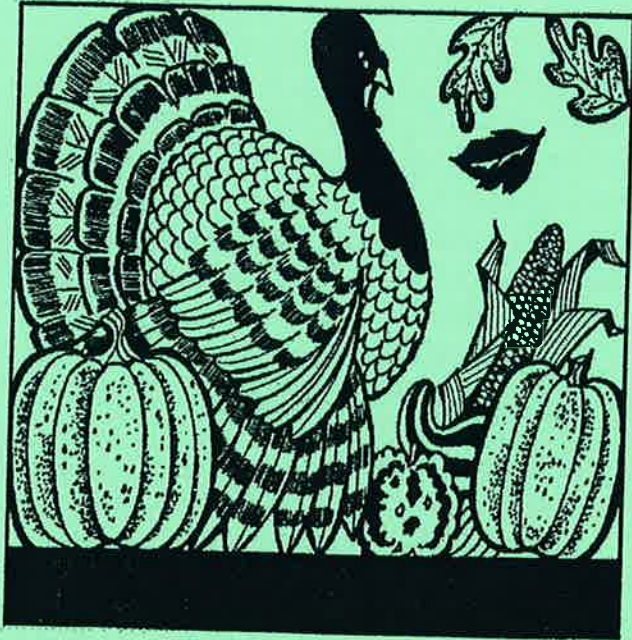


THE ROCKFINDER

Michiana Gem & Mineral Society
Tom Noe, Editor
305 Napoleon
South Bend, IN 46617



THE ROCKFINDER

NOVEMBER, 2003

MICHIANA GEM & MINERAL SOCIETY

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The purpose of the Michiana Gem & Mineral Society is to promote the study and enjoyment of the earth sciences and the lapidary arts, and to share lapidary knowledge and techniques.

General meetings are held the fourth Sunday of each month, 2:00 PM, EST, at Our Redeemer Lutheran Church, 805 S. 29th St., South Bend, IN. Regular exceptions include May (third Sunday), July (no meeting), August (club picnic) and the November/December meeting and Christmas party. Board meetings are held before the general meetings. The annual club show is Labor Day weekend.



Yearly Membership Dues (Payable by December 15)

- _____ Individual \$15.00 per year
- _____ Family \$20.00 per year
- _____ Junior \$1.00 per year
- _____ Subscriber \$7.50 per year

Please indicate areas of special interest. (To be published in *The Rockfinder*).

- General Geology _____ Beads _____
- Gems & Minerals _____ Fossils _____
- Cabochons _____ Field Trips _____
- Faceting _____ Crystals _____
- Carving _____ Micromounts _____
- Other _____ Jewelry Making _____

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Please send your dues and this form to
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 c/o Bob Heinek

7091 E. East Park Lane, New Carlisle, IN 46552

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The Michiana Gem & Mineral Society, a not-for-profit organization, is affiliated with the Midwest Federation of Mineralogical Societies and with the American Federation of Mineralogical Societies.

The Rockfinder is published monthly except July and August. Editor, Tom Noe, (ph. 574-289-2028). Co-editor, Herb Luckert, 221 Marquette Ave., South Bend, IN 46617 (ph. 574-282-1354). Reporters, Bob Heinek, Herb Luckert, club members.

Permission is hereby granted to reprint any original *Rockfinder* articles, as long as recognition is given along with the reprint.

PLEASE READ AND SIGN THIS SECTION:

With my signature I hereby release the Michiana Gem and Mineral Society, Inc., and its individual members and the owners of any premises upon which I enter under permit granted to the society, absolutely free of any liability whatsoever, to my person or my property, and further I will respect the equipment and property of the aforesaid owners.

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Name _____
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THE ROCKFINDER

Newsletter of the Michiana Gem & Mineral Society

Volume 43, Number 9

November, 2003

Meeting: Christmas Party and Meeting

December 7

Festivities start at 12:30.

See notice on page 4.

**Dues Should Be Paid
Before December 15.**

Place: Our Redeemer Lutheran Church
805 S. 29th Street (29th & Wall)
South Bend, IN

NEW AND IMPORTANT:

We are updating our records. Please:

Program: Fun! Everybody come!
RSVP to Margaret Heinek
at 574-654-3673 so she can order
enough chicken.

