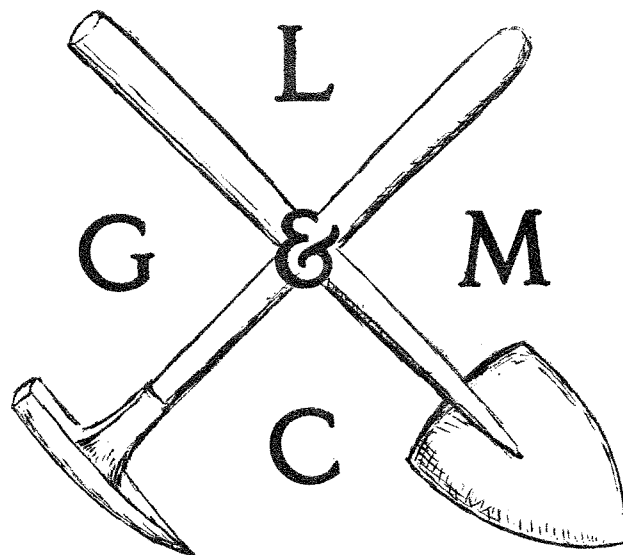


THE PICK & SHOVEL



MAY - 1973

OFFICIAL PUBLICATION OF

LINCOLN GEM & MINERAL CLUB

HOST OF COMBINED

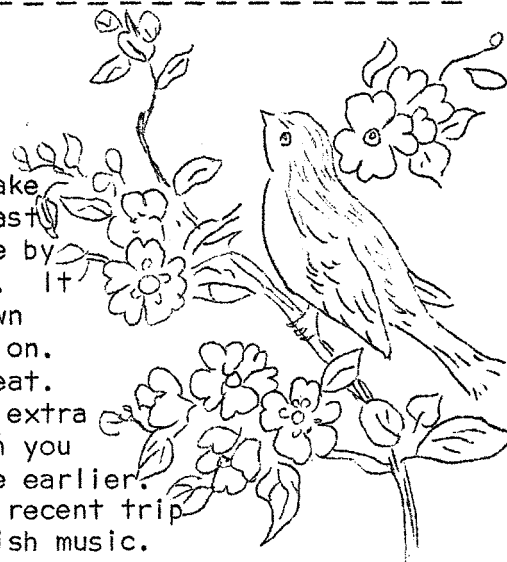
MWF-AFMS NATIONAL SHOW AND CONVENTION
AND NEBRASKA STATE SHOW

JUNE 13-16, 1974
LINCOLN, NEBRASKA

C A L E N D A R

REGULAR MEETING...Sat. May 19th, 6:30 PM

Pot Luck supper at Dick Hornung's lake
Take Highway 2 three-fourths mile east
of 84th & Hwy. 2, turn north in gate by
metal building on left side of road. It
will be necessary to furnish your own
table & chairs, or a blanket to sit on.
Bring a covered dish and your own meat.
Grills are available. Bring enough extra
for one person. If you like to fish you
may bring your fishing gear and come earlier.
Tom Simmons will show slides of his recent trip
and the Oliver Polka Band will furnish music.



MUSEUM VOLUNTEERS: Nebraska Hall - 4th floor, Friday nights 7:30 sharp. Enter at west door. Take elevator to 4th floor. Last meeting May 11th. Will reopen in September.

NOTICE:..Sorry, we goofed! Somehow we got an old flyer for Meridian Rock Club Swap at Lexington, and as a result in our "Dates to Remember" set a date for the Swap that was in error. No plans for a swap have been made as yet, Mr. Grayek program chairman informed us.

WELCOME NEW MEMBERS...Judy Walt, 2911 Jackson Dr. 68502 423-8477

WHO'S WHO ADDRESS CORRECTION...Don Eckel, 3838 Randolph

1974 STEERING MEETING...May 17th, 7:30 PM, Nebraska Hall, Univ. of Nebr. Campus, Rm 122

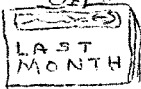
LGMC BOARD MEETING...May 31st, 7:30 PM, Nebraska Hall, Univ. of Nebr. Campus, Rm 122

LGMC June MEETING...June 23rd, 7:30 PM...Social get-together at our own Club Room.
Bring your bragging finds and socialize.

AN INVITATION HAS BEEN EXTENDED TO LGMC members by the Hastings Club to join them on a field trip to Orella Memorial Day weekend. Meet at 8:00 AM at the Campground at Crawford...have a good week-end.

DATES TO REMEMBER:

- MAY 12-13 LINCOLN GEM & MINERAL CLUB SHOW, EXPOSITION BLDG., STATE FAIRGROUNDS,
LINCOLN, NEBRASKA
- May 19-20 Hot Springs Gem & Mineral Show, City Auditorium, Hot Springs, SD
- May 26-29 Field Trip...LGMC to Jet, Oklahoma
- June 9-10 STATE ROCK SWAP...Hebron, Nebr.
- June 16-17 Homestead Gem & Mineral Club Show, Chautauqua Park, Beatrice, Nebr.
- June 16-17 Norfolk area LGMC field trip-see Field Trip Guide
- June 24 LGMC Field Trip Louisville or Plattsmouth area-see Field Trip Guide
- July 8 LGMC Field Trip-Fullerton area
- July 21-22 Marysville, Kansas area
- Aug. 4-5 LINCOLN GEM & MINERAL CLUB SWAP, NAT'L. GUARD PARK, 10th & MILITARY,
LINCOLN, NEBRASKA
- Aug. 18-19 NW Nebr. Rock Club Show, Crawford, Nebraska
- Sept. 1-3 Nebraska Mineral & Gem Club Show, Nat'l Guard Armory, Omaha, Nebraska
- Sept. 22-23 Arbor Valley Rock & Mineral Club Show, Memorial Bldg., 810 Corso, Nebr. City
- Sept. 28-30 Nebraska STATE SHOW - NAOESCI - North Platte, Nebraska



There were 57 members and 5 visitors at our April meeting. The guest list included Gaylon D. Shiel, Ralph McClintock, Herbert H. Ulrich, and Mr. & Mrs. Peter Klein, and Miss Judy Walt.

Ralph Ulrich reported on the progress of the '73 Show. Everything is going well. It looks as if we're going to have a great show. Application forms for competitive displays were available, and registration forms for Open Display were passed out. Don Eckel requests that anyone having fluorescent displays contact him, and C. Ray Waddle would like to have those desiring him to do lettering for them to get the information to him prior to the Show. Exact wording and size of lettering should accompany the request.

After the business meeting a film on rescue breathing and heart massage was shown. Dr. Stehl gave a short talk on the importance of being properly prepared to administer first aid. He thinks that Rockhounds who don't have first aid training have "rock in their heads."

