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# THE MINNESOTA GEOLOGIST

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OFFICIAL BULLETIN  
OF

THE GEOLOGICAL SOCIETY OF MINNESOTA

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VOL. VIII

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NO. 3

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HE WHO KNOWS THE MOST -  
HE WHO KNOWS WHAT SWEETS AND VIRTUES  
ARE IN THE GROUND -- THE WATERS, THE PLANTS,  
THE BEAVERS AND HOW TO COME AT THESE  
ENCHANTMENTS, IS THE RICH AND ROYAL MAN.

RALPH WALDO EMERSON.

G E O L O G I C A L S O C I E T Y O F M I N N E S O T A

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The Society is devoted to the study of GEOLOGY,  
MINERALOGY, and PALEONTOLOGY for their cultural value.

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MEETINGS : October to May inclusive, 7:30 P M every Tuesday  
not a holiday, auditorium, Minnesota Museum of Natural History  
University of Minnesota, 17th Ave., S. E. and University Avenue.

Visitors welcome.

FIELD TRIPS: May until October inclusive.

ANNUAL DUES: Residents of Hennepin and Ramsey counties \$ 3.00  
plus \$ 1.00 additional for husband, wife, or dependent family  
members; for students and non-residents, \$ 1.00.

AFFILIATE MEMBER

MIDWEST FEDERATION OF MINERALOGICAL AND GEOLOGICAL SOCIETIES  
and  
THE AMERICAN FEDERATION OF MINERALOGICAL SOCIETIES

\* Deceased

## EDITORIAL MEMO

**WELCOME ASSISTANCE** - We welcome Mr. Benjamin A. Pratt to our Bulletin staff. A more diligent worker would be hard to find.

**STATE FAIR DISPLAY** - Our first attempt at having a display booth at the State Fair attracted many interested visitors from all parts of the State. Keen interest was also expressed by a number of out of state people. Our sincere appreciation goes to all those who gave so generously of their time and service. This project appears to be worth repeating next year.

**MIDWEST CONVENTION** - The 11th annual convention of the Midwest Federation of Geological and Mineralogical Societies was held July 2-4 at the Michigan College of Mines and Technology, Houghton Mich. Dr. A. K. Snellgrove and Professor K. Spiroff conducted sessions and led two field trips through the copper mining district of the Keweenaw Peninsula. The Geological Society of Minnesota and the Minnesota Mineral Club were well represented at the conclave.

Hazen T. Perry was elected President for the ensuing year and the Minnesota Mineral Club will be host to the 1952 convention which will be held in Minneapolis. Ken Russell of Chicago was elected Vice-President. Mrs. Orvil Grand-Girard was reelected Secretary and Miss Marjorie Saxon of Chicago was elected Treasurer. Dr. Ben Hur Wilson of Joliet Illinois was reelected historian.

**DUES** - Serious consideration by the Board was given to the possible necessity of raising the dues of the Society to meet increased costs of materials and services. It was finally decided however, to await the results of several projects which we have in progress to see whether increased membership may balance the budget favorably. The Board much prefers to bring the same, or better, program to the members at the same cost if at all possible.

**RECOGNITION** - Our plaque project is gaining nationwide recognition. The latest A. G. I. Newsletter, published by the American Geological Institute, a professional organization, devoted more than half a page to a summary of the affairs of our Society. Special emphasis was given to the plaque project.

**CONGRATULATIONS** - This seems to be a winning year for Peter L. Miller. He was the winner of a first award at the National Science Fair, Washington D. C., conducted by Science Club of America.

**"SHUT INS"** - As we go to press we are happy to learn that Mrs. Hal McWethy is greatly improved and out of danger. She is still at Midway Hospital however, and is now able to read her own mail. Mrs. Ralph Hollingsworth has been hospitalized again, but is home now. This is her second session of a long hospital stay. Lets remember to send cards and letters to all our "shut ins".

In remitting your dues by mail, send them to Mr. J. Orval Engen, Treasurer, 5317 Chowen Avenue South, Minneapolis 10, Minn.

Any other Society correspondence should be sent to Mr. Wesley Bender, Secretary, 1828 Chicago Avenue, Minneapolis 4, Minn. or Mr. J. Merle Harris, President, 3509 Stinson Blvd., Minneapolis 18, Minn.

