These can reach massive size with one specimen weighing two hundred pounds and measuring 6 feet. Typical specimens are much smaller measuring in inches. The interiors also have 2 types of lining either chalcedony or drusy quartz. Rare specimens have one side of each. Colors of the interiors include various shades of gray, brown, black, blue, white, red, pink, orange and yellow. A few unusual specimens are clear. Fluorescence is exhibited by some but not all corals. Finger shaped corals are cut to expose the interior. Many specimens have the cut surfaces polished. The Tampa Bay coral is truly a unique and beautiful geode.

References

Geodes Nature's Treasures by Brad L. Cross and June Culp Zeitner
Florida's Agatized Corals By Michael "Dusty" Anderson on the Tampa Bay Rock Club website
FloridaAgatized Coral on ApalacheeMinerals Website

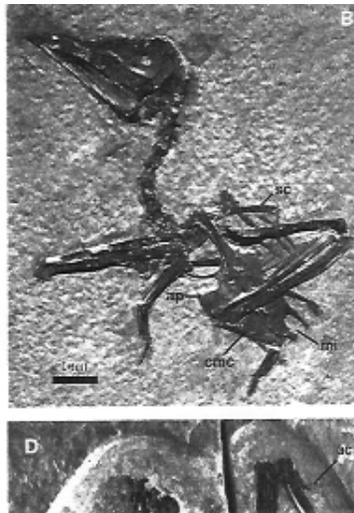


Karen's Komments



New Information on Stem Rollers from Wyoming Fossils

A new study of these interesting birds has come out using many specimens from the Field Museum collection. They evaluate 12 new fossils from the 51.66 MY old Fossil Butte Member of the Green River Formation of Wyoming, which is the area where Lance Grande has been traveling for many years now.



Living rollers are represented by two groups Coraciidae (true rollers) and Brachypteraciidae (ground rollers). True rollers have long wings and are open-air hunters and are found in Asia, Africa, Europe, Madagascar and Australia. The ground variety has long legs and are leaf litter foragers and are restricted to Madagascar. All of them have large heads and colorful plumage; all are predaceous eating invertebrates and

small vertebrates. The holotype of *Primobucco mcgrewi* was found in the Green River in 1970 and was only a poorly preserved wing. It was identified as a puffbird at the time. In 2004 it was reidentified as a stem roller. They also identified two related Messel birds as *Primobucco perneri* and *Primobucco frugilegus*. Specimens of both of these species did have some seeds within their guts indicating that they may have had a more omnivorous diet than their extant relatives.

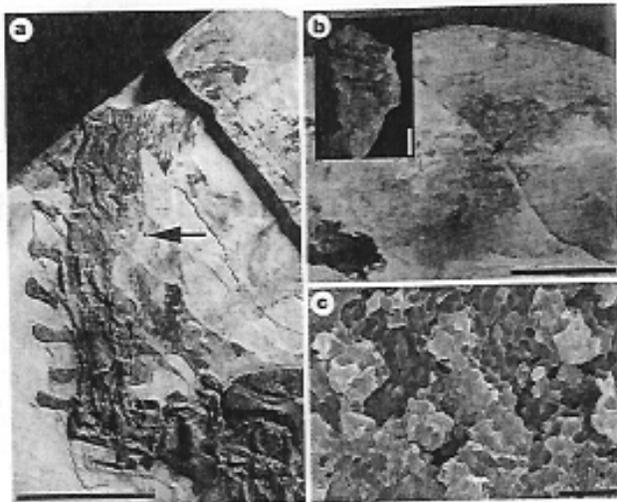
This study includes 12 new fossils all of which are considered referred specimens. They are all within 10% of the size of the holotype of *P. mcgrewi*. Two of the Field Museum fossils are shown above: they are FMNH PA 758 on the left and FMNH PA 724 on the right. The skull is large relative to body size and the beak is triangular and narrow. The vertebral count is unknown because few fossils preserve all the vertebrae. However, PA 758 does preserve some of the sacrum and 19 presacral vertebrae. Five ribs articulate with the sternum in PR 724 as they do with the extant birds. The furcula is U-shaped with no hypocleidium. The alular phalanx has a small claw. The specimens came from throughout the lake including midlake and near shore localities. Eight of the 15 specimens show some breakage which could have been postmortem damage. It appears that this bird was a significant member of the bird population representing about 10% of the avian specimens known. (Ksepka & Clarke in **JVP** Vol. 30/1 2010)

