PICK & SHOVEL

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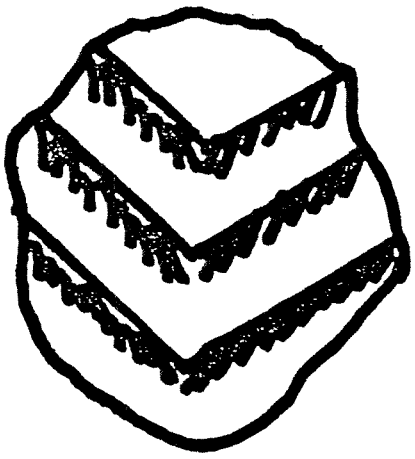

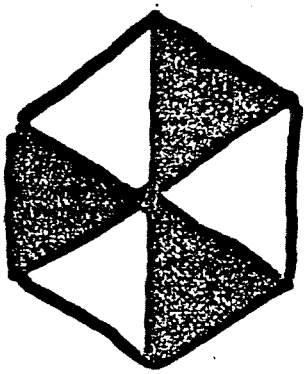

February, 1990
Volume 30 Number 6

Lincoln Gem and Mineral Club, Inc.
P. O. Box 5312 Lincoln, Nebraska 68505

1990 ELECTED OFFICERS

President: **Fred B. Holbert,** 2822 S. 13th St., Lincoln, NE 68502	423-5639
1st Vice President: **Gerald Moore,** 2305 S. 35th St., Lincoln, NE 68506	489-4184
2nd Vice President: **C. David Heffelbower,** 1819 Washington St., Lincoln, NE 68502	475-4713
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Board Member: **Francis Belohlavy,** 1919 "K" St., No. 4, Lincoln, NE 68510	477-4337
Board Member: **Roger Pabian,** 315 "D" St., Lincoln, NE 68502	474-2034
Board Member: **Sandra McNiff,** 2542 Colonial Dr., Lincoln, NE 68502	483-1165
Board Member: **Shirley Rockel,** 1134 West Avon Lane, Lincoln, NE 68505	464-3059

NOMINATIONS COMMITTEE

3 Years: Kevin Schwartman, Chair.
James Null
Michael Smith
2 Years: Phyllis Parks, Janet Wright
1 Year: C. David Heffelbower,
Bill Rockel

LONG RANGE PLANNING AND BY-LAWS COMMITTEE

3 Years: To be announced.
To be announced.
2 Years: Kevin Schwartman
Jim Marburger
1 Year: Bob Wright
Linda Parks

STANDING COMMITTEES

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Education: Roger Pabian
Field Trips:
Historian: John & Lillie Lewis
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Housing/Property: Jim Parks
Junior Activities: Janet Wright
Librarian: Jim Parks
Membership: Gerald Moore
MWF Liaison: Vera Lyman
Programs: Francis Belohlavy
Scholarship: Marie Taylor
Christmas Party: Billie Heffelbower
1989 Rockhound/Year: Roger Pabian
1989 Show: John Harrison
1990 Show: Roger Pabian

AUDITING COMMITTEE, 1987-1988

Shirley Rockel
Don Phillips
Francis Belohlavy

YOUR PICK & SHOVEL STAFF

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

CALENDAR OF EVENTS

FEBRUARY MEETING: Saturday, February 24, 7:30 PM
Nebraska Center for Continuing Education, 33rd & Holdrege.

SPECIAL EVENT: Lincoln Gem & Mineral Club 1990 Scholarship Recipients, Carrie Herbel and Chris Rudnick will give bried presentations of their MS thesis projects.

BUSINESS: Junior Members, changes in minimum age.

PROGRAM: **USE OF SOIL SURVEYS FOR FIELD COLLECTING**
By Francis Belohlavy

JUNIOR MEETING: 7:00 PM. Preparing your show displays and other show plans.

COMING EVENTS

February 26, Encounters Center, Morrill Hall. Afternoon with a Scientist. Quartz Family Minerals. Hands on by Roger Pabian. Slide show on agates by Andrejs Zarins.

March 9, 10, 11. Greater Kansas City Area Annual Show. Trade Mart. More details at regular meeting.

REGIONAL SHOWS

CALIFORNIA	EASTERN	MIDWEST	NORTHWEST	ROCKY MOUNTAIN	SOUTH CENTRAL
Ventura, CA June 28-July 1	Landham, MD Aug. 10-12	Evansville,IN July 19-22	Boise, ID June 22-24	Roswell,NM Sept. 28-30	Pasadena,TX Feb. 16-18

FUTURE MEETING DATES, PLACES: March 24, 1990. Nebraska Center for Continuing Education, 7:30 PM

DISPLAY MATERIALS Bring items that relate to February (Amethyst) or Upper Midwest (Iowa, Wisconsin, Minnesota). To see is to learn. Cases will be furnished.

ON THE COVER.--Color distributions in amethyst. Chevroned amethyst (left) occurs when color zonations are essentially parallel to the c-axis of the crystal whereas Port Arthur Amethyst occurs when color zonations are

PRESIDENT'S MESSAGE

Thanks go to David Heffelbower and committee for a very good swap last month. Dave had been seen rubbing a rabbit's foot while placing a phone call to the weatherman before the swap and it must have worked because it was sure hard to argue about the fine weather and the crowd that it brought to the event.

