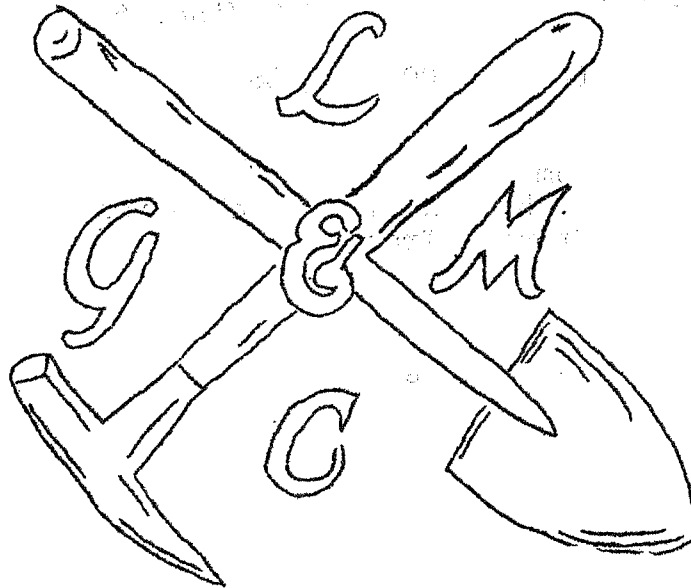


THE PICK & SHOVEL



Official Publication of
THE LINCOLN GEM AND MINERAL CLUB, INC.

Box 29356

Lincoln, Nebraska 68529

January, 1970

Affiliated with
MIDWEST FEDERATION OF MINERALOGICAL AND GEOLOGICAL SOCIETIES
AMERICAN FEDERATION OF MINERALOGICAL SOCIETIES

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.

1970 ELECTED OFFICERS

President	Mrs. Phyllis Parks	2435 S. 19th, 68502	423-6798
1st Vice-Pres	Frank Rule	6333 Kearney, 68507	466-0453
2nd Vice-Pres	C. Ray Waddle	2640 Everett, 68504	423-3196
Rec. Sec.	Mrs. Evelyn Ulrich	3521 S. 148th, 68506	488-9051
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Board Members	Irl Everett	2941 N. 65th, 68507	466-6204
	Jim Parks	2435 S. 19th, 68502	423-6798
	Roger Pabian	300 Sycamore, 68510	489-3081
	Lynn Wells	2940 Vine, 68503	435-6758

APPOINTED OFFICERS, CHAIRMEN & COMMITTEES

Field Trips	Tom Simmons
Program	W. H. Foxwell, Frank Marsh
Historian-By Laws	Frances Tracy
Library	
Membership	
Refreshments	
Scholarships-Stamps	Helena Baegl
Show Chairman-1970	
Rock Swap-1970	
Education	
Uniform Rules	
Housing & Property	

1974 FEDERATION SHOW STEERING COMMITTEE - Bruce Simon, Gene Eno,
Howard Taylor, Ralph Ulrich, Irl Everett, Larry Rupert

BULLETIN STAFF

Editor:	Mrs. Norma Miller	931 Cottonwood Dr. 68510	489-3956
Co-Editor	Mrs. Phyllis Parks	2435 S. 19th St., 68502	423-6798

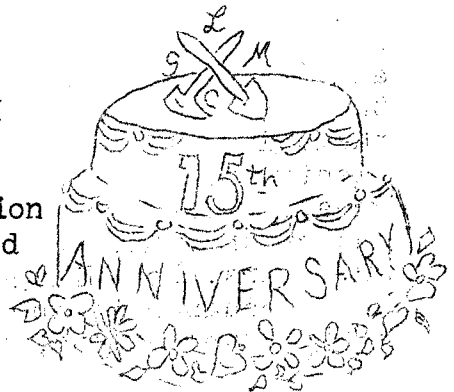
Members of National Association of Bulletin Editors

Articles published in the PICK & SHOVEL may be reprinted if credit is given and a copy of the publication is mailed to the editor. Annual subscription for the PICK & SHOVEL (which is automatically included with full club membership is \$2 per year.

THIS MONTH

REGULAR MEETING...Saturday, Jan. 24, 7:30 PM
WOW Bldg., 734 S. 27th St.

PROGRAM LGMC Founders Day Celebration
Our club's beginning, growth, and
achievements - presented by
Marie Carveth, Irl Everett,
and C. Ray Waddle



REFRESHMENTSGeorge & Glenna McGinnis, and Norma Miller

NEW MEMBERS Norman Balliet, 821 Abel Hall, Lincoln, NB 68508
Duane R. Butler, 5100 Colby, Lincoln, NB 68504
ph 466-0573
Fred N. (Wanda) Day, 3815 H St., Lincoln, NB 68510
ph 489-4651



(Add these to your Who's Who to keep it current)

ROOM 104open again on Friday evenings for fossil diggings
from 7:00 to 10:00. Try this "indoor field-trip"
...it's a learning experience

COMING EVENTS: Thurs., Jan. 30th, 6:30 PM - Channel 12 NETV -
"Neihardt on Creative Writing" (Don't miss it) Ed.

Wednesday, Febr. 4, and Saturday, Febr. 7, 6:00 PM
Channel 9, cable TV...C. Ray Waddle and Helena Baegl
participate in a program on lapidary moderated by
Dorothy Lougee of the City Recreation Dept.

- Mar. 6-8 Greater Kansas City Gem & Mineral Clubs Show, Kansas City KS
- Apr. 3-5 Nebr. Assn. of Earths Science Clubs State Show, Kearney, NB
- Apr. 4-5 Illowa Gem & Mineral Soc. Show, Moline Ill.
- Apr. 17-19 Central Nebraska Rock & Mineral Club Show, Hastings, NB
- Apr. 18-19 S. D. State Mineralogical Soc. Show, Sioux Falls, SD
- Apr. 24-26 Wichita Gem & Mineral Soc. Show, Wichita, KS



THAT GUY "A. NONYMOUS"

He who works with his hands . . . is a Laborer
He who works with his hands and head . . . is a Craftsman
He who works with his hands and his head and his heart..is an Artist
He who works with his hands and his head and his heart and his feet..
is a ROCKHOUND

via Phyllis

How about it...are there any committees you would like to work on
this year? ..our directory page (inside front cover) has committee
chairmanship vacancies - is there a committee you would like to work
on? Let your wishes be known - contact Phyllis - 423-6798

last month...The December meeting and our Christmas Dinner party were held at the I.O.O.F. Hall on Dec. 20th with good attendance. The decorations, again, were beautiful and in keeping with the season. (How that refreshment committee could always outdo themselves month after month is beyond me). The food was in great plenty and delicious, the ham provided by the club was an added treat, as well as the ice-cream, and Santa himself even made a cheery "ho, ho, ho" appearance. Guests were Mr. & Mrs. Oliver Bagg, Mr. & Mrs. Don Miltner, and DeAnn Anderson. We were so glad to have Lloyd Baugher in our ranks...hope to see you at the meetings in the coming year, Lloyd, you look great!

