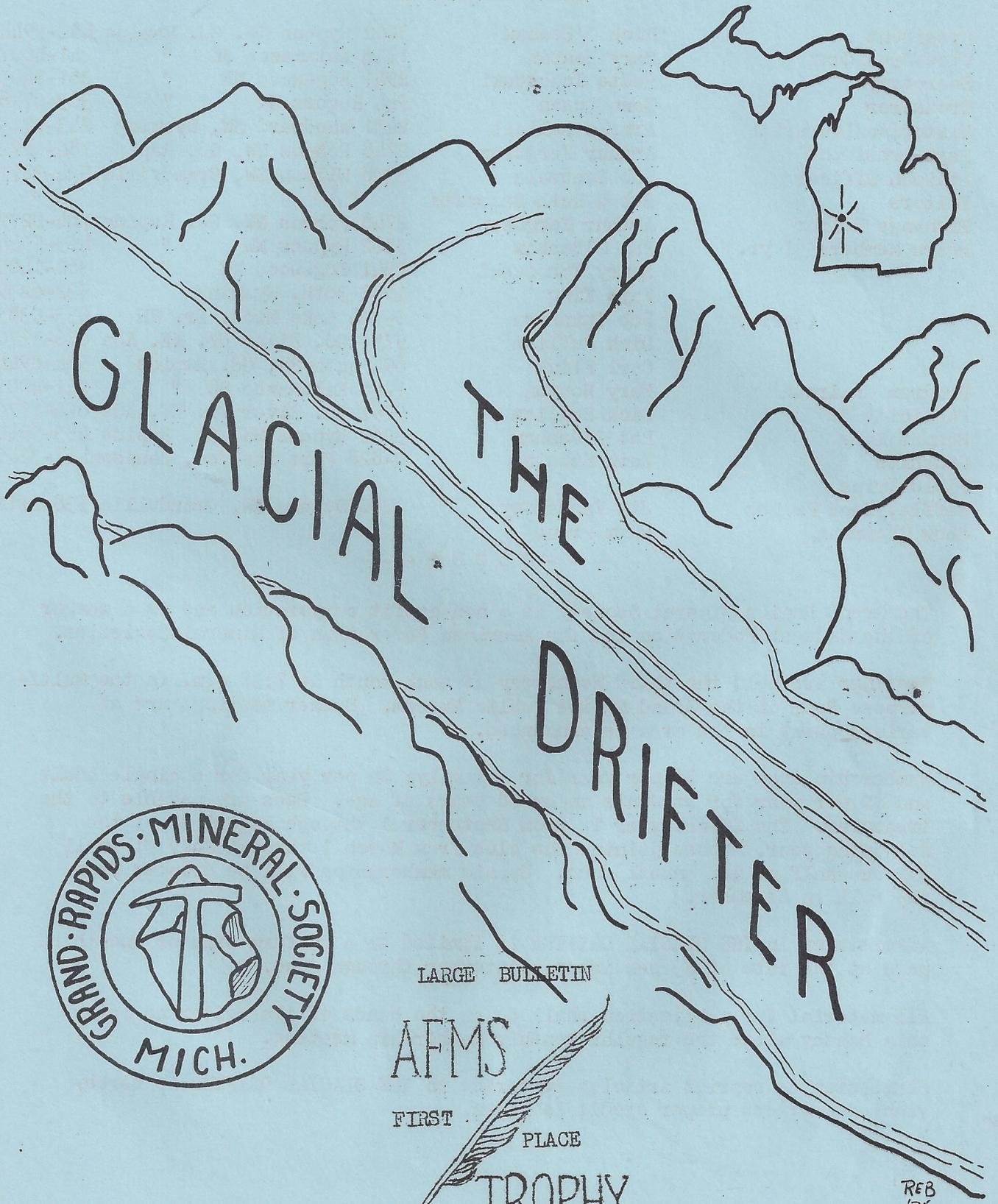


JUNE 1979



LARGE BULLETIN

AFMS

FIRST PLACE

TROPHY

PUBLICATION
1978

REB
'75

BOARD OF CONTROL

President	Rick O'Beshaw	3262 Rypens NW, Gd. Rapids	453-5944
Vice-President	Mary Honton	1746 Kalamazoo SE	" 241-4001
Secretary	Bette Tchozeski	2941 Edgewood NE	" 361-1405
Treasurer	Donn Cuson	944 Rogers NW	" 363-0778
Historian/Librarian	Arnold Ballast	2431 Woodward SW, Wyoming	243-3715
Past President	Arthur Ferguson	2748 Pohens NW, Gd. Rapids	784-0272
Liaison Officer	Bob Beauvais	3308 Wilson SW, Grandville	534-3871
Editors	Bob & Ruth Beauvais	"	"
Exchange Editor	Arthur Ferguson	2748 Pohens NW, Gd. Rapids	784-0272
Board Members (1 yr.)	Pat O'Beshaw	3262 Rypens NW	" 453-5944
	Henry Tchozeski	2941 Edgewood NE	" 361-1405
	Faye King	1957 36th, Wyoming	532-6239
	Bob Tuinstra	0-304 Lake Mich. Dr. NW	453-0383
	Dick Pulliam	5751 Gd. River Dr. NE, Ada	676-1770
(yrs.)	Carl Flink	694 44th SE, Gd. Rapids	534-8944
	Mary Honton	1746 Kalamazoo SE	" 241-4001
	Dick Pulliam	5751 Gd. River Dr. NE, Ada	676-1770
	Pat O'Beshaw	3262 Rypens NW, Gd. Rapids	453-5944
	Ruth Steele	0-828 Port Sheldon, Jenison	457-3249
Program Chairman	Mary Honton	1746 Kalamazoo SE	" 241-4001
Publicity "	Dick Pulliam	5751 Gd. River Dr. NE, Ada	676-1770
Hospitality	Pat O'Beshaw	3262 Rypens NW, Gd. Rapids	453-5944
Sunshine	Ruth Steele	0-828 Port Sheldon, Jenison	457-3249
Field Trips			
Raffle, Door Prizes	Jim VanderMey	3260 Ottawa SW, Grandville	538-2118
Show Chairman	Herm Prins		

- - - 0 0 0 0 - - -

The Grand Rapids Mineral Society is a non-profit corporation and is a member of the Midwest Federation and the American Federation of Mineral Societies.

Meetings are held the third Wednesday of each month at 7:30 p.m. in the Multi-purpose Room of the Grand Rapids Public Museum. Summer meetings are at various parks in the area as announced.

Membership dues are \$6 per year for a family; \$4 per year for a single adult and \$2 per year for students under 18 years of age. Dues are payable to the treasurer. The fiscal year is from September 1 through August 31 of the following year. Those joining the club from March 1 through July 31 shall pay one-half of the annual dues. Unpaid memberships will be dropped from the roll in December.

Advertising in THE GLACIAL DRIFTER is limited to a uniform size of one-third page at the rate of \$3 per issue, September through June.

