



THE MINNESOTA GEOLOGIST

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THE GEOLOGICAL SOCIETY OF MINNESOTA

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No. 2

STRETCH OUT YOUR HAND

Stretch out your hand and take the world's wide gift
Of Joy and Beauty. Open wide your soul
Down to its utmost depths, and bare the whole
To Earth's prophetic dower of clouds that lift
Their clinging shadows from the sunlight's rift,—
The sapphire symphony of seas that roll
Full-breasted auguries from deep to shoal,
Born from dim caverns on the salt spray's drift.
Open the windows of your wandering heart
To God's supreme creation; make it yours,
And give to other hearts your ample store;
For when the whole of you is but a part
Of joyous beauty such as e'er endures,
Only by giving can you gain the more!

Corinne Roosevelt Robinson

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Visitors welcome.

FIELD TRIPS: May until October, inclusive.

ANNUAL DUES: Residents in a 50 mile radius of the Twin Cities, \$5.00, plus \$2.00
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and

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GEOLOGIC EXPLORATION PLANNED SOON

Two University of Minnesota scientists will spend December and January conducting an ambitious geological exploration along 800 miles of the Antarctic coastline. They hope their findings will tell more accurately the age of the ice sheet that covers Antarctica. This would expand man's knowledge of that polar continent, and indirectly could aid in the study of weather.

Dr. Campbell Craddock, an associate professor of geology, who will head the two-man Minnesota team, said helicopters will move them from spot to spot. He said this mobility will allow the most detailed geological study ever made on that continent. Various aspects of geology will be studied, he explained. The other member of the team will be Dr. Bernhard Sporli, a research associate in geology at the university.

Minneapolis Tribune - Nov. 5, 1966.

Note: Dr. Craddock has given a lecture to our Society on the Geology of Antarctica.

Flower in the Crannied Wall

Flower in the crannied wall,
I pluck you out of the crannies,
I hold you here, root and all, in my hand,
Little flower—but if I could understand
What you are, root and all, and all in all,
I should know what God and man is.

Alfred Lord Tennyson

A MESSAGE FROM YOUR PRESIDENT

Change is in the air and broader avenues are opening to us, provided we care to take advantage of them. The Geological Society of Minnesota can now become an important facility in the general adult educational system of this locality. In many respects we are unique. We do not compete with anyone else and particularly not with the many minor clubs of our area. We are interested in mineralogy just as we are interested in any other phase of geology. We collect and identify gemstones and other minerals, but accept them simply as frosting to the cake. We are also interested in the cake.

Our job, as I see it, is to interpret and explain our particular science to the layman - the non-professional you and me. We try to furnish the means of bringing to the adult public knowledge, understanding, and appreciation of much of the natural phenomena we see about us. And as I read back almost thirty years into the Society's activities, I find it has done just that. Our problem now is to extend this enjoyment to a greater number of people. But, because of the tremendous social change that has taken place during the last decade, our approach will have to be somewhat different than it has been in the past.

There are two kinds of participants for our programs. Many of us, particularly those who have been long-time members, like to participate in the full schedule of events including our field trips. But a great majority of members are interested only in our winter schedule of lectures. That is the activity we must try to develop with a view towards the broadest possible acceptance. This year we have tried such a program. We shall see what happens.

However, increased membership is necessary for success because it will produce the required finances. Without increased membership we can do little more than has already been done. If we can increase our membership by as many as 200 people, we shall have the means to create a real scientific forum that will be of interest not only to the intelligent layman, but also to certain of the professional and business groups. 200 new members out of a population of 1,500,000 does not seem far-fetched.

Dr. Zoltai, Chairman of the Geology Department of the University of Minnesota, and Dr. Sims, Director of the Minnesota Geological Survey, have given us a great deal of advice and help during the past season. With the finances which an increased membership will provide, and with the continued help of the two university geology departments, our society will have much to offer in the way of a broadly conceived educational program.

We do have a mission. It is to instill in others our appreciation of the true meaning of the natural phenomena we see about us. Perhaps this approach can best be reduced to that of the individual member by paraphrasing Rachel Carson: "If we are to keep alive our inborn sense of wonder, we require the companionship of those who can share it, rediscovering with them the joy, excitement and mystery of the world we live in."

Fred W. Hallberg
President

The only way we can really develop and present the type of program the members want is for the members to consider what they want and let us know. All suggestions will be appreciated.

IN MEMORIAM

Charles H. Havill, Treasurer of our Society, passed away on Tuesday, August 16, 1966. With his passing we lost one of our loyal and steadfast members who had served our organization efficiently, not only as treasurer, but as field trip reservation chairman, in charge of issuing membership cards and mailing of our bulletin.

Mr. Havill was born in London, England, on April 9, 1892. He came to America in 1909 at the age of 17. He was a Veteran of the First World War, and a member of the South Thirty Club at the Y.M.C.A., where he played handball three times a week. He was employed as an accountant by the Commander Larrabee Company for over thirty years, and at the Harron Methodist Church, where the final service was held. Memorials made will be given to the church choir.

Surviving Mr. Havill are his wife, Florence D., three daughters, Mrs. Patricia Tatro, Mrs. Rodger Brodin, and Mrs. Frank W. Johnson, one son, Charles Duncan Havill of Green Bay, Wisconsin, and twelve grandchildren.

As a member of the Geological Society, he took an avid interest in all details of the activities. His enthusiasm on field trips was contagious. He regaled the group with his story telling and lifted their spirits with his keen humor. He had a very fine tenor voice, and cheerfully led the singing on all our field trips. We shall certainly miss him. His happy, friendly personality will long be remembered.

To Mrs. Havill and all members of his family we extend our deepest sympathy.

The wife and family of Charles H. Havill sincerely appreciate all the kindnesses extended to them in their recent bereavement by the members of the Geological Society of Minnesota.

Madeline Weaver, a charter member of our organization, passed away on May 2, 1966. She was born on December 12, 1902. She was ill from April 24th and hospitalized in St. Luke's Hospital, St. Paul. The cause of her death was coronary failure.

Miss Weaver received her degree in Elementary Education from Mankato State College. She taught in the schools of Freeborn and Faribault Counties until she came to St. Paul in 1950 when she began teaching at the Gladstone School in Maplewood, North St. Paul School System, District 622.

She was a member of the Minnesota Education Association, The National Education Association, the Geological Society of Minnesota, the Historical Society, the Minnesota Ornithology Union, and the American Poetry Society. She is a past president of the St. Paul Poets and was treasurer for the past ten years of the League of Minnesota Poets. In January, 1965, she published a book of her own poems entitled Memo to a Muse.

At her death she was survived by three sisters, Mary Weaver (who died May 31, 1966), Elizabeth (Mrs. Edward Stevermer), and Cecilia Weaver.

Our heartfelt sympathy is extended to the survivors.

IN MEMORIAM (Con't)

Mrs. John W. (Opal) Gruner, wife of a retired geologist at the University of Minnesota, died Monday, September 5, 1966.

Mrs. Gruner was a graduate of Stanford University and of the University of Minnesota.

