



PICK & SHOVEL

INSIDE THIS
ISSUE...

Humboldt Area

Tribute to
J. D. Young

Hidden Flaws



30 1
Volume ~~XX~~, No. ~~XX~~
September, 1989

Lincoln Gem and Mineral Club, Inc.

P. O. Box 5342

Lincoln, Nebraska 68505

1989 ELECTED OFFICERS

President: Fred B. Holbert, 2822 S. 13th St., Lincoln, NE 68502	423-5639
1st Vice President: Gerald Moore, 2305 S. 35th St., Lincoln, NE 68506	489-4184
2nd Vice President: C. David Heffelbower, 1819 Washington St., Lincoln, NE 68502	475-4713
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: Donald Phillips, 5901 Spruce St., Lincoln, NE 68516	489-7637
Board Member: Shirley Rockel, 1134 West Avon Lane, Lincoln, NE 68505	464-3059

NOMINATIONS COMMITTEE

3 Years: Kevin Schwartzman, Chair.
Roger Pabian
Eddie Ridge,
2 Years: Phyllis Parks, Janet Wright
1 Year: C. David Heffelbower,
Bill Rockel

LONG RANGE PLANNING AND BY-LAWS COMMITTEE

3 Years: Kevin Schwartzman,
Jim Marburger
2 Years: Bob Wright, Linda Parks
1 Year: Charles Woolridge
Phyllis Parks

STANDING COMMITTEES

Calling: Shirley Rockel
Education: Roger Pabian
Field Trips:
Historian: John & Lillie Lewis
Hospitality: Wilma (Billie) Heffelbower
Membership: Gerald Moore
Housing/Property: Jim Parks
Junior Activities: Janet Wright
Librarian: Jim Parks
Membership: Gerald Moore

MWF Liaison: Vera Lyman
Programs: Francis Belohlavy
Scholarship: Marie Taylor
Christmas Party: Billie
Heffelbower
1989 Rockhound/Year:
Roger Pabian
1989 Show: John Harrison
1990 Show: Roger Pabian

AUDITING COMMITTEE, 1987-1988

Shirley Rockel
Don Phillips
Francis Belohlavy

YOUR PICK & SHOVEL STAFF

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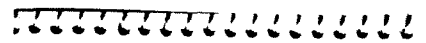
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Volume 30, No. 1

CALENDAR OF EVENTS

SEPTEMBER MEETING: Saturday, Sept. 23, 7:30 PM
Norfolk Room, Nebraska Center
33rd & Holdrege Streets

PROGRAM: **Silent City of the Gnomes:**
A slide presentation on the
geology and natural history
of Bryce Canyon, Utha, by
Gene Schenet, Midway, CA



September 1989

SUN	MON	TUE	WED	THU	FRI	SAT
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

JUNIOR MEETING: 7:00 PM. Program: Field Trip
Reports

COMING EVENTS: October 7, 8, Topeka, Kansas
Ag Hall, Kansas Expocentre, Show

October 7, 8, Sioux City, Iowa
Senior Citizen Center, Show

October 14, 15, Omaha, Nebraska
Holiday Inn, 72nd & Grover, Show

October 21, 22, Grand Island, Nebraska
Fonner Park, Show

CHANGES OF ADDRESS: Ralph & Rosalie Ulrich
917 Dale Drive
Lincoln, NE 68510

Linda Parks-Lundgren
Apt. 17, 516 Pelican Cove Drive
Florissant, MO 63031

FUTURE MEETING DATES, PLACES:

October 28, Bethany Park Shelter House,
Desserts, Costumes, Fun.

November 18, Nebraska Center, Norfolk Room,
one week early due to Thanksgiving.

December 2, Christmas Party, Nebraska Center.
Details at meetings and in bulletins.

DISPLAY MATERIALS Bring items collected during summer, items cut
and polished during the summer, or anything
of interest. Cases will be furnished.

PRESIDENT'S MESSAGE

Volume 30, No. 1

Welcome back for the remainder of this year's club activities. We hope the summer has recharged your batteries and that you are ready participate in club meetings and share your summer experiences. Let us not forget to support the many area club shows that you will find listed elsewhere in this issue. Also, Don Phillips is welcomed back to active board participation after a stint of schooling.

The summer field trip to Minnesota had a setback in that your president and field trip organizer became lame (club members are well aware of his mental capacity, however this was his foot). Since the leader could not lead, we held a planning and orientation meeting for those who did go on the trip. We had called the highway department superintendent for information on recent gravel road improvements and laker producing gravel pits. This information was passed on and maps thusly marked for our brave explorers. We are most anxious to hear of the exploits of this gallant band.

A short trip to Breckenridge Colorado was taken with our spouse exploring mines and ghost towns. In spite of the consumption of pain pills, "the foot" restricted us from hiking to many of the locations, however we still had a most productive and educational trip.

We stopped in Denver for a couple of days where we visited the Denver Museum of Natural History. In the Adolph Coors mineral exhibit is the Champion gold collection which was lost for about fifty years and contains gold wire specimens taken from mines which we had viewed in the Rockies.

While at the museum, we saw an extraordinary exhibit of stone carvings by Konovalenko. All were representational three dimensional sculptures of various life scenes. The pieces were carved figures assembled from various hard stones.

Also exhibited was a collection of cultural items titled, "Nomads: Masters of the Eurasian Steppe". The assemblage is from twelve great museums of the Soviet Union and is being shown for the first time outside that country. It was a unique opportunity in that the exhibition was shown only at Los Angeles and Denver and is ending its tour at the Smithsonian. This mind-blowing collection of articles ranged from 12th century B.C. to the 20th century; from the cultures of prehistoric nomads, through the Scythians, Sakians, Huns, Turkics, and Mongol-Tatars to the present day Eurasian. Particularly enjoyed was the incredible workmanship of the extensive and detailed gold and lapidary pieces. As space in this journal becomes available, we will further expound upon this collection as well as the lore of Colorado gold mines.