Cookies, coffee and fruit juice was served after the program, and we all had a good time visiting as we partook of our refreshments.

COMMUNITY ARTS COUNCIL



The council met in conference with Mid America Arts Alliance represented by four states in the area. The meetings were held April 27-28, Friday evening following the performance of the St. Louis Symphony a reception was held at the home of Dr. & Mrs. Hiram Hilton at 2500 Woodcrest.

Conference participants heard from several representatives of National Arts groups. Then they toured Sheldon Art Gallery.

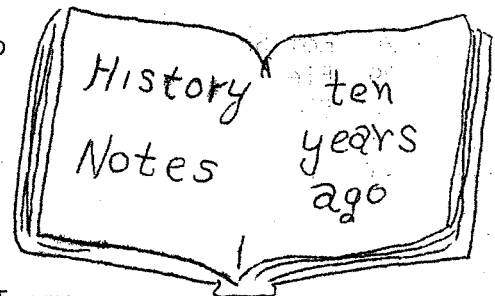
Friday afternoon highlighted chief interests directed to raise more funds. Peter Pastreich, Executive Director of the St. Louis Symphony (co-ordinator of successful drives for state appropriations in Missouri) urged personal commitments of legislators to increase State appropriations for the Arts of the several states represented in this group.

On Saturday the participants heard a presentation by New York artist Allan Gussow. A short business meeting concluded the conference.

Raymond R. Pfeiffer, representative

The May meeting of the Lincoln Gem & Mineral Club was held at Roberts Dairy Party Room with fifty-six members present.

Mr. & Mrs. William Tolman of Manteca, California showed slides of Monument Valley. During the coffee hour they shared some swap material.

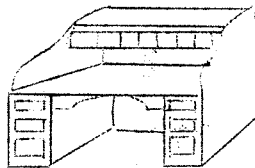


-from the notebooks of Historian, Frances Tracy



Vaja Con Dios - May God Be With You

A card this month went to
Helena & Augusta Baegl (sympathy)



FROM THE PRESIDENT'S DESK

One of the greatest problems to effect rock collecting for this year will be the impending gasoline shortage. True, there is much bickering as to whose fault it is. The independent gas dealers are blaming the major oil producers for the gas shortage and claim that it is part of a grandiose price fixing scheme. The majors, on the other hand claim that the gasoline shortage is resulting from lack of economic incentive to explore for more petroleum reserves and from running refineries at far less than capacities because of anti-pollution laws. Further, the new anti-pollution devices required of new model cars are said to consume about 35 percent more gasoline, or cause the cars to consume 35 percent more gasoline. We as individuals should also look to ourselves and see what we are doing to cause the gasoline shortage and what part we can play to relieve it. Regardless of whose fault the gas shortage is, it is here and upon us. How we react as individuals will help to determine whether local gas dealers finish each month with surplus gas or whether they close their facilities at the end of each month awaiting the gas allotment. There are several things we can do.

1. Be sure the air cleaner to your carburetor is clean and allowing a full flow of air to each cylinder. Gasoline consists largely of Octane, given by the formula C_8H_{18} . When ignited, it combines with oxygen by the following reaction



or 2 molecules of octane combine with 25 molecules of oxygen to form 16 molecules of carbon dioxide and 18 molecules of water. If the air cleaner is dirty and say only 18 molecules of oxygen get in each reaction, the result is unburned gasoline and carbon monoxide, as well as nitrous oxides, escaping into the atmosphere with our exhaust. If the air cleaner is functioning properly, sufficient oxygen should enter each cylinder to ignite all the gas and reduce gas waste and pollutants to a minimum.

2. Be sure your spark plugs are clean. A good spark will assure proper combustion is taking place within the cylinder. If the spark is poor and takes place only part of the time when the piston is in firing position, the result is much unburned gasoline going into the atmosphere with the exhaust.

3. Be sure the car is properly timed. If the distributor is set far ahead or behind, ignition takes place before the piston is in firing position, resulting in wasted gas again.

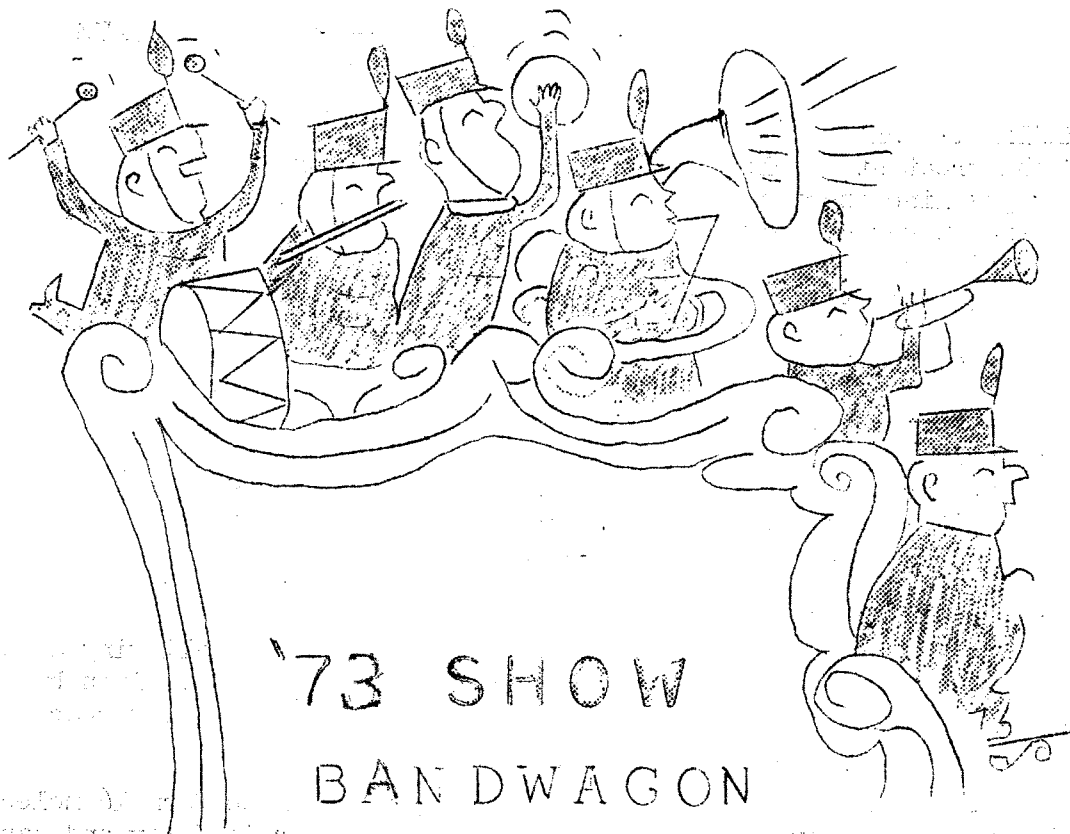
4. Be sure the carburetor is properly adjusted and set the idle low for the summer months. Proper carburetor adjustment will assure that only gas vapors and no liquid gasoline enter the cylinder. Only the vapors fire--liquid gasoline goes out with the exhaust. A low idle will assure burning less gas when you are waiting at stop lights or stop signs.

