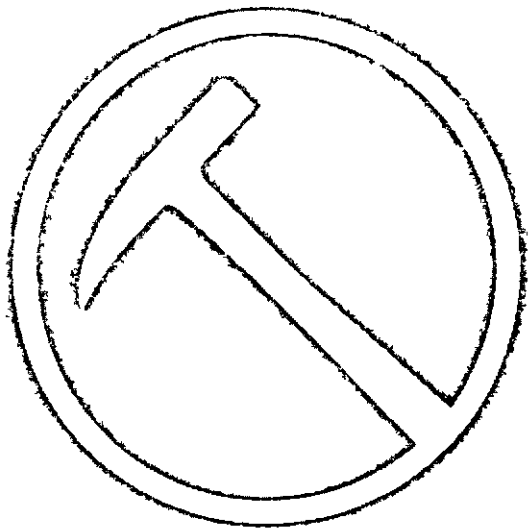

THE GEOLOGICAL NEWS LETTER

Official Publication of the Geological Society of the Oregon Country

2020 S. E. SALMON STREET, PORTLAND, OREGON 97214

State of Oregon
Dept. of Geology & Mineral Indust.
1069 State Office Bldg.
City 97201

GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

1966 ADMINISTRATION

EXECUTIVE COMMITTEE

president	WILCOX, Mr. Lloyd A.	16650 S. W. Lake Forest Blvd.	Lake Grove, Oregon - 97034	636-6594
vice president	FREER, Mr. William M.	131 S. E. 24th Avenue	Portland, Oregon - 97214	234-5997
secretary	WAISTE, Mrs. Robert	133 S. E. 27th Avenue	Portland, Oregon - 97214	235-4320
treasurer	GRIFFITHS, Mrs. A. Jean	7706 N. Emerald Avenue	Portland, Oregon - 97217	289-8509
directors				
1 year	STEERE, Miss Margaret L.	6929 S. W. 34th Avenue	Portland, Oregon - 97219	246-1670
2 years	MURPHY, Mr. C. Truman L.	2027 N. E. Wasco Street	Portland, Oregon - 97232	282-2027
3 years	WALTERS, Mr. George W.	1345 N. E. 59th Avenue	Portland, Oregon - 97213	282-4272
past presidents				
1 year	EWEN, Mr. Irving G.	4128 N. E. 76th Avenue	Portland, Oregon - 97218	281-7098
2 years	MILLER, Mr. Fred E.	3122 S. E. 73rd Avenue	Portland, Oregon - 97206	771-6154

GEOLOGICAL NEWS LETTER STAFF

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business mgr.	WILBUR, Mr. Robert F.	2020 S. E. Salmon Street	Portland, Oregon - 97214	235-7284

ACTIVITIES CHAIRMEN

field trips	GAVIGAN, Mr. Lee T.	943 N. Bryant Street	Portland, Oregon - 97217	289-8041
lectures	BARR, Mr. Donald D.	12438 S. W. Orchard Hill Rd.	Lake Oswego, Oregon - 97034	246-2785
librarian	BARTHOLOMAY, Miss Clara L.	1620 N. E. 24th Avenue Apartment No. 306	Portland, Oregon - 97232	284-6986
library night	GILCHRIST, Dr. Francis G.	0644 S. W. Palatine Hill Rd.	Portland, Oregon - 97219	636-5942
luncheons	SIMON, Mr. Leo F.	7006 S. E. 21st Avenue	Portland, Oregon - 97202	236-0549

Volume 33, Number 1

G.S.O.C. CALENDAR FOR JANUARY 1967

Every Thursday

LUNCHEON - Y. M. C. A., 831 S. W. 6th Avenue, Portland, Oregon

12:00 M. - Once each week, during the lunching hour, GSOC'ers, guests, and visitors meet informally in the Mountain Room to partake of food and beverage. Concurrently, an opportunity is provided to hear occasional short talks on geology (and sometimes unrelated subjects), examine the lates in publications, or see selective samples of geologic specimens.

Food items to suit a variety of tastes and budgets are available in the main cafeteria. Additional information may be obtained from the Luncheons Chairman, Mr. Leo F. Simon (telephone 346-0549).

13 January Friday

LECTURE - Central Library, 801 S. W. 10th Avenue, Portland, Oregon

7:30 P.M. - Dr. Gordon B. Leitch, Physician and Surgeon, will present an illustrated talk about the Canadian Shield. Dr. Leitch's talk will be a "continuation" of the presentation made to the Society on 8 October 1965.

17 January Tuesday

LIBRARY NIGHT - Lewis & Clark College in southwest Portland, Oregon

The group meets on the upper floor of Peeble's Hall (biology building) where the GSOC Library is housed. Details on the Library and Library Night Activity are outlined in the September 1966 issue of the News Letter (pages 77 & 78 of Vol. 32).

7:30 P.M. - The evening commences with a "quiet hour" which is reserved for browsing and reading. During this time selected books may be checked out from the Librarian, Miss Clara Bartholomay, for more detailed study at home.

8:30 P.M. - The remainder of the evening will be spent in a workshop similar to those conducted by Dr. Gilchrist during the Fall "quarter". The topic will be igneous rocks, a continuation of the 15 November 1966 workshop. Emphasis will be given to the minerals of igneous rocks as seen under the microscope.

Refreshments following the workshop. Additional information may be obtained from the Librarian, Miss Bartholomay (telephone 284-6986) or the Library Night Chairman, Dr. Francis Gilchrist (telephone 636-5942).

19 January Thursday

FIELD TRIP - Tour of C-Z Paper Mill & Lab, Camas, Washington

This will be an evening tour through the laboratory and manufacturing operations of the most diversified paper mill in the country. The plant is located in the town of Camas on the "north bank" of the Columbia River (across from Troutdale on the Oregon side) and is easily reached by driving east on U. S. Highway 830 from Vancouver, Washington. The route is well posted from the Interstate Bridge to Camas.

Upon reaching Camas, watch for an Eagle Service Station while following U. S. 830 eastbound. Turn left and proceed to the Laboratory.