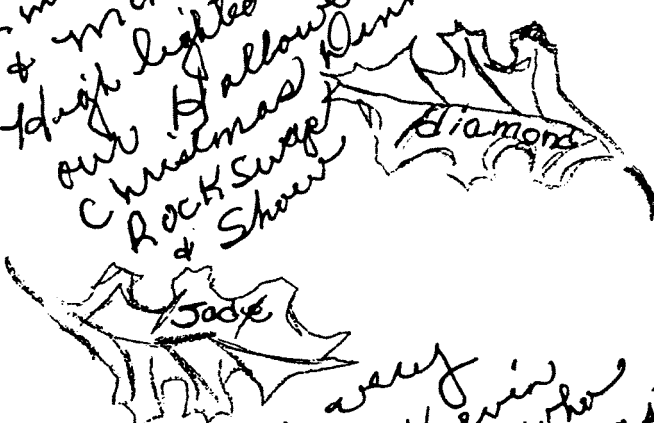
A recent rock hunting trip with Roger Pabian and Bill and Betty White of Independence, Mo., started out being stymied by a downpour in the morning. The day finally shown bright with promise and the promise bore fruit when Roger picked up a large agate weighing several pounds from a road South of Table Rock. Its brick red rind and soft pastel pink banded core made the several dozen pieces already collected seem paltry.

We note the inclusion of the Lincoln Gem and Mineral Club in June Culp Zeitner's article about education on page 76 in the September issue of "Lapidary Journal". The information is a bit dated, however we thank her for the mention.

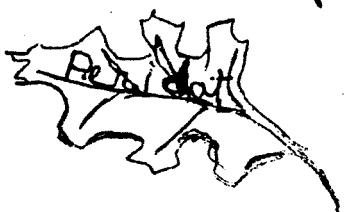
In keeping with the tradition of education in our club, we are pleased to announce the start of a study group which will meet at Nebraska Hall on campus, starting in October on the second tuesday of each month. The initial area of inquiry will be the quartz family minerals. We are indebted to Roger Pabian for accepting the job of facilitator.

september sunshine corner

September means the start of another year, for the 4 in color Gems & mineral Club high lighted by our Halloween Party Christmas Dinner Rock Swap & Show



We are very proud of Kevin Swartman who received his master's in August. Kevin is one of our Scholarship Students -



Also Roger Fabian and his part in the Rose Creek Fossil dig fossil dig



best wishes,
Billie Sunbeam



MAGNIFICATION

Volume 30, No. 1

By Roger K. Pabian

While some more elaborate gem testing equipment has been covered in these pages in previous issues, let us not overlook one of the fundamental pieces of equipment that many of us have readily available in our homes. That piece of equipment is the hand lens or magnifying glass. This little piece of equipment is generally inexpensive and available in most book stores or engineering supply houses.

I recommend a 10 power lens for several reasons. They are generally available and some lenses have combinations of 2 or 3 lenses that can be set to 10 power. Secondly, 10 power is the minimum magnification at which a flaw in a stone can be seen to be sold as flawless; that is, if you can see a flaw in a stone at 10 power, the stone is considered flawed. If it takes 11 power to see the flaw, the stone may be sold as flawless. That is a Federal Trade Commission ruling.

A 10 power hand lens will generally be strong enough to allow you to see diagnostic inclusions in many gemstones. The most logical step in gem identification is to first look at the stone through a hand lens (loupe) or a microscope. Often, a tell-tale inclusion will be present and that is all the necessary steps needed to identify the stone.

If there are no tell-tale inclusions, magnification can help you to establish some of the physical characteristics of the stone such as the kind of fracture or cleavage that is present. A conchoidal fracture may indicate glass or opal; a sugary fracture indicates a stone that is an aggregate of tiny crystals such as lapis lazuli or chalcedony. Examination of the girdle of a stone may reveal some crystal faces or cleavage planes. Little, triangular crystal faces on the girdle strongly suggest the stone is a diamond.

If you frequently use a hand lens, it is best to invest some extra money and get one that is corrected for spherical and chromatic aberrations. This will be much easier on your eyes. If you do not use the lens frequently, a less expensive lens will suffice.

The hand lens can be used in conjunction with the polariscope to find the optic character and optic sign of the stone being tested. You cross the polarizers on the polariscope, rotate the stone until it, too, appears dark in the field, and place the hand lens above the stone and below the analyzer of the polariscope. Interference colors and an interference figure can then be resolved.

If you don't get involved in gem testing, the hand lens will guide you into a beautiful microcosm of the gem world. A tiny, crystal lined pocket in a piece of limestone may reveal not only well formed and brilliant calcite crystals, but also micro-crystals of metallic minerals such as pyrite and millerite, or ruby-red sphalerite.

Through magnification, I was able to find out that the colored bands in agates may be caused in several ways. In one way, the bands are each a solid color. Some coloring of bands is caused by tiny cell-like platelets of minerals between the bands. Some coloring of bands is the result of the spherulitic crystals changing colors several times along their c-axes.

Whether you use the hand lens for a laboratory instrument or as a vehicle for a pleasure cruise in the world of gems, it will help change your perspective and give you some new insights. +++

LINCOLN GEM & MINERAL CLUB, INC. - BOARD OF DIRECTORS - May 1, 1989

Building just north of Nebraska Hall 7:30 P.M.

President Holbert called the meeting to order. Minutes of the April Meeting were read with motion for approval by Francis Belohlavy, 2nd by Gerald Moore. Carried. Treasurer's report was approved with motion by Dave Heffelbower, 2nd by Gerald Moore. Carried.

BILLS:

Those presented for payment & approval - with motion by Gerald Moore, 2nd by Dave Heffelbower.

Those already paid, but needed approval - with motion by Francis Belohlavy, 2nd by Gerald Moore. Both motions carried.

OLD BUSINESS:

Electric Stapler (used basicly for P & S) is in need of repair. Discussion. Been repaired a number of times. Motion by Fred Holbert, 2nd by Gerald Moore that we purchase new electric stapler. Carried. Phyllis Parks to check prices and make purchase.

Scholarship discussed. Dave Heffelbower made motion to deposit \$300.00 with UNL Foundation for our annual Scholarships. 2nd by Gerald Moore. Carried.

Club Budget discussed. Decided on calendar year. President suggested written definition of "money use".

General Meeting for May at Bethany Park Shelter House. May 20 @ 7:30 P.M.
Program: "Colorado Alabaster" Also hunt for Sapphires (aggregate left from Show)
Bring "Field" collections for display. Cases provided.
Bring your favorite "dessert". Coffee & punch & tea furnished.

