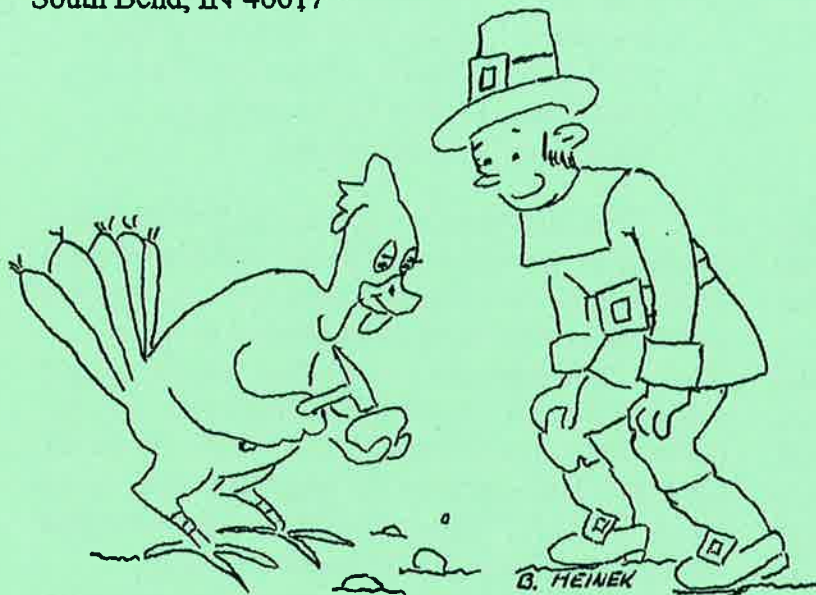


# THE ROCKFINDER

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



HAPPY THANKSGIVING!



# THE ROCKFINDER

NOVEMBER, 1999

# MICHIANA GEM & MINERAL SOCIETY

## 1999 BOARD OF DIRECTORS

President Margaret Heinek 654-3673  
Vice-Pres. Ed Miller 498-6513  
Secretary Gladys Pacholke 233-6818  
Treasurer Bob Heinek 654-3673  
Liaison Michael Slattery 273-9532  
Past Pres. Jim Russell 289-7446

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.

## HEADS OF COMMITTEES

Programs Ed Miller 498-6513  
Hospitality Pat McLaughlin 259-1501  
Educational Emily Johnson  
Librarian Diane Gram  
Historian Ed Miller 498-6513  
Sunshine Sally Peltz (616) 683-4088  
Publicity Phyllis Luckert 282-1354  
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. Staff: 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 due recognition is given along with the reprint.

### 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   
Cabochons  Field Trips   
Faceting  Crystals   
Carving  Micromounts   
Other  Jewelry Making

Name \_\_\_\_\_

Street \_\_\_\_\_

City, ST., Zip \_\_\_\_\_

Please send your dues and this form to  
Michiana Gem & Mineral Society  
c/o Margaret Heinek  
7091 E. East Park Lane, New Carlisle, IN 46552

Additional names:

Name \_\_\_\_\_

Birthday \_\_\_\_\_

Name \_\_\_\_\_

Birthday \_\_\_\_\_

Name \_\_\_\_\_

Birthday \_\_\_\_\_

Name \_\_\_\_\_

Birthday \_\_\_\_\_

Date of Wedding Anniversary \_\_\_\_\_

Phone \_\_\_\_\_

**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 39, Number 9

November, 1999

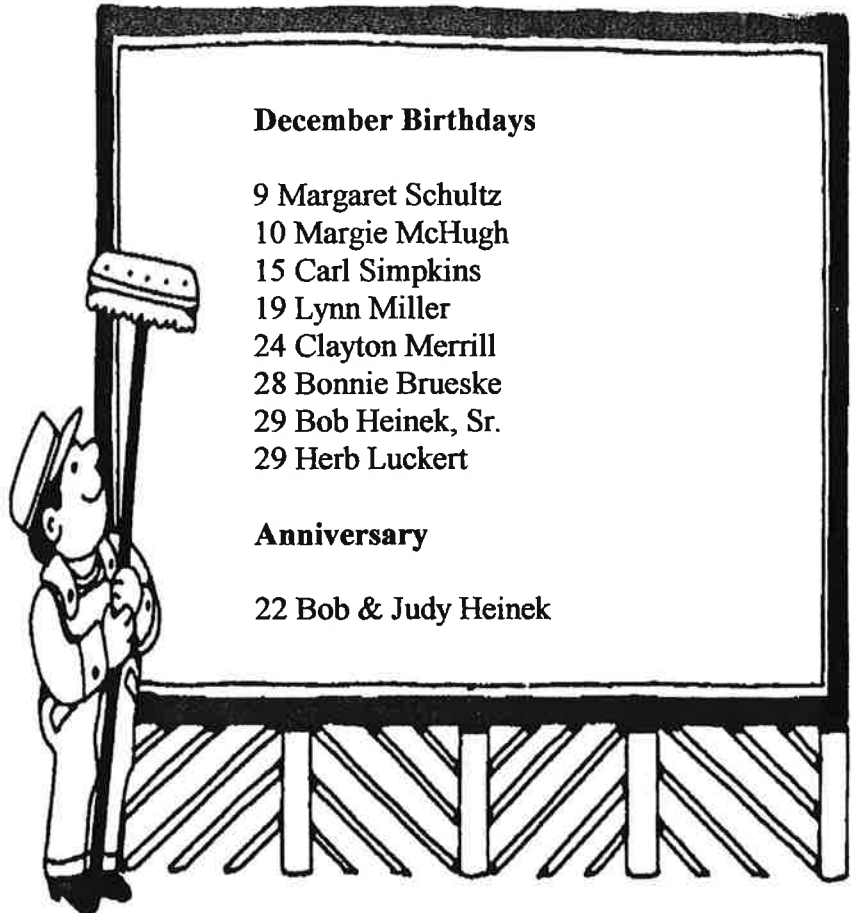
**Meeting:** Sunday, November 28, 1999  
Doors open at 1:30 p.m.  
Meeting at 2:00 p.m.

**Place:** Our Redeemer Lutheran Church  
905 S. 29<sup>th</sup> (29<sup>th</sup> & Wall)  
South Bend, IN

**Program:** Al Mitterling will bring some of his meteorite collection and tell us about them.

**Hosts:** Ed and Marsha Miller and Tom Noe

**Dues:** It's time to pay your yearly dues. You can pay Bob Heinek at the meeting or mail him a check before December 31. No dues are collected at the Christmas party.



## December Birthdays

9 Margaret Schultz  
10 Margie McHugh  
15 Carl Simpkins  
19 Lynn Miller  
24 Clayton Merrill  
28 Bonnie Brueske  
29 Bob Heinek, Sr.  
29 Herb Luckert

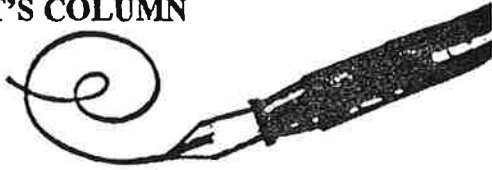
## Anniversary

22 Bob & Judy Heinek

## UP AND COMING

Nov. 26-28 — Geodon Lapidary show, DuPage County Fairgrounds, Illinois. Info, 630-983-1744.  
Dec. 10-12 — Greater Cincinnati area show, Sharonville Convention Center, Sharonville, OH.

## MARGARET'S COLUMN



Another year is almost over; they seem to go so fast. We will have our meeting this month on November 28th, and our Christmas party will be December 5th. So get ready to celebrate.

Our meeting this month includes elections, so you should try to be there to vote for new 2000 officers. Make your wishes known with your vote. If you would like to be an officer, speak up and let Ed Miller know. This is a good club, and we have talented people as members who would be good officers. So don't be bashful and speak up! See you there.