A plaque was presented to outgoing president, Mac McKinney, and the gavel turned over to Phyllis Parks as incoming president.

A traveling prize was awarded by the editor to Roger Pabian and Ralph Ulrich in appreciation for their writings for the Pick & Shovel during the past year.

Mr. Don Miltner presented a slide program titled "Thin Rock Sections" - beautiful slides of actual thin slabs of various kinds of rocks. It is amazing what one can see in the 'picture' shown on the screen!

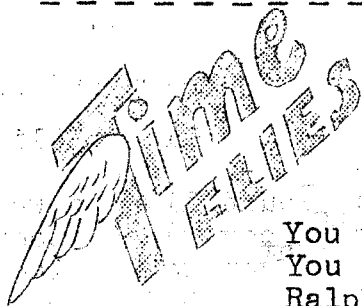
An exchange of gifts took place while everyone sang Christmas carols to the accompaniment of Helena Baegl at the piano. The entire program was a fitting finale to a successful year for LGMC and the lovely, white carpet that greeted our exit added a bright softness to the evening's festivities.

 january, 1970...a New Year - a New Decade. Each New Year we look forward with optimism and enthusiasm to the coming months - counting all the things that must be done, and in addition, all the things we would like to do. Let's let this optimism and enthusiasm be "catching" - with never a thought of finding a "cure".

I would like to offer a great big THANK YOU to everyone who in any way contributed to the Pick & Shovel this past year. Without your help the job could not have been done, and without your writings the bulletin might have been a bit boring.

There are times with the "frantics" could get you if you didn't watch out, but with the cooperation you all have shown I am looking forward to another year as your editor, Phyllis - my co-editor.

Thanks a bunch - Norma



DUES ARE DUE

You may pay him at the meeting on the 24th, or
 You may mail your check to the treasurer,
 Ralph Ulrich, 3909 Pace Blvd., Lincoln, NB 68502

MINUTES OF BOARD MEETING - Dec. 9, 1969 - 7:30 PM

The LGMC board meeting was called to order by president, G. W. McKinney. The following board members were present: G. W. McKinney, Louise Baugher, George McGinnis, Evelyn Ulrich, Ralph Ulrich, and Frank Rule. Visitors were: Lillie Lewis, Norma Miller, Mrs. McKinney, Glen Ulrich.

The minutes of the November board meeting were accepted as written. The treasurer's report was also accepted. Frank Rule moved that the bills presented by the treasurer be allowed. Louise Baugher seconded the motion and it carried.

The names of Duane Butler, and Fred N. and Wanda Day were submitted as prospective members. Evelyn Ulrich moved that they be granted membership. George McGinnis seconded the motion and it carried.

Proposals:

That the club provide a 20 lb. ham for the Christmas dinner to be held Dec. 20th at 7:00. Frank Rule made a motion that ham be purchased. Louise Baugher seconded the motion and it carried. Louise was delegated to purchase the ham.

Mrs. Rupert wanted to know if the board approved of Dixie cups or ice-cream bars being furnished for the dinner. Louise Baugher moved that ice-cream be furnished for the dinner. Frank Rule seconded the motion and it carried.

That more shoulder patches be purchased, and that the present style be altered so that they can be held more securely. Louise Baugher moved that Ralph Ulrich purchase more shoulder patches. Frank Rule seconded the motion and it carried.

That a scholarship fund be established by the Lincoln Gem & Mineral Club. That money from the Rock Swap be put in the club to fund such an enterprise. Louise Baugher took the president's chair and appointed G. W. McKinney to head a committee to study the possibility of establishing such a fund to aid a worthy student, in actual need of financial assistance, and preferably majoring in the field of science or earth science. A point system was suggested as a means of determining eligibility for such a scholarship.

Lillie Lewis announced that paper book volumes of Dr. Neihardt's works could be laminated if an order of at least ten could be placed.

Louise Baugher moved that the meeting adjourn. Mr. McGinnis seconded the motion and it carried.

Delicious refreshments were served by Mrs. McKinney.

- Evelyn Ulrich, recording secretary

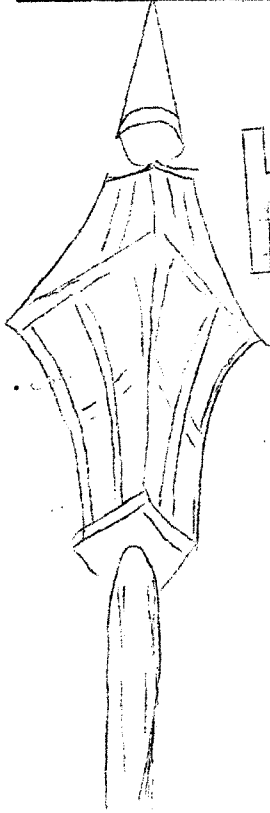
REMINDER.....

Roses are red, our treasurer is blue -

Same old story - DUES ARE DUE.

RECIPE FOR A

HAPPY NEW YEAR



Take twelve fine, full-grown months. Select only those which are thoroughly free from all old memories of bitterness, rancor, hate and jealousy. Clean them completely free from every clinging spite. Pick off all specks of pettiness and littleness. In short, see that each of these months is freed from all the past so that they are as fresh and clean as when they first came from the great storehouse of time.

Next, cut these months into thirty or thirty-one equal parts. They will keep for only one year so do not attempt to make up the whole batch at one time. Far too many people spoil the entire lot this way. Rather, prepare but one day at a time.

Into each day put twelve parts of Faith, eleven of Patience, ten of Courage, nine of Work, eight of Hope, seven of Fidelity, six of Liberality, five of Kindness, four of Rest (leaving out this is like leaving the oil out of the salad...don't do it!), three of Prayer, two of Meditation, and one part only of a well selected Resolution. For spice and sweetening, according to our Scruples, add about a teaspoonful of Good Spirit, a dash of Fun, a pinch of Folly, a sprinkling of Play, and a heaping cup of Good Humor.