By doing the above things we may be able to increase our gas mileage by as much as 4 or 5 percent. Though 4 or 5 percent seems small, the difference in not keeping our cars in proper working order and keeping them in proper working order may be having 101 percent of the gas we need or having 97 percent of the gas we need.

In addition to keeping our cars well tuned, we may also do some other non-automotive things to save gas. We can consider walking or riding bicycles for those short trips which are so common. Not only will gas be conserved, but beneficial exercise will result. Walk to the drugstore, to lunch from your office, to church, to school. The elderly who may have a hard time walking can do their part by planning their trips to combine several things, such as the trip to the drugstore and office.

We can approach this impending gasoline shortage with either panic or plans. We will all have to do our part as individuals. Members are invited to submit their gas saving suggestions to the editor.

Roger Pabian,
President



'73 SHOW BANDWAGON

Show date is upon us...don't forget to enter your exhibit in our LGMC 15th Annual Show. To enter non-competitively Don Lawson, floor chairman, will help you locate your display on the show room floor. Every exhibitor will receive a ribbon. To enter competitively we will follow the AFMS Uniform Rules and Howard Taylor has the rules books for sale if you don't already have one. Trophies have been contributed as follows:

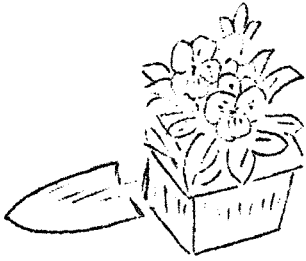
- Best in Minerals - contributed by Roger Simmons
- Best in Jr. Division - contributed by Sally Heald
- Best in Lapidary - contributed by John & Lee Harrison
- Best in Fossils - contributed by Roger Simmons
- Best in Open Display - contributed by Lois & Irl Everett Lapidary
- Best in Show - contributed by Tom Simmons Lapidary

Set up day is Friday May 11. Eight dealers will be on hand to satisfy our desires and our pocketbooks. Special features will delight you and the working demonstrations and working shop are always of interest.

The Swap area should be a busy place and a good place to rest your feet while you chat and arrange for your favorite specimen. The Rock Pile has been stocked with some especially fine donations and it would be worth your time to look in on this area.

Be sure to sell your advance tickets to assure us of a good attendance and also be sure to buy your ticket for the Saturday night banquet. Marie Wells has organized a good program and a good meal, and has tickets for sale. Irl & Lois Everett also have these tickets for sale so get yours now.

SEE YOU AT THE SHOW....SEE YOU AT THE SHOW...SEE YOU AT THE SHOW...SEE YOU AT THE SHOW

MAY

The third month of the Roman calendar. The ancient Romans used on May Day to go to the grotto of Egeria in a procession. The month was regarded as unlucky for marriage owing to the celebration of the Lemuria, the festival of the unhappy dead.

In mediaeval and Tudor England May Day was a great public holiday. All classes of people were up with the dawn to go to "a-maying". They carried branches of trees and flowers, the center of the procession being occupied by the may pole glorious with ribbons and wreaths. Usually the maypole was set up for a day only, but in London and larger towns the poles were of durable wood and permanently erected. The maypoles were great eyesores to the Puritans. John Stubbes in his Anatomy of Abuses speaks of them as those "stinckyng idols" about which people "leape and daunce, as the heathen did." Maypoles were forbidden by parliament in 1644, but came back into favor at the Restoration.

A widespread superstition in England held that washing the face in a May morning dew would beautify the skin.

The birthstone for May is the emerald, the zodiacal sign is Gemini and the flower is the hawthorne.

Who first beholds the light of day
In spring's sweet flowery month of May,
And wears an emerald all her life,
Shall be a loved and happy wife.

THE EMERALD

The emerald was believed to foreshadow future events. To predict future events the emerald must be placed under the tongue. As a revealer of the truth, this stone was an enemy of all enchantments and conjurations. It was greatly favored by magicians, who found all their arts of no avail if an emerald were in their vicinity.

It was believed that an emerald would strengthen memory, help one become an eloquent speaker, and would reveal the truth or falsity of a lovers' oath.

In Rabbinical legend it is related that God gave Solomon four precious stones. One of these was an emerald. The possession of the four stones is said to have endowed the wise king with power over all creation. As these four stones probably typified the four cardinal points, and were likely red, blue, yellow, and green, they might be carbuncle, lapis lazuli, topaz and emerald.

An emerald was supposed to make the wearer more honest. It also made men more economical and hence rich.

A talismanic emerald, once property of the Mogel emperor of Delhi, has

The Emerald....continued.

been shown in Europe. The stone is rich deep green, it weights 78 carats. Around the edge is the Persian inscription; "He who possesses this charm shall enjoy the special protection of God."

The light colored stones were esteemed best and believed to be brought from the nests of griffons.



Notes taken form the book The Curious Lore of Precious Stones, by Georgw Frederick Kunz. Copyright by J.B. Lippencott Co. Renewal, 1941 by Mrs. Ruby Kunz Zensser, Used by permission of the J.B. Lippincott Co.

ESSAY ON SOIL PROBLEM

Some time ago the editors of Farmer-Stockman printed a picture of a desert farmhouse in a desolate, sandswept field, then offered a prize for the best 100 word essay on the disastrous effects of land erosion. A bright Indian lad from Oklahoma bagged the trophy with this graphic description.

"Picture show white man crazy. Cut down trees. Make too big teepee. Plow hill. Water wash. Wind blow soil. Grass gone. Deer gone. Squaw gone. Whole place gone to hell. No pig. No corn. No pony."

"Indian no plow land. Keep grass. Buffalo eat grass. Indian eat buffalo. Hide make plenty big teepee. Make moccasin. All time Indian eat. No work. No hitch-hike. No ask relief. No build dam. No give dam. White man heap crazy."

--from the Scooper Snooper
via the Gem Scoop

TENDERIZE THAT STING

When an irritated bee, wasp, hornet or similar insect drills a hole in your hide, what should you do about it?

FIRST: Beat the villian off, THEN go to you camper and grab the meat tenderizer jar, dissolve ¼ teaspoon of it in two teaspoons of water and rub it onto the skin around the sting. It will stpp the pain of most insect stings in seconds, says DR. Harry Arnold Jr. in a letter to S.M.A. Journal. The meat tenderizer, he says, is rich in papain, a protein dissolving emzyme which breaks down the venom.