We remind club members that there will a vote to change the bylaws during this next general meeting. This is to determine if there will continue to be a age minimum of 12 for children whose parents are not adult members. Article I, Section 3, (b) of the bylaws which currently reads, "Children between the ages of 12 and 16 whose parents are not adult members, may join as junior members . . . providing that each junior member must have an adult member as his sponsor . . .", will be changed to read, "Children under the age of 16 whose parents . . ." if this change is approved. The board of directors approval of this matter is based upon the belief that it is our obligation by charter as well as credo to encourage and educate all those willing and qualified as to mysteries of the earth sciences. We further believe that the club's health and continued existence relies to a large extent upon the success of our junior program. The board also recognizes the the club is not a baby sitting service. To address this issue and others, the board of directors (with the full concurrence of the Junior Activities Chairperson, Jan Wright) will design a form to be signed by the parents and the adult sponsor. The parents of the child will give their permission for the child to join the club and absolve the club from any potential liabilities and the adult member/sponsor will agree to the terms and responsibilities of their sponsorship.

Please be thinking about what you can do to help support this years gem show which will be held next month. Various committee people will be solicitng help at the next meeting as well as by telephone. Our needs will include the following: 1. Demonstrators. 2. Exhibitors. 3. Setup crew. 4. Ticket sellers. 5. General information assistance. 6. Clean up crew. 7. Fossil dig crew. If you have a surplus of display cases, please tell Roger Pabian. Since we are hosting the state show this year in conjunction with our own, we will probably need some more display cases. Because this is a state show, we particularly want to give a strong showing of club participation. In addition, it will make you feel good for having given a part of yourself to the group effort. Please help as much as you can.

In closing, our thoughts go out to two of our most loyal and dedicated members. Jim and Phyllis Parks are in the process of closing their business. Our best wishes go with you both. Jim, the motorcycles may be gone, but not the memories. And besides, the state can't require you to wear a helmet while cutting stones.

FRED B. HOLBERT

Feb. Sunshine Corner

A heart warmer; at
our annual mid winter
swap - was seeing Jim Taylor
walk in with his family
During the swap the juniors
field-tripped to Santa Haman Journey
Bob Fixter, Santa Exec & LGMC member
took them thru a 'wonder land of gems'

Our first meeting of 1990 followed the Swap,
The program was Presented by Andy Zarins
30 members & their guests made it a great
beginning for our 1990 LGMC year—

Coffee, Cake &
rock talk followed
the meeting

WOW! WHAT A DAY

Rubies are red
Lapis Lazulies are blue
Happy Groundhog,
Valentine's, Presidents
Day to you
Billie Sunbeam

JUNIOR NEWS

The Junior Meeting this month will be at 7 PM at the Continuing Education Center (33rd and Holdrege). We will discuss how to make a display using material from your collections. They will be set up on March 16th for the LGMC ANNUAL SHOW which will be on the 17th and 18th (Saturday and Sunday). The Juniors will have an area of their own where we will run the NUMBER WHEEL. We thank Betty and Bill White for loaning it to us for the show. Please start thinking about specimens you can donate as prizes for the wheel. If you have been taking lapidary class bring your cabochons, we will have a special case for displaying them. So plan to spend a part of the weekend helping at the Junior Booth. Activities at our meeting this month will also include talking about Science Fairs that are coming in your schools. I will bring ideas along with me and you bring questions about how to set up your projects and of course your own ideas to share too. We will have a couple of busy months ahead. Don't forget about the Morrill Hall Encounter Center activities the afternoon of February 25th.

IN PASSING

It is with regret that we note the passing of Gustav Bohling and Gilbert Lueninghoehner.

Gustav Bohling, 85, of Johnson, Nebraska, the Father of our secretary, Vera Lyman, passed away on February 5.

Gilbert Lueninghoehner, of Fremont, Nebraska, husband of Florence Boring Lueninghoehner, also passed away on February 5.

The club extends its deepest sympathies to their families.

MAILING LABELS

Does the mailing label on your Pick and Shovel have a red mark on it? If it does, your 1990 dues have not yet been paid. Please submit your dues to Phyllis Parks, Treasurer, P.O. Box 5342, Lincoln, NE 68505 at your earliest convenience. See inside back cover for dues schedule.

SILENT AUCTION

One of the activities for the upcoming show, which will be the state show, is the **silent auction** to help support the **Gem Palette**, the official NAOESCI publication. Your donations will be appreciated.

NEWS OF MEMBERS

Ronald McColery, now of Gardiner, Oregon, recently reported that he broke a knee cap while hunting chnotrell mushrooms. The injury resulted from a fall of about 40 feet. Ron also reported that children Scott and Corina (former junior members) are now living with him. They plan on joining the Northbend, Oregon, club but Ron's current work schedule conflicts with the meeting night.

FROM YOUR EDITOR

For this month's issue, I have called upon a guest writer, Linda Plock, to furnish an article on Mongolian jewelry. This is in keeping with the projected series of articles of gems and geology related to the life styles of Eurasian nomads and with the editorial policy of using invited sources from other areas of study.

Numerous references will be utilized in the nomad series and this list will be published at the conclusion of the series. RKP

Mid-Colorado Field Trip

By Don Phillips

There are four large intermontaine basins that exist in Colorado. One of these basins is almost in the center of the state and lies within Park County. The region is rich in geological and paleontological history and offers a great place to collect rocks, minerals, fossils, and artifacts.

