



PICK & SHOVEL

Inside...Faceting for Fun

Volume 33 Number 1
September, 1992

Lincoln Gem and Mineral Club, Inc.

P. O. Box 5342

Lincoln, Nebraska 68505

1992 ELECTED OFFICERS

President: C. David Heffelbower , 1819 Washington St., Lincoln, NE 68502	475-4713
1st Vice President: Charles Wooldridge , 836 S. 31st St., Lincoln, NE 68510	475-9034
2nd Vice President: Francis Belohlavy , 1919 "K" St., No. 4, Lincoln, NE 68510	477-4337
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: Pam Killion , 3425 "N" Street, Lincoln, NE 68510	477-1780
Board Member: Kevin Schwartzman , 1226 So. 24th, Apt. D, Lincoln, NE 68502	474-9441
Board Member: Craig Ten Hulzen , 167 Mormon Trail, Lincoln, NE 68521	435-6722
Board Member: Shirley Rockel , 1134 West Avon Lane, Lincoln, NE 68505	464-3059

NOMINATIONS COMMITTEE

3 Years: Dwight Miller
Janet Wright
2 Years: Gerald Moore
Don Phillips
1 Year: James Null
Michael Smith

LONG RANGE PLANNING AND BY-LAWS COMMITTEE

3 Years: Fred Holbert
Roger Pabian
2 Years: Kevin Schwartzman
Jim Marburger
1 Year: Bob Wright
Linda Parks-Lundgren

STANDING COMMITTEES

Membership: Shirley Rockel
Education: Roger Pabian
Field Trips: Kevin Schwartzman
Historian: John & Lillie Lewis
Hospitality: Eddie "Lightning" Ridge
Study Group Coordinator: Ralph Ulrich
Housing/Property: Jim Parks
Junior Activities: Pam Killion
Librarian: Jim Parks/Charles Wooldridge
"Gem Palette" Correspondent: Pam Killion
"Geology Day" Coordinator: Francis Belohlavy

Programs: Charles Wooldridge
MWF Liaison: Vera Lyman
Scholarship: Dwight Miller
Christmas Party: Billie Heffelbower
1990 Rockhound/Year: Ewald Paul
1992 Show: Phyllis Parks
1993 Show: Francis Belohlavy
1992 Swap: Roger Pabian
1993 Swap: Roger Pabian

AUDITING COMMITTEE, 1991-1992

Charles Wooldridge
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
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CALENDAR OF EVENTS

SEPTEMBER MEETING: September 26, 1992, 7:30 P.M.
Nebraska Center for Continuing Education
33rd & Holdrege Streets

PROGRAM: Gems of the Americas, a video narrated
by Richard Basehart.

JUNIOR MEETING: To be announced.

COMING EVENTS: **SHOW:** Nebraska Mineral & Gem Club, Omaha, NE,
October 3, 4.

SHOW: Topeka Gem and Mineral Society, Topeka, KS,
October 10, 11.

SHOW: Grand Island Earth Science Society, Grand
Island, NE, October 17, 18.

REGIONAL SHOWS:

HAYWARD, CA, August 21-23

HOUGHTON, MI, August 8-15 (FIELD TRIP)

ALPINE, TX,, April 17-19

HARRISBURG, PA, Sept. 19-20

WICHITA, KS, April 24-26

BUTTE, MT, date pending

NEW MEMBERS: Thomas P. and Georgiann Jones, Alex & Kendra
2306 So. 113th Ave.,
Omaha, NE 68144

Daniel W. White
3635 Mohawk
Lincoln, NE 68510

FUTURE MEETING DATES, PLACES:

OCTOBER 24, 1992, Bethany Park Shelter House
Cotner and Vine Streets, 7:00 P.M.

DESSERT SUPPER, COSTUME NIGHT

Bring along your favorite dessert and
enjoy coffee, tea, and soft drinks that
will be furnished by the club. Wear some
kind of rock related Halloween costume.

NOVEMBER 21, 1992, Nebraska Center, 33rd & Holdrege
Norfolk Room, 7:30 P.M.

DISPLAY MATERIALS

Dec 6
Summer acquisitions. Bring examples of items from
shows, field trips, swaps, etc. Cases will be
available. Please bring lights.