-via
The Gem News

The trouble with stretching the truth is that it's apt to SNAP back.
-Franklin P. Jones



GLENNA'S GLEANINGS

Harry Gragg won a \$50 first prize in a Handicrafts contest sponsored by the Elks Club for a handwoven scarf. Our sincere congratulations!

The 4-H Petrified Pebble Pups are displaying two cases of specimens for the 53

County Extension Agents meeting in Halsey. They also participated in the "Clean-A-Mile" project, collecting fourteen bags of litter.

Mr. & Mrs. Virgil Carveth report the graduation with distinction of their nephew, John Hier, from the University of Nebraska in May.

Tim & Gladys Jeurink's son, Gary, is the recipient of an Athletic Scholarship to the University of Nebraska in the fall. He is a spring graduate of Southeast High.

Mike Holmquist is reported to be in bed with a wrenched back. It happened while pushing a car.

The Larry Van Cleaves are proud owners of a brand spanking new Dodge Charger. Must be nice!

Norma & Perry Miller have two spring graduates in their family - son Randy from East High and daughter-in-law, Joan (Les's wife) from the U. of N. with a Math Degree.

John & Lillie Lewis' son, David, made the Dean's List at the U. this year. Another son, John, Jr., is managing a resort at Jackson Hole, Wyo. this summer so Mom & Dad plan to visit him and presumably do a bit of rockhunting.

Ralph Ulrich is making a business trip to Kansas City this week and another to Ogallala for the May 5th 1974 Show meeting with NAOESCI.

John Harrison invites all club members to attend the Hickman picnic and barbeque on June 22nd, 23rd and 24th.

Tracy Bigley, daughter of Larry & Marita, got hurt on the school grounds, necessitating six stitches in her forehead. Cheryl Bigley won second price in a Science Fair at St. John's School.

Don Eckel requests named specimens for the blacklight display at the May Show. Call him at 488-3678, after eight PM if you can contribute.

Marie & Lynn Wells' son, John, visited Clark at his Army post in California over Easter week.

Roger coauthored a paper entitled "Delacrinus Brown Villensis, Strimple from vicinity of Fairfax, Oklahoma" with Harrell L. Strimple of Iowa City, Iowa, published in the February issue of Oklahoma Geological magazine.

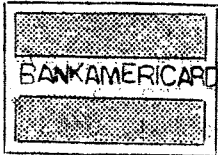
Sympathy is extended to Miss Helena & Emma Baegl on the recent passing of their sister Augusta.

Due to a slight case or remodeling my kitchen, Pat Lawson should have credit for collecting the larger percentage of news items this time. My thanks to her -

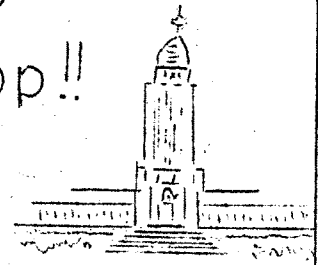
Glenna McGinnis

Everett Lapidary Shop

capitol city's first rock shop!!



2941 NORTH 65th STREET - PHONE 466-6204



SEE US AT THE 1973 LGMC SHOW

WE ARE YOUR DEALERS

"SATISFIED CUSTOMERS ARE OUR BEST ADVERTISEMENT"

Abstracted from the 80th Proceedings of the Nebraska Academy of Sciences and Affiliated Societies - April 24-25, 1970.

PALEOECOLOGY OF PENNSYLVANIAN CRINOIDS FROM SOUTHEASTERN NEBRASKA AND SOUTHWESTERN IOWA
 Roger K. Pabian, Conservation and Survey Div., University of Nebraska
 and Harrell L. Strimple, Department of Geology, University of Iowa

Two distinct types of fossil crinoid populations are found in Pennsylvanian rocks of southeastern Nebraska and southwestern Iowa. "Type I" crinoid populations consist mainly of large Inadunate species of Erisocrinidae, Pirasocrinidae, Ethelocrinidae, and Cromyocrinidae. "Type II" crinoid populations consist of small Inadunate species of Erisocrinidae, Pirasocrinidae, Ampeleocrinidae, and Apographiocrinidae, and small species of the Flexibilia Taxocrinidae, Dactylocrinidae, and Leacanocrinidae. The invertebrate faunas associated with each type of crinoid population is different, few species being common to both. Type I and Type II crinoid populations contain very few species in common. Paleocological evidence may indicate the two types of populations were temperature controlled, Type I being a warm water population and Type II being a cold water population.

SECRETS OF ANCIENT EGYPTIAN PAINTS REVEALED - Rocky Mountain News

The Antiquity Department of Egypt announced last summer it had found the formula the artists of ancient Egypt used to devise paintings that have remained vivid for thousands of years. These craftsmen used a crystalline compound which resists temperatures of 1,000 degrees centigrade and won't yield to potent modern acids.

Dr. Saleh Ahmed Sal Eh said chemists using X-rays took more than three years of intensive research to crack the secret of their ancestors' blue and green paints. The formula was one part each of copper oxide and calcium oxide and four parts of silicon oxide, fused in extremely hot ovens, finely ground and then mixed with egg yolk and gum.

- via Quarry Quips

FOOD FOR THOUGHT: A great deal of what we see depends on what we're looking for.

OUR TRIP TO THE MIDWEST FEDERATION COUNCIL MEETING

We left Wednesday evening, April 4th, by way of the McGinnis' to pick up a mammoth tooth and a blue celestite and headed for Des Moines, Iowa. We had a nice collection of Nebraska material for the Iowa Science Fair. We had material from Don Eckels, Tom Simmons, Roger Pabian, the Ewald Pauls, along with the McGinnis' and the Taylor's. We arrived in Des Moines by 9:00 PM and headed straight for the Leo Yanasak home. We were graciously received. The coffee pot was on in no time and we had a long visit with them. They thought we would stay over but we were still planning to go further down the road. We finally gave up about 1:30 AM and spent the night in West Branch, Iowa.

Next morning we headed straight for Gregory, Michigan. What a beautiful day it was! We saw beautiful country and were making good time. We decided to go 34 miles out of our way to surprise Stan and Hazel Greenwade's folks at Kendallville, Indiana. It was a real heartbreak for us as well as Stan's folks that they weren't home. This was their anniversary so they decided to celebrate it in Fort Wayne. We turned back and headed for Gregory.

We arrived there about 7:00 PM, 780 miles from home. We were guests of Art & Hilda Zech. We met these friends in 1968 in Wyoming (Eden Valley) and kept in touch all these years. They wanted so much for us to drop in on them when we made this trip, so this we did.

Talk about avid rockhounds, they get top billing. We never realized that they had such a large collection. We had dinner and then we talked and talked until midnight. We were pretty tired but we were up bright and early next morning. We had breakfast and headed for the two story building that houses some of their rock collection and all of their cutting and polishing equipment.