All material for publication shall be in the hands of the editor no later than Monday after the regular monthly membership meeting.

Permission to reprint articles appearing in THE GLACIAL DRIFTER is hereby granted provided proper credit is given.

NOTE: THIS IS THE ONLY NOTICE YOU WILL
RECEIVE FOR SUMMER MEETINGS - BE SURE
TO KEEP IT FOR FUTURE REFERENCE!

THE GLACIAL DRIFTER

VOLUME 21 NO. 10

JUNE 1979

G.R.M.S. CALENDAR

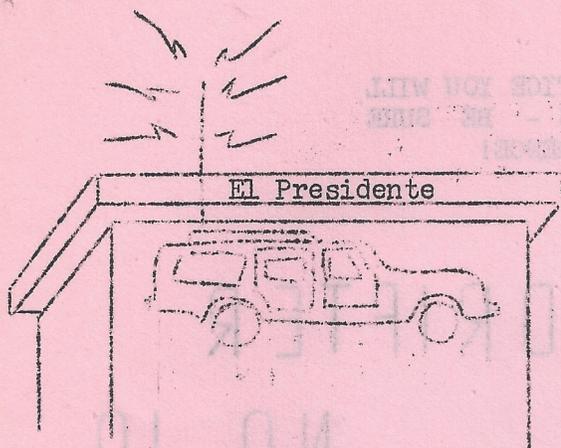
Wed., June 20 6:30 p.m. Pot luck picnic at Ideal Park
(see directions on page 3) Program: Rick and Pat
O'Beshaw with "Keweenaw Escapades."

Wed., July 18 6:30 p.m. Pot luck picnic at Ideal Park.
Program: Slide presentation by Art and Dorothy Ferguson
on their western trip.

Wed., August 15 6:30 p.m. Pot luck picnic at Ideal Park.
Program: "Show 'n Tell" plus a demo on gold panning!
Panners - gold, that is - will be Don Bowers and Art
Ferguson.

Mon., August 20 6:30 p.m. Board of Control dinner at
Sweden House, Plainfield Ave. NE. This will be a combined
meeting of the outgoing and the incoming boards. All
officers should be present. If you can't make it for
dinner, come about 7:30 for the meeting

Your editors and the Board
of Control want you to have a
good, safe summer - come
back in the fall! - Please.



SPARKS FROM THE ROCKGRINDER

Wow, I think I hit a nerve! I've had some response to my comments about the MSHA rules and regs. about mine safety and rockhounds. Printed elsewhere in this bulletin is the letter I received from a member of the Lansing club. Also, Florence Hill got some rulings from some administrators of the program. It looks as though bona fide members of rock clubs like ours can get into collect after all. I don't know about the rest of you, but I think I can see a rainbow that follows a storm.

The elections are over and my term ends soon. My, how time flies! Seriously, June Smith, our new president, is very capable and I know the club will be in good hands (even though she doesn't look like Ed Reimers!) *

I wish to give Ted and Marie Duprey a big round of applause and a heartfelt thank you for a good job in getting together a slate of officers.

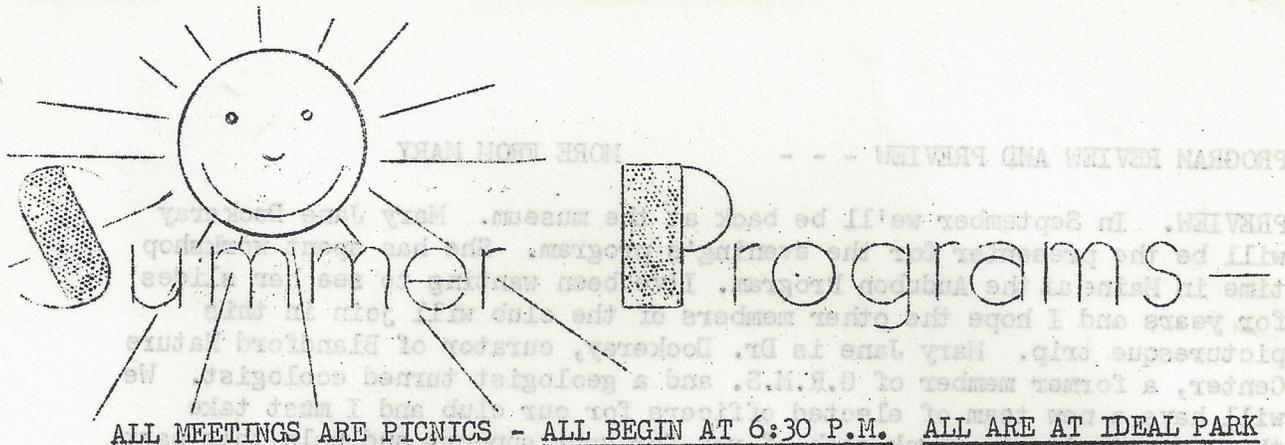
On Labor Day weekend Pat and I are going up to the Keweenaw Peninsula again. We'll be staying in Calumet. Those of you who want to go with us can stay at McClain State Park nearby for camping. I'm going to arrange for a guide for at least Saturday so we can hit some worthwhile "finds." Last time I got some silver crystals without knowing it. Anyhow, the invitation is out to join in this trip - just let me know between now and the end of August and I'll give you the specifics.

Try to remember our summer meetings at Ideal Park. We have more fun at these than at the museum - it's a heck of a lot less formal.

Depending on the size of your gasoline budget, some of you will be doing some collecting on your own this summer. Please remember to work safely and try not to get hurt. Remember the ten commandments of rockhounds. We want to be asked back to all good locations - remember: good public relations start with each one of us!

- Rick

*Editor's question (i.e. $\frac{1}{2}$ of editorial staff) Who IS Ed Reimers?



To reach Ideal Park take US131 south to 54th Street exit; turn left (east), cross the railroad tracks and turn right (south) on Crippen; then to the end of the road to the park. There should be a park sign at the corner of 54th St. and Crippen.

The shelter house has been reserved in case of heavy or light dew and for use in presenting the programs. We usually eat out of doors if possible. Even though the area is relatively free from less than friendly insects, a good bug repellent should be in the picnic basket. Bring a couple of dishes for the food table, your table service and beverage. A tablecloth will come in handy. If picnics are not your thing come about 7:30 for the program.

JUNE 20 Rick and Pat O'Beshaw will do a presentation on their Keweenaw escapades of the past summer. A preview of the content material can be found in the October 1978 issue of THE GLACIAL DRIFTER; said article contributed by Pat.

JULY 18 Art and Dorothy Ferguson have a slide presentation of their most recent western trek. That's when most of us were under snow drifts! Art wanted to wait until this month -- to be sure Stan and Eva Way are back in Grand Rapids. Art told me that Stan has a starring role in some of the scenes and recognition should be given to him in his presence.