Also, we are having a very interesting program. Our speaker will be Al Mitterling, the Meteor Man. Al is one of our demonstrators at the annual show, and is very popular with the attendees. So ask friends if they would like to know more about our skies. I am looking forward to this program.

We also had a man call and ask if he could bring a rock that he had collected in Mishawaka at a site where a school was being built. He would like to tell us his theory of the rock's origin and see if our members agree with him. Interesting.

Bob and I had a note from Gordon Dobecki. He said: "It was great to see my friends in the club. I really enjoyed our trip down to southern Ohio. I seem to feel better all the time since I've been off my treatments with no side effects. On hikes with my brother Garry & his family I'm able to keep up with them." So glad to hear from him, and we enjoyed seeing him also!

Sorry to hear that Molly Elwell lost her mother. She had been ill for a while, and was in the nursing home. Our sympathy goes out to you, Molly.

We are approaching the New Year, and the MWF dues are due as well as the insurance. Please give Bob permission to pay these bills. The insurance has changed their policy and we must include all members who are in the roster, even though they live out of town, never come to meetings or participate in field trips. This makes a difference in our insurance costs. I will explain the difference at the meeting this month.

Our Christmas party will be held at the church on December 5th, and Kathy will need help in decorating on the 4th. Emily Johnson has offered to decorate the tables, so if you can help on Saturday decorating the tree, or help Emily decorate the tables, let them know. Bob and I will not be able to help decorate on Saturday, due to a small operation on my foot on Friday, but we should be able to be there on Sunday. Can a member offer to pick up the meat for the dinner?

The club will furnish the meat, coffee, punch and rolls. Let someone on the board know what kind of meat you would like, beef or chicken. We hope all Club members will come and celebrate the season with us. Let us know what you are willing to do to help with the preparation and activities. There will be a gift exchange, something rock-related, gifts should cost \$3.00 to \$5.00. Men buy for men, women for women and juniors for juniors, please mark category.

Remember, dues are due, Bob will be glad to accept them at the November meeting, but not at the Christmas party.

November is election of club officers, so get your thinking caps on and let Ed Miller know whom to nominate for the year 2000 officers.

See you on the 28th, the 4th Sunday of November.

Make sure you invite anyone interested in the subject of meteors to come to this meeting.

## CUTTING TIPS

Agates can be cut and polished on diamond, but we prefer to use Carborundum grinding wheels and polish with cerium oxide on hard felt. You can also use leather or poly-pads. Try a little red rouge when polishing. It seems to give a more glassy finish. One thing to remember is to get rid of all scratches from the grinding stage with a 600 sanding disk or belt.

## MINUTES OF THE OCTOBER 25 MEETING

President Margaret Heinek called the meeting to order at 2:05 p.m. Present were 21 adults, all members of the club. Hosts for the day were Tom and Pat McLaughlin. All applauded Tom McLaughlin for the article in the *South Bend Tribune* which described the finds Tom made on the banks of the St. Joseph River in Mishawaka. Noticing some construction work on the banks, Tom started snooping around to see if there were any interesting rocks to be found. He discovered instead some mussel shells which had been used at the old button factory in the area. The article showed photos of the shells with button blanks cut out of them, and the interviewer asked Tom how he came to be looking for such things along the riverbank. He answered that he's a member of the Michiana Gem and Mineral Society and is always on the lookout for things to be found in the earth. The interviewer said that there could well be an article on the club in a future issue. Well done, Tom.

Minutes of the field trip: thanks to Kathy and Bonnie for organizing a wonderful trip. Beautiful weather permitted lots of rockhounding. It was nice to see Gordon Dobecki along, too, and he made such nice comments about the *Rockfinder* that the club voted to send him a subscription.

Treasurer Bob Heinek reported that the September show was a big financial success, and the silent auction was especially successful, both in generating money and in clearing a lot of rock out of the shed. Many thanks to all who helped.