6:45 P.M. - Assembly point will be at the Laboratory.

7:30 P.M. - Group will depart from the Laboratory for guided tour of main processing and manufacturing plant. This is a unique opportunity to observe the numerous steps from raw material through processing to the varied finished products. (More information and/or directions may be obtained from Field Trips Chmn., Mr. Lee T. Gavigan, 289-8041).

27 January Friday

LECTURE - Central Library, 801 S. W. 10th Avenue, Portland, Oregon

7:30 P.M. - Dr. Fred Ayres, Professor of Chemistry at Reed College, will present a talk entitled "High Land of Peru". Dr. Ayres' presentation will be illustrated with slides. Dr. Ayres travelled extensively in the high country.

ADVANCE CALENDAR FOR FEBRUARY 1967

Every Thursday — LUNCHEON - As usual. See current calendar for details.

10 February Friday — ANNUAL MEETING AND LECTURE

Following the reports and announcement of election results, an "Electrical Safety Demonstration" will be presented by Mr. Claude C. Haggard, Safety Specialist with Pacific Power and Light Company. For details see special item in January '67 News Letter.

24 February Friday — ANNUAL BANQUET

Two changes are noteworthy regarding the 32nd Annual Banquet.

1. Date - This annual event will be held one meeting date earlier earlier this year. It will be the fourth Friday in February instead of the second Friday in March.

2. Place - The festivities will take place in the Mayflower Dairy Company Auditorium instead of the Ballroom at Portland State College Center.

For details see special item in January 1967 News Letter, or contact Mrs. John H. Bonebrake, Annual Banquet Chairman (telephone 289-8597).

21 February Tuesday — LIBRARY NIGHT - Details to be announced.

FIELD TRIP - Details to be announced.

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RUDOLPH ERICKSON

1891 to 1966

It is now twenty years since Rudolph and Jane Erickson joined the Geological Society of the Oregon Country. With characteristic avidity they plunged right into its life and activities. Rudolph took leadership in the planning of field trips, and soon was made chairman of research interests and a member of the Board of Directors. He took an active interest in the library of the Society. Jane wrote numerous articles for the Newsletter, and in 1953 she was editor. In 1962 the Board of Directors made the Ericksons life members.

Rudolph was born April 22, 1891 in Oswego, not far from where he lived throughout his life He was a sergeant in the First World War. Soon after the war he married Louise Twining, sister of General Twining. Two children were born. Then in 1925 the first Mrs. Erickson died. In 1939 Rudolph married Mrs. Jane Bartholemew, who thus became mother of his as well as her own children.

Mr. Erickson was a certified public accountant, the senior partner in the firm of Erickson, Eiseman, and Company. He was a life member and past president of the Oregon Society of Certified Public Accountants.

From his boyhood Rudolph had an intense interest in nature and an inquiring mind. He hunted the Oswego woods and fished the streams. In 1947, when he became interested in geology, he at once began a study not only of books--he was an avid reader--but also of geology in the field. He was especially observant of the evidence that the Willamette River once flowed east of its present course, and that the great Missoula Flood once plowed across the Lake Oswego channel. He knew the fossil localities of the Portland area as few others have known them. The taking of colored slides of natural scenery became an abiding interest.

cont'd P. 6

RIGOROUS URSUS MORTIS

George A. Deefeldorfer*

Thirty years ago this Fall I was working in the wilds of southwestern Oregon, a region characterized by steep-sided canyons, flat-topped hills, serpentine, poison oak, an abundance of rainfall and a wide variety of game. All of these factors played their part in determining our daily activities. The steep slopes restricted road building to the barest of essentials--a narrow, crooked, often muddy track over which passage was always an adventure. The flat-topped hills, representing an old peneplain surface, were approximately 3000 feet above sea level. Where the road crossed them, the going was usually better than elsewhere, but during the winter months it was here that the snow lay deepest. The serpentine areas were of particular interest because in them the chances for finding ore were good. Vegetation grows sparsely on this type of rock and if for no other reason these areas received more than their share of attention. Nobody in his right mind would choose a non-serpentine area in preference to one having the grey-green, slippery rock. On the serpentine not even poison oak would grow, or if a few stunted plants did manage to survive they were of no consequence and could be avoided easily. In the other areas, however, poison oak outdid itself in trying to achieve new records. Bushes 15 feet high of the shiny, three-leaved abomination were common in shaded areas, but there were many types available for all environments and much diligence was required if one was to successfully avoid them. The rains fell mainly everywhere in our country. It could rain at any time and for any length of time. Once, lacking proper shelter--after the wind had utterly destroyed our tent--we had to camp under an oilcloth-covered table for a solid week waiting for the creek to go down. We were only 14 miles airline from an inexhaustable source of supply for rainwater so there never was much hope that the country would ever dry out. It was just this condition which frustrated the only known attempt of a foreign power to fire-bomb us from an airplane during World War II. The bomb landed a few miles from camp early one misty morning and for weeks afterward we had military personnel using us for a base camp while they searched for the plane which had not been observed to fly back over the coastline and out to sea. Years later it was learned that the pilot not only rendevouzed with his sub but even managed to visit Brookings and tell the natives all about it. Anyway while they were in the area the soldiers allowed us to test drive the brand-new Jeep, which we instantly realized would make a very fine field car, and to test-fire the equally new automatic Garand Ml rifle. We were probably the first civilians in the country to do either of these things.

