PICK & SHOVEL

INSIDE---SHAPING GEMS
SCYTHIAN HORSE
GEOLOGY DAY, SWAP

Volume 31 No. 7
March, 1991

Lincoln Gem and Mineral Club, Inc.
P. O. Box 5342 Lincoln, Nebraska 68505

1991 ELECTED OFFICERS

President:	**Fred B. Holbert,** 2822 S. 13th St., Lincoln, NE 68502	423-5639
1st Vice President:	**C. David Heffelbower,** 1819 Washington St., Lincoln, NE 68502	475-4713
2nd Vice President:	**Charles Wooldridge,** 836 S. 31st St., Lincoln, NE 68510	475-9034
Secretary:	**Vera Lyman,** 420 N. 56th St., Lincoln, NE 68504	464-6089
Treasurer:	**Phyllis Parks,** 2435 So. 19th St., Lincoln, NE 68502	476-6798
Board Member:	**Francis Belohlavy,** 1919 "K" St., No. 4, Lincoln, NE 68510	477-4337
Board Member:	**Roger Pabian,** 315 "D" St., Lincoln, NE 68502	474-2034
Board Member:	**Billie Heffelbower,** 1819 Washington, Lincoln, NE 68502	475-4713
Board Member:	**Shirley Rockel,** 1134 West Avon Lane, Lincoln, NE 68505	464-3059

NOMINATIONS COMMITTEE

3 Years: Kevin Schwartman, Chair.
Gerald Moore
Don Phillips
2 Years: James Null, Michael Smith
1 Year: Ed Ridge, Roger Pabian

LONG RANGE PLANNING AND BY-LAWS COMMITTEE

3 Years: Kevin Schwartman
Jim Marburger
2 Years: Bob Wright
Linda Parks-Lundgren
1 Year: Phyllis Parks
Charles Wooldridge

STANDING COMMITTEES

Membership: Shirley Rockel
Education: Roger Pabian
Field Trips: Francis Belohlavy
Historian: John & Lillie Lewis
Hospitality: Eddie "Lightning" Ridge
Study Group Coordinator:
Housing/Property: Jim Parks
Junior Activities: Janet Wright
Librarian: Jim Parks/Charles Wooldridge
"Gem Pallette" Corresdpondent: Sandra McNiff
"Geology Day" Coordinator: Charles Wooldridge

Programs: Charles Wooldridge
MWF Liaison: Vera Lyman

Scholarship: Dwight Miller
Christmas Party: Billie Heffelbower
1990 Rockhound/Year: Charles Wooldridge
1991 Show: John Harrison
1992 Show: Phyllis Parks
1991 Swap: David Heffelbower
1992 Swap: Roger Pabian

AUDITING COMMITTEE, 1987-1988

David Heffelbower
Francis Belohlavy
Shirley Rockel

YOUR PICK & SHOVEL STAFF

Publisher: Lincoln Gem & Mineral Club, Inc., P. O. Box 5342, Lincoln, Nebraska 68505
Editor: Roger Pabian, P. O. Box 5342, Lincoln, NE 68505
Business Reporter: Vera Lyman
Financial Reporter: Phyllis Parks
Circulation : C. David and Wilma Heffelbower

Pick & Shovel, Pages 1-10
200 Each
Back to back on white

LENDAR OF EVENTS

M arch 23, 7:30 PM
nter for Continuing
33rd & Holdrege.
n.

PF EASURES

JU ›gram:

CO ›raska Academy Sciences
, Olin Hall
leyan University, Lincoln

SWAP: 100th Meridian Rock Club
May 4, 5, LaFayetter Park, Gothenburg

SWAP: Northeast Nebr Rock & Mineral
July 27, 28, Stanton Co. Fairgrounds
Stanton, NE.

SWAP: Fort Kearney Rock Club
Sept. 7, 8, Cotton Mill Lake, Kearney

SHOW: Fort Kearney Rock Club
Nov. 2, 3, Hilltop Mall, Kearney

REGIONAL SHOWS:

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

FUTURE MEETING DATES, PLACES: APRIL 27, NCCE. 33RD & Holdrege, 7:30 PM

DISPLAY MATERIALS Bring items that relate to March (Aquamarine or bloodstone), specimens of mineral crystals. Cases will be furnished for exhibitors.

PRESIDENT'S MESSAGE

GEOLOGY DAY: Were you one of the seventy people who signed the guest register at the Prairie Interpretive Center, Pioneers Park, on Sunday, February 17, or were you part of the estimated equal number of people who were there but did not sign up? If you weren't among either group, you sure missed a fun afternoon. We saw plenty of families with young children and a number of visitors from out of state.

Something that pointed out the relative success of the event was the comment of Bill White of Independence, Missouri, during a phone conversation afterward. He told how they had attempted similar projects in Kansas City. Even with all the clubs in the area and the large population base, they were never able to draw anywhere near the size crowd that attended our session of only four hours.

We tried to thank the Geology Day Coordinator, Charles Wooldridge, for a job well done, but he said that he didn't do much. We hope that we can find someone who will do equally little next year so that this successful event may continue.

One of the more interesting things that Wooley did was to play video tapes with a lapidary subject matter. The room was arranged so that there was a seating area in front of the TV monitor and it seemed that there was someone watching the tapes virtually constantly. Starring in one of the videos was Roger Pabian who demonstrated lapidary techniques before the camera as a training aid for Sartor Hamann Jewelry.

We always find young minds interesting. Their logic and thought processes are more direct and unfettered from worldly influences. The case in point being our personal exhibit of picture agates and dendritic trees. How do you explain to an inquisitive youngster the method used to get the pretty pictures inside all of those rocks.

Another by-product of the event was the increased interest of our guests in attending the upcoming gem show. Also school and scout groups are requesting displays and participation in future projects such as science fairs as a result of their Geology Day attendance.

GEM SHOW: Please let the success of and participation in Geology Day carry forward to our upcoming gem show. we need every club member to respond to the call for help if we are to continue this annual event.

GET WELL: Our best wishes to a speedy and complete recovery to Lynn Wells.

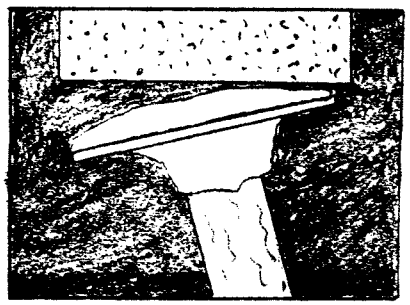
FRED B. HOLBERT

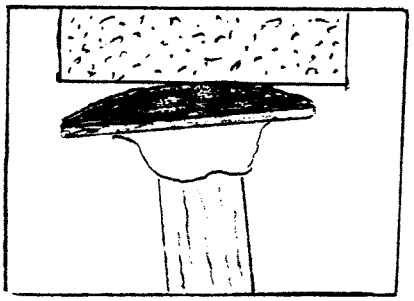
USING LIGHT AND BACKGROUND TO FORM GEMSTONE SHAPES

By David Heffelbower

As you view the output of successful lapidaries, it becomes evident that surface, although important, is not the only criterion of success. Further observation reveals that the best examples of the lapidary arts are also characterized by a smoothly flowing shape and form. I shall endeavor to explain some useful tools in achieving this.