There were many displays to talk about. Tom Noe's Laguna agates from northern Mexico were very colorful. David and Sally Peltz presented stones from Ohio and the local area, including garnet, white quartz, feldspar, horn coral, etc. Herb Luckert brought along a microscope which generated a lot of interest. He had dissolved some rock found on the field trip and collected the debris, which under magnification proved to be thousands of tiny fossils and fossil parts. Ed Miller showed a relic of one of the old shows held at the ACC, a yellow T-shirt with a printed design, plus a coloring book, pictures from the Labor Day show and from the field trip. Kathy and Bob Miller talked about shells. Margaret Heinek displayed some club memorabilia and photos in

scrapbook fashion, plus some petrified pine cones. Tom McLaughlin also told the story behind the newspaper article and gave specific directions to the site for anyone who is interested in finding more of the old mussel shells.

Kent Hoffman brought some cans of fossils which he is donating for use in the kids' activities at the shows, and also a book for the library, *A Glossary of the Mining and Mineralogical Industry* by the U.S. Department of the Interior, Department of Mines.

Door prizes went to Phyllis Luckert, Sam Shapiro, Bonnie Brueseke and Kathy Miller.

Each member is asked to check in his or her collection for a mineral specimen which might be suitable for donation to the museum we visited on the field trip, in appreciation for their hospitality. Contact Margaret for more information.

After the refreshments, which were enjoyed by everyone, Ed Miller presented a program of slides and specimens illustrating his trips to Alaska and the Yukon. Looks like great rockhounding up there. Thanks, Ed, for a fine program.

Gladys Pacholke, Secretary

## MICHIGAN BEACHES CLOSED TO COLLECTING

We must be constantly vigilant regarding the operations of the Bureau of Land Management, Forest Service and the National Park Service. In mid-July the National Park Service posted signs "to protect geological resources." Collecting of rocks, minerals and fossils was prohibited. Persons observing these activities are asked to report same to a Park Ranger. This edict applies to the Pictured Rocks National Seashore, an area approximately 50 miles long reaching from Grand Marais to Munising. For 30 years I've looked for agates on those beaches and there still seem to be a lot of rocks! I don't yet know the official reason, but will try to find out.

From MWF President Neil Snett's column in the October, 1999, MWF newsletter.










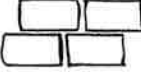








Division Of Geological Survey  
**HANDS ON**  
 EARTH SCIENCE No. 6

**ROCKS AND MINERALS ARE EVERYWHERE**

Ohio's rocks and minerals can be used for a variety of items. Match the rock or mineral to the item for which it is used. There may be multiple matches.

 plastic toy	sandstone	 dinner glass
 paper	oil	 gel toothpaste
 peanut butter	clay	 hand lotion
 paste toothpaste	limestone	 kitty litter
 bakery cake icing	gypsum	 bricks
 asphalt road	salt	 gold tablets
 electricity	shale	 dandruff shampoo
	coal	
	sand/gravel	

**ANSWERS**

peanut butter = sandstone • dinner glass = sandstone • sandstone = sandstone, limestone • hand lotion = oil, clay • plastic toy = oil  
 kitty litter = clay • paper = paper • gel toothpaste = limestone • bakery cake icing = gypsum  
 gel toothpaste = sandstone • dandruff shampoo = sandstone, limestone • asphalt road = sand/gravel, limestone  
 plastic toy = oil, clay • hand lotion = oil, clay • plastic toy = oil

Created by Sherry L. Weisgarber and Lisa Van Doren

OHIO DEPARTMENT OF NATURAL RESOURCES

**HANDY HINT:** Do you have cabs you do not want to mount? Or tumbled rocks or small specimens you don't know what to do with? Why don't you glue magnets on the back and use them for posting notes on the refrigerator?

Orange Belt Staurolite (No date)

## ARTIFICIAL WEATHERING

by Chuck Safris

It is always a thrill to find a cracked concretion that separates cleanly in the field with a light tap of a rock hammer to reveal a beautiful fossil. More often, however, a promising-looking concretion is not already cracked and resists being broken. When it finally breaks under the blows of a rock hammer, there is some shattering or uneven breaking which can damage the enclosed fossil. And even then, there is a chance that the enclosed fossil is not exposed. With a little patience, there is another way to expose the enclosed fossil. Artificial weathering is a simple alternative that may lead to the collection of fine, undamaged fossils if the matrix material is suitable.