The history of this region can be traced back some 1.2 billion years. A kind of metamorphic rock that geologists call **gneiss** has been found throughout this area. Many of Colorado's mountains began forming in the Pennsylvanian Period, about 250 million years ago; these mountains have been periodically uplifted, the more recent uplifts beginning in the Late Cretaceous, about 70 million years ago. In the Oligocene Epoch, additional uplift took place, and the mountains reached their current elevations beginning in the Pliocene Epoch, about 5 million years ago. Most of the materials that have been collected in this area are found in the erosional products, sand and gravel, that have been stripped from these mountains by glaciation and weathering.

The intent of this article is to describe some specific locations where one can try to collect some rock, mineral, or fossil specimens. One attraction of these collecting sites is their ease of accessibility. However, it should be noted that some of the sites will require some walking and easy climbing to reach.

All directions to the collecting sites will start from a small town called Hartsel. This should aid in locating the sites since Hartsel is centrally located amidst most of them. Hartsel lies on U. S. Highway 24, between Colorado Springs and Buena Vista.

Hartsel is well-known by mineral collectors for the **Hartsel Blue Barite** that has been collected close by and whose location is the first stop. Go west out of Hartsel on U. S. 24, 1/4 mile past its junction with Colorado Route 9. You will come to a dirt road that leads onto an uncompleted ranchette subdivision. Turn left from the highway onto this road and follow it to the south until you come to a gate. You will notice that the road on the opposite side of the gate is just a poor two-track road. Go through the gate and follow these tracks to the southeast, up the gradually sloping hill (approximately 1 mile). At the top of the hill, you will notice some bulldozed cuts to your left. This is where you want to stop. It is in these cuts where the blue barite has been found.

The barite deposit was first discovered and mined in 1930. It was operated by manufacturers of well drilling mud. The barite occurs in a deeply weathered limestone, much of which is now a clay-rich residue of the original rock. The barite has been found laying on the surface of the ground, surrounding the cuts and in voids within the cuts. It is possible to dig barite from out of the cuts too, using just hand tools. The barite crystals are a very light, sky-blue and are commonly found in clusters that must be handled with care as they are very fragile.

The composition of barite is barium sulfate ($BaSO_4$). Pure barite is colorless. Geologists think that the blue Hartsel Barite derived its color from waters introduced into the area from several radio-active springs that occur here. The blue can be intensified by exposing these barite crystals to ultraviolet light.

Barite is not the only mineral to be found at this site. Many quartz-rich rocks and other minerals lie scattered over the surrounding surface. Flint, chert, jasper, and agate are just a few of the things to tempt the lapidary. Marine fossils have also been found here. Many

Indian artifacts including points, scrapers, flakes, and chips have been found in the surrounding hills. Most of these artifacts are fairly recent. Much older and more higlly prized Folsom and Clovis projectile points have also been found here. In pre-historic times, the area was a very popular hunting ground that was used by several different tribes.

Several important collecting sites in this area are situated in **pegmatites**, extremely coarse grained rocks that form when volatile-rich fluid magmas cool at a very slow rate, allowing minerals to form into very large crystals. If these magmas were to cool extremely fast, the rock would be glassy (e.g. Obsidian) to fine grained (e.g. felsite, basalt). Slower cooling would produce rocks with fine to medium-coarse crystals (e.g. granite, gabbro).

The pegmatites in the Park Region formed when magmas worked their way up through the earth's upper crust during the above periods of mountain buliding. However, these magmas never reached the surface then, allowing them to cool very slowly. The pegmatites were exposed when the overlying rocks were removed by erosion.

A well-known pegmatite collecting site is the Meyer's Ranch Mine, south of Hartsel. Go south from Hartsel on Colorado Route 9 for 18.5 miles. You will come to a ranch located on the west side of the highway. Continue for about 1 more mile until you reach a horse corral with a small, wood lean to. If you go just beyond the corral and look to the west, you will see the mine tailings located about 200 yards up the hill. The mine is privately owned and permission from the owners is required to collect there. To ask for permission, take the dirt road just ahead to the west. Go through the gate, cross the stream, and follow the road for about 1 mile, until you reach the ranch house. This is where you ask for permission to collect. Return to the highway and park on the shoulder of the road, as the owners do not wish for you to drive up to the mine.

The Meyer's Mine was first worked in 1908 and it was a very important source of Niobium (Nb), a soft, metallic element used in steel alloys, and Tantalum (Ta), a very hard, metallic element used in light bulbs and metal alloys.

Some of the minerals that have been found here include black tourmaline, columbite, tantalite, biotite, muscovite, orthoclase, garnet, beryl (pale blue and pale yellow), milky quartz, rose quartz, and quartz crystals. Most of these minerals make fine cabinet specimens, and the rose quartz is reputed to be the finest in Colorado.

Another pegmatite collecting locality is west of Hartsel. Take U. S. Highway 24 west out of Hartsel, past Antero Junction (U.S. 24 and U.S. 285). Continue west from the junction for about 5 miles, where you will come to a Forest Service road 307. This road is just before you cross Trout Creek Bridge. Turn south and follow the road for about 1 mile. The pegmatite, called the Clora May Mine is to your left, about 400 yards up the hill. A closed road leads right to the pegmatite, This site is on forest service property, and their current regulations, obtainable from Forest Service Rangers, must be followed.

The Clora May Mine produced pink, microcline (potassium) feldspar that was used to carve ornaments which gives a clue to its lapidary properties. A mineral of secondary economic importance, bismuthinite, (Bi_2S_3) was also mined here. This pegmatite also contains the same minerals as does the Meyer's Ranch Mine. Arrow points and chippings have been found in some of the washouts and gullies here.

From the Clora May Mine, look due west to the next hill. At its top are the tailings from another pegmatite mine. This pegmatite contains the same mineral suite as the Clora May Mine.