PRESIDENTS MESSAGE**PRESIDENTS MESSAGE**

SUMMER'S OVER! And I was'nt aware that it had even started yet. Maybe that's because we didn't really have one this year. In any event, your's truly and family did make the most of what opportunities we did have and had a good summer. Our proposed group projects did get pretty much washed out; maybe we can have one or two fall field trips before it starts to snow.

One thing which we did get accomplished was to visit as many of the local club swaps as we could get to. We had a lot of fun and met many interesting people; and of course acquired many pounds of new material. Needless to say, we did not have any problem with traction coming back from any swap! I would urge any of you so inclined, to attend the swaps and shows listed in your latest copy of The Gem Palette. I would like to see as many of you as possible at the shows at Omaha, Topeka and Grand Island. Also, at Grand Island, some of you could enter the cabochon contest and all of you could join us in entering the UGLY ROCK contest!!

We all look forward to seeing again all of the friends we did not run into during the summer. We will be starting our study groups and other activities. Now is the time to begin thinking about the swap, geology day and our spring show even though these are still in the future. Wooly tells me that he would like any ideas for new programs for our meetings and Kevin would like any and all suggestions for field trips (weather permitting). We also need volunteer help for putting on our public events, and of course I can use all the help I can get (and more) as you can see!

I'll see you on the 26th. Until then think about what you can do.

Dave Heffelbower

LINCOLN GEM & MINERAL CLUB, INC. - BOARD OF DIRECTORS May 1, 1992
At The Reunion 7:30 P.M.

Minutes of the April Meeting were read. A correction of the 2nd on a motion, they were approved.

Motion for approval on the Treasurer's report by Francis B. and 2nd by Charles W. Motion carried.

Bills were approved with a motion by Pam Killion, 2nd by Kevin Schwartzman. Carried.

OLD BUSINESS:

Discussion of ideas for changes in Meetings, etc. Have General membership mail in or present their ideas or suggestions to improve meetings & programs.

Remember- "implementation" is the basic factor & do we have the resources for these ideas?

NEW BUSINESS:

Aaron Hames - received Gold Medal for Rock & Fossil Identification. This presents him with the opportunity to attend the National Science Olympiad if he can acquire the funds to go. Discussion followed. Aaron is a Jr member of LGMC. Motion was made by Charles W. that the Junior and Adult member groups donate \$ 350. (each group donating half) to School Foundation for Aaron Hames to go to National Science Olympiad. If he cannot go, the foundation return monies to LGMC. 2nd by Vera Lyman. Motion carried.

Motion by Phyllis P. & 2nd by Charles W. that we return questionnaire to MWF re: Liability Insurance as "Not interested". If we have a delegate they will be directed to vote against it. Motion carried.

Special MWF Interest Survey Sheet - filled out for return.

"Mysteries In The Dust" aired on ETV May 12 & 24 at 7:00 P.M.
(Ashfall State Park)

Contact Bill or Betty White as possible delegate to MWF Show/Convention.

Approved Show Chairman for 1993 - Francis Belohlavy. Congrats, Francis!

Roger Pabian Volunteered to Chair Swap for Jan. 1993

New Members - Thomas & Georgian Jones, Alex & Kendra

Motion by Phyllis P. 2nd by Francis B. Carried.

Phyllis P. reported on Show. Also indicated increases in Show revenue over past 5 years.

Meeting adjourned.

Respectfully submitted,

Vera Lyman
Vera Lyman, Secretary

LINCOLN GEM & MINERAL CLUB, INC. - GENERAL MEETING May 23, 1992
 Bethany Park Shelter House 7:30 P.M.

Approval of Minutes with motion by Irl Everett, 2nd by Bill Rockel.
 Motion carried.

Treasurer's report approved with motion by Charles Wooldridge, 2nd by
 Kevin Schwartzman. Motion carried.

Hospitality report 31 members, 6 Junior members and 11 guests present.

OLD BUSINESS:

Bill White volunteered as delegate to Mwf?AFMS Show & Convention.

SUMMER PICNIC:

Sunday June 28 at 4:00 P.M. with motion by Charles W. & 2nd by Francis
 Location to be announced later.