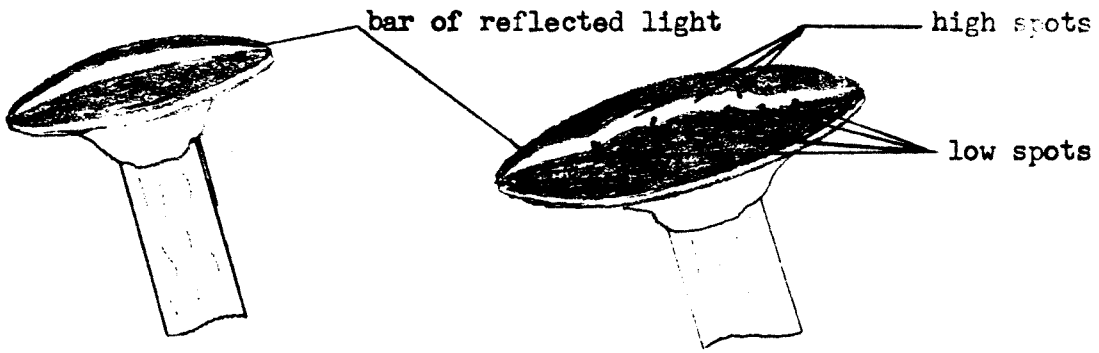
The most important tools you will have to use and develop are your eyes and your brain. In other words you must imprint on your mind the outline you wish to produce and train your eyes to detect any deviation from this pattern. The most important aid initially is contrast; light colored stones should be processed against a dark background and dark stones against a light background. The use of colored plastic sheets is a convenient way to do this; see the illustrations below.





Contrast between the stone and it's background allows the eye to see any departure from the mental pattern. Naturally some magnification also helps.

The next aid involves the use of a special light. For this step you need a bar fluorescent light; a desk type lamp is satisfactory as is an undercabinet fixture rigged to hang horizontally. During grinding and sanding operations, the stone is inspected under this light to observe the regularity of the curvature of surfaces away from the edges. For this inspection, the stone should be wet with a thin film of water but not saturated, as this tends to mask the imperfections.



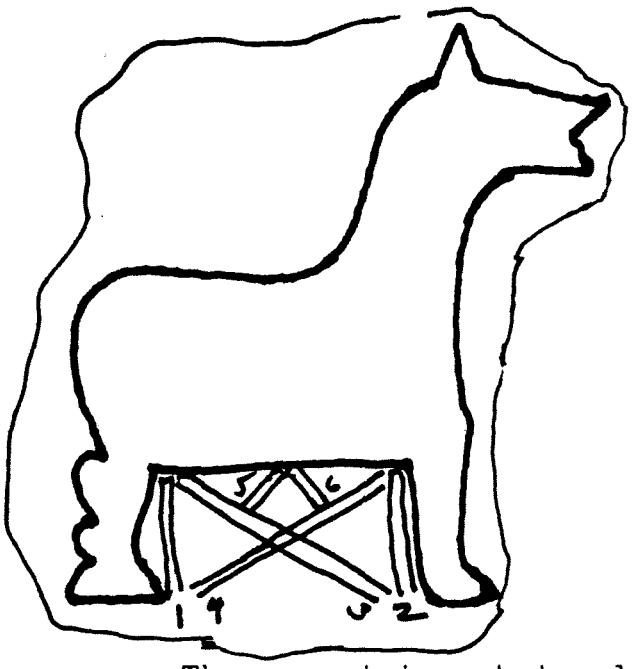
High spots are indicated by a curve greater than expected and low spots by a curve flatter than anticipated. All major corrections must be done during the grinding and coarse sanding operations. The stone should be checked during all subsequent steps except polishing.

Remember that the light reflections follow the direction of the contour; high spots look high and low spots look low. Only the magnitude of the elevations is exaggerated. The object of this is to produce a surface which follows a smooth and even curve from edge to edge, and looks pleasant to the eye from any viewing angle.

THE SCYTHIAN HORSE

By Roger K. Pabian

In last month's **Pick & Shovel** I furnished some templates based on Scythian and Sarmatian motifs for those who would like to be a bit more adventurous in their cutting. The article by Bill White on use of the diamond saw to shape stones makes many of these cuts a reality for just about any lapidary. See Bill's work at our show to see the potential you have.



Remember that the saw that cuts least will last the longest. The particular challenge to the Scythian horse is to remove the big block of material between the front and hind legs. This could take a lot of sawing or grinding, or could it? Figure 1 shows the horse as it might be laid out on the slab, ready to trim out. All of the outside cuts are pretty straight forward; it is just that big block in the middle we have to take care of.

Here is how to do it. Make a cut down the insides of each leg to the torso of the horse. From the inside end of the front leg make a cut going to the junction between the back leg and torso. Then, from the inside end of the back leg make a cut to the junction of the front leg and the torso. These four quick cuts remove about 75 percent of the excess material in pieces large enough for small cabochons or free forms.

The remaining triangle can be reduced by cutting out the small square. At this scale it is probably not economical timewise to keep cutting squares out of triangles and the small triangles can be removed by nibbling with the saw blade.

The above six cuts will remove about 90 percent of the excess material requiring about 7 inches of cuts to be made at this scale. Continuous, parallel cuts would require that about 20 inches of cuts be made. We have eliminated about 13 inches of cutting and have turned a half hour task into a five minute task. +++

FOSSILS

By Aaron Hames.

At the last junior meeting Roger Pabian talked to us about fossils. He talked about the four steps in paleontology when a fossil is doscovered. The four steps are: collect, identify, analyze, interpret. When collecting fossils, the paleontologists note the area they were found in, the rock layers, and other information like that. He also talked to us about different kinds of fossils. One kind, a trace fossil, is a fossil that shows part of the body but not the actual fossil, such as an imprint. He showed a variety of fossils, from teeth to shells. +++

LINCOLN GEM & MINERAL CLUB INC - BOARD OF DIRECTORS - Feb. 4, 1991
Nebraska Hall Rm 115 7:30 P.M.
President Holbert called the meeting to order.

Minutes were read and approved. Treasurer's report read and also approved.
Motion to approve bills made by Shirley Rockel, 2nd by Roger Pabian. Carried.

OLD BUSINESS:
Deadline for dues was extended to Feb. 23rd on motion by Billie Heffelbower, 2nd by Francis Belohlavy. Carried.
Membership now stands at 65 adults, 9 Juniors, 5 life members.

