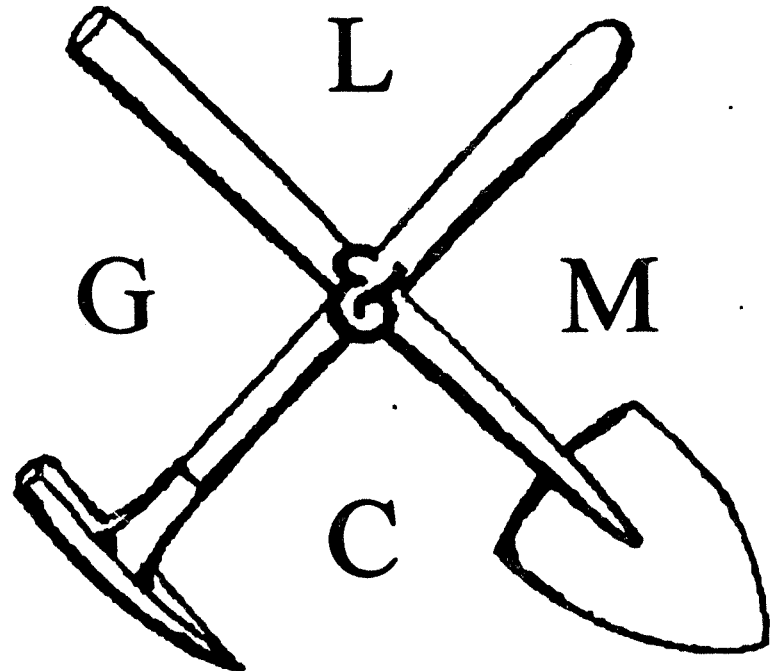


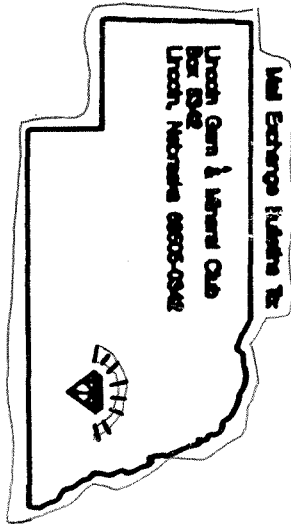
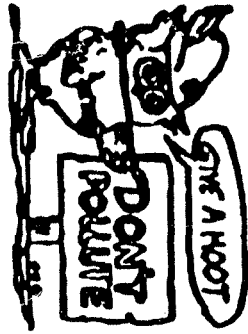
THE PICK & SHOVEL

DECEMBER 1997



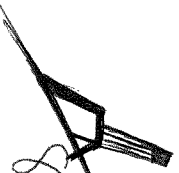
OFFICIAL PUBLICATION OF
LINCOLN GEM & MINERAL CLUB

LINCOLN, NEBRASKA



H. E. L. P.

Help Eliminate Litter Please


805-2179
FELIX

Associated with



CALENDAR

This month: Annual Christmas Buffet and Installation of 1998 Elected Officers
Antelope Shelter, 31st & Sumner, Sunday, December 14, 5 to 9 PM.
Club to furnish Ham & Turkey with Dressing, Coffee & Cups.
Each Family to bring a side dish, salad or dessert that you enjoy at Christmas,
your own table service, and big smiles. Please call Shirley Rockel, our Chairlady-
Hostess in order to coordinate the variety and quantity. **Eat at 6 P.M.**

ALSO: Bring some rocks or rock-related items for a SUPER Silent Auction **and be ready to enjoy the festivities.**

January 24, 1998 - Our 20th Annual Indoor Swap, Nebraska Center for Continuing Education,
33rd & Holdrege, Scottsbluff-Minden Room, 1 to 5 PM, Francis Belohlavy,
Chairman. Put it on your Calendar **now**. Anniversary Meeting follows 7:30 to
10 PM More detailed information in your January Pick & Shovel.