To be continued.

Mongolian Jewelry

By Linda Plock

Situated between the mountains and deserts of Northern China and Southern Siberia, Mongolia is an upland plateau with a climate and terrain comparable to the badlands of South Dakota and the Prairies of Montana. The people are the descendants of an ancient Turkic-speaking population and they make their livelihoods by herding pastoral animals such as horses and sheep.

Nomads by virtue of their type of existence must have possessions that can be easily transportable. Trunks and felts can be placed on the back of a pack animal but personal ornaments are all worn so the tribe, wealth, and social status can be determined at a single glance. Mongolian jewelry consisted of necklaces, amulets, ear and hair ornaments, breast and back ornaments, cheatlaines, needle cases, bracelets, finger rings, snuff bottles, and headdresses.

The finest specimens of this jewelry were produced during their great expansion period under the great khans during the 13th through 16th centuries. Many of these pieces were handed down as heirlooms and dowry items as the majority were worn by women. The elaborate horned headdress of the Mongol matron was covered with siover and precious stones, dangling chains and interconnected ornaments front and back.

Although Mongolia has abundant sources of metals, it was against the law (in fact, a capital crime, Ed.) to disturb the sacred earth. To supply the people with the amount of silver they desired, foreign prisoners of war and captive Chinese silversmiths were employed to make jewelry items on demand and double as armourers. Gold jewelry was worn only by the female descendants og Genghiz Khan.

Silver ingots were imported from Tibet or China. They were melted into buttons, beaten into thin plate, cut into pieces of desired length and shape, soldered together and then ornamented with twisted or pearled wire soldered onto the surface. During the Manchu reign after the 17th Century the ingots were used to pay the Mongols off but the end result was always the same as the Mongols thought silver a base metal not fit for currency.

Mongol metalwork is surpisingly fine with intricate, symmetric patterns and no wasted space. Filligree, embossing, chasing, and engraving are common. If stones are used they are set into melted wax or glued on. Should they fall out of their settings they are replaced with whatever is at hand: coral, lapis lazuli and turquoise from Tibet - or amber from Kashmir, Burma, Persia, and India. Agates were found all over the Gobi and AlaShan deserts but considered only as beads or carved items since they were so common.

The designs used on metal items had many influences and correspond with the travels and religions with which they came into contact. Early specimens show a T-pattern and spirals, a blunt sword sign, and silkworms which reflect textile art and bronzes thousands of years old. Buddhist symbols such as the shell, mystic knot, lozenge, fish, flower, and louts figure in later with Indian trade. The Chinese contributed most of the zoomorphic signs of the dragon, bat, phoenix, and butterfly. In the late medieval period the Tibetan Lamaist symbol of Om in script and thunderbolt appeared.

The form of many Mongolian ornaments can be found in the archeological record of the Siberian Iron Age among the predecessors of the Tungus, Yakuts, and Kirghiz peoples. Because of the dynamic politica and range of the Mongol cuilture through conquest and trade, they managed to develop a distinctive style of their own---merging many elements into a vital display of beauty and craftsmanship under the most primitive conditions.

QUARTZ STUDY GROUP REPORT

By Dwight D. Miller

Our 4th session took place at 7:30 p.m. on Tuesday, January 8th, in Room 115, Nebraska Hall, UN-L City Campus. The topic of Professor Pabian's lecture was **"Cryptocrystalline Quartz,"** and we were introduced to the great variety of minerals in this category and their sometimes bewildering nomenclature --e.g. Nebraska's state gem stone is sometimes called "blue chalcedony" and sometimes called "blue agate."

Quartz may be: a) crystallized or b) cryptocrystalline. The latter may be 1) microcrystalline, revealing fibrous crystalline structure under the micrscope, or 2) amorphous, showing no such structure.

Examples of microcrystalline quartz included the following. Chalcedony, often semitranslucent or translucent, is a term that more or less includes these kinds. Chrysoprase, greenish due to nickel, has been known since ancient times and was a favorite of Alexander the Great. Carnelian (red) was known to the Arabs; Mohamed liked it. Sard resembles carnelian. Sardonyx has alternate black and white parallel bands and has been popular with cameo cutters. Bloodstone and heliotrope are dark green with red spots. Prase is grayish yellow to grayish green. Plasma is green with white or yellow patches. Chrysocolla is a banded chalcedony that may have a vivid turquoise blue color. Agate, which may be highly colored, often has alternating layers (revealed as bands in sections) or may be dendritic with mossy or feather-like inclusions. Agate is probably the most widely distributed cryptocrystalline quartz and was popular with the ancients as well as today. In addition to its ornamental value, agate has commercial uses. Polished agate is nearly friction free and finds use as bearings in high precision balances and in aircraft turn and bank indicators. Ground agatized wood has been used in sandpaper.

Amorphous quartz includes chert, flint, and jasper. Though generally gray or black, chert and flint may make nice gems. Jasper, which may have various colors, contrasts with chalcedony and agate in being amorphous. Jasperoid is limestone completely replaced by quartz. Incidentally, professional geologists may apply the name "chert" to the entire aggregate of microcrystalline and amorphous quartz.

Roger's lecture included discussion of probable origins of cryptocrystalline quartz. Some kinds develop at the bottom of the sea, perhaps at great depths, arising from limestone or spillite (a volcanic rock). For example, flint may result from spillite basalts and radiolarian shells in deep geosynclines, where also, in the presence of nickel, chrysoprase may form from weathered serpentine rocks. Chert may arise from limestones and shales. In contrast, chalcedony and agate usually form as weathering products in uncomformities on continents. Some agates originated from volcanic rock --e.g. Lake Superior agates from a basaltic rock called tholeite, thunder eggs from rhyolitic rocks. On the other hand, Fairburn agates formed in marine environments (Pennsylvanian age) and may contain microfossils.