**EVERYONE USE
THE GREEN FORM**

Refreshments: Chicken and potluck

on the inside cover of *The Rockfinder*.
ALL MEMBERS should sign it & send it
in with your dues, even if you have
been a member for a gazillion years.
ALSO NOTE: the "Interests" you
check will be printed along with your
name and address in the next
members' directory.
Bob will accept dues at the October
meeting; otherwise, it is best to mail your
check to him (before December 15).

IMPORTANT NOTE:

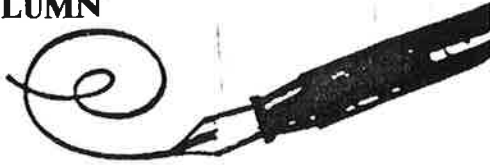
The short business meeting on December
7 will include election of our officers for
2004. A slate has been prepared by the
nomination committee, and nominations
from the floor were accepted at the
October meeting.

The slate of nominations is:

President—Diane Gram
Vice-President—Margaret Heinek
Treasurer—Pam Rubenstein
Secretary—Sr. Jeanne Finske
Liaison—Marty Perry



DIANE'S COLUMN



Seasons come and seasons go. I think fall is over. Most of my leaves have all blown away with the recent high winds. It is time to start thinking of the holidays. Thanksgiving is a wonderful time to give thanks, enjoy family and eat.

I usually do a lot of planning, and maybe half those plans get completed. Every year around this time, I tell myself not to overdo. It is so easy to get wrapped up in holiday expectations. It is hard not to, with all the media hype, ads, decorations and charity appeals. My hope is that I will find the right mix of holiday preparations. I love to bake, so cookies are usually in my schedule. Notes to those I do not see often are also important to me. My decorations are mainly angels. I have so many they fill my Christmas tree and much of the house. I try to keep gift-giving simple, unusual and fun. I dig into my pocket for many of the bell-ringers and numerous charities that are all in need of donations. Our family get-together changes year to year, as families grow and relocate. December is a busy month. My goal is not to get that overwhelmed feeling and to enjoy the season.

I hope that you take time to do what is meaningful for you during this busy time. May your holiday season be a joyous one!

Diane



MINUTES: OCTOBER MEETING

President Diane Gram called the meeting to order at 2 p.m. in the upstairs room at the church. There was a motion to accept the minutes of the last meeting as printed in the *Rockfinder*, and the motion passed unanimously.

Bob Heinek read the treasurer's report, which will be filed for audit. There were no standing committee reports. Several members have heard from members in other locations. Leo Heynssens spent a lot of time this summer digging Blue Forest wood in Wyoming, but he reports that it is getting scarce. Heidi Santorelli is living in New Jersey and sends her regards to the club.

Members were encouraged to pick up their 2003 roster, if they hadn't done so already.

Marty Perry, speaking for the nominating committee, presented a partial slate of officers, including:

President--Diane Gram
Treasurer--Pam Rubenstein
Liaison--Marty Perry

Then, nominations were also accepted from the floor. Margaret Heinek was nominated for vice-president and Sister Jeanne Finske was nominated for secretary. The club will hold the election of officers at the next meeting, which is the combined November/December meeting and Christmas party on December 7.

There was a discussion about the cost of our storage shed, and Diane asked for a committee to report in January about other options for storage. Phyllis Luckert, Lana Wright and Annitta Hostetler volunteered for this committee.

The annual Christmas party and meeting will be held beginning at 12:30 the afternoon of December 7 at the church. This is a potluck, and members are reminded to bring their own place settings plus a dish or two to share, depending on the size of the family. Anyone who would like to help Kathy Miller with the decorations and set-up on Saturday before the party should call her at 574-291-0332. Those who would like to participate in a gift exchange should bring a wrapped gift--preferably an item that is rock-related--and indicate on the outside whether the gift is most appropriate for a man,

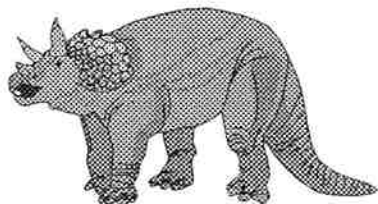
woman or junior member. The value of the gift should be around \$4 to \$5.