AUGUST 15 This is the local chapter's members night to brag about the ones they got. Bring your braggin' specimens (with maps, of course!) to acquaint the members with your great finds. I don't know if purchases from rock shops are included, but the lapidary talent that I have seen from purchased material sure is worth showing off! So join the show and tell session. (If you make a good buy, or buy something special, bring it along--or come with a good rock tale to tell - Ed.)

However, if some of you (like me) plan to be in the Keweenaw during August, I hope you'll stop by. From August 5 through the 18th I'll be at the far west end of Great Sand Bay...the cottage is on the lake, just past Jacob's Creek Falls. That's just past where the creek washed out whatever buildings were once alongside the creek. Might even join in some mine dump hopping to get greenstones...and of course, agates!

-Mary Honton

PROGRAM REVIEW AND PREVIEW - - -

MORE FROM MARY

PREVIEW. In September we'll be back at the museum. Mary Jane Dockeray will be the presenter for the evening's program. She has spent workshop time in Maine at the Audubon Program. I've been wanting to see her slides for years and I hope the other members of the club will join in this picturesque trip. Mary Jane is Dr. Dockeray, curator of Blandford Nature Center, a former member of G.R.M.S. and a geologist turned ecologist. We will have a new team of elected officers for our club and I must take this opportunity to thank each of you for your support and help this past year.

REVIEW. For those of you who were at the May meeting with the election of officers and the fine, fine presentation Steve Tchozeski gave, there is no need to expound on the program. Steve gave us a delightful dissertation on climatic changes, which was accompanied by slides. Members of the club who have known Steve from "Pebble Pup" days could not but feel pride in the contribution they made to sparking interest in earth science. I watched Henry during the presentation --Dad, you sure have a right to be proud. So has Bette. I wish to extend my personal thanks to Steve for as excellent a presentation on this topic as I have ever seen.

Steve asked no remuneration for this program - all he wants is rocks! He needs samples of all kinds of rocks and specimens (they need not be prize ones!). He uses these for his classes and also takes them with him to meetings of the Earth Science Teachers Society - he is president. Many of the teacher members do not have an opportunity to gather common samples of rocks and minerals and he puts rocks out on a table for the taking. Please remember him while you are collecting and when you are sorting and planning to discard. Steve wants anything and everything!

SOME MORE FROM MARY. . .It has not always been possible to reach every individual who has provided me with mineral specimens for my students in the Lighthouse Program, which is sponsored by the Grand Rapids Public Schools. I will be teaching again the fall and winter sessions so any specimens you have, especially Michigan or midwest, are eagerly sought. And lest you think these specimens and classes are not important, let me state that early this year I met a 9th grader at West Middle School whom I thought I did not know (kids change fast between 10 and 15 years of age). This student came to me as I was standing in the hall and said, "You're Miss Honton, you're the one who gave me those fossil specimens and that book on fossils. I still have both and I treasure them." Henry T. can tell you, too, the influence this adult concern can have on students.

To conclude: our club has great potential in influencing the young people. Now let's get behind our new officers with support and involvement. Our club is only going to be as good as each member's contribution and we've all got something to give.

Here is the letter Rick mentions in his article this month. . .

. on the letterhead of the United States Department of Interior; Bureau of Mines; Liaison Office-Michigan; Room 200, Corr Building; 300 East Michigan Avenue, Lansing 48933.

Dear Mr. O'Beshaw:

As both a member of our local rock club and a Federal employee, your article in the May 1979 issue of "The Glacial Drifter" caught my attention. Please don't hold the Federal Government responsible for problems encountered with field trips. There is a major misunderstanding on the part of both rock clubs and quarry owners concerning the training requirements for visitors.

I have copied a section of the training rules issued by the Mine Safety and Health Administration, U.S. Department of Labor. Only hazard training is required by the regulations, and the method of such training is left to the mine operator. It must, however, be included in his overall training plan submitted for approval. Hazard training for rockhounds, or visitors to the property, could conceivably involve only a few minutes of time spent reviewing a printed checklist. As you mentioned, it could also involve the assignment of a quarry employee for direct supervision.

Because many rockhounds approach a mine operator without property safety equipment and with the idea that it is their (rockhounds) right to collect and explore, more and more operators are using the training requirement as an excuse to close the doors. In addition, insurance rates for accidents caused by visitors who are unaware of safety practices have continued to climb. The decision to close the doors has been made by the mine owner/operator--not the Federal Government.

If you would like further information concerning training requirements, please contact Mr. Rick Bundy, Safety Education and Training, U.S. Dept. of Labor-MSHA, 102 Federal Building, Duluth, Minnesota 55802. He can be reached by telephone at (218) 727-6692, extension 455.

I'm sure that with a cooperative approach, full knowledge of the legal requirements--including training and equipment, and the observance of safe collecting practices, mine operators could again be convinced to open the doors to club-sponsored field trips. I honestly believe that the days of single visitors has gone. Obviously, the mine owner is interested in operating the quarry with the least cost and the highest production. He needs to be convinced that opening his doors will not have adverse effects on either cost or production.

Good luck in your endeavors to find collecting sites. If I hear of any that might be of interest to your club, I will pass along the information.

Sincerely,

Esther A. Middlewood
Liaison Program Assistant

Esther Middlewood included with her letter a copy of "Health and Safety Training and Retraining of Miners," as she mentinned. She has underlined certain parts of this lengthy set of rules:

.. "It is contemplated that this should not generally require classroom instruction and may often consist of an instructional sheet distributed to the worker containing a checklist of hazards. It may be that certain workers in these categories, depending on the nature and location of of their duties, are exposed to no significant mining hazards at a particular mine. Examples might include the person who refills the vending machines or certain clerical employees. . . .The operator should certify that such workers have received this instruction and should include the proposed method for providing this instruction in the training plan.

Also subject to this type of hazard training under these final rules are students who are not purely short term visitors but whose work may require their presence at the mine for more than one day for the purpose of fulfilling academic or professional requirements. Such projects might include geological studies conducted by geology students or the development of a reclamation plan by landscape architecture students. These types of projects require the student to spend some time at the mine site to collect information. Such a person should be instructed in the hazards he or she may confront or present to others while on mine property.

Confusion was also expressed concerning the status of visitors to the mine, such as corporate or government officials, or students on a field trip.

These types of persons are not covered by these rules. However, it is expected and the comments and testimony reflect that such persons will be accompanied by experienced miners and will be provided appropriate safety equipment."

It seems the mine owner or operator is the key to the whole question of whether rockhounds are admitted and he can be as rigid or flexible as he wishes when making this decision. Perhaps his insurance company and/or economics of his operation will be the deciding factors.

- - - - -

If you do go collecting this summer we remind you of this old miners' rule: While a miner's tools, equipment, and personal property remain in or next to a digging area, that digging is his until he relinquishes it either by removing said property or by announcing that he is finished in that area. Further, any material, **specimens**, or rocks on or near said personal property of the miner are the property of the miner and shall not be touched or removed without his express permission.