All Bulletin correspondence should be sent to the Editors, 3376 Brunswick Avenue, Minneapolis 16, Minn.

# BULLETIN-BOARD

1951 LECTURE PROGRAM 1952

This year Dr. Fred M. Swain, Associate Professor of Geology, U. of M. will present a series of lectures on the general topic: Regional Geology of the United States. These lectures will be given on the second and fourth Tuesdays of each month (except November 13). Many of our members are already acquainted with Dr. Swain from previous lectures and field trips. On alternate Tuesdays we will have lectures on varied geologic subjects as listed below.

- Oct. 9 Atlantic and Gulf Coast Plains.  
Dr. F. M. Swain.
- Oct. 16 Colored Slides of Glacier Park, Banff and Lake Louise.  
Charles H. Preston, Field Trip Leader.
- Oct. 23 Appalachian and Blue Ridge Mountains.  
Dr. F. M. Swain.
- Oct. 30 Mineral Explorations.  
Dr. D. M. Davidson, Vice President and Chief Geologist of  
E. J. Longyear Co.
- Nov. 6 The Role of the Longyear Co. in Mineral Exploration.  
Robert D. Longyear, President of E. J. Longyear Co.
- Nov. 13\* Spitzbergen - An Arctic Wonderland.  
Dr. George W. Tyrrell, University of Glasgow Scotland.  
Joint meeting with the University Department of Geology.
- Nov. 20 Mineral Explorations by Diamond Drilling.  
P. W. Donovan, Consulting Engineer of E. J. Longyear Co.
- Nov. 27 The Interior Lowlands.  
Dr. F. M. Swain.
- Dec. 4 Water Supply Problems of Minnesota.  
Dr. Paul R. Spear, District Engineer for U. S. Geological Survey.
- Dec. 11 The Great Plains.  
Dr. F. M. Swain.
- Jan. 8 The Rocky Mountains.  
Dr. F. M. Swain.
- Jan. 15 Minnesota Ice Age Mammals.  
Dr. Louis H. Powell, Director of the St. Paul Science Museum.

\* This meeting will be held in the basement, room # 4 New Aeronautical Engineering Building. It is the second building north of Washington Avenue on Church Street, east side of the street. (Use 2nd or north entrance).

THE STILLWATER TRIP

June 10, 1951.

Benjamin A. Pratt.

One of the early trips of the past summer was to a point two and a half miles north of Stillwater for the dedication of the plaque marking the northern limit of Lake St. Croix. Text as follows -

GEOLOGY OF MINNESOTA

STILLWATER REGION

THE SITE OF THIS TABLET MARKS THE NORTHERN LIMIT OF LAKE ST. CROIX, IMPOUNDED BY THE NATURAL DAM OF SAND AND GRAVEL MADE BY THE MISSISSIPPI WHERE IT IS JOINED BY THE ST. CROIX RIVER, TWENTY MILES BELOW STILLWATER. THE VALLEY, WITH ITS DEEP BANKS, IS TYPICAL OF YOUTHFUL TOPOGRAPHY - OF A YOUNG STREAM - AND ITS SIZE COMPARED WITH THE RIVER, INDICATES THAT A MUCH LARGER VOLUME OF WATER FLOWED HERE WHEN THE ST. CROIX WAS AN OUTLET OF GLACIAL LAKE DULUTH, THE ANCESTOR OF LAKE SUPERIOR. THE HIGHWAY AND PICNIC GROUNDS OCCUPY A RIVER TERRACE ON WHICH THE RIVER FLOWED AT AN EARLIER STAGE. THE ROCK WALLS OF THE VALLEY ARE CHIEFLY SANDSTONE FORMED IN THE SEA WHEN IT COVERED MINNESOTA DURING THE CAMBRIAN PERIOD, 500 MILLION YEARS AGO. BECAUSE OF THE THICKNESS OF THE BEDS AND THE EXCELLENCE OF THE EXPOSURES ALONG THE RIVER, THESE FORMATIONS, WHEREVER THEY APPEAR IN NORTH AMERICA, ARE KNOWN AS THE ST. CROIXAN SERIES.

