



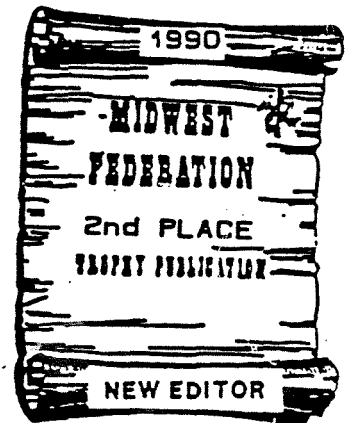
PICK & SHOVEL

INSIDE THIS ISSUE - - -

Surface Finishes

Diamond Sawing

Tumbling Tips



Volume 31 Number 3
November/December, 1990

Lincoln Gem and Mineral Club, Inc.

P. O. Box 5342

Lincoln, Nebraska 68505

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To be announced.
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1991 Show: Gerald Moore

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PROGRAM CHANGE: Title of the November program will be How to start a Mineral Collection. It will be given by Ed Pedersen. Because of this change in program, members are urged to bring along mineral and crystal specimens for display. Cases will be furnished.



CALENDAR OF EVENTS

NOVEMBER MEETING: Saturday, November 17, 7:30 PM
 Nebraska Center for Continuing Education
 33rd and Holdrege Streets

PROGRAM: **GLACIERS**, From Midwest Federation
 Program Library. Should be of interest
 to all who like to collect from glacial
 deposits in eastern Nebraska.

JUNIOR MEETING: Time and place to be announced by
 Janet Wright. It will not be held at
 the regular meeting.

COMING EVENTS: **ANNUAL SWAP**, January 1991
 Nebraska Center for Continuing Education
 33rd and Holdrege, Noon to 6:00 P.M.
 Special Junior Activities
 General Meeting at 7:30 P.M.

GEOLOGY DAY: Pioneers' Prairie
 Interpretive Center, Pioneers' Park,
 Sunday, February 17, 1:00 P.M.-4:00 P.M.

SHOW: Greater Kansas City Show
 Trade Mart, March 8-19, 1991

SHOW: Lincoln Gem and Mineral Club
 33rd Annual Show
 Pershing Auditorium, March 16, 17

REGIONAL SHOWS:

1991

San Jose, CA June 14-15-16	Tampa, FL Sept. 19-22	South Bend, IN Aug.30-Sept.1	Seattle, WA July 26-28	Salt Lake, UT June 14-16	Lubbock, TX June 7-9
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FUTURE MEETING DATES, PLACES: January 26, 1991, NCCE

DISPLAY MATERIALS Bring items that relate to November (Topaz,
 Citrine), field trip finds or whatever you like.
 Cases will be furnished.

PRESIDENT'S MESSAGE**WHAT I DID ON VACATION:**

A year ago, one of our nieces told us that she would be married in Illinois on October 6, 1990. Because of the length of the trip, we decided to take a week of vacation, which was dutifully reported to wife's employer last January. As fate would have it, the niece decided not to marry and we were left with a week to fill with vacation time. WE decided to visit a favorite aunt and uncle who reside in Arkansas and whom we would have seen at the wedding.

Fairfield Bay on Greers Ferry Lake was to be our center of operations with side trips to Eureka Springs to view historic Victorian homes; Mt. Ida to prospect for quartz crystals; Murfreesboro for the prospect of diamonds; and Horseshoe Bend to visit the relatives.

The first leg of the trip, we refused the trolley rides and walked Eureka Springs to better view the magnificent homes. Most everywhere we walked it was vertical and wet. We drank from every natural spring that we saw. I am still waiting for the promised (or imagined) cure. Eureka Springs is highly recommended to all.

Our only rock find was rather unusual. We popped into an art and jewelry shop that looked as if it had been created in Rod Serling's Twilight Zone. The proprietor was a middle aged woman who wore a gray cloak and whose head was shaved bald. The art work was futuristic and of a fantasy motif with scantily-clad heroic men and women dressed in leather loincloths, gauntlets, and high leggings. Frequently they were shown restraining fierce looking dogs or panthers. The jewelry was primarily various forms of quartz crystals which were faced and polished and sold for the equivalent of hundreds or thousands of dollars per pound.

During first four days of the trip it rained, flooded, and was miserably cold. Our Trip to Fairfield Bay was during an intense downpour. We thought that Route 65 was in fact the Buffalo River. There were floods throughout the state with the tops of cars barely visible above the raging torrents. Some areas of Arkansas received 12 inches of rain in 24 hours. Where we were 75 miles north of Little Rock, the temperature reached a record low 36 degrees. In short, the weather was so bad that we never did get to Mt. Ida or Murfreesboro. We did get to drive through Evening Shade, Arkansas, however, the location of Burt Reynold's new television show of the same name.

I played nine soggy holes of golf on Monday before having the last nine holes rained out. I finished that golf round on our last day, Thursday. One of the only benefits of all the rain was the tremendous crop of mushrooms which sprung up everywhere.

Aside from our lovely visit with my relatives and the beautiful panoramic vistas seen from the car, the productive part of the trip could be summed up quite simply: 1,900 miles was put on our car to play 18 holes of gold and see some overpriced quartz. We will return to this land of trees, water, and bluffs of limestone, shale, and coal under more favorable conditions. We visited the Topeka gem show on the return trip which we will report on next time.

FRED B. HOLBERT

SURFACE FINISH ON TRANSPARENT AND TRANSLUCENT STONES

By David Heffelbower

Have you ever admired the color and pattern of an opal or agate when displayed in water and been disappointed with the results after cutting? If you have, then welcome to the club! To further your understanding of a solution to this problem, it is necessary to explain the nature of the cutting and polishing process.

Despite the language stones are never cut; rather the crystal lattice of the stone is shattered by blows from the grinding medium. Pressures can become so great at the point of impact that the diamond crystals used for cutting are themselves crushed. This requires pressures exceeding the strength of the carbon molecular bond; more than 600,000 pounds per square inch. That odor you notice when using a silicon carbide wheel is acetylene gas generated by the destruction of the carbide crystals. Stones which are softer are broken or crushed by stones that are harder. This process leaves a rough surface of broken crystal faces and a lattice or veil of fractures reaching deep into the stone. Of course the more force used, the deeper the damage. In extreme cases and with fragile materials the fractures may extend all the way through and the stone is broken. Figure 1. illustrates the situation.

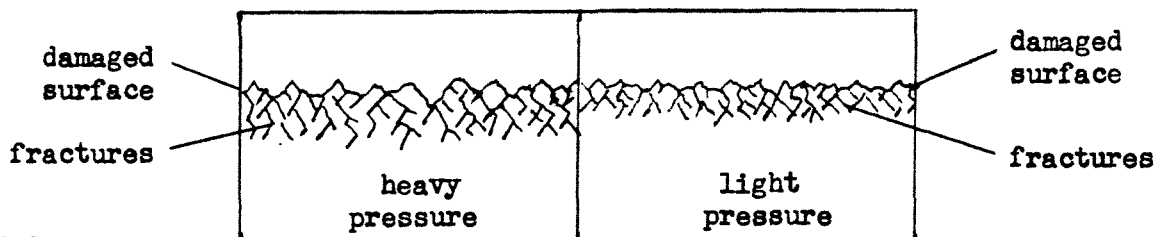


FIGURE 1.