She was a member of the Governor's Commission on Human Relations, the Minnesota Council for Civil and Human Rights, and the Mayor's Commission on Human Relations. In 1961 she received the Mayor's Commission Distinguished Service Award, and in 1964 the City of Minneapolis Distinguished Service Award.

Survivors in addition to her husband include two sons, Wayne R., Bethesda, Md., and Garrett, Jackson, Michigan; a daughter, Mrs. Hazel Hudson, Pasadena, California, and a brother, Professor Milan W. Garrett, Swarthmore, Pennsylvania.

Our sympathy is extended to the survivors

NEWS NOTES

Mr. Lawrence W. King, former president of the Geological Society, who has been active in planning and supervising the installation of the informational bronze tablets through the State of Minnesota, was hospitalized in June, but is now recovering. We hope that the rest through the summer at their lovely home on the St. Croix has restored him in health and vigor.

In the month of July, Mrs. Goldie Johnson, a member, was also hospitalized for a few days, but prompt treatment and rest brought about an early recovery. We hope that happiness will accompany all her efforts.

Mr. Edgar K. Randall, a member of our organization, has been in the Veteran's Hospital where he has undergone minor surgery. We are informed that he has made good progress and is expecting to return home. We extend our best wishes for his complete recovery.

To most members Martha M. Peterson, our Membership Chairman, is well-known, for usually they have some contact with her.

On a return trip from the Orient this summer she suffered a severe accidental knee injury which necessitated hospitalization for several weeks, first in Canada, and then here. Fortunately her recovery has enabled her to appear as active as ever in recording memberships. We all hope that the future holds only good luck for Martha.

Mr. Orval Engen, a long time member and former director of our organization, has suffered a heart complication and was hospitalized for several weeks. He is making a good recovery at home, and we hope that he will be able to rejoin us in the near future.

LECTURE PROGRAM -- 1966-67

1966

Oct. 10 FOSSIL COLLECTING IN SOUTHERN MINNESOTA Dr. R. E. Sloan

Dr. Sloan has recently mapped and pinpointed the best fossil collecting areas. He will discuss locations and describe fossils that may be found. The map, published by the Minnesota Geological Survey, will be available the evening of the lecture.

Oct. 24 MINERAL COLLECTING IN MINNESOTA Dr. G. R. Rapp

Dr. Rapp and Mr. Don Wallace have recently co-authored a booklet on this subject. Dr. Rapp will discuss its contents and answer questions of interest to the audience. The booklet, published by the Minnesota Geological Survey, will be available the evening of the lecture at 50¢ per copy.

Nov. 14 THE COLORADO PLATEAU Part I Dr. Bert R. Carlson

Nov. 28 THE COLORADO PLATEAU Part II Dr. Bert R. Carlson

Dr. Carlson has spent much time studying and traveling about this spectacular and fascinating part of the United States. His illustrated lectures will cover most features of general interest in that area.

Dec. 12 ARCHEOLOGY OF THE POST GLACIAL PERIOD IN MINNESOTA Dr. Eldon Johnson

Dr. Johnson of the Anthropology Department will discuss evidence of pre-historic man in Minnesota. The period covered will begin with the retreat of the last glacier.

1967

Jan. 9 CLAY MINERALS OF MINNESOTA Dr. Walter Parham

This relatively common mineral has been the subject of intensive study which has produced much new and useful material. Dr. Parham, who has done much in this research, will bring us up to date with the latest information on the subject.

Jan. 23 INTRODUCTION TO OCEANOGRAPHY

An interesting motion picture presentation of the science of Oceanography.

Feb. 13 GEOLOGY OF YELLOWSTONE PARK Dr. R. E. Sloan

Dr. Sloan spent the past summer studying the Park and adjacent areas. He will talk on the various geological features of the area.

Feb. 27 GLACIAL HISTORY OF THE TWIN CITY AREA Dr. John E. Stone

Dr. Stone will pinpoint, illustrate and explain many of the evidences of glacial activity now visible in this area.

Lecture Program - Continued

1967

Mar. 13 CONTINENTAL DRIFT

Dr. J. C. Craddock

Dr. Craddock will discuss available evidence supporting the theory that continents once joined have now drifted apart. Recent studies of the eastern floor of the north and south Atlantic have added support to that theory.

Mar. 27 COPPER-NICKEL MINERALIZATION IN NORTHERN MINNESOTA

Dr. Paul Wiblen

A most timely discussion of this subject will be presented by Dr. Weiblen.

Apr. 10 LUNAR GEOLOGY

Dr. S. R. B. Cooke

Recent events in the space program make necessary some knowledge of our captive planet. We believe the presentation will be informative, interesting, and very timely.

Apr. 24 ANNUAL BANQUET

TELEVISION PROGRAMS ON GEOLOGY
offered by
THE UNIVERSITY OF MINNESOTA

An interesting feature offered by the University of Minnesota during the winter and spring period was the series of television programs on geology.

Physical Geology I and Geology 1E was the beginning course in geology and introduction to the scientific method and the nature of the earth. The course surveyed the main features of the physical world and the processes that evoked them. The twenty-five lectures were presented twice a week on KTCB-TV Channel 2, on Tuesdays and Thursdays at 10 p.m. The instructors were George Rapp, Jr., Associate Professor of Mineralogy, Department of Geology and Geophysics, and Charles L. Matsch, Instructor of Geology, Department of Geology and Geophysics.

Historical Geology 2 and Geology 2E showed by introduction that the present is the key to the past. From there the correlation and web of geological processes, the growth of continents, the course and process of evolution through the geologic periods beginning with the Precambrian through the Cretaceous Period, the rise of flowering plants and extinction of dinosaurs, the Cenozoic Period and Evolution of Mammals; the Pleistocene Epoch, Human Paleontology and the Ancestry of Man. The twenty-two lectures were presented twice a week. Robert E. Sloan, Associate Professor of Paleontology, Department of Geology and Geophysics, and Ghassan N. Rassam, Teaching Associate, Department of Geology and Geophysics, were the lecturers.

As was stated in the introduction and guide, geology is everywhere. It literally surrounds us. A study of the subject will sharpen our observation of the natural phenomena which we see every day. It will make living more interesting and challenging. The Department of Geology at the University of Minnesota provides a wonderful opportunity to learn about the marvels of the world we occupy.

FIELD TRIP REPORTS

Field Trip - May 15, 1966 - Building and Monument Stones in Minneapolis Loop and Vicinity.

Leader - Mr. Elmer H. Brown

Review by - Mr. Brown

This field trip was made to review some of the changes made in the more prominent buildings, starting at the Minneapolis Y.W.C.A. Among more important buildings observed on the first part of this trip were the following:

Great Northern Passenger Station - This was built of Kettle River sandstone in 1913. It had recently been cleaned by sandblasting, which showed to good advantage the crossbedding of sand forming the sandstone. In its natural state this sandstone has a tendency to caseharden; but on account of differential hardness the sand-blasted surface roughened unevenly and porosity was increased, making it necessary to water proof. However, the red, pink, and buff colors make an attractive appearance. Other examples of the use of this stone are the Hill Library in St. Paul, the Public Library in St. Paul, the Northern Pacific - Great Northern Office Building in St. Paul, and the Baker Building in Minneapolis.