It was the tremendous quantity and variety of game, however, that made our life under rather primitive conditions at least bearable. The creeks and rivers ran well-stocked with trout and salmon. Quail, pheasant and dove hunting was simple and rewarding. Big game hunting was just plain excellent with deer and bear in abundance. Bear were so plentiful that the county had declared an open season on them. It was directly because of this that my story is written. Our camp cook-guide-roustabout and part-time prospector conceived the noble idea that a little bear meat might make a welcome addition to our daily meals. Also there was the fringe benefit of a bear rug. Preparations, goaded along by reports that bear cub steaks had no real equal, and that bear tallow was eagerly sought after by the best cooks for making pastry, plus of course the heavy bear rug, proceeded briskly. The cook obtained a bear trap, one of the miners caught a huge salmon, three other crew members cut a 20 foot oak pole three inches in diameter at the small end and a dozen smaller rails. After work one brisk October evening the trapping party hiked through an oak flat, found an area near a stream bank and decided that this was the place. The salmon was suspended 8 feet from the ground from the limb of a tree. Directly below it the trap, its toothed jaws spread wide, was placed in plain view. The chain on the trap was firmly attached to the oak pole at its center to form a poke. Around the site the rails were erected to form a rude barricade designed to warn away any two-footed mammals but to offer no real resistance to our quarry. A crude sign was also placed on the fence indicating that a trap lay within. One joker in the party attached a small band-aid--just in case.

* not to be confused with George O. or George U. Deefeldorfer, who are different people.

Rigorous Ursus Mortis - cont'd.

Two days later, after much inspection of the trap and even more dreaming of the benefits in store, we were awakened at dawn by the cook who excitedly informed us that the bear had come--and gone, with the trap. After a hurried breakfast we all set out in pursuit. A mangled trail through vine maples eventually led us to our bear who had pulled trap and pole along with him until he had wedged the sturdy oak pole firmly between two peridotite boulders in the creek. A rifle shot dispatched Mr. Bruin and then the hard work began. Getting the trap off should have been simple, but just for kicks sometime, when Scrabble palls, try doing this in the middle of a rushing stream paved with rounded, moss-slippery boulders. Anyway and at length the trap was pried off with the wooden clamps. Next came the task of hauling a very limp carcass up the gravel bank, through the vine maples and about a half mile to the road. By international standards our bear was no prize winner but he probably would have depressed the scale if we had had one to about 225 pounds. The cook dressed out the bear as quickly as possible since it was a work day and time was wasting. Our next problem was one of storage and transportation. The weather had turned cool and frost clung in the shady areas until almost noon. It was finally decided that the best thing to do with the eviscerated body, still wearing its fur coat, would be to stuff it in the trunk of a Chevrolet 4-door sedan, drive up to the diggings, park in a shady spot and do the skinning out after work. The Chevvy belonged to the mucker and was pinch-hitting for the company station wagon which had suffered grievously and was in town for repairs.

For those not old and for those not young but forgetful perhaps a word or two about the trunk of a 4-door 1933 Chevrolet might be in order. Cars built thirty years ago didn't put much stock in trunks. After all, the Depression was just pressing on and folks didn't have an awful lot to put in a trunk, so why build a big one? Anyway, this trunk was practically an afterthought, a mere and slight bow to convention and that was all. There at the back end of the Chevvy was a slight bump with a door, nearly vertical and hinged at the top edge. Into this tiny enclosure we placed our game. "Placed" indeed! We pushed, we stuffed, we repushed and we restuffed. If the body and limbs were in far enough to close the lid then the head or shoulder stuck out. By tucking the head back of the flange along one side and the feet and forepaws behind the opposing flange we finally made it--with only a modest amount of hair sticking out from the crack in the door.

After dinner we prepared to skin out Mr. Bear. One of the boys rigged up a block and tackle from a roadside tree near camp and the cook collected knives and pans for the butchering. During the day there had been much discussion about the ensuing benefits to be derived One faction felt that the bear was too big to be very tender. The mucker declared that the bear was too small to have much tallow, and one experienced hunter--he had hunted for moose, elk, caribou and musk ox but had actually only bagged a black angus heifer which he thought was a deer--opined that the bear had been bagged too early in the season and that the pelt wasn't prime yet and would probably shed badly. Despite all this, we were in high anticipatory spirits. The car was backed up under the block and tackle, the door was lifted up and there was our bear just as we had left him. Well almost, anyway. He was still neatly tucked in with his head back behind the metal wall at the right side and his extremities also firmly inserted into the space off to the left of the opening. What we had not counted on was good old rigor mortis, now firmly established. Try as we might we could not budge our bruin. The neck muscles were like iron and the legs and arms would yield only a fraction before snapping back. We tied a rope around the body and around the tree and then tried to extract him by driving off. No dice. The clutch slipped and smoked and the tree quivered but the bear budged not. The crew descended, phase by phase from the exhileration of the successful hunter, thru the momentary one of simple temporary frustration, on thru the hot, sweaty phase of over exertion to the final devastating realization that the body was irretrievably stuck in the Chevvy trunk.

The next morning dawned clear and cold. It was Saturday and the crew was due to head into town for the weekend. The bear of course was still in the trunk, the trunk had been closed--not to protect the body but to hide the offending object from sight. A good night's sleep had failed to produce any solution but the concensus of the group was that on the way

Rigorous Ursus Mortis - cont'd.

into town that somebody would think up something. This however did not occur. Once in town the group split up, leaving the mucker with the body still in the trunk. Late Sunday afternoon we all assembled at the prearranged spot and loaded our gear into the company station wagon, now completely recovered from its bout with the boulder in the center of the road. At the edge of town we passed a used car lot, and there, washed and polished stood the mucker's Chevvy with a For Sale sign up against its windshield. "But where's the bear"? we asked the mucker. "Sold it", was all he replied.

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UP HILL AND DOWN DALE

Some of our members, like myself, may have seen or heard the following quotation from time to time over the years and wondered just who wrote it and from which literary work it came:

- - -" - and some rin up hill and down dale, knapping the chucky stanes to pieces wi' hammers, like sae mony road-makers run daft -- they say it is to see how the warld was made! - "

With some good luck, perserverance, and help from one of the librarians at the Portland Public Library, I was able to run it down. And with those of you who may have wondered and sought in vain I would like to share my secret.

The quotation is from the novel "St. Ronan's Well" written by Sir Walter Scott circa 1832. You will find it on page 28 in the middle of a discourse by Meg Dods, the innkeeper, to Mr. Francis Tyrell, a guest, beginning in the eleventh line from the bottom of the page.

