

Geological Society ● of Minnesota

NEWS



Geological Society of Minnesota

Robert V. Leacock, Editor 1235 Brighton Square New Brighton, Minn.55112





RETURN REQUESTED

TIME VALUE

CARLSON, DR. & MRS. BERT 3034-46th Ave. So. Minneapolis, 55406(724-1486) The GEOLOGICAL SOCIETY OF MINNESOTA is an amateur group that accepts Geology as an absorbing hobby. We solicit and welcome the help and direction of membership from professional ranks, but by and large our approach to the subject is that of the layman. Most of us are not true rockhounds, although we do collect minerals, rocks and fossils. Our main purpose is to promote interest in the study of Geology of the state of Minnesota.

OFFICERS

PRESIDENT	Sam Mayo Box 270, Route 6 Excelsior, Minn. 55331	474_4038
VICE PRESIDENT	Russell Pool 403 East 3rd St Chaska, Minn. 55318	448-2102
SECRETARY	Dr. Bert Carlson 3034-46th Ave. So. Minneapolis, Minn.55406	724-1486
TREASURER	Mrs. Don Tepel 1269 So. Cleveland Ave. St. Paul, Minn. 55116	699-1793
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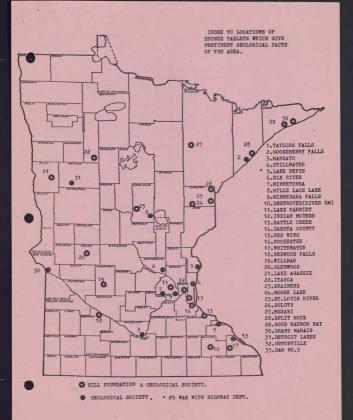
MEMBERSHIP

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ADULT \$ 7.00 HUSBUND & WIFE \$10.00 STUDENT \$ 2.00

MEMBERSHIP CHAIRMAN:

Miss Martha Peterson 3527 Pleasant Ave. Minneapolis, Minn. 55408 Phone: 825-1147





**Please read enclosed By-laws carefully as they will be voted on at this time.

> ***EDEMERE that the Membership year has been changed to coincide with the calendar year. We will not be collecting dues at the Spring Banquet, however, our Membership Chairman will be looking for your checks at the Annual Meeting on September 27th.

FREE

GEM - MINERAL - ROCK - EXHIBIT

at

BROOKDALE CENTER, *Hwy 100 & Hwy 152

Sat. April 17 - 9:30 AM to 6:00 PM Sun. April 18 -12:00 to 6:00 PM

Lake Superior Agates will be featured also lapidary demonstrations, artifacts, foesils, minerals and many guest exhibits including an Educational Exhibit by the Minnesota Geological Society.

Sponsored by Minn, Mineral Club

Twin Cities

*East Mall

GEOLOGICAL SOCIETY OF MINNESOTA - APRIL, 1971

SPRING BANQUET

* WHEN: Monday, April 26th

* WHERE: First Christian Church East 22nd St. at 1st Avenue South, Mpls.

* TIME: 5:30 p.m. Social Hour

6:30 p.m. Dinner * COST: \$3.75 each

* SPEAKER: Dr. George Rapp, Univ. of Minn.

* SUBJECT: "Relationship of Geology to Greek Archeology"
-To be illustrated with colored slides

* RESERVATIONS: by Monday, April 19th
Please call Mrs. Robert Leacock at

636-2473 (before noon or after 5:00 p.m.)

! QUESTS ARE WELCOME SO BRING YOUR FRIENDS !