Main Post Office Building - Mankato dolomite and dark gray St. Cloud granite.

Pioneers (group statue) - Pioneer Square - St. Cloud gray granite. (John K. Daniels, sculptor.)

Pillsbury "A" Flour Mill - Six stories in height, built in 1885 entirely of Platteville limestone.

Turning left on Main Street of St. Anthony Village, we rode over some of the original granite paving from St. Cloud and passed several of the old store buildings still standing on the east side of Main Street; one dated 1890, and another of limestone much older. We could also see the evidence of the disaster caused by the failure of the W. W. Eastman power tunnel October 4, 1869 and the near destruction of St. Anthony Falls.

The French Catholic Church of St. Anthony Village was one of the buildings observed by the group. This church (which is still in use) was built of tan and gray Platteville limestone by Universalists in 1858, who disbanded in 1869 and sold to St. Anthony of Padua Church in 1899.

We returned to the west side and stopped at a monument - the original mill stone from the Cataract Flour Mill, built in 1859 and mounted on a concrete pedestal just west of the King Midas Mill.

The next stop was at the rear of the Washburn "A" Mill (Washburn-Crosby) now General Mills - This was eight stories in height and built entirely of Platteville limestone in 1879, to replace the old mill destroyed by terrific explosion of flour dust May 2, 1878. Not one stone on another was left, and every person in the mill lost his life. There are 14 names on the white marble tablet set in the brickwork of the rear wall of the mill.

From the rear of the mill we walked a short distance to the bank of the Mississippi, where we had a good view of the new Upper and Lower Locks. From this point we also had a good view of the Great Northern Railway Stone Arch Bridge and could plainly see the dip in elevation of the bridge over Pier 7, which was undermined during a spring flood and dropped down some 14 in., closing the bridge for repairs from 4-18-65 to 10-22-65. Repairs were made by placing reinforced concrete jackets around Piers 6, 7, and 8.

FIELD TRIP REPORTS (Con't)

On resumption of the tour we stopped at the following:

U. S. Federal Building - Woodbury, Vermont light gray granite - Built in 1911. East entrance with 22 fluted columns on Third Ave. opposite Chicago, Milwaukee, and St. Paul Railway Depot.

Northwestern National Life Insurance Company - 20 Washington Ave. So. This was designed by Minoru Yamasaki, is six stories high, and was built in 1964-65. Outside walls, grade to top, panelled (book leaf pattern) dark green Verde Antique Vermont marble. Interior walls and ceiling, front office and elevator lobby, "Best White Cloud" Vermont marble. Floors: Mont Claire, Danby Vermont marble.

Nicollet Hotel - Nicollet and Washington Aves. So. Cold Spring Agate, Red Granite, some Bedford Limestone. Interior - Sepia veined ivory marble, Larsaco Charo, Italy.

I.B.M. Building - St. Cloud Pink and St. Cloud Gray Granite Tower. Cold Spring Nodule Block Granite.

Sheraton Ritz Hotel - 315 Nicollet Ave. St. Cloud Pink Granite, east and west sides; north and south entrance, White Marble - Bedford limestone.

U. S. Federal Courts Building - 110 South 4th St. Base, Cold Spring Charcoal Gray Granite. Walls, six cornices, Cold Spring Rockville Natural Cleavage.

Minnesota Employment Security Building - 309 Second Ave. So. Agate (Odessa) Delano Red Granite.

Western Union - 317 Second Ave. So. - Base and front entrance, Cold Spring Diamond Gray Granite.

Public Health Building - 250 Fourth St. So. Front wall and Main entrance - Norton Gneiss.

Flour Exchange - 310 Fourth Ave. So. St. Cloud Red Granite Base. Brick above.

Grain Exchange (Chamber of Commerce) - 400 So. Fourth St. Rockville Gray Granite - Bedford limestone.

Andrews Hotel - Hennepin Ave. and 4th St. First story - Ruby Red "Granux". Brick above.

Northern States Power Company - 414 Nicollet Ave. Eight stories. Second story and seven skirts above, Mankato Dolomite. Main floor columns, Platinum Gray Warman - Isle. Steps and Concourse, St. Cloud Pink rough cut. Planters, pool, rear walls, Cold Spring Platinum Gray granite.

Hennepin County Welfare - 400 So. 5th St. Cold Spring Agate Red Granite. Mankato Dolomite.

Court House - Between 4th and 5th St. and 3rd and 4th Ave. So. Style, Romanesque. Six stories. Corner Stone 1891. Footings, Native limestone; foundation walls, Kettle River Sandstone; also main walls of sub-base. All outside walls and in open court -- stone backing on granite walls and filling back of Bedford limestone in three vestibules. Main building, basement walls, Ortonville Red Granite;

FIELD TRIP REPORTS (Con't)

with steps and buttresses the same. Planters at front entrance, Black Granite. Interior vestibule - 4th St., Cold Spring Carnelian Red Granite. At the Fourth St. entrance, North Rotunda, there is a statue, "Father of Mississippi". This is a tribute to the Mississippi River, presented to the City of Minneapolis by a group of citizens of the time. The statue was sculptured by Larkin Goldsmith Mead at Florence, Italy, from the largest block of white Carrara Marble ever removed from the quarry.

Court Park Garage - 300 South 4th St. Broken Joint Ashlar Granite. Walls, Cold Spring.

Northwestern Bell Telephone Company - 224 So. 5th St. Mankato Pink Dolomite. Morton Gneiss.

McKnight Building - 2nd Ave. So. and Fifth St. Entrance, Morton Gneiss.

Powers Department Store - Nicollet Avenue at 5th St. Kasota Dolomite in lower course of second floor. Morton Gneiss base.

"Soo Line" Building - (Old First National Bank) 5th and Marquette. Columns first floor, Salsbury Pink Granite. Base course St. Cloud "Pink" granite. Below windows, dark gray "Granux".

Upper Midwest Building - (Old Lumber Exchange) 425 Hennepin Ave. 1885. Fond du Lac Brownstone - 12 stories, top two are brick. Bayfield Co. Wisconsin, Prentice and Washburn Quarries. Badly damaged by fire February 26, 1891. Rebuilt with Brownstone from Flag River Quarries, Wisconsin.

Schieks Cafe - (Old Farmers & Mechanics Bank, 1893-1942) 115 South 4th Street. Bedford limestone facing; Berea Sandstone lamp posts bases.

Northern States Power Company - (Minneapolis General Electric) 15 So. 5th St. Original part Berea Sandstone. Newer part, St. Cloud Rockville Gray Granite.

Federal Reserve Bank - 93 South 5th St. St. Cloud Rockville Pink Granite. Bedford limestone. Eight large granite columns at front of building. Beautiful polish on columns and other granite has been ruined, evidently by using hydro-fluoric acid for cleaning.