Those of you who know the history of the development of geology and the important part played by the Scotch will appreciate the obvious wonderment and perplexity of this simple tradeswoman with the actions of these pioneers of geology.

Paul W. Howell

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DO WE HAVE YOUR CORRECT ZIPCODE?

Starting with the month of January, we are required by the Postoffice Dept. to zipcode each piece of third class mail. If you find that your zipcode is not correct, please notify our Secretary, Mrs. Robert Waiste, immediately.

Mrs. Waiste's address is 133 S. E. 27th Avenue, Portland, Oregon, 97214.

Thank you.

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NEWS OF MEMBERS
by Rowena Hoven

ESTHER and DR. JOHN HAMMOND have been enjoying a trip to Palm Springs and other interesting places.

MR. and MRS. GUY DODSON are planning to leave in January for an extended visit with their son and his family in Hawaii.

BOB WILBUR spent Christmas with his daughter in San Diego. Who travels more than Bob?

BRUCE SCHMINKY has been nominated by the Oregon Section of the American Congress on Surveying and Mapping for one of three annual honorary memberships in the national organization. BRUCE retired this year as Chief Surveyor for the City of Portland after 44 years of employment with the city.

ORRIN STANLEY has been under the weather and we hope he has recovered by this time.

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RUDOLPH ERICKSON -

For six years Rudolph Erickson was a member of the Board of Trustees of the Oregon Museum of Science and Industry, and for a time was its treasurer.

Rudolph was taken from us the morning after Christmas, 1966. He had been an invalid for a considerable time, but right up until the end he retained an active interest in his friends and in the things of nature. We of the Geological Society will miss his enthusiasm and leadership. In the words of his wife, the Geological Society was "his great love". His contributions will live on in the life of the Society.

F. Gilchrist

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MEMBERSHIP ROSTER

name	street address	city, state, and ZIP code number	telephone
NEW MEMBERS			
JEFFCOTT Dr. and Mrs. George	6328 S. W. Brugger St.	Portland, Oregon - 97219	244-2839
RAWLS Mrs. Ruth P.	Route 3, Box 296	Sherwood, Oregon - 97140	625-7192
ADDRESS CHANGES			
JANSEN Mrs. Albert (Roberta Jensen)	Apt. 10 829 S. 2nd	Walla Walla, Washington - 99362	

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Volume 33, Number 1

NOTICE OF ANNUAL MEETING

Pursuant to the provisions of the By-laws of the Society, the Annual Meeting of the Geological Society of the Oregon Country will be held at the Central Library, 801 S. W. 10th Ave., Portland, Oregon, on the evening of Friday, February 10, 1967.

At this meeting, results of the election of officers for the ensuing year will be announced. Reports of committees will be read and any other business applicable to the proper functioning of the Society will be conducted.

Your attendance is earnestly solicited.

L. A. W.

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ANNUAL MEETING TO HAVE DEMONSTRATION

At the conclusion of the brief business meeting Mr. Claude C. Haggard will present an "Electrical Safety Demonstration". Mr. Haggard is Safety Specialist with Pacific Power and Light Company.

The presentation is an important part of Pacific Power and Light Company's broad-scaled program designed to stimulate public awareness of common-sense safety practices that should be followed in the use of electricity in the home, business, industry, and on the farm.

Some 600 pounds of electronic equipment and props are used in the demonstration to dramatically point up basic rules and guidelines about electrical safety that should be applied in the every-day use of electricity.

Mr. Haggard has been in the electric utility business for over 40 years and is a specialist in the field of safety. He will include in his discussion and demonstration the effects of earth conductivity and air ionization. The results of these phenomenon are left for the geologists to contemplate, but the knowledge gained may save a life and the life you save may be your own.

F. E. M.

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DUES DUE

Membership dues in the GSOC for the year March 1, 1966 - February 28, 1967 are now payable and are being received by the Treasurer, Mrs. A. Jean Griffiths. Make checks payable to GEOLOGICAL SOCIETY OF THE OREGON COUNTRY and mail to

Mrs. A. Jean Griffiths, Treasurer
Geological Society of the Oregon Country
7706 N. Emerald Avenue
Portland, Oregon 97217.

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32ND ANNUAL BANQUET

The Thirty-second Annual Banquet of the Society has been scheduled for the evening of Friday, February 24, and will be held in the auditorium of the Mayflower Dairy Company at Southeast Sixth Avenue and Woodward Streets.

Mrs. Phyllis Bonebrake has accepted the position of Banquet Chairwoman and plans are progressing for presenting a most interesting and enjoyable program. Some details remain to be worked out. They will be resolved and a complete pre-Banquet report will appear in the February issue of the Newsletter.

At this time, however, I feel that it is appropriate to make this important announcement:

As the result of a wish expressed by members, the Executive Committe has unanimously approved a resolution that our Charter Members be honored by a show of appreciation for their years of service and devotion to the needs of our Society. To this end they have been invited to attend the Banquet as our Special Guests.

To help make this a Gala Occasion, I make the request that you not only plan to reserve this evening for the Banquet but that you get your request for tickets in to our ticket chairman as early as possible to be assured of your place at a table.

Remember the date, February 24. Remember the place, the auditorium of the Mayflower Dairy Company. Our ticket chairman is once again Mr. Leo Simon. His address is 7006 S. E. 21st Avenue, Portland, Oregon, 97202. His telephone number is 236-0549. The price of the tickets is $3.00.

I hope to see you there.

Lloyd A. Wilcox, President

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NOMINATING COMMITTEE ANNOUNCES SLATE

The Nominating Committee, consisting of Mr. Ralph S. Mason, Chairman, Mr. Leonard Delano, Mr. Paul E. Dunn, Mrs. Albert J. Keen, and Mrs. Laurette Kenney, after many interviews and declinations of nomination, presents the following slate of nominees for the elective offices of the Society for the coming year:

President	Mr. Ralph S. Mason
Vice President	Mr. Donald D. Barr
Secretary	Mrs. Robert Waiste
Treasurer	Mr. George R. Dahlin
Director (3-year term)	Mr. Mark Perrault

Editor of the Official Publication

Editor	Mrs. Clair F. Stahl

All candidates have agreed to serve the Society in the capacities listed if elected.