ERECTED BY THE GEOLOGICAL SOCIETY OF MINNESOTA  
IN COOPERATION WITH THE DEPARTMENT OF HIGHWAYS  
STATE OF MINNESOTA

Mr. Hal E. McWethy traced the geological history of this region and its relation to the glacial action resulting in old Lake Duluth and the present Lake Superior.

Bob Berg presented an interesting explanation of his Franconian subdivisions and led the group to a deep gorge where a stream has cut vertical walls showing banded rock, Franconian glauconite, between layers of sandstone.

Lawrence King opened his country home and grounds to us for lunch and relaxation.

We returned by way of Hudson, Wisconsin, where we had an opportunity to study outcropping banded rock showing formations of all periods from Cambrian to Mesozoic. This again under the guidance of Bob Berg.

DEDICATION OF MANKATO PLAQUE

INTRODUCTORY ADDRESS

J. MERLE HARRIS

On behalf of the Geological Society of Minnesota I wish to welcome both members and visitors to share in our days activities and invite you to join with us in our three-fold purpose. Today we are dedicating our fourth Geologic plaque, we are honoring one of our esteemed, former members and we will learn more about the geology of this interesting region.

Only a small part of the geologic story could possibly be inscribed on the plaque. I shall not take the time to read what is written here. Each of you will wish to do that for himself or herself. There wasn't room to say that this region was covered by all four of the Keewatin glaciers and that the last of these is called the Mankato glacier. When freshly excavated Dr. Stauffer found evidence of two, and possibly three, of these in the roadcut above us. These glaciers moved in from northwestern Canada bringing gray drift and extended far south of here. The red drift sheets from the north and east which covered the Twin Cities area did not come as far south as this.

As mentioned on the plaque, the stage of the Minnesota River during which it drained Glacial Lake Agassiz is called Glacial River Warren. There was not room to mention that there is evidence that there were two Lake Agassizs, one after the other, with a glacier in between. In the same sense there were probably two "River Warrens". And perhaps we would not be extending our imagination too far beyond the evidence to presume that there was a Lake Agassiz after each of the four glaciers mentioned, and likewise the same number of "River Warrens". (In geology we must use some imagination - the only question is how much we may be allowed.) At any rate if we assume this it is easier to understand the immense amount of erosion that must have been required to produce this large valley. We might think of it as two valleys - an outer, bedrock valley and an inner one, mostly in glacial drift, which we see. It is not clear just when the bedrock valley was carved. It may have been in preglacial times or by one of more of the interglacial "River Warrens", but still more probably by both. We are assured that it was not done by the last River Warren because much glacial debris still remains within the bedrock channel which has not been removed either by it or by the present river.

Another story was included in the original draft of the plaque inscription but later omitted for lack of space. As you well know, there were several melt-water lakes in the state that existed for a time in various places where the ice blocked the natural drainage during the melting stage of the glacier. Most of these are less well known than Lake Agassiz or Lake Duluth because they were of shorter duration and their effects were less pronounced. One of these lakes covered the area where we are and to the south and east. A University of Minnesota geologist named Hall described it in a book written near the beginning of the century. He refers to it as "Lake Undine". During its higher stages it drained to the east but later, when the ice cleared from the channel of the Minnesota between here and the Twin Cities, it drained toward the north. This lake apparently existed and disappeared before Lake Agassiz began to form. The name Undine comes from an old German fable about a water nymph. Nicollet applied it to the region south and east of here because of its many streams.

These remarks have had to do only with the surface geology. The story of the bedrock geology is left to the field trip led by Mrs. Koppen.

I wish now to introduce a man who was close to Mr. Syme during much of the period when he contributed so much to our Society. He was president for two years of that time. I introduce to you Mr. Joe Zalusky.

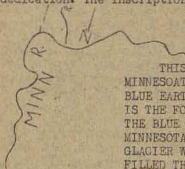
On Sunday, August 19th, 1951, the Geological Society of Minnesota dedicated the fourth of its series of roadside geological plaques on Trunk Highway #14, two miles west of Mankato, Minnesota, at a highway parking area overlooking a picturesque view of the confluence of the Minnesota and Blue Earth Rivers. The day was perfect, one of those beautiful days that can be found in few places outside of Minnesota in summertime, and a large number of members and friends of the Society attended.