Pour Love into the whole and mix with vim and vigor, cook thoroughly in a fervent heart. Garnish with a few Smiles and a sprig of Joy. Then be sure to serve with Quietness, Unselfishness, and Cheerfulness...and a Happy Year is a certainty.

Remember, with a smile and a prayer, twelve new and wonderfully glorious months have been issued in your name to do with as you wish. Father Time has signed your note, so that you have been issued a "credit card" for the entire year!

If you do make a mistake, be sure you don't make the same one over again. Laugh at difficulties and they will soon vanish. Attempt heavier responsibilities and you will find them growing lighter. Face a bad situation and it will clear up. Tell the truth and find an easier way out. Do an honest-to-goodness days work every day and reap the rewards. Believe men are honest and you will find them living up to your expectations. Trust in Good each day and He will surprise you with His goodness!

via Stone Pages & Magic Valley Gem News

FREE FORM OR ACCIDENT - BY ROGER PABIAN

Part IV -- Making Templates

The closing question of the last installment dealt with finding free form designs that can be made into templates. There are a number of sources that are easily tapped. Following are some of the more important ones.

Some of the more exotic curves are to be found in mathematics books. Usually, the higher the level the math, the more interesting the curves. For example, the curves dealt with in the calculus will be more exotic than those dealt with in the algebra. One does not need to understand the mathematical functions to make the cut. The curve needs to be traced and transferred to the stone and no more need be done. Polar coordinates and infinite series provide some interesting patterns (fig. 16).

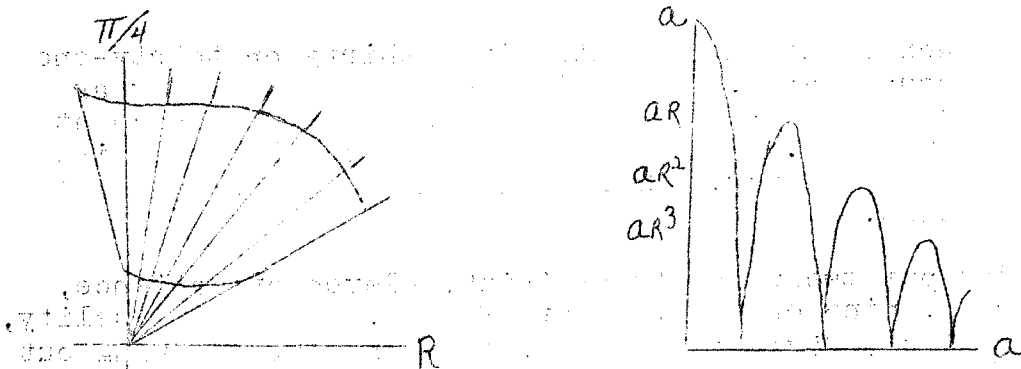


Figure 16. A polar coordinate pattern (left) and an infinite series curve (right). If, for example, a piece of jewelry calls for several stones of decreasing sizes, the geometric series

$$1/a + 1/ar + 1/ar^2 + 1/ar^3 + \dots + 1/ar^n$$

provides a natural rate of decrease in stone size. All too often one sees a series of stones where random rather than natural decrease prevails. The result of random decrease is often disproportionate jewelry. Math books are available at the library and at many book stores. A very old edition is as useful as a new one as curves don't change with time.

Constructions of curves on graph paper can be made and used for templates. For example the parabola

$$y = x^2$$

can be made by forming a table of values: If x = then y =

4	16
3	9
2	4
1	1
0	0
-1	1
-2	4
-3	9
-4	16

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FREE FORM OR ACCIDENT - PART IV (continued) by Roger Pabian

and then transferring the values of y with respect to x to graph paper (fig. 17).

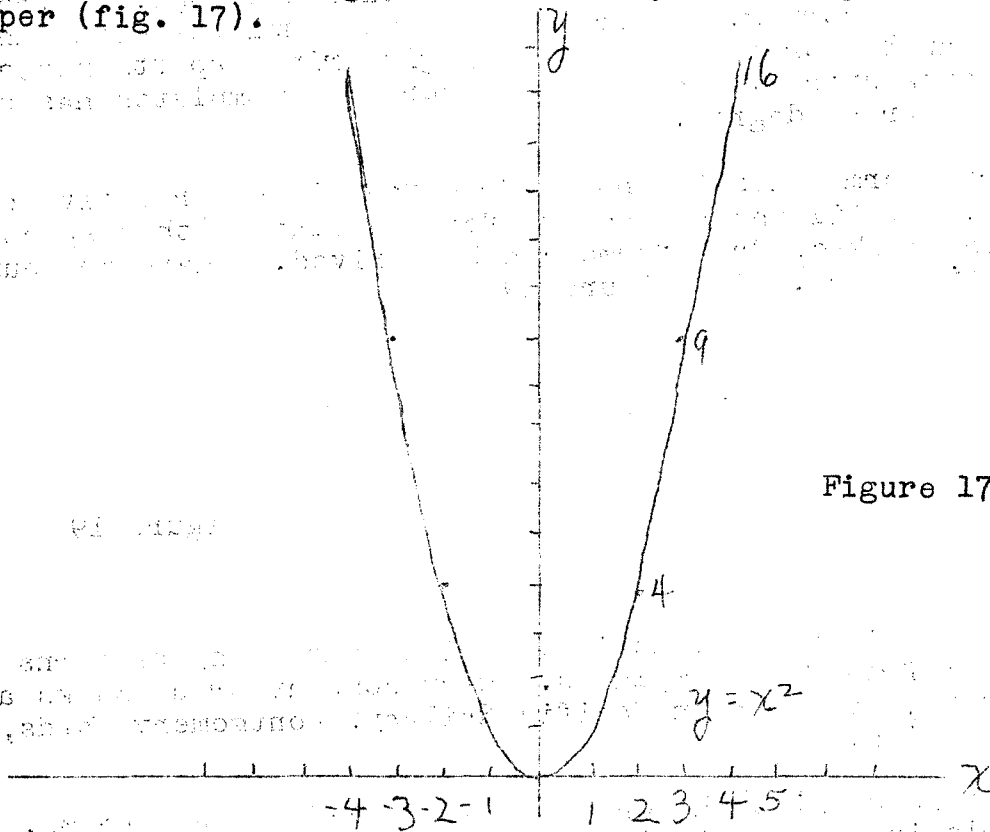


Figure 17

By using graph paper and any continuous mathematical function of any degree

$$y = x^2, x^3, x^4, \dots, x^n$$

a template can be made. For example, the equation

$$y = 3x^5 + 4x^3 + x^2 + 17x + 22$$

would furnish a rather exotic curve which would probably cross the x-axis five times (fig. 18).