Masonic Temple - Corner of Sixth St. and Hennepin Ave. Berea (Ohio) Sandstone. September 4, 1888.

Northwestern National Bank - 6th to 7th St. on Marquette Ave. First story, Black Granite, Hellen, Wisconsin. Bedford limestone above. South and north entrance beautifully bookend Eorsjordund Marble, Belgium.

"Soo" Building Annex - 513 Marquette Ave. Rockville Porphyritic granite - four foot base.

S. S. Kresge Building - 634 Nicollet Ave. Rockville Porphyritic Granite, St. Cloud.

Farmers & Mechanics Bank - 90 South 6th St. 1941. Base, Cold Spring Red "Carnelian". Mankato Pink Dolomite above. Interior Italian Red Marble - Verona Tuscan Travertine, Italy.

FIELD TRIP REPORTS (cont.)

Marquette National Bank -- 7th and Marquette. 1955. Corners, "Imperial Mahogany", Milbank, South Dakota. Delano window trim. Between windows (trim) Granite Salisbury, Pink, North Carolina.

Marquette National Bank -- (former building). Red Granite base. Red Sandstone, South Dakota Black Hills. Egyptian style of architecture.

Thorpe Building -- 523 Marquette Avenue. Isle Granite. Five foot base course.

Rand Tower -- N.E. corner of Marquette Avenue at 6th Street. St. Cloud Gray Granite base. Bedford Limestone above. Beautiful marble in interior.

First National Bank -- 120 S. Sixth Street. 1960. Rear planters, walls, charcoal black granite, Cold Spring. 6th Street entrance, Mt. Airy granite, North Carolina; elevator lobby, safety deposit section, Danby Marble, Rutland, Vermont. Escalators and enclosure walls, main floor, Fior De Pesco, Italian Alps gray marble with white veining. (Beautiful work of booking).

Pillsbury Building -- (formerly Hodgson Bldg.) 406-2nd Avenue S. Dark gray granite under window sills. Cold Spring. Base, porphyritic granite, St. Cloud. Bedford limestone above. Interior, gray and white veined marble.

Embers Broiler & Motel -- 700-4th Avenue S. Broken Joint Ashlar Granite, Cold Springs. (on both 7th and 4th Avenue sides.)

Lutheran Brotherhood -- 701-2nd Avenue S. Gray granite on 7th Street side and north wall from Pass. Interior, Italian marble.

Baker Building -- S.W. corner of 7th St. and 2nd Ave. S. Norton Gneiss in base course. Hincley sandstone, upper portion of building.

North Star Building & Inn -- 608-2nd Avenue S. Garage entrance--2nd Avenue. Broken field stone panel north side of entrance.

Cargill Building -- Corner Marquette Avenue and 7th St. Gray granite entrance. Black granite base of windows. Interior--tan marble. Elevator lobby, Breccia, Vallio, Italy.

Roanoke Building -- S.E. corner of 7th St. and Marquette Ave. Norton Gneiss on base course. Entrance, Bedford Limestone and Black Granite. Front, Laaredo Colisaco, Italy, Marble. Note large black inclusion in Norton Gneiss at right side of door (pendant of basalt.)

Woolworths -- 7th St. and Nicollet Ave. Mellen black granite. Bedford limestone above.

Dayton's -- Nicollet Ave.--7th to 8th St. St. Cloud Gray Granite base course; also used in lower floor and extending to second floor. 8th St. side--Dayton-Radisson Ramp, new portion, Gray "Granux".

Radisson Hotel -- 7th St. between Nicollet and Hennepin Avenues. Red "Granux" entrance. Red promenade tile lobby.

FIELD TRIP REPORTS (Con't)

Northwestern National Bank -- 8th Street and Hennepin Avenue. Milbank "Mahogany
Lincoln Office Red" (Delano) north and east side.

Northwestern Federal Bldg. -- 730 Hennepin Avenue. Columns, Morton gneiss.
Base course, St. Cloud Porphyritic Granite. Note large phenocrysts in gneiss.

Walker Building -- 8th and Hennepin Avenue. St. Cloud Rockville Pink Granite.

Minneapolis Savings & Loan -- 8th and Marquette Avenue. 1948. Carnelian red
granite, Cold Spring. Veined ebony black granite.

Hennepin Federal Savings & Loan -- Corner 8th and Marquette Avenue. Black gra-
nite base. Corner, top skirt Granux dark gray, gray and ruby red.

Minneapolis State Bank -- 920 Nicollet Avenue. Split field stone panel at
North entrance, mostly glacier granite boulders. Gopher Stone Co.

Physicians & Surgeons Bldg. -- 63 South Ninth Street. Rockville porphyritic
granite base. Mankato buff dolomite in columns. Red granux.

Y. M. C. A. -- La Salle at Ninth Street. Bedford limestone St. Cloud rough
cut Rockville granite.

Y. M. C. A. -- 1130 Nicollet Avenue. Bedford limestone.

Westminister Presbyterian Church -- 83 South 12th Street. Platteville limestone.

Walker Art Center -- 1710 Lyndale Avenue South. Front, Mankato dolomite.
North wall, Bedford limestone. Steps, St. Cloud gray granite. Red granite trim --
Cold Spring Carnelian.

North American Life Insurance Co. -- 1750 Hennepin Avenue. Front, Red granite,
Cold Spring Carnelian. Steps, same, rough cut. Statue of American Bison on front
lawn, St. Cloud red granite, Weighs 20 tons. Sculptured in St. Cloud Cold Spring
Yard by John K. Daniel.

St. Mark's Episcopal Church -- Hennepin Avenue and Vineland Avenue. 1941.
Front steps, St. Cloud gray granite. Church, Bedford limestone. Interior, Mankato-
Kaota Dolomite.

Hennepin Avenue S.E. Church -- Groveland and Lyndale Avenues. 1916. Bedford
limestone. Architectural masterpiece.

Scottish Rite Temple -- 2011 Dupont Avenue South. Quartzite, Luverne, Minn.
Bright red Fond du Lac. Sandstone trim. Formerly Fowler Methodist Church built
before 1902. Henn. Ave. M.E. Church purchased in 1911. Occupied until 1911 when
new church was completed and then sold to Scottish Rite.

Basilica of St. Mary -- Hennepin Avenue and 16th Street - Base, St. Cloud Rock-
ville pink granite (rough cut) Church proper - Isle Granite.

Lakewood Cemetery Administration Building -- Pearl gray Isle granite - eight
fluted columns in Portico, Ionic order. 1910 Byzantine - Architectural Gem. Chapel-
Vermont red and green granite. Interior pendentives covered with mosaics which took
three years to place.

FIELD TRIP REPORTS (Con't)

Lastly, we stopped to admire the beautiful Norwegian Labradorite Memorials at the Newton Horace Winchell (Father of Minnesota Geology) and Alexander Newton Winchell (son) plots. The Winchell family included many prominent geologists, one of whom was U. S. Grant, a son-in-law.