It was moved by Dave Heffelbower, 2nd by Roger Pabian that the Sartor Hamann offer of $ 250. for the film "Gems Of America" be accepted and the money used to purchase video tapes and books for the public library in the name of LGMC and Sartor Hamann. Motion carried.

Shirley Rockel asked to serve on Audit Committee - to meet Feb. 18th.

New Study Group - organizational meeting after General Meeting on Feb. 23rd.

NEW BUSINESS:

Resurrect Quartz Study Group for one meeting to prepare Club case display.

Membership:
New member: Ron Buskirk 2960 S. 11 St. Lincoln, NE 68502
Motion to accept by Dave Heffelbower, 2nd by Francis Belohlavy. Carried.

Motion of appreciation to Vera for Anniversary cake.

My special Thanks to Fred for excusing me from this Board Meeting and to Dave for graciously performing my secretarial duties so I could attend Mrs. Lyman's (mother) 92nd Birthday Party.

Respectfully submitted,

Vera Lyman

Vera Lyman, Secretary

Treasurer's Report February 1991

NBC Checking Bal. 2-1-91		$ 489.69
void 2 $25. cks.1990 add		50.00
corrected checking Bal.		539.69
Receipts -		
Suspense-member subs to Gem Palette	8.00	
Membership Dues	74.00	
1990 ads from Pick & Shovel	40.00	
1991 Retail Dealer Space	375.00	
Prepaid Member Sat.Buffet Dinners	24.75	521.75
Payments -		
Secy.State Beermann-Corp Fee	20.00	
February Program	25.00	
Suspense-Member Subs Gem Palette	40.00	
Balance Electrical Junction Boxes	51.12	
Mail P & S Contest Entries	4.15	
Additional Postage Feb.P & S	13.20	
Postage & Copies Treas.	8.62	
Materials '91 Show Gem Dig	39.00	
'91 Show Certificates Appreciation	15.50	
Postage & Phone CallsSwap	5.83	222.42
NBC Check Book Balance 2-28-91		839.04

LINCOLN GEM & MINERAL CLUB, INC. - General Meeting - Feb. 23, 1991
Nebraska Center
Hospitality - Reported 30 Adults, 8 Juniors present
- Guests: Kelsey, guest of Vera; Jan, guest of John Abel.
Minutes and Treasurer's report unanimously approved as printed.

Member Lynn Wells, at Tabitha Home, probable stroke-making some progress. We wish him well.

OLD BUSINESS:
Film - "Gems Of America" will be purchased by Sartor Hamann for $ 250. and proceeds used to purchase videos and books as approved by Board.

NEW BUSINESS:

Charles Wooldridge thanked all who participated in Geology Day - excellent turnout. A special thanks received from Carol Crosby at Chet Ager. Requested like-type services in the future. This could possibly require a 'Special Exhibits Chairperson'. This chair could well encompass 'Traveling Show Case'.

Also, a special request from Pershing Elementary School for a special exhibit, since they are studying rocks, etc. Will refer this request to Board for decision. It was suggested as a possible exhibit for Junior Group - if there are volunteers to assist.

DUTIES:
Outline of duties of Board members and chairpersons - simple organizational chart to provide information of duties to new members.

NAOESCI (State Assoc.) Meeting:
Delegate & Board Meetings on Sunday March 17 at Show.
4 Delegates: Charles Wooldridge, Grant Quinn, Dave Heffelbower, Pam Killian
2 Alternates: Lester Hunt John Abel

AUDIT COMMITTEE: Dave Heffelbower, Chairman
Possibility of 1st Vice Pres. chairing Audit Committee in future
Met on Feb. 18 with Francis Belohlavy and Dave Heffelbower in attendance. Shirley Rockel absent. Dave thanked Phyllis Parks, Treasurer for a fine job - found no errors. 1 copy per family of financial report.

SHOW: John Harrison - Chairman Meeting of Committee 2-28-91 at Reunion
14 Dealers Also Demonstrators
Volunteers for Fri. set-up; and for Sun. tear-down. BRING YOUR DISPLAYS.
Sat. night supper: Harvester catering - $ 8.25 for each adult.
Fried Chicken & Roast Port; Tossed & Jello Salad; AuGratin & Mashed Potatoes; Green Beans & Corn; Brownie Bars.
Dave Heffelbower needs drop-ins to help out at the workshop.
Ed Ridge needs materials for prizes for the Rock Races.

John Harrison requested meeting of Club at 8:40 A.M. on Sat. Mar. 16 before the Show opens.

ANNOUNCEMENTS:
Dave Heffelbower has consented to co-ordinate study group "Minerals". Met right after general meeting.
Quarts Study Group also met with Roger Pabian to set up some items for Travel Display.

BOARD MEETING on March 4, 1991 at 7:30 P.M. NE Hall, Rm 115.

Respectfully submitted.
Vera Lyman
Vera Lyman, Secretary

SWAP REPORT

I must admit that, after digging out on Friday, I was somewhat apprehensive about the prospects for a successful swap. As it turned out my fears were unfounded. With the notable exception of Bill and Betty White, who couldn't find the road, the turnout was fully up to expections. Many people were there for the first time and we would have run out space if one more swapper had shown up. It was indeed the most successful swap I can remember.

I wish to thank everyone who came; and especially to thank Andy Zarins, who helped to set up, Jim and Phyllis Parks, Bill and Shirley Rockel and Billie Heffelbower who kept everything going throughout the afternoon. Many thanks to the contributors and patrons of our silent auction which raised $23.60 for our scholarship program.

We did run out of swapper bucks at one point in time and had to buy some back from swappers so we could proceed. The club share in all this came to $87.59. Needless to say, club participation was outstanding. Those of you who couldn't come missed out on a good swap; we'll see you next year.

Dave Heffelbower, Swap Chairman

GEOLOGY DAY REPORT

GEOLOGY DAY 1991 - At the New Pioneers Prairie Interpretive Center

'Hot Rocks' is the way the Newspaper wrote up LGMC's annual return to Chet Ager Nature Center at Pioneer Park, and we hope that is what the many visitors to the center on February 17, 1991 remember.

An extremely pleasant day found eleven Lincoln Gem & Mineral Club members prepared and setting up displays to fill the new building which had been dedicated just last fall. President Fred Holbert, Ed Ridge, Roger Pabian, Charles Wooldridge, John Harrison, Dave and Billie Heffelbower, and Jim and myself were soon joined by Dwight and Dorothy Miller for a very interesting question and answer period with over a hundred persons from 1 to 4 PM. John and Charles had provided tumbled rocks for the spectators to dig through and select a favorite for their own. There were several machines in operation and flyers and discount cards were available.

We were pleased to see club members Craig, Jayne and Jeremiah viewing and visiting as well as Andy Zarins with wife and son, Barb and Julian, and the family of Charles-Deb and son Emerson, and Lee & Eric Harrison, family of John.