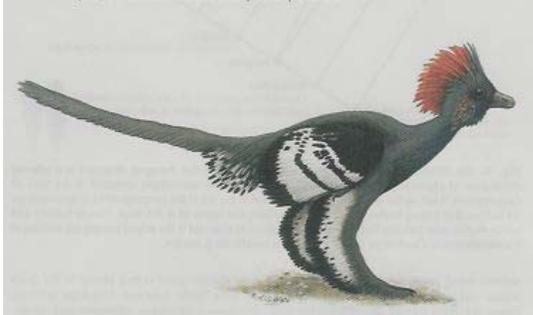
Karen's Komments, ContinuedNew Sauropod Found in Utah – *Abydosaurus*

About a mile from the construction site at Dinosaur National Monument in Utah they have a rare find – not one but four sauropod skulls. It is rare to find the skull as it was usually one of the first parts of the skeleton that was lost after death. But they are lucky and have four of them now on display cut from the 105 MY old sandstone the Cedar Mountain Formation of eastern Utah. The photo at left shows BYU professor Brooks Britt with one of the fossil skulls. It has been named *Abydosaurus mcintoshi* for the Greek city along the Nile that was the burial place of the head and neck of Osiris, Egyptian god of life, death and fertility. The species name is after Jack McIntosh for his contributions to sauropod dinosaur studies. The four animals are all juveniles that appear to be closest to *Brachiosaurus* in relationship. As usual they did not chew but grabbed the vegetation and swallowed it. It will be published in **Naturwissenschaften**. (**Science Daily** 2/24/2010)

Feathers of Cretaceous Dinosaurs Reveal their Colors

Ever since feathers were first reported on feathered dinosaurs some have questioned whether they were really feathers or were some form of degraded dermal collagen. This was especially true in the case of *Sinosauropteryx* and *Sinornithosaurus* and the Jehol birds with filaments that were questionable. Now a recent study with the scanning electron microscope (SEM) shows that these specimens contain fossilized melanosomes that are the same as those found in the feathers of modern birds. Melanosomes are organelles of pigment cells in which melanins are stored and are responsible in part for the colors you see in feathers. Two common ones are the pigment phaeomelanin the reddish-brown to yellow one and the black-grey pigment eumelanin. These are the first two that have been found in the Jehol Group and they were found in *Confuciusornis*, *Sinosauropteryx*, and *Sinornithosaurus*. The photo above shows *Sinosauropteryx* (a) and a proximal part of the tail where the sample was taken and (b) the integumentary filaments that were studied, and (c) the phaeomelanosomes within that filament. The melanosomes look like bacteria and could be interpreted as such. It has been argued that they would not survive fossilization, but they are resistant to chemical and physical degradation and to decay. Because of the configuration and their presence in the colored zones they are believed to be color and not bacteria. So far they have found phaeomelanosomes in *Sinosauropteryx* indicating that it had dark reddish brown stripes on its tail and possibly along the crest on the back. In *Sinornithosaurus* there is both eumelanosomes or phaeomelanosomes indicating different tones as well as in *Confuciusornis*. This is just the beginning of the revelation of a very colorful story. (Zhang, Benton et al in **Nature** Vol. 463 2/25/10)



Karen's Komments, ContinuedAnother Colored Dinosaur – *Anchiornis*

In PU #466 there was a report of colored feathers in three feathered dinosaurs in the Cretaceous due to melanosomes found in their fossils. Now a new specimen of *Anchiornis huxleyi* (see PU #445) has been found that consists of three shale blocks with forelimbs, and hindlimbs in articulation. The feathers are well preserved on the forelimb, hindlimb as well as contour feathers on the skull and body. It was found in Late Jurassic (155 MYA) strata in Liaoning.