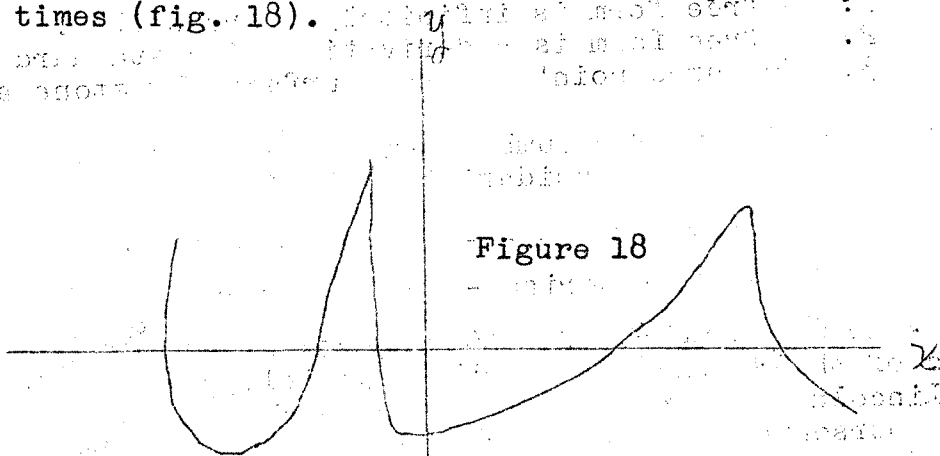


Figure 18

Any part of the curve between $x = -\infty$ and $x = +\infty$ can be used as a template. Curves of this type yield infinite possibilities.

(continued next page)

FREE FORM OR ACCIDENT - PART IV (continued) by Roger Pabian

Other curves can be made from compass and ruler drawings, or from draftsmen's French curves. French curves and templates with many minor curves can be purchased from the engineering departments of many college book stores. This latter source of templates has been overlooked to a great degree.

One of the free form rules is that a free form is a derivative of a standard form. By tilting a standard form template with respect to the stone being marked, free forms can be derived. There are numerous possibilities here. See figure 19.

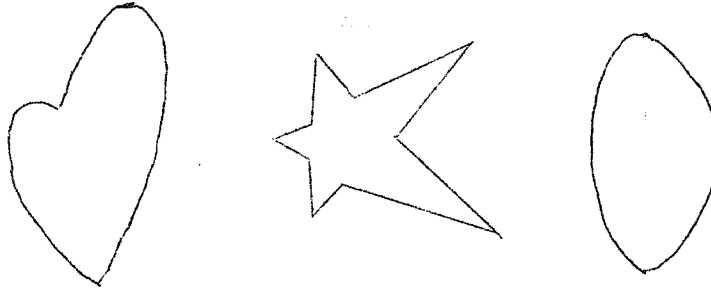


Figure 19

Advertisements and illustrations in magazines have many patterns that are suitable for free form templates. Many company trade marks are suitable patterns, as Northern Pacific Railway, Montgomery Wards, and Chrysler Corporation.

Finally, in nature we find the greatest abundance of free forms. A dog's tail curls in a logarithmic spiral, as does the chambered nautilus or a modern snail. A ball flies in a parabolic pattern. Rolling hills are smooth curves and their silhouettes form possible templates. Observe the curvatures of leaves, trees, and the anatomy of animals. The orbits of planets, the paths of stars, and the shapes of distant galaxies. All of these are free forms.

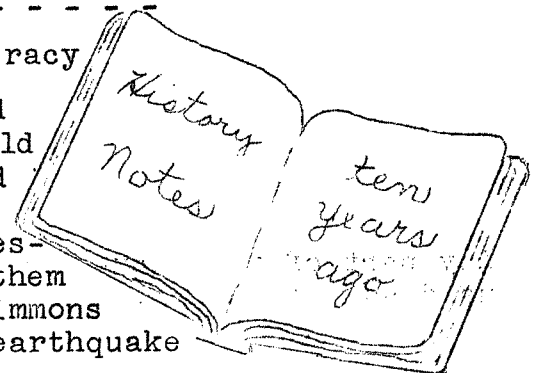
In closing, the three important rules governing free forms are as follows:

1. A free form is infinitely reproducible.
2. A free form is a derivative of a standard form.
3. No three points on the surface of a stone are collinear.

An accident comes out of a tumbler and a free form is a planned cut that is completed by the lapidarists skill.

From the Notebook of Historian - Frances Tracy

January - 1960 - Members of LGMC displayed articles of their craft at a Hobby Show held at the Lincoln Air Force Base. Interested Air Base personnel were invited to accompany LGMC members on a field trip to Holmsville, and an invitation was extended to them to visit the homes of our members. Tom Simmons showed slides of the effects of the 1959 earthquake at Yellowstone National Park.



As promised, to bring you up to date and refresh your memory, following is a list of the stones in the display - "Gems on Location", and the legend as near as we can decipher it. There are questions regarding some of the owners - if you have any knowledge or definite information as to correct owner please contact Phyllis as she is trying to update the little black record book.

STONE	MAP LOCATION	OWNER
1. Jade	Canada	Sincebaugh
2. Quartz-var. agate	Oregon	Heedick
3. Opal-var. wood	Washington	Everett
4. Garnet	Idaho	Hedges
5. Sapphire	Idaho	Lederer
6. Quartz-var. moss agate	Montana	Lewis
7. Quartz-var. moss agate	"	Lewis
8. Quartz-var. moss agate	"	Hedges
9. Quartz-var. moss agate	"	Lewis
10. Removed	"	
11. Removed		
12. Quartz-var. petrified wood	N. Dakota	R. Simmons
13. Quartz-var. Lake Superior agate	Minnesota	Everett
14. Quartz-var. Lake Superior agate	Minnesota	Hedges
15. Feldspar-var. Binghamite	Minnesota	?
16. Copper Ore	Michigan	?
17. Thomsonite	Minn. (on L. Superior)	McGinnis
18. Coral-var. Petoskey	Michigan	Parks
19. Obsidian	California (NW)	Sincebaugh
20. Quartz-var. (Friday) plume agate	Oregon	Hedges
21. Quartz-var. smoky agate	Oregon	Everett
22. Quartz-var. Bruneau jasper	Idaho	Parks
23. Quartz-var. agate	Wyoming	Engelhart
24. Quartz-var. Turritella	Wyoming	Lewis
25. Quartz-var. wood	Wyoming (Frank's Peak)	Hedges
26. Jade	Wyoming	Moser
27. Quartz-var. Sweetwater agate	Wyoming	Hedges
28. Quartz-var. jasper	Wyoming	Moser
29. Quartz-var. Teepee Canyon agate	Custer, S. Dakota	E. Ulrich (cut by Parks)
30. Quartz-var. Fairburn	Nebraska (NW)	Heedick
31. Quartz-var. rose	S. Dakota	Hedges
32. Quartz var. petrified sponge	S. Dakota	Engelhart
33. Quartz-var. agate	S. Dakota	E. Ulrich (Parks)
34. Opal-var. wood	Nebraska (Valentine)	McGinnis
35. Opal-var. wood	Nebraska (NE)	?
36. Quartz-var. Lepidodendron	Iowa (central)	Engelhart
37. Quartz-var. Lake Superior agate	Wisconsin	Hedges
38. Quartz-var. Lake Superior agate	Iowa (NE)	Everett
39. Quartz-var. Lake Superior agate	Iowa (East)	Hedges
40. Sardonyx	Iowa	Hedges
41. Granite	Illinois (Peoria)	T. Simmons
42. Coral-var. Petoskey	Michigan (Detroit)	Parks
43. Quartz var. Flint	Ohio	Nolde (by Gibson)
44. Apophyllite (rare)	Pennsylvania	Nolde (by Engelhart)
45. Williamsite	Maryland	Nolde (by Engelhart)