Other nominations may be made by members of the Society by filing with the Secretary, on or before the 25th day of January, 1967, a list of such nominations, which shall be signed by at least ten members of the Society.

Mrs. Robert F. Waiste, Secretary

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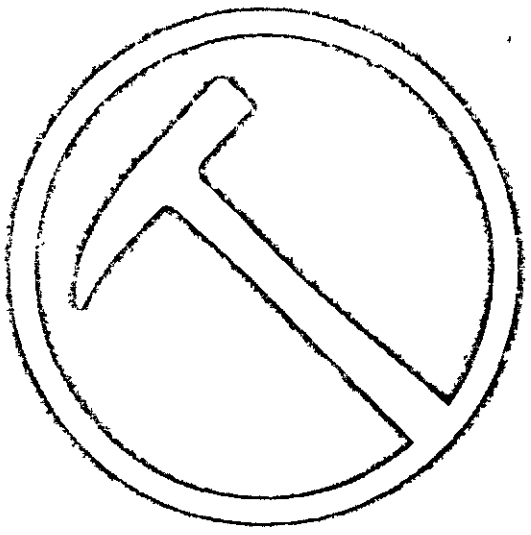

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3 years	WALTERS, Mr. George W.	1345 N. E. 59th Avenue	Portland, Oregon - 97213	282-4272
past presidents				
1 year	EWEN, Mr. Irving G.	4128 N. E. 76th Avenue	Portland, Oregon - 97218	281-7098
2 years	MILLER, Mr. Fred E.	3122 S. E. 73rd Avenue	Portland, Oregon - 97206	771-6154

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business mgr.	WILBUR, Mr. Robert F.	2020 S. E. Salmon Street	Portland, Oregon - 97214	235-7284

ACTIVITIES CHAIRMEN

field trips	GAVIGAN, Mr. Lee T.	943 N. Bryant Street	Portland, Oregon - 97217	289-8041
lectures	BARR, Mr. Donald D.	12438 S. W. Orchard Hill Rd.	Lake Oswego, Oregon - 97034	246-2785
librarian	BARTHOLOMAY, Miss Clara L.	1620 N. E. 24th Avenue Apartment No. 306	Portland, Oregon - 97232	284-6986
library night	GILCHRIST, Dr. Francis G.	0644 S. W. Palatine Hill Rd.	Portland, Oregon - 97219	636-5942
luncheons	SIMON, Mr. Leo F.	7006 S. E. 21st Avenue	Portland, Oregon - 97202	236-0549

Vol. 33, No. 2

G. S. O. C. CALENDAR FOR FEBRUARY 1967

Every Thursday

LUNCHEON - Y. M. C. A., 831 S. W. 6th Avenue, Portland, Oregon

12:00 M. - Join the GSOC lunch bunch in the Mountain Room (adjacent to the main cafeteria) to hear short talks, peruse publications, or examine specimens of geologic interest. These informal sessions are presided over by Mr. Leo F. Simon, Luncheons Chairman.

A variety of food items to suit many tastes and budgets is available in the main cafeteria. So, purchase a tray full or a trifle and join the group. More information may be obtained from Mr. Simon (telephone 236-0549).

10 February Friday

ANNUAL MEETING & LECTURE, Central Library, 801 S.W. 10th Avenue

7:30 P.M. - A short business meeting will be held during which time results of the election will be announced and some reports will be read. Most reports will be available in printed form to the membership.

Following the reports and election results, an "Electrical Safety Demonstration" will be presented by Mr. Claude C. Haggard, Safety Specialist with Pacific Power and Light Company. For details see special item in January 1967 News Letter (page 7, "Annual Meeting to Have Demonstration").

11 February Saturday

FIELD TRIP - "Night-Light" tour of Portland via private car caravan.

7:00 P.M. - Assembly point will be at Council Crest Park in southwest Portland. From this superb vantage point, the many lights of homes, streets, and highways combine to outline the varied land forms, old stream courses, volcanic plugs, etc. Itinerary will include Skyline Boulevard in northwest Portland, and McLaughlin Heights in Vancouver, Washington.

For more information or directions contact Mr. W. Mark Perrault, Field Trip Leader (telephone 292-4841 or 292-1803).

21 February Tuesday

LIBRARY NIGHT - Lewis & Clark College in Southwest Portland, Oregon

7:30 P.M. - An hour is reserved for browsing and reading in the GSOC Library which is housed on the upper floor or Peeble's Hall (the biology building). Miss Clara Bartholomay is our dedicated Librarian.

8:30 P.M. - Dr. Francis G. Gilchrist will continue the series of workshops. Topic for the evening will be the National Parks and Monuments of southern Utah and northern Arizona. Participants are invited to bring slides & "specimens" of geological interest and beauty of Bryce, Zion, Grand Canyon, Arches, Monument Valley, Petrified Forest, Oak Creek, or others and share their knowledge and experience. Refreshments following workshop. (For more info contact Miss Bartholomay 284-6986 or Lib. Night Chmn., Dr. Francis Gilchrist - 636-5942.)

24 February Friday

ANNUAL BANQUET - Mayflower Dairy Farms Auditorium
2720 SE 6th Avenue (north of Powell Boulevard)

5:00 P.M. - Exhibits open to public for viewing. Those desiring exhibit space should contact Exhibits Chmn. Mr. Robert Wilbur, 235-7284. Details outlined in special item ("Annual Banquet Exhibits") in February 1967 issue of News Letter.

6 30 P.M. - Thirty Second Annual Banquet commences. Dr. Paul Howell will be Master of Ceremonies. Mr. H. J. Buddenhagen will be guest speaker. Details in item, "Last Call" in current Newletter or P. 8 of Jan. issue. Reservations $3 per person through Leo F Simon, 236-0549.