Visitors signed in from Omaha, Ashland, Lincoln and Cheyenne Wyoming. The Park Attendant at the Center was very helpful and gave youngsters stickers of the Center showing the magnificent Buffalo. We were interested to see the drawings and model of the planned expansion for the Center and were very happy to be included in activities there.

Phyll Parks

NEW BEDROCK MAP

By Roger K. Pabian

Those who attended the February meeting were amongs the first to receive the new page sized Geologic Bedrock Map of Nebraska. Compiled by Raymond R. Burchett and I, the map features the latest interpretations of the ages of bedrock found at the pre-Pleistocene surface of Nebraska.

The accompanying geologic time chart is color coded to match the olutcrop areas on the map. Structural features such as faults have also been readily identified. The map and accompanying column wera ablydrafted by cartographer, Jerry P. Leach.

The fossils to go along with the time chart are all representative of Nebraska. The trilobite is the Cambrian form Elvinia whose zone has been discovered in in the Subsurface of Richardson County by Conservation and Survey Division faculty member Marvin P. Carlson, in conjunction with geololgists from Iowa and U.S. Geological Survey.

The crinoid is Nebraskacrinus tourteloti Moore, found near Odell in Gage County, and named for Nebraska by Raymond C. Moore of the University of Kansas. Nebraskacrinus was Moore's favorite fossil.

The solitary coral is Lophophyllidium proliferum (McChesney) and the colonial coral is modeled after Syriongopora multattenuata McChesney, both of which are found in the Pennsylvanian section exposed near Weeping Water in Cass County.

The brachiopod is Neospirifer triplicatus (Hall) which is well known from Late Pennsylvanian rocks of the Kansas City Group exposed along the lower Platte River Valley.

Those who don't recognize the significance of the plesiosaur have not been club members for long. It is similar to the kind that the club excavated from the outcrop of Graneros Shale exposed on the Adolph Rezac farm near Valparaiso in 1969.

The dinosaur is a new one, however, and it is Albertasaurus, a a tyrannosaurid to be sure. Several years ago the tooth of one of these creatures was recovered from an outcrop of Dakota Sandstone exposed in southern Gage county. The tooth was found by a junior rockhound and was identified by Michael Voorhies at the State Museum.

Finally, the mammoth is our state fossil. This one is modeled after Mammuthus (Archidiskodon) as seen at Elephant Hall. This rounds out a fossil menagerie of Nebraska related creatures.

Individual copies of the map will be available at the show as well as at the offices of Conservation and Survey Division, IANR, University of Nebraska, 113 Nebraska Hall, Lincoln, NE 68588-0517. +++

OTHERS WRITE

Reprinted from G.I. Nuggett, February, 1991

AMETHYST

by Dolores E. Rose

Amethyst is a precious variety of crystalline quartz and one of the most highly prized of the quartz family. Colors range from pale lilac to a deep, rich, royal purple sometimes showing reddish highlights. The deepest shade is the most valuable, which originally came from Russia, and then from the Rio Grande du Sul district of Brazil, and northern Uraguay. Amethyst occurs in the cavities of ancient volcanic rock, especialy basalt. Massive chunks of amethyst, usually banded with quartz, are carved into decorative ornaments and goblets.

Where beauty is concerned this gemstone may be called ideal for many reasons. Though not as hard as diamond, amethyst is much more affordable. It offers the qualities of transparency, lovely coloring, and soft brilliance. Women of every coloring--blonde, redhead, brunette, and grey-haired alike look good in amethysts. In the early 1900's, amethyst in "sets" were the pride of many women who loved the matching brooches, earrings, and necklaces.

The ancient Greeks highly prized amethyst and believed it had a sobering effect. An amethyst wearer could never become intoxicated. In fact, the word amethyst comes from the Greek "Amethustos"-meaning "not drunk". Roman women prized amethyst jewelry as well, as they believed the amethyst could insure their husband's love.

In Biblical lore, the deep violet-hued amethyst meant perfection. It was the third stone in the third rowin the Breastplate of the High Priest of Israel, Aaron. The breastplate contained twelve stones, all identified with a prophet. Amethyst stood for Matthias, who had a gift of tongues, and was filled with the desire to please God.

Amethyst has also long been popular in ecclestical jewelry. For hundreds of years, bishops and prelates have worn amethyst in ecclesiastical rings. Catherine the Great's love of amethyst helped develop the sources of amethyst in Russia, and enriched the Russian Treasury. "Siberian Amethyst" once referred to the high quality Russian material, but is now used in describing a particularly fine color grade. Some fine gem amethysts still adorn the British Crown Jewels.

Currently, the amethyst is a particularly good choice as the February birthstone, because every few years the spring season of the Fashion World brings a nationwide vogue for purple in spring clothing. Who could be better prepared for these trends than he or she who owns some gorgeous amethyst jewelry?

References:

"Gems & Jewelry", by Joel Arem, pp 64-65.
"Amethyst A Royal Heritage", by the American Gem Society.