(continued next page)

"Gems on Location" legend (continued)

STONE	MAP LOCATION	OWNER
46. Franklinite	New Jersey	Engelhart
47. Hematite in Quartz	New York	Nolde (by Bloyd)
48. Tourmaline - faceted	Connecticut	Engelhart
49. Serpentine	Vermont	Nolde (by Bloyd)
50. Quartz-var. jasper	Maine	Nolde (by Bloyd)
51. Opal	California	Hedges
52. Opal-var. wood	Nevada	Schneider
53. Opal	Nevada	Hedges
54. Turquoise	Nevada	Hedges
55. Quartz var. wood	Utah	Sincebaugh
56. Pyrite	Utah	Hedges
57. Variscite	Utah	Parks
58. Removed		
59. Amazonite	Colorado	Engelhart
60. Quartz-var. wood	Colorado	Rule
61. Quartz-var. smoky - faceted	Colorado (Pikes Peak)	R. Ulrich
62. Quartz-var. jasper	Nebraska (Big Springs)	Greenwade (Parks)
63. Opal	Kansas	?
64. Quartz var. agate	Kansas	Gibson
65. Opal-var. wood	Nebraska (Fullerton)	Lewis
66. Quartz-var. jasper	Kansas (central)	?
67. Quartz-var. jasper	Nebraska (Fairbury)	Parks
68. Quartz-var. Lake Superior agate	Nebraska (Fremont)	Rule
69. Quartz-var. Mozarkite	Missouri	Everetts
70. Calcite-var. cave onyx	Missouri	Whitmarsh
71. Quartz-var. Mozarkite	Missouri	Nolde (by Engelhart)
72. Dolomite	Kentucky	Nolde (by Parks)
73. Quartz-var. Poppy jasper	Kentucky	Nolde
74. Epidote	W. Virginia	Nolde (by Gibson)
75. Feldspar-var. microline	N. Carolina	Nolde
76. Feldspar	Virginia	Nolde (by Gibson)
77. Epidote	Virginia	Nolde (by Engelhart)
78. Rhodonite	California	?
79. Tourmaline	California	Hedges
80. Quartz-var. lavic jasper	California	Tracy
81. Quartz-var. palmwood	California	Parks
82. Hematite	Arizona (Aztec)	Lewis
83. Quartz-var. Bacon agate	Arizona	Parks
84. Quartz-var. wood	Arizona	Anderson (by Parks)
85. Quartz-var. wood	Arizona	Anderson (by Parks)
86. Obsidian-var. Apache tear	Arizona	Parks
87. Chrysocolla	Arizona	T. Simmons
88. Malachite	Arizona	Lederer
89. Sard	N. Mexico	Engelhart
90. Quartz-var. green jasper	N. Mexico	Beckman
91. Quartz-var. agate	N. Mexico-Texas	T. Simmons
92. Quartz-var. rosebud agate	Oklahoma	Hedges (by Bloyd)
93. Quartz-var. wood	Texas	Everett
94. Quartz-var. chert	Oklahoma	Everett
95. Quartz-var. chert	Oklahoma	Everett

(continued next page)

"Gems on Location" legend (continued)

STONE	MAP LOCATION	OWNER
96. Quartz-var. jasper	Oklahoma	Nolde
97. Sphalerite	Missouri	Hedges
98. Quartz- clear faceted	Arkansas	R. Ulrich
99. Quartz-var. agate	Arkansas	Nolde
100. Quartz-var. Iris agate	Tennessee	Nolde (by Engelhart)
101. Unakite	Tennessee	Everett
102. Corundum-var. ruby	Tennessee	Lederer
103. Quartz-var. moss agate	Texas	Hedges
104. Ilmenite	Texas	Everett
105. Quartz-var. agate	Texas	Hedges
106. Quartz-var. palmwood	Texas	Tracy
107. Quartz-var. moss agate	Texas	Gibson (by Bloyd)
108. Ilmenite	Texas	?
109. Quartz-var. moss agate	Texas	Tracy
110. Opal-var. wood	Texas	?
111. Quartz-var. chert	Louisiana	Nolde (by Bloyd)
112. Quartz-var. banded agate	Louisiana	Everett
113. Quartz-var. palmwood	Louisiana	Nolde (by Engelhart)
114. Quartz-var. oak wood	Mississippi	Nolde (by Bloyd)
115. Quartz-var. wood	Mississippi	Everett
116. Quartz-var. jasper	Alabama	Everett
117. Quartz-var. Flora-Mor-Somi agate	Florida (Tampa)	Nolde (by Engelhart)
118. Quartz-var. black coral	Florida	Everett

We wish to thank the club members who shared their fine collections for the display from Dec. 8 to Jan. 11 at the City Library. Those participating were Darline Sprick with items made in the city recreation lapidary classes; a collection of original pieces of silverwork was displayed by Larry Rupert; a valuable collection of fossils was provided by Roger Pabian; minerals from various localities were shared by Norman and Dorothy Engelhart, and an exceptional collection of 66 individual artifacts were shown by Vi and Van Van Cleave. Our "Gems on Location" completed the exhibit. Thanks to Lillie Lewis, Dorothy Engelhart, and Jim & Phyllis Parks also, for contributing their time in arranging and helping set up the display. (it is time consuming). Insurance for the displays (required by the library) was provided through a floater policy that will cover our club-sponsored displays for one year. (Perhaps we should seek out sites for public display within this year? Ed.)