SEE YOU THERE



DATES TO REMEMBER

FIELD TRIPS under the direction of Prof.
Richard Bartels are scheduled for:

SUN. JUNE 20 - Taylors Falls assisted by Mrs. Tepel

SUN. JULY 18 - Twin Cities assisted by Mr. C.J.Ess

SUN. AUG. 15 - Bedrock assisted by Mr. R.Leacock

SEPT. 11 & 12 - Baraboo, Wisc. assisted by Mr. Paul Vogt

ANNUAL PICNIC

SUNDAY, August 8th at Wood Lake Nature Center Mr. Michael Vaclavek, Chairman

TABLET INSCRIPTION #11

Geology of Minnesota

DAKOTA COUNTY REGION

The Wisconsin stage of glaciation, the last of the great ice ages, see characterized by a vigorous ice movement south-ward from Canada through the valleys of the Red River of the North and the Minnesota River. The ice, several thousands feet thick, in Canada, extended into Central lows in the form of a huge jobe,

As rising temperatures brought a gradual end to glaciation about 12,002 years ago, the ice border melted back and floodwaters spread widely, at all levels. The Minnesota Hiver, which was still blocked by ice at Fort Smelling, overflowed it's valley and swept eastward across Dakota County. The Vermillion and Cannon Rivers fed by local thawing of the ice marging, were later suntained by the deluge from the Minnesota River. Today these rivers are shrunker remnants of once powerful atreams, whose greatness vanished with the ice of the last placial epoch.

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TABLET INSCRIPTION #12

Geology of Minnesota

RED WING REGION

During the great ice ages the landscape of Minesota was profoundly altered
by continental glaciers in four major
epochs of glaciation. In this area, as
elsewhere, the closing stage of each epoch
was characterized by the release of floods
of seltwater which eroded the broad valley
of the Mississippi River 200 feet deeper
than the present channel. Because the
tributary streams carried less water than
the main river they were unable to cut
down so rapidly, and consequently their
walley floors had steeper alopes.

TRAVELERS

Joan & Bob Leacook shortened the winter by viciting with their son, 7cm, & Bobie brother, John, in the St.Petersburg area, awaiming in the ocean at Palm Beach and ending their vacation on Sanibel Leland shell collecting & photographing bridg in the J.N.Ding Berling Wildlife Sanctuary almo on Sanibel Island.

Word has been received that Paul & Bev Vogt are vacationing in Majorca, a spanish island located in the Mediterranean. The mountains reach an elevation of 4,741 tt. and have some of the most beautiful telactite caves in Europe. Paul & Bev recently moved into their new home at

5305 Penn Ave. So. Mpls. 55419

Betty & Roger Trutna, members, who transferred to Utah last June, finally moved into their new home at:

381 W. 3100 South Bountiful, Utah 84010 1-801-295-9559

Two other members have moved out-of-state: Cooper, Mrs. Emma

1315 El Dorado Santa Cruz, Ca. 95060

Mayotte, Mrs. Mary Y. 6130 So. Monroe Drive Littleton, Colorado 80120

An Extra

to "BART". . .

for the fine job he has done in providing us with excellent movies, lectures and labs from Sept. 28th to present.

We are looking forward to the Field Trips we understand he is planning for the summer of 1971, which will be announced at a future date.

HOW ARE AGATES FORMED?

Bubies are red, escralds are green, but both of these rare beauties are prized as precious geom. AGATES are striped and stippled, banded and bedrered with a rainbow of colors. These stones are treasured as semi-precious stones. Nature made want of them.

An AGATE is created in secrecy and total darkness, and the patient process takes ages of time. Its birthplace is a small hole or empty pocket in propus rock. It is formed in the Earth's never-ending water cycle and created from a nixture of assorted chemicals from the Earth's crust. Its main ingredient is allica—a chemical compound of silica and oxygen.

Silica is the main ingredient in a variety of rocky minerals referred to as the silicate minerals -- a popular group that makes up more than half of the earth's crust. Tou may see some of them as milky white pebbles of quartz or as the golden sands spread along a beach. Too, they form ast endless variety of glassy crystale, some clear, and seem tinted with rainbow colors. Our mest-precious only and chalcedony are silicate materials made mostly of silica.

The dilacate have endured through ages of ceaseless change and upheavel in the earth's crust. They have been melted in volcantic laws and memahed by pounding wave action dissolved in running water and lifted high and dry by the upheavel of nountains. Such geological events modeled and remodeled each deposit of silica and gave at the present form.