The session ended with a slide show of Professor Pabian's Mexican agates -- from Cenozoic and Cretaceous deposits in the state of Chihuahua (Estacion Moctezuma). Some thin sections revealed microcrystalline structure. Specimens often showed centrally located euhedral quartz (crystallized) and "escape tubes." Speculation on agate formation allows for its possible origin from silica gel in either relatively short times (hours, days) or longer periods.

AMETHYST

By Roger Pabian

Amethyst, a purple variety of the mineral quartz, has long been considered a February birth stone. It has a long history as a gem and it has been significant in mythology and religion.

Amethyst derives its name from the Greek maiden, Amethyst. Mythology has it that Bacchus, the God of Wine, was in some way offended by the Goddess Artemis (Diana), and in a fit of self pity, declared that the first person he was to see would be devoured by tigers. The maiden Amethyst then came walking down the less than primrose path and the tigers sprang upon her. Seeing this beautiful maiden about to be devoured caused Bacchus to repent and he called upon Artemis for divine intervention. Artemis changed the unfortunate maiden into a lovely statue of clear quartz (krystallos, Gr.). Bacchus poured the wine from his cup over the statue and it became purple. Hence, the name amethyst.

Mythology also has it that one can not become intoxicated while drinking wine from an amethyst vessel. We have not yet tried this experiment. We fear that the premise may not hold up in traffic court.

My experience has shown that there are three different ways that amethyst is colored (See Front Cover). Some amethyst crystals are unzoned and evenoly colored throughout the body of the stone. Usually, these are fairly pale shades of purple. I have observed this kind of material from Thunder Bay, Ontario, Brazil and Mexico. Often the shade is too pale to hold up when small stones are cut from it.

Most amethyst exhibits strong color zonations. Amethyst with chevrons (Front Cover) is common in both Brazilian and African localities. The purplish color will be strong near a layer and fade away toward the next layer. This zonation repeats itself one or more times through the crystal. The coloration is probably due to the presence of iron or titanium impurities. I have observed some very deep purple amethyst from Brazil that appeared to be unzoned; however, when the crystals were immersed in baby oil, the zonation stood out well. This implies that orientation is very important when faceting amethyst.

A still different kind of color zonation in amethyst occurs when triangular areas of alternating clear and purple quartz are produced by cutting the crystal perpendicular to the c-axis. This kind of amethyst has often been referred to in the trade as "Port Arthur" amethyst, but I have never seen this reference in print.

Amethyst is best known from Brazilian and Canadian sources. Some nice amethyst from Africa has been available at shows for the past couple of years. The exact African source is not known. Large amethyst geodes from Brazil have been popular items at shows for several years. Much of the faceting amethyst at shows comes from these geodes, pieces that fall to the ground when the geode is cracked. Locally, I have found a couple of Lake Superior Agates that have amethyst centers in the glacial tills of eastern Nebraska. Some small pale amethyst geodes have been found in the Permian limestones east of Odell in Gage County.

The most desired grades of amethyst are deep purple or purplish-red and the value of stones decreases as the shades become paler or as the stones become grayed out or greened out. The degree of transparency of the stone is also important in pricing, the greater the transparency, the greater value of the stone.

We hope that many of you will bring examples of amethyst for display material. There are probably many variations on this theme that many of have never seen before. Cases will be furnished.

OTHERS WRITE

REPRINTED FROM OSAGE HILLS GEMS, JULY/AUGUST, 1989

SYNTHETIC RUBY - TWENTIETH CENTURY GEM

by Charles A. Stratton

There is no doubt that many a visionary has dreamed of the possibiliy that one day the common citizen could actually own and wear the ruby, a gem hitherto available only to nobility and royalty. As soon as the true chemical nature of corundum was known - that it was aluminum oxide, not a silicate - able chemists began efforts to crystallize corundum in sizes suitable for gems. The proper coloring oxide would give either ruby or sapphire.

There are all kinds of chemists in the world. Some have tremendous theoretical vision, yet they have great difficulty in making things work right in the laboratory. Aguste Victor Louis Verneuil (pronounced "ver-nay") had an advantage in that he started in the lab. There he became interested in chemistry and was privileged to study with one of the best teachers in France, Dr. Edmond Frémy, in Paris.

The history of the synthetic ruby parallels that of photography. It happened that Verneuil's father, a watchmaker, became an acquaintance of Louis Daguerre (inventor of photography) and promptly changed his trade. It was in his father's photography lab that young Verneuil acquired his interest in chemistry and his first experimental skills.

Frémy had spent many years on the synthesis of ruby, working through an assistant. When that assistant died, Verneuil took his place. Verneuil, upon completion of his studies, also became a professor; then, upon the death of Frémy, he obtained one of Frémy's assistants and continued to work on the ruby.

Verneuil's work was essentially finished in 1891, and his results were deposited as a sealed document. Only in 1902 did he write a paper setting forth his flame fusion process. The process is still in use, having produced the bulk of synthetic ruby used in this century. Although delicate and tricky to operate, the concept of flame fusion is simple. Powdered aluminum and chromium oxides are sifted through an oxy-hydrogen flame which is pointed downward. The oxides fall on a target where they melt, forming a "boule". The target is slowly lowered, allowing the boule to grow. Prior to Vermeuil's success, another flame fusion process had been able to produce the "Geneva ruby". The process and the product, being inferior, soon disappeared.