REPORT FROM MRS. ANN HIDY, FINE ARTS DEPT., LIMCOLN CITY LIBRARY via Dot

Many and varied groups toured the library while LGMC displays were there and many of their members were favorably impressed. A request to purchase a piece of the silver-work was expressed; a request is to be forthcoming from the new social director of a retirement home at Crete, Nebraska, for help in the form of lectures and/or instruction to the citizens of the home; a business-men's group from out of

(continued next page)

LINCOLN CITY LIBRARY REPORT (continued)

Lincoln is going to ask their mayor to contact our club in connection with their Centennial in August. (We don't know the city. Ed.); a guest of one group approached Mrs. Hidy with the question - "Had we been invited to display at the exhibition in Mexico City?"; the Nebraska State Historical Society expressed special interest in the artifact display; there was an increase in the number of books checked out in these fields of interest; a number of people requested information on the lapidary classes available, and a number of new books will be added to the shelves in April stemming from our display and the interest shown. (In receiving this report I felt proud of our members involved and hope our club members will get a verbal report at the meeting in January so you can enjoy the fruits of their labors also. Ed.)

REPORT FROM THE FIELD TRIP CHAIRMAN FOR 1970: Tom has taken off for an extended trip into the warmer regions but left word that everyone should be getting their field trip gear in readiness. He is not overlooking the many short trips which we can have for one, or two, day trips and will welcome any suggestions or offers to lead such trips. Already in the planning stages for your calendar is mid-June to areas in Wyoming with a central rendezvous point at the Wyoming State Show, at Rawlins on June 19-21. Persons who are interested in this trip can plan to go the whole route or join in for any portion of it. Also tentatively planned will be a return to Crawford on Labor Day weekend where so many pleasant memories have been formed. Be watching for Tom to return, and plan.

REPORT FROM 1970 PRESIDENT: I was quite pleased with the first board meeting of the new year. It was a very informal session as new and returning members begin to orient themselves into thinking of the "now" year. I also was pleased that several non-board members took advantage of the discussion period.

Main topics or questions presented were: meeting site; amplifier system; more field trips including a need for shorter one-day field trips (preferably Sunday); decision before October 1970 regarding 1971 Show so that it can be included in Nebraskaland calendar; club associated individual name tags for traveling use; more covered-dish affairs such as we used to have at Pioneer Park; more emphasis on education within the club in various fields especially suited to amateur rockhounds; sharing our own facilities with novices.

Previously the board discussed the contract for the facility at 27th & Randolph at the same rate as before. Details which had been verbal only or completely lacking have been added. We have found no meeting site which would accommodate our regular 4th Saturday evening meeting as we now have it. This matter must be decided soon. The library auditorium meeting site worked out comparatively well with coffee-making and service rather impromptu. It is nice to know that free places of this nature can be used. The library staff was very helpful.

My sincere thanks to Eleanor Rupert and David who brought the club coffee-maker and prepared the coffee for us. See you all Jan. 24th.

SOMEWHERE BETWEEN THE TWO IS THE MIDDLE

I wonder if many people would be interested in faceting if a mere amateur could explain the whole thing in a few words? This couldn't possibly be done anyway because most of the pleasure and thrill of seeing the beauty of a piece of rough come to life because someone cut and polished a lot of little flat places on it is a personal experience. Everyone has their own way of appreciating the results of their hand work so no one person could possibly explain why anyone would sit for hours cutting on one stone.

Well, now then, let's just stick to the mechanics of faceting and see how simple it really is or how complicated we can make it. Why do we cut all those little facets and arrange them just so? First of all, if they have been well-polished and the stone is clear, then we can see inside. After all if there is something in there to see, we want to be able to see it. Secondly, we have seen how a well-cut stone sparkles and how some of them, such as the sphen or the zircon, or the titania have a way of flashing red, green, blue and violet while they dance in the light like an orchestra in complete harmony. This is because they have been cut within the critical angle of their comparatively high refractive index and all the meets are uniform. Oops, we got a bit technical there, but no matter, all we need to know is that there is a certain desirable angle at which these facets should be cut. I don't know how to calculate the angles because I just never had to. I have two very well-written books that list the angles for the various stones. Someone has figured all this out and listed it and those lists save me time. These two books, "Facet Cutters Handbook", by Soukup, and "Comprehensive Faceting Instructions" by Hoffman, are inexpensive and have some very good ideas and helps listed in easy-to-read form. However they do not agree on the angles recommended for cutting. I find that if you follow either one you will come up with a good brilliant cut. Now then, if you can follow either book and still come up with a good cutting job, I say that the one who is doing the cutting needn't be accurate to the Nth degree either, just so he cuts reasonably close to the recommended angles.

This brings up a third reason for cutting, the stone should be pleasing to look at. That is to say, the facets should touch each other but not go barging in on each other so that they look ugly because of the odd shape of the facets. That is what we mean when we say "meets" are uniform. Then too, the stone should be well proportioned, not too heavy on top and not too bulgy on the bottom. I like a stone that has a table, the table is the largest flat place right on top, that is just a little more than half the diameter of the stone. The relative size of the rest of the stone will develop when you cut the facets at the recommended angles.

What about selecting the rough material? Here again this is an individual's choice as to what interests him the most. For the beginner quartz and beryl are often best because you can get gobs of it almost any place, or it can be bought for a few dollars a

(continued next page.)

SOMEWHERE BETWEEN THE TWO IS THE MIDDLE (continued)

pound. Then you can concentrate on the cutting and not be haunted by the fear of ruining an expensive piece of material. Select good clear material. I would almost feel foolish to cut flawed or cloudy material in quartz or beryl because there is a lot of good clear rough available. Later on you may want to get into some of the scarce and more costly stones like Andalusite, Chrysoberyl, Sapphire or Ruby. The buying then becomes a little more expensive and in my case a little less frequent. It usually sells by the carat.

I like to try to figure how much finished stone I can get from a piece of rough before I buy it. The long, flat, thin pieces are not a very good buy because the depth of the stone will limit the diameter of the finished gem. The depth in most cases is about 70% of the diameter.