Billie Heffelbower to check on location for Christmas Party.

MEMBERSHIP: New applications:

All have attended meeting and paid dues.

Steve Sim Juniors: Jonathan Quinn, Andy Staehr, Ryan Shanesy,
Kevin Osberg, Shawn McKillip

Motion for approval by Dave Heffelbower, 2nd by Francis Belohlavy. Carried.

VACANCY:

Claude Scott did not renew membership. Vera Lyman made motion to nominate Charles Wooldridge to succeed Claude Scott on Long Range Planning Committee. 2nd by Gerald Moore. Carried. (Subject to Charles' acceptance of nomination)

Caps & T-shirts with Club logo discussed. Francis B. to do more checking.

Possible Board Meeting in June to discuss Club Budget & Long Range suggestions only. Date to be decided at May General Meeting.

Budget copy by May Meeting for Board Members.

FIELD TRIP: To Minnesota

Tentative schedule for Field Trip: 6/30 travel day - meet at designated spot - question of reservations in advance at Jay Cooke State Park - 7/4 travel day home. Particulars by May Meeting.

Respectfully submitted,

Vera Lyman
Vera Lyman, Secretary

ROADSIDE GEOLOGY OF NEBRASKA

By Don Phillips

This roadside geology trip takes us deeper into the southeastern portion of Nebraska to a site located about 7.5 miles south of Humboldt in Richardson County (Fig. 1).

The rock exposure consists of mostly alternating shale and limestone deposits that were laid down in the Early Permian Period, about 280 million years ago. These deposits include, from bottom to top, the Johnson Shale Formation; the Red Eagle Formation consisting of the Glen Rock Limestone, Bennett Shale, and Howe Limestone members; and the Roca Shale Formation (Fig. 2).

To reach the exposure, take Nebraska State Highway 105 south out of Humboldt for approximately 7 miles. Continue south from the junction of highways 105 and 8 for about 0.5 mile. The exposure is in a roadcut on the east (left) side of the road. It is easily identified by the dark shale (Bennett) layer in the lower to middle portion of the outcrop.

The Johnson Shale (Unit 2, Fig. 2) is a continental deposit that contains no known fossils. A new marine invasion of the area is shown by the Glen Rock Limestone member (Units 3-5) that contains many marine invertebrate fossils.

The dark grey bed (Unit 7, Fig. 2) in the Bennett Shale can be used as a stratigraphic marker bed to help locate the positions of the other deposits. The Bennett Shale contains a very interesting, small ammonoid called *Mescalites discoidalis* (Bose), which also occurs in the lower Permian deposits near Tularosa, New Mexico. This fossil may be of considerable value in correlating time and rock units between the two areas. Several other species of ammonoids, bivalves, gastropods, and brachiopods are also found in the Bennett Shale at this site. These fossils were originally replaced by pyrite but most of it has since altered to limonite. The sea level curve (Fig. 2) suggests that the Bennett Shale was deposited in fairly deep water.

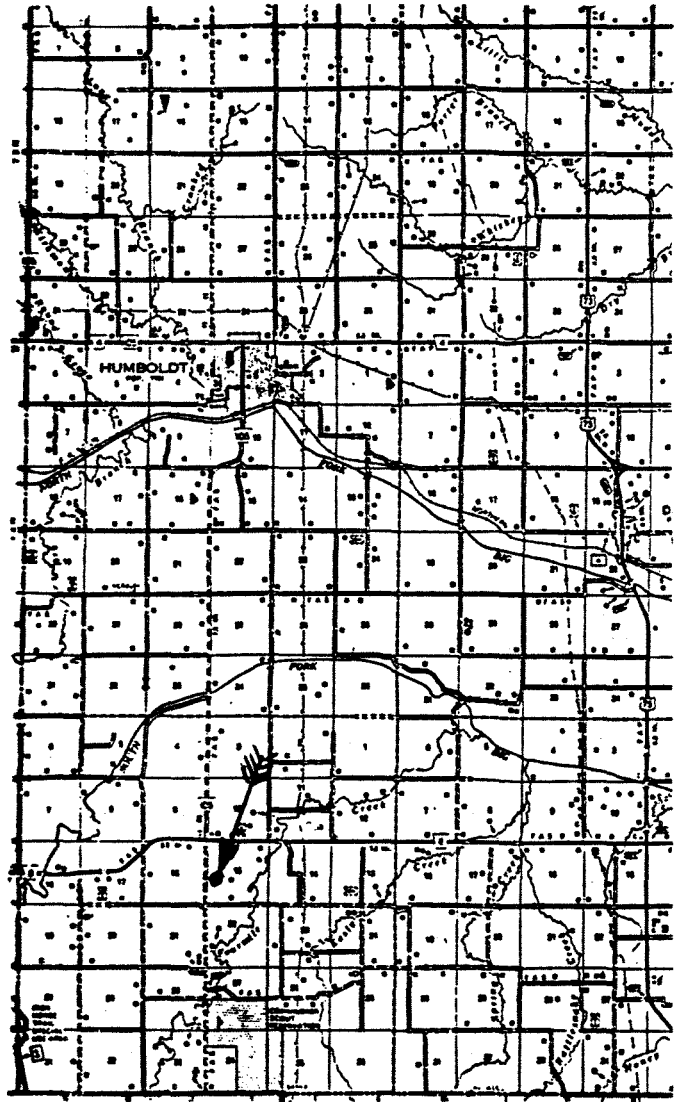


Figure 1. Location map showing site of exposure 7.5 miles south of Humboldt.

The Howe Limestone member (Unit 10, Fig. 2) contains a diverse marine fauna that includes corals, bryozoans, brachiopods, crinoids cups and plates, echinoid plates and spines, trilobites, and shark teeth. The fossils in this unit appear to be deeply weathered and this may have been due to ancient weathering rather than modern. The sea level curve in Figure 2 suggests that the Howe was deposited in much shallower water than the Bennett. The Howe sediments were possibly exposed to air soon after their deposition, resulting in weathering of the marine animals.

Only the lower part of the Roca Shale Formation is exposed here (Units 11-14, Fig. 2), and it contains some marine invertebrate fossils. The upper part of the Roca is exposed about 1.5 miles east on Four Mile Creek and it consists mostly of continental sediments.