The creation of an Agate had its beginning when molecules of milica were dissolved by greedy tongues of rain water as they lapped or ran over the rocks. Other minerals also stolen as the migrant water rippled along, climbed aboard until a variety of particles too small to be seen had become suspended in the water. Some of this water, as it sought to complete its endless journey to the sea, sank through porous bedrock, and some crept into small cavaties or empty pockets. Here it became partially trapped. Eventually though, it evaporated or slowly seeped away. But in so doing, it left its load of chemicals behind as a lining in the rocky pocket.

For countless ages this went on, the pocket slowly filling layer by layer, as this deposited naterial -- which formed the AGRTS-grew into a hardened layer, it was gayly tinted by some other minerals that had been dissolved in the ground water. From time to time the throughout the long ages, the chemical content of the incoming water seepage underwent environmental changes, and when it did, the vivid coloring of the new band it left behind was different.

Years later, as the bed rock is eroded or crumbles away, this pocketful of AGATE may be freed. Of course the AGATE will still be cruated with the bed rock and, when found, will have to be cut upen before its handsome colors and design are revealed.

There are many characteristic patterns in AGATE. Banded AGATE may be striped with blue and gray, black or yellow, or candy-colored brown. Its stripes may be straight or wavy, and a sample of sparkling AGATE is ringed with colored circles. Noss AGATE is set with dark threads of manganese minerals that look like fairy forms frozen in rlassy riboules.

Many AGATES have been given special names because their particular pattern or color is associated with specific locales. Popular among these are the LAKE SUDERIOR AGATES, the TAIRBURNS, and the TEPPE CAYVON AGATES.

(From the Los Angeles Times Syndicate, Via "The CONGLOMERATE", Via ROCK RUSTLER'S NEWS)

How Would You Vote?



SPOILL MEMPING will be held Monday, March 22nd at 7;30 PW in Ford Hail, immediately prior to the regular lecture. The members will be anked to vote on certain amendments to the Articles of Incorporation. These seendments were approved by the Board at its regular meeting of Mar. 2 and will be read in full at the special meeting, Briefly, the changes can be described as follows:

Articles 1, 2, and 3: no change Article 4: changed to increase the nummer of directors to 9.

Article 5: changed to simplify the description of the nature of the Society as

Article 6: changed to increase the highest amount of liability of the Society to \$5,000, in accordance with changes in the laws regarding this matter.

New Articles 7,8 & 9: added to consolidate our status as a non-profit corporation in accordance with the latest codes of the Internal Revenue Service.

The most apparent change proposed by these amondments lies in the increase in size of the Board of Directors. The Board believes that this change will increase the opportunities for the smborehip to participate in the administration and responsibilities of the Society.

-- Sam Mayo, President Geological Society of Minn

WILD WILDLIFE
Wild geese have lived longer
than three decades in captivity.
Only vultures and parrots boast
a longer life expectancy.

ANNUAL BANQUET

The 1971 Annual GSM Banquet will be held on Monday evening April 26, Beginning with a Social Hour at 5:30 PM and dinner at 6:30 PM.

LOCATION: First Christian Church, East 22nd St.at 1st Ave. So.Mpls.

For further information please contact: Ethel Swanson, Chairman 522-7688.

Did You know...

Grace Benz recalls to us an incident that became a memorable event in history.

On one of the Goology "Hong" wrips weak. Here, Belon Sommers, a nember related to the group that during a physicorpany class taught by Prof. Wa.Kernet Davis or Barnet also that taken in 1898, he made sention or the fact that no particular torm had been given to fit the description of numerous channels and flood plains of "Gla" rivers. Nrs. Sommers suggested the term "braided" since they recalled to her mind braids. The name proved to be an apt one and has beenem part of the vocabulary of goology

We understand that Dr.Bert Carlson, Martha Peterson, & Hal McWethy were also on this particular trip.

What's Going On!