If you like to play around with math you could figure out about what a finished stone would weigh by measuring the rough and calculating the volume of the possible finished stone that could be cut from it. Water weighs .005 carats per cubic millimeter so if we know the specific gravity of the material, we have all the ingredients for a real exercise in math. Just for fun let's say that we have a piece of Andalusite rough that weighs 5 carats. We measure it up and decide that a round brilliant stone 8 mm diameter by 5.75 mm deep could be cut from it. After boiling down the constant figures like .005 carats per cubic mm for water, the volume of a cone and the volume of a frustrum we have an imperial formula that looks like this: $.001877 D^2H(SG)$. The specific gravity of Andalusite is 3.15 so substituting in the formula we have $.001877 \times 8 \times 8 \times 5.75 \times 3.15$ which calculates to 2.18 carats. So we have to cut a 5 carat stone down to 2.18 carats of finished stone. This is a very good recovery rate! Whoa now, don't go 'way! You don't have to do all that figuring just to buy rough. Just say that if the piece is chunky you can get about 1/3 of its rough weight in finished stone. But if it is flat and thin you may get only 1/5 recovery. And in most cases that would be as close to reality as you could get by using the formula. The cutting and placing of the facets is not mathematically exact in representing a cone and a frustrum anyway.

What I am saying here is that faceting can be as simple as $2 + 2 = 4$ or you can go for the complicated formulas depending upon whatever your inclination is. There is always an effective simple solution available for getting the results needed.

This also applies to equipment. The basic unit can cost a small amount or you can go for several hundred dollars depending upon how much you want the machines to do for you. After all, I started with a simple jamb peg system that cost me less than \$20 including motor, laps and grit. But then I got "hooked" on faceting and wanted to go beyond what I could do with the jamb peg system, mainly save time. The jamb peg system takes a lot of practice to develop the skill

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SOMEWHERE BETWEEN THE TWO IS THE MIDDLE (continued)

and you will have a few disappointments before you have reached the point where you can consistently cut acceptable gems. While on the other hand, the new elaborate faceting machines with the rapidly cutting metal bonded laps are almost fool-proof and the first stone you cut will be an acceptable gem.

Getting started is fascinating and fun and there is a whole world of scintillating gems buried under that first step - the beginning.

- Ralph Ulrich

NEWS & NOTES... Mac McKinney will show slides and lecture on the "Grotto of the Redemption" on Monday evening, Jan. 12th, to the Switchboard Club.

Dr. Neihardt spoke last month to students at Northeast High, and was interviewed on KFOR Radio on Mon. Jan. 5th. We are fortunate to have this great man still in our midst, 89 years young this month.

The Everett Weber's received a call at Christmas time from their son, Terry, from far-away Danang. Nice Christmas present, eh?

The western, shoot-em-up cowboy shows have nothing on Helena Baegl who recently experienced the upsetting episode of a gunshot through her car window...an experience one could do without!

Marie Carveth is helping with arrangements for the wedding of a niece in March, and recently entertained a nephew home "on leave" from Vietnam.

Our thoughts are with the Howard Taylors at this time...Marie's father passed away the 1st week of January at the age of 84.

Sunny Mexico is hosting our retired grandpa, Tom Simmons and wife Caroline. Six weeks down there should be easy to take, Si?

Roger Simmons is filling his service duties for 3 weeks in Mississippi - he will return Jan. 25th. Margaret and the Young 'Un are keeping home fires burning.

Counsellor to a young ambassador from Brazil is an interesting experience for Norma Miller this year. The young man is an East High American Field Service student.

Belated thanks from Glenna McGinnis to all the members who took time out from their busy pre-holiday schedule to send the lovely cards and letters while she was hospitalized. They were much appreciated.

Michael, the second son of the Don Gless's, was married in Illinois in December. Congratulations, Don!

The McGinnis's had house-guests over Christmas vacation - daughter Sherry and husband Jim Warren and their 2 children, from Ft. Walton Beach, Florida.

APOLLO 11 MOON ROCK SAMPLE (called a micro-breccia by NASA scientists) on display at Morrill Hall for a period of time before Christmas was sealed in a nitrogen atmosphere to prevent any chemical alteration.

The gas content in the rock is very high, but it is the same as in the loose soil collected from the same area. The gases are mostly hydrogen and helium. The nature of the rock and the included gases strongly indicated the rock has never been melted but highly compressed, perhaps by a massive shock wave - such as by the impact of a large meteorite. No living organisms or even evidence of past organisms have been found in any of the lunar samples so far.

The samples returned by the Apollo 12 astronauts contain a considerable number of crystalline rocks which were hot at one time, but the source of the heat is still not agreed upon. These samples were retrieved from a different type of terrain than the Apollo 11 flight.

KANSAS CITY STAR...Some of the moon rocks brought back by Apollo 11 may be older than the oldest rocks on earth according to scientists. Some of the rocks and dust resemble the material in meteorites more than they do terrestrial rocks, and some are different from either earth rocks or meteorites.

Chemically speaking the lunar samples were surprising in their extreme enrichment of elements that melt only at very high temperatures - and their high concentrations of titanium, zirconium and yttrium, compared to terrestrial rocks or meteorites.

NEW YORK 12-10-69 (AP) -A Columbia University scientist, Dr. Gary Latham, keeping watch on the moonquake detectors left behind by Apollo 12 says seven impacts have been recorded near the landing site since the astronauts left. He says apparently 7 objects have crashed within 60 miles of the site since Nov. 20.

SMITHSONIAN OPENS FIRST MOON ROCK EXHIBIT...since Sept. 17 on display is a single lunar rock, breccia-like, fist sized, and gray in color.

AMERICAN MUSEUM OF NATURAL HISTORY has been jammed with people who come to stare at 3/4 of an ounce of rock, one of the samples from the moon's Sea of Tranquility returned to earth. On Nov. 17 the crowd numbered 42,195 persons - the biggest in any of the museums history.pnp

WINTER

Snowflakes come tumbling down
 It 's a beautiful sight but it makes no sound
 You can hear the brisk wind
 You can feel the cold snow
 It's lots of fun as you should all know.

by John Eno (junior member)
 via Prescott News

FORMER JUNIOR MEMBER Chris Engelhart, now serving with the US Army in Ft. Benning, GA., had a short Christmas leave from his duties as trainer-master of a beautiful dog named Kelly. Lots of luck, Chris.

Midwest Federation's NEWSLETTER

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IOWA'S YUCATAN CAPER

-by Ed Hix, State Director for Iowa

In June of 1969, a years efforts culminated with an Iowa Rockhound, Ken Carley, presenting over 100 specimens of mineral, fossil and artifacts to the State Museum at Merida, Yucatan. This all started in June 1968 when Ken, a member of a Des Moines club was vacationing in Yucatan. When it was learned that he was from Iowa, the "Red Carpet" was rolled out and it was then explained to him that Iowa was their "sister state" under the Partners of the Alliance. These people were very proud of the fact that they were chosen by the State of Iowa.