- - - - -

Also included in this issue is the AFMS Code of Ethics. Our club is a member of the American Federation of Mineralogical Societies and so it is OUR code. Let's abide by it.

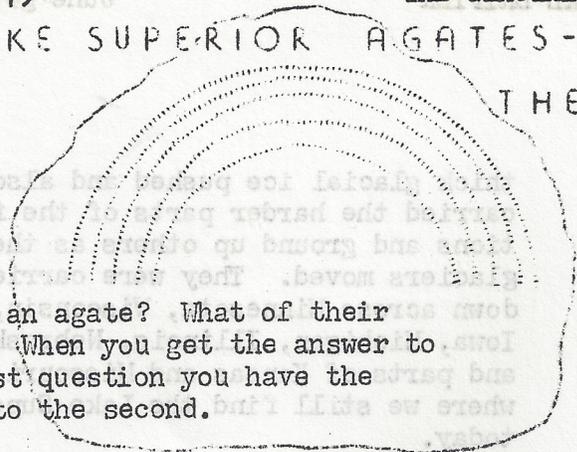
- - - - -

LET'S USE THE EARTH FOR OUR NEEDS
BUT NOT FOR OUR GREED!

Sincerely,
Esther A. Middlewood
Liaison Program Assistant

LAKE SUPERIOR AGATES ---

THE RAINBOW IN A ROCK



What is an agate? What of their origin? When you get the answer to the first question you have the answer to the second.

Most agates originated in the trap rock of the northern Laurentian upland. Others name the basalt in the Killarney Mountains. Those mountains are an ancient chain extending from Minnesota across Wisconsin and Michigan and on eastward into Canada. Others yet have come from more recent dikes and sills of upthrust lava.

Upper layers of molten lava contain steam and gas cavities that remained empty as the lava cooled and hardened. Into these cavities water carried saturated solutions of dissolved and suspended quartz. The hardening was either rhythmic in which beads were formed, or by a layer process fluctuating with the ground water level.

There are many theories on the how and why of agate formation, but whatever the true origin, all agree that agates were formed in cavities and open seams in trap rock and in basalts. No single mode of formation can account for all the different structures. Any agates with crystal-filled centers are believed to have been formed by a later filling of mineral rich liquids into an incompletely formed agate and were undisturbed allowing the crystals to form.

Agate is an oxide of silicon: species, Quartz; variety, Cryptocrystalline; subvariety, Chalcedony, which boils down to agates being an exceptionally fine grained quartz, with crystals so small they aren't visible without

magnifying. The eye area of an eye agate is formed in the same way stalactites are formed in caves. They grow by depositing layer by layer of drops of silica gel adhering to the sweating rock. When fully formed, its circular bands closely resemble strikingly the iris and pupil of the human eye. This same growth during intervals of cavity sweating forms tubular ducts, or canal agate structures.

Lake Superior agates occur in a great many colors. They have been found red, orange, brown, gray, yellow-white, green, blue-green or in many combinations of these lovely colors. White and bluish chalcedony bands vary from translucent to a porcelain-like opaque. The eyes that occur in agate usually show little relationship in color to the parent agate, since the coloring matter came from a different source than the agate itself.

Onyx varieties sometimes can show color combinations completely unrelated to the surrounding agate. The onyx agates are those whose layers grow wider than usual bands, all horizontal and one on the other. This type of agate shows a process of sedimentation and water level. The colors are the result of the presence of many different minerals. For example, an apple green could come from nickel oxide and many of the reds come from hematite.

Then we encounter another theory and also some evidence has been found in agates to indicate that most Lake Superior agates were of the colorless translucent variety at the time they

-next page, please

LAKE SUPERIOR AGATES (continued)

were formed. Instead of the colored banding being deposited in layers, the more porous bands took on the colors of the many surrounding minerals after the agate nodules were free of their matrix. It has also been concluded that coloring depends on the availability of iron salts, the physical condition of the stone and the chemistry and type of weathering by the agate.

A variety of descriptive names are used as side names in addition to Lake Superior agate.

1. Banded Agate - the colors usually occur in parallel bands.
2. Carnelian-Chalcedony - in reds and brown.
3. Dendritic or Moss - in which inclusions acquire the likeness of trees, bushes.
4. Fortification Agate - because it has parallel lines resembling fortification.
5. Onyx - straight parallel color bands of layers which is true onyx.
6. Sardonyx - Agate that contains layers of white chalcedony and carnelian sharply defined.

As a member of the quartz family, under the cryptocrystalline branch, agate is one of eight members of this family: Chalcedony, Carnelian, Sard, Jasper, Flint, Chrysoprase, Agate, Sardonyx, Onyx, and Chert.

Distribution of these nodules began when weather and chemical erosion broke up the ancient lava flows. The agate nodules were set free and were scattered by flooding. Then, beginning perhaps one million years ago, mile

thick glacial ice pushed and also carried the harder parts of the formations and ground up others as the glaciers moved. They were carried down across Minnesota, Wisconsin, Iowa, Michigan, Illinois, Nebraska, and parts of Kansas and Missouri where we still find the Lake Superiors today.

But the biggest and most often question is: "Where can I find these agates?" In the areas that Lake Superior agates are known to be found are: gravel pits (glacial gravel), gravel bars on the rivers and streams, roadside ditches, new road cuts, freshly graded roads, or even plowed fields often give up a good yield of agate. Farmers stone piles have often been a source of agate, if you have the patience. River beds, when water is low, rain washed gullies, and field and pastures in gravel uplands are some of the best sources.

Gravel operations are at LaGrange, Missouri and Muscatine, Iowa. Any gravel pit or dredging operation along the Mississippi River, gravel roads in the St. Cloud, Minnesota area, and northeast of St. Cloud are especially good. Most of the over-burden mine dumps on the iron range in the Hibbing, Minnesota area are excellent but hunt with authorized permission only because of extreme danger and always look along the lake shore anywhere in Minnesota.

GEODE via THE PETOSKEY STONE

(Don't forget the shores of Lake Superior in Michigan, too.)

MALE CHAUVINISM!

SAFETY TIP: To avoid the obvious danger of skinning your knuckles or bruising your hand while attempting to split a rock, have your wife hold it.

-Chuck Pierce, MLS BULLETIN

Midwest Federations NEWSLETTER

Published monthly except July and August as a service to member clubs. All news, articles, subscription orders and requests for information should be sent to the Editor, Haydon Peterson, Parrot Printing, 2125 Forest Ave., Des Moines, Iowa 50311

PRESIDENT
Mrs. Betty Crawford
1119 Seminole Ave.
Mansfield, OH 44906

FIRST VICE PRESIDENT
Mrs. Bernice McCloskey
P.O. Box 527
Elm Grove, WI 53122

SECOND VICE PRESIDENT
Milford J. Sharp
3901 W. 210th St.
Fairview Park, OH 44126

SECRETARY
Miss Jean Reynolds
107 Tuttle Ave.
Clarendon Hills, IL 60514

TREASURER
Otto Ensminger
229 E. Madison St.
Lombard, IL 60148



June 1979 - Issue No. 196

Midwest Convention: 'Wonderful World of Gems'

The Midwest Show and Convention at Columbus, Ohio, August 2-5 will be exceptional in many ways. The special displays from major museums will include award winning jewelry, superb crystals, regional fossils, rare artifacts gem carvings, dazzling gems, and much, much more. Show visitors will have the chance to meet and talk with curators of important museums, to hear well known authors and get their autographs, and to see inspiring and educational programs and demonstrations on all phases of the earth sciences and lapidary arts.