Diane announced that the next show and convention of the Midwest Federation of Mineralogical Societies will be held in Cedar Rapids, Iowa, April 23 through 25. Club members should be thinking about who will represent them at this meeting.

Several more options were discussed for a new location for the annual club show held over Labor Day weekend. The Elks Club and the Bethel College gymnasium were both discussed. Margaret Heinek will investigate these possibilities.

Kathy Miller updated the members on the field trip next October to the area around Crawfordsville, IN, and Chris Samuels brought in a nice selection of fossils from that location which she has collected over the years, including crinoids, horn corals, etc.

Margaret Heinek, secretary pro tem



CALLING ALL DINOSAUR DIGGERS

Dr. Keith Rigby, paleontologist at Notre Dame, has issued a call for volunteers to dig dinos with him next summer in the Ft. Peck area of Montana. He hopes to excavate two hadrosaurs and two triceratopses (or is that one hexaceratops?) which have already been located but which are crying to be excavated. He also hopes there may be a preparation facility ready for use by then.

Volunteers will be expected to contribute to the expenses of the operation. Food and lodging is usually provided. The season runs from mid-June until the end of August. You can volunteer for any time period starting at one week.

For more information call Dr. Rigby at 631-6245.

HOW TO GROW CRYSTALS OF SODIUM CHLORIDE (HALITE)

By Sam Shapiro

(I've tried this and it works. Children will enjoy it.)

1. Pour some boiling water in a glass jar.
2. Stir in some salt. Keep adding salt, and stirring, until the solution is saturated, and there are a few crystals at the bottom of the jar.
3. Take a pencil, and tie a piece of string or cord around the middle of it.
4. Tie a knot in one end of the string, lower it into the middle of the solution.

Let the pencil rest on the rim of the beaker.

5. As the solution cools, crystals will form at the knot, over a few hours.

Explain to the children that:

- a) Three-quarters of our earth is actually ocean, or salt water. Look at the oceans on a map: Atlantic, Pacific, Indian, Arctic, etc.
- b) Point out the salt lakes in desert regions, where there is no outlet to carry off the salt: Dead Sea in Israel, Great Salt Lake in Utah, Aral Sea in Russia. They are saltier than the oceans; you float on these supersaturated waters.
- c) Explain that salt is essential to human life. All our bodily fluids--blood, sweat, tears, urine--are salty. Our kidneys maintain the proper balance of salt in our bodies, by sending signals to the brain to regulate them. If our kidneys do not function, we must have dialysis, or a kidney replacement, *or die*.
- d) We cannot drink salt water.

“Water, water everywhere, and all the boards did shrink.

Water, water everywhere, nor any drop to drink.”

Samuel Taylor Coleridge,
The Rime of the Ancient Mariner

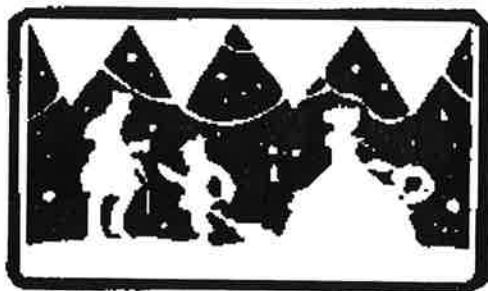
WHAT IS A MINERAL?

“A mineral is a naturally occurring homogenous solid, inorganically formed, with a definite chemical composition and an ordered atomic arrangement”
(Mason, et al, 1968).

Annual Christmas Party and Meeting

December 7, 2003

All club members are invited to attend the Christmas party and meeting! As you recall, four years ago we made a decision to combine the November monthly meeting with the December Christmas party, instead of having two events so close together. The new schedule is to skip the November meeting and put a small business meeting into the December party.



Attend the Party in December.