We also paused to view the Granite memorial erected by the Minneapolis Head Millers Association in 1885 in memory of the men who lost their lives in the explosion of the Washburn "A" Mill on May 2, 1878.

Field Trip — June 4th and 5th, 1966 — Luverne, Springfield, Pipestone, Jasper, Redwood Falls and Morton.

To study Sioux Quartzite formations of Southwestern Minnesota.

Leaders: Dr. Bert Carlson
Mr. Elmer Brown

Review by: Dr. Carlson

The second field trip of the 1966 season started June 4, 1966.

The Ochs Brick & Tile Company at Springfield, the first stop on this trip, is the largest plant of its kind in Minnesota. The clay for making brick is taken from a pit a few miles out of town. The deposit is at least 200 feet thick and several hundred acres in extent. Depending on the color of brick desired, clay and materials from other pits are mixed with the Springfield clay. It was here that we found concretions in the clay material. The brick plant at Springfield is still using the beehive kilns, but as fast as they burn out they are being replaced so that the continuous firing operation will be used.

Prior to the formation of the Rocky Mountains during the Upper Cretaceous Period, oceanic waters covered the western part of North America from the Arctic to the Gulf of Mexico. Cretaceous marine shale 100 million years old contains sea shells, oyster shells and coiled forms related to the chambered nautilus. Archen clay three billion years old is completely free of fossils and other inclusions and is used in making buff colored brick.

Clays are mixed with the material desired to produce the proper color of brick, and then water is added to make a stiff mixture. This is forced through a machine, where a vacuum takes out most of the water; and as it continues through a mold, holes are pressed through the bricks and the outside form of the brick is made. As the molded clay is carried through on a belt, it is cut into separate blocks by means of piano wires. The clay bricks are then piled on trucks and placed in an oven in a stream of dry hot air which takes out most of the moisture. The bricks are then fired for a period of 156 hours at a maximum of 2,000 degrees Fahrenheit.

The quartzite exposures in the southwestern part of the state are the New Ulm, North of Luverne, the Jasper, the Pipestone, and an exposure several miles into southeastern South Dakota. The Sioux Quartzite at New Ulm and Luverne is about the same age as the Pokegama, the Rib Mountain, Barron Hills and Baraboo. Quartzite is about one billion years old. It is one of the hardest rocks known. Quartzites are metamorphosed sandstones that have been recrystallized and fused together so that they break through the grains instead of around the grains as in sandstone.

FIELD TRIP (Cont)

Quartzite was used in the construction of many buildings in the southwestern part of the state. It is also cut to form blocks or bricks and used for lining grinding mills as a grinding agent. In some places in southwestern Minnesota and South Dakota, streams have cut steep ravines. Alternate freezing and thawing in the jointing of the quartzite is the cause of the ravines.

The Pipestone National Monument has an exposure of quartzite, and also an exposure of catlinite or pipestone, which was quarried by the Indians and used in making peace pipes and artifacts. An Indian family or two still reside in the Pipestone area and make up various artifacts which are for sale at the Monument. The pipestone can only be mined by the Indians, and they have an agreement between the different tribes to keep peace while working there. In the Administration Building at the Pipestone Monument an illustrated information lecture is given periodically; also, there are well marked trails with designation of the various plants, shrubs and rocks along the way in the area.

On our return trip we stopped in Ramsey Park at Redwood Falls. On the river's edge there is an exposure of kaolinite, which is decomposed granite. This is the same type of material that is used in the Ochs brick plant to change the color of bricks.

We also paused just east of New Ulm to view an area where there is an exposure of quartzite conglomerate. The conglomerate contains pebbles and boulders of jasper, quartzite, quartz and granite. This conglomerate is only a few acres in extent and some 60 feet or so thick. Its formation and age have not been well determined.

At the Morton quarry we viewed the Morton gneiss (granite with a swirling pattern), which is much used in building construction. Wire saws are now being used entirely for removing the solid blocks of granite from the quarry.

Field Trip -- June 14th through 21st, 1966 -- Houghton, Michigan

Annual Convention of the Midwest Federation of Mineralogical and Geological Societies.

An outstanding event of the year for geological study groups and rock and mineral collectors was the annual Field Trip Convention of the Midwest Federation of Mineralogical and Geological Societies from June 16th through the 19th, 1966, at Houghton, Michigan. The sponsor and host for this convention was the Copper Country Rock and Mineral Club with the cooperation of the Division of Continuing Education -- Michigan Technological University. Dr. Joseph F. Dobell, Professor of Geology, was the Chairman, under whose direction the extensive detail of registration, housing, welcoming, entertainment, meetings and field trips proceeded with clock-like precision enabling complete participation in the activities by nearly 1500 people who arrived by bus, car and trailer. The Geological Society of Minnesota was represented by 18 members.

On June 16th two field trips were conducted, starting at Engineers' Field near the Sherman Gym. These included ten caravans containing from 20 to 40 cars each. Guides were capable geological, chemical and mechanical engineers, instructors and a graduate student.

The Delaware Mine Dump and Great Sand Bay were the first two localities for the rock and mineral hunt. At the Delaware Mine Dump search was made for prehnite, datolite and chlorastrolite (greenstone), the last two of which have become scarce

FIELD TRIP (Con't)

and difficult to find; at Great Sand Bay on the lake shore agates were found, as well as prehnite, jasper, chert and other colored pebbles.

In the evening over 700 people enjoyed the excellent chicken barbecue in Dee Stadium. This was followed by welcoming speeches with door prizes and entertainment, including crowning of Mrs. Katherine Steinbrenner, current president of the Midwest Federation. She gracefully wore her copper jewel-studded crown at all the later festivities.

On June 17th four field trips were scheduled. The caravans started at 8 a.m. and visited the Phoenix Dump, Allouez Conglomerate Dump, Cedar Bay and the Arcadian Dump. Found at these places were specimens of analcite, calcite, epidote, native copper, cuprite, tenorite, chrysocolla, malachite, prehnite, red microcline, quartz, agate, thomsonite, and chert.

After a day of field trips there was a silent auction in Dee Stadium, at which Mr. Robert Markert was in charge. Rock and mineral specimens were donated by groups and members attending the conclave. The collection was varied with many very fine specimens of rocks and fossils. The auction brought \$834.00. After the auction The Treasure Trove Corner was open, at which anyone could buy a package of rocks for 50 cents and be pleasantly surprised at the contents.

On Saturday, June 18th, among the activities were a council meeting of officers and delegates, a Bulletin-Editors' luncheon in the Ballroom of the Union Building (at which Mrs. Vivian Pochay, Editor of Rock Trails, State Line Gem and Mineral Society, Tecumseh, Michigan, received the first award), and the Annual Banquet in the Wadsworth Hall Dining Room of the Michigan Technological University. The speaker of the evening was Mr. John Sinkankas, author of Gemstones of North America, which he autographed for purchasers.