There are today two other general processes in practical use for the production of synthetic ruby: (1) the Czochralski technique of pulling a solidified boule slowly out of a melt and (2) the growth of ruby crystals from a high temperature flux. There are two main reasons for these additional methods: (1) the need for more perfect crystals for certain electronic uses and (2) the desire for a more perfect (prestige) gem, generally called a "created ruby". The result is that our most noble of gems is now priced on these independent levels: natural ruby - very expensive; prestige (created) synthetic - expensive; flame-fusion synthetic - very economical.

Ignoring the prestige factor for a moment, it is certainly no secret that a Vermeuil gem is about as beautiful as a ruby needs to be. If you enjoy cutting a beautiful gem, why pay more?

SHOW NEWS

As we go to press, the 31st Annual Show is nearing us. Requests for displays, demonstrators, workers, and people with the multitude of talents that are needed to put over a big show will again be made at the February meeting.

The junior club will be operating the "WHEEL OF FORTUNE" game at their booth. They will need things that can serve as prizes for the many luck winners. Polished rocks, crystals, slabs, petrified wood, and any kind of rock prize can be delivered to the junior booth on set-up day.

We ask that club members wait until late on set-up day to install their own exhibits. We will allow no personal exhibits to be set up until after the dealers are settled in. When bringing in your personal display, please deliver your cases to the auditorium and remove your vehicle immediately and then return to the building to set up. John Harrison will be in charge of set up and I ask that you carefully follow his instructions to expedite this part of the show.

We will have many out of town guests at the show. Some will have exhibits. We will try to keep the exhibits of each club in its own place to speed up both set-up and tear down. Please place your exhibit where you are requested to do so, as all of the spaces will be assigned before set-up day.

We have an outstanding array of dealers that have been contracted by our dealer chairman, Fred Holbert. The list includes the following:

Davis Trading Company, Topeka, Kansas
Custom Gems, Omaha, Nebraska
J. J. & L. Rocks & Minerals, Hickman, Nebraska
West Side Agates, Ames, Iowa
Johnson Agates, Mankato, Minnesota
Wisconsin Gems & Custom Jewelry, Owen, Wisconsin
Lentz Lapidary, Mulvane, Kansas
L & R Lapidary, Janesville, Minnesota
Simon's Lapidary, Lincoln, Nebraska
Andria Brie Gem Company, El Cajon, California
The Gem Shop, Inc., Cedarburg, Wisconsin
Schooler's Minerals and Fossils, Blue Springs, Missouri
Honeycutt Gems &Jewelry, Fairfield, Iowa
Edward Fowler, Wire Wrapper, Gouchland, Pennsylvania

In addition to the dealers, we will have several working demonstrators who should be known by the next club meeting.

Because of the shortage of personnel within our own club, we have asked the Geology Club at the University of Nebraska to operate the gemstone dig. They will receive the proceeds of the dig above and beyond the costs of the gem concentrate that the club will purchase. We will obtain a higher quality aggregate and some of the club members have indicated that they will help salt the concentrate with tumbled stones and other gem pieces. I am donating a number of Burmese spinels and small sapphires from previous digs. I also have added some amethyst crystals from Thunder Bay. Your donations here will be appreciated.

After the show on Saturday evening, we will have the usual dinner catered by the Prospector Restaurant. The cost is $7.50 per person and your reservations can be made thru Shirley Rockel. Please pay upon making your reservation. It promises to be a real good get together.

Looking forward to an outstanding show.

Lincoln Gem and Mineral Club, Inc.

P. O. Box 5342 Lincoln, Nebraska 68505

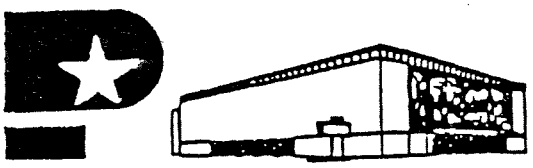
AND N.A.O.E.S.C.I.

PROUDLY PRESENT

THE NEBRASKA STATE

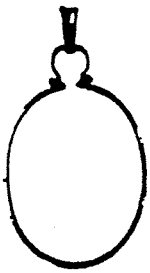
Gem & Mineral Show

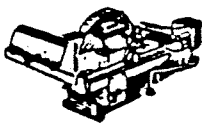
MARCH 17, 18, 1990

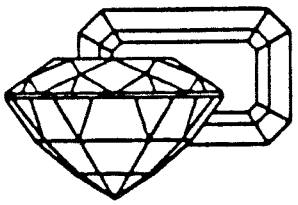


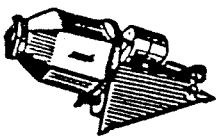
Pershing Auditorium

226 CENTENNIAL MALL SOUTH



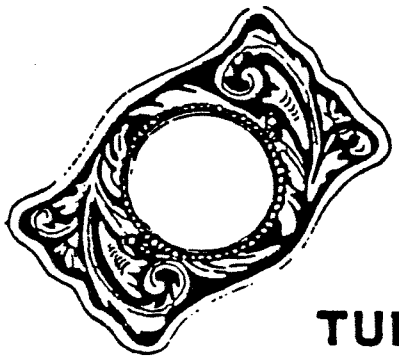


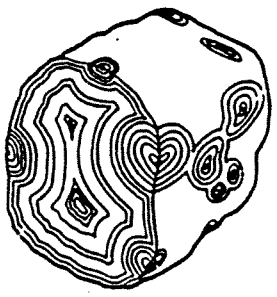




TUMBLERS-DEALERS-PROGRAMS-JASPER-ROUGH-

AGATE-JADE-FOSSILS-MINERALS-SAWS-





TURQUOISE-DISPLAYS-FINDINGS

JEWELRY MAKER'S SUPPLIES- and MORE

SHOW HOURS:

Saturday, March 17, 9:00 - 8:00
Sunday, March 18, 9:00 - 5:00

ADMISSION:

Adults.....$2.00
Children, under 8,
free with adult.