Fossils can be found on almost the entire exposure which makes for a very pleasant field trip.

I recommend that this trip be taken in conjunction with the trip discussed in the Pick & Shoave, volume 29, Number 8, April, 1989. The two stops are only about 15 miles apart and both can easily be visited in the same day.

For further reading:

Pabian, R. K., and Diffendal, R. F., compilers, (in press). Late Pennsylvanian and Early Permian cyclic sedimentation, paleogeography, paleoecology, and biostratigraphy in Kansas and Nebraska. Geological Society of America, pre-meeting field trip, Nov. 3-5, 1989, for annual meeting, St. Louis, MO. Conservation and Survey Division, IANR, University of Nebraska, Lincoln.

Furnish, W. M., and Glenister, B. F., 1971. Permian Gonioloboceratidae (Ammonoidea). in Dutro, J. T., (ed.) Paleozoic Perspectives; a Paleontological Tribute to G. Arthur Cooper: Smithsonian Contributions to Paleobiology, No. 3, pp. 301-312.

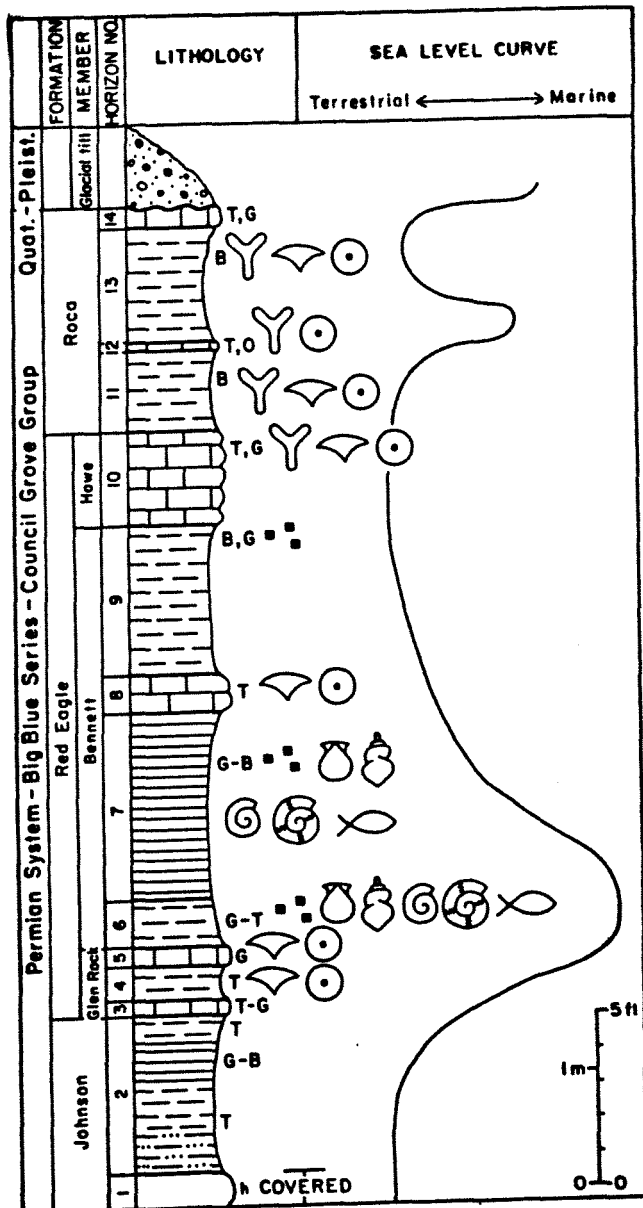


Figure 2. Geologic Section of outcrop 7.5 miles south of Humboldt. Measured by P. F. Holterhoff. From Holterhoff and Pabian in Pabian and Diffendal (in press).

UNSEEN FLAWS

By Bill White

There is sub-surface damage that takes place during the initial grinding operation when cutting a cabochon. It can be caused by excessive heat at a point of contact between the stone and the grinding wheel or from the bruising effect of the coarse grind stone. The ripping and tearing of the grinding stone and also the sandpaper goes deeper than the visible scratches you see on the surface of the stone.

It is difficult to observe this sub-surface damage when cutting highly translucent stones. However, you can create the conditions necessary for unaided eye observation by using a piece of opaque material such as Bruneau Jasper, which shows these effects very well. Find a piece of Bruneau Jasper that shows both dark brown and light tan areas. By aggressively grinding and allowing some heat build up in the stone, you should see dark spots scattered randomly in and on the light tan portion of the stone. I would describe the stone's appearance as having the distressed look, such as a piece of furniture that has been bruised with a steel chain and then having a finish applied over the scars. You can scorch and bruise a stone and have damage below the surface that is visible to the eye. Unless you spend the necessary time to remove all of these flaws, you can polish over them and they will still show. By polish, I mean that you can make the entire surface of the stone shine.

This sub-surface damage takes place both in cabochons and in faceted stones---any kind of stone that is ground and polished. It is often beyond the capability of the human eye to observe the sub-surface damage until the stone is polished. My answer to avoiding this problem is to spend some additional time on each sanding step, and to include some extra sanding steps. Try using 325, 600, 1,200, 3,000, 8,000, and, sometimes, 14,000 mesh before using an oxide polish. Do each of these steps in sequence, and complete each step to its highest degree. Don't leave 325 mesh scratches, hoping to take them out at the 600 mesh---make each mesh do its job. Finish the stone with tin oxide on leather and behold a beautiful, well-finished stone.

Editor's note: Sub-surface damage may account for failure to produce a high quality star stone from high quality rough material. The reason for this is that a very coarse (600 grit or coarser) grinding wheel may remove several layers of silk from the surface of the star stone. The net result is that the asterism must be viewed through several layers of stone from which the silk has been removed. These voids may even contain some of the polishing compound, producing a very milky surface. Try cutting star or chatoyant stones from the 600 grit wheel, and finish by the methods given above. You will truly see stars. RKP

ON THE COVER

A small dinosaur, Compsognathus, after T. H. Huxley, 1868. Don't forget the dinosaur exhibition at the old zoo at Antelope Park. The creatures are animated and make for an interesting excursion. The exhibit continues until the end of September.

