

THE ROCKFINDER

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



Pay your dues!

Send your check at once to:

Bob Heinek

7091 E. East Park Lane

New Carlisle, IN 46552-9400

Find the amount due inside front cover.

The annual club roster is being prepared and those who have not paid their dues will not be included.

THE ROCKFINDER

JANUARY, 2000

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), June (field trip), July (no meeting), August (club picnic) and December (Christmas party). Board meetings are held before the general meetings. The annual club show is Labor Day weekend.



Yearly Membership Dues (Payable by January 1)

- _____ Individual \$10.00 per year
- _____ Family \$15.00 per year
- _____ Junior \$1.00 per year
- _____ Subscriber \$7.50 per year

Please indicate areas of special interest.

- General Geology _____ Beads _____
- Gems & Minerals _____ Fossils _____
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- Faceting _____ Crystals _____
- Carving _____ Micromounts _____
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 Michiana Gem & Mineral Society
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7091 E. East Park Lane, New Carlisle, IN 46552

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 Field Trips Kathy Miller 291-0332
 Membership All Members

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, 305 Napoleon Blvd., South Bend, IN 46617 (ph. 289-2028). Co-editor, Herb Luckert, 221 Marquette Ave., South Bend, IN 46617 (ph. 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.

Additional names:

Name _____

Birthday _____

Name _____

Birthday _____

Name _____

Birthday _____

Name _____

Birthday _____

Date of Wedding Anniversary _____

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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.

Signed _____ Date _____

THE ROCKFINDER

Newsletter of the Michiana Gem & Mineral Society

Volume 40, Number 1

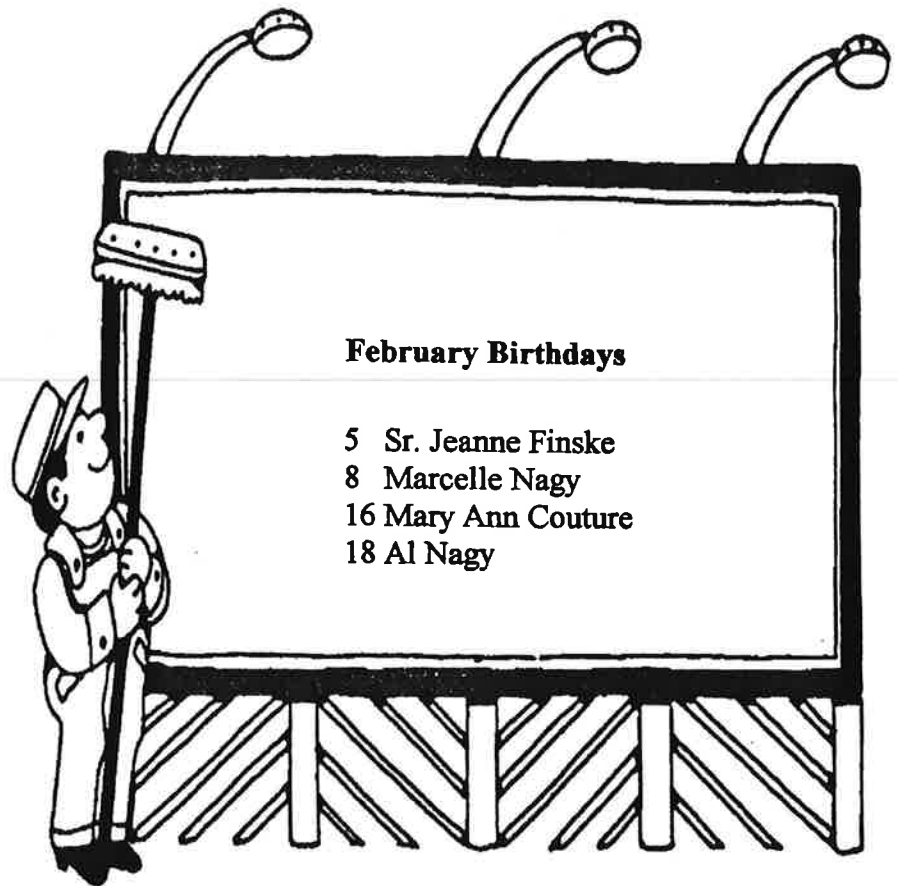
January, 2000

Meeting: Sunday, January 23, 2000
Doors open at 1:30 p.m.
Meeting starts at 2:00 p.m.
Guest are always welcome.