After we packed our car with the rocks they gave us, we thought we had better prepare dinner and head for Chicago. They say rockhounds like to eat as well as hunt rocks and that's so true. We had the most delicious meals one could wish to eat. So much good food! Mrs. Zech is a good cook. For dessert, they gave us a 50# 'Texas Thumbnail' (a Canadian Amethyst) and three Canadian Blue Celestites. Some dessert, I'd say!

We took off on Highway 294 and headed straight for Benton Harbor and St. Joseph, Michigan. We combed the beach of Lake Michigan for rock and driftwood. Plenty of beach rocks were found.

We arrived in Morton Grove about 7:00 PM. Howard attended the State Directors Meeting that night. Next morning we headed for the MWF meeting. It was well attended. They opened the meeting with a silent prayer in memory of the death of several members, and the more recent death of Mr. Paul Blocher. They had a slide program on the "Eruption of the Volcano of Kilisee, Hawaii."

It was decided that they would present awards for length of service with the MWF. It was also decided to try and have every state bring a case and state flag for display at the Cincinnati, Ohio convention. In 1975, Detroit and the Canadian Federation will host the MWF Convention and International Show in Detroit, Michigan. St. Louis, Missouri asked to host the show and convention in 1976. Cleveland, Ohio extended an invitation to the MWF to host a show and convention in Cleveland in 1977.

(continued next page)

OUR TRIP TO THE MIDWEST FEDERATION COUNCIL MEETING (Continued)

The meeting closed about 4:00 and we were invited to attend the Chicago Club Show. A group of us did attend the show and found it certainly was a well attended show. They had so many beautiful displays. They had some very nice ideas of displaying a lot of their material on open risers.

We finally thought we had better head for Lincoln. It looked stormy and it was quite cold. We certainly were glad we had. We drove as far as LaSalle, Iowa that night. Next morning we heard about the storm coming up. We were in snow and rain most of the way home. When we did arrive at home we heard about the ten inches of snow in Des Moines and Iowa City, and we were really happy we were home safe and sound.

-Marie & Howard Taylor

Weeping Water Field Trip...Sunday, April 29, 1973...28 club members turned out for the trip. It was a beautiful day, and a picnic dinner on the Walter Patton farm was enjoyed by those present. Mrs. Lois Terry, who recently joined the club, hosted the afternoon session. As far as collecting was concerned it was a success, too. More on this will appear in the May bulletin.



Thanks

I wish to thank all those who remembered me with cards, gifts, flowers and visits while in the hospital and at home following surgery. Your kindness and best wishes are appreciated.

- Marie Wells

NOTICE...The 1973 Rockhounds Directory is now available. It is pocket book sized and contains the names and addresses of over 270 individuals. In most instances their listing includes their gem and mineral interests and whether they wish to buy, sell or swap. The price is \$1 each plus 25¢ to cover postage and handling. They may be obtained from P. R. Page, P. O. Box 1233, Gainesville, FL 32601.

SCHOLARSHIP HONOR AWARDS ANNOUNCED - by Paul Seel - via AFMS NEWSLETTER

One of the most gratifying accomplishments of the AFMS was the creation of the AFMS Scholarship Foundation. This is a separate organization with its own elected officers. The members of this organization are the directors of AFMS.

Each year, until 1971, a person with outstanding accomplishments in the field of Earth Sciences was honored during the national convention. Each Honorary Award winner had the privilege to select an institution of his choice and with its help select students to receive the foundation's grants. These are awarded to help the student earn an advanced degree, either an M.S. or Ph.D., in the field of earth sciences.

Honorary Award Winner for the Midwest Federation: Prof. Stuart Struever, Professor of Archeology, Anthropology Dept., Northwestern University, Evanston, Illinois. Professor Struever was chosen for his leadership in bringing modern scientific methods from other disciplines to bear on archeological research.

Lincoln Gem and Mineral Club, Inc.

7TH ANNUAL

ROCK

SWAP

10TH AND

MILITARY

LINCOLN NEB.

AUG. 4TH & 5TH

FREE CAMPING 2 FIELD TRIPS

FOR MORE INFORMATION
CONTACT

DON CARTER 1101 DRIFTWOOD DR.

On August 4th & 5th the Lincoln Gem & Mineral Club will have its annual Rock Swap at the National Guard Park, 10th & Military Road, Lincoln, Nebr.

Our Field Trip Chairman Larry Bigley has two fine field trips lined up for Saturday and Sunday afternoons. One for fossils and one for cutting material. Saturday night we will have a watermelon feed and entertainment by Oliver's Polka Band.

By having the swap at this time of year we should have a lot of people back from vacation with a lot of material they have collected. So bring some of your goodies and join us for two days of fun. For more information contact Don Carter, 1101 Driftwood Drive, Lincoln, Nebraska 68510, or phone 489-3442.

FIELD TRIPS:

DATE: August 4, 1973, 10:00 AM

DESTINATION: Weeping Water, Nebraska

REGISTRATION SITE: Rock Swap Site

MATERIALS TO BE OBTAINED: Fossils and possibly some minerals

EQUIPMENT FOR THIS TRIP: Rock picks, sledges, chisels, cracking hammers,
hard hats, safety glasses, and containers for specimens

POSSIBLE SITE HAZARDS: Rock overhangs, steep inclines and water

COMMENTS: Please be careful as some of these sites are being worked and some are old and have decaying limestone. Remember DON'T TOUCH WIRES!

DATE: August 5, 1973, 10:00 AM

DESTINATION: Beatrice, Nebraska

REGISTRATION SITE: Rock Swap Site

MATERIAL TO BE OBTAINED: We will be searching gravel pits for agates, wood,
and bones

EQUIPMENT FOR THIS TRIP: Small boxes, buckets or shoudler bags

POSSIBLE SITE HAZARDS: These are working sand and gravel pits so stay away
from the waters edge beacuse of slide possibilities

CHARACTERISTICS OF GEMSTONES

Most people find the subject of gemology fascinating, whether they have any direct application for the information or not. Our study of how materials form in nature into minerals we see and the growth of crystals are subjects that still retain many facets of mystery.

The things which we have around us everywhere can be divided into two very broad classes, ORGANIC and INORGANIC. Organic of course includes those items in the plant and animal kingdoms as well as those gem materials such as pearl, coral, amber and jet. Inorganic then is confined to the mineral kingdom.

For our session this time let us only consider the natural mineral kingdom. Minerals, therefore, are natural inorganic products that possess a characteristic chemical composition and usually a definite crystal structure. Everything in our world is composed of one chemical element or a combination of elements (i.e. Diamond is composed of carbon, a single element) whereas most other gemstones are composed of combinations of elements. Metals usually are made up of a single element. Mineral species^(a) are classified according to their chemical composition and the arrangement of the atoms that comprise them. A mineral formed under favorable conditions results in a definite and characteristic internal structure (atoms of the elements that make up the mineral will have arranged themselves in an orderly fashion). This definite structure is known as CRYSTAL STRUCTURE or CRYSTALLINE STRUCTURE.