On Sunday, June 19th, there were three more field trips scheduled at the South Range Quarry, Baltic Mine Dump, Isle Royale No. 4 Mine Dump, and a visit to the A. E. Seaman Mineralogical Museum, which has a nearly complete Dana Collection. A magnificent copper country collection is an outstanding feature of the museum. The Mills specimens and the Reeder collection of native silver are among the best of the displays.

At the South Range Quarry a cross section of a Keweenawan lava flow was exposed. Minerals found at the Baltic Mine Dump and Isle Royale No. 4 Mine Dump included native copper, calcite, dolomite, ankerite, calcocite, epidote, bornite, chalcocyprite, domeykite, prehnite, quartz, anhydrite, gypsum, barite, chlorite and laumontite.

The field trips furnished an opportunity for all who attended to learn to recognize the different types of rocks and minerals which they found, for the leaders were ready with identification and composition. The thanks and appreciation of our group are expressed to the mining companies who allowed collecting on their properties.

The amateur geologist or rock hunter is generally a busy, happy individual who is delighted at the prospect of finding and identifying a new specimen for his collection. The Keweenawan Peninsula has a wealth of minerals, the search for which is a challenge to the collector. Not only did rock collection and identification merit our attention, but the picturesque and beautiful scenery excited everyone's admiration. Our hosts, along with the many cooperating organizations, were genial and generous. It was a successful convention that will long remain in the memories of the participants with grateful appreciation.

GEOLOGY OF THE COPPER COUNTRY AND ITS HISTORY

by
Professor Kiril Spiroff
Michigan Technological University
Houghton, Michigan

Note: Following the field trip visits in June by many of our members to some of the rock piles at the Keweenaw Peninsula, it seems that the geology and history of the Copper Country would prove of special interest, not only to them, but to all of our members. Therefore, the following article has been reproduced through the courtesy of Professor Kiril Spiroff, the author.

The State of Michigan is richly endowed by nature with varied geologic phenomena. There is evidence to show that within the state there were lofty peaks of active volcanoes, that prevailing westerlies ruffled the waves of the shallow seas that once covered it, and that in turn deserts, jungles, and ice prevailed where now the genus homo ekes out a living.

The Michigan Copper Country is of unique character. It has the only large deposits of native copper in the world; the purity of the copper is such that it cannot be improved by metallurgical treatment; and the lodes are among the most persistent known in the world, for they continue down along the incline for a distance of 10,000 feet and horizontally for distances measured in miles. How much farther they extend into the earth is unknown. The present limits of workings have been determined by mining and economic factors rather than by the continuity of the deposits.

The copper is found in fractures and porous parts of ancient lava flows and gravels. Copper from the lavas is called amygdaloidal copper; that from the fractures is known as fissure copper. In all cases the copper is in a native form; that is, it is in a pure metallic state, uncombined with other elements. The only difference between the amygdaloidal, fissure, and conglomerate copper is in the mode of occurrence. In other words, the difference lies in the place where the copper was deposited.

Many eons ago lava flows were poured out over the Lake Superior region. They are believed to have been of the quiescent type -- quiet extrusions oozing out of fissures, spreading out over the surrounding terrain as horizontal sheets and building up extensive gently sloping hills (plateaus). At various intervals the activity was more violent, and ejected fragments were spread out as elastic layers over the lava flows. Material from some ancient terrain was also brought in as gravel and sand and deposited on top of the lava flows. Then the district became a bit of crustal disturbances. Forces causing earth upheaval pushed up the flat-lying lava flows and the intercalated gravels so that at the present ground surface they dip about 60 degrees to the north, but flatten out somewhat at depth. Mineralization was accomplished by copper-bearing solutions percolating through the porous and fragmental tops of the lava flows and through gravels (conglomerate) fissures, faults and joints, deposited the native copper in favorable places. Many other minerals which are not of economic value but are of much scientific interest are associated with the copper.

Native copper lured the man of the stone age; his crude implements have been found in the shallow test pits and trenches near the sites of shafts that now reach over a mile in depth. When Cartier and his voyageurs sailed up the St. Lawrence they were told by the tribes of Algonquin Indians of the copper to be found to the west, copper boulders, which the Indians revered as Manitous. These copper pebbles they wrapped in birchbark and beaver skins and wore as amulets or kept as little manitous-- household gods-- in their tepees and hogans. Reports of the copper sent to France were first published in Paris in 1636. The Jesuits followed and penetrated to the lake country and there, like the Indians, found "float copper" and heard of the Great Manitou at the fork of the river -

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perhaps the Ontonagon boulder. They sent copper to Quebec and France and stated that they would search for the copper mines, but nowhere in their writing did they report that copper was mined by the Indians. The Plains Indians had copper utensils and weapons - but no records of mines and mining. But some mysterious race had come into the copper country and had mined copper, for under the duff and litter of the great forest which grew over them, were found pits and nearby mounds containing hammers, chisels, and wedges of trap rock, stone and copper tools and fragments of wooden bowls. The debris give evidence that these mysterious miners used firing as a mining method and later fashioned hammers and knives of copper for which they discarded their stone implements.

In 1770 Alexander Henry, with the backing of the Duke of Gloucester and the Empress of Russia, attempted unsuccessfully to mine copper at the Ontonagon Boulder. The boulder, a glacial erratic, was described by Bela Hubbard in original notes now in the office of the Michigan Geological Survey, Lansing, Michigan. The boulder, much reduced in size from the original Manitou and having a romantic history of ownership and travel, is now in the Smithsonian Museum. A similar specimen can be seen in front of the East Engineering Building at the Michigan College of Mining and Technology.

Henry Rowe Schoolcraft, after his 1820 expedition to the source of the Mississippi and exploration of the mineral lands of the Superior Basin, wrote the first scientific account of the geology and mineral value of the Upper Lake Region.

In 1830, Douglas Houghton made his first visit to this copper region and, during the 1832 Schoolcraft expedition and later excursions along the coast and up the stream valleys, found the true locations of the copper-bearing rocks which he described in a paper read in Philadelphia in 1840. A monument to Dr. Houghton, constructed from material from every geological formation found in the district, can be seen at Eagle River, Michigan, near the site where he was drowned. Mining operations started in 1844 near Copper Harbor and at the Cliff Mine. The work at Copper Harbor did not prosper, but the Cliff Mine paid its first dividend, \$60,000 in 1849 and continued dividends to 1857.

Encouraged by the success of the Cliff, which produced copper from a fissure vein, the early miners looked for copper in fissures which cut across the flows -- fissures which were quite readily located by gaps in the hills eroded along fractures. Masses of virgin copper were often found in these fissure mines -- some of them reported to weigh as much as 500 tons. However, less than 3% of the total production is reported to have come from the fissure deposits.

The presence of copper in the amygdaloidal tops of the flows was recognized around 1856, the date of discovery of the Pewabic lode. The Quincy, Pewabic, and Isle Royale were the first of this type.

It would be worth while here to review the history of a lava flow. As lava pours out, it congeals; the top cools faster than the remaining portion and forms a crust, within which are trapped the escaping gases, forming cavities which are called vesicles. Later, when the vesicles are filled with foreign material, such as copper, silver, calcite, agate, quartz, feldspar, epidote, etc., they are called amygdules and the rock is referred to as an amygdaloidal lava. Most of the cavities are at the top, but there are a few at the bottom.