Logic and experience teaches us that with the use of finer and finer grit sizes reduces the surface damage until it is no longer visible to the naked eye. This produces a good polish but little else; the interior of the stone still being dim and indistinct. Figure 2. shows the condition of the finished stone at this point.

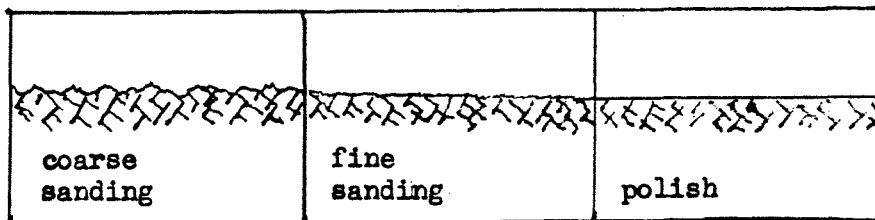


FIGURE 2.

There does however remain one very important problem; those deep fractures. These fractures allow a shiny surface, but veil the interior of the stone by refracting and reflecting any light that penetrates the surface. To obtain a suitable view into the stone, it is necessary to remove the fractures as well as the surface scratches. Figure 3. illustrates the procedure.

The catch to all of this is that you have no way of knowing how deep these fractures go. You can of course use as little pressure as possible when grinding and sanding, but this is only helpful to a degree. Here is where practice and experience are the solution. The author sands with each grit size until no further improvement can be noticed. This is considerably longer than it takes to remove just the scratches. As an aid all grinding, sanding and polishing is done under magnification. A word of caution, be very careful when using any magnifying aid; your depth perception and peripheral vision is limited and you can lose a lot of skin!! An optivisor with $2\frac{1}{2} \times$ magnification is about the minimum.

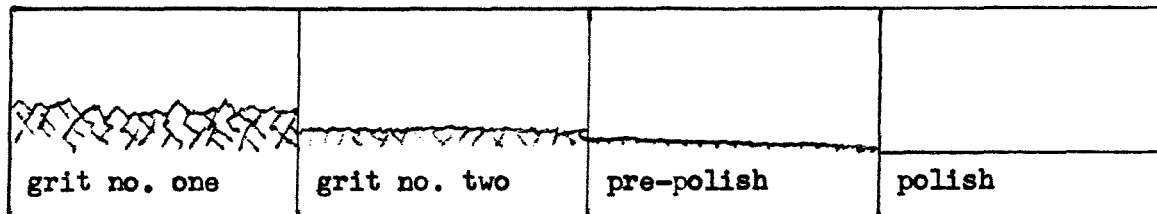


FIGURE 3.

Most lapidaries now use diamond grits in at least three and frequently four or five grades. Then they may polish with almost any suitable compound to achieve a brilliant polish. When successful, any light striking the stone at less than the critical angle will penetrate the surface to illuminate the colors and patterns inside. The ultimate test is to immerse the finished stone in a container of water. If the stone looks as good when dry as it does when wet, you have been successful. Good luck smashing stones!



Christmas at The Center

LG MC Christmas Dinner

Dec. 1, 1990 6:30 PM tickets \$11 each

Place: The Nebraska Center 33rd &
Holdrege St.

Boneless Chicken breast
green beans, baked potatoe

Crossed salad, strawberry short cake

The pleasure of your company is requested

tickets will be for sale at the Nov. 17th

meeting. make it your beginning

for a long remembered merry

Christmas!

OMAHA SHOW REPORT

Nebraska Mineral and Gem Club of Omaha held its Annual Show Saturday and Sunday, October 6 and 7, at the Holiday Inn at 72nd and Grover. Because of a family reunion that weekend, I got to spend little time at their show, but it was the usual quality event that we enjoy. LG & MC members seen there included Michael Smith (the real one) who exhibited a large fossil fish; Charles Wooldridge; David and Billie Heffelbower; Marie, Jim and Susan Taylor; Andy, Barbara, and Julian Zarins, and Roger Pabian. RKP

TOPEKA SHOW REPORT

The annual Topeka Gem and Mineral Show was at the Kansas Expocenter on October 13 and 14. Among LG & MC attendees were Roger Pabian, Fred Holbert, Dave and Billie Heffelbower, David Bilyeu, and John Harrison and Jim Marburger as dealers. Roger Pabian presented a lecture there on agate inclusions and history and also judged fossil exhibits. There were many nice displays including minerals by Glen and Sue Nichols and Betty White and several lapidary cases by Bill White. Dealers had some nice wares too. All in all, a nice show that was enjoyed by all. RKP

GRAND ISLAND SHOW

AGATES were the theme of the 1990 show sponsored by Grand Island Earth Science Society, Fonner Park, October 20 and 21, and there were many nice cases of these gems to celebrate the occasion. Lincoln visitors to the show included yours truly, who also gave the evening program on Moctezuma Agates from northern Mexico, Dave and Billie Heffelbower, Eddie Ridge, Claude Scott, Francis Belohlavy, Fred Holbert, and Jim Marburger and John Harrison as dealers. As usual, there were many nice working demonstrations at this show, including cutting, polishing, fossil preparation, casting, and silver smithing. +

AT THE PLANETARIUM

A DINOSAUR'S TALE showing at Mueller Planetarium in Morrill Hall explores the world and cosmos of ancient times in an exciting and educational multi-media presentation. The show, which runs through November 25, can be seen Saturdays and Sundays at 2:00 P.M. (Shows are not presented on UN-L home football Saturdays). Admission is \$2.50 for adults and \$1.50 for students and children. Tickets are sold in the museum gift shop the day of the show. +++

FROM THE STATE MUSEUM

FOSSIL ELEPHANT TEETH IN NEBRASKA is the subject of "Museum Notes" Number 77, October, 1990, by Mike Voorhies. This publication contains a lot of good, general information on fossil elephants and some guides to separating mammoth and mastodon teeth. It folds out to a nice poster of fossil elephants and elephant teeth printed on the back side. +++

THE DIAMOND SAW

...a most useful tool

By Bill White

A diamond saw is a relatively simple machine that has the capacity to open new worlds in even the most modest lapidary shop. Generally, we use our diamond saws for slabbing or halving nodules of agate, halving geodes, or for trimming. Without slab saws, there would be far less material for cabochon making. Slabbing and trimming, however, are only a small part of the utility value of a diamond saw. Let's look at a few other ways to use it.