Where? The usual meeting place, at the Lutheran church. When? December 7. Gather at 12:30 for socializing and punch. The meal starts at 1:00. Why? Who needs an excuse to have a party? What else? Dress nicely, bring a rock-related gift if you want to participate in the gift exchange, value of \$5.00 or less. Indicate on the gift whether it is most appropriate for a man or woman or anyone. What to bring? The club will provide the meat and drinks. Please bring your own table settings and a potluck dish. Is that all? No, call Margaret beforehand (574-654-3673) to let her know how many to plan for. Everybody welcome!

Call Kathy Miller if you'd like to help set up for the party by decorating tables on Saturday morning-574-291-0332.

DETERMINING THE SOURCE OF GEM EMERALDS

By Dr. Bill Cordua

Emeralds are among the most prized of gemstones. Owners understandably want to know about the source of these valuable gems in specimens and jewelry. Suppose, however, that the emerald is set in a Gallo-Roman earring, or in a 13th-century French crown, or a sunken Spanish galleon? What clues could one find in order to deduce the gem's history and origin without destroying the priceless object? A newly applied scientific technique from a team of French researchers may hold part of the answer (Giuliani et al., 2000).

Origins differ

This technique uses oxygen isotopes within the minerals. To give a little "chemistry-lite"—most elements, including oxygen, come in several varieties, called isotopes. Isotopes differ from one another in having different numbers of neutrons in the nucleus. Some isotopes are radioactive and break down. Many are not radioactive and are called stable isotopes. The isotopes of oxygen are stable, and behave mostly alike. You breathe all of them in any one breath.

However, the ones that are slightly heavier (another neutron or two in the nucleus) do behave slightly differently from those that are lighter. For example, water that evaporates from the sea has more of the light isotope in it than the heavier stuff left behind. This persists in rainwater. So a mineral formed from rainwater will have a different mix of oxygen isotopes in it than one that forms from sea water—or groundwater—or volcanic water. Each source of water has a slightly different identifying ratio of these oxygen isotopes in them.

Isotope x is from locality y

So how does this relate to emeralds? Emeralds from various districts (and even mines within districts) have different oxygen isotope ratios in them—different oxygen "fingerprints." The French geochemists measured these values for many emeralds from known localities, then compared them to emeralds whose origins were not known. Fortunately these tests require only a tiny amount of material, and are not destructive to the gem.

Their tests led to several surprising results.

- ▶ The emeralds in a 17th-century French crown originated from Habachtal emerald mines in Austria.

- ▶ An emerald in a Gallo-Roman ring best matches the emeralds from the Swat-Minguora district in Pakistan. This ring dates back to 500 BC. It was previously thought that emeralds at that time were known only from Egypt and Austria. The new findings show that trade was going to Rome along the Silk Road long ago.
- ▶ An emerald from a Spanish galleon sunk in 1621 was from the Muzo area in the western emerald district of Colombia, showing how rapidly the mines developed after their discovery.
- ▶ An emerald from a gem treasury in India was also from Colombia, showing an influx of New World gems into Old World collections in the 17th and 18th centuries.

Similar techniques are being developed for rubies and sapphires. As more sources for gems and more artificial gems come on to the market, such analytical tools will be increasingly important as ways to evaluate and validate gems from a variety of sources.

Reference: Giuliani, G., et al., 2000, "Oxygen Isotopes and Emerald Trade Routes Since Antiquity" *Science*, vol. 287, p. 631 - 633.

The Glacial Drifter (Oct., 2003)



ANCIENT, LIZARD-LIKE REPTILE DISCOVERED

John Roach for National Geographic News - October 8, 2003



A pair of Argentine paleontologists have discovered numerous 90-million-year-old fossils of a new type of sphenodontian—an ancient lizard-like reptile thought to have gone extinct about 120 million years ago except for a few relicts that live today in New Zealand, the tuatara.

The fossils, including several well-preserved skulls, were found in the red sandstone cliffs of the La Buitrera fossil quarry in northwestern Patagonia, about 800 miles (1,300 kilometers) east of Buenos Aires.

The new species, *Priosphenodon avelasi*, had a blunt head, a sharp eagle-like beak, long arms, and it wielded square claws. It was about three feet (one meter) long and weighed an estimated 33 pounds (15 kilograms), making it bigger than any known terrestrial sphenodontian.