NEWS OF MEMBERS
by Rowena Hoven

MR. and MRS. GUY DODSON were honored with a reception at the First Presbyterian Church on January 15 in observance of their golden wedding anniversary. MRS. DODSON became the third generation in her family to celebrate a fiftieth anniversary as her parents and her grandparents also observed their golden wedding anniversaries. Congratulations and best wishes to the Dodsons.

LEE JENKINS recently had a display in the office of the Department of Geology and Mineral Industries showing fossil leaves he collected from the Dick Ranch near Post. LEONARD WILKINSON has donated to the Department some fossil leaves which he collected from the same area.

LEE GAVIGAN has been confined to his home by order of the doctor and accordingly has not taken any field trips farther away than his own backyard. He plans to return to work the middle of the month.

GODFREY MUELLER is now at the Wood Village nursing home near Troutdale. He would enjoy having visitors.

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At midnight in the museum halls,
the fossils gathered for a ball.

There were no drums or saxophones
but just the clatter of their bones,

a roaring, rattling, carefree circus
of mammoth polkas and mazurkas.

Pterodactyls and brontosauruses
sang ghostly prehistoric choruses.

Amid the mastodonic rustle
I caught the eye of one small fossil.

"Cheer up, sad world," it said and winked,
"It's rather fun to be extinct."

--- Ogden Nash

The choice verse reprinted above was brought to our attention by W. W. Morrison.

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MEMBERSHIP ROSTER

name	street address	city, state and zip code No.	Telephone
ADDRESS CHANGES			
MOLTZNER, Mrs. Emily	Oregon City Nursing Home 148 Hood Street	Oregon City, Oregon __	656-4037
SHRADER, Mrs. Lea	B B Route, Box 475	Cottage Grove, Oregon - 97424	

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Volume 33, Number 2

THE POWELL BUTTES TRIP

by Laurette W. Kenney*

Weekend excursion to the Crook County area of Oregon, 23 & 24 July 1966

It was a bright, sunny morning, this 23rd day of July, 1966. The City of Prineville was coming to life. Members of the Geological Society of the Oregon Country were congregating for a study of the Powell Butte, Bear Creek area under the leadership of Dr. Don Gorman, P rofessor of Geology at Bradley University of Peoria, Illinois, teaching for the summer at Portland State College. Many had experienced the pleasure of his leadership the year before on the organization's Warm Springs trip. A camper-bus, scarred by a bout with a mid-Western cyclone, drew up to the curb. Out jumped Dr. Gorman, followed by his wife, Jane, and their three children Michael, Carolyn and Laurie, and trailed by their family dog. Field Trip chairman, Lee Gavigan, from the steps of the Courthouse welcomed and introduced Dr. Gorman. Bert B. Peyree tape recorded the remarks of Dr. Gorman relative to the day's trip and geology to be seen and studied. (The following is an edited transcript).

"Generally the units we will be running into today will be those that we find in the tertiary period, running from Eocene to the Pliocene and there are some who suggest Pleistocene also. Now we are going to find that there are some great amounts of volcanic material of Clarno formation, Eocene in age that we are going to see. We will see Columbia River B asalt of Miocene age and then tomorrow, and perhaps sometime today, we will see some of the John Day between the Columbia River and the underlying Clarno. The base, as far as stratographic sequence is concerned, is the Clarno formation which was named back in 1902 and at that time was defined as consisting of two basic units. Nowwhen I say basic I do not mean basic in terms of composition of igneous rocks. There are two units. One is referred to as the lower Clarno and it consists primarily of a great deal of basaltic material which has been brecciated and altered to a very great extent. In the upper portion of this lower Clarno material we run into some sedimentary units and fossils have been found in this, fossil leaves etc. This is one portion of the Clarno and when originally defined it included a portion which was referred to as the upper Clarno. The upper Clarno consisted primarily of units which wer e rhyolitic and tuffaceous in character as opposed to the underlying basaltic-like material Now, this is the Clarno as defined originally. Since then others have suggested taking the upper Clarno away and placing it in with the overlying John Day. N ow let me mention something about the John Day which we won't see too much of today. The John Day, in the area we will be covering, is supposed to consist of three units, one, the lower unit, is generally reddish in color. It is supposed to be fairly thin around here, about 10 feet. The next unit is the middle unit of the John Day. It is supposed to be green in color. It is also about 10 feet. The upper most unit of the John Day is cream-colored. This is supposed to be about 100 feet maximum where we find it. Now most of you have seen the John Day. I haven't. I understand that it is much thicker as we go to the East and to the north of this area The tuffs weather very easily and are covered over very easily so they are not too well exposed in this area. Now, above the John Day, which is considered to be oligocene in age (some think that there are portions which are lower miocene in age) we have the Columbia River Basalt. This contrasts considerably with the older units that I have already mentioned. It is basalt. The lower beds of the Clarno are basalt also, but the lower beds of the Clarno are very much chopped up. They have been highly mineralized. They have deteriorated to a very, very great extent. The Columbia River Basalts are very pro- m inent, they are good, dark colored basalts. They are not weathered to the extent nor are they mineralized to the extent of the underlying Clarno. So we should be able to differentiate between these two basic types of units, the Clarno basalts and the Columbia River Basalts. Above the Columbia River there is a unit which we may see today, called the Harney for- m ation. It is Pliocene in age and is a very poorly developed rhyolite. It is light in color in

*An edited transcript of a tape recording taken by Bert B. Peyree of the briefing given by Dr. Don Gorman before the trip was undertaken.