We will start out with the blank for a large cabochon. Keep in mind that the same techniques can be applied to spheres, carvings, etc. Try removing excess material from the blank with the diamond saw; it will prove to be much faster, and cheaper, than doing it with a grinding wheel. And with a diamond saw, you can attack nooks and crannies in the rock that are way too small to allow a grinder into them. The diamond saw can remove unwanted surface rind from agate or jade in just seconds or minutes what it might take a grinder hours to do. If you can reduce the labor in a large, oval cabochon, you are ready to generate other, more curvaceous forms.

You can control the stone freehand, but you must be careful not to let the saw grab it. When you start your saw blade consumption will increase, but as you practice and develop a light touch, you will reduce wear and tear on blades. Ten inch or smaller trim saw blades are much less expensive than silicon carbide or diamond grinding wheels. Try taking small bites with the saw and allow the blade to turn free without binding or slowing down. You will use more saw blades, however.

My favorite sawing jobs include recovering (recycling) some of the very fine material that has been culled as undesirable "butt-cuts" or strange shaped pieces that can not easily be clamped into a vise. Try nipping the end of the latter kinds of pieces and gluing them on a wood block so that they can be prepared to fit into a vise. A rock-grasper or nubbin-nabber also works well. After you develop confidence, you can hand-hold the rock. Some of the most exquisite cabochons and stones I have cut are from other peoples rejected material.

The chaotic mumbo-jumbo around the periphery of an agate can produce every kind of imaginable swirling pattern and an endless spectrum of colors. Try extending the use of your saw in ways that seem unorthodox; the results will produce outstanding cabochons.

Diamond sawing is an oil-cooled, abrasive process which requires some time. Any attempt to shorten the time factor by forcing the rock through and binding up or slowing the blade will cause undue wear and damage to the blade. Use plenty of cutting oil and keep it clean; this will extend blade life.

Lighting is important to the cutting process. Use two high-intensity lights, one from each direction, to minimize shadows. For safety's sake, wear goggles and a mask to avoid inhaling the vapors from the saw's oil coolant.

The lapidary is not a prisoner of the cabochon; a little imagination will change the world of the mundane into the world of the spectacular. You can create shapes of lasting beauty and use your trim saw to give them their form. Good luck with your creations. Give it a try.

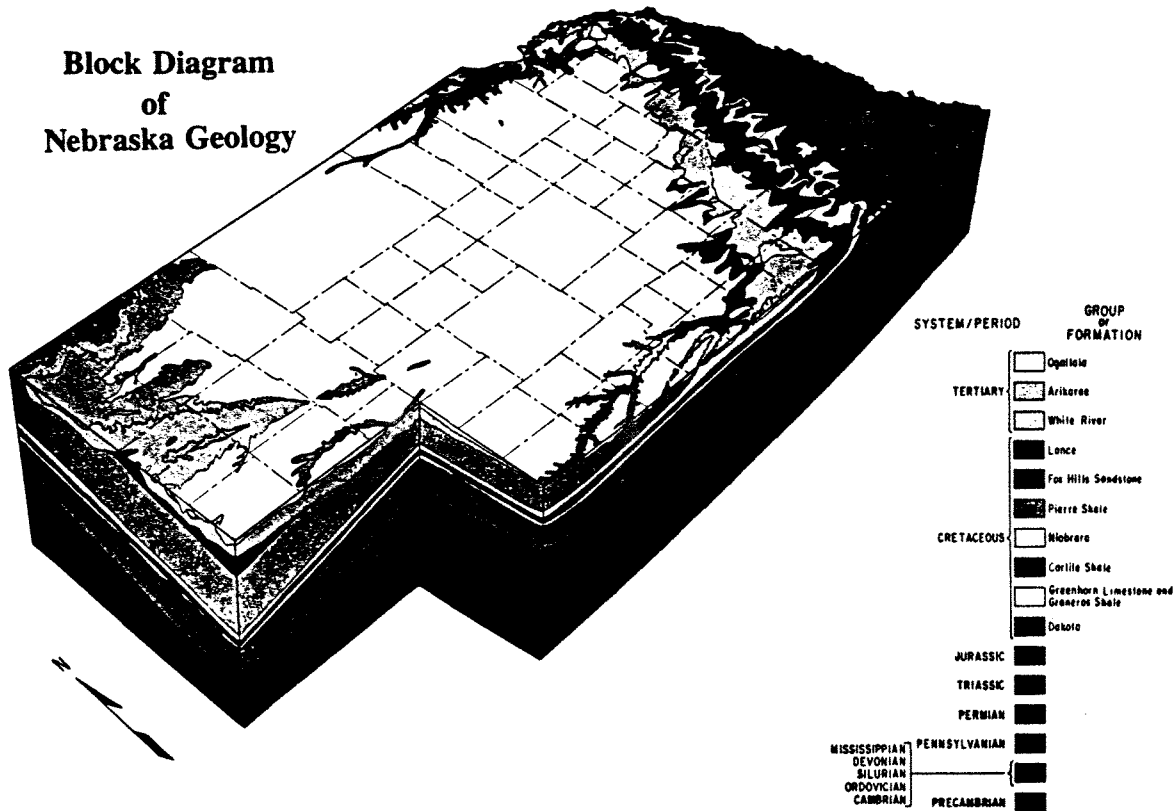
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NEW AT CONSERVATION AND SURVEY

... for POSTCARD BUFFS

A new postcard showing a block diagram of Nebraska's geology has been recently published. It is in full color and has been available free in single copies at Conservation and Survey Division booths at local gem and mineral shows. See the copy below.

**Block Diagram
of
Nebraska Geology**



RESOURCE NOTES

RESOURCE NOTES, the annual report of Conservation and Survey Division is available free, upon request. Conservation and Survey Division, IANR, The University of Nebraska-Lincoln, 113 Nebraska Hall, Lincoln, NE 68588-0517

AN ATLAS OF THE SANDHILLS,

Edited by Ann Bleed and Charles Flowerday, is again available, in an expanded edition, after being out of print for about a year. Hard cover, \$20.00 plus tax, plus \$2.50 postage and handling. Soft cover, \$15.00 plus tax, plus \$1.60 postage and handling. Order from above address. Very worthwhile volume that describes the geology, hydrology, ecology, birds, fish, plants, and archeology of this fascinating area of Nebraska.

QUARTZ STUDY GROUP

By Charles Wooldridge

The monthly meeting of the LG & MC quartz study group was held Monday, October 8, 1990, in room 115, Nebraska Hall. Attending were Dwight and Dorothy Miller, David and Billie Heffelbower, Don Phillips, Phyllis Parks, myself, and, of course, Roger Pabian. Mr. and Mrs. Miller brought some materials they found recently on a trip to Wyoming. Of particular interest were examples of silicified algal stromatolites and wood-grained cherts.

Stromatolites, we learned, are algae that grow in large clumps or heads along coastlines such as the modern east coast of Australia near the Great Barrier Reef. The fossilized material resembles large cabbage heads. Some stromatolites are found near Salem in Richardson County, Nebraska, and they may be up to 3 feet high and ten feet in diameter. A similar material is the agatized "Mary Ellen Jasper" that occurs in the iron mining areas of Minnesota.