1989 A. F. M. S. Show

By Roger K. Pabian

On Saturday, June 3, Bill and Betty White of Independence, Missouri and I boarded their motor home for a trip to Portland, Oregon, for the National Gem and Mineral Show that took place June 8-11. It was my first trip to a national show since our own here in Lincoln in 1980. The first day of travel took us to Chappell, Nebraska. We collected agatized wood and dendritic agates from the time we arrived at about 5:00 PM until dark, about 9:00 pm. We did quite well. We camped at Chappell. The next morning, we spent about 3 more hours collecting, finding more wood.

From Chappell, we headed westward and traversed most of Wyoming on Sunday. We stayed in a rest area for about 6 hours and headed into Utah and Idaho on Monday. We made several rock shop stops and I was able to procure a few varieties of agate from Idaho. We continued traveling to Baker, Oregon, where we camped and went swimming. Our attention was drawn to the Oregon Trail Museum in Baker. The museum had an excellent display of Oregon gem materials including many different kinds of jasper and agate. It is a display that I recommend the agate fancier see. The U.S. Bank at Baker has an exceptional gold display that includes the largest nugget ever found in Oregon. It weighs some 6.5 pounds. While there, I obtained, with my silver pick, some placer gold and a small nugget from the area.

After a wind-tossed drive through the Columbia River Canyon, we arrived in Portland late in the afternoon on Tuesday, June 6. We met up with a number of friends from Missouri and Oklahoma, and celebrated our safe arrival. Our plan to obtain plume agates for Fred Holbert met with some complications.

The show displays were world class to say the least. One of my favorite cases was a display of thunder eggs by Dale Ott. All were from Oregon, and there were numerous varieties. I was pleased to slab mates of many of my own Mexican agates on display there. The lapidary work was of extremely high caliber---the quality, variety, and workmanship displayed in the cases was absolutely outstanding. Bill's case of 'Creatures' had the good fortune of earning national trophy eligibility, so he can enter it directly in national trophy competition now.

I judged fossil displays and saw some outstanding examples of plant, vertebrate, and invertebrate fossils from the Pacific Northwest.

Although I was able to obtain some excellent specimens of agates from many of the dealers there, I was somewhat disappointed in the meager showing of material from the Pacific Northwest. Although some nice Friday Plume Agate was available, there was a dearth of other varieties of agate from an area that has had such a rich history of agate sources. This has been the case in many regional that I have attended since 1980. In spite of the above disappointment, some of the dealers had some very fine agate from other parts of the United States and Mexico, and I did manage to find some nice material.

The return trip included field trips to the Emerald Creek area of Idaho, where we got some fine star garnets, and to the sapphire mines in Montana, where we paid \$40.00 to do what slaves did in ancient times. We were equally compensated on the latter trip. We concluded the trip with some more wood collecting in the Chappell area, where I turned up a very nice piece of facetable smoky quartz.

A TRIBUTE TO J.D. YOUNG

How does one begin a tribute to a loved one who was like the brother one never had; who was a long-time science teaching associate, a Red Cross First Aid co-instructor, a fellow camper and rockhouser, a confidante, advisor, and model for the highest human values?

Julius Young--J.D. as all of us knew him--was a quiet, modest man, interested in everyone and everything. Completely selfless, he devoted himself to whatever was to be done, first to the work on the farm near Craig, Nebraska, where he was born on September 4, 1898. When he finished high school, he was fifteen years old and his father considered him too young to go to college but old enough to do a full day's work on the farm. His later attendance at Wayne College, the alma mater of Nebraska's poet laureate, John Neihardt, was the beginning of the friendship which, much later, brought Neihardt to Lincoln, Nebraska, to spend the last six and a half years of his life.

Later, J.D. enrolled in journalism classes at the University of Nebraska, which doubtless contributed much to the high quality of the more than a hundred articles on almost as many topics he wrote for the Pick & Shovel since 1969. His reporting also gave him an inside lead into many exciting happenings of those early days, such as the first wireless transmission between the University of Nebraska and Wesleyan, and a friendship with Wesleyan's world renowned authority on lightning, Professor J.C. Jensen.

After a year's return to the farm to care for his ailing mother, J.D. was graduated from Wayne Normal College and then began his 42-year-long teaching career, spending his first year in the high school in Murdo, South Dakota. At the close of the school term, in 1923, he married his best student and basketball player on the girl's team, which he coached, Myrtle Fallbeck. The fairy-book story continued until his death June 27, 1989. It included three children: Kathleen, folklorist and educator, now living in Lincoln; Don, a professional actor in Minneapolis, Minnesota, who uses his mother's maiden name, Fallbeck, as his stage name; and David, professor and world-known authority of early Greek literature. J.D. left seven grandchildren and five great-grandchildren.

Throughout J.D.'s life there was a current of excitement in living, learning, and doing. On June 20, 1919, he was the thirteenth Nebraskan to climb Long's Peak. In the Black Hills near Rapid City in 1937, with Myrtle and the sleeping children in the car, he photographed the stratosphere balloon just at the moment the seams popped and the whole project collapsed. Photography was a special hobby. In his homebuilt darkroom he produced many black and white enlargements, some of which traveled in Camera Club shows throughout the United States.

Another hobby, astronomy, led to many an educational evening, instilling in nieces, nephews, and grandchildren a love for the beauty of the heavens. The rows of his orchard ran true north and south, having been laid out at night with the North Star as a guide. J.D.'s interest in weather--local, national, and global--never lessened. In fact, there was no aspect of nature or science in which he was not both interested and well informed. He was a member of the Nebraska Academy

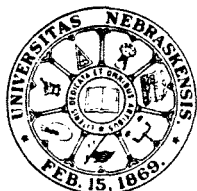
of Sciences from the very beginning of the organization.

J.D.'s teaching career was mainly spent in the physics laboratories of Jackson and Lincoln High Schools, with hundreds of loyal alumni attesting to his influence on their lives and their affection for him. The sciences were not his only love, however. J.D. read widely in all areas, often reading aloud to Myrtle and other family members. His knowledge of literature and love for good poetry contributed much to the happy years Poet Laureate Neihardt spent with the Youngs. Had it not been for their loving, dedicated care, the two volumes of Neihardt's autobiography would never have been written.