Silversmithing Class: June 9 - July 8 at 7:30 P.M. Fee = \$ 32.50
 Call 466-6228 or 423-7058 for more information.

ANNIVERSARY:

Irl & Lois Everett will celebrate their 50th Wedding Anniversary on
 June 21 from 2-4 P.M. at First Assembly Church, 56th & 'R' St.
 All Club members are invited. No gifts please. Just your presence.

"93 SHOW:

Francis Belohlavy, Chairman, announced that anyone interested in
 chairing a Show Committee, please contact him.

Meeting adjourned.

Respectfully submitted,

Vera Lyman
 Vera Lyman, Secretary

LGMC Treasurer's Report May 1 through August 31, 1992		
	NBC Checking 5-1-92	\$1780.40
Receipts -		
Interest Scholarship CD for 6 mo.	177.00	
K.Schwartzman for Sub to Lap.Jrl.2 yr	41.00	
New member 1/2 year and registration	10.00	
Memorial Perry Miller to Scholarship	<u>25.00</u>	253.00
Payments -		
Postmaster Stamps P & S & Treas.	75.80	
Linc.Public Schoolsfor Aaron Hames	175.00	
Linc.Public Sch.-Juniors for Aaron	175.00	
Lap.Journal Sub for Kevin	30.75	
NBC Safety Deposit for club/1 year	23.00	
Nebr.Center April Rent	45.00	
Astro's Copy Center	1.60	
For May Refreshments	88.40	
UNL Printing May P & S	86.97	
City Park-October Meeting	<u>25.00</u>	<u>646.52</u>
NBC Checking Account Balance August 31, 1992		\$1386.88
2 CD's rewritten 5/18/92 - \$5000.00 each @ 5 1/4% for 10 months.		

IRL AND LOIS EVERETT

Irl and Lois Everett celebrated their 50th wedding anniversary on June 29, 1992, and were feted at an open house sponsored by children and grandchildren at First Assembly of God Church on June 21. Our very best wishes are extended to Evvy and Lois. +++

MOVED

Andy Zarins has taken a new job with Westinghouse Environmental Division in Cincinnati, Ohio, as of August 14. Barbara, Julian, and Elizabeth followed on September 3. We wish them well in their new careers. +++

FROM CONSERVATION AND SURVEY

The Nebraska Geological Survey of the Conservation and Survey Division will be celebrating its 100th Anniversary in September of 1993. Individuals and groups connected with geology in Nebraska will be asked to participate in the event. Gem and mineral clubs are included, and the Associate Director of the Division, Duane Eversoll, will be at the September Meeting to tell about some of the ways our club can participate.

There will be a logo design contest and entry forms will be available for this at the September meeting. The winning logo designer will receive a \$100.00 cash prize during the celebration festivities. +

BILL WHITE WINS NATIONAL TROPHY

Bill White won the national trophy for lapidary in the new creative cabochon category at the national gem and mineral show at Brunswick, Ohio, July 23-26, 1992. A few of the stones were exhibited at our show last March, but the case also included quite a number of new cuts. It was a very well-liked case. Congratulations! Bill. +++

GEOTRIVIA

Word games are common events at many parties and one of the most common questions is to name a word with three y's in it. The stock answer that is expected by the interrogator is "syzygy." (sizz'-uh-gee) You can really psyche our the interrogator if you answer "synonymy" instead.

Both syzygy and synonymy have paleontological implications. Syzygy refers to a ligamentary articulation between brachial (arm) or calyx or cup plates in crinoids. A positive feature at one on a plate will be a negative feature on the corresponding point of the adjoining plate. The term syzygy is not applied to the stem of the crinoid, however.

A synonymy is used in biological sciences including paleontology, and it precedes the description of an organism in the systematic part of a study. The synonymy lists all of the genera, species, etc. that the writer considers to be the same organism as the one currently being described.

PERRY MILLER

Perry Miller, husband of former member and bulletin editor, Norma Miller, passed away in May of 1992. The Miller's had many friends in the club. We extend our deepest sympathies to family and friends. +++

ART BLOYD

Former member, Art Bloyd, passed away in Phoenix, Arizona, in June of 1992. Art began his studies in minerals as a member of Lincoln Gem and Mineral Club before moving to Arizona in the early 1970's. Art became curator of minerals at the Arizona Mineral Museum, Phoenix, Arizona, and later received his BS degree in geology.