This fourth plaque is slightly different from its predecessors,- something new has been added! On the top of the plaque is a simple map-sketch showing directions, the rivers and an abandoned river channel mentioned in the geological text. The sketch illustrates the inscription, making it easier to understand, and has received much favorable comment. We were amused to notice that already that part of the tablet was highly polished by visiting fingers which had traced and pointed out the river locations.

It is not the intention or purpose of the Society to use the roadside plaque project as a means to honor individual members, but a few of the past leaders, by their unflinching devotion and service, have justly earned this distinction. One of these leaders was Mr. Alger R. Syme, a past president and director, and first Editor of the Minnesota Geologist Bulletin. A credit line of the plaque inscription reads: "IN MEMORY OF ALGER R. SYME, PAST PRESIDENT AND MENTOR". "Mentor" is a very special word, with but a single meaning: "A wise and faithful counselor, a friendly teacher and instructor", and that is exactly what Mr. Syme was with the young Geological Society in its beginning and until the end of his days.

Mr. J. Merle Harris, President of our Society, gave the introductory address at the dedication and a very interesting talk about the geological features of the Mankato district. Mr. Joseph W. Zalusky, a past president of the Society, and a personal friend of Mr. Syme, delivered a splendid memorial address. Mr. Syme's four children and seven of his grandchildren were present and honored at the dedication. The inscription reads as follows :-

GEOLOGY OF  
MINNESOTA  
MANKATO REGION



THIS MARKER IS LOCATED NEAR THE BIG BEND OF THE MINNESOTA RIVER DIRECTLY OPPOSITE THE MOUTH OF THE BLUE EARTH RIVER. THE ABANDONED CHANNEL EAST OF IT IS THE FORMER COURSE OF THE LE SUEUR BEFORE IT JOINED THE BLUE EARTH. MOST OF THE BROAD VALLEY OF THE MINNESOTA WAS CARVED OUT OF RED ROCK PRIOR TO THE LAST GLACIER WHICH CAME FROM THE NORTHWEST AND PARTIALLY FILLED THE VALLEY WITH DEBRIS. AFTER THE GLACIER MELTED, THE RIVER RE-ESTABLISHED ITSELF IN THE OLD VALLEY. THE NAME "GLACIAL RIVER WARREN" IS APPLIED TO THE STAGE WHEN IT CARRIED ENORMOUS VOLUMES OF MELT-WATER FROM GLACIAL LAKE AGASSIZ WHICH FOR A LONG TIME OCCUPIED THE RED RIVER VALLEY REGION.

THE ROCKS EXPOSED IN THIS ROAD CUT ARE FROM BOTTOM TO TOP - JORDAN SANDSTONE, BLUE EARTH SILTSTONE, ONEOTA DOLOMITE (MANKATO QUARRY ROCK) AND GLACIAL DRIFT OF TWO AGES. THE LOWEST ROCK IS ABOUT 500 MILLION YEARS OLD AND THE UPPER DRIFT AT LEAST 10,000 YEARS.

ERECTED BY THE GEOLOGICAL SOCIETY OF MINNESOTA  
IN MEMORY OF ALGER R. SYME, PAST PRESIDENT AND MENTOR  
IN COOPERATION WITH THE DEPARTMENT OF HIGHWAYS  
STATE OF MINNESOTA

"Alger Syme is gone, but his memory will last forever, for members of his family. A few of his many friends and members of the Geological Society are here today to dedicate a bronze plaque to his memory".

"Who was Alger Syme and why is this honor done him? Mr. Harris, your president, asked me to say a few words about Alger at this gathering, knowing that Mr. Syme and I had many things in common, both of us having been members of the Society for many years. It was there that I first met and got acquainted with Alger. I soon learned that I had become acquainted with a man of sterling qualities. - - - "When I had some difficulty in giving a talk, he was always willing to come to the rescue. He could write an interesting article on almost any topic".

"Alger did not major in science at the University of Michigan where he took his law course, but in later life, he spent much time in the study of geology, his favorite hobby. He induced Dr. Thiel, the head of the Department of Geology at the University of Minnesota to start special classes in this subject. Alger took at least fifteen semesters. He was well qualified and indeed very helpful to our Society".