J.D.'s commitment to the causes he believed in was legendary. For his church, Warren Methodist, no one can guess the thousands of dips of ice cream he scooped each year at the State Fair, many of them to top wedges of pies Myrtle, among others of the church women, had baked. No one long in the Lincoln Gem and Mineral Club will have forgotten the hours he spent in preparation for Club shows, or how many times he lugged some of his huge specimens to the displays.

Though LGMC has lost a true friend and life member, our lives have been much enriched by his presence.

Sincerely,
Florence (Boring) Lueninghoener



UNIVERSITY OF NEBRASKA FOUNDATION

1111 Lincoln Mall / Suite 200
P.O. Box 82555 / Lincoln, NE 68501-2555 / 402/472-2151
05/23/89 Receipt #: 8863F
8722066310

WE ACKNOWLEDGE RECEIPT OF:

Amount	Fund ID
\$300.00	1614.0

Lincoln Gem & Mineral Club Fund

Lincoln Gem & Mineral Club
c/o Mrs. Howard Taylor
910 New Hampshire
Lincoln, NE 68508

TAX EXEMPT CORPORATION - EIN NO. 47-0379639 N

Lincoln Gem & Mineral Club
c/o Mrs. Howard Taylor
910 New Hampshire
Lincoln, NE 68508

Dear Mrs. Taylor:

Thank you for your contribution supporting the Lincoln Gem & Mineral Club Fund. We are pleased to acknowledge your gift and provide the receipt below. It can be used for tax purposes.

Your continuing commitment is an important part of our efforts to further the benefits offered by the University of Nebraska to students, faculty and the entire state.

Private support helps to assure the University of Nebraska its place among the outstanding universities in the nation. Your ongoing support through the Foundation is greatly appreciated.

Sincerely,

Terry L. Fairfield
Terry L. Fairfield
President

JUNIOR NEWS

THE 89-90 JUNIOR MEETING YEAR WILL BEGIN ON SEPTEMBER 23RD AT SEVEN PM, JUST BEFORE THE ADULT MEETING AND IN THE SAME ROOM. WE WILL PLAN OUR FALL SCHEDULE AND REMEMBER TO BRING ALONG ONE NEW SPECIMEN FROM YOUR SUMMER COLLECTING.

A short report of our summer activities:

MAY 6TH FIELDTRIP TO THE GARLAND QUARRY started our summer off with a few very hard to find sharks teeth and bivalve shells for our new collectors.

JUNE 2ND & 3RD WAS THE 2ND ANNUAL THORNHAVEN OVERNIGHT as guests of the Whyrick's. Ed again lead the way to an excellent fossil collecting site. (Remember the weekend that a storm caused problems for the Beach Boy Concert? We weathered that same storm and have some stories to share!)

JULY 22ND FIELDTRIP TO THE BEATRICE & FAIRBURY AREA was our last summer activity. Kay Young and her grandson joined us for a delightful Saturday of fossil collecting. Kay also gave us a talk on some of the native prairie flowers that were abundant at our first stop.

AUGUST was a very busy month for your leader. I was invited to a conference hosted by the American Geological Institute in Red Lodge, Montana which ran from August 6th to the 19th. This was a curriculum writing conference funded by the National Science Foundation. I will report more about our activities and what it may mean to science education as soon as AGI releases its findings.

We were sorry to lose a long time member and friend J.D. Young. Julius died June 27th. Bob and I attended his funeral and we were both struck by what a wonderful productive live J.D. had led. He taught science to young people in the public schools until he retired and than wrote articles for the P & S which we've all enjoyed. Julius asked that memorials be given to the LGMC Junior Program. We are delighted to accept this money in remembrance of J.D. Young and his commitment to the education of young people. We have not decided on how to use this money but we will soon and promise to keep you informed.

Your Junior Leader
Jan Wright

OTHERS WRITE

Reprinted from OSAGE HILLS GEMS, Osage Hills Gem & Mineral Society,
Bartlesville, Oklahoma, March, 1989

OSAGE HILLS GEMS

MARCH - 1989

SPINEL

by Charles A. Stratton

Spinel is a gem of great beauty which does not have the recognition or popularity which it deserves. This situation is caused mainly by two factors. First, it usually has been found in association with ruby. Indeed, the earliest spinels of good quality were mistaken for rubies. Secondly, the rarity of the gem has worked against its commercial exploitation. There simply has not been enough production of spinel to sustain a market. Of course, as long as rubies and other alluvial gems are found, spinels will be produced along with them. However, this beauty is apparently doomed to be a "tagalong" gem.

Spinel has the chemical formula: $MgAl_2O_4$, which can also be expressed $MgO \cdot Al_2O_3$, indicating that it is composed of one molecule of magnesia to every one molecule of alumina. Crystalline alumina, Al_2O_3 , is the mineral corundum, which can be either ruby or sapphire. Adding magnesium to the oxide lattice, to make spinel instead of corundum, lowers both the specific gravity and the refractive index of the mineral. Thus, corundum has a specific gravity of 4.00 and a refractive index of 1.762-1.770, while spinel has a specific gravity of 3.60 and a refractive index of 1.72. Another important difference is that the crystal of spinel is isometric (cubic), whereas that of corundum is hexagonal.

A product called "synthetic spinel" is commonly made by the Vermeuil flame fusion process. This product is not a true synthetic, and not even actually "spinel", from the fact that the ratio of alumina to magnesia is not the same as that of the natural material. We noted that, in natural spinel, the ratio is one to one. In "synthetic spinel", the ratio is usually 3 1/2 to 1, and can even be as high as 5 to one. Thus, this un-natural synthetic can be closer in composition to corundum than to spinel. Yet it retains the isometric crystal structure of spinel, although with considerable strain, which shows itself in anomalous birefringence. The refractive index is usually about 1.73, between that of spinel and that of corundum.

The rationale for the existence of "synthetic spinel" for the cheap jewelry trade is that it can be made in colors which are difficult or impossible with synthetic corundum. Thus, synthetic blue sapphire from corundum is highly zoned, but a good imitation of Kashmir quality sapphire can be made with "synthetic spinel". Various green colors are also possible with this synthetic.

We know that the gem trade is governed by supply and demand. On the "demand" side, we are motivated by whatever turns us on, whether it be history, tradition, fashion, vogue, mystique, hype, or snobbery. I prefer to scorn "synthetic spinel" for the sneaky little faker which it is. It is certainly not a "prestige synthetic".