NEXT LGMC SHOW - MARCH 21-22 1998, Pershing Auditorium
(Our 40th Annual Show, Our RUBY Anniversary)
Hosting the 1998 Nebraska state Show

Nearby Shows to Visit

Jan.15 thru Feb.15,1998	SHOWS	Quartzsite, Arisona Area
Feb. 2 to 15, 1998	SHOW	Gem, Mineral, Fossil, & Jewelry-Tucson, Arizona
March 13-15, 1998	SHOW	Kansas City, Missouri-37th Annual

SEASONS GREETINGS

Congratulations & Best Wishes to Our New Officers and Board of Directors for 1998. May we all give our total Support

President-Jerry Moore
1st Vice Pres-Ed Ridge
2nd Vice Pres-Shirley Rockel
Secretary-Vera Lyman
Treasurer-Phyllis Parks

Board Members:

Kay Jurgens Kenneth Doe
Jim Atkins Marcia Eddy-Hamilton

DUES ARE DUE and payable for 1998 before January 1, 1998. Please pay at the next meeting or mail to our club box number as it appears on this Pick & Shovel. The schedule of dues for each member or family will be found on the ad page.

YOUTH NOTES

by Kay Jurgens

Happy Holidays to you! The November meeting presented an opportunity for junior members Danny, Emily, Janelle, and Ren to present trivia questions to the adult club members. They didn't know all the answers, but we had a good time, and everyone went home with a prize. At the December meeting, all juniors who want to exchange a present should "wrap up a rock" and bring it to exchange. We are having a silent auction, so bring money if you want to bid on anything. Remind your parents to bring a gift to exchange at the adult gift exchange if they wish.

I located an award-winning web site which could keep anyone interested in dinosaurs entertained for a long time. It's the Funky Dinosaur Page, located at: <http://www.comet.net/dinosaur/index1.htm>

This site can take you to articles, art, museums, reference, tours, and other information about dinosaurs, and is great for adults or kids.

"Tours" will take you to 9 different virtual tours. "Art" helps you identify different dinosaurs, and takes you to different sites to see or create dinosaur art. There are a dozen links at the "museums" site. The "Other" site provides an opportunity to sign up for actual dinosaur digs and field research. There is a listing of dinosaur families and subfamilies, and a place to buy stuff related to dinosaurs.

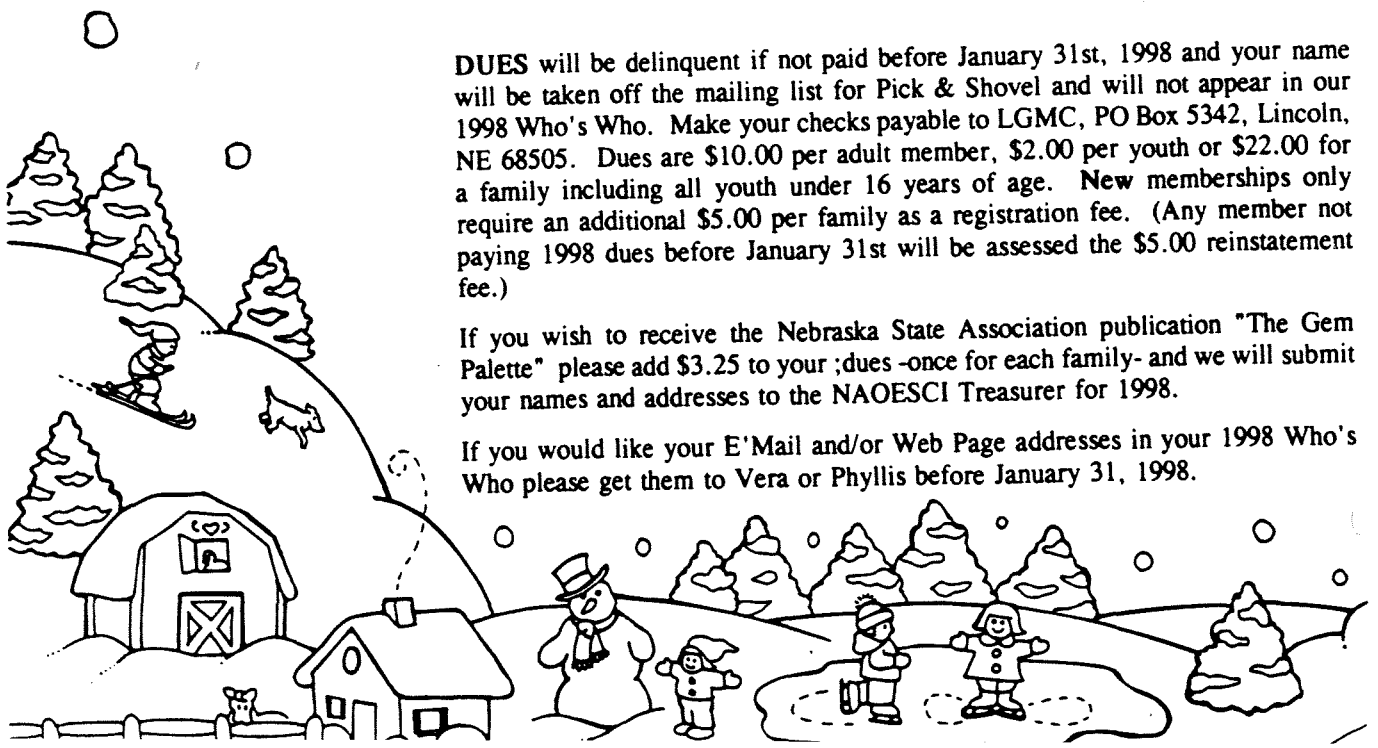
Three great kid's sites include:

Kids Com at: <http://www.kidscom.com/> (in Deutch or English)

ICIFor Kids Only Home Page at: <http://www.ici.net/forkids/forkids.html>

The Playground at: <http://www.merrymac.com/kidsafe.html>

I hope everyone has a safe and happy holiday season.



DUES will be delinquent if not paid before January 31st, 1998 and your name will be taken off the mailing list for Pick & Shovel and will not appear in our 1998 Who's Who. Make your checks payable to LGMC, PO Box 5342, Lincoln, NE 68505. Dues are \$10.00 per adult member, \$2.00 per youth or \$22.00 for a family including all youth under 16 years of age. New memberships only require an additional \$5.00 per family as a registration fee. (Any member not paying 1998 dues before January 31st will be assessed the \$5.00 reinstatement fee.)

If you wish to receive the Nebraska State Association publication "The Gem Palette" please add \$3.25 to your dues -once for each family- and we will submit your names and addresses to the NAOESCI Treasurer for 1998.

If you would like your E-Mail and/or Web Page addresses in your 1998 Who's Who please get them to Vera or Phyllis before January 31, 1998.



THE PRESIDENT'S MESSAGE

Seasons Greetings!

The November meeting showed a marked increase in the number of members present. We were able to hold elections and a new slate of officers and board members will be in place come January. I would like to thank all of you who have served the club as officers and board members during my tenure, including: Francis Belohlavy, Ben Darling, Brett Jurgens, Kay Jurgens, Vera Lyman, Gerald Moore, Roger Pabian, Phyllis Parks, Eddie Ridge and Shirley Rockel. I would also like to thank all of the various committee member including Past President David Heffelbower, Jim Parks, John Harrison, James Marburger, Kevin Schwartzman, Dwight Miller, Ken Doe, Susan Taylor, John Lewis, Lillie Lewis, and others that I may have failed to mention. I thank all of you for your efforts and dedication to the Lincoln Gem and Mineral Club. I intend to remain involved with the new board of directors and committees, lending my support to them any way that I can.

I hope to see many of you at our Christmas Dinner on December 14, 1997. Happy Holidays and Best Wishes for the New Year!

Wooly

1998 Show News

The following members have agreed to serve on the show committee in the capacities following their names. Committees without a name following have yet to be filled.

Chairman, Roger K. Pabian
 Finance, Phyllis Parks
 Ribbons and Recognitions, Kevin and Kathy Schwartzmann
 Dinner and Hospitality, Shirley & Bill Rockel
 Promotions, Vera Lyman, Roger Pabian
 Dealers, Demonstrators, Charles Wooldridge
 Junior Activities, Kay Jurgens
 Programs, Brett Jurgens
 Displays, Eddie Ridge
 Security, Vera Lyman
 Special Features, Bill & Betty White

Floor, _____

Internet Hook Ups, Francis Belohlavy
 Games and Contests, _____
 NAOESCI Silent Auction, _____

A number of dealers have signed contracts and their names will appear in the January Pick & Shovel.

Bill & Betty White have begun working on a featured display and we have some materials lined up from the Denver Museum. We will be making a final decision on what that will be in the near future.

The committee is urging all of the members, regardless of their level of participation, to prepare displays of various kinds for the show. Keep in mind that this will also be the Nebraska State Show and anything from the state will be of interest to show visitors

Thank you.
 Roger K. Pabian, Chairman

Nebraska State Show Report

submitted by LGMC Member Grant Bennett

November 8, 1997 - Shall have to repeat myself, which I do often. Met a lot of nice friendly people at the show. The show was held in the Hilltop Mall in Kearney, Nebraska. There was a total of five dealers, 5 demonstrators, and 22 cases. And being in the mall it was well attended. The Silent Auction and the Spinning Wheel were quite busy.