Minn. Woodcarvers, Har Mar Mall, March 27, 2, 28 Minnetonka Mineral Club,7 Hi Shopping Ctr. Earch 27, 2, 28 All Iowa Rock Hound Up, Newada, Iowa, May Let 2 2nd Rochester Earth Science Show, Rochester,

May 22nd & 23rd. Midwest Fed.Conv. & Show, Mansfield Ohio,

edar Valley Rocks & Minerals Soc. Marion, Iowa, April 3rd & 4th. MEMORANDUM RELATING TO THE ORIGINS OF THE GEOLOGY SOCIETY OF MINNESOTA

HAL E. MCWETHY, PAST PRESIDENT

Some of the newer members of the Geology Society of Minnesota have suggested that a record be made of the beginnings of our Society. The compilation of the initial chapter of the record has been assigned to me because of my close association with the Society's founder, Mr.Edward P. Burch, during the formative period of the Society and for a number of years prior thereto. Perhaps it is in order. also, to review briefly Mr. Burch's career prior to the date the Society was formed.

Mr. Burch was born at Rumseys Landing, Wisconsin, in 1870. Ramseys Landing is now a ghost town near Durand, Wisconsin, at the junction of the Red Cedar and Chippewa Rivers, approximately 12 miles south of Menomonie, Wisconsin. He was soon taken by his parents to Menomonie, Wisconsin, where his father, Newell Burch, engaged in a general merchandise business and had part-time employment with Knapp, Stout and Company, early Wisconsin lumbermen and loggers. Mr. Burch attended the Menomonie High School and the Univ of Minnesota, graduating from the College of Electrical Engineering with the class of 1892. Immediately thereafter he joined forces with the Twin City Rapid Transit Company as its electrical engineer: and for a decade served this company in the expanding development of the application of electricity to the transportation industry. During the early years he was at times engaged in teaching electrical engineering at the University of Minn.

In 1896 he was in charge of the purchase and installation of 10-1,000 K.W. units of electrical machinery for the Street and Second Avenue South, Minneapolis was constructed and this firm occupied space on the 12th floor of this building and was one of its initial tenants. Mr. Burch was engaged in a general consulting

practice during the three decades from approximately 1900 to 1930; during which time among other engagements, he made a complete analysis of the valuation and rate structure of the Michigan State Telephone Company property at Detroit. Michigan; and the Detroit Street Railway Company. He authored and published a book "Electrification of Railway Properties".

My first acquaintenance with Mr. Burch dates from approximately 1915 when I was about to marry his sister, Effie Tower Burch. From that year until 1922, when we moved to St. Paul from Madison, Wisconsin, I had only the contacts with Mr. Burch and his family which usually follow when relatives live approximately 300 miles from each other. Mr. Burch lived at 1720 James Avenue South in Minneapolis; and since my family and I lived in St. Anthony Park in St. Paul, our contacts from then on were very frequent.

Mr. Burch married Harriet Jackson in Mrs. Burch survives her husband at this time and is hale and hearty at 89 years* since she, too, was born in 1870. She lives at the Presbyterian Home on North Fairview Avenue, south of Lake Johanna Boulevard, St. Paul.

In 1927 Mr. Burch invited me to become his associate in consulting engineering and from that date, for approximately 10 years, we had an office at 1914 Foshay Tower. He had always had a keen interest in the development of the State's natural resources and had been employed on a number of projects involving the electrification of iron mines in northrem Minne-Lower Dam Power Station at that time bearing the second of 190 miles in northern Minner and the Mississippi River.

Water Power Company near Sixth Avenue Sonthy acte that time the Surch Jorned a partnership, known as Clausen, Burch, and Pillabury. This partnership extended over a partod of 4, 07 5 years during which the the Maropolitam Bulking at Third of attests wells in this area. Maccoming of attests wells in this area. Maccoming of attests wells in this area. Maccoming in the second of attests wells in this area. Maccoming of attests wells in this area. Maccoming in the second of attests wells in this area. Maccoming in the second of the mines in northern Minner the area for data relating to the thickney and names of the formations of rock unde lying the Twin City area from Anoka to Minnetonka and to Stillwater gathering the

data for literally hundreds of wells that had been drilled in this area, some to depthe exceeding 8000 feet. These he plotted on graphs and also constructed three-disentional models. This work later restored in the publication by the University of Minnesota of a paper by Dr. Thiel, Dr. Schwartz and Mr. Burch called "The Seclory of the Twin City Artesian Basis"