Actions, door prizes, swapping and other features will add to the excitement. Another popular attraction of recent years, the Hall of States, will occupy some of the spacious, air-conditioned show building.

New plans for judging and new categories for distinctive trophies have been announced. An exhibitors and judges seminar will be held for competitors and those interested in competition. Retailers and wholesalers will represent many areas. Bulletin Awards, All American Awards, and display awards will be presented. Luncheons, breakfasts and the Awards Banquet are being planned, with surprise details for each event. Even the program will be an unusual souvenir of a big event.

Show Chairman Carlton Davis says packets have been mailed, and a large crowd is anticipated. For details write him at 2453 Buckley Rd., Columbus, Ohio 43220.

GEMS AND MINERALS WANTS YOUR SHOW DATES

After great success with the first Directory Issue, GEMS AND MINERALS is planning for an even bigger and better one for this September. Called the "1980 Directory" this issue will include many categories of interest and value throughout the end of this and all the next year.

To make the Coming Events section as complete as possible, please send us your show dates. The "1980 Directory" issue will include show dates from September 1979 through December 1980.

Please send your show dates to GEMS AND MINERALS, P. O. Box 687, Mentone, California 92359.

Deadline is July 15, 1979.

SCHOLARSHIP GAINS

by Katharine Steinbrenner

Since the last Scholarship report was published in the Midwest NEWSLETTER seventeen clubs and individuals have sent in contributions that total over \$1336.00. As a result the following ten clubs have advanced their Scholarship status as follows:

Copper Country Rocks and Mineral Society	1100%
Great Lakes Rock Club	800%
Cedar Valley Rocks & Minerals Society	1000%
Hawkeye Gem & Mineral Club	1200%
Blackhawk Rock Club	1100%
Driftless Area Gem & Mineral Club	100%
Loup Valley Gem & Mineral Society	100%
Central Illinois Gem and Mineral Society	700%
Miami Valley Mineral & Gem Club	300%
Michigan Mineralogical Society	1400%

Our sincere appreciation to all of you for your generous gifts.

Please would you all do something that would really help in answering your letters --- that is put your name and address and the name of your club on the inside of the envelope. Do not know what kind of ink the Post office is using today but it is sometimes very messy and when the only return address and name is on the outside it is sometimes almost impossible to read. So -- please do type or print your name, address and name of your club and put inside the envelope. It would also help if you would tell me how many members you have.

Thank you again for your generous gifts.

OP MANUAL BEING PRINTED

Printing of the newly revised Operation Manual has been authorized and will be sent to the printer very shortly. When copies are available it will be announced in this Newsletter.

LAST ISSUE UNTIL SEPTEMBER

This June issue of the Newsletter will be the final one until September. We publish ten times a year, September through June. The September issue will be mailed about the middle of August and copy for the issue should be sent to the editor as soon as available so that space may be allotted for it.

Russell Kemp appointed to fill term of Ellis Courter as AFMS President

Russell Kemp, South Holland, Illinois, has been appointed to fill out the term of Ellis Courter, the late AFMS President from Southfield, Mich. Russell is a past President of the Midwest Federation and has held various committee positions for the Midwest since 1957. He was the second President of the AFMS Scholarship Foundation, a position he held for two years. He is currently boundaries chairman for AFMS.

Russ and his wife Doris have probably given more programs for clubs, and taken more displays to shows than anyone

else. They have also given several slide programs to the Federation. Their two older sons have become professional geologists. Russ has been contributing Editor of Earth Science and is now Editor of the Lizzadro Quarterly. He is Chairman of the board of the Lizzadro Museum in Elhurst.

The Kemps are widely traveled, and have attended many regional and AFMS shows. They have also been show committee officers of shows in the Chicago area.

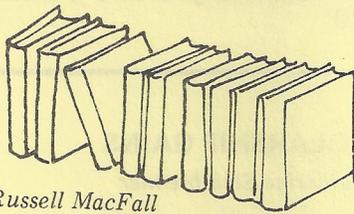
Russell says that he will try to attend as many Federation



*Russell Kemp
AFMS President*

Shows this summer as possible, and that he expects to carry out some of Mr. Courter's excellent plans and ideas.

BOOKS



By Russell MacFall

Mineral guides for the collector continue to come to our attention. Among them is A FIELD GUIDE TO TOPAZ AND ASSOCIATED MINERALS OF TOPAZ MOUNTAIN, UTAH, by John Holfert, in a revised edition. Holfert, whom we met at the Tucson, Ariz., show, lives in Bountiful, Utah, and had some of his prize specimens along at the show. Topaz Mountain has long been a mecca for collectors interested in digging from its rhyolite cliffs, the topaz, bixbyite, red beryl, pseudobrookite, garnets and other minerals found in vugs there. Holfert describes the precise locations he has found rewarding, illustrating them with hand-drawn maps and 36 excellent illustrations as well as crystals drawings and descriptions. The booklet of 66 pages is copyrighted 1978. The price is \$5.95.

Mineral and Gem Localities in Arizona by Lee Hammons is published by Arizona Maps and Books, P. O. Box 1133, S Sedon, Ariz. After a preliminary discussion of identifying, cleaning and discovering minerals, Hammons presents a set of guide maps and then 30 maps in color which identify by color the major rock types in each area as well as more precise mineral localities by circles and crossed lines within them which express degree and precision of the location. Some locations are identified with a single mineral, others with general families of minerals or metals. Hammons' guide is loose leaf with a decorated stiff cover. It is copyrighted 1977 and has 112 pages.

Readers of the Newsletter who know of other mineral or fossil locality guides that have not been described in this series of reviews are urged to let the reviewer know about them.

NATIONAL GEM PROPOSAL: SOME RESULTS

by June Zeitner

Although ballots are still coming in on the National Gem proposal, there have been many clubs asking for a progress report.

Here is the way things stand now.

77 clubs voted, representing 4316 members.