"He liked people and always took part in community affairs. He was a member of the Masonic Lodge, active director and past president of the Midwest Federation of Geological Societies, and was also active in the American Federation of Mineralogical Societies". - - - -

"The Geological Society of Minnesota owes much to Alger for the vast amount of work and energy that he gave to make the Society what it is today. Our Minnesota Geologist Bulletin and the Midwest Geologist are creations of Mr. Syme". --

"Alger Syme was born October 15th, 1888 in Windsor Ontario, of Canadian parents. He went to high school at Buffalo, New York, attended and graduated from the University of Michigan. It was there that he met Helen Croman. They were married after Alger graduated. Four children were born to this marriage, Alger, Jim, Jean and Joseph. There are also eleven grandchildren".

"When the sad news of Algers passing reached me in the summer of 1948 I knew I had lost a great friend".

- - - -

Thank you Mr. Zalucky for reminding us so well of the contributions of Mr. Syme whom we honor today.

The site of this plaque was not chosen at random as you have already imagined. It was placed at the head of a list of possible plaque sites by Mr. and Mrs. M. Westmark who have given careful consideration to several factors. Not only is this an excellent overlook of this beautiful and geologically interesting valley but it is a very popular stopping place for tourists. In 1949 nearly 2000 cars per day passed this point on an average. We believe that this site was wisely chosen and we wish to thank Mr. and Mrs. Westmark for their competent work.

The unveiling of the plaque marks its dedication in honor of Mr. Alger R. Syme and its dedication to the many thousands of visitors who will read the words inscribed here and better understand the geologic story of this region of our state. This is done with the cooperation and aid of the Department of Highways, State of Minnesota.

Billy King one of Alger Syme's young grandsons and frequent field trip companion concluded the ceremony by untying the ribbon and unveiling the plaque.



## TACOMA CONVENTION REPORT

by  
HAZEN T. PERRY.

The fourth annual convention of the American Federation of Mineralogical Societies held at Tacoma Washington officially came to an end September 3rd. However many hundreds of visitors lingered on to either search for minerals or to enjoy the gorgeous scenery of this captivating Northwest country.

Probably the outstanding scheduled event was the three day pre-convention field trip around the Olympic Peninsula and Olympic National Park. This wild unexplored mountainous and timbered country is located between Puget Sound and the Pacific and is not too well known even by the local residents of Seattle or Tacoma. On September 29th about 60 persons met at the Capitol grounds in Olympia and received instructions from Don Major and began the journey. Evening stops were made at Lake Crescent and Lake Quinault in Olympic National Park. There were many highlights that made the trip a never to be forgotten experience. There was the thrilling trip up Hurricane Ridge from ocean level to 5800 feet in 12 miles and the majestic view of Mt. Olympus and snow capped peaks on one side and the Pacific on the other. Then there was an evening lecture around a campfire at Lake Crescent hemmed in by towering mountains and the mystic spell cast by the speaker with his tales of Indian lore. Then there was the salmon-bake arranged by the Indians at Neah Bay at Cape Flattery, the extreme northwest tip of the United States. There were also the various stops at ocean beaches to search for agate and petrified wood and fossils. Then the trip to Lake Quinault through the rain forest where 140 inches of rain yearly produce huge forests of evergreen fir and western cedar. Trees here grow 5 feet in diameter in 60 years and some specimens are 20 feet in diameter and tower 250 feet into the sky.

The opening of the convention proper seemed almost an anti-climax. All activities were held in the Masonic Temple. In point of excellence of the mineral exhibits, attendance, and friendly enthusiasm it was a most successful gathering. Junius Hayes of Salt Lake City was elected the new president and Canyon City Colorado was chosen the site of next years convention.

A report of the convention would not be complete without some mention being made of the optional field trip taken by many up Mt. Ranier. Both from a scenic and geological point of view this trip was outstanding. Entering Ranier National Park the road winds upward 29 miles to Paradise Lodge at an elevation of 5900 feet. Every turn of the road offers a view of the gigantic peak which rises 14,400 feet practically from ocean level. At Paradise Lodge it still towers nearly 9000 feet higher. On its furrowed sides is the largest glaciated area in the United States. The glacial valleys are tremendous and awe inspiring. Some idea of the power of water and erosion can be seen where a flash flood in 1948 deposited 57 million cubic yards of glacial debris in a forest of Douglas fir, smothering and killing several hundred acres of fine timber. One can learn many lessons in geology from a trip to Mt. Ranier.