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

Program: David Peltz will present a
program on arrowheads.

Hosts: Diane Gram
Pam Rubenstein
Margaret Schultz



Pay your dues!

Pay your dues!

UP AND COMING

March 3-5: Greater Cincinnati area gem, mineral, jewelry and fossil show, Sharonville Convention Center.

March 17-19: Central Wisconsin gem, mineral, fossil & jewelry show, Cedar Creek Mall, Rothschild (Wasau area), WI.

March 18-19: Stark County Gem & Mineral Club show, Canton, OH.

April 1-2: Columbus Rock & Mineral Society, with Licking County Rock & Mineral Society show, Veteran's Memorial, 300 W. Broad St., Columbus, OH.

April 7-9: South Bend gem & mineral show, Century Center, South Bend, IN.

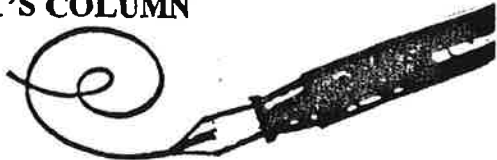
April 7-9: Mt. Clemens gem, mineral & jewelry show, Mt. Clemens Community Ctr., 300 N. Groesbeck, Mt. Clemens, MI.

April 12-15: Central Illinois fossil show, Days Inn, 1400 N. Hwy 67, Macomb, IL.

April 14-16: MAPS National Fossil Exposition — (this show's theme is teeth), Western Illinois University, Macomb, IL.

May 13-14: Cincinnati Mineral Society show, Cincinnati Convention Center.

MARGARET'S COLUMN



Happy Millennium to all of our members and their families. I sincerely hope you escape this virus that so many are complaining about. It is not the flu, but a virus that is attacking everyone. Even our doctor was ill over Christmas with it. He says, even if you had the flu shot, if you are exposed you will probably get this virus. So take care.

Please take note of our program for January. I'm sure David Peltz will make it interesting, so try to attend the meeting and enjoy David's presentation. Don Church, our new vice-president, has scheduled several new programs in the coming months.

If you have not paid your dues for the year 2000, and you want your name in the roster, send them ASAP, because the roster is being put together for printing SOON.

There are several items that I will bring up at the January meeting, and we will need your input. One is Kathy and Bob Miller's suggestion, and Herb gave me an address for books that will be available for our library or for your library. They sound interesting and they are inexpensive.

I had a phone call from Margaret Weeks (who resides in Alabama), friend of a former dealer, John Scott AAA Opal. She wanted me to give her regards to the club members. I am sure some of our members remember Margaret's English accent. It was really good to hear from her. Note that our new club liaison is David Peltz. David will be reporting on news from the Midwest Federation and American Federation. Mike Slattery is so busy with his teaching he asked to be replaced. Thank you, Mike, and I hope you will be able to continue with the club.

Several of our members are leaving us for several months, going west, what for? Rock hunting. Wish more of us could go!!! Oh well, we will keep the club going and hope to hear about their luck.

Bob and I are looking forward to a trip to Utah later this year, to the AFMS convention. They are planning on fossil-hunting trips either before or after the convention. But we, Bob and I, will have to get

our legs in good shape.

See you at the meeting this January 23rd, and if you have friends you feel would be interested in FLINTKNAPPING, invite them to attend the meeting.

SOMETHING TO THINK ABOUT

By Kathy Miller

At the January meeting under new business I would like to have a change in our meeting schedule brought up, discussed and voted on.

For the past two years on the Saturday before our annual Christmas party, a few other members and I have decorated and prepared for the party. We volunteered because we wanted to but *due to the poor turnout* for the party and all the work and time involved getting ready for it Bob and I have come up with what we hope will promote more attendance.

The November meeting falls on Thanksgiving weekend, the week before the Christmas party. That is two weekends in a row, and it seemed to be (we feel) the main reason for the low attendance at the party.

We realize the November meeting is the meeting for elections. What we suggest is, with a possible by-laws change (if this is in the by-laws), to *combine the election meeting with the Christmas party the first Sunday of December*. Have the party and a very short business meeting for elections, and possibly even an interesting program along with the gift exchange.