The true colors of natural spinel are seldom imitated by the "sneaky one". The most prized natural hues have been intense red to purplish red and orange red. New Era Gems of Grass Valley, California is advertising spinel rough from Ceylon in colors from purple to pink to purple/blue in pieces from 1 to 6 carats. The price is \$15 per carat, down to \$11 per carat for larger quantity purchase.

Faceters, here is a chance to whet your skill and condition your nerves of steel before you move on to moderately priced emerald rough at \$50 to \$100 per carat. The chances are that you will produce something really valuable.

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MIDWEST FEDERATION OF MINERALOGICAL AND GEOLOGICAL SOCIETIES

Member of The American Federation of Mineralogical Societies

NEWSLETTER



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June, July, August

MAY 1989 - Issue 288

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



American Federation Report..

The Midwest Federation's Scholarship Foundation Honorary Award winner is Dr. Richard H. Lefebvre, Professor of Geology at Grand Valley State University, Allendale, Mich. A native of Detroit, Dr. Lefebvre received his B.S. at the University of Michigan; his M.S. at the University of Kansas, Lawrence; and his Ph.D. at Northwestern University. He has been associated with Grand Valley State University for over twenty years, where he is Chairman of the Dept. of Geology. He is a member of several professional organizations, including the Geological Society of America and the National Association of Geology Teachers. Has been named an Outstanding Educator of America. Author of several publications; finds time to present programs to the gem and mineral societies in the area and has invited their members to go on field tours with University students.

Students selected by Dr. Lefebvre to receive the AFMS scholarships:

Virginia L. Peterson
Dep't of Geology & Geography
University of Massachusetts
Amherst, MA 01003

Ronald W. Sheets
Dep't of Geological Sciences
Virginia Polytechnic Institute and State University
Blacksburg, VA 24061

Both are pursuing their doctoral degrees in the geological sciences. They will bring the number of PhDs originating in Grand Valley State College's young geology department to over one dozen.

This concludes my report. I plan to attend the meeting in Portland.

Sincerely yours,
Glen R. Manning
Glen R. Manning, First V-P, MWF

President Dr. Benjamin Moulton R.R. #21, Box 103 erre Moulte, IN 47002 812-234-1870	First Vice President Mr. Glen R. Manning Rte. 1 Huntsville, IL 62344 217-667-2285	Second Vice President Mrs. Margaret Melnek Rt. 3, Box 370E New Carlisle, IN 46552 219-656-3673	Secretary Miss Jean Reynolds 107 Tuttle Ave. Clarendon Hills, IL 60514 312-323-1682	Treasurer Mrs. Kitty Starbuck 7636 V Avenue East Vicksburg, MI 49097 616-649-1991
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May	1989						
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*CHANGE*CHANGE*CHANGE*

NOTE: Important notice of change in the Kalamazoo Show Committee on Page 2. Please be sure to note this change.

*CHANGE*CHANGE*CHANGE*

Editor's Note



We're coming into the busy summer season. There will be many things to compete for our attention and time - outside work at home, picnics, vacations, field trips, and lots of collecting opportunities. Be sure to start this summer off right and join us in Kalamazoo for a great show and great fun. Encourage your club members to attend.

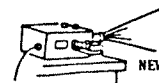
Editors: At the spring board meeting, your executive committee approved expanding the Newsletter mailing to include all bulletin and newsletter editors. Hooray! Now you won't have to wait to have news passed along to you, you'll get the scoop first hand. We're hoping that this will help broaden communications and get information out to more people. The September issue should reflect this extended mailing.

I hope that many of you will be able to attend the Editors' Seminar in Kalamazoo. We have some really great speakers lined up and some VERY special, and helpful, hand-out packets that we're preparing. Pre-register today to be sure you get one.

Tip for Editors - from The G.O.L.D. Digger
The Greater Oak Lawn Diggers
Oak Lawn, IL

Editors James and Miriam Galvin prepared a general interest book list as a guide for those wishing to start their own reference library. They reminded members to go slowly, examine their interests, and preview as many books as possible from the club library and the public library before investing. They also included prices to give members an idea of what they must set aside for this type of venture. Nice list, James and Miriam!

Program News -



NEW PROGRAM ADDED TO LIBRARY

Program #168, Bountiful Ohio: Minerals, Fossils, Rocks, is now available for rental. This program outlines how Ohio's geology has made it a very 'rich' and interesting area for many, including rockhounds.

Rated: Excellent, 89 slides, approx. 35 minutes.
Produced by the Columbus Rock & Mineral Society.

Full instructions for ordering this or any Program from the MWF Program Library are in the current MWF Directory or contact: Marge Collins, 3490 S. Hannan Rd., Canton, MI 48188. (313) 722-6043. DID YOUR CLUB RECEIVE ITS COPY OF THE NEW PROGRAM PLANNER'S MANUAL?

KODAK PROJECTOR USERS PLEASE NOTE:

Has your Club made a donation to the Carousel Fund? The goal is to have one copy of each Program in its own Carousel. Each Carousel will have a label crediting its Donor. The MWF Executive Board recently advanced funds allowing immediate purchase of the remaining Carousels, avoiding further price increases. Donations will reimburse the Treasury. Details of this project have been reported in previous months. We are still only a little over three quarters of the way to this goal. Donations (checks to 'Midwest Federation' or Carousels) may be sent to the above address.



LAPIDARY ARTS ...
1989 MWF Show/Convention - Kalamazoo, Michigan
Because of the great response to the Lapidary Arts Self-help Booth last year during the MWF show, the Committee has decided to have another this year in Kalamazoo, Michigan.

All those attending are invited to take as many brochures, flyers, bulletins, or pamphlets that will be available on a specialized part of the hobby that they may be interested in. Hopefully this will enable a person to contact and join a club or group they may be able to relate to in their area of micro-mounts, paleontology, faceting, archeology, carving, lapidary, etc. Last year I contacted many different dealers for their catalogs on the latest lapidary equipment. Most dealers were very accommodating, this year I plan to do the same. Please make it a point to stop by the Lapidary Arts Booth and encourage others to do so.