Forty one members of the Geological Society of Minnesota spent sixteen days, July 14-29, 1951, on a trip to Glacier National Park in the United States, and Waterton Lakes, Banff, Yoho and Jasper National Parks in Canada, which includes lovely Lake Louise and the Columbia Ice Fields.

We studied mountain formations, glaciers, valleys and canyons, under the able direction of our leader, Mr. Charles H. Preston, and the local park naturalists, and enjoyed the marvelous beauty of rugged mountain scenery at its best.

Going northwest from Minneapolis we saw the lateral moraine of the glacier reaching nearly to St. Cloud, and its outwash, the gray drift. The red drift of a later glacier could also be seen near Becker and Clear Lake where it meets the gray. There is both red and gray outcropping volcanic rock at St. Cloud. We had been at an altitude of about 900 feet at Elk River, but it had increased to 1403 feet at New York Mills, our first continental divide. We saw where the beaches of old Lake Agassiz had been, and rode into Red River Valley where rich soil produces as beautiful crops as the Nile Valley. The fine first day of our trip ended at Bismarck.

The scenery changed from there on as we viewed the North Dakota Bad Lands and saw layers of lignite and "scoria", old limestone burned by the lignite. There was much red, brown, and yellow coloring. In the afternoon we stopped at Roosevelt Park, a memorial to Theodore Roosevelt for his work in promoting conservation of natural resources and wild life. There he owned the Elkhorn Ranch, read, wrote books, and became a frontier leader.

Then came another change in scenery. We had seen dry unproductive regions and a wide belt of wheatland where the soil is so fertile that with the strip-farming method of water conservation, great quantities of the best high protein winter wheat is raised and every little town has five or six large grain elevators. But we soon came into view of the Little Rockies. These were intrusions breaking through the Cretaceous layer of rock. Next there was an abrupt range partially covered with snow. We were approaching one of the most beautiful places in America, Glacier National Park with its many picturesque peaks close around us, over sixty glaciers and many beautiful lakes. The lofty peaks are composed of limestone and layers of very hard red and green shale called argillite. They were uplifted by a tremendous force, and then overthrust, so that this rock from the Algonkian period lies above the later Cretaceous layer of rock. Then they were eroded. Nowhere else in the West has this been done in such a spectacular way.

Our bus was driven over the Going-to-the-Sun highway. We saw the triple divide where water from melting snow flows in three directions, some starting in the St. Mary River, toward Hudson Bay; some to the Pacific Ocean by way of the Columbia River, and some to the Missouri and Mississippi River. Here was lovely St. Mary Lake, and Logan Pass where three of our members decided to follow a trail back to the hotel. The Park naturalist thought it could be done, but didn't know that the trail was not yet open for the season. They found many snowfields to cross, deep water and snow to contend with and steep rough stretches of stony trail. They as well as the rest of us were greatly relieved when they finally reached the hotel hungry and sunburned that evening.

The second morning we went to Two Medicine Lake and Trick Falls, and stopped especially to see Cannon Peak named for one of our own party, Mrs. W. B. Cannon, who had been the first to climb it on her honeymoon trip. The glaciers here are new, being only two to four thousands years old, and are swiftly melting and it is estimated that they might disappear in about 50 years. On the mountain sides are cirques which have been gouged out by ice and water and are now filled with ice and snow. On lower slopes the wild flowers are unsurpassed in beauty. Among the showiest are the tall white

plumes of the bear grass, the wild parsley, and yellow lupines.

The fine Many Glacier Hotel was a lovely place and we spent three nights there. (And incidentally, aren't some of the names in Glacier Park fascinating? So descriptive and typical of the region -- Going-to-the-Sun Mt., Iceberg Lake, Granite Gorge, Paradise Canyon, Avalanche Canyon, Many Glacier, Redgap, Two Medicine, Trick Falls, Cutbank, etc. Aren't they perfect?)