Samples of the feathers were scanned and melanosomes were found that varied with their location on the body. They found that those that were long and narrow produce the black or gray colors and the short and wide ones produce the red and brown colors. This allowed then to reconstruct the picture above by M. A. DiGiorgio although the tail is speculative. It had a rusty red crown on its head and black and white spangled wings. At this point it appears as though colored feathers appear at the coelurosauria stage with *Sinosauropteryx*. But the appearance of patterned colored feathers appears at the Maniraptora stage with *Caudipteryx*, both of which predate active flight with *Archaeopteryx*. This seems to suggest that signaling may play a role in color pattern development in plumage. (Li, Clarke, Briggs, Prum et al in **Science** Vol. 327 3/12/2010)

Huge Frog Found in Madagascar – *Beelzebufo*

Yet another fascinating creature has been found among the fauna of surprising Madagascar – this one is one of the largest frogs ever found. It is estimated to have weighed a hefty ten pounds some 65 MYA and it may have eaten lizards, snakes, mammals and maybe even a hatchling dinosaur or two. It was over 16 inches long, not including its legs. Its name is *Beelzebufo ampinga* and is derived from the Greek word for the devil “Beelzebub” and the Latin word for toad “bufo”. The species name means shield. It was unveiled by David Krause and associates at Stony Brook on February 11

along with several other of the Madagascar faunal creatures including the dinosaur *Masiakasaurus knopfleri*, and the snub nosed croc. The reconstruction pictured above was put together after collecting for 15 years and finding some 75 fossils in order to put it together. It was made by Joe Groenke a fossil technician and Luci Betti-Nash a scientific artist. The colors are a guess based on where this frog lived and modern amphibians. (**The NY Times** 2/16/2110)

Karen Nordquist, Paleontology

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.

May 16 “Museum Day in Elmhurst”

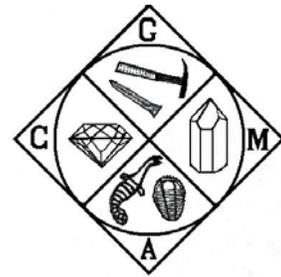
Ride the trolley and see all four Museums in Elmhurst. Participate in activities and view exhibits at each Museum. At the Lizzadro Museum see the summer exhibit “The Rock Café” featuring a collection of stones that look like food. Children and adults can create a pet rock to take home. **1 p.m. to 5 p.m. All Ages Welcome Admission is Free!**



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

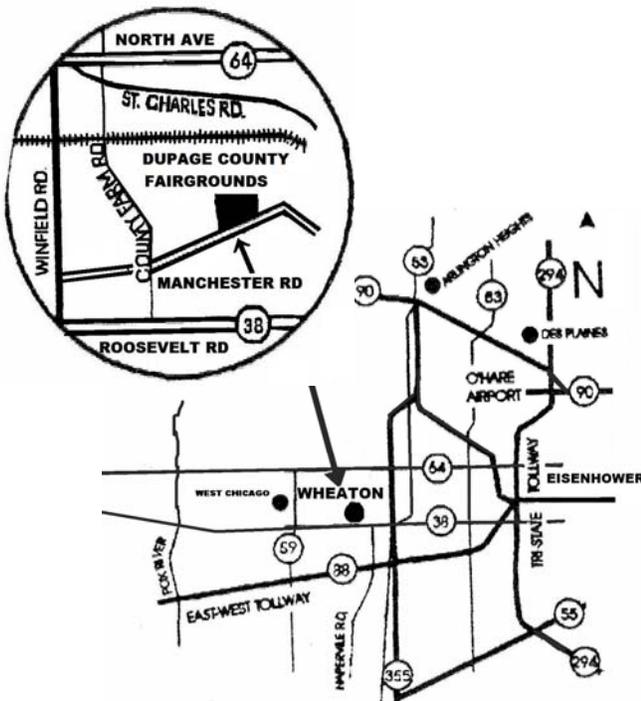
Millions of years ago, colossal mammals roamed Europe, Asia and North America. From the gigantic mammoth to the massive mastodon, these creatures have captured the world’s fascination. Meet “Lyuba,” the best-preserved baby mammoth in the world, and discover all that we’ve learned from her. Journey back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