Wood-grained chert is an interesting material that closely resembles petrified wood. The wood-grain is caused by the presence of dolomite, a calcium-magnesium carbonate. The pseudo wood-grain forms as the silica in the chert isolated the dolomite in a process that is similar to the formation of bands in agates.

David Heffelbower brought some specimens that he is loaning to the nomadic display that is being prepared at the Asian Culture Center in Morrill hall. The display is to provide examples of both rough and cut gems used by the Eurasian nomadic peoples and includes rose quartz, malachite, tigers eye (crocidolite needles surrounded by clear quartz), rhodonite, and turquoise.

The bulk of the meeting was devoted to discussing lapidary techniques as they apply to quartz family gems. Two primary tenets were expressed by Roger: First, there is an order to agate that is complicated yet predictable. Second, you have to decide what you want to do with the stone, make your plan, and achieve a predetermined outcome for your lapidary project. The myth that you never know what you are going to get when you cut an agate was quickly dispelled by Roger as he introduced specific techniques for utilizing the attributes for a specific agate.

One way of getting a clearer picture of what is inside an agate is by looking at the imprint of the escape tubes with a loupe or magnifying lens. Since the escape tube represents a surficial microscopic cross section of the pattern inside the agate, magnification can show you what is inside the agate. It is sort of like looking into one of those peep-holes in a motel room door that allows you to see the entire hallway. (The escape tube will have an irregular cross section compared to surface eyes. Ed.)

Another way of assessing an agate is looking for fractures. By orienting the stone so that stress fractures run parallel to the cut rather than perpendicular to it, a much better slab can be obtained. To aid in orienting material to be cut, the agate should be glued to a piece of wood. Using white glue and scraps of wood, the agate can be oriented by also using pebbles to hold the stone in proper position so that when the agate is cut, the slabs will possess the qualities that you sought. Allow the glue one week to dry.

When trying to cut plume agate slabs, remember that the plumes lie parallel to the long axis of the nodule. Knowing this, you should be able to cut the agate lengthwise to get longer, fuller plumes.

Iris agates produce a phenomenon that can be greatly enhanced or ruined by the cutter's techniques. The rainbow that appears when looking through an iris agate toward a broad-spectrum incandescent light source is not as uncommon as many believe. In Roger's experience, 5 to 10 percent of all agates "iris". Ten to twenty thousand bands per inch are usually required to get the rainbow effect. Knowing this, you can cut an agate in ways that tend to "tighten-up" the number of bands per inch, increasing the probability of finding iris. This is generally accomplished by cutting perpendicular to the grain of the agate. Thinner slabs of agate tend to show iris better than thicker slabs. Although colored agates will show iris, the rainbow will tend to blend with the colors of the agate and not produce a full spectrum as seen in the colorless agates.

There is another situation in which agates display the iris effect. These agates tend to be "buttery" when cut; they are the normal hardness of 7 but not as tough as other agates. Usually these agates have 24 to 70 bands per inch and this material tends to produce spectacular rainbows even when sliced fairly thick (up to 1/8 in. or more). This may be caused by microscopic, hexagonal prisms, a structure that is probably very rare in nature. The effect is that many little prisms compose the bands of the agate. This is an area ripe for further research.

The cause of dendritic structures in agates has long been a mystery to lapidaries. Why do these pyrolusite aggregates form such well-defined trees rather than blotches? Roger suggests that dendrites are a fractal phenomenon. Scientists, particular mathematicians, have been studying what they call "Chaos". Much of Chaos includes the study of self-organizing structures that develop repeating patterns. In dendritic formation, colloidal sized manganese oxide particles are subjected to Brownian Motion, that is, movement in a random fashion...excuse me...I guess I just lost my self...Well, this is all very interesting and intriguing, but getting back to lapidary techniques. Because these dendrites tend to be virtually two-dimensional, it is important to cut parallel to the planes in which they form or you will only get bits and pieces of dendrites as a final result.

To capsule this study session, remember: "It's not the luck of the draw---there is a lot you can do to control the outcome of any lapidary process, even cutting agates." Thank you, Roger. Wooly. +++

GEOLOGY DAY, 1991

The fourth annual GEOLOGY DAY will be Sunday, February 17, 1991, from 1:00 P.M. to 4:00 P.M. at the new Pioneers' Prairie Interpretive Center at Pioneers' Park. We will need both displays and demonstrations for this event and hope to present examples of gems, minerals, and fossils as well as some lapidary and metal working demonstrations. This event has been a precursor to the annual show for several years now and it gives the club a chance to meet the public and contact parties with common interests. Charles (Wooldridge) in Charge. +++

BOOK REVIEW

By Roger K. Pabian

JET, by Helen Muller. Butterworth's Gem Books, \$29.95

That Butterworth's Gem Books are an excellent series is further attested to by Ms. Muller's sprightly little tome that will quickly dispel the notion that jet is a glossy black stone that was used only for mourning jewelry in the Victorian Era.

We get a brief description of what jet is and this is accompanied by some documentation such as chemical analyses and X-ray emission spectra for a couple of different kinds of jet. A couple of quick tests for jet also are given here, and there is a short section on the etymology of the word.

I especially enjoyed the section dealing with the geology and mining techniques used to recover this stone. It seems that beachcombing methods sufficed until about 1840, when jet came into popularity. Very hazardous mines operated in the cliffs along the south coast of England and many miners lost their lives recovering jet until inland sources were discovered in about 1860. Jet occurs in marine limestones of the Liassic Stage of the Early Jurassic Period and the ammonite Harporceras exeratum which occurs in jet confirms its age.

Prehistoric use of jet in France and Germany are shown to go back to about the Mesolithic and Neolithic Periods, about 2700 BC, but none of the similar age sites in Yorkshire have produced jet artifacts. Somewhere between 2500 BC and 2000 BC, early settlers in Scotland had made intricate necklaces as well as buttons, beads, and food vessels from jet and these artifacts have been recovered in Scotland.

Roman conquest of Britain played an important part in the history of jet and their artisans made extremely detailed medallions as well as beads, bracelets, arm bands, rings, hair pins, and other ornaments from it.

Viking usage of jet is documented by such items as early Christian crosses of different designs and such items as the spirally coiled snake and the gripping bears. These artifacts were found in Norway, suggesting that trade routes had been established by these early sailors.

We find out that the Whitby jet industry developed in the middle 19th Century and Ms. Muller refers the reader to Bram Stoker's classic horror story Dracula for a description of the area. Whitby, itself, appears to have been a rather bleak settlement with the ruins of a 13th Century cathedral to view; the town had been devastated by landslides several times in its past, and the climate was cold and harsh. These hardships did not seem to hinder the development of an artistic and crafts oriented center in the area. Numerous photographs illustrate the workmanship of these artists and the details on medallions, cameos, and religious symbols is outstanding. Many of the photographs are without scale and this distracts from the whole story. Pictures of jet jewelry of the age being worn by various personages adds some sense of scale and some sense of social position of the wearer.