{{{}}}

JUNIOR NEWS

JUNIOR MARCH MEETING IS HELD AT SHOW

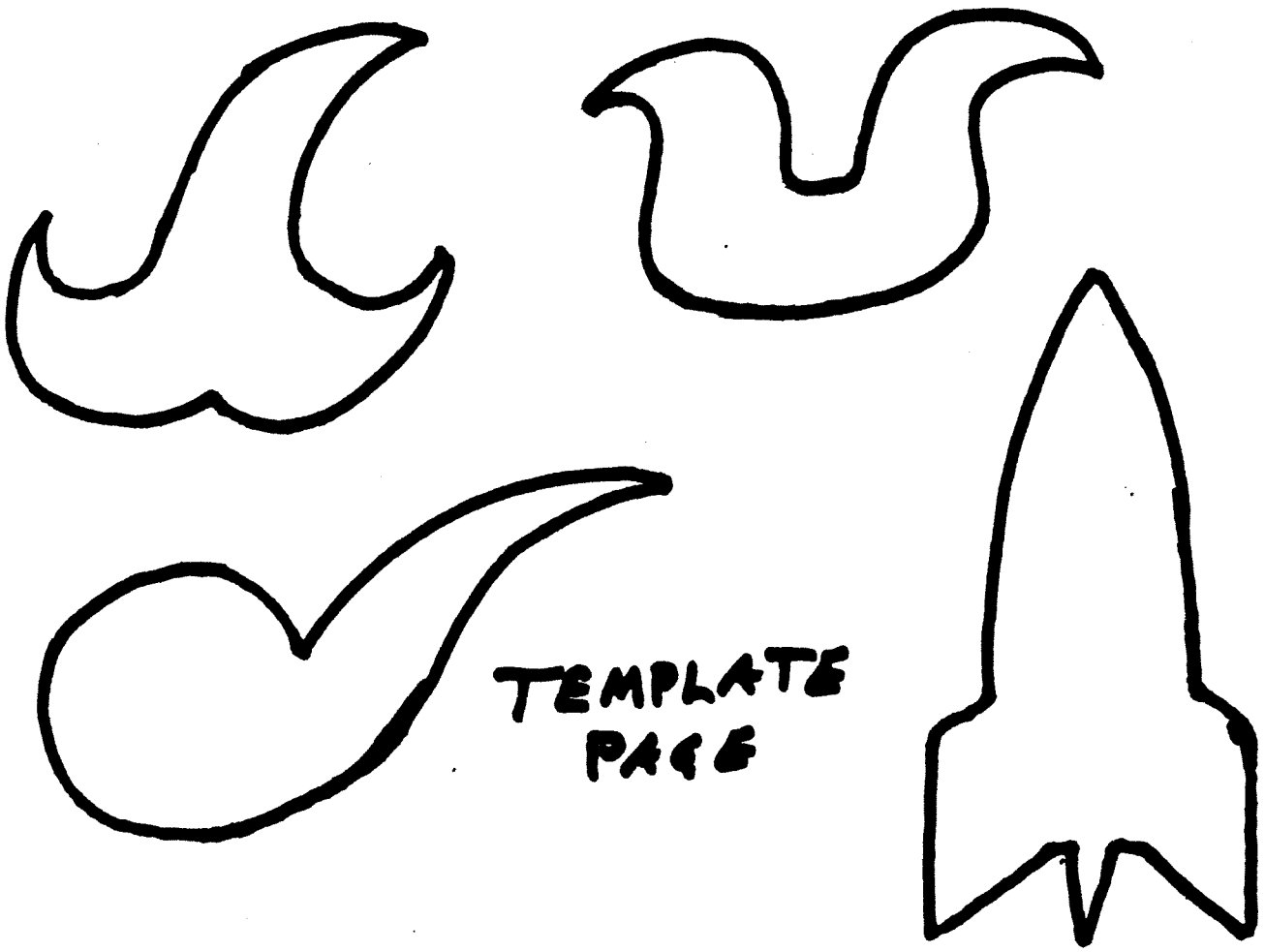
A special thanks to Roger Pabian for stepping in for me last month. I am National Vice-President of my professional organization (Association for Women Geoscientists) and I was suddenly called to Washington D.C. to represent them at the American Geologic Institute's K-12 Earth Science Education Conference. As you can see by the name of the conference I was still busy trying to help young people learn about the earth sciences.

Roger meet with about nine of the Juniors and talked about fossils. He of course did a better job than I could have done anyway since that's his research area. Roger said that he was impressed with how much the Juniors knew about paleontology..

Because the Juniors spend so much time together at the "SHOW" we traditionally do not have a " Junior Meeting" in March. We do encourage all youth who are interested in the program at the regular LGMC Meeting to attend. IN APRIL THE JUNIORS WILL MAKE THEIR SPRING AND SUMMER FIELDTRIP PLANS.

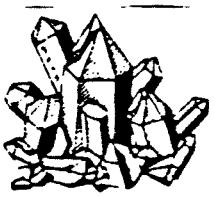
THANKS AGAIN ROGER! SUBMITTED BY J.L.Wright

Elsewhere in this issue (p. 4) the report of the February Junior meeting that was submitted by Aaron Hames appears. Thank you, Aaron, for your help. Part of the plans for the 1991 Pick & Shovel is to include an item or article by a junior member each month. Ed.



"Love That Quartz"

BASIC QUARTZ FACTS



(ED. NOTE: "Love That Quartz" is the QUARTZ theme slogan for the MMLSD 1991 gem and mineral show to be held May 17-19 at the Dearborn Civic Center. This is the first of a series of four articles on quartz by MMLSD member and Recording Secretary Joyce Hanschu. The remaining articles will appear in subsequent issues of *The ROCKPILE.*)

QUARTZ (SiO^2 - silicon dioxide), with a hardness of 7 on the Mohs scale, crystallizes in the hexagonal system. It is the most common mineral species in the earth's crust, of which it constitutes 12% by volume.

The crystallography of quartz is very precise: there are always the same number of faces and the angles between faces are always the same. However, the precision of this system allows for flexibility. Quartz crystals may be modified in some way, that is, the crystal face format may be markedly disproportionate, elaborated or distorted. Quartz crstals may also be opaque or transparent, colored white, black, red, lavendar or any color inbetween, filled with various inclusions or water-clear.

Quartz is extremely stable, practically insoluble in acids, does not oxidize and has one of the highest melting points of any mineral. This means that quartz minerals are very resistant to weathering, one reason that so many are found in nature.

Quartz is a "Universal Mineral": it is found in formations of all geologic ages and in nearly all rock types, including igneous, sedimentary and metamorphic rocks. It is found in association with many sedimentary and metamorphic rocks. It is found in association with many other minerals. It is known to exist in nearly every part of the world.

Quartz occupies a unique and prominent position in the field of semiprecious stones, being found in a great variety of colors, patterns, textures and combinations. No other common mineral lends itself, from the standpoint of variety, beauty or durability, to cutting and polishing as well as quartz.

Quartz is a "Geologic Thermometer": the many modifications of quartz occurring in nature can, with a few exceptions, be duplicated and studied in the laboratory. The optical properties of quartz crystals will change at various temperatures. By "reading" these properties it can be determined if the crystal was subjected to temperatures of, roughly, below 575°C, below 800°C, and below or above 1,000°C. Therefore, a study of the optical properties of quartz found in a rock or ore body yields information about the nature of the deposition of that rock or ore body.

Quartz is a piezoelectric mineral: when certain crystals are squeezed, they develop electrical charges on certain faces. When thin slices or wafers of properly oriented quartz crystals are squeezed, they will vibrate mechanically at fixed radio frequencies, making possible the stabilization of a radio transmitter's frequency.

More Quartz Facts

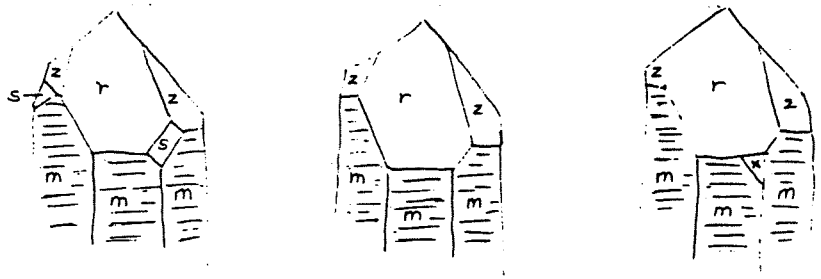
The largest quartz crystal on record was 20 feet long, weighed 44 tons and was found in Brazil. A quartz crystal 25 feet in circumference was found in Madagascar. In the U.S,, a quartz crystal six and one-half feet long, one and one-half feet in diameter and weighing 2,913 pounds was found at Grafton, N.H.; and in Buckfield, Maine, a crystal three feet long and two feet in diameter weighing 500 pounds was discovered.