Powell Buttes Trip - cont'd

comparison to the underlying Columbia River basalt. It was much more extensive in this area in the past but it has been eroded away to a very great extent and is covered over in many places. I don't believe that we saw it in reconnaissance. It may actually not be present here. The most prominent unit that we see and which makes up the rim as we go up the canyon is the next younger unit. This is called the Madras formation. Those of you on the Warm Spring trip last year remember seeing the Madras. As you drove over from the Madras area, you were riding essentially on top of this Madras formation. You see it all along here. It caps the bluffs to the west of us here and if you were out to the Ochoco reservoir you saw the Madras exposed along the bluffs there. This is the cap rock. The Madras has a basaltic-like, andesitic-like unit in it and that is this cap rock. It is different from the Columbia River basalt and from the underlying Clarno. The Madras basalt and andesite are quite vesicular in character. The Columbia River basalt is quite massive in character, and looks quite different from the underlying Clarno, which is rotten, you might say. It has not only experienced deformation (the Clarno) but emanations from volcanic material that was later coming in. So it has been altered to a very great extent. Now these are the units generally that we are going to see. As far as the topography here, let's relate it to the units which I have mentioned. Throughout this whole area, as you drove over from Madras, you were on something like a plateau, essentially the Madras formation capping some of the underlying units. As you dropped down into this lowland area you dropped down into material which is essentially composed of John Day. We can find John Day outcropping all along the flanks here where we have the cover removed, and this valley has been excavated essentially in John Day units. The valley we are in now is really an old lake bed, however, which was laid down on top of some of the John Day units. In later Pleistocene or Recent times near O'Neil, lavas poured out and dammed up the streams that were flowing in this direction so we had a fairly large lake in existence and that is what accounts for the flat topography we see here. We are in an older lake basin--but this (the topmost layers) may be a young lake basin and is not too extensively developed. It seems that some of these intercanyon flows did come up through part of the Crooked River. This may account partly for this damming effect. What are we going to see as we move south, upstream? We are actually going to follow the Madras formation which will be exposed at the crest and as we go a little further up we are going to find that the unit which occurs between the John Day and the Madras, the Columbia River basalt is going to start coming in. Apparently the Columbia River basalt either was eroded from this area or it was not laid down in some zones around here, but it is under the Madras formation and as we go to the south of here, along the Crooked River, we will start running into the Columbia River basalts and they will make up an appreciable portion of the canyon as we go through this area. At Prineville Lake area we are going to be essentially out of the Columbia River basalt. South, toward Bear Creek we will run into the Clarno units and will spend quite a little time looking at some units and looking at some of the fossils which have been preserved in the upper portion of some of the Clarno and also in some of the upper part of the lower Clarno there. When we get into that area you are going to notice something of a very, very different type of topography in existence. There it is very, very hilly because we have some of the oldest Clarno beds coming up, probably some of them erosional remnants of some of the topography that existed after Clarno times

Now what about the history of this area as far as geology is concerned? The Clarno developed on cretaceous beds and these have been highly metamorphosed. It seems that these cretaceous beds are an indication that we had mountains in existence here sometime in the past. These have been stripped down and we had an irregular surface development. Then we had the outpouring of the lower Clarno basaltic lavas and it seems that after these were poured out we had a long period of time in which erosion was taking place and we had deposition above these lower Clarno lavas of a great many sedimentary units. One we will find seems to be something of a boldery conglomeratic bed which marks the upper portion of this lower Clarno series. Then we have an erosional surface developed there and above this we have what we refer to as the Upper Clarno beds. These are rhyolitic flows and tuffs as far as the original definition of Clarno. Then there was a time in which we had deformation,

Powell Buttes Trip - cont'd

and faulting developed in this area, mineralization took place, and then the John Day beds were laid down, probably having been derived in part from some of the Clarno units that were still sticking up as pinnacles of bedrock, if you will, and supplying material to the surrounding little depressions that existed. No doubt, a great deal of the tuffaceous material we find was derived from some riolitic-like volcanos that existed possibly over in the area where the Cascades are now located. We may have had a great deal of this as ash-flow, tuffaceous material. After this had occurred apparently a slight period of time passed in which some erosion took place followed by the massive flows of the Columbia River lavas. The region then experienced very broad folding. This warped not only the underlying Clarno which had been deformed before but also the Columbia River lavas which had not been deformed. Why is the Columbia River formation not found right here? It might have been a high area later warped down. Maybe after the John Day was laid down the Columbia River could also have been laid down over it and then with additional warping before the Madras was poured out the Columbia River may have been eroded away. There are several possibilities here. As we go to the south of here we do find Columbia River basalt and it has a slight dip compared to the overlying Madras. It does seem to suggest that there has been something of a slight uplift here to deform the Columbia River.

If you will notice you will find just south of town some chopped up material. Actually it is a gravely-type material, probably some terraces which formerly were flood plains of streams which existed along here and since the warping gave rise to the topography we have today. Since that warping has occurred, new streams have cut down into those flood plain deposits leaving along the sides, terraces. Very often we can match them up with the terraces across the valley. You may see no John Day at all in the canyon because that is where the Columbia River basalts make up most of the walls of the canyon. We will see some very, very spectacular structures as far as columnar joints are concerned. We will now be underway."

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GLACIER NATIONAL PARK

One of the Society's Past Presidents and favorite speakers was featured on the November 25th program. Dr. Paul Howell talked on the formation of Glacier National Park and showed slides taken on a recent trip.

This beautifully scenic mountain area is believed to have been created by an overthrust of the earth's crust from the southeast, extending 40 to 45 miles toward the northwest, to a point beyond Jasper and Banff Parks in Canada. Twenty thousand feet of middle-to-late Proterozoic sediments were exposed by the overthrust. These sediments are chiefly in the form of limestone and gypsum. No disconformities are present in the area, but much alteration has taken place as a result of the various forces of erosion. Glaciation has played a big role in this action.

At the time the movement took place large quantities of molten material is believed to have been present under the crust. This may have contributed somewhat to the pressures which caused the movement and also made possible such a gigantic upheaval.

Those of us who have visited this wonderland of parks were thrilled again at the beauty of the scenes which Dr. Paul showed. And new points of interest were pointed out which we can look for on our next trip along the Going-to-the-Sun Highway.

Irma Sullivan

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METALLURGY FROM Z TO S

A backward look at some modern magic

by George R. Dahlin

Metallurgists can do the darndest things!