Freezing and thawing causes accelerated mechanical weathering of a rock. If water can seep into pores or tiny cracks in the rock, the rock will become saturated. When the water expands as ice forms during a freezing cycle, pressure is exerted on the rock, leading to cracking or exfoliation. If the fossil is a carbon film, then the fossil is a natural weak spot in the concretion and with luck the subtle pressure of freezing will open the concretion so that the fossil is perfectly exposed and undamaged.

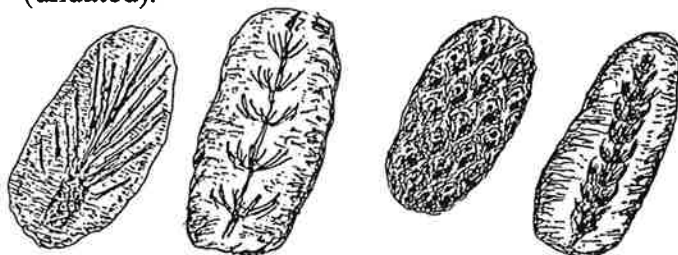
The process is very simple for any rock that will take up water. A container (other than glass, which might break during the freezing process) suitable for the specimen's size is selected and the concretion is covered with water and allowed to soak for several days. Then a series of freezing and thawing cycles is achieved by using the freezer in the summer or the back porch in the winter. By achieving a freeze-thaw cycle every day, the process is accelerated. It is important that loosened residue from each cycle be removed and examined because, if there are any fossils revealed, the next freeze cycle could destroy them.

If you live in a northern climate and there is no hurry, the suitable rocks could be placed in a container full of water and simply left outdoors all winter, where the daily temperature swings would do all the work. It has been reported that thousands of Mazon Creek (IL) fossils have been exposed using accelerated artificial weathering this way.

In Iowa, fossil collectors are on the lookout

for blade-shaped nodules of limey shale in Pennsylvanian exposures and streambeds. With any luck and some artificial weathering, a well-preserved, beautiful fern frond is likely to join your fossil collection.

Source: "Freezing and Thawing of Fossils," J. Pojeta and M. Balanc, U.S. Geological Survey, Reston, VA (undated).



## SOME STONES TO CARVE

The following stones can be carved with only a file and/or motor tool, and maybe a few other hand tools. Some of these are known by several names.

- ◆ Sepiolite (meerschaum): Famous as a material from which to make pipe bowls. Can be worked and even finished with steel wool.
- ◆ Alabaster (gypsum): The hardness varies and hard types respond well to hand tools, others with files and wet or dry sandpaper.
- ◆ Talc (soapstone): Worked with files and sandpaper, even carving tools.
- ◆ Anthracite (coal, jet): Worked with hand tools and tungsten bits.
- ◆ Calcite (marble, onyx): Worked with hand tools and tungsten bits.
- ◆ Aragonite (similar to calcite): Worked the same way as calcite.
- ◆ Howlite: Worked with hand tools, has the advantage of being dyed easily.

Most of these rocks can be easily sawed with a hacksaw. Also, most can be easily polished by hand with a piece of leather and tin oxide. Remember that the sandpaper called "wet or dry" is one of the carver's best friends so always try it out on your work. In many places such as Mexico and Iran, for instance, the artists use no mechanical tools whatsoever on calcite and alabaster.