If on the other hand the elements do not form under reasonably favorable conditions, such as formation too rapidly so as to not permit the atoms to arrange themselves into their orderly fashion, then we call the material AMORPHOUS (pronounced ah-MOR-fuss) meaning without form. (Amber, jet, glass and opal are amorphous) "The difference in internal arrangements of atoms in any single plane in crystalline and amorphous materials might be likened to the difference between a battalion of soldiers at attention and a crowd of people standing in a field to watch a spectacle."⁽¹⁾

Why all this talk about atoms and crystal structure? Gemologists as well as lapidarists have found that a direct relationship exists between the crystal structure and the important properties that lend beauty and durability to a gemstone. Also, these properties are important in cutting and vital to the identification of gem materials. The cutter must know enough about the stone to be able to cut it to maximum advantage in terms of the ultimate beauty the rough can yield. Knowledge of crystals and crystal structures lead to the correct orientation of cutting so as to obtain the best color for beauty and value of the gem material.

External reading from an encyclopedia concerning the atom is suggested here so you thoroughly understand the formation of crystals. However, I'll give a very brief idea here of this formation process.

"The affinity of atoms of one element for atoms of other elements often results in a growing process, although not in the same sense that plants and animals grow. Crystal growth may be likened to the growth of a mass of tiny iron filings attracted

(a) refer to definition in first article "Pick & Shovel", March 1973

(1) GIA, COLORED STONES, chapter 2, page 2, copyrighted 1964, Gemological Institute of America, Los Angeles, California

CHARACTERISTICS OF GEMSTONES (Continued)

to a magnet. It can better be described as the attraction of like atoms forming layer upon layer from the center outward producing a definite geometric form. This growth results in a crystal form with faces so symmetrically placed and so smooth and highly reflective that it creates doubt on the part of an inexperienced observer that they have not been fashioned by man. Crystals are among the most unusual objects in nature, since they do seem to have this growth characteristic even though they are inorganic and have no life. Each crystal attracts the same kind of materials of which it is composed and arranges them with a fantastic accuracy in specific positions and holds or locks each atom into place. Almost every compound that forms in nature takes on a crystal structure as it accumulates. It is rare to encounter inorganic materials in nature without a definite internal structure, such as glass and opal. They are the exceptions rather than the rule."⁽²⁾

Hence, the physical properties of a gem material, such as cleavage, hardness, and toughness depends on the internal structure. These items vary as the arrangement of the internal particles vary.

Each mineral species has a characteristic pattern of its own that results in like external forms or crystal shapes.

Now I know some of you are thinking that if he said everything forms into a characteristic crystal pattern, then why can't I see the structure or outward appearance of crystals in all my gem materials? CRYSTALLINE is the answer. Often a crystalline structure does not result in a definite geometric external form that is recognizable to the eye--such material although, has an internal crystalline structure, appears to the unaided eye as a MASSIVE form, more or less a shapeless mass. This is most commonly encountered when the position in which the mineral grew was confined by other growing crystals (i.e. crystalline quartz: variety chaledoney).

"It is obvious that, scientifically, the term crystal means WITH orderly internal structure, whereas the term glass means WITHOUT orderly internal structure. It is correct to refer to an amethyst necklace as being crystal, but a manufactured glass imitation of amethyst is NOT crystal. Also, a manufactured glass replica of a rough diamond crystal is not crystal. It is clear from this that fine lead glassware is incorrectly called "crystal." Certain naturally occurring substances possessing neither orderly arrangement of atoms nor constant chemical formulae, such as obsidian, are known as NATURAL GLASSES."⁽³⁾

Terms we should become familiar with to best describe materials based on their appearance to the unaided eye since crystalline materials occur in the natural in several different forms are as follows:

A. Crystals

Crystals are substances that possess a crystal structure and are wholly or partly bounded by natural, plane surfaces.

(2) GIA, COLORED STONES, chapter 2, page 3, copyrighted 1964, Gemological Institute of America, Los Angeles, California

(3) GIA, COLORED STONES, chapter 2, page 5, copyrighted 1964, Gemological Institute of America, Los Angeles, California

(continued next page)

CHARACTERISTICS OF GEMSTONES (Continued)

B. Twin Crystals

Sometimes two crystals, or two parts of the same crystal, are joined together along a common axis, or plane. Such a formation is called a TWIN CRYSTAL.

C. Crystal Aggregates, or Groups

A number of crystals sometimes grow together. Each crystal in the group is large enough to be seen easily and is more or less perfect. A group of such crystals thus grown together is known as a CRYSTAL AGGREGATE or a CRYSTAL GROUP.

D. Crystalline Aggregates

Crystalline aggregates are composed of many very small individual crystals, often too small to be seen by the unaided eye. Metals such as gold and silver in their native state, as alloys, and even when rolled and shaped for use in jewelry, are CRYSTALLINE AGGREGATES.

E. Cryptocrystalline Aggregates

These are aggregates of crystals so tiny that even high magnification fails to resolve them. Their presence is proved by their effect on polarized light. Agate, carnelian and other varieties of chalcedony are examples.

F. Distorted Crystals

These seldom approach perfection in their shapes but are more or less distorted, since their faces have not all enjoyed an exactly equal and perfect development. Probably faces develop unequally due to their relationship to the source of supply of the solutions carrying the atoms of which they are composed. Growing in confined spaces, as most crystals do, some faces, or sides, are likely to grow faster than others. Such crystals may appear to be drawn out, shortened or flattened, but the corresponding angles between faces are constant.

G. Deformed Crystals

These have been bent and twisted out of their normal shape, usually by some later deforming force, so that the corresponding angles between faces may differ widely. This, however, is not a common occurrence.

H. Pseudomorphs (from PSEUDO, meaning FALSE, and MORPH, meaning FORM).

After the original growth, if the chemical composition or the structure of a crystal becomes altered without modifying or destroying its original faces, the result is a crystal whose faces are unchanged but whose internal structure has become that of an entirely different mineral. The resulting crystal is known as a PSEUDOMORPH (pronounced SUE-doe-morf). Tiger's-eye is an excellent example. In this mineral the original fibers, consisting of monoclinic crystals of crocidolite (pronounced kro-SID-oh-lite), or blue asbestos, have been replaced by minute grains of quartz that, in mass, have retained the original external form of the crocidolite but each of which has assumed the internal crystal structure for quartz.