The majority of the world's sand is made up of quartz.

Quartz has many uses in industry: the manufacture of glass, paint, abrasives (it is the raw material for silicon carbide), refractories, precision instruments, heat-ray lamps, prisms, spectrographic lenses, scouring soap and sand paper. Because of its piezeolelectric properties it is used for special pressure gauges, os-

CONTINUED ON NEXT PAGE

MOST COMMON FORM OF QUARTZ CRYSTALS AND MOST COMMON FACES



m = prism face, generally striated (one of the most reliable ways to tell quartz from other similar crystals.)

r = primary or positive (+) rhombohedron face, often more brilliant that the negative rhombohedron face.

z = negative (-) rhombohedron, generally smaller and often less brilliant than positive rhombohedron.

Faces m, r, and z are present on all quartz crystals above.

s = trigonal pyramid face, varies in size from very small to large, it is a parallelogram, not more than three may occur on one termination. s faces are not necessarily present on all quartz crystals. s faces are shown on the crystal on the left, above.

x = trigonal trapezohedron on right indicates right handed crystal. The crystal on the right, above, is right handed.

'x (read prime x) = trigonal trapezohedron on left indicates a left handed crystal.

x and 'x are indicator faces and are necessary to tell, visually, which hand a crystal is.

CONTINUED FROM PRECEDING PAGE

cillators, resonators and wave stabilizers. Because of its ability to rotate the plane of polarization of light it is used to make polarimeters.

REFERENCES:

Dake, H.C., Fleener, Frank L. and Wilson, Ben Hur. Quartz Family Minerals.

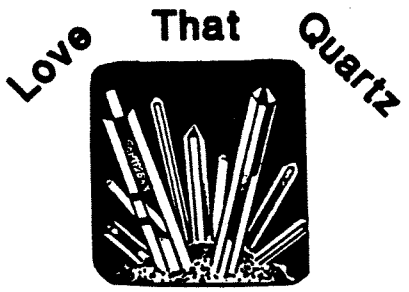
Maler, Bruce. "The Inclusions of Quartz," "Color in Quartz," Mineral Mite, publication of the Micromineralogists of the National Capitol Area, Sept. 1976.

Sanborn, William B. Oddities of the Mineral World.

Seel, Paul. "Doodlings About Quartz," Pick & Pack, publication of the Colorado Springs Mineralogical Society, July 1982.

Sinkankas, John. Mineralogy for Amateurs.

Wright, Ruth V. and Chadbourne, Robert L. Gems and Minerals of the Bible.



Reprinted from
"The Rockpile"
MMLSD, Dearborn, MI
January, 1991

MIDWEST FEDERATION OF MINERALOGICAL AND GEOLOGICAL SOCIETIES

MEMBER OF THE AMERICAN FEDERATION OF MINERALOGICAL SOCIETIES

NEWSLETTER

Published Monthly
Except
June, July, August

December 1990 - Issue 301

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

PRESIDENT'S MESSAGE...

SEASON'S GREETINGS -

Bob and I send greetings to all of you, and wish all individuals, families, and clubs a HAPPY HOLIDAY and a HEALTHY NEW YEAR.

It is with regret that I announce the loss of Jim Taylor, member of the Taylor family of Lincoln, Nebraska, all of whom have been very active in the Midwest Federation in the past. Howard, Jim's father, served as MWF President; Marie, Jim's mother, is a former State Director for Nebraska; and his sister, Susie, has served as assistant State Director and as a member of the Nominating Committee. Jim was active in many ways, as well as serving on the Nominating Committee. Sincere sympathy to Marie and Susie. The Federation and those who knew Jim will miss him, too.

Does your club issue a bulletin? You say your club cannot afford one? I say you cannot afford not to have one! Jim Fowler, Club Publications Chairperson for the American Federation, suggests that there are many ways to finance a club newsletter. One way would be a "50-50\Club" - sell raffle tickets at each meeting for one dollar and 50% is paid to the winner and the club treasury gets the other 50%. Other methods would be silent auctions, white elephant sales, cake sales, selling ads in the club bulletin, and I am sure there are many other excellent ideas out there. Bulletins are very important in educating and informing members, especially on dates for area shows, conventions, and activities of other clubs.

If you feel you need help in starting a newsletter, contact Colleen Kugler, the MWF Bulletin Aids Committee Chairperson, who will be glad to offer help and advice. "Beat the bushes," find an editor and support a bulletin.

We have a new Cancelled Stamps Chairperson, Lyle Kugler, 612 SE 3rd Street, Aledo, IL, 61231. Save your undamaged Commemorative Stamps, send them to Lyle, and he will see that they are forwarded to the AFMS Committee.

Do you show either competitively or non-competitively at the shows around you? Winter is the time to start planning your exhibits for the upcoming club shows, MWF Convention, and even a small exhibit at your club meeting.

I hope to see many of you at the Spring Meeting of the MWF, to be held in South Bend, IN, on April 20th, 1991. The meeting will be hosted by the Michiana Gem and Mineral Society and will be held in the Century Center, the site of the MWF Convention Labor Day weekend.

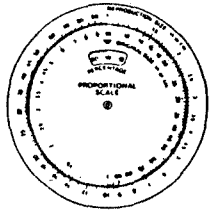
Sincerely yours,

Margaret F. Heinek, President

Editor's Note

The situation has probably occurred where you have had something to place in your bulletin and not quite enough space to accommodate it in its original size. How do you know how much you need to reduce the size to make it fit the allotted space?

There are two ways to handle this dilemma other than just a hit-or-miss method! The first involves the use of a very simple and inexpensive tool called a proportion wheel. The proportion wheel is a set of plastic discs with numbers around the circumference of each. You begin with the width calculation. Find the width dimension of the original on the inside wheel of the scale, then the width of the space available on the outer wheel. Rotate the scale until the two match up. The percentage for the reduction ratio will now be indicated by the arrow in the small window.



To check the relative height of the image at that percentage, do not disturb the wheel. Simply find the height of the original on the inside wheel. The corresponding height on the outer wheel will give the height of its reduction size at that percentage.

Alternatively, a pocket calculator can be used to work out the reduction percentage. Simply divide the width of the reproduction size by the width of the original and multiply by 100. To check the height, just multiply this percentage number by the height of the original and divide by 100.

$$\frac{\text{Reproduction Width} \times 100}{\text{Original Width}} = \text{Percentage Reduction}$$

$$\frac{\text{Percentage Reduction} \times \text{Original Height}}{100} = \text{Reproduction Height}$$

This may seem a bit confusing, but give it a try. A little practice makes perfect. You'll be setting up those inserted pictures and articles with no trouble at all.

Program News -

REVISED SHIPPING REGULATIONS

There is some question about how the new shipping regulations will affect the MWF Program Library. At the present time, there is no change in the MWF policy. The same shipping and handling donations apply. The issue will have to be brought before the Board at the meeting in April and a recommendation will need to be made at that time as how to best handle the whole situation.