Art was well respected by his colleagues in both the professional and amateur worlds and, he was honored by having a new gallery in the museum named in his honor.

We extend our deepest sympathies to Art's family and friends. +++

BULLETIN AWARDS

The following awards were received by LG&MC members at the AFMS/MWF Bulletin Editor's breakfast at Brunswick, Ohio, July 26, 1992. Emily Rieur, AFMS, Honorable Mention, and MWF 4th place for "Diamond Hunter."

Edward Pederson, MWF, 10th place for "Classification of Minerals - A Collector's View," 9th place for "Getting the Best Minerals for the Least Money," and 8th place for "Field Collecting - Tools and Techniques." Adult articles, advanced.

Roger Pabian, AFMS 8th place and MWF 5th place for "Sagenitic Inclusions." MWF, 7th place for "Scythian and Sarmatian Jewelry." Adult articles, advanced.

MWF, 6th place to "Pick and Shovel" for large bulletin contest.

MWF certificates of participation were received by Bill White, David Heffelbower, and Charles Wooldridge.

MAY MEETING HIGHLIGHTS

Display materials at the May meeting included agates and chatoyant stones from Charles Wooldridge, agates and agate griffins in various states of completion by Bill White, iris agate from Eddie Ridge, iris agates and plume agates from Roger Pabian, and banded agates from Dave Heffelbower.

The annual gem dig followed and members and guests had some very good luck for this event that was organized by Wooly. +++

FACETING FOR FUN

By Ralph Ulrich

Editor's note: This material was handed out to those who attended Ralph's program on faceting. It should be shared with all the members as well as exchange bulletins who need a basic faceting article. RKP

GENERAL OUTLINE

FACETING IN GENERAL:

- Reasons for wanting to facet.
- See your own handiwork.
- You like pretty stones.
- Value driven.

WHAT SETS THESE MINERALS APART AS GEMSTONES ?

- Color.
- Perfection.
- Clarity.
- Durability.
- Rarity may be questionable.
- Fashion.
- Brilliance.
- Dispersion.

BY WAY OF EXPLANATION:

- Refractive index.
- Birefringence or Double refraction.
- Dispersion.
- Pleochroism and Dichroism.

GETTING STARTED

CUTTING MATERIAL:

- Collecting or buying

EQUIPMENT:

- Faceting units
- cutting laps
- polishing laps

PROCEDURES

SHORT LESSON JUST TO GET ACQUAINTED:

MOVING FORWARD

LEARN ABOUT MATERIAL AND TOOLS:

GETTING STARTED

CUTTING MATERIAL:

Collecting or buying.

Beryl. Low cost. Trouble free for cutting.

Quartz. Plentiful, low cost, good quality affordable.

Wide variety of colors. Slightly heat sensitive.

Topaz. Usually available in several colors. Trouble free except for one weak cleavage plane.

Good quality corundum and emerald are expensive and not always available to the amateur cutter.

EQUIPMENT:

Any good machine on the market today will be capable of cutting good gems if used as intended.

Look for a machine that offers these minimum features.

Variable speed - 40 RPM to 1200 RPM preferred.

Reversible motor.

Changeable indexing gears. 96 and 80 most useful.

Compound indexing feature, (cheater) at tenth degree.

Angular control with vernier to at least $\frac{1}{4}$ degree.

Angle stop with fine adjustment.

Height adjustment with graduated readings.

Free wheeling feature for rounding preforms.

Transfer block.

Full set of dops.

45° dop for cutting the table.

Coolant tank or supply.

Adjustable light.

Alcohol burner for heating dops.

Dop wax and other misc. items as needed.

600 grit cutting lap.

1200 grit cutting lap.

3000 grit prepolish lap or copper with 8000 grit.

polishing laps;

Tin

lucite or soft plastic.