The Argentine paleontologists say the discovery of *Priosphenodon* helps fill a gap in the fossil record between the Early Cretaceous sphenodontians and their living relatives in New Zealand.

"*Priosphenodon* was not a minor component in the terrestrial faunas of South America," said Sebastian Apesteguia, a vertebrate paleontologist at the Argentine Museum of Natural History in Buenos Aires. "It is the most abundant species of the fossil assemblage."

Other bones collected at La Buitrera (The Vulture Cage) include crocodiles, snakes and additional remains of one of the largest carnivorous dinosaurs that ever evolved: an eight-ton, 12-foot (3.7-meter) tall, meat-eating, dagger-toothed creature named *Giganotosaurus*.

Apesteguia and his colleague Fernando Novas, also at the Argentine Museum of Natural History, report on their discovery in the October 9 issue of *Nature*.

Robert Carroll, a vertebrate paleontologist at McGill University in Montreal, Canada, said the discovery of *Priosphenodon* raises broad questions about why this group of sphenodontians was so successful in the Cretaceous.

"There is a lot to be learned from South America of vertebrates of all groups," he said.

New Lessons

Before this discovery, scientists believed that the wide appearance of lizards and snakes in the Early Cretaceous fossil record (about 120 million years ago) signified a change that caused sphenodontians to become much less diverse.

"The history was apparently distinct during the Cretaceous of South America," said Apesteguia. "Although the record is still patchy, South American lizards lived with sphenodontians as a minor component of a crocodile-dominated fauna."

South America is part of an ancient landmass known as Gondwana, which separated from the super-continent Pangaea about 230 million years ago and formed South America, Africa, Antarctica, Australia and peninsular India.

Apesteguia and Novas conclude in their paper that sphenodontians apparently persisted longer on Gondwana than other parts of the world, such as North America.

"The supposed replacement of sphenodontians by lizards was delayed in South America at least until some moment between the end of the Cretaceous and the beginnings of the Tertiary," said Apesteguia. Unpublished results of fragmentary fossils found in Late Cretaceous sediments in northern Patagonia indicate that sphenodontians other than *Priosphenodon* were still alive in South America as late as 65 million years ago.

"This is important because it's supporting (the view) that South American sphenodontids were still diverse even until the end of the Cretaceous period," said Apesteguia.

At some point, the researchers do not know exactly when, an unknown factor allowed lizards and snakes to rise to dominance in South America, relegating the sphenodontids to the relic tuataras in isolated New Zealand.

Ancient Forest

The red sandstone cliffs of La Buitrera today break up an otherwise arid, desolate steppe covered in thorny scrubs raked by a wind that fills the air with a scent of thyme, mint and oregano, said Apesteguia.

Nandus, foxes, rodents, goats, and horses roam the plain as vultures circle overhead. Summertime temperatures routinely soar above 104 degrees Fahrenheit (40 degrees Celsius) and snows blanket the region in winter. The cliffs are a reminder

that a giant, lazy river sluiced through the prairie as it coursed west to the Pacific, a passage since blocked by the rise of the Andes.

According to the paleontologists, some 90 million years ago the steppe was carpeted in forest and dotted with ephemeral lakes that formed during wet seasons. Sphenodontians, terrestrial crocodiles, snakes and small mammals roamed in the shadows of dinosaurs.

“Sphenodontians and other small species that died along the river valley were commonly entombed by sudden floodings, being swept a couple of miles downstream together with isolated bones and teeth of large dinosaurs, to be finally dumped on a bank that became hard, brown-reddish sedimentary rock along the ages,” said Apesteguia.

Today, the 130-foot (40-meter) tall sandstone cliffs are considered South America’s equivalent of China’s Gobi for the amount and quality of fossil discoveries they have yielded in the past decade. The discoveries, say paleontologists, are helping to rewrite the landmass’s history.

“There is a lot of South America and not a lot of South American paleontologists,” said Carroll. “The global significance is there is an awful lot more to find that we had no suspicion of whatsoever.”