This would eliminate the November meeting entirely. If the Christmas party is to be held at the church, we have to have it the first week of December, since the church holds functions there the rest of the month. This year, Bob and I will NOT be there the week of Thanksgiving. We will be out of town, which creates a problem of opening and closing the church for a meeting that weekend if a decision is made to have a November meeting anyway.

Of course we could have the Christmas party at a local restaurant, later in December, but we tried that some years back and the attendance was just a low.

Please give this some serious thought and let's talk about it at the January meeting.

LET IT SNOW!

By Rose Alene McArthur

(Editor's note: these ideas would also work by using books from the club library.)

When the ground is frozen solid and the fields are all white, when the creeks are all half frozen and the rocks are out of sight...then comes one of winter's real treats. I get out my cache of magazines, a big pair of scissors, and the stapler. Here are the last year's rock magazines, club papers, *AFMS Newsletter*, and all the old magazines I picked up at shows during the past year. Each one has a collection of precious information waiting to be catalogued, consulted and treasured.

In our office there is a file cabinet with each labeled with subjects that catch my fancy: Agates, Educational, Fossils, Shows, Lapidary, Jewelry Design, Field Trips, and so on. By opening one drawer I can instantly find out how an expert jeweler arranges his workshop, what angle to cut rainbow obsidian, or what museums I can visit on our next trip to Montana.

Have you ever noticed those piles of old magazines that are stacked up at the rock and gem shows? Sometimes they are on sale at the information booth, or the silent auction, or the country store. Usually they run about twenty-five cents apiece—sometimes a lot lower towards the end of the show. Definitely one of the best bargains there! I usually have a list of several definite issues I am looking for, for example, the magazine with part two of an in-depth three-part series on the stabilization of gem materials. Often a stack of *Arizona Highways* will include pictures of Indian pottery with great design ideas to incorporate in your next lapidary project. You may find copies of magazines that have gone out of print.

Perhaps you could find the very first issue of *Lapidary Journal* or a USGS report on mercury occurrences in Oregon published in 1938. I found a whole stack of magazines from Australia at one show. It was a unique experience to curl up in bed on a cold winter night and open one of those magazines. You are in the Australian outback. You are after agates, and you make it to the locality. You get a goodly amount of what you came after, but as you start home



the heavens open up with days of pouring rain. The roads become impassable. You hole up in a roadside motel, and so does every wet little mouse who can find a crack to crawl through. Just when things are getting unbearable, an empty truck pulls in. He is so far off the ground he is having no problems. So, for a fee, you drive your car into the truck and make it on home!

Is it just my imagination, or are today's articles streamlined and condensed more for readers impatient to pick up a fact or two before turning on the TV or the computer? True, we can do without an account of the great reuben sandwich Billy Bob and Sam had at a tavern where you turn off the highway on the way to the garnet location, but in-depth articles seem to be sparse. Also, technical information seems to be taking a back seat to discussions of the far-out mystical mindset of such and such an inspired jewelry maker.

Well, back to the magazine stack. A great deal is out of date in these old magazines: shows gone by, gems no longer for sale, collecting locations gobbled up by shopping centers. But here, too, I found my second-hand rock saw and grinding outfit. I know exactly how old they are and, by following the letters

in newer *Lapidary Journals*, what company now makes replacement parts.

Some articles leave you wondering if the mystery ever got solved. A very distinctive gemstone carving was stolen from a museum. Has it ever surfaced? One dealer did Magic Mountain on his way home from a show. In the parking lot, thieves cleaned out all the fire opals in his truck. Did they ever find the thieves?

Considering fossils, one old magazine carried a story about a rockhound who discovered a strange little critter he called the Tully monster. It seemed to have one leg with a claw sticking out of its head. There it was, pictured still entombed in stone. Recently *Scientific American* showed a drawing of an ancient seabed including this creature. He was using his one claw to pull supper from its burrow.

Shop advice over the years has included many tidbits of wisdom. Many we now recognize as standard operating procedure, but it was the lapidarists of yesterday who experimented with everything they could get their hands on to give us the tools and chemicals we work with today. And we are still coming up with new ideas!

Next time you see a stack of magazines, pull up a chair and take a closer look. You may find some long-hidden gems of wisdom.