We left early in the morning for the Canadian half of the Waterton-Glacier International Peace Park, comprising Glacier National Park in the United States and Waterton Lakes National Park in Canada. We enjoyed a launch trip over the rather rough but beautiful Waterton Lake which extends for three or four miles on either side of the Canadian border, and had a good dinner at the Prince of Wales Hotel. We also had a trip over a mountain pass to Cameron Lake which lies between snow covered peaks, and we stopped to examine the site of the first oil well drilled in Canada.

Next there was Banff National Park, with its snow covered peaks, canyons and glacial cirques. We stopped at the luxurious Banff Springs Hotel, where we had a delicious lunch, and then going north again, had the pleasure of seeing Lake Louise, called the "Gem of the Rockies". It was at Lake Louise that we abandoned our own comfortable bus for four and a half days while we explored Banff, Yoho and Jasper National Parks in smaller glass topped busses which allowed unobstructed view of the superb Rocky Mountain scenery. There was an afternoon trip from Lake Louise to the Yoho National Park, the Yoho River Valley and Emerald Lake. Here is a continental divide and the source of the Columbia River. We followed the Kicking Horse River from its source, Lake Wapta near Lake Louise. The Canadian Pacific Railway runs through this valley, passes through tunnels and near the amazing Takakkaw Falls, said to be the third highest in the world.

The next morning we followed the Bow River to Bow Lake, where we had breakfast at Num-ti-Jah Lodge, the home of the Simpson sisters, champion skaters and skiers. Nearby is Saskatchewan Peak, partly covered by a large glacier, which is the source of the North Fork of the Gaskatchewan River flowing into Hudson Bay. Then we entered Jasper, Canada's largest Park, and stopped at Athabasca Glacier, which is one of the many glaciers of the vast Columbia Ice Field, an area of 150 square miles, much of which is above 10,000 feet in elevation. We rode over the base tongue of the Glacier in a unique vehicle called a snowmobile, equipped with ski runners in front and caterpillar tread in the rear, which enabled it to span the many small rushing streams. The Glacier was about 40 feet thick where we started and hundreds of feet thick at the top. Two of the most dangerous places to avoid are the crevasses, sometimes 200 feet deep, and the whirlpools where water has worn deep holes. The lower edge of this glacier is receding at the rate of 20 to 150 feet a year.

On the last stretch of highway to the northward we came to the Athabasca River which flows into the McKenzie, and then had seen where rivers start toward the Pacific, Arctic, and Atlantic Oceans. Many of these mountains are 10,000 feet high, always snow-capped. They have deep canyons, continual waterfalls and plunging streams.

The last day of wonderful scenery was in Jasper Park at the Maligne River Canyon, where during past ages the river has cut its way through rock to a depth of 180 feet, making deep pot holes and curves. It is still boiling along at the bottom of the canyon.

Taking a different route toward home, there was an opportunity to think over the mountain formations seen and to wonder about them. We realize that the whole Rocky Mountain area was once a great trough covered with sea, which gradually filled with sediments to a depth of 20,000 feet. Under the immense weight it sank causing a buckling and folding as the crust shrank. The Canadian Rockies are perfect for the study of mountain formation, and for enjoyment of beautiful scenery.

The postman just delivered a copy of the Society's Bulletin. "Good - I'll read it after dinner," or "I'll read it later when I have a little more time." "This issue looks pretty good, it seems to be improving," or "I don't think this issue is up to par". Thus the comments go. A few reach the ears of the editorial staff, but for the most part the comments are kept to the reader himself. As a matter of fact, you the reader, rarely hear the comments of the Editors or know what the task of publishing a Bulletin really involves. So lets step behind the scenes for a few minutes and get acquainted with some of the duties of the Editorial staff in publishing a mimeographed Society Bulletin.

To begin with, the Bulletin is in existence as a result of someone's dream and desire to convey to a larger number of people the purpose and accomplishments of a Society.

The type of publication and the text of the material used are determined largely by the Society's needs.

Since the cover of a Bulletin is the first thing that we see it is important to have a suitable and appropriate design. It is well to remember at this point that many hours of planning and drawing precede the accepted cover layout. Once the cover design is established, a Society may choose to have its covers printed. However, many Societies (like our own) draw and cut a new stencil and mimeograph the covers for each issue.