Beginning in 1932, Mr. Burch started an intensive study of geology at the Univer sity of Minnesota under Dr. Theil, Dr. Schwartz, and ammbers of the Geology Dept. He took all the geology that they would assign to him and studied geology only. In addition, during his summer vacations, he traveled extensively to Florida, Arizona California and intervening States: and eventually made a geology trip to Cuba. It was while he was studying at Tucson. University of Arizona, that the idea of forming some sort of a group of laymen for the purpose of becoming acquainted with the geology of their region germinated in his mind. In the summer of 1938, after a series of successful field trips, he went to the Library Board of the City of Minneapolis and secured permission to hold weekly lectures in the auditorium on fourth floor of the library building th and Hennepin. These lectures during the winter seemed to catch fire with the ordinary citizens who know little of the geology of the region but who were intensely interested in finding out something a little less technical that would be given to them at the University. The net result was that the attendance at the lectures swelled to a number of more than 100 and the directory at the end of 1938 showed a membership of approximately 150 From this time forward, the increase in membership was more gradual and reached a peak of approximately 250 in 1940. The early lectures were usually given by Mr. Burch, himself. Meetings were held every Monday night instead of every two weeks as they are now held. During the summer time, field trips were held from April until October on every weekend and sometimes extended over a three-day period.

Mr. Burch had the complete cooperation of the professors in the Department of Geology in the selection of good geological coations to which to bring the participants in his field trips. The net result was that the area up and down the Mississippi Hiver, the Minnesotz Hiver,

and the locations pretty generally in and around the Twin Cities were studied in considerable detail.

In the year of 1939, the Society was in corporated and the first President was Junior Hayden.

While the writer has been active in the interest of the Society during and since the period of which I have written, there are others of the charter members who there are others of the charter members who that will now effectively give the reader some concrete idea of that dynamic personality — Buward P. Burch.

In the summer of 1945, Mr. and Mrs. Burch traveled to Bostom on a vicit to their daughter, Inogene, at East Sandwich, Mass, Mr. Burch put Mrs. Burch on the train for East Sandwich, and he boarded a streetour for some geological destination of which we are not sure. He suffered a heart attack and died on the atreetour.

It almost goes without saying that my life has been greatly enriched by my contacts and close associations with the Burch family, and I owe much to Edward, There is little question but that Mr. Burch was responsible for my laymen's interest in geology and I know that many other members of our Society are ready to testify likewise. My association with him was closer than most others. Over a period of fifteen years our weekday luncheon dates were usually with each other. I grew to value his friendship greatly. Perhaps I may be pardoned in closing this initial chapter relating to the origins of the Geology Society of Minnesota with a bit of doggerel I composed for his Christmas card in 1940. (It will be better understood if the reader knows that at Christmas time particularly Mr. Burch tried to make our youngsters believe that he had horns sprouting from above his temple.)

TO EDWARD - "MERRY CHRISTMAS" 1940

Yes, you are my wife's oldest brother, And I'm the envy of some, 'tis quite true. They'd give a left foot and an eye tooth to boot,

For a brother-in-law like you.

But some say that you are peculiar, And I, even <u>I</u> can discern,

(continued on the back)



"AMONG MY MEMOIRS"

One Sunday last fall while visiting my daughter and son-in-law at White Bear Lake, we witnessed an historic event at their church. The congregation was attending their church for the last time before moving to their new church.

The sun streamed into the old building which was bright with late autumn flowers, yet one sensed a feeling of sadness akin to the parting of an old triend whom one might never see again. The minister, Exercent Juption Schendel, apple ories which clustered around the old church. He gave a brief history of the church had explained the necessity for a larger building to meet the needs of a larger building to meet the needs of old had to give way to the new and so the march of progress.