From *The Boulder Buster* (no date indicated)

<obmcarthur@clearwater.net>

THE GREAT DIAMOND HOAX

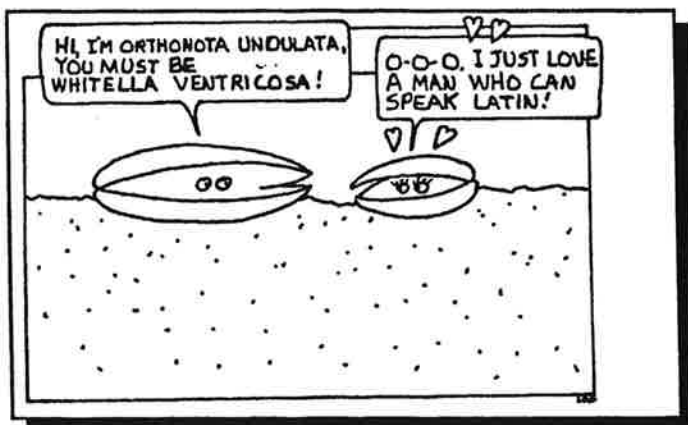
In 1871, two prospectors, Philip Arnold and John Slack, appeared in San Francisco with quantities of diamonds that they had "found" in Wyoming. After depositing their stones in the vault of the Bank of California, they sat back and let the news of their find spread through the city. Tiffany's valued the stones at \$150,000. Soon, investors were approaching Arnold and Slack to develop their claim. Reluctantly, the two miners finally agreed to discuss their prospects with San Francisco's most prominent financiers. The money men hired a mining engineer and the claim holders agreed to take the whole party out to examine the diamond field.

After a train ride, followed by four grueling days of traveling blindfolded on horseback, the party arrived at the richest gem field they had ever seen. Diamonds, rubies and emeralds were peppered across the bare ground. There were even "small glittering piles resembling ant hills . . . encrusted with diamond dust." The mining engineer wrote a glowing report. Some of the most astute businessmen of the day, General George S. Dodge, William C. Ralston, Thomas S. Selby and Baron von Rothschild, invested in the project. Arnold and Slack "reluctantly" sold their interest in the stake for \$660,000.

Not long after, Clarence King, a U.S. government geologist, went out to inspect the gem field. The precious stones were so thick, all you had to do was bend over to pick one up. Much to his surprise, however, King and his companion found one stone that was partially polished. Immediately, King contacted investors and the whole illusion collapsed. Not even the mining engineer had questioned the probability of finding diamonds, rubies, emeralds and sapphires in the same place. In retrospect, Asbury Harpending, one of the initial investors, wrote, "Why a few pearls weren't thrown in for good luck I have never yet been able to tell."

When the truth came out, it was revealed that Arnold and Slack had paid \$25,000 to salt the area with second-rate diamonds and gemstones. Whether some of these salted stones are still in the area along the Colorado/Wyoming borders is hard to say. But if you are in that area and find something that looks like a diamond, it just might be.

from *Hunting Diamonds in California*, by Mary Hill, via *Chips 'n' Splinters* (Feb., 1996)



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PHYLUM MOLLUSCA

The phylum Mollusca includes the classes Bivalvia (clams), Gastropoda (snails), and Cephalopoda (ammonites, belemnites, nautiloids and squids). Most members possess some form of solid, calcium-carbonate-based shell, either external or internal.

Class Bivalvia

From Latin, "bis" (twice) and "valvae" (folding doors).

Bivalves have a soft body that is encased in a bivalved shell borne on the sides of the body and hinged at the top. Each valve is asymmetrical (inequilateral). Most species have two identical valves, each the mirror image of the other (these species move or are motile), while the valves of the others differ in shape and size (these are usually immobile).

The shell is opened by an elastic ligament and closed by a pair of muscles termed adductors. The organism moves by extending the muscular ventral portion or foot of its soft body between the opened valves. Certain species, such as oysters (*Ostrea*), attach themselves to the substrate and become immobile (sessile). Others, such as some scallops (e.g., *Pecten*), are able to swim by opening and closing their valves rapidly.

Commonly, only the exteriors of the shells are preserved as fossils, often as molds or casts. Identification of species thus depends upon the size and shape of the shell, the type of ornament, and the relationship of the umbo (beak) to the rest of the valve.

Bivalve species are found in shallow marine and beach environments, in lakes and in rivers, and exist under a wide variety of salinity, temperature and substrate conditions. Most of the species preserved as fossils inhabited low- to moderate-energy shallow marine areas.