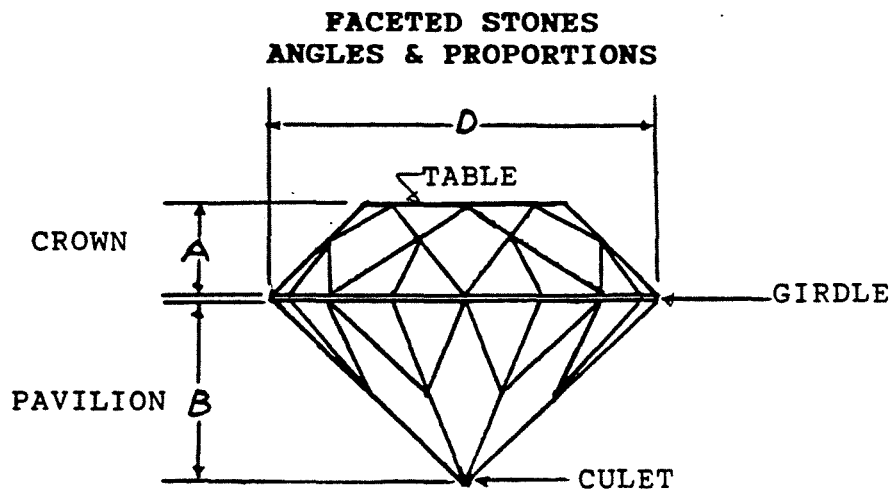


Table should be 50% to 55% of the diameter of the stone.

Angles are for refractive index 1.53 to 1.56. (quartz etc.)

Crown angle	38°
Pavilion angle	42°

Height A 20% of Diameter

Height B 45% of Diameter.

Total height 65% of Diameter plus $\frac{1}{2}$ to 1mm for girdle.

EXAMPLE

Plan to cut a 12mm round brilliant. Angles for R.I. 1.53 to 1.56.

Table to be 50% of 12mm=6 plus mm.

Crown height will be 20% of 12mm or 2.4mm.

Pavilion depth will be 45% of 12mm or 5.4mm.

Allow one mm for girdle. Total height of finished stone will be about 8.8mm.

When thickness of rough governs size, simply divide the thickness by the total percentage from table 1.

Say you have a piece of rough 14mm by 12mm by 6mm thick. From the example above add the 20% and the 45% to get 65%. Deduct 1mm for the girdle leaving 5mm for cutting. So 5mm divided by 65% (.65) leaves 7.69mm, the maximum diameter you can cut from that piece of rough.

TABLE ONE

RECOMMENDED ANGLES BY REFRACTIVE INDEX
HEIGHTS AS PERCENTAGE OF GIRDLE

R. I.	MAIN ANGLES		PERCENT OF GIRDLE	
	CROWN	PAVILION	CROWN	PAVILION
1.40-1.48	41°	45°	22%	50%
1.50-1.53	39°	43°	20%	47%
1.53-1.56	38°	42°	20%	45%
1.56-1.60	37°	41°	19%	44%
1.61-1.62	36°	40°	18%	42%
1.63-1.73	35°	39°	17%	41%
1.74-1.80	36°	40°	18%	42%
1.82-2.00	37°	41°	19%	44%
2.37-2.62	38°	42°	20%	45%

(from GEMS AND MINERALS 1968)

REFRACTIVE INDEX FOR A FEW POPULAR STONES

	R. I.	Dispersion
Titania (syn)	2.409	0.190
Cubic Zirconia (syn)	2.150	0.060
Y.A.G. (syn)	1.833	0.028
Garnet-Almandite	1.790	0.024
Corrundum	1.77	0.018
Garnet-Rhodolite	1.76	0.026
Spinel	1.718	0.020
Peridot	1.64	0.020
Spodumene	1.67	0.017
Topaz	1.62	0.014
Beryl	1.58	0.014
Quartz	1.55	0.013
Benitoite	1.76	0.044
Axinite	1.68	0.000
Apatite	1.64	0.000
Andalusite	1.64	0.000
Danburite	1.63	0.016
Fluorite	1.43	0.007

MOVING FORWARD

Learn all you can about the material you plan to cut. Gem and mineral shows often provide an opportunity to buy rough.

Mail order parcels offer an opportunity to examine the parcel in the quiet of your home where you have instruments to check the quality of the material. This is the safest way to buy the corundums, emerald or rare gems.