GEM

Quartz, 44
Agate, 5
Tourmaline, 5
Sapphire, 5

ROCK

Granite, 43
Limestone, 7
Marble, 3
Sandstone, 4

MINERAL

Gold, 35
Copper, 9
Silver, 4
Iron, 5

FOSSIL

Trilobites, 18
Dinosaurs, 18
Petrified wood, 18
Brachiopod, 7

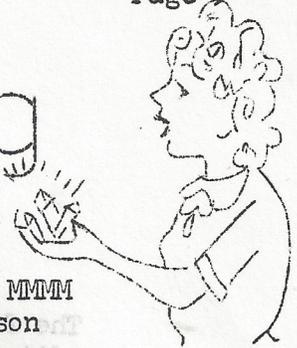
All clubs did not vote for all four. 3 clubs voted that they didn't think now was a good time to try for a National Stone bill. Several clubs voted only for local material such as Fairburn agate, or benitoite, or Ohio Flint, or Petrified palmwood. Several clubs had rocks and minerals confused. It was interesting to note that with only two or three exceptions all the minerals voted for were metals.

Other votes may come in during the summer vacation (?) of your editors, but if there are not at least 300 clubs voting, we will probably do nothing further about a National Gem at this time.



crystal gazing

bob



ruth

Remember reading in the May issue about germquakes? (See page 16) Remember we said we had written to State Geologist Steve Wilson for a more complete explanation? Now go back to the March issue (page 16, again) and read where Mr. Wilson offered to write a column for Michigan clubs with the fascinating title MMMM. (Will someone please tell me how long it took you to figure out how he picked that title - it's tricky!)

Mr. Wilson has written his column and answered our question. He finishes this article with a comment. "Normally, I would not go into such detail; but this is the only direct question I have received from the ten Michigan clubs which ran the first column. If there are no further questions or responses this will be the second and LAST column - the choice is yours. (Michigan clubs, please note!)

Now, are we so well educated, or so self-satisfied, that we know all we need to know? We buy books and magazines all the time but we are missing a great opportunity to get answers from a professional who is willing to enlighten us. Are we going to miss this chance? Please, come up with that question quickly -- there must be one which has been bothering you for some time. We'd like to see MMMM continue for the benefit of all of us. Come on, it doesn't take long to write a letter, and you don't have to be an accomplished writer. Mr. Wilson is knowledgeable and when you read MMMM you will detect his sense of humor popping up through the technical details

Send your question to MMMM
 c/o Steve Wilson
 1512 James
 Lansing, MI 48906

All bulletin editors plead constantly for articles for the club bulletin. We are no exception. We want stories of your trips, tales of your collecting experiences, reports of shows you visited...and especially articles about your favorite rock or mineral. The best way to learn is to delve into a little research and tell others about it.

We are pleased that one member has made a definite commitment: Mary Honton has promised to have a monthly article about a Michigan rock or mineral for publication in the DRIFTER. We are delighted with her offer. It is true that from many exchange bulletins we have access to many articles (you should see the piles that accumulate!) but original articles are much better. Thanks, Mary, -- and now let's have another volunteer.

It certainly would be nice to have an original safety column each month. How about it, someone?

We are pleased to announce that while watching "Blind Ambition" we were able to review many old club bulletins (exchange ones) and set up a file of items for future use. Now if we could only get through another three piles! The trouble is that they are so interesting it's hard to decide what to keep for future use!

And, the ground temperature in the lower Peninsula is comparable to some of the areas that have been affected. But don't run out and try to buy bacterial insurance. The (next page, please)



The following question was forwarded to me by Ruth Beauvais, editor of the Grand Rapids Mineral Society's GLACIAL DRIFTER.

"We are planning to use an item in the current Michigan Natural Resources Magazine about 'Germquakes.' This is a very interesting explanation but we would appreciate it if you could go a little further, perhaps then it would not sound quite so unbelievable."

I hope the following helps to answer your question.

BIOTECTONICS

In the magazine MICHIGAN NATURAL RESOURCES, it is called 'Germquakes' whereas in SCIENCE NEWS it is called 'Bacterial Upheavals.' Both names imply some biological (bio) cause resulting in forces, or structures forming as a result of said forces (tectonic).

Although the term biotectonics was not used per se, it is what Emmy Booy of the Colorado School of Mines implied at a recent American Association for the Advancement of Science conference. Furthermore, severe damage can and does occur. The critter being blamed is an anaerobic microbe called Thiobacillus ferrooxidans. Strange things occur in its environment which lacks oxygen. It is credited with munching on pyrite found in shale (and probably in other rocks as well). The byproduct of this mineralogical repast is sulfuric acid. The acid reacts with lime (found as calcium carbonate impurities in shale and/or many other rocks) to produce gypsum. Here is where the rub comes. Gypsum is so soft that it can be scratched by a fingernail, but under these conditions the gypsum takes up more space than the calcite it is replacing. As a result, great pressure builds up. Pressures as high as 70,000 kilopascals (kPa or 10,000 pounds per

square inch lbf/in²) can be generated. Understandably, this amount of pressure can cause bedrock to expand and even heave. This is when earthquakes or germquakes occur. (But, as San Andreas says, "That's not my fault")

Where have biotectonics been felt? In Cleveland, Ohio; Pittsburg, Pennsylvania; and Ottawa, Ontario, Canada; to name a few places. In Pittsburg more than 40 buildings were rattled by one biotectonic event. Where might they occur in Michigan? A likely target is the White Pine Mine in the U.P. Is there a strong likelihood that it will happen? The answer is a qualified no. The groundwater is too chemically basic, a factor which helps to inhibit the growth of the critter. Furthermore, the ground temperature is too cold. What about the rest of the state? There are a number of shale beds in the Lower Peninsula. The most likely problem would be in areas underlain by the Antrim Shale. A substantial amount of pyrite (and/or marcasite) and carbonate occur in the Antrim. And, the ground temperature in the Lower Peninsula is comparable to some of the areas that have been affected. But don't run out and try to buy bacterial insurance. The
(next page, please)

BIOTECTONICS (concluded)

groundwater is generally too basic to foster large colonies of the microbe. Yet, there can be locally acid rains generated by pollution, or by contamination of acid runoff from industrial areas. Oh yeah, by the way, one of the areas where it is warm, the Antrim Shale subcrops and there could be acid rain or runoff locally as in South-eastern Michigan. Will it, could it happen? -- most likely not. There is sufficient carbonate in the glacial drift covering the Antrim Shale bed-rock area to neutralize any acid water before it gets to the shale.

One parting comment. Don't think that all anaerobic bacteria (those that do not require oxygen to live) are bad. There is Sacchromyces of yeast which gives us both the jug of wine and the loaf of bread. And of course there are a whole host of little ones who help as compost and/or otherwise treat organic and waste material.

-Steve Wilson

KIDS SAY THE DARNDDEST THINGS. . .

- Many of the dead animals of the past changed into oil or dirt while others decided to be fossils.
- New definitions of matter: the molecule is an itsy-bitsy piece of matter. An atom is a teensy-weensy piece of matter.
- There is nothing to keep a liquid from changing to another state. The Mississippi River, as we all know, does not have to stay in that state alone.
- Water vapor gets together in a cloud. When it gets big enough to be called a drop, it does.
- Some people tell what time it is by looking at the sun, but I have never been able to make out the numbers.

via FLINT CHIPS

LOCAL INFORMATION SOURCE

As often as not, people are unaware that the Michigan Department of Natural Resources (DNR) has quite a variety of information available about our great state. The place to start on your quest for information is:

Information Services Center
Department of Natural Resources
Box 30028
Lansing, MI 48909

The DNR has centralized its information services into one office. So keep in mind when making a request to be as specific as possible. By being specific, your request (one of the 250 to 300 received daily) can be filled quickly. Also keep in mind that prepayment is required on most orders.