In order to prepare in advance for any changes that may occur, you might want to consider the following. The new regulations have not changed the shipping costs to business addresses - just residential addresses. So, if you have anyone in your club who has a small business and would be willing to accept shipment of MWF programs being sent to your club for use at a meeting, this would keep the costs from having any affect on the Federation Library budget. Bring this up at your next meeting and see if you can come up with someone who would be able to do this for your club. Then, when you order your next Library program, send that person's business address along.

We will keep you posted as to the progress made in this area of concern.

COMPLETE INFORMATION REGARDING 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, Chairperson
MWF Program Library

SPRING BOARD MEETING

The Spring MWF Board Meeting will be held on Saturday, April 20, at South Bend, IN.

Details will follow in a later issue.

STUDENTS SELECTED FOR 1990-91 SCHOLARSHIPS

AFMS Scholarship Foundation grants have been issued for the 1990-91 school year, the students being selected by the Honorary Award Winners from each of the six Regional Federations. All grants are for $2,000 each. A total of 263 students have received scholarship grants, totalling $488,650, since the first grant was made in 1965 for $300. The generous support of the AFMS societies and their members has made this possible

Following is a list of all the students receiving grants this school year.

California Federation:

Joyjeet Bhowmik, a native of Calcutta, India, received his B.S. at Jadavpur University in Calcutta and is working on his M.S. at the University of Southern California, LosAngeles. His research interests include Metamorphic Petrology and the stable isotope Geochemistry of the Gold-Butte area in Nevada.

Yu Hao, a native of China, received his B.S. and M.S. in Geology at Peking University in Beijing, P.R. China, and is working on his Ph.D. in Structural Geology at the University of Southern California, Los Angeles. He has published several articles on the strain analysis of rocks in various localities in China.

David Parkinson, one of the 1989-90 students, continues his work on his Ph.D. in Geology at the University of California, Santa Barbara. Leslie Ames, receiving the second year of the grant to Stacey Zeck, received her B.A. in Geology at the University of California, Berkley, and is working on her Ph.D. in Geology at the University of California, Santa Barbara, where her research deals with the plat techtonic processes of a continental-continental collision zone in central China.

Eastern Federation:

Katherine Lynn Davis received her B.S. at the University of Maryland, College Park, and is working on her M.S. in Geology at the University of Delaware, Newark. Her research topic concerns the Metamorphic Petrology of the Sterling Hill Zn/Fe/Mn Ore Deposit in New Jersey.

Robert T. Downs received his B.S. at the University of British Columbia; his M.S. in Geology at Virginia Polytechnic Institute and State University, Blacksburg, where he continues his studies for his Ph.D. in Geology. His research study concerns the mean-square displacement amplitudes of Si, Al, and O atoms in framework structures; evidence for rigid bonds, order, twinning, and stacking faults.

One of the 1989-90 students, Craig W. Oyen, continues his work on his Ph.D. in Geosciences at the University of Florida, Gainesville. Alceu Rancy, receiving the second year of the grant to Matthew Joeckel, is a native of Rio Grande do Sul, Brazil, and received his B.A. and M.A. in Geoscience at universities in Brazil. Working on his Ph.D. in Paleontology at the University of Florida, Gainesville, his research centers on the fossil vertebrates and wood in late Miocene and late Pleistocene fluvial sediments in the upper Amazon Basin in Brazil.

Midwest Federation:

John Matthew Gaines, a native of Davenport, Iowa, received his B.S. in Geology at the University of Iowa, Iowa City. He is working on his M.S. in Mineralogy at the University of Missouri, Rolla, with his research topic in the area of applied mineralogy, studying the mineralogy and microtextures of products from the Viburnum Trend Lead District in Southeast Missouri.

David Russell Erickson, a native of Livonia, Michigan, received his B.S. in Geology at Adrian College, Adrian, Michigan, and is working on his M.S. in Groundwater and Environmental Geology at the University of Missouri, Rolla. His thesis research concerns the study of the lead content and mineralogy of soils in the vicinity of lead smelters in the Viburnum Trend Lead District of Southeast Missouri.

The 1989-90 students, Virginia L. Peterson and Ronald W. Sheets, continue their studies for their Ph.D. in Geology with Virginia at the University of Massachusetts, Amherst, and Ronald at Virginia Polytechnic Institute and State University, Blacksburg.

Northwest Federation:

Paul J. Bybee, a native of Ogden, Utah, received his B.S. at Weber State College, Ogden, his M.S. in Ecology at Brigham Young University, Provo, Utah, where he is studying for his Ph.D. in Vertebrate Paleontology. His research is an in-depth study of specimens of the genus *Allosaurus*, to establish mineralized fossil bone comparison between other types of dinosaurs; determine growth rates and relative ages; and uncover new information involving paleoecology and possible dating and geological sequences of the Morrison formation.

Douglas S. Neves received his B.S. in Geology at Weber State College, Ogden, Utah, his M.S. in Structural Geology at Utah State University, Logan, and is working on his Ph.D. in Tectonics, Geological Spatial Analysis, and Remote Sensing at Washington State University, Pullman. His research concerns primarily developing computerized techniques to locate and identify range front faults in the Basin and Range Province, using the Wasatch Fault as a working example.

Andrew C. Warnock is receiving the second year of his 1989-90 grant and continues work for his M.S. in Paleomagnetics at Western Washington University, Bellingham. Bernard E. Dougan, receiving the second year of the grant to Christopher L. Stearns, received his B.S. in Geology at Western Washington University, Bellingham, where he is working on his M.S. in Geology doing field research in the North Cascades of Washington State.

Rocky Mountain Federation:

John B. Matthews, Jr. received his B.S. in Geological Sciences at Oklahoma State University, Stillwater, where he is working on his M.S. in Geology. His research study is on the diagenesis of Sandstones.

Leonard A. Powell received his B.S. in Geology at Northwestern State University, Natchitoches, Louisiana, and is working on his M.S. in Geology at Oklahoma State University, Stillwater. His research emphasis is on Hydrogeology.

Ginger A. Zabolotney and Joane Lineburg, the 1989-90 students, continue their work for their M.s. degrees with Ginger studying at the South Dakota School of Mines and Technology, Rapid City, and Joane at the University of Minnesota, Duluth.

South Central Federation:

The scholarship grants for the 1990-91 and 1991-92 school years have not been issues at this time but will probably be issued after the first of the year.

Russell J. Wermlund is receiving the second year of his grant and continues to work for his Ph.D. in Geosciences at Texas Tech University, Lubbock. Bennetta L. Schmidt, also receiving the second year of her grant, continues her work on her Ph. D. in Physical Geology at Texas Tech University, Lubbock.

Louellen Montgomery, President
AFMS Scholarship Foundation

American Federation of Mineralogical Societies

PROPOSED BLM / FOREST SERVICE FOSSIL COLLECTING RULES CANCELLED ?