As the lava advances over the surrounding territory, it cools and forms a crust; later movements may break this crust, while the rest of the flow is still liquified, and the fragments become engulfed in the lava to form what is known as "flow breccia", and thus a brecciated top is formed.

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The solid material near the surface of the flow chills quickly and is very fine grained, if not glassy, whereas that further from the surface is coarser, since it is protected from rapid cooling and has a longer time to crystallize. Flows usually show this coarsest texture about two-thirds of the distance from the top to the bottom. After studying many flows, Dr. A. C. Lane came to the conclusion that every ten feet in distance toward the interior from the bottom of the lave, the augite grains become one millimeter larger.

The solid portion of a flow is called a trap (diabase or ophite) and the porous parts are called amygdaloids; yet they are portions of the same structural unit -- a lava flow.

The most famous of the conglomerate mines was the Calumet and Hecla Conglomerate, which was opened in 1864. The Calumet and Hecla is one of the famous mines of the world. Of the 18 shafts on the property, five were carried to or below the 81st level, a distance of 8100 feet on the incline of the lode or 4900 feet vertically from the surface. Mining operations in the Calumet and Hecla Conglomerate extended over an area of more than four square miles on the lode. Over 150 miles of drifts were used to extract the ore. This one property produced approximately three and one-half billion pounds of copper and paid over 150 million dollars in dividends.

At the present day, throughout areas of great scenic beauty in the Keweenaw Peninsula, there are many rock piles. These are accumulations from mining operations and offer fascinating adventure for one interested in minerals. Over 60 minerals occurring in the Michigan Copper Country have been described, and at any rock pile at least twenty different minerals can be readily gathered. Minerals are abundant at every rock pile, but in some places certain minerals predominate or are of better quality than in others. Often the embryo collector rapidly fills his pack-sack with specimens of different colors and appearance, only to learn that most of them are duplicates or are merely worthless traprock. To avoid this waste and disappointment it is advantageous for collectors new to the district to visit the A. E. Seaman Mineralogical Museum in the new Geology Building at the Michigan Technological University.

Field Trip - July 10, 1966 -- Study of the Geology in and about Taylors Falls, Minnesota and St. Croix Falls, Wisconsin.

Leader - Mr. Elmer H. Brown

Review by Mr. Brown

In beginning this trip, we left by bus and proceeded to Taylors Falls via Stillwater and Highway #35 in Wisconsin. Traveling down the steep hill into Stillwater, we skirted high bluffs on the left with Jordan Sandstone overlain by some 30 to 40 feet of Oneota Dolomite. We crossed the St. Croix River into Wisconsin and traveled northward via #35, stopping at a road cut on the right just South of Osceola where the Oneota Dolomite is in contact with Jordan Sandstone below, and marked by a conglomerate where the Jordan was evidently indurated by iron, which may have been leached from siderite in the Oneota Dolomite.

Our next stop was at Osceola, where we viewed the falls formed by a creek flowing over St. Lawrence shale which forms a protective cap to the Franconia Sandstone below. Several of the older store buildings in Osceola were built of Osceola Dolomite quarried near by.

A stone quarry at Dresser Junction located in Keweenaw basalt (trap or diabase) is operated by the Bryan Rock Co. Trap rock is crushed in a plant at the quarry into concrete aggregates as well as smaller gravels for dressing on blacktop pavement.

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A dry mix of fines and cement is made also for steel troweling repairs to concrete floors in packing plants and creameries.

On the operating face of the quarry at least three flows can be distinguished, and at the top rim center of the quarry basalt is brecciated, indicating probable volcanic activity. It was learned at the quarry that some drilling experiments had been made recently, indicating that some of the local companies engaged in "space" operations are working on an automatic core drill to be landed on the moon for taking cores probably of rock material similar to that in the quarry. One of the party also discovered a piece of basalt with free copper exposed on the face by recent blasting operations.

We proceeded over a back road to the top of a rise west of the quarry where we had a very good view of both Taylors Falls and St. Croix Falls and of the St. Croix Valley. We passed the former estate of Robert P. Payne, who once organized a copper exploration company to put down a core drill hole on his property but evidently without success. Entering the Interstate Park from the Wisconsin side, we viewed the abandoned channel of the St. Croix when it ran south from the present elbow in the river past Thaxter Lake (Lake of Dalles), and later through the present lake into the St. Croix. The Legislature of the two states set aside 730 acres in Wisconsin and 150 acres in Minnesota as an interstate park.

We had our lunch on the east bank of the St. Croix just south of Thaxter Lake. The villages of Taylors Falls and St. Croix Falls are located on terraces of glacial St. Croix. At one time both villages were the center of extensive logging and lumbering operations, as this was the southern end of white pine forests as well as the south end of the Keeweenawun lava flows which were cut through by the St. Croix, forming cliffs as much as 100 feet high. These old flows are cut by vertical joint planes which cause the rocks to fall off in large blocks. This has caused the change in the course of the river by turning it abruptly at right angles. There are at least ten lava flows on the Minnesota side and three on the Wisconsin side, one of which is occupied by Main Street, St. Croix Falls.

Other interesting features are the pot holes located in one of the lower lava flows and formed by eddies in the swiftly moving river, where the force of the water was strong enough to rotate boulders. These continued to drill downward and outward until water ceased to spin the grinders, many of which can still be seen in and about the pot holes.

The flows can be traced to some extent by vesicles at the top and bottom where gas was released (vesicular basalt). If small cavities are filled with other minerals such as calcite or zeolite, the result is amygdoloidal basalt.

On the Wisconsin side there is a basalt quarry where rock is colored red by hematite in vertical joints and known as "red rock", which was used in building the Refectory. On the road to the quarry there is an exposure of basalt with vesicles filled with pink or red heulandite.

In Taylors Falls we made a stop at the N. S. P. Dam to observe the glacial striations on rock outcrops at the west end of the dam and exfoliation of granite boulders at the water's edge below the dam.

At a highway running north on 4th Street two blocks, we went to an abandoned gravel pit where the red drift deposited by Labradorian glaciers and gray drift on top from the Keewatin Glacier can be very plainly seen (now overgrown with underbrush). There are places where seepage of water carrying large amounts of calcium from

FIELD TRIP REPORT (Con't)

ground up limestone in gray drift has indurated and cemented top portions of red drift.

Our next stop was at a conglomerate outcrop on the corner of Basil Street, where it intersects Mill Street and cuts through the conglomerate. Boulders of trap rock compose the conglomerate which grades upward into the Franconia Sandstone, showing that the sandstone (Cambrian) is younger than the lava flows. That the conglomerate is Cambrian is shown by fossils. Farther down the same hill where the N. P. Railroad track (former location) intersects Mill Street, another section of this conglomerate can be seen.