Specialized club liaison members, officers, corresponding secretaries, or editors; this is the same request as last year - many people would like to be able to correspond or receive bulletins about a specific part of your hobby, but do not have a club in their area with their specific interest. If you are unable to attend the show in Kalamazoo, MI, please send your information to me and I will see that it is on the table at the show.

Lapidary Arts Chairman
Bob Miller
Assistant
Doris Kemp



Rock clubs in several midwestern states began to consider forming a 'federation' of area clubs, and the California Federation displayed the Golden Bear gold nugget, their official insignia, for the first time.

Ten-year-old Shirley Temple was grand marshal of the Rose Parade, and General George C. Marshall was the new army Chief of Staff. Minimum wage was 30¢ an hour, and Pocket Books brought out 25¢ books that "fit in your pocket".

NBC established the first USA regular TV broadcasts on April 30 and President Franklin D. Roosevelt appeared on the air from the World's Fair in New York. Pepsi-Cola was challenging Coca-Cola, fluorescent lighting was introduced by G.E. and color film by Kodak. Nylon stockings went on sale in October, Birdseye offered frozen foods, and there was a new insecticide to kill malaria-carrying mosquitoes called dichloro-diphenyl-trichloroethane (DDT).

Igor Sikorsky piloted the first helicopter. The first Air Mail flight went from New York to Spain and England. Trans-Atlantic passenger flights from New York to Portugal began on June 28 with 22 people making the 23-hour-52-minute trip. The Civil Aeronautics Administration and the Federal Works Agency were established.

Germany invaded Poland, Italy invaded Albania, Russia invaded Finland. Congress appropriated \$525-million to be divided between the Army, Navy and Air Force, and \$125-million to amass essential materials in the Stockpile Act.

The first successful splitting of the uranium atom was announced at a conference on January 26. Drs. Philip Levine and Rufus Stetson discovered the Rh factor in human blood. The Nobel Prize in physics went to Ernest Orlando Lawrence for discovery and development of the cyclotron. Edwin H. Armstrong invented frequency modulation (FM), a new form of radio reception.

Radio news was reported by Lowell Thomas, Edward R. Murrow, H.V. Kaltenborn and Eric Severeid, and we heard "Mr. District Attorney", "Buck Rogers", and "Let's Pretend". Jukeboxes played "Deep Purple", "Three Little Fishes", "South of the Border", "Little Sir Echo", and Glenn Miller's "In The Mood". On the November 11 Armistice Day broadcast, Kate Smith sang "God Bless America" for the first time.

Rudolph, the Red-Nosed Reindeer appeared (created by a Montgomery Ward advertising copywriter). John Steinbeck's "The Grapes of Wrath" came out; Marjorie Kinnan Rawlings' "The Yearling" won a Pulitzer Prize, and "Gone With the Wind" won eight Oscars. Batman and Robin were introduced in May's Detective Comics #27.

Lou Gehrig bid farewell to baseball on July 4. The University of Chicago dropped intercollegiate football and quit the Big Ten Conference. In Cooperstown, the Baseball Hall of Fame was dedicated. Pius XII became Pope, and death claimed Sigmund Freud, Douglas Fairbanks, and Zane Gray.



Diane Dare,

MWF Historian

50th Anniversary

Book. Chrm.

ARCH FACTS....

ARCHAEOLOGY FIELD SCHOOLS

Early Bird

1989 Archaeology Field School sponsored by the Mississippi Valley Archaeology Center, University of Wisconsin - LaCrosse.

Any five consecutive days in May and May weekends. Pammel Creek, a 700 year old Oneota village. For more information contact Dr. James P. Gallagher, UW-LaCrosse, 1725 State St., Room 227, Main Hall, LaCrosse, WI 54601.

Midwest Connection

1989 Southern Illinois University Edwardsville Field School at Cahokia Mounds.

Explore the largest prehistoric site north of Mexico. Sessions are available for non-credit participants. Contact the Office of Continuing Education, Box 1084, SIUE, Edwardsville, IL 62026-1084. Graduate and under-graduate credit also available. Phone (619)692-3216.

Center for American Archaeology, Kampsville, IL.

Sessions for high school students, adults and teachers. The Twin Ditch Paleo/Archaic site and the Mound House Middle Woodland/Hopewellian site are being investigated. For more information and rates write: P.O. Box 366, Kampsville, IL 62053, or phone (618)653-4316 between 8 AM and 4:30 PM, M-F.

Elsewhere

1989 Canyon Archaeological Center, CO.

Crow Canyon in southwest Colorado, near Cortez and Mesa Verde has a 40-acre campus capable of comfortable housing and feeding 100 participants. For information contact 23390 County Road K, Cortez, CO 81321.

White Mesa Institute, UT.

Excavation/curation program works with Edge of Cedars State Park and Museum in Blanding. Sessions are small, tuition covers excavation, artifact study, and museology. Write: White Mesa Institute, College of Eastern Utah, San Juan Campus, 639 West 100 South, Blanding, UT 84511.

Other

Brigham Young University, UT.

Conducts efforts in the southwest. Contact Office of Public Archaeology, Brigham Young Univ., 105 Allen Hall, Provo, UT 84602.

Anywhere

International Research Expeditions (IRE) 140 University Drive, Menlo Park, CA 94025

Earthwatch, 680 Mt. Auburn St., Watertown, MA 02172.

*Elsewhere, other, anywhere information compliments of Mary Hanning, Archaeology Committee

-John Washburn, Chairperson
Archaeology Committee

TAKE NOTE

1989 AFMS PUBLICATION AVAILABLE

"Approved Mineral Classification List" is now available. Price: \$1.50, plus \$1.05 Postage.

Get your copy now by contacting:

Gordon Boone
Director of Supplies
180 Brook Lane Ave.
Holland, MI 49423



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Advertising by a rock-hobby business or interest is permitted with 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 \$5.00 per year mailed.

Dues to LINCOLN GEM & MINERAL CLUB are as follows:

Adult membership fee \$5.00 (age 16 and over)

Junior membership fee \$1.00 (age 12-16)

Family membership fee \$11.00 (husband, wife and all children under 16 - permanent residents of household)

New membership must be approved by the Board, after applicant attends at least one (1) regular meeting of the club, and pay the above dues plus \$1.00 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**



Edward Ridge
2507 A st.
Lincoln NE 68502