Identification of Genera:

Arctica: Large shells with fine to moderate concentric ornamentation, umbo well forward. (Jurassic to Recent).

Corbula: Small to moderate-sized, sturdy shells, one valve smaller than the other, ornament consists of concentric, moderate to rather coarse ribs (Triassic to Recent).

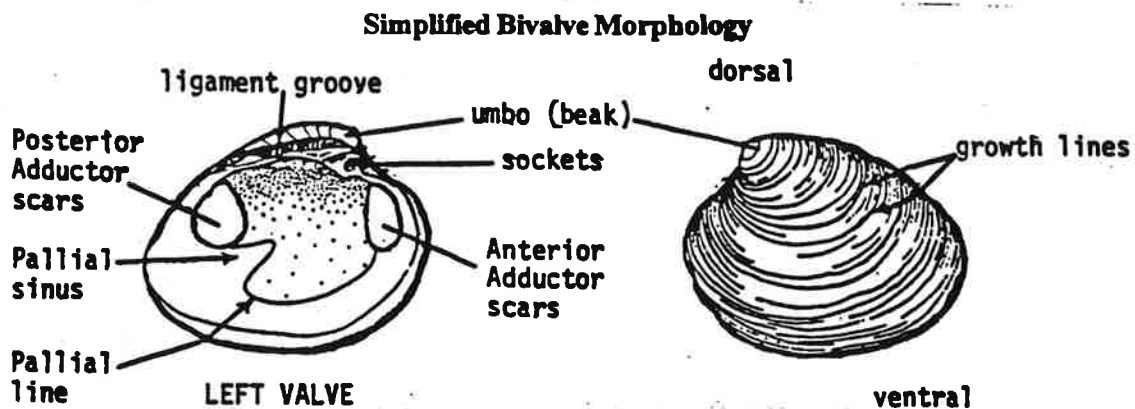
Gryphaea: Small to medium-sized, looks like a gravy boat in general shape—left valve very strongly convex, with its dorsal portion incurved, right valve flat, shell laminated (has a layered appearance) (Jurassic to Eocene).

Inoceramus: Ovate to trapeziform in shape --with a strong side to this ridge. (Jurassic to Recent).

Unio: Shells strongly elongated parallel to hinge: ornamentation concentric, consisting of coarse ribs on umbo, with remainder of shell smooth; this is a freshwater form (Triassic to Recent).

Venus: Medium to quite large, ovate shells, ornamentation rather faint, predominantly concentric, less commonly radial, beaks anterior, pallial sinus present (Tertiary to Recent).

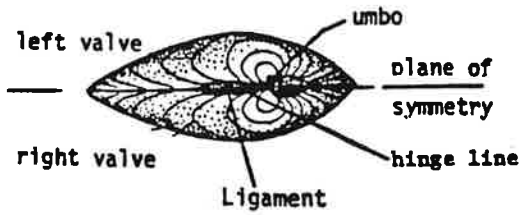
University of Alberta
Department of Geology
(no date)



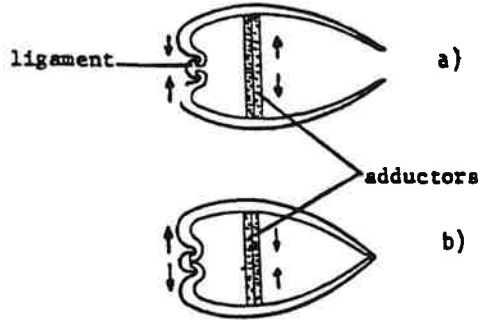
Venus sp. (x0.5)

Mollusca - Bivalvia - continued--

Simplified Bivalve Morphology

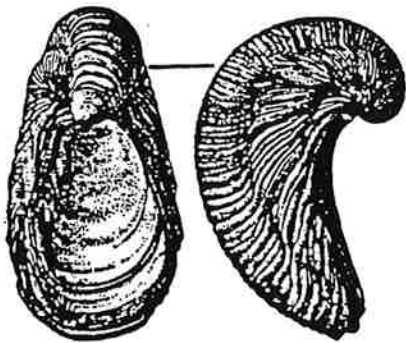


Dorsal view of *Venus* sp. (X 1/2)



How a bivalve opens and closes its shell

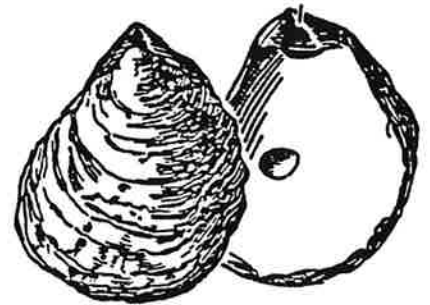
- a. Ligament relaxes, adductos relax. Shell closes.
- b. Ligament relaxes, adductors contrac,i shell closes.



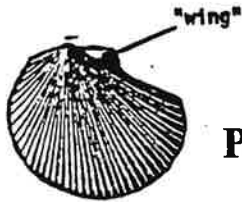
Graphaea arcuata Lamarck (x0.75) Lower Jurassic



Trigonía costata Parkinson (x0.75) Middle Jurassic



Ostrea percrassa (Conrad) (x0.3) Tertiary



Montis subcircularis (Gabb) (x0.5) Upper Triassic

Pay your dues!



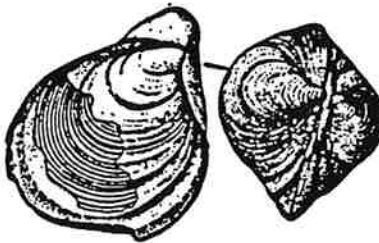
Pterinea demissa (Conrad) (x1.0)



Arctica ovata (Meek & Hayden) (x.25) Upper Cretaceous



Unio dockumensis Simpson (x1.0) Upper Triassic



Inoceramus concentricus Parkinson (x.1.0) Later Upper Cretaceous



Corbula crassiplicata Gabb (x4) Upper Cretaceous

ALAA AND AMERICAN FEDERATION CONTINUE TO PRESS FOR FEWER RESTRICTIONS ON FOSSIL COLLECTING

The federal government is considering a unified policy regulating fossil collecting on public lands. Currently, each management agency has its own policy, some strict and some loose, which leads to confusion and uncertainty among collectors and land managers alike.

In the discussion, a background paper was presented in May, 1999, and on July 13 a response to this paper was sent to the Department of the Interior by George Loud, chair of the Conservation and Legislation Committee of the AFMS.

In his letter, he took issue with some statements in the background paper. The paper, for example, stated that "All fossils are relatively rare, but some types are much rarer than others." Mr. Loud referred to a 1987 report of the National Research Council entitled "Paleontological Collecting," which stated, "Fossils are not rare." He gave the example of limestone, which is essentially a mass of fossils, and imetsone is not rare.

The issue here is a simple one: if fossils are all rare, amateurs should not be allowed to collect them. If they are common, they do not need federal protection.

Another statement from the background paper: "The Department of the Interior has long recognized the absolute rarity and scientific importance of vertebrate fossils." Mr. Loud countered that, if all vertebrate fossils are of absolute scientific importance, then every bone fragment of any vertebrate fossil should be professionally collected, conserved and stored at taxpayer expense. He referred again to the NRC report, which stated, "Finding another Pleistocene bison bone in Idaho or another Carboniferous fern leaf in Illinois adds little to paleontologic knowledge." In many collecting localities, he notes, finding fragments of dinosaur bones is relatively easy.

Mr. Loud explained that many fossils are lost to erosion every day because they are not collected. He also commented on some of the presentations made at the June 21 hearing. He said the DOI should not create a policy on fossil collecting which is based on a rare occurrence. Some would restrict all fossil

collecting simply because a valuable vertebrate specimen might be destroyed by improper collecting by amateurs. Rather, he suggested, simply restrict the collecting at sites where valuable vertebrate fossils are being found. Otherwise, fossils should be collected before they are destroyed by erosion.

Critics of amateur collectors have stated that a fossil with no field data or documentation is a "mere object of curiosity," and that this type of careless collecting should be prevented on public lands. Mr. Loud agreed with the importance of documentation, but noted that fossil bones can be scientifically valuable in themselves--filling out our knowledge of species and providing material for study of such things as infections, etc. The fact that some collectors do not label their finds is no reason to prohibit collecting by everyone.

Our American Federation and the ALAA are working hard to preserve our right to collect fossils on public lands. We can help, too, with our letters to the Department of the Interior and to legislators. Last spring our club sent a letter to Secretary Babbitt, and in the upcoming months we'll probably have a chance to comment again on whatever new proposals are made. Stay tuned.

--Mr. Loud's letter summarized by Tom Noe from the Sept., 1999, *AFMS Newsletter*

ROCKHOUNDS

Some people search for diamonds
Some people search for gold
Some people only pick up rocks
at least that's what we're told.
The Diamonds make you famous
The gold you have to spend.
The rocks just bring you pleasure
and a host of happy friends.

Shirley Lumsden

FLINT FLASHES
NOVEMBER, 1999

CAUSES OF COLOR IN QUARTZ

by Doug Mitchell

Here is a summary of a talk by Dr. George Rossman of Cal Tech on the causes of color in various forms of quartz.

As has been said before, the dark color of smoky quartz is caused by impurities of aluminum combined with gamma ray exposure, and the purple color of amethyst comes from impurities of iron in the ferric state, again combined with damage from gamma ray exposure. The gamma rays knock an extra electron off the iron, leaving it in the quadruply charged state.

What was new to me was that the iron must not be substituting directly for silicon atoms in silicate tetrahedra for this to produce amethyst. The iron must be in channels that occur between the silicate tetrahedra in quartz. If the iron replaces silicon instead, the radiation effect produces an uncommon form of citrine.

In natural amethyst formation, the radiation is likely to come from potassium. While its radioactivity is too small to be of concern on human time scales, clays and K-feldspars can just keep plugging away over geologic time scales to send enough gamma rays into nearby quartz to create the color eventually.

The more common form of citrine is also colored by ferric iron in the channel sites.

The color of amethyst is not stable, and will fade noticeably with a few days' exposure to sunlight, or any bright source of green, blue or ultraviolet light. I was a bit startled by this when I recalled seeing quite a few amethyst geodes out in the sun, probably for days, at satellite shows of the Tucson show. Ordinary incandescent lights, with their low color temperature, would have the least effect this way, but higher temperature lights like krypton or halogen lights would be worse. Heat will also fade the amethyst color. When the amethyst color fades, it is likely to be replaced by the citrine yellow color.

The loss of amethyst color can be reversed by exposure to "ionizing radiation," including X-rays and gamma rays (I neglected to ask whether shortwave UV would qualify), provided there is no aluminum in the quartz. In the presence of aluminum, the quartz will instead become smoky on exposure to X-rays or

gamma rays. When I asked how radiation turned it to amethyst in the first place, Dr. Rossman explained that the smoky color fades faster than the amethyst color over geological time periods. Thus, if irradiating your amethyst does turn it smoky, waiting a few million years may complete a restoration of that amethyst color.

When quartz with ferric iron crystallizes above 270 degrees Celsius, it generally forms citrine. When it crystallizes below 265 degrees, it can become amethyst. Ametrine, with its alternating sectors of amethyst and citrine, forms only between those temperatures. During the entire crystallization the temperature must hold near 268 degrees, which is why ametrine is known from only the one site (Anahi Mine, Bolivia), which now is reportedly exhausted (at least until they find a new vein or whatever). The ametrine was found in clayey pockets in a dolomitic limestone. At the correct temperature, the amethyst forms in r sectors and the citrine in z sectors, if my memory has not reversed them.

Dr. Rossman recently determined the cause of the pink color in ordinary rose quartz by dissolving it in hydrofluoric acid, which left a mass that was insoluble in boiling hydrofluoric acid. Examination with electron microscopes revealed this mass to be composed of fibers smaller than the wavelengths of visible light, which proved to be made of dumortierite plus three new minerals. These fibers also gave rise to asterism in this rose quartz, contradicting earlier explanations that involved rutile.

There is another, rare form of rose quartz, where well-formed crystals show the rose color. In this case the color comes from aluminum and phosphorus impurities, again with gamma ray effects. Apparently this forms only in the presence of tourmaline. Perhaps the tourmaline absorbs something as it forms that would prevent the formation of rose quartz crystals.

Blue color in quartz is caused by ilmenite inclusions. The green of chrysoprase comes from williemseite (the nickel analog of talc) inclusions. A rare form of green crystalline quartz is colored by ferrous iron, I think, in the channel sites.

Gem Cutters News (Feb., 1998)