Add to your tools. A polariscope, dichroscope and a carat scale are very helpful. For some of the more uncooperative stones you may want to add to your collection of laps. A good "last lap" is helpful for sapphires and ruby. The "ultra Laps" are good to polish tables. They do round the facet just a bit but the table is usually polished before the star facets are laid in so they absorb most of the rounding later.

If your faceter does not have one a good down light indicator is very helpful. Also for cutting ovals, the offset attachment is worth the cost.

Improving your methods;

Try new cuts. This not only sharpens your skills, it also helps you understand how the gemstone and your cutting is related. The bow tie effect in ovals has been a good exercise for many years. Maybe you can work out your own pet solution. The Lapidary Journal for november, 1985 describes the "ULTIMA" cut which deals with the bow tie effect.

The meet point approach is fairly new. If you plan to use this method, a good dial indicator attachment or a digital read out is almost a must.

More recently concave faceting has been introduced. It is a very challenging concept, but could be expensive.

The Lapidary Journal for May, 1991 ran an article on page 50 entitled "more than a pretty face". It deals with the many practical applications for the gemstones, especially diamond.

1992 NATIONAL SHOW

The 1992 combined American Federation and Midwest Federation shows were held July 23-26 in Brunswick, Ohio. The show was put on in the high school building and the site had a few problems but none that couldn't be overcome by the very efficient host clubs. The Geology Club of Brunswick High School proved to be a very likeable group of young people and their efforts deserve a great deal of admiration and praise. We never had the feeling of 'just another show' and the whole event was most enjoyable.

There were many excellent displays in both the competitive and non-competitive arenas. I was especially pleased to see an outpouring of Ohio materials. I have attended many federation and national shows in the past 5 or 6 years and found a dearth of materials from the areas surrounding the shows to be quite distressing. Not only were there many examples of Ohio Gem Flint, their State Gem, but of numerous mineral and fossil specimens too.

I was not too keen on the idea that the food service was provided in the high school cafeteria and expected the usual fare of mystery meat, gray beans, and wall paper paste. Much to my delight, the food at the luncheons and banquets was probably the best I have ever enjoyed at a regional or national show. The table favors for each event stressed a separate area of the rock hobby including lapidary, paleontology, and mineralogy.

I was able to locate some nice single crystal specimens of gem minerals that will be used in my gemology classes at UN-L, and I also used the opportunity to acquire some of the carving tools, abrasives, and polishing compounds that are not readily available elsewhere.

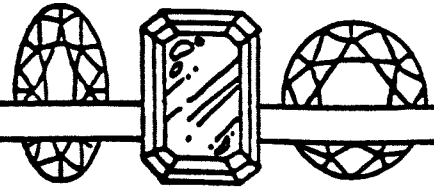
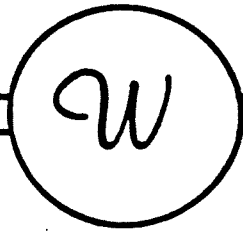
While at the show, I stayed at the campground with Bill and Betty White and that part proved most enjoyable. We always had plenty of good food and a hot pot of coffee. We had quite a few visitors at the campground, one of whom was a computer wizard who presented a program on using computer and satellite technology for small-scale prospecting.

One of the most interesting displays for me was a Mongol tea service in silver that was furnished by the Lizzadro Museum. The pieces were jeweled with agate, turquoise, and coral. The red coral is the kind that comes from Italy and the turquoise appeared to be from Persia. The colors of the stones were intense and the overall quality was very high.

There were some exceptional displays of Ohio materials including celestite crystals from several quarries, gem flint from several exhibitors and several quarries, and Ordovician fossils from the Cincinnati area. Some of the fossil displays had nice trilobites and crinoids.

Activities for youngsters were put on by the Brunswick High Geology Club and every kid who attended the show left with ample supplies of rocks, minerals, and fossils.

RKP



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

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

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

Dues to LINCOLN GEM & MINERAL CLUB are as follows:

Adult membership fee \$10.00 (age 18 and over)

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

Family membership fee \$22.00 (husband, wife, and all children under 18---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:

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