Some of the plates are in color and the painted miniatures are absolutely exquisite. There is also a "reverse scrimshaw" where etchings on the jet are stained white. The skill, imagination, and craftsmanship of these artists is outstanding.

All in all, Jet is a very good little volume that will fill a void in many readers gemological knowledge.

TUMBLING NOTES

By Charles Wooldridge

Following is a tip or two that I learned from Bill Meyers of Meyers Rapid Polish. When you are tumbling agates, use Indian tumbling garnets as a medium. As the garnets are ground down by the silicon carbide grit, the small pieces of garnet that are removed become emery, as in emery paper. These add further to the grinding action on the agates. The garnets can be used for several times for each step, similar to the other tumbler media you use such as plastic pellets or ceramic cubes. Tumbling garnets are relatively inexpensive, \$3 to \$4 per pound, and when they are finished, they make sparkling little gems themselves. Bill usus about 2 1/2 pounds of garnet per 12 pound tumbler load.

Anotdher tip: During the tumbling process, shake the tumbler barrel and then open and pour off some of the water. This will get rid of the rock dust as the grit quickly settles to the bottom of the barrel and is not lost. Replace the lost water and continue tumbling. Eliminating this dust helps remove the fine particles and improves the grinding ability of your slurry.

DUES ARE DUE !!! Dues can be paid after November 1st each year and should be paid before January 1, 1991. They become delinquent January 31, 1991 after which a reinstatement fee of \$5.00 will be collected.

Dues are \$10.00 per adult member, \$2.00 per junior age 12 to 16. Family membership is \$22.00 for 2 adults and all juniors under the age of 16 living at home. Checks may be sent to LGMC P.Box 5342, Lincoln, NE 68505, attention of the treasurer or paid at the November meeting or at the Christmas Party. If you wish to be on the mailing list for the Gem Palette please add \$2.00 to your total.

OTHERS WRITE

OSAGE HILLS GEMS

APRIL - 1990

ANDALUSITE

by Charles A. Stratton

Andalusite is one of three minerals which have the same chemical composition, Al_2SiO_5 , but have different crystal form. Andalusite is orthorhombic, with a hardness of 7 to 7 1/2 and an imperfect cleavage. Sillimanite is orthorhombic, with hardness of 6 to 7 and one easy cleavage. Kyanite is triclinic, with hardness of 4 to 5 and 7, one imperfect cleavage and one perfect. All three are occasionally found as small, transparent specimens of gem quality.

Andalusite was first found in Andalusia, the northeastern region of Spain. The occurrences there were not of gem quality, and only after its discovery in Sri Lanka (Ceylon) and Brazil was it recognized as a gemstone. Its popularity as a gem is inhibited by its lack of strong color tones. On the other hand, delicate shades of color have been accepted with a positive attitude for aquamarine, natural blue topaz, and Rose de France amethyst. So, the esthetic appeal of andalusite is largely personal, and there is a great opportunity for the amateur to use all his skills to achieve the maximum beauty for this material. Indeed, the jewelry industry regards andalusite as a gem more suited to the serious gem collector and the skilled hobbyist than to the general jewelry trade.

Andalusite is particularly noted for its strong dichromism. This is so prominent that two colors can be seen without the use of a dichroscope. When a properly colored material has been well cut, the effect is often reminiscent of the appearance of alexandrite. There is the difference, however, that the colors seen are not dependent upon the light by which they are viewed but by the orientation of the specimen.

Usual colors for andalusite are slightly brownish green to brownish red; these give the dichroic effect of slightly brownish green and brownish red. Sometimes the color is almost a pure green; in this case there is little dichromism. The gem is rarely brown, pink or violet. The dichroic colors of the violet form are brownish green and dark red to purple.

The crystal form of andalusite is usually that of a rectangular prism. With the usual color of material, the red color will predominate when it is viewed on end (down the c-axis). When seen from the side, green predominates. So the cutter who wants the gem to look red but give flashes of green when turned side-to-side will cut with the table parallel to the end of the prism (perpendicular to the c-axis). Similarly, a stone cut with table parallel to the sides (and the c-axis) will be green with flashes of red.

This simple picture only applies when a rectangular step-cut is used. With a round cut, two colors are always seen. This effect is offensive to some but intriguing to others. I prefer to be intrigued by the idea. It is suggestive of the unusual and beautiful effects being achieved with ametrine and multicolor tourmaline.

It is said that andalusite can be cut and polished just like quartz, with no particular difficulties. Very few offerings of rough are seen. There are apparently none in the March Lapidary Journal. There is one ad for "man made andalusite color crystals". Don't buy it. It might not be synthetic andalusite. From the wording, I would deduce that it is not. I have heard that Ramsey's Rough House has a recent flyer, sent to clubs, offering natural andalusite rough. This would bear investigating.

< < < < * * * * > > > >

>>> Ate out last night - turned out the 'catch of the day' was the waiter.

NEWSLETTER

Published Monthly
Except
June, July, August

October 1990 - Issue 299

Judith Washburn, Ed.
107 Deer Creek Rd.
Rochester, IL 62563

PRESIDENT'S MESSAGE.....

Dear Fellow Rockhounds,

At least two important matters will come before the Executive Committee at its fall meeting.

We appreciate the many thoughtful responses to the O.P. Update matter. Clearly, the update and some revisions are sorely needed. The Committee can do the update (revisions which have already been approved); the MWF Bylaws provide that revisions must be approved by two-thirds vote of the Executive Committee. (See Article VIII, Section 2.b).

Harold McClure will have a report from the State Directors about their clubs' opinions on the percent a club (or group of clubs) receives for hosting a Convention/Show. (Article VI, Section 7.b). If *this* is changed, it must be done by amending the Bylaws (Article IX, Section 1).

The complete MWF Bylaws are printed in the back of the Official 1990-1991 Directory.

As this is my last President's Message, I want to thank all the members of "my" TEAM for their part in making this a productive year. This includes the other officers; the State Directors and their assistants; Permanent Committee Chairpersons and members of their committees; Special Committee heads and their assistants; and down to the local club presidents and their boards. When you boil it all down, the MEMBERS of the MWF are the team, and TEAMWORK has made good things happen this year. I encourage you all to keep up the good work and to support the new officers as they begin their year.