The easiest way to find out more about which Geological Survey publications you would like is to request a free copy of the Publications List. Number 21 for 1979 will be sent upon request. We have many of these publications in our club library.

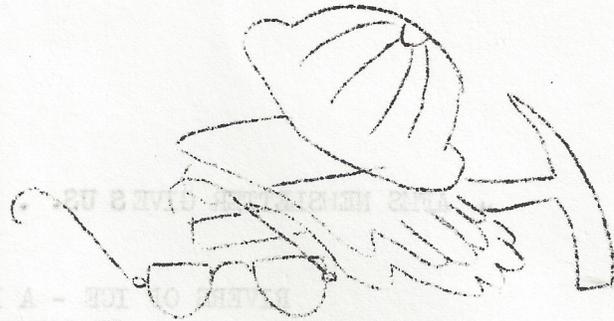
- Some you may find interesting are
- Pamphlet 3 - GUIDE TO MICHIGAN FOSSILS
- Pamphlet 6 - COLLECTING ROCKS, MINERALS AND FOSSILS IN MICHIGAN
- Reprint - MICHIGAN BEACH STONES
- Reprint - MICHIGAN'S COLORFUL MINERALS
- RMK - ROCKS & MINERALS OF MICHIGAN (KIT)

- - - - -

Breathes there a rockhound with
aim so dead
Who never to himself has said
"i/¢&Z- --¢/#&*Z! - - X\$*@&! - -
\$*¢&@ - - - @*\$&%¢@/# - - #&\$¢#!"
As he missed the rock and hit
thumb instead?

Del Norte Gems and other
bulletins

FOR SAFETY'S SAKE



BROWN BAGGING IT

Many rockhounds enjoy field trips to local quarries or pits for prospecting. Along with all the necessary safety equipment and collecting equipment, a little brown bag is loaded into the car. That little brown bag can provide a good breeding ground for bacteria which in turn may cause illness, or at least a queasy stomach. A lunch that spends three or four hours laying in the back seat of the car, or packed in a trunk, is a potential time bomb. It's a good time to think about the food that goes into those lunch bags and how it can be safe from bacteria until it's eaten.

The best way to slow the growth of bacteria is to keep food either hot or cold for as long as possible during the holding period. Put it in a thermos or other insulated container. If the food is hot, be sure it has been heated thoroughly to kill bacteria before it goes into the container. If it is cold, keep it in a styrofoam container and pack it in ice.

Standard sandwiches are good candidates for bacteria growth. Keep them cold. If made the night before, they should be stored in the refrigerator and packed in the container in the morning. Use butter or margarine to prevent soggy bread. Besides making sure that the lunch leaves the house in a safe condition, store it away from the heat. Setting the lunch bag on the back seat can create a similar hazard; the sun is magnified by the glass car windows. An insulated container is a wise investment.

In addition to making it difficult for bacteria to grow in your lunch, remember to use good food handling practices during preparation. Also remember that any container used in packing lunches should be thoroughly cleaned, rinsed with scalding water, and air dried to remove any bacteria that might contaminate food.

Brown bag safety is necessary to prevent illness. Perhaps you have been lucky. Wouldn't you rather be safe?

by Joe Svoboda
in AFMS NEWSLETTER

The seven greatest safety things known to the human race are:

- EYES
- EARS
- NOSE
- MOUTH
- SENSE OF FEEL
- COMMON SENSE
- COURTESY

The proper and continuous use of the above twenty four hours a day will prevent more accidents than all the rules and regulations that Nader and OSHA have devised. The use of the above attributes have made it possible for the human race to survive and prosper. Use them all 24 hours a day at full capacity.

-Waldo Weathers
in EXCHANGITE via GEMS

AFMS NEWSLETTER GIVES US.

RIVERS OF ICE - A LOOK AT GLACIERS

by Dick Campbell, Galco Pebble Patter

One of the most beautiful sights in the world is flying up the Lynn Canal, north, out of Juneau, Alaska. All along the way you pass mountains with glaciers flowing down their sides. All along the way you see rivers of ice.

Ten per cent of the earth's surface, over five million square miles, is covered by ice. Remnants of the Ice Age, glaciers exist on every continent except Australia. Most of Antarctica and Greenland is covered by ice, up to 2 miles thick in places. We have glaciers in the Rocky Mountains as well as the higher mountains in Washington, Oregon and California. Alaska, of course, has more glaciers than any other state; but these are found in the milder southern part of the state. Why? Snow, lots of snow, is required for glaciers. Northern Alaska doesn't have the snowfall required for glacier building.

The force exerted by a glacier is beyond imagination: Millions of tons of ice squeezing down a mountain-side, grinding, crushing, clawing its way along changing the landscape as it goes. Evidence of glacial action is very evident in the northern states: Distinctive and spectacular sharp peaks of glaciated mountains; U-shaped valleys; scooped out hollows of ten-thousand lakes; drumlins, eskers, terminal moraines, kames, till, all kinds of glacial debris covers the landscape. Glaciers are the most powerful of all types of erosion.

What about the Ice Age? Is our climate changing? Do glaciers make it colder or does colder weather make glaciers? If we returned to the Ice Age sea level would drop by as much as 400 feet. However, if all the glaciers in the world were to melt, sea level would rise about 150 feet. Think what that would do to coastal cities! (During the past century, sea level, world wide has risen two and a half inches.)

ALUMINUM IS THE MOST ABUNDANT METAL
IN THE EARTH'S CRUST, COMPOSING 8%
OF ALL ROCK.

-ROCK CHIPPER VIA GEODE

SHOP HINT - Pellon, a plastic fabric used as a stiffener in suits and in dresses makes a fine polishing buff. It polishes quickly, doesn't heat, doesn't orange-peel and is extremely economical for polish. Once charged with your favorite polishing agent you can almost throw away the old polishing jar and just add water. All types of quartz, agate and jasper may be polished with tin or cerium oxide on a pellon disc with a cork backing.

-THE ROCKPILE via THE ROCKY READER

From TULIP CITY CONGLOMERATE

MONTANA ONCE A SHARK HAVEN - by Bruce Rensberger (New York News Service)

In the rocky ravines of a vast cattle ranch in the middle of Montana, 6,000 feet above sea level, an Adelphi University zoologist has found fossil evidence of what appears to have been a "golden age of sharks" that flourished in a now extinct sea and perhaps around the world more than 320 million years ago.

In that remote era, when giant dragonflies buzzed through damp fern forests and squat amphibians were beginning the vertebrate transition to land, there were sharks of every size and shape occupying dozens of ecological niches.