(continued next page)

CHARACTERISTICS OF GEMSTONES (Continued)

I. Crystal Axes

To describe a crystal form it is necessary to visualize the existence of certain fixed lines of reference, similar to the imaginary line, or axis, from the north to the south pole about which the earth rotates. In an ideal crystal form these lines are of definite length in relation to each other, extend in certain definite directions, and intersect in the middle of the crystal at a point called the ORIGIN. Such imaginary lines are called CRYSTAL AXES (the plural of axis). There must be at least three axes to describe a crystal, and in one case four are necessary. These are indicated in the accompanying pictures of models of the Six Crystal Systems.

J. Crystal Systems

For convenience of study and reference, crystals are divided into six great systems, described by the comparative length and angular relation of their crystallographic axes.

1. Cubic (or Isometric) System

A mineral is placed in the cubic system if it can be described by three axes of equal length at right angles to one another. In a cube, if axes were passed from the center of each face to the center of the opposite face, the axes would be equal in length and at right angles to one another. Diamond, spinel and garnet crystallize in the cubic system.

2. Hexagonal System (pronounced hex-AG-uh-nul)

Hexagonal crystals have four axes, three of which are equal in length and intersect at 60° angles. The fourth is perpendicular to these and longer or shorter than the three previously described axes. Ruby, sapphire, emerald and aquamarine crystallize in this system.

3. Tetragonal System (pronounced teh-TRAG-uh-nul)

The tetragonal system is one in which there are three axes that intersect at right angles, but only two of which are equal in length, the third being either longer or shorter than the first two. The basic form resembles a cube elongated in one direction. Zircon crystallizes in this system.

4. Orthorhombic System (pronounced or-tho-RON-bik)

This system is characterized by three mutually perpendicular axes of unequal length. The basic form resembles a box with length, width and depth unequal. Topaz crystallizes in this system.

5. Monoclinic System (pronounced mon-oh-KLIN-ik)

The three axes in this system are unequal, two intersect at an angle other than at right angles, and a third is perpendicular to these two. The basic form can be visualized as a box deformed so that the top is still rectangular but one side view is a parallelogram. Jadeite and nephrite crystallize in this system.

(continued next page)

CHARACTERISTICS OF GEMSTONES (Continued)

6. Triclinic System (pronounced try-KLIN-ik)

The triclinic system is the one of least symmetry. It is described by three axes, all unequal in length, and inclined to one another at angles other than 90°. A basic form would resemble a box deformed so that all sides are parallelograms. Labradorite and microcline feldspars crystallize in this system.

Within each crystal system there are many different shapes that crystals can take; each basic shape is called a CRYSTAL FORM. The form or combination of forms most commonly taken by crystals of a given gem mineral is known as the HABIT of that mineral. For example, the habit of garnet is the DODECAHEDRON (pronounced doe-dek-uh-HEE-drun); of zircon, a prism modified by a pointed form called a BIPYRAMID, etc. (see accompanying pictures of examples of Crystal Forms). For reasons related to the conditions during growth, crystals of the same mineral may take different forms or combinations of forms. For example, ruby and sapphire, varieties of the same gem species, usually occur in crystals with different shapes.

Next time: Minerals versus rocks, the three major rock types and the durability of gem materials.

All for now, "Regor"
(Roger T. Simmons, Graduate Gemologist)

The following request appeared in The Nebraska Mineral & Gem Club's
REAR THURK:

"I have read, with great interest, all of the shop tips and hints in all the publications I can find. There are two formulas I have not been able to locate and would appreciate hearing from anyone that can fill in the gaps:

1. In the dipping process of polishing onyx, as done in Mexico etc., what strength of muriatic and oxalic are used?

2. In the processing to turn black, matrix opal, what portions of sugar or honey are used with sulfuric acid and what heat is used for what period of time?"

Hal Horak

Can you help, please? - - -

TIPS--

A new commercial product called Opticon #224 is recommended for sealing flaws and fractures in slabs for the cutting of cabs. Complete instructions for application are in the package.

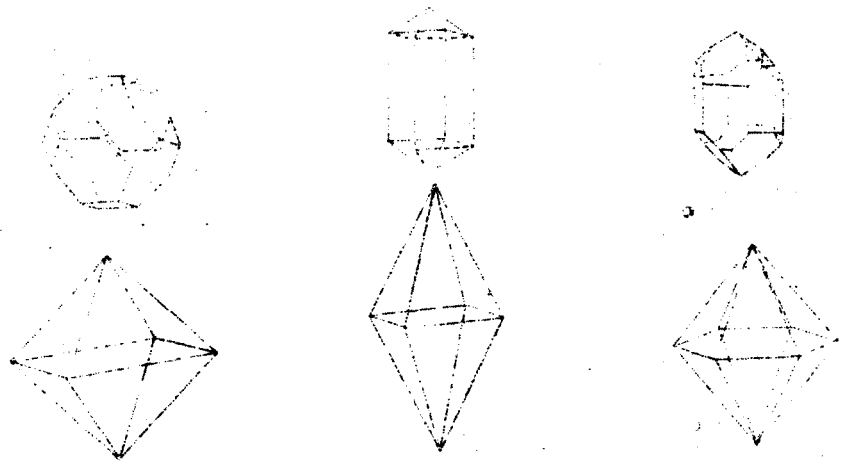
--If shovels are sprayed with teflon spray, the dirt, clay in particular are less likely to stick to them.

--Cleaning pyritized fossils -- don't soak, just dip a toothbrush in #2 SPANEX solution and scrub the specimen carefully. Muriatic acid sometimes ruins this type of fossil. -- from THE JASFILITE