From *Mineralog* via *The Trilobite* (Mar., 1999)

## DIAMOND, APRIL'S BIRTHSTONE

By Roger K. Pabian

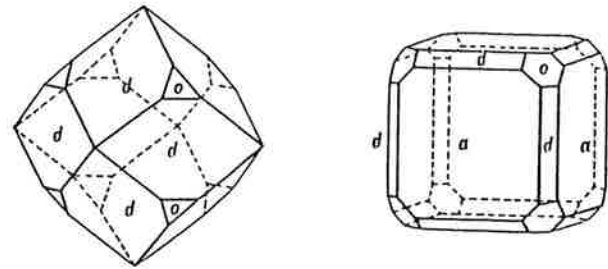
Although diamond is probably the most popular and discussed gemstone, it has probably been in use for a shorter time than any of the other gems that are commonly used in modern times. The reason for this is that lapidaries did not learn to fashion diamond until about the 15<sup>th</sup> century, when it was discovered that one diamond would abrade another.

Diamond is composed of the element carbon—it crystallized in the isometric system; that is, there are three crystallographic axes that are all of equal length and are perpendicular to one another. In addition to the axial relationships, the crystal can have a center of symmetry, 3 axes of fourfold symmetry, 4 axes of threefold symmetry, 6 axes of twofold symmetry, and 9 planes of symmetry. In a mineralogical text, these symmetry elements would appear as: C, 3A4, 4A3, 6A2, 9P.

An isometric crystal can be defined by numerous forms, including a cube (6 faces), an octahedron (8 faces), a dodecahedron (12 faces), a pyritohedron (12 faces), tetrahexahedron (24 faces), a trapezohedron (24 faces), etc. To complicate issues, one form may be superimposed over another, such as an octahedron modifying a cube such that the cube appears to have its corners cut off. The superimposition of faces can be quite extreme and an isometric crystal can show several forms superimposed over another. All of these different modifications of the basic isometric crystal can exist within a volume that fills a space occupying one unit by one unit by one unit.

The hardness of diamond is 10 on the Mohs Scale---there is nothing harder. The figure 10 could be said to represent the "average" hardness of a diamond. Diamond is not equally hard on all of the theoretical crystal faces that exist in the unit cube. The dodecahedral faces are just slightly softer than the cube faces or the octahedral faces. If the cube or octahedral faces are 10 hard, then we may think of the dodecahedral faces as being 9.999 . . . hard. It is this fact that makes it possible to shape and polish diamonds. In the figure below, the crystal faces marked with *d* are just a bit softer than the others;

those softer faces make diamond shaping and finishing possible.



Diamond crystals have 4 perfect cleavages that are parallel to the octahedral crystal faces. These cleavages are useful to the lapidary, as they make it possible to reduce a large, irregular-shaped crystal to smaller, more manageable pieces. Apparent planes of cleavage where the stone might break easily are usually selected as separation planes when the crystal is cleaved. The cleavage operation is carried out with a specially shaped chisel and mallet. Many diamonds are now treated with a diamond saw rather than cleaving but the skilled diamond worker still must know the art of cleaving a stone, as this is the only way some pieces can be handled.

Diamond has a fairly high refractive index: 2.417. That figure measures how much a beam of light is bent and slowed down when it enters the diamond. The high refractive index is what causes the diamond to have its adamantine luster. Diamond has a very high dispersion (0.044), the ability of a substance to break white light down into its component colors. The dispersion is what causes a faceted diamond to show many colors when it is moved about in the light.

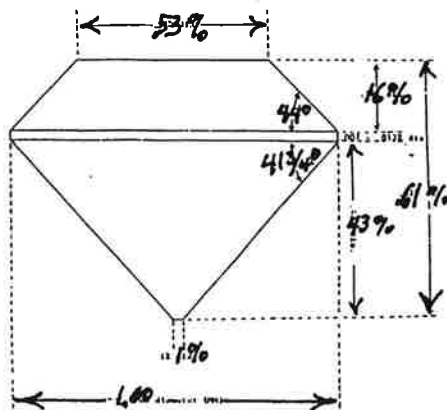
Lapidary hobbyists have finished very few diamonds. There are several reasons for this. First is the availability of rough material. Most of the world's diamonds are sold by a monopoly that makes parcels of stones available to cutting houses at sightings that are held only several times a year. The parcels are priced at several millions of dollars each and there is no high-grading. The buyer must buy either all or none. In many instances several cutting houses must act together as one to purchase a parcel of diamonds. This effectively eliminates Corner Lapidary Shoppe from the list of potential buyers.