There were "unicorn sharks" with spikes growing out of the tops of their heads, sharks shaped like flounders, sharks with enlarged fins that enabled them to leap out of the water and glide, sharks with crablike claws on their snouts, and tiny sharks only an inch and a quarter long.

One of the most extraordinary sharks discovered in Bear Gulch, as the ravines are known, is a four-foot-long model with a dorsal fin hinged like the rudder on the tail of an airplane. In modern sharks the dorsal fin, the big one on the back, is almost totally rigid.

By swinging the movable aft portion of the dorsal fin, one of these extinct sharks could have turned on a dime and easily outmaneuvered today's mighty predators, in the opinion of Dr. Richard Lund, the Adelphi researcher who is studying the sharks.

For several weeks during each of the last eight summers Lund has camped with a crew of students in Bear Gulch, breaking out slabs of the sharply layered soft limestone and splitting them to look for skeletons embedded inside.

Lund said every second or third slab contained a skeleton and that the work thus far has yielded 64 species of shark, many previously unknown. Because

of the large number of preserved skeletons, Lund believes there was rapid sedimentation in the ancient sea, quickly burying dead fish before they could be broken up. Some of the sharks are so well preserved that the remains of shrimp can be found in their stomachs.

Bear Gulch lies in the midst of what once a shallow, warm sea that stretched across western North America for 600 miles during the period in geologic time known as the Mississippian, which lasted from 360 million to 320 million years ago. This was a time within the larger period known as the Carboniferous.

"In their eons of diversification, sharks have been everything from slow, harmless cruisers to rapacious carnivores." Lund said in his laboratory on the Adelphi campus in Garden City, N.Y. before flying to Boulder, Colorado, to describe his findings before the Society of Vertebrate Paleontology.

From the fossils it appears that sharks, which have skeletons of cartilage rather than bone, were the first form of fish to evolve adaptations to a wide variety of lifestyles. Millions of years later, as the more advanced bony fish evolved, they adapted to the same variety of ecological niches and, competing successfully with the sharks, drove most of them to extinction.

Before the rise of the bony fishes, however, half of all the known species of fish were varieties of shark.

In addition to yielding sharks, Bear Gulch has yielded shrimps, worms, and many other as yet unidentified form of animals. In many cases the sediments preserved not just skeletons and other hard parts but the outlines of the soft parts of bodies such as gill filaments. In many of the fish, the scales were preserved in their original patterns over the skin.

(Much of Lund's work at Bear Gulch has been supported by the National Science Foundation.)

MOTHER NATURE'S ALL-PURPOSE CAMPING KIT

Here are 14 reasons you'll be glad you took a box of pure, natural baking soda along on your camping trip:

1. Insect bites, minor burns, poison ivy/oak: add water to make paste, apply to affected area.
2. Sunburn, windburn, prickly heat: $\frac{1}{4}$ cup to basin of water. Bathe or sponge affected area.
3. Acid indigestion: $\frac{1}{2}$ tsp. in $\frac{1}{2}$ glass of water. Drink slowly. If symptoms persist, call a doctor.
4. Foot soak, for tired feet: 3 tbsp. in basin of warm water.
5. Pure, natural tooth cleaner and breath sweetener. Use as much as needed, brush as usual with moist brush.
6. Hand and fingernail cleaner; to remove pine pitch, grease and odor from cleaning fish: rub dry on moistened hands. Rinse.
7. Cleaning and deodorizing rod, line and bait bucket: sponge with solution of 3 tbsp. and bucket of water.
8. Fire extinguishers: for grease or broiler fire, throw boxful at base of fire. Use after dousing campfire to prevent rekindling.
9. Freshening and sweetening camp coolers and thermos jugs. Add 2 tbsp. and partly fill with water, shake and rinse.
10. Natural deodorant for boots and hiking shoes; sprinkle a little inside boots and shoes.
11. Safe, natural cleaner for camp dishes, pots and pans: add 3 tbsp. to pan of water and soak.
12. Cleaning dirty, bug-spattered windshields, chrome and camper frames: rub with damp sponge sprinkled with soda.
13. Natural deodorizer for camper refrigerator or ice chest: keep an open container of soda on shelf. Replace in two months.
14. Freshening and sweetening camper water tanks: flush with solution of $\frac{1}{2}$ cup soda and 1 gallon water. Flush with clear.

A WORD OF CAUTION. . . Alf Castagne of Castagne's Rock and Minerals, Thunder Bay, Ontario, has a word of warning for those who use diamond powder embedded in canvas discs for polishing. Since some craftsmen run these discs dry, and the person working on such a disc usually stands directly over the unit, quite a bit of the flying dust will be inhaled. This can lead to a first class case of a condition like silicosis. Many cheap but effective dust masks are available at safety supply stores and will cut dust inhalation. Look at the filter when finished - you'll be amazed.

GEMS AND MINERAL via Pegmatite
and FLINT ROCK & GEM CLUB NEWSLETTER

THE AMERICAN FEDERATION CODE OF ETHICS

I will respect both private and public property and will do no collecting on privately owned land without the owner's permission.

I will keep informed on all laws, regulations or rules governing collecting on public lands and will observe them.

I will, to the best of my ability, ascertain the boundary lines of property on which I plan to collect.

I will use no firearms or blasting material in collecting areas.

I will cause no wilful damage to property of any kind - fences, signs, buildings, etc.

I will leave all gates as found.

I will build fires in designated or safe places only, and will be certain they are completely extinguished before leaving the area.

I will discard no burning material; matches, cigarettes, etc.

I will fill all excavation holes which may be dangerous to livestock.

I will not contaminate wells, creeks, or other water supply.

I will cause no wilful damage to collecting material and will take home only what I can reasonably use.

I will support the Rockhound Project HELP (Help Eliminate Litter, Please) and will leave all collecting areas devoid of litter, regardless of how found.

I will cooperate with field trip leaders and those in designated authority in all collecting areas.

I will report to my club or federation officers, Bureau of Land Management, or other proper authorities, any deposit of petrified wood or other material on public lands which should be protected for the enjoyment of future generations for public educational and scientific purposes.

I will appreciate and protect our heritage of natural resources.

I will observe the "Golden Rule," will use "Good Outdoor Manners" and will at all times conduct myself in a manner which will add to the stature and "Public Image" of rockhounds everywhere.



Page 19 THE GLACIAL PRINTER June 1979
R. & R. Beauvais, Editors
3308 Wilson SW
Grandville, MI 49418

Address Correction Requested
Return Postage Guaranteed



DATED MATERIAL
PLEASE DO NOT DELAY!

Mr. & Mrs. Robert E. Beauvais
3308 S. Wilson
Grandville, Mich. 49418

"Stamps for Food" need our help!
Give your cancelled commemorative,
foreign stamps and values over 15¢
to Bob Beauvais.

Your contributions to our "Coffee
kitty" at the refreshment table
aid our contribution to the AFM^c
Scholarship Fund.