via The Earbender....
via Rock Box

EXAMPLES OF CRYSTAL FORMS

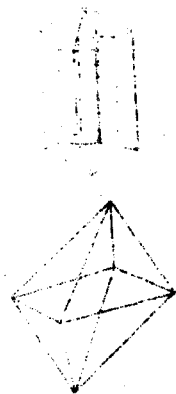
MODELS OF THE SIX CRYSTAL SYSTEMS



Cubic (or Isometric) System

Tetragonal System

Hexagonal System



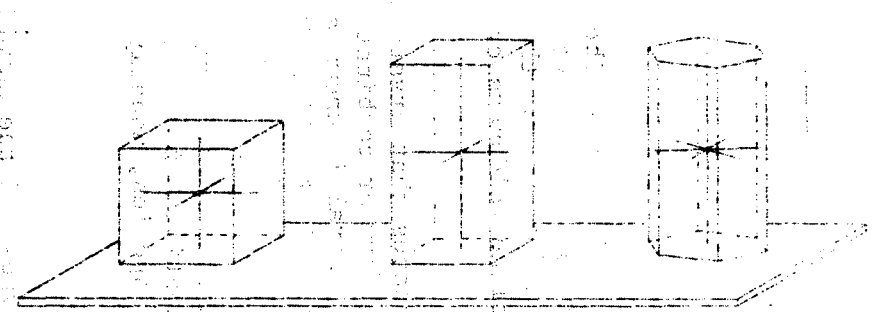
Orthorhombic System



Monoclinic System



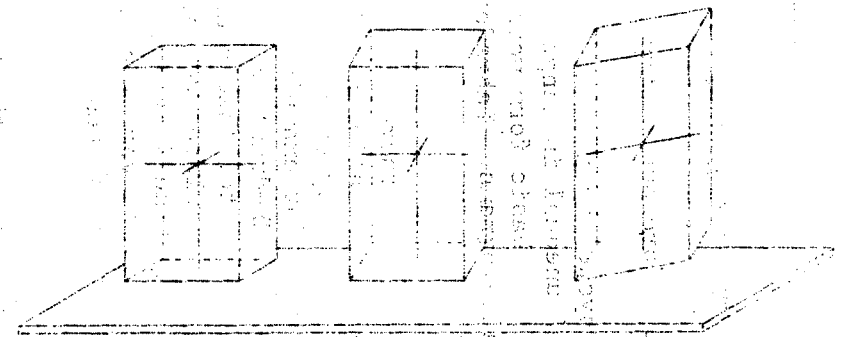
Triclinic System



Cubic (or isometric) System

Tetragonal System

Hexagonal System



Orthorhombic System

Monoclinic System

Triclinic System

BLM Clarifies Policy on Recreational Land Use and Off-Road Vehicles

An article appearing in many exchange bulletins concerning BLM in Utah stated that Utah was to be used as a testing ground for the purpose of collecting fees, for any group of people who as much as stepped foot on land administered by them. There was fear that this action would eventually lead to other restrictions if not fought by every organized group in the United States.

This procedure was to have started in August of 1972, but due to strong opposition was dropped for the time being. The following article from the "Mineralscoop," Mineralogical Society of Utah via the "Glacial Drifter" clarifies the B.L.M. policy on recreational land use and off road vehicles.

In order to clear up some of the confusion and to allay some of the fears of rockhound groups concerning its new policy on recreational use of the public lands, the Salt Lake City office of the Bureau of Land Management sent Jack Reid to the March meeting of the Utah Federation of Gem Societies in Tooele. Mr. Reid outlined the new policy and answered questions.

People who make a living off the public lands, such as tour guides, will be charged 25¢ per user day. Others who use the public lands, such as individuals, rock hound groups, boy scouts, etc., will not be required to pay a fee as was previously announced in a July issue of the Salt Lake Tribune. However, the BLM would like groups who are planning trips to notify the district manager of the area into which the club is going at least two weeks ahead of time. The BLM is trying to determine WHO uses the land and for what purposes. This will help decide land use policies of the future.

An advantage of contacting a district manager before a field trip is that their men will be familiar with road conditions and will have helpful suggestions to offer because they have men in the field. If they know a group is in a specific area, they will be in a position to launch search and rescue operations, if necessary. Mr. Reid alerted us to the fact that the day may come when numbers into a given area may have to be restricted, since the land can only stand so much use without sustaining damage.

People who collect rocks, fossils or petrified wood to sell must pay a fee and buy a permit. If you see anyone loading rocks in quantities obviously intended for re-sale, ask to see his permit. If he does not have one, report him with his automobile license number, to the nearest BLM office. Some areas cannot stand such heavy collecting. The BLM is concerned with preserving an area as it is.

-from

Mineralscoop, Mineralogical Society
of Utah

CAMPER TIP

Fill four large juice cans nearly full with water and use them to support your grill. When you are through cooking you will have "instant" hot water for washing dishes.

-via Prospector



Safety is the business of everyone regardless of age or where he is. So let's have everyone get into the act.

Safety is in most cases a matter of common sense. However, people seem to need to be constantly reminded and it is also important to have knowledge of safe ways to do things. That is where the Safety Director comes in. Through articles in club bulletins, programs, displays at shows, etc., much can be learned by everyone. Read the safety hints and safety articles your Director has taken time to bring to your attention. Make 1973 a good year by making it safe for you and yours.

Be careful, enjoy the outdoors, don't try to lug back all the rocks, both for your own good and for the sake of a collector who will be there after you, and good hunting.

-via AFMS Newsletter

HOW TO LIFT THOSE HEAVY ROCKS SAFELY

The National Safety Council suggests that when lifting heavy objects in order to prevent back injuries:

1. Never try to lift more than you can handle.
2. Crouch down to what you are going to lift.
3. Plant your feet firmly on a surface that is strong enough to hold you and the load you are lifting.
4. Get a firm grip on the object. Place fingers underneath the load whenever possible.
5. Keep your head up, arms straight, and keep your back as straight-up-and-down as possible.
6. Lift gradually and push up, using your strong leg muscles.
7. Avoid twisting motions, shift the position of your feet.
8. Keep the load as close to your body as possible.
9. Put things down by reversing the above methods.

-from Galco Pebble Patter

via AFMS Newsletter

SAFETY TIPS

1. Wear a hard hat when in a mine or quarry. Be careful not to work directly below someone else, or under a rocky overhang.
2. Wear your safety glasses. We are only allowed one set of eyes. Be very careful of them.
3. Wear safety shoes or at least hiking shoes to give support and protection for your feet. Gym shoes are great for sports and gardening, but not rockhounding.
4. Carry a first aid kit with you. Include a snake-bite kit if you're going into a "snaky" area.
5. Be sure to hunt with a buddy--not alone. Be sure someone else knows where you are going and when you expect to be back.
6. Keep your children away from machinery of any kind. Teach them to collect and preserve. They are not on a search and destroy mission.
7. Obey instructions of quarry and mine owners, workmen or officials and keep out of the way of workers.

-via The Pick and Dop Stick

LINCOLN GEM AND MINERAL CLUB, INC.
P.O. BOX 5342, LINCOLN, NE. 68505

The purpose of this corporation shall be to study, promote an interest in, and disseminate knowledge of lapidary and various Earth Sciences including but not necessarily limited to geology, paleontology and mineralogy. It shall be a particular purpose of the corporation to provide education in these fields to its members and the general public, particularly youth and student groups.

MEMBER: Midwest Federation of Mineralogical and Geological Societies (MWF)
American Federation of Mineralogical Societies (AFMS)
Nebraska State Association of Earth Science Clubs, Inc. (NAOESCI)
Community Arts Council of Lincoln (CAC)

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W. O. W. Bldg., 732 S. 27th St., Lincoln, Nebraska

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Typist-Jan Holmquist, Eileen Stroud, Norma Miller

Contributions from members are welcome. Deadline for material is the 5th of the month. Please send to the editor. (Typed if possible)

Articles published in the PICK & SHOVEL may be reprinted if credit is given the author and the bulletin, and a copy of the publication sent to the editor.

Lincoln Gem & Mineral Club
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