At the first turnout or overlook on Highway No. 8 about one-half mile south of Taylors Falls, we came to our first Geological Tablet which was dedicated on Sunday, October 30, 1949, as a memorial to Edward P. Burch, the Founder of our Society. The legend on this tablet gives an excellent and brief sketch of the geology of the Taylors Falls region as follows:

About 750 million years ago the Lake Superior Region was the scene of tremendous volcanic activity. Of the 500 or more lava flows which issued from great fissures, some reached as far as Taylors Falls. The rocks of the St. Croix gorge at this point are composed of that lava. Many millions of years later when the eastern outlet of the Great Lakes was blocked by glacial ice, the St. Croix was one of the outlets of Lake Superior, at which time this gorge was eroded. The abrading action was caused by sand and gravel carried by the great volume of water moving at high velocity. The potholes in the state park one-half mile north of this site were formed by similar action.

We concluded the trip at this point and returned on the west side of the St. Croix Highway #95 to Stillwater and then home.

THE ANNUAL PICNIC

The home and grounds of the Kings on the St. Croix were again the scene of a gathering of the members of the Geological Society for their annual picnic. The weather, which appeared rather threatening at the start, turned out to be perfect after the sun broke through the clouds.

The guests walked around the lovely grounds and enjoyed the beautiful scenery from the advantage point of the Kings' home. After an exchange of greetings, most of the group went into the house, where tables had been set up for a picnic lunch in anticipation of rain. Many set their tables on the lawn after the weather cleared. The picnic lunches were consumed and news of personal activities was exchanged in an atmosphere of cheerful camaraderie. Our annual picnic always provides an opportunity for friendly visiting.

After lunch the guests and members assembled on the lawn in front of the house where an informal meeting was held. Mr. Hallberg, the President, presided with comments from Dr. Carlson, Mr. Elmer Brown and Mr. George Rickert. Mr. Hallberg reviewed the lecture program for the coming year and gained unanimous approval. A note of sadness was introduced in the news that Mr. Charles Havill, a long time treasurer of our organization, was seriously ill. All who knew Mr. Havill through the years loved him and appreciated the many services he rendered to the club.

As the group dispersed, thanks and appreciation of the members was expressed to Mr. and Mrs. King for their fine perennial hospitality.

The major portion of bulletin material was prepared for mimeographing prior to the time of absence of your editor on a trip to Europe. On return the following information was brought to our attention, and as we felt it would be of interest to members, it is presented in review:

IN MEMORIAM

From a current Newsletter of the American Federation of Mineralogical Societies we learn of the passing of two of their prominent and valued members.

Dr. Ben Hur Wilson died on August 20, 1966.

Serving as President from June of 1947 until June, 1948, he remained active and continued to serve in promoting the growth of the AFMS for many subsequent years, and realized a dream come true in its present strength. There are but few active in the earth science field who are not familiar with the name of Ben Hur Wilson, who was also Editor in Chief of the Earth Science Magazine.

In recent years Dr. Wilson served ably as Historian for both the American and the Midwest Federation, and was also the founder of the Midwest Federation. Many clubs throughout the Midwest owe their start to the encouragement so freely given by Dr. Ben Hur Wilson.

Mr. William C. Conant died on August 22, 1966.

Mr. Conant served most efficiently and sincerely for three years as an AFMS officer, first as Treasurer, then Secretary, and currently was Vice-President, Liaison Officer and Show Coordinator. In 1963 he did a most outstanding job as Chairman of the International Relations Committee, and as Vice-President of the Texas Federation, served a term as Director of the AFMS. He did much to promote the interests of his fellow man. The organizations for which he worked so diligently have lost a great friend.

Our deep and heartfelt sympathy is extended to the families of these members.

Two Sides of Life

There is a shady side of life,
A sunny side as well,
And 'tis for every one to say
On which he'd choose to dwell;
For every one unto himself
Commits a grievous sin,
Who bars the blessed sunlight out
And shuts the shadows in.

The clouds may wear their saddest robes,
The sun refuse to smile,
And sorrow, with her troops of ill,
May beckon us the while;
And yet the happy heart has power
A sunbeam to provide,
And only those whose souls are dark
Dwell on life's shady side.

GEOLOGICAL SOCIETY OF MINNESOTA

NEW MEMBERS -- 1967

Mrs. Gertrude Barth	2112 Oliver Avenue No.	Mpls.	JAl-1141
Edmund C. Bray	452 Otis Avenue	St. Paul	646-0266
Mr. & Mrs. Robert E. Canny	1308 4th Avenue So.	Anoka	421-4172
John S. Carlson	8239 Medicine Lake Rd.	Mpls.	544-1356
Herbert Duncan		Chaska	448-2580
Joan W. Erickson	209 W. Ash Street	Rosemont	423-1241
Mrs. Lulu S. Flannery	4222 Queen Avenue	Mpls.	JA2-0871
Clifford A. Jordan	5229 45th Avenue So.	"	PA2-2469
Mrs. R. K. (Miriam) Lampe	1175 Glen Oak Street	Dubuque, Iowa	
Mr. & Mrs. Don Lantz	1523 W. Lake Street	Mpls.	925-6321
Mr. & Mrs. Lyle Lundeen	4525 Belvidere Lane	"	922-8196
Michael E. Madson	2231 Knapp Street	St. Paul	644-2768
Mr. & Mrs. Donald Mackin	2367 Mc Nemey Road	"	484-2904
Mr. & Mrs. Ted Mason	2437 30th Avenue So.	Mpls.	PA9-9043
Carol Melcher	6701 Limerick Lane	"	941-2147
Mr. & Mrs. R. J. Melcher	" " "	"	"
William S. Miska	7121 Chicago Avenue	"	866-2401
Lynn Moriarity	2407 Pleasant Avenue	"	338-2552
Mr. & Mrs. Russell S. Pool	403 E. 3rd Street	Chaska	448-2101
Mr. & Mrs. Carl Radke	177 Hawes Avenue	St. Paul	484-5212
Mr. & Mrs. Fergus Retrum	9708 14th Avenue So.	Mpls.	881-6303
Mrs. Miriam E. Robbins and Scott	1800 Como Avenue S.E.	St. Paul	331-2810
Mrs. Carl Schmitz	24 So. Albans Street	"	CA7-5337
Ethel A. Shimek	921 13th Avenue S.E.	Mpls.	336-7436
David Allen Smith	2601 16th Avenue So.	"	"
Carl G. Thompson	2935 Ulyses N.E.	"	ST9-4921
Mrs. Don Tepel	1269 So. Cleveland	St. Paul	
Elizabeth Vlock	1800 Como Avenue S.E.	Mpls.	331-2810
Mrs. Lavon Westland	983 Ashland Avenue	St. Paul	225-6393

Bulletins will be sent only to paid-up members for the 1966-67 period.

Martha M. Peterson
Membership Chairman

A world traveler was seeking new excitement, so he entered a travel agency and asked to have a passage booked to the moon. The ticket seller went along with the gag and said, "I can't help you. All flights have been cancelled."

"How come?" asked the astonished man. "Bad weather?"

"No," replied the agent, "it's just that the moon is full tonight."