MIDWEST FEDERATION OF MINERALOGICAL AND GEOLOGICAL SOCIETIES

Member of The American Federation of Mineralogical Societies

NEWSLETTER

Published monthly Except June, July, August

JANUARY 1990 - Issue 293

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

President's Message . . .

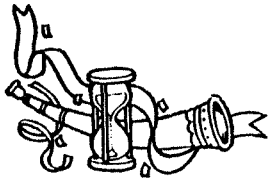
For those of us who stay in the Midwest, winter offers long evenings to spend working on our hobby. Snow and cold make field trips only happy memories, but we can sort slides, polish cabs, run the tumbler, mount arrows, or do other "finishing" activities. As you open geodes, clean fossils, or make jewelry, keep in mind the spring shows. Your exhibit is needed!

Watch your mail for the Show Packet from Evansville, and plan now to be there for the 50th Anniversary of the MWF. If every club sends at least one display, it can be the largest MWF Show ever. As long as you're taking your own display, you might as well take the club exhibit. Show the rest of the MWF things typical of your area, or the fine workmanship of your members.

Illinois has become one of the states with legislation regulating collecting on public land. Known as the "Archaeological and Paleontological Resources Protection Act", this law (effective September 1, 1989) makes it a Class A Misdemeanor (with possible fines up to $5000) to collect or disturb "archaeological artifacts, historic and prehistoric human skeletal remains, mounds, earthworks, shipwrecks, forts, village sites, or mines" or "any significant fossil or material remains...including tracings or impressions of animals or plants..." without a proper permit. If you discover any of these things, the correct procedure is to contact the Illinois Historic Preservation Agency in Springfield. It is also unlawful in Illinois now to offer any object for sale or exchange with the knowledge it has been collected in violation of this act.

I hope your club's annual report has been mailed to Jean Reynolds by the time you read this.

Glen R. Hanning



January 1990

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Route 1
Huntsville, IL 62344
217-667-2283

1ST VICE PRESIDENT
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219-654-3673

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Mr. Harold McClure
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Miss Jean Reynolds
107 Tuttle Ave.
Clarendon Hills, IL 60514
312-323-1682

TREASURER
Mrs. Kitty Starbuck
7636 V. Avenue E.
Vicksburg, MI 49097
616-649-1991

Editor's Note

The new year is starting. You've made your New Year's Resolutions and, like most of us, probably have already abandoned most of them! Well, forget about resolutions and think about SOLUTIONS:

Members not reading all the way through your bulletin?
Solution - Change the format a little, sparkle it up, ask a new member to write an article.

Attendance at your meetings down a bit lately?
Solution - Invite a guest speaker in, think up a fun-type participation program, stretch your imagination.

Membership dwindling?
Solution - let your community know you're there, go out to other organizational meetings, plan a special "rocky" event.

Lack of interest in your field trips?
Solution - search for a new place to go, add a twist to the trip like an on-sight speaker or a picnic.

In short, try something new. Putting out just a little bit of extra effort could bring large rewards.

Tip for Editors

You can add a professional look to your bulletin/newsletter by using transfer lettering for some of your headings and titles. It's easy to use and is available from several different companies and in dozens of different styles. Check at a local art supply store or a business supply store. Zip-A-Tone and Chart-Pak are two of the most readily available brands. Symbols, lines, curves, fancy borders, and seasonal illustrations are available as well. If you don't have any of these stores near you, several catalog suppliers, such as Dick Blick, carry a large array of graphic supplies. Send for one of their catalogs.

Program News -

SCENIC STONES

It has been proposed that a 'competition' be organized which would result in a program (or series of programs) depicting scenes, pictures or images that have been found in stones. All the necessary guidelines have not been formulated nor is there a decision regarding prizes for this competition but it appears this is a good time to present this idea for consideration.

All entries would have to be on 35mm color slides with a written description. The name and address of the entrant must be written each slide. 'Winning' slides could not be returned (they would be kept on file for safekeeping). Information regarding the location where the material was found and/or any other interesting details regarding the discovery of the image should be included as part of the description.

DON'T SEND ANY ENTRIES YET. LET'S THINK AND TALK ABOUT ALL OF THIS A BIT MORE FIRST. Can you suggest any further guidelines or rules? Who should be 'judges'? What could we offer as prizes other than inclusion in a Program to be made available to the Clubs across the Midwest - perhaps across the country? If you know individuals who have such stones in their collections get their thoughts and write to the address below.

Then watch this column in future months for final details and be ready to send in your entry when details are announced!

PROGRAMS HAVE BEEN ADDED TO THE LIBRARY IN SEPT. AND DEC. READ THOSE MWF NEWSLETTERS FOR DETAILS.

Contact MWF Program Library c/o: Margo Collins, 3490 S. Hannan Rd., Canton, MI 48188. (313) 722-6043.