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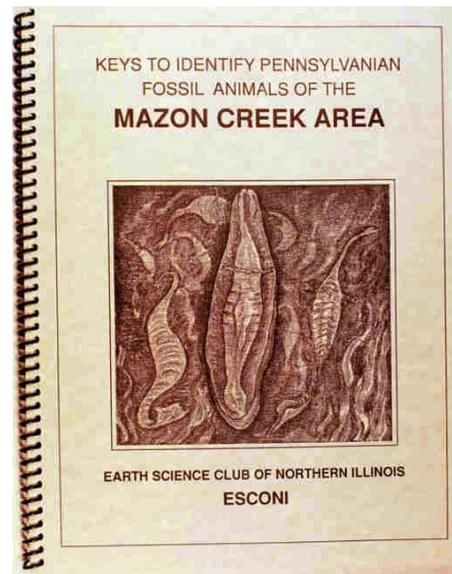
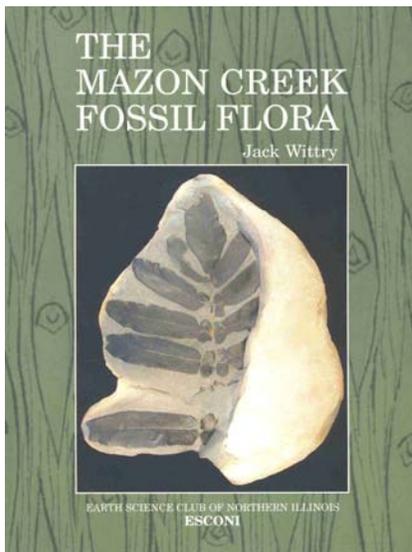
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ESCONI'S Next Book Undertaking!

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



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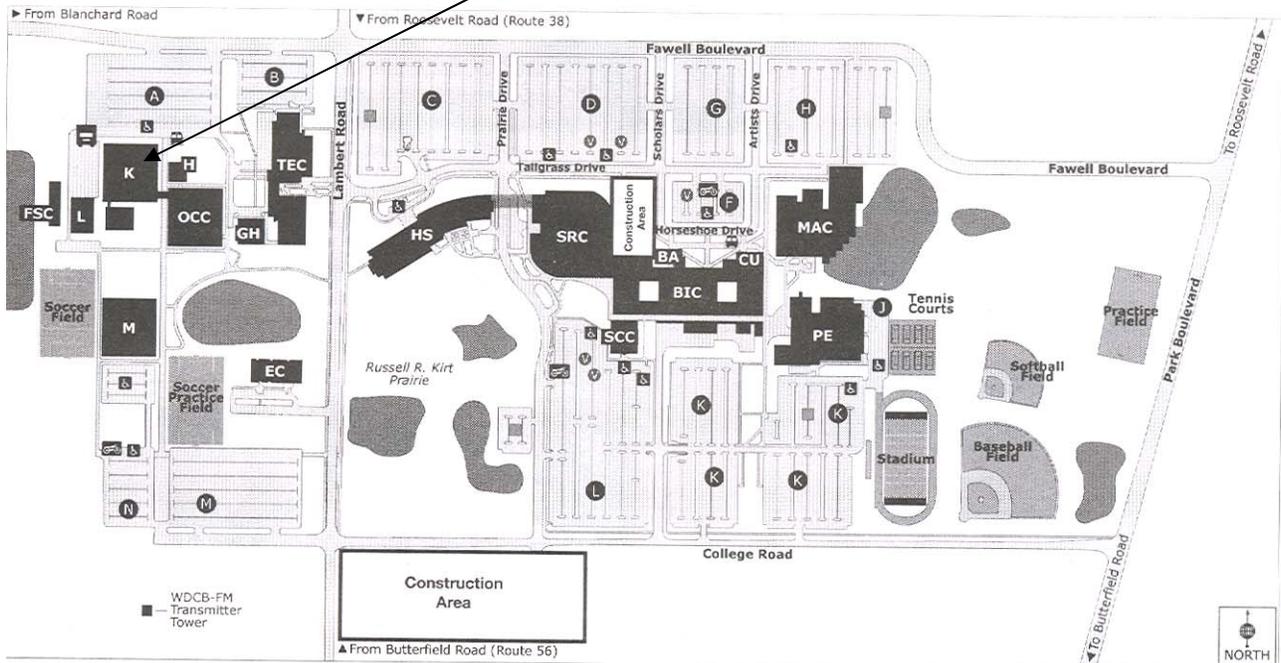
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