Sincerely yours,

Glen R. Hanning, President



VOTE FOR NEW FOSSIL
REGULATIONS



PRESIDENT
Mr. Glen R. Hanning
Route 1
Hanauville, IL 62344
217-667-2285

1st VICE PRESIDENT
Mrs. Margaret Heinek
709 E. East Park Lane
New Carlisle, IN 46352
219-654-3673

2nd VICE PRESIDENT
Mr. Harold McClure
3233 Zephyr Dr.
Dayton, OH 45414
513-274-4684

SECRETARY
Miss Jean Reynolds
107 Turtle Ave.
Clarendon Hills, IL 60514
312-323-1682

TREASURER
Mrs. Kitty Startuck
7636 V. Avenue E.
Vicksburg, MI 49097
616-649-1991



Editor's Note

Well, the new fall season is in full swing and I know that all of you editors are extremely busy. You are the backbone of your local club - without you no one would know what was going on! That's an awesome responsibility. To ease that burden a bit, make sure you are taking advantage of all the resources that are available to you. If you do not have a copy of the *AFMS Guidelines for Bulletin Editors*, compiled by Mrs. Kay Jensen, be sure to order a copy from our Supplies Chairperson, Gordon Boone. There is a great deal of helpful information in that booklet.

If you are struggling with trying to make your bulletin/newsletter a better communication tool - to make it generally more appealing - I have another booklet to suggest that you will find helpful. *The Manual of Graphic Techniques 3* by Tom Porter and Sue Goodman, published by Charles Scribner's Sons, New York, is a source of great information. It deals with lettering design, layout methods, the combination of words and pictures in the format, and the basic principles of graphic reproduction and typography.

The authors of this booklet approach everything simply and in logical order. There are many illustrations that take you step-by-step through the processes they describe. While they go beyond what you will need to successfully put together a club newsletter, the basics are covered thoroughly.

I want to take this opportunity to welcome Colleen Kugler on board as our new Bulletin Aids Committee Chairperson. It will be fun working together with her. For those of you who may be confused, Colleen will be handling the Bulletin Editors' Contest, I put together this newsletter that you are reading. We're both here to help any of you who have questions about handling your local publications.

FROM YOUR BULLETIN AIDS
CHAIRPERSON

I would like to thank Margaret Heinek for the opportunity to be your Bulletin Aids Chairperson. It is an honor to follow Kathy Miller in this position. In the coming year, I hope that you will add my name to your mailing list. I will enjoy hearing from each of you.

I would like to get all Midwest Federation editors and authors involved in the Bulletin Editors' Contest for 1991. In the coming months, I hope that many of you will take advantage of this Federation function.

In the MWF Newsletter - November issue - you will be receiving the Bulletin Contest Rules, required bulletin, and deadline date. Also, under separate mailing in November, the 5 New Updated Score Sheets for 1991 will be sent to all MWF editors. Discard any old score sheets and be sure to use the new updated score sheets. (The new score sheets were distributed at the Editors' Breakfast at the MWF Show in Evansville.) If you have not received your score sheets by the first week in December, please let me know immediately and I will see that you get them.

Program News -



NEW VIDEOS AVAILABLE

Two VHS VIDEO presentations have been added to the Library. They are professional programs prepared by the Illinois Department of Transportation and come to us courtesy of John Washburn, MWF Archaeology Chairperson.

V5. THE BIG PICTURE: Strategies for Highway Salvage
Archaeology
by Illinois Department of Transportation

An excellent overview of modern salvage archaeological techniques and the vast quantities of data generated at numerous sites along the route of I-270 in Illinois. Thorough examination using the latest techniques has provided a full perspective of the prehistoric cultures that populated that area.

Best for an Intermediate to Advanced audience. 30 minutes

V6. THE UNWRITTEN RECORD
by Illinois Department of Transportation

Various types of evidence found in burial mounds in west central Illinois, excavated as part of a highway building project, has been analyzed to learn more about the native societies which lived in that area for thousands of years.

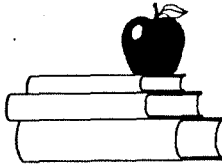
Suitable for Beginner to Advanced audiences. 28 minutes

INFORMATION REGARDING HOW TO BORROW these and any other programs in the MWF Library is available in the 1990 MWF Directory, pages W-7 to W-10 or in the *Program Planner's Manual*. Or contact Marge Collins, 3490 S. Hannan, Canton, MI 48188, (313) 722-6043, if these sources are not available. NOTE: Separate \$15.00 Deposit required for videos.

-Marge Collins
MWF Program Library Chairperson

The Bulletin Aids Committee and I are here to help YOU - the Midwest Federation Bulletin Editors.

Your Bulletin Aids Committee,
Colleen Kugler, BAC
Lyle Kugler, Assistant
Jo Ann Good, Assistant



Education Through Sharing

HONORS AWARDS

DEADLINE FOR APPLICATION - March 1, 1991

SEND TO - Carol Anderson, Chairperson
918 13th Avenue
Green Bay, WI 54204
(414)497-7867

Judges will use the same scoring sheet as the American Federation.

I. SHARING IN YOUR COMMUNITY 50 Points

- Talks, lectures at schools, senior centers, etc.
- Displays at schools, libraries
- Teaching lapidary, mineralogy, etc. (group or one on one)
- Demonstrations in community
- Giving or loaning specimens, time, or equipment to schools, museums, etc.
- TV, radio, newspaper publicity
- Showing concern in legislation as it pertains to earth sciences or to rockhounding
- Leading or participating in study groups
- Other _____

II. SHARING WITH OTHER GEM & MINERAL CLUBS

- 25 Points
- Talks, lectures
 - Displays
 - Demonstrations
 - Assisting at other clubs' meetings & shows
 - Loans - of specimens, equipment, etc.
 - Federation involvement
 - Other _____

III. SHARING IN YOUR OWN CLUB/SOCIETY 25 Points

- Offices and committees
- Talks, lectures
- Donating specimens, door prizes
- Teaching classes, lapidary, mineralogy, fossils
- Identifying minerals, fossils, lapidary, etc.
- Displaying/demonstrating at shows
- Leading or participating in study groups
- Other _____

You need not fill in the score sheet - the judge will do that. In writing up the entry, divide the presentation into the above three groups. The judging sheet has space for number of times, number of people, and age groups for many of the above - so be as specific as you can. Entries should have supporting evidence, pictures, thank-yous, and good detail.

Do not enter a member with the idea that he/she must be in the top three that will be sent to the American Federation Contest. Enter a member as an HONOR to that member. All entrants will receive a certificate to show that his or her club appreciated that member.

There will also be a FIELD TRIPPER OF THE YEAR plaque with certificates to runners-up. Write a detailed entry of the trips, where when, how many, and especially document the amount of work that went into planning it by the entrant. What special use was made of the specimens or knowledge collected that extended the trip to those who did not attend or to the community? Send the entry to Carol Anderson at the above address. Since the entry will not go on to the AFMS, the deadline is April 1, 1991.

Pictures, thank-yous from participants, publicity, etc., will help in the judging. If you give a background of the entrant, be sure it is in advance of the entry itself, since the entry should have only items done between January 1, 1990 and December 31, 1990.

FIELD TRIPPER AWARD

1990 AWARDS

The MIDWEST FEDERATION EDUCATION THROUGH SHARING HONORS for 1990 were won by the following people:

First Place - Barbara Anderson, Neville Public Museum Geology Club, Green Bay, WI
First Runner-up - Randy Phillips, Neville Public Museum Geology Club, Green Bay, WI
Second Runner-up - William Horton, Livingston Gem & Mineral Society, MI

These were submitted to the AFMS where Randy Phillips and William Horton received Certificates of Participation and Barbara Anderson received a Second-Place plaque.