What is a metallurgist, anyway? Well, he's the fellow who can take the good out of an ore and leave the no good- or maybe he takes the no good out and leaves the good. He's the sort of a human separator. No, that really is not right either, because he doesn't really do this himself - he just knows how to do it. What he is is a sort of scientific magician who can take stuff us plebeians think isn't good for much, but when this metallurgist gets through with his fancy hocus pocus he's got something worth some real dough.

Us Gsocers saw what some of those metallurgists can do on December 10 down at Albany. Well, I don't really mean they can only this on December 10, because they claim they can do these things any time, any day. What I really mean is that us Gsocers went down to Albany on December 10 and saw them do what they do.

Really that is kind of stretching the facts a bit, too, because what we saw was some stuff these metallurgists claimed they had made, but we actually didn't see them make anything. They just told us they were making it. And when they told us they were making it out of sand, that was a little hard to believe.

I think they thought we came down to steal some of their magic, so they got us all mixed up right away, because what they showed us first, was really the last of what they had done, and the last thing we saw was the first. And to make things even more mixed up they gave us some drawings of things they claimed they were using to do all this magic with, and there wasn't a thing in the place that looked like those drawings!

The name of this place we got into was Wah Chang, and you would probably think that with a name like that they would be making noodles or chop suey, but it actually was a silvery metal they called zirconium, and they said they made it out of some very special sand they imported from Australia.

There really isn't any use for me to try to tell you how they turned this special sand into zirconium, because like I said we really didn't see it done. Some guy showed us some furnaces which he said were what I would call hotter 'n hell - although I really don't know anything about that place either. But, anyway, it was supposed to be hotter than 800 degrees centigrade inside these furnaces and that is pretty hot. Besides this there were vats and big glass columns all over the place, and he told us that in this one the stuff that used to be sand was passing through chlorine, and in another one it was being scrubbed with sulphuric acid, and every time this used-to-be-sand comes out something different. Nobody gets too inquisitive about what he is telling us, even though we don't see anything except the outside of these furnaces and glass tubes, and nobody insists on actually seeing what is going on, because who would want to stick his head into one of those furnaces or get too nosey with that chlorine? This whole business reminded me of the time a fellow started out to tell how music was made, and finally wound up by making a song out of it, which had some words in it like "The music goes round and round and comes out here." That's the general idea with this sand. You pour it in here and eventually it comes out there, only now it is no longer sand but has become this zirconium.

Like I said the last thing we saw was the first, and here these fellows had mixed the sand with graphite - so they said - and then set fire to to whole mess, and from then on the sand just ain't sand no more.

Well we had a lunch break then, and after that was over with we went over to a place that is called Ore-Met. This is another deal like Wah Chang, only what comes out here is titanium and not zirconium. What we learn here is that you can't make titanium out of the same kind of sand that Wah Chang uses for their zirconium, so they have to get a sand that is full of rutile instead of zircons.

Metallurgy from Z to S - cont'd.

This titanium is pretty fancy stuff with which they can make everything from paint to real hard metals. Ore-Met makes mostly the metal and castings, but the chances are that if you live in a white house, the paint used to be sand.

Having been ushered through and out of Ore-Met we finally wound up at the U. S. Bureau of Mines. These are the people who showed Wah Chang and Ore-Met how to do the fancy cookery with sand, and they just put in their time exploring and experimenting with all kinds of ores.

If you like minerals this is the place for you to come. They have got a million of them - just like Durante says about his jokes. We could have spent the day looking at them, but our host, Larry Brown, had other ideas. He showed us some of their laboratory equipment, including such trinkets such as an electronic microscope worth so many thousands that I don't dare to tell you how much.

After a short tour of the grounds we came to "Larry's lair", which he called the go-go building on account of it is topless. He explained that the Bureau started this building but all they got built was the basement and now they can't get any more money to complete it, so poor Larry, having been ousted from the administration building, languishes in this basement with his microscopes and other paraphenalia.

The first thing that Larry told us when we got down in this basement was to never buy a cheap microscope, because you can't see anything with it and this is very discouraging. This he should have told me some time ago and I would not now be out my dough I think the guy that sold me the optical marvel that I have is some sort of metallurgist himself, because he extracted $1.98 from me and left me with this no good scope. Well, anyway, all is not lost for come next Christmas somebody gets a microscope for a present, and since that somebody has no use for a scope it will not make any difference that it is no good.

This Larry is a very interesting fellow, and it is a good thing we stopped here last instead of first, otherwise we would never have gotten any farther. He had his scopes lined up and zeroed in for us to peek through, and what a zircon looks like under a scope certainly doesn't look like any relative of zirconium. He talked to us about all the other equipment he works with and explained his work, and one time it looked like he was even going to do a ventrilcquist act like that Sr. Wences on the Ed. Sullivan show. He picked up a small square box and we all expected to hear a voice say "allright" when he lifted the lid, but it turns out this box is just a cube to demonstrate how little gold is now mined in Oregon.

Well, all things must end, and we had used up most of the afternoon right up to six o'clock, so we finally gave Larry a break and called it a day.

Beach sand will never be the same to me no more. I used to enjoy taking off my shoes and stockings and padding along the sand in my nude feet, and my tired feet seemed to enjoy it, too. But now some wise guy has to come along, and he has taken all the joy out of it. He has discovered this sand is good for more than just soothing sore feet, and up comes such things as zirconium and titanium. So now when I pad along barefoot in the beach sand I have the uneasy feeling I am walking in wet paint, and am haunted by the thought that maybe I am treading on a million bucks and don't know it. It's kind of like a new disease. I guess you could call it metallurgic feet.

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DUES REMINDER

Membership dues in the GSOC for the year March 1, 1967 - February 28, 1968 are now payable and are being received by the Treasurer. Make checks payable to GEOLOGICAL SOCIETY OF THE OREGON COUNTRY and mail to Mrs. A. Jean Griffitsh, Treasurer, Geological Society of the Oregon Country, 7706 N. Emerald Ave., Portland, Ore., 97217. NOTE: Inadvertently an error was made in the "DUES DUE" item appearing on P. 7 of the January 1967 issue of the GSOC News Letter regarding date