DID YOUR CLUB RECEIVE ITS COPY OF THE NEW PROGRAM PLANNER'S MANUAL? (April 1989)

"HELP!"

A SEARCH FOR "TULLY"

As previously reported, the Tully Monster is now the official Illinois state fossil. A few of the Illinois clubs are concerned because the Illinois State Museum does not have a Tully specimen in their collection. So, the search is on - these clubs would like to purchase a nice specimen and donate it to the Museum.

If anyone has a specimen they would be willing to sell, or knows who might be contacted about a specimen, please call or write to Mary Hanning, Illinois State Director. She will pass the information along to the clubs.

Mary Hanning, Director
R.R. 1
Huntsville, IL 62344
(217)667-2285

ENDOWMENT

ENDOWMENT FUND REPORT:

At long last the Committee is complete. I would like to welcome Mary B. Hanning as our secretary. The other Committee members are Ben Moulton, Fund Treasurer; Bill Cook, Financial Advisor; Norm Brown, Silent Auction Director; Margaret Heinek, 1st Vice-President; and Glen R. Hanning, MWF President.

The Endoement Fund was established to insure that in the future as well as for the present there will be monies available to be used for projects approved by the MWF Board of Directors and ratified by a 2/3 vote of those present and voting at an Executive Committee meeting. However, only the interest may be used for projects as well as administrative expenses. The final Operation Procedures were approved by the Executive Board on Friday October 13, 1989 at Springfield, MO.

I would personally like to thank all of the individuals that participated in the development of the Endowment Fund Operation Procedures and especially to my Committee members.

The next meeting of the Endowment Fund Committee will be the Spring Meeting March 24, 1990 at the Westdale Mall, Cedar Rapids, Iowa. At the Spring Meeting your Endowment Fund Committee will be meeting to establish a procedure for recognition of those individuals and Clubs that have made donations to the Fund. These awards will be retroactive to include all donations to date. The Committee would like to thank all the Clubs and individuals for their past contributions.

Now as your Chairman of the Endowment Fund, I would like to issue the Clubs and individuals of the MWF a challenge. The challenge is to find ways to make donations to the Fund for the betterment of our hobby. I might suggest the following as some ways of raising funds: silent auctions, live auctions, raffles, memorial gifts, sales, and donations of cash, securities, equipment, real estate, collections, etc. Thank you for your continuing efforts. Don't forget our silent auction at the MWF show in Evansville, Indiana on Friday July 20 and Saturday July 21, 1990.

Larry Costigan, Chairman, MWF Endowment Fund

BLM FOSSIL RULEMAKING BEING SET

On December 3, 4, & 5 the BLM called a conference in Boulder, CO to negotiate new rules for fossil collecting on public lands. The National Academy of Science published a report in June 1987 with ten recommendations to Federal agencies. They are detailed in the January AFMS Newsletter. Item 3 states that all public land should be open to fossil collecting for scientific purposes....and except for quarrying and commercial collecting, no permits are required to surface collect when using hand tools. The final draft of the regulations will be published by mid-1990 in the Federal Register and we must be ready to comment within 60 days. Watch for more details in future issues.

NEW ILLINOIS FOSSIL LAW

Illinois passed a new law SB467 amending Ch. 127, new par. 133c.01 to read "Archaeological and Paleontological Resources Protection Act". We are all aware of the preservation of archaeological artifacts, human remains, and sites. To this is added paleontological resources of fossil or remains on public lands including traces or impressions of animals or plants that occur as part of the geological record. A permit from the State Historic Preservation Agency is requires to collect on public land. All materials and associated records remain the property of the State and are managed by the Illinois State Museum. A violator is subject to a fine up to $5000.

Con't. p.4 -

The Heart of Wisconsin Gem and Mineral Society of Wisconsin Rapids, Wisconsin, honored their bulletin editor, Rosa Bord, for twenty years of service to their club. Rosa took on the job of editor in December of 1969 and gave the name Rockhound News to their publication.

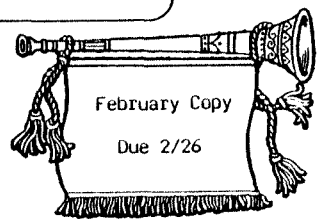
The club held a celebration in Rosa's honor on December 16, 1989. John Vicker, the club's Vice-President, wrote a poem in her honor and included it in the December issue of Rockhound News.

Rumor had it that Rosa was thinking about turning over the job to someone else but just couldn't quit editing!

Congratulations, Rosa. Your dedication is indeed laudable. Keep up the good work.

Special Recognition

This law was written from an old example. New Mexico and North Dakota have amended their law to eliminate the paleontological resources references, since these are animal remains and not human remains. On federal lands, the Code of Federal Regulations, CFR 261.9(h) prohibits removal of paleontological resources when found in direct physical relationship with archaeological resources.



JOHN BOLAND, CHMN ENVIR/LEGIS COMM.

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

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315 O St.
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COMING NEXT MONTH

TRADE ROUTES

COLORADO FIELD TRIP

---AND MUCH, MUCH MORE

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

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 16 and over)
Junior membership fee $2.00 (age 12-16)
Family membership fee $22.00 (husband, wife, and all children under 16---permanent residents of household).

New memberships must be approved by the Board, after applicant attends at least one (1) regular meeting of the club, and pays the above dues plus $5.00 registration fee.

H.E.L.P.

HELP ELIMINATE LITTER PLEASE!

MAIL ALL EXCHANGE BULLETINS TO:

Lincoln Gem & Mineral Club
BOX 5342
Lincoln, Nebraska 68505-0342