The fossil was found by Sebastian Apesteguia, leading a team of paleontology students as part of another project organized by Fernando Novas. They received the help of the local Avelas, Pincheira and Salinas families, as well as the Cerro Policia town community, Rio Negro Province. The project was supported by the Agencia de Promocion Cientifica y Tecnologica, The Jurassic Foundation, and the National Geographic Society.

Illustration courtesy Jorge Antonio Gonzalez

Serendipity Gems (Vol. 51, #8)

OLDEST KNOWN SPIDER WEB

A tiny fragment of silk preserved in Lebanese amber is the oldest known spider web, according to a report in the August 7 issue of the journal *Nature*. The amber is from the Early Cretaceous period, about 120 million years ago, making it about 80 million years older than the previously oldest known spider silk, from a piece of Baltic amber. The Lebanese specimen shows tiny globules of glue still adhering to the silk strand. This is not the oldest evidence of spider webs, as much older fossils of spiders themselves show clear indications that they could spin silk.

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PRIVATE EFFORT AIMS TO SAVE ENDANGERED GEOSCIENCE DATA

A 2002 report by the National Research Council warned that many of the nation’s geological collections—including fossil collections—as well as major geoscience data repositories are in danger of being lost, through neglect and lack of funding (see *American Paleontologist*, May, 2002, p. 19). While the federal government may eventually step in to address this huge problem, a private effort is aiming to fill the breach, at least partly. The American Geological Institute has established the Geoscience Data Preservation Fund to “support the rescue of geoscience data in peril and to build an endowment for long-term geoscience data preservation.” Houston exploration geologist Robert Sneider was a member of the National Research Council Committee and a driving force behind establishment of the fund. Sneider says he hopes to raise at least \$1 million for the cause. Contact him for more information at (281) 531-9444 or irtrms@neosoft.com.

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**SPIT - Ptuie!**

By Ida Mae Hawkins (Spitter in Training)

I never really spit at all until I joined the Michigan Mineralogical Society. Spitting was just not something that a “lady” does. I thought that spitting was GROSS!

However, it is a proven fact that Southern girls are better at spitting than Northern girls. Dr. Friedman Voeshousen at MIT—that’s the Mississippi Institute of Technology—has done a thesis on this pattern and found the above fact to be true. I, myself, am from Bell Buckle, Tennessee. I should be good at spitting and thought I might have a latent talent for it.

My first experience was at a field trip to the Martin Marietta Quarry in Woodville, Ohio. I looked over my shoulder. No one was watching me. They were bent over their own work. Then I spit on that dusty old fluorite. Wow! The true beauty of that fluorite was exposed and found to be a beautiful deep, root beer color. Spitting is a good thing.

Agate slabs are much improved by a little spit. The greatest spitter in our club is Clint Wining. He can bring out the luster on any mineral.

Facts: Only yuppies use a squirt bottle to view the essence of minerals. Squirt bottles are only to be used when multiple specimens must be cleaned (40). In order to show complete love and comradeship of one's fellow club members you must handle and view the specimen that has been spit upon.

Michigan Mineralogical Society (May, 2001)

IOWA’S FOSSIL PARK

Iowa's Fossil Park is just on the outskirts of Rockford, Iowa, hidden by a golf course. It is called the Fossil and Prairie Park, and has a newly built center detailing the history of the area, past and present. About 375 million years ago, during the Devonian period, the area was covered by a large sea. Now collectors can find brachiopods, bryozoans, gastropods, corals, clams, casts and crinoids—at no charge, and keep all they find. The park covers 60 acres, although not all of it has fossils.

Crystal Lines and Kettle Krier (Oct., 2002)

NO IMPACT AT THE P-T BOUNDARY

No one is quite sure what caused the planet's biggest mass extinction event 250 million years ago at the Permian-Triassic boundary. Some scientists suggest that an impact event, similar to the one that occurred at the K-T boundary, set off the extinction. After extensive work on plant data from before and after the boundary, P.M. Rees of the University of Chicago has determined that the scale and timing of the extinction was quite varied across the globe, and did not occur all at once as one might expect with an impact. In the September issue of *Geology*, he maintains that the extinction patterns seen can be explained by differences in geography, climate and fossil preservation.

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