The inside cover, or in other words, the first page of the Bulletin usually lists the names of officers and directors and states the meeting time and place as well as the purpose of the Society. As this page rarely changes from one election to the next, enough copies can be mimeographed for several issues at one time. This page is followed by an Editorial page in the lineup of contents.

Feature articles are perhaps the most important part of any Bulletin and are therefore chosen very carefully and with a great deal of thought. Articles are very often reprinted from books, magazines, or from other Bulletin publications. Whatever the source of the material, it nearly always needs editing in order to fit the allotted space in the Bulletin, or to emphasize the facts most interesting to the Society's members. And it must always be checked for spelling and punctuation. In the final analysis it is the Editor, not the author, who gets the blame for any mistakes.

Maps and drawings are used frequently and successfully. They not only help to illustrate an article, they also lend variety and improve the general appearance of the Bulletin. The process of reproducing maps and drawings is detailed and exacting. First a drawing is traced on tracing paper, then it is placed on an illuminated drawing board (mimoscope) underneath a mimeograph stencil sheet. After being very careful to arrange the traced drawing within the limitation lines of the stencil sheet, it is outlined with a pen-like tool known as a stylus. Since the stylus cuts an impression on the waxed surface of the stencil it is important to use with care, for too many corrections spoil the stencil.

Not to be minimized in importance is the attractiveness of the Bulletin contents. When we find something that's appealing to the eye as well as to the mind our enjoyment and appreciation is enhanced two fold. This is achieved by outlining the pages, framing maps and drawings, and arranging articles so as not to appear crowded or cramped.

When all the material has been gathered, the selections made, drafts edited, the mimeograph stencils "cut" (that is, typed or drawn) and proof read, the job of mimeographing the required number of copies of each page still remains before the Bulletin is ready to be assembled, stapled, stamped and addressed. Everyone is pressed into service and the situation goes from organized chaos into a state of systematized bedlam. This final process in itself keeps the staff busy for more hours than most of us realize. When at last the Bulletin has been completed and delivered into the hands of the postal department, it is the sincere and humble wish of the Editors, that you, the readers, will derive some degree of pleasure from their handiwork. For therein lies their greatest compensation.

DIRECTORY ADDITIONS

Agrell, Dr. & Mrs. Carl J.	383 Pelham Blvd.	St. Paul 4
Anderson, Marison S.	3251 Ulyssess St. N.E.	Mpls. 13
Bray, Mr. & Mrs. Edmund C.	1906 Ashland Ave.	St. Paul MI9827
Ciecmierowski, Theresa	437 2nd St. N.E.	Mpls.
Dostal, Jerry	5113 Arden Ave.	St. Paul
Fitch, Mrs. Emma M.	503 7th St. S.E.	Mpls.
Gossler, Ethelyn	2937 41st Ave. So.	Mpls. 5
Gossler, Mr. & Mrs. Vernon	4043 York Ave. So.	Mpls. 10, WH6164
Guernsey, Faith	3232 4th Ave. So.	Mpls. 8
Hinman, Mrs. R. D.	2719 Park Ave.	Mpls. PL4763
Hunt, William	219 So. Lexington	St. Paul 5
Johnston, Mr. & Mrs. Stuart	1253 Portland Ave.	St. Paul 5 DA0543
Kleinschmidt, Dean	726 Carney Ave.	Mankato Minn.
Kissel, Mr. & Mrs. Michael		Mpls.
Larson, Keith D.	726 1st Ave. So.	So. St. Paul
Leise, Mrs. Ruth	2163 Stanford	St. Paul 5
Little, Dr. & Mrs. Roy		Mayville N.D.
Nordberg, Mabel		Duluth Minn.
O'Leary, Mr. & Mrs. Ken	1793 W. Minnehaha	St. Paul 4 MI5047
Skaken, Mrs. Marion S.	500 Ridgewood Ave.	Mpls. 4
Spriesterback, Irene	1421 Midway Parkway	St. Paul
Weaver, Madeline	1408 Fairmont	St. Paul

GEOLOGICAL SOCIETY OF MINNESOTA  
J. Orval Engen, Treasurer  
1828 Chicago Ave.,  
Minneapolis 4, Minn.

APPLICATION FOR MEMBERSHIP

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BUSINESS : .....

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