As I listened, there came to my mind a similar event seventy-eight years ago when I was ten years old. The church of which my father was the minister had outgrown its old building and we were about to move to a new one. To my childish eyes this new church was a won der! From the ceiling hung a most ex traordinary chandelier with dangling sparkling crystal pennants. By a mys terious arrangement, its dozen kerosene lamps could be lowered, lighted and raised again to the ceiling. The church was heated in a new and marvelous way -by one great register in the center aisle. But what I recall most vividly was the beautiful Bible for the pulpit a gift from my paternal grandmother who lived in the East. I can still see its gold-edged leaves, its large clear print and its many lovely illustrations.

My father's church was situated in Rock Prairie, Minnesota, a farming community with wide open spaces and low rolling hills. The large white houses and huge red barns were the farms of sturdy, hard-working men and women of Scottish descent. My father may not have been a great preacher but he was a great paster but he was a great paster but he was a great paster and the great paster and the great paster and the great paster be left. Rock Parier he was called back to officiate at weddings, and funerals. He sympathized with his congregation in their sorrows, counseled them when they were in trouble, and rejoiced with them in their good fortune.

As I look back, I realize what a carefree life we children had. There were eight of us-seven lived to adult life. We had Old Major for horse-back-riding cow which each year presented us with a funny little wobbly ealf: old bens that hid their nests: eggs to hunt in the hav days); but best of all was a huge apple orchard back of the manse which April looked and smelled like one big bouquet of pink and white blossoms Here we roamed with no fear of cars or trucks. In the fall we gathered many barrels of bright juicy apples and stored them in the cellar, and we munched on them in the evenings as we studied our lessons around the kerosene lamp.

My father was a well-educated mana graduate of Union College in New York and Princeton Theological Seninary. He wore his Phi Beta Kappa key proudly and also took delight in the handsome silver Warner cup he had won for scholiastic bonors. He was proematics. He brought good books to our notice and instilled in us a love of the poetry of which he was very fond.

Our day always began with family worship. We were each expected to recite from memory a verse from the Bible. Woe unto ur if we deviated as much as an article from the exact words!

Two great events at the manse I vividly remember. The first was the annual donation party. People from far and near came bearing gifts-like the Greeksanything from a jar of pickles to a load of hay. How the old manse would ring and what a jolly time we had! But an even greater event, and one anticipated all the year, was the arrival of the missionary box. What a help it was a year! In the box were many gifts to fit the needs of a growing family-warm clothing, shoes, bolts of bleached muslin blankets, and best of all, so we children thought, books and toys. My mother used to say, "I couldn't have raised my big family without those wonderful

Finally, those days had to come to an end. My father could not afford to send all of us away to college; so we moved to Minneapolis where six of us graduated from the University. How did we do it? In part. we, ourselves, worked in order to provide for our education; but much of the credit for our education goes to our mother who made countless.

sacrifices so that her children could go to college. "She looked well to the ways of her household and her children rise up and call her blessed."

up of each ner ossess, beck and live again those halvyon days of early childhood. Never! In retrospect I see my after battling blizards and biting winds in winter and hot dusty roads in summer on his errands of mercy. So assume the same of the same with no modern appliances. I see her angulating over a sick child when the corter and hospitals were far away and not leighbone at half. Life was seen and the control of the con

Harriet Jackson Burch November, 1959

(Memorandum by McWethy cont.)
That your horns make you seem
like the Devil supreme,
Which your own affirmations
confirm.

Yet, when St.Peter sends out

That will gather some into his fold,

aver he will shear, those horns off near your ear, So that never a scar there will show.

And when I put my foot on the

And he asks, "What, on Earth did you do?"

I shall keep out of Hell if I truly can tell, I was as good a Brother-in-

law, sir, as you.

NEW STATE PARK

The Department of Natural Resources of Minnesota announced this week that Split Rock Lighthouse will be opened as a State Park on May 1, 1971.

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Grandma Hillis says what this countineeds are family trees that will produce more lumber and fewer nuts.