The delegate board and board of officers meetings were held in the local YMCA. Very new and beautiful. The board of officers meeting started at 1:05 PM which I attended. The general delegate's meeting started at 1:40 PM. Twelve delegates were present. The State Show will be held in conjunction with the Lincoln Show in March 1998. Introduced myself and let them know that I had pins & patches for sale. Sold 2 pins. The State Display case is falling apart. A volunteer stated that he would try to make a new case. Also one box holds three of the displays. A new box holding all six of the displays is being looked into.

All the articles in the by-laws were passed. In the standing rules some changes were made. In holding an auction at a State Show all the proceeds \$200.00 and below go to the State Association. Above \$200.00 goes to the host club--passed. Increase of dues to NAOESCI--increased to \$1.00 per adult member, \$2.00 per club member for insurance--passed. The cost of the state bulletin (Gem Palette) stays the same (\$3.25 per year.) The state association donates \$150.00 per year to Friends of the State Museum.

New officers for 1998 were elected. Randy Fry as President, Ed Anderson as Vice President,, Margaret Hohnholt as Secretary-Treasurer. There were a few tense moments as no one wanted the VP position. Ed Anderson volunteered. His comment was "I shall do my best." Meeting adjourned at 3:05 PM.

* * * * *

As Editor of Lincoln Gem & Mineral Club's newsletter I'd like to compliment and give a big shout of 'Well Done!' to our club President for the past 4 years, Charles 'Wooly' Wooldridge. I sincerely hope that all club members will join me in this as well as complimenting each of the persons who have served with him either as elected officers or as standing committee. I really believe that the club has had many worthwhile and/or fun activities during this period of time. Special thanks to Wooly and his family for the great picnics at their acreage each summer.

As Editor these same years I must mention the fine cooperation for the reports and information given in timely fashion to make my job easy and fun. My only displeasure has been the lack of attendance at meetings during this past year. **Lets have better attendance in 1998.**

* * * * *

Would like to report that the Attendance Lottery Doorprizes were won by David Heffelbower and Bill Rockel in November. Each of them had attended almost every meeting so they were well deserved. Also I think most of us really enjoyed the 'ROCKMANIA' hosted by Kay Jurgens and her Youth Group, especially the work related prizes which most in attendance earned. Thanks! Kay, Janelle, Emily, Danny and Rennie!

* * * * *

Remember

D U E S A R E D U E

Zircon, December's Birthstone.

Zircon is a relatively recent addition to the list of gems that are commonly worn for personal adornment. Its usage goes back only to about the last decade of the 18th Century. The stone has probably not enjoyed a highly successful usage such as has diamond, ruby or sapphire, and there are several reasons for this. First, zircon is relatively unstable as far as gemstones go. For example, on an important anniversary, a very wealthy man presents his wife a pendant with a very large faceted blue zircon in it. She wears it to the country club for dinner and dancing that evening and wears it on the next couple or three important social occasions. Then she decides that the stone is really too large and valuable to wear except on the most important social events and puts the piece away in a safe. The next big occasion is a few years later when her husband is promoted to chairman of the board. She decides to wear that pendant to the directors' annual dinner and takes it from the safe. Much to her horror, she discovers that the facet junctions on the stone are marred and dulled by numerous tiny chips that weren't there three years ago. It turns out that zircon has this nasty habit of chipping out at the facet junctions.

Metamict is a term that is applied to radioactive minerals or ones that have substituted radioactive elements in the crystal lattice that leads to disruptions in the crystal lattice and atomic arrangement within the crystal although the crystal retains its original external morphology. Zircon is one of these metamict minerals. Radioactive elements are characterized by a decay of the nuclei of their atoms. As Uranium 235 (U^{235}) breaks down, Alpha and Beta particles and Gamma Rays are emitted. The Alpha particles have a rather large mass and as they are ejected from the

nucleus of the atom, the effect on the crystal lattice is the same as if one were locked in a room and began firing a pistol in random directions. There would be bullet holes all over the walls, floor and ceiling of the room. As the alpha particles move at high velocity thru the crystal lattice, the effect is similar. The alpha particles leave their paths of damage or "bullet holes" in the crystal lattice. These paths are called *fission tracks*. It is the damage to the crystal lattice that is caused by radioactive decay of elements that is the cause of the chipping of the facet junctions.