On rare occasions, a piece of suitable rough



diamond might reach the hobbyist. The typical faceting unit that is used by the hobbyist or even a commercial colored stone lapidary won't begin to handle a diamond. A small hobby unit will have a 1/30 horsepower to 1/15 horsepower motor for power. The units used for diamonds have at least a one horsepower motor. The typical hobby unit will have a 6-inch or 8-inch lap whereas the units for diamond will have an 18-inch lap. The shaping and polishing of a diamond generates enough friction that a mechanical dop must be used, as dop waxes will melt when diamonds are being fashioned. Neutral oil such as olive oil is usually used to reduce friction in diamond finishing.

Proportions of the finished stone are important to produce the best result. The diagram below shows the ideal proportions for a diamond; these have been determined both experimentally and in practice. If the pavilion is too deep, the center of the stone will appear dark, and if it is too shallow, the stone will appear washed out.



A diamond appraiser will determine the weight of the properly proportioned stone that can be derived from a finished stone and use that as the weight of appraisal. The cost of refashioning the diamond to a properly proportioned stone is then deducted from the evaluation. This prevents the lapidary from inflating the price of the stone by inflating the weight.

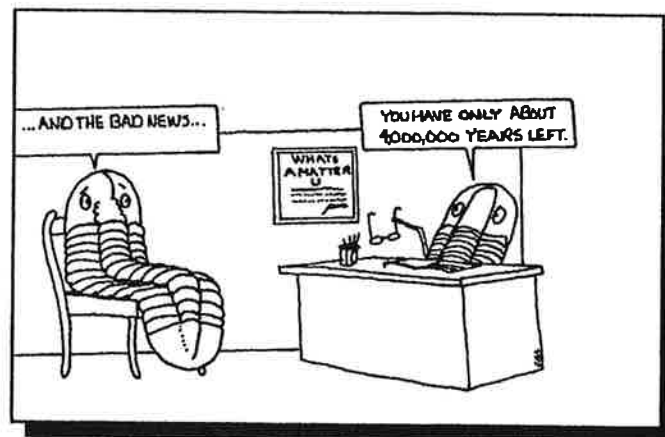
Diamonds are useful for several geological purposes. Petrologists have thought that the tiny inclusions in diamonds that are commonly called "carbon spots" (but rarely are) and include such minerals as pyrope, garnet, olivine and pyrrhotite, are tiny samples of the earth's mantle, that zone that

is about 30 miles beneath the earth's crust. Thus, inclusions in diamonds may provide some examples of the mantle's makeup. Some geologists have suggested that the distribution of diamonds between continents shows examples of spreading ocean basins and provides strong evidence for plate tectonics.

For further reading.

- Gubelin, E. J., 1974. *Internal World of Gemstones: Documents from Space and Time*. ABC Editions, Zurich, 234 p.
- Hurlbut, C., 1963. *Dana's Manual of Mineralogy*, 17<sup>th</sup> Ed., John Wiley & Sons, New York, 609 p.
- Schumann, W., 1977. *Gemstones of the World*. Sterling Publishing Company, New York, 256 p.
- Shipley, R.M., 1971. *Dictionary of Gems and Gemology*. Gemological Institute of America, Los Angeles, CA, 227 p.
- Willis, B., and Willis, R., 1934. *Geologic Structures*. McGraw-Hill Book Co., New York-London, 544 p.

*The Pick & Shovel* (April, 1999)



© 1999. Reprinted from *First Families, A Primitive View* by Steinrock, Conkin, & Conkin, with the permission of Hycliffe Publishing, PO Box 7434, Louisville, KY 40207-0434.

## What My Mother Never Told Me About Fire Agate

by David Kyle

Many of the pieces coming from Mexico have been windowed. A portion of the chalcedony cap has been ground down to show the fire layer, and rough polished. This is the type I would suggest for a beginner to start with if it is available.