A plan was then conceived to do something for these people. On returning home, with the thought that perhaps the Des Moines clubs would be willing to cooperate on this project. At the ensuing meeting the State Director was involved in the plan and asked to make this a project for all clubs in the state. Letters to all clubs were sent out explaining this exchange and asking for labeled material from their areas, keeping in mind the fact that these would be placed in the State Museum in Yucatan.

This material was sent to Des Moines where the Director and Curator of the State Museum selected the best for shipment. Through the concentrated effort of many individuals and most of the clubs of the state, over one hundred museum pieces were shipped to the southern tip of Mexico, Yucatan, our "sister state".

The Partners of the Alliance have reached thirty-five states and their counter parts in fifteen Latin American countries. All projects, approved by the Partners of the Alliance Committee must be exchangeable; in that it must be possible for the people of the "sister state" to do something in return. Their brochure states "the Partners program is a channel through which com-

NEW SLIDE PROGRAM ADDED TO MWF LIBRARY

"Field Tripping in Illowa Territory" is the title of a new slide program being added to the MWF library and ready for immediate booking. The program covers eleven locations in Iowa and Illinois and is the result of one man's ardent and earnest work so that others might enjoy the places and the things to be found in these areas. This man is Richard Johannesen a member of the Illowa Gem and Mineral Society.

Our Program Chairman, Mary Anderson says, "If, after you have seen this program you don't want to go home and put on your hunting boots, pick up the ole rock pick and all those other gadgets we all take along and head for these two tall corn states, then 'man you ain't no rockhound'".

When you order, ask for "Field Tripping in Illowa Territory".

community organizations, business, professional, educational, labor unions, service groups and even private individuals in the United States can work directly with the people of their "sister state".

The following are the states and their partners: Illinois: Sao Paulo, Brazil; Indiana: Rio Grande do Sul, Brazil; Kansas: Paraguay; Michigan: British Honduras; Minnesota: Uruguay; Missouri: Para, Brazil; Ohio: Parana, Brazil; Wisconsin: Nicaragua.

Any state wishing to engage in an exchange of this type can get information on the Partners of the Alliance Committees for their state from National Association of the Partners of the Alliance, 1518 K Street NW, Washington, D.C. 20005.

I feel that this is one of Iowa's finest projects and hope other states will follow our footsteps.

JUNIOR ACTIVITIES COMMITTEE FORMED

The continued success and effectiveness of the Midwest Federation is dependent upon what action we take now to interest, stimulate and advise our Juniors. Today's Juniors will be tomorrow's leaders of the Federation.

Much publicity is given to the so-called generation gap with little emphasis on corrective actions that can be taken. The accelerated pace of the 1970's will find additional stresses being placed on both adults and juniors.

In keeping with this year's theme of "Conservation", it is our responsibility to educate, assist and train our Juniors in order to adequately prepare them for the tremendous task of leadership in the future. They must learn to wisely use our natural resources without wasting them. The challenge is ours... we who are interested in the earth sciences have an excellent opportunity to help the world of the future to be a better place in which to live. This can be accomplished by our Juniors only if we recognize our responsibility as adults and offer our assistance to them.

The new Junior Activities Committee has undertaken the task of organizing material for use by clubs throughout the Midwest Federation. Plans are being made to cover the following areas:

1. Stimulate adult clubs to consider forming junior groups within their organization. Adult leadership is essential either directly or indirectly to support junior activities.

2. The preparation and distribution of a Midwest Junior Manual will be accomplished as quickly as possible.

3. Earth Science Magazine will be publishing a book which is designed to provide course material to aid junior clubs.

4. Juniors will be encouraged to write articles for their club bulletins; give short lectures at adult meetings; exhibit at shows both local and regional; learn good safety habits; learn the proper identification of specimens.

If you are interested in forming a Junior

CLUB DOINGS

MEMBERS OF THE SIOUX EMPIRE GEM AND Mineral Society of Sioux Falls, S.D. met recently at South Dakota State University at Brookings, to sort, clean, label and prepare for display a mineral collection which was left to the University.

REPRESENTATIVES FROM MISSOURI GEM AND mineral clubs and the State Geological Survey of Missouri are working together to have joint exhibits at the Missouri State Fair at Sedalia beginning next year. State Director for the MWF, Marie Stingley, acted as a coordinator for the clubs, with Dr. William Hayes, State Geologist presiding. Oliver Roskam was acting chairman for the rockhounds. Missouri clubs are also working for a state rockhound park.

JOANNE CLINE OF THE MENTOR, OHIO

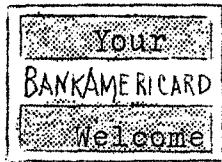
Lake Shore Mineral and Lapidary Society was the speaker for Rock Day at the Cricket Lane Elementary School, Willoughby. She featured fluorescents and gave each child a tumbled stone to keep. Specimens were passed for the partially sighted children to feel.

RUSSELL GREER, STATE DIRECTOR FOR MICHIGAN conducted a well attended and informative Cracker Barrel session at the Detroit Armory in connection with the annual show of the Michigan Mineralogical Society. Michigan clubs agreed that a safety chairman should be appointed in each club and that judges and exhibitors meetings should be sponsored in various parts of the state.

"STATE DIRECTORS"

is the new name by which the former "State Vice Presidents" were known. Each "State Director" will have assistants as did the former "State Vice Presidents".

Group within your club or have any ideas or suggestions which could be used by the committee please contact Patricia Yoblin, Junior Activities Chairman, 8300 Parkview Road, Greendale, Wisconsin 53129.



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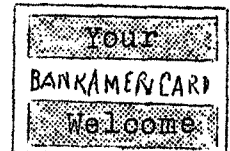
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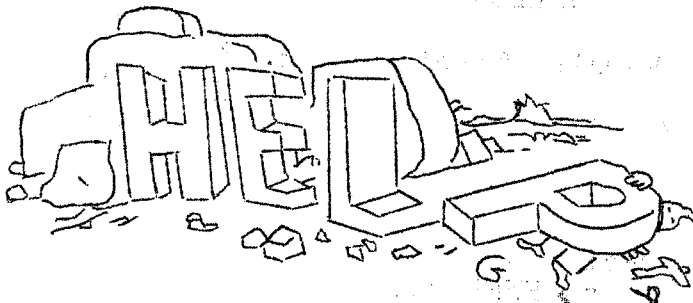
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