Absolute dates are the numbers in years of the ages of rock samples taken from the earth. Not every rock in the earth is the same age and these fission tracks, as much of a pain they may be to the jeweler or gem fancier, are very useful little clues that help geologists date rock samples. Uranium 235 breaks down at a constant rate, or it has a known *half life*, the length of time it takes for half of a given quantity of a radioactive mineral to break down. If a radioactive element has a half life of one million years, then if you start out with 2 kilograms, in one million years it will break down yield one kilogram. It is also going to fire out a lot of Alpha particles into the surrounding medium. What geologists can do is count the number of fission tracks in a given area or volume. The tracks are very tiny and at first, a thin section of rock must be cut and it must be etched in *Hydrofluoric Acid* (HF) to enlarge the holes so that they can be seen under low magnification. The tracks are counted and this number is plugged into a formula and an absolute date is arrived at in this way.

Fission track dates offer the geologist a much less expensive method for obtaining absolute dates for rock samples. Dates can be obtained from other minerals but the method was originally developed with zircon.

December's birthstone still has several things going for it in spite of a tendency to chip out at the facet junctions. It is pretty hard (7 ½ on a scale of 10) and fairly tough. It has a fairly high *refractive index* (ranging from 1.92 to 1.95 on the low end and 1.96-2.02 on the high end), and these numbers measure how much a beam of light is bent and slowed down when it enters the stone. These variations are probably caused by the disturbances and irregularities in the crystal lattice. Zircon crystallizes in the tetragonal system and is therefore *uniaxial*. Minerals that crystallize in the tetragonal system have two refractive indexes, one of which remains fixed in value and one of which varies either upward or downward to meet the one of fixed value. In the case of tetragonal crystals, the refractive index that is parallel to the *c axis* remains fixed in value and this axis is called the *optic axis*. Zircon is uniaxial because it has one optic axis even though it has two refractive indexes.

Birefringence is the numerical difference of the higher and lower refractive indexes of a substance; hence, a numerical measurement of the double refraction of that substance. The birefringence of zircon can be as high as 0.10 ($2.02 - 1.92 = 0.10$, from above). That means that double refraction can be readily detected in even small stones, which will show strong doubling of the back facets when viewed thru the table. To minimize this effect, the faceter can orient the stone such that the table of the completed stone is perpendicular to the *c axis* or the optic axis of the crystal.

Dispersion is the ability of a substance to break white light up into its component colors— red, yellow, and blue. For zircon, this figure is quite high, 0.039. This measure is arrived at the numerical differences between the refractive index measured from the red and blue wavelengths of light. From the jeweler's

viewpoint, the dispersion is a measure of the colorful sparkle of a faceted gem as it rolls around in white light.

Zircon comes in quite a few colors: colorless, yellow, brown, orange, red, violet, blue and green have been observed. When zircons are removed from their host gravels, they are commonly cloudy and clear up only after being heat treated by baking them in mud balls for several days. The rough material comes in high, medium, and low forms, with high having the highest physical and optical properties. Low zircons are usually glassy and only about 6 hard. These anomalies are also probably due to the metamict state of the mineral.

For further reading:

- Liddicoat, R. T., 1969. Handbook of Gem Identification. Gemological Institute of America, Los Angeles, CA, 430 p.
- Schumann, W., 1977. Gemstones of the World. Sterling Publishing Co., New York, 256 p.
- Shipley, R. M., 1971. Dictionary of Gems and Gemology. Gemological Institute of America, Los Angeles, CA, 230 p.
- Zeitner, J. C., 1996. Gem and Lapidary Materials for Cutters, Collectors, and Jewelers. Geoscience Press, Tucson, AZ, 347 p.

---Roger K. Pabian

November's Exhibitors

Thanks to those who brought exhibit items for the November Meeting. Jim and Phyllis Parks brought yellow and white topaz, labradorite from Mexico, feldspar from Canada, and a moonstone from India. Eddie Ridge brought topaz and calcite crystals. Grant Bennet furnished a fine abalone shell, and Roger Pabian exhibited agate cabochons.

RKP

December's Exhibits

Red and green gems, minerals, crystals, etc. Cases furnished.

RKP