Are we going to allow this to happen? We have learned that the BLM has **cancelled** the publishing of the draft for BLM Policy Guidelines on fossil collecting in the Federal Register. This situation presents a challenge to every member and the public. They will be denied an opportunity to comment on a consensus agreement reached by representatives of all interested parties.

Currently, many exposed fossils on the 270 million acres of BLM land can disintegrate and never be studied by the professional and the amateur. Your extra effort requesting a reversal of this decision is vital at this time.

Use a copy of the petition for society members and the public to sign requesting the publics' right to comment on the proposed guidelines for fossil collecting on BLM lands. Set your goal to fill four or more of these **petition forms** at meetings, shows, and other events but individual members can sign a petition too. **Mail to:**

Secretary Manuel Lujan
Department of Interior
18th & C Streets NW
Washington, DC 20240

Please make photocopies and mail to:

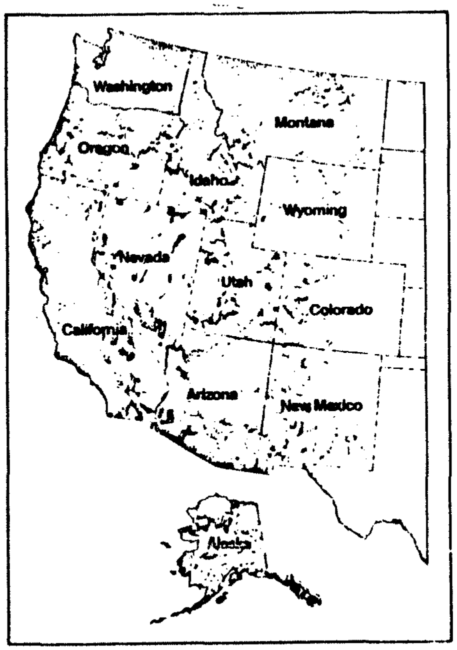
BLM Director Cy Jameson (same address as above)

and to the ranking minority member on the sub-committee for Public Lands, National Parks, and Forests:

Senator Malcomb Wallop
SR-237 Russell Senate Office Bldg.
Washington, DC 20510-5001

and to your Senator and ask for his help, and to me for record keeping (OR send the original to me for distribution)

John Boland, MWF Chmn Environment/ Legislation
2211 Valley Road LaCrosse, Wisc. 54601



Map shows how the BLM's vast holdings

PETITION

Representatives of the BLM, Forest Service, Geological Survey, State Geologists, Museums, Paleontologists Societies, Commercial Dealers, and Amateurs reached a consensus agreement on the recommendations of the National Academy of Science for fossil collecting on Public Lands. We request that this policy guidelines draft be published in the Federal Register for public comment

NAME	ADDRESS

AWARD WINNING ARTICLE:

The following article was entered in the Bulletin Editors' Competition - 1990. It was an award-winning entry. It comes from the *Earth Science News*, May 1989, Earth Science Club of Northern Illinois, Editor - Jean Reynolds.

CREATURE CORNER

NYMPH

Insects flew long before the Pennsylvanian (Upper Carboniferous) period. Fossil insect nymphs are studied intensively. It is felt that they as well as modern nymphs, may briefly repeat the development of their ancestors. These investigations seek to determine the evolution of wings and flight muscles.

NYMPH
Collection of Jo and Andrew Hay

Most Carboniferous insect beds are found in the Euroamerican Coal Belt, an area relatively close to the Equator at that time. The insects therefore, are representatives of tropical swamps and forests. There are exceptions - beds of temperate coal swamps from southern Siberia-2; Northwest Tasmania-1; and Zimbabwe-1.

Carboniferous nymphs were first described in 1873 from German specimens. Nymphs from Morris and Braidwood, Illinois were described in 1906. These specimens consisted of portions of wings showing nymphal wing pads. At the time it was postulated that these nymphs inhabited an aquatic environment. In 1913 an English ironstone concretion contained a specimen that was identified as a branchiopod, a bivalved crustacean. Some 50 years later this fossil was classified as a fossil insect nymph. Not an unusual incident when dealing with the vagaries of fossil preservation and size of the fossils. The search for, and study of Paleozoic insect nymphs continues. It must be noted, even at this date, there is great difficulty in the classification of fossil insect nymphs down to the ordinal level. a fact stressed again and again in recent literature.

Study of specimens indicates that relatively large and well developed wing pads containing true tubular wing veins appeared at an early instar, enlarging molt by molt; and that ancient insects went through more instars (stages of development between molts) than do modern insects. Some workers theorize that wings were derived from tracheal gills, others note the abdominal lobes having the characteristics of wing pads. Regardless of which body parts wings evolved from, workers do agree, wings had to develop from actively mobine, pre-existing structures. Investigators are obstructed by their heavy reliance on the study of wings, development of which is not clearly understood. The study of fossil nymphs has other facets. Pennsylvanian insects were a much more diverse group than present day insects. How did this come about? Weight is being given to the possibility of insects having developed from more than one ancestor. The insect body plan may be a convergent rather than a linear development.

Andrew A. Hay

* * *

EPA CHANGES ITS FOCUS - NEW GOALS

"The Environmental Protection Agency unveiled a major new goal on Sept. 26 for controlling the 15 toxic chemicals posing the greatest threat to health in the United States," reports Science News, November 3, 1990. James K. Reilly, EPA Administrator, said that the new initiative will be to control these chemicals wherever they are found instead of their traditional method of tackling only the most concentrated sources. The strategy shift is a result of a 1987 evaluation report - "unfinished Business" - by its own science advisory board. The report criticizes EPA of seldom going beyond enacting rules to correct problems already identified by congressional legislation. Reilly stated, "We didn't assess the combined effects on ecosystems and human health from the total loadings of pollutants deposited through different media, through separate routes of exposure, and at various locations."

One of the new initiatives unveiled on Sept. 26 will "establish a nationwide network and clearinghouse to find markets for recycled goods." This is to be a low-cost nonregulatory measure to support the EPA's goal of recycling 25% of all US municipal wastes by 1992. Reilly sent a copy of EPA's report "Reducing Risks" to every member of Congress and 6,410 EPA employees.

ARE YOU READY FOR THIS?

On November 14th, President Bush signed the new Clean Air Bills. These eight laws are the most sweeping changes in clean air control since the 1970's. They lower new car emissions which manufacturers say will raise prices $500 by 1995. Another law will control utilities' emissions and acid rain, and raise electric cost in the midwest by an estimated 10%. Watch for more details in your local newspapers.

-John Boland, Environment/Legislation

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

NON-PROFIT ORG.
U. S. POSTAGE
PAID
PERMIT # 10
ROCHESTER, IL

DELIVER TO:

Roger Pabian
315 D. St.
Lincoln, NE 68502

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

Advertising by a rock-bobby 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