-Carol Anderson, Chairperson



IMPORTANT! ATTENTION BULLETIN EDITORS HELP SPREAD THE WORD

VOTE ON NEW BLM/FS FOSSIL RULES

Two meetings in the last nine months involved negotiating new collecting rules by BLM/Forest Service, amateurs, and commercial dealers for fossils on public lands. These rules were briefly outlined in the September AFMS Newsletter and should be republished in every club bulletin. More detailed explanations are given in the monthly AFMS Newsletters of last spring. CLUB PRESIDENTS ARE ASKED TO DISCUSS THIS IN YOUR NEXT MEETING. All club members are asked to vote on these new rules when published in the Federal Register in late September / early October. We will have 60 days to comment from the date of publication. In conversations with the BLM, they stated that a representative vote would be at least 20,000 members of the 50,050 members of the AFMS.

After the publication of the new rules in the Federal Register, we will notify you in the newsletter of the closing date for your vote. If this information is published in your bulletin, another 30 days may slip by, leaving only about 15 days for all federation members to write their comments. It is important that all members be informed in advance so that a knowledgeable membership can vote quickly.

Interior Secretary Manuel Lujan and BLM Director Cy Jamison (Washington, DC, 20240) are reviewing the proposed regulations now. You can write to them now and encourage their approval of the fossil collecting regulations and continued multiple use of public lands. Satisfactory regulations for collecting minerals and petrified wood by the hobbyist are already in place.



-John Boland, Chairperson
Environment/Legislation

IMPORTANT!

OF WHAT IMPORTANCE BULLETINS?

Bulletin editors function similarly to sapphire miners - you act as screeners. And, like those miners, you can be more or less effective. When only your own likes and dislikes are passed to your members, an incomplete portion of information reaches those who may need it. Not unlike the inexperienced miner who tosses out a crystal which is opaque, but which could fashion a "star" gem, or who discards all but the one color he likes.

As a bulletin editor, your obligation is to pass on comprehensive information, especially if you do not include the DIGEST in your mailing. Experience notes that only 10% to 30% of an organization's membership attends

any particular meeting. Therefore, if you only pass out the DIGEST at meetings, between 70% and 90% of your members will never get all the information!

Unless you screen the DIGEST professionally! Comprehensively! And with your fellow rockhounds in mind!

You may feel the "Each One - Teach One" program is not very important. But one of your members might!

You may feel the Slide & Audio-Visual Competition is not very important. But one of your members might!

You may not wish to participate in a Geology Tour. But one of your members might!

Reflect on your club's policies of information dissemination. Are they appropriate?

GEMBOREE 1991
Loxton, South Australia
March 29 - April 1, 1991

27th National Gem & Mineral Show

Each year a different Australian state hosts the Gemboree at Easter time. The 1991 show is staged and conducted by the Gem & Mineral Clubs Association of South Australia under the auspices of the Australian Federation of Lapidary and Allied Crafts Association.

Several field trips have been selected with a range of collectables available including fossils, minerals, and common opal of reasonable quality.

If you are planning a trip down under, why not adjust your itinerary so you can attend the Gemboree? You will see a great deal of interesting country, some new material, and meet some friendly, outgoing, helpful people. Then, too, you will learn to think in kilometers and kilograms, drive on the left side of the street (do you know why they do?), and to speak Australian. Honest, you will not have any more trouble understanding them than you would the people in Canada and less than in Scotland, Wales, or Mexico. Besides, you could also visit New Zealand and stop over in Hawaii!

If you are seriously considering going, you can get further information from:

Gemboree Committee
P.O. Box 1335
Adelaide 5001 S.A.
Australia

An AEROGRAM will cost you 39 cents, but it cost them \$2.30 (Australian) to send me their packet!

-Emmette Wallace, Chairperson
AFMS International Relations Committee

-Revivan Zeleznik
Taken from the Eastern Federation
DIGEST, May 1990

[If you take out DIGEST and substitute MWF Newsletter, the essence of this article is applicable to the clubs in our Federation.]

-Submitted by
Colleen Kugler, Chairperson
Bulletin Aids Committee

SCHOLARSHIP REPORT

Since my last report in the Newsletter, we have received more than \$1556.50 for the American Scholarship Foundation from our Midwest Clubs. This amount includes a number of memorial gifts from individuals as well as clubs. Because of this generous support, sixteen clubs have advanced their scholarship status as follows:

Lake Shore Mineral & Lapidary	1100%
McDonnell Douglas Gem & Mineral	2300%
Earth Science Club of Northern IL	1300%
Muncie Rock & Gem Club	2800%
Cajumet Gem & Mineral Society	3100%-3300%
Gem City Rock Club	3100%
Lake County Gem & Mineral	2500%-2600%
Hawkeye Gem & Mineral Club	3300%-3400%
Earth Science Club of Missouri	4000%
Bay de Noc Gem & Mineral Club	1300%-1400%
Duneland Rock Club	2900%-3600%
Rock Hobby Club of St. Louis	3200%-3300%
Dayton Gem & Mineral Club	2600%
Evansville Lapidary Society	* 1100%-1200%
Cedar Valley Rocks & Minerals	* 2200%
Loup Valley Gem & Mineral Club	* 1000%-1100%

* Denotes they advanced from auction donations.

In addition to the above amounts the Foundation received a check in the amount of \$10,000 from the settlement of the estate of Virginia Reeves. She was a member of the Chippewa Valley Gem & Mineral Society since 1965. She served as club historian, publicity and education chairperson, and as Newsletter Editor. Virginia exhibited at the club's shows and gave lectures and demonstrations to area schools and scout troops.

Our sincere thanks to all clubs for their support of the Foundation. Through your support, another twelve students will again, this year, receive \$2,000 grants (and they are renewable for another year) making it possible for these young people to complete their education in the Earth Sciences.

-Marian Parch, Chairperson
MWF Scholarship Foundation



EASTERN STATES ARCHAEOLOGICAL FEDERATION
57TH ANNUAL MEETING
NOVEMBER 8-11, 1990

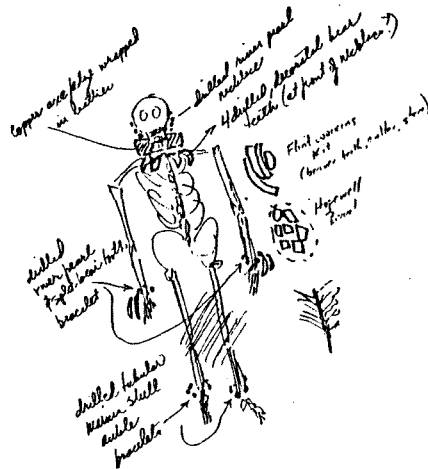
Headquarters for this year's ESAF meeting is The Great Southern Hotel, which opened in 1897, was completely restored in the early 1980's, and is currently on the National Register of Historic Places. It is located in downtown Columbus adjacent to the City Center and near the historic German Village area.