Fire agate may be bright and highly reflective or it may be so dim it can only be seen under the 500 watt spotlight of the dealer's table. Step away from his light and see if you can still see the fire. Be careful not to step so far away that the security guard thinks you are shoplifting!

Fire agate's fire is extremely directional. Be sure to rotate a windowed agate through the 4 compass points before selecting it to insure no disappointment when you get home. A bragging piece will have fire that can be seen without a spotlight, will be visible when viewed from any of the points of the compass, and also will show up when viewed from directly overhead or from most any angle above its mounting.

If you are fortunate enough to find an agate that passes these tests and also glows with 2, 3, or 4 colors, be prepared to pay more for it. The above-mentioned tests are easy and fun to try at the dealer's table. Not only can you see the colors, but less total cutting is needed as part of the waste chalcedony has already been removed. Take it home.

Cut fire agate from the top down. Forget standard capping methods. Typically fire agate is composed of a layer of milky chalcedony overlying the layer with fire which lies over the matrix of country rock. In this state it is most unappetizing in appearance and not at all like the beautiful gem you would like to own!

Arrange a high intensity light to shine 4 to 6 inches away from your cutting wheel and start cutting the chalcedony from around the edges of the exposed fire in the window area. (Coarse wheel for rough cut, fine wheel for close work, 300 grit rubber wheel last.) Take plenty of time and check your gem after each light cut. After all the fire layer is exposed and all possible milky chalcedony and other clutter has been removed, you will be able to see what you really bought and whether it is a pin head or a beautiful 50 cent-piece-sized keeper!

Put a little cutting oil on the top for good visibility and stick the agate, matrix side down, in a little lump of the kids' modeling clay. Place this under your high intensity lamp and view it from directly overhead to center the fire at the perpendicular (right angles to your table top). Now rotate the clay and agate lump to insure

best fire visibility from the sides too. Next, rotate the clay and the agate against a felt marker pen to mark the plane you will follow with your trim saw cut to separate your agate from the chunk of junk it is sitting on. If the clay is rotated on the table while the pen is held in a fixed position you will mark a straight line around the agate. Separate the two. Be sure the agate sides are firmly on the table without tipping. Feed carefully.

Suddenly you may find that that big fire agate you brought home is now small enough for your wife's pinky finger ring - not at all the bola-sized piece you had imagined. Oh, well. Smooth the back on the side of your grinding wheel. Be sure to keep it moist so it doesn't get hot and split at this stage of the game. Your wife's turkey baster syringe works well for this. Now shape the sides of the agate and give a light touch of the wheel to the bottom edge of the cab to remove the sharp edge that might chip.

The fire agate may now be ready to mount on a dop stick for final sanding and polishing if it has the conventional cabochon shape. I normally use a Blake polisher through the first 4 stages and then polish with cerium oxide on a flat disk. About 1 good agate in 5 seems to have convex fire and will finish in this method.

Many of the most interesting stones fail to have this regular shape and have to be left with the dealer unless other methods can be used to bring out their true beauty. Carving tools might be the answer.

Some concave surfaces can be worked with a standard 6" carbide wheel. Even more can be done when the wheel is mostly gone, worn-out. Many irregular shapes can be ground. Sanding and polishing is more difficult. For this situation a standard tumbler with 600 grit has done well for the sanding operation, filled about 75-80 % full of small tumbled chips of agate, flint, jasper or other stones of about 7 on the hardness scale. Burr the bottom edge of the cabs of fire agate and slip them into the tumbler for 5 to 7 days. Polish as suggested before - the edge of the felt polish disk will reach most of the irregular spots that you have. Be sure it is centered so you do not hit the stone with the edge of the mounting disk.

So far I have had very little chipping or tumbler damage and many of the most striking gems would have been impossible without it. This method does have limits. Much of the Arizona fire agate resembles a mountain range and would challenge the owner of the gem carving tool.