Planned activities include a bus trip to the Newark Earthworks approximately 40 miles east of Columbus. This a complex of earthen circles, squares, and an octagon - all connected by parallel earth walls and accompanied by numerous conical mounds - originally spread over an area of 4 miles, making it the largest Hopewell earthworks known. The Ohio Historical Society will host a special reception of all ESAF attendees with a special tour of the recently installed archaeological exhibits, The First Ohioans.

Registration for the meetings will be open in the hotel lobby on Thursday from 7:00-9:00 PM and all day Friday and Saturday. The advance registration fee is \$15.00. For information contact Martha Otto, Ohio Historical Society, 1982 Velma Avenue, Columbus, OH, 43211 (614)297-2641.

DISCOVERY UP-DATE

This past week, while in the process of profiling a "pot hunted" mound in order to reconstruct the original contours, a significant Hopewellian burial was uncovered. The find occurred at the Naples-Russel Mound Group along the Illinois River in Pike County. The burial was of a male with a flint-working kit of stone, antler, and beaver tooth. Beneath the back of the skull was a copper axe/adze wrapped in leather, and around his neck was a necklace of drilled river pearls with four drilled decorated bear teeth in the front. He also had drilled river pearl and split bear tooth bracelets on both wrists and drilled tubular marine shell anklets on both ankles. It also appears that he was interred with a feathered shaft placed below but near to his left hand. But more significantly, he was buried with a Hopewellian bowl with a stylized geometric motif. This is the first male burial found with a Hopewellian bowl.



*Drawing by Ken Farnsworth



JUNIOR AWARD WINNER

THE LARGEST ROCK IN THE WORLD

Ayers Rock is a single stone rising out of the Simpson Desert in the middle of Australia. It is a huge, loaf-shaped formation about 11/2 miles long and about 1,100 feet high. It measures nearly 5 miles around. It is the world's largest single rock.

Ayers Rock contains many small caves. The walls of these caves are covered with rock paintings. These paintings were made long ago by Aboriginal artists. Aborigines are the Australians whose ancestors were the first people to love in Australia. They lived in Australia for about 40,000 years.

Ayers Rock is a very popular tourist attraction in Central Australia.

-Stephen Strayer, West Central Ohio Rock Club
MWF, 2nd Place Junior Award, 11-17 Group
AFMS, Honorable Mention



MIDWEST FEDERATION NEWSLETTER
Judith Washburn, Ed.
107 Deer Creek Road
Rochester, Illinois 62563

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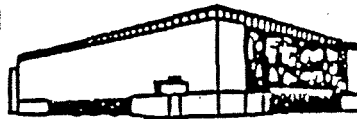


Invites you to attend its

Big 33rd Annual

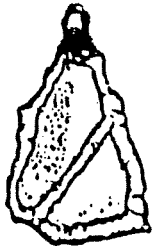
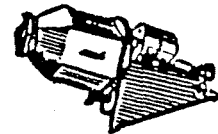
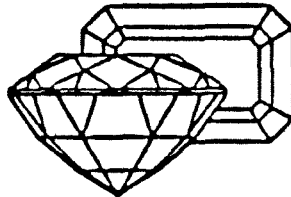
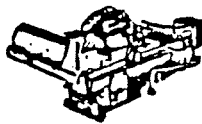
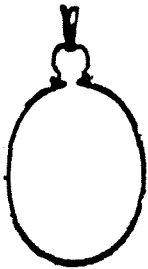
Gem & Mineral Show

MARCH 16, 17, 1991

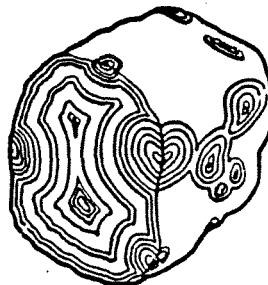
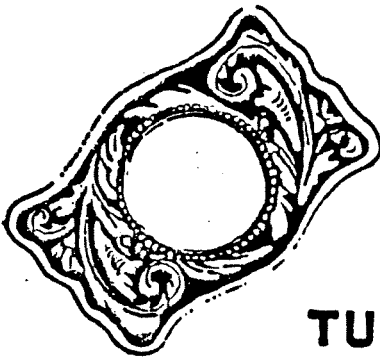


Pershing Auditorium

226 CENTENNIAL MALL SOUTH



**TUMBLERS-DEALERS-PROGRAMS-JASPER-ROUGH-
AGATE-JADE-FOSSILS-MINERALS-SAWS-**



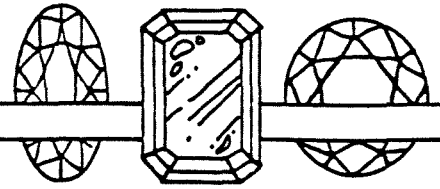
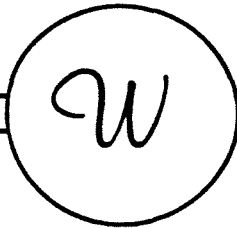
**TURQUOISE-DISPLAYS-FINDINGS
JEWELRY MAKER'S SUPPLIES- and MORE**

SHOW HOURS:

Saturday, March 17, 9:00 - 8:00
Sunday, March 18, 10:00 - 5:00

ADMISSION:

Adults.....\$2.00
Children, under 8,
free with adult.



Wooly's Custom Lapidary

Precious/Semi-Precious Gems

Rough Material

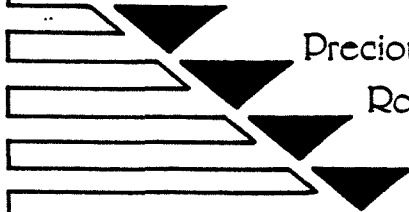
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Read your bulletin to spot new materials or specials of the above advertisers.

Advertising by a rock-hobby business or interest is permitted with the approval of the Board, at a rate now set at \$15.00 per full page per insertion, paid in advance.

1/2 page, \$7.50; 1/3 Page, \$5.00; 1/4 page, \$3.75 (Min). These ads will be placed throughout the bulletin as space permits.

Subscriptions to the PICK & SHOVEL ARE \$10.00 per year mailed.

Dues to LINCOLN GEM & MINERAL CLUB are as follows:

Adult membership fee \$10.00 (age 16 and over)

Junior membership fee \$2.00 (age 12-16)

Family membership fee \$22.00 (husband, wife, and all children under 16---permanent residents of household).

New memberships must be approved by the Board, after applicant attends at least one (1) regular meeting of the club, and pays the above dues plus \$5.00 registration fee.



H.E.L.P.

HELP ELIMINATE LITTER PLEASE!

MAIL ALL EXCHANGE BULLETINS TO:

**Lincoln Gem & Mineral Club
BOX 5342
Lincoln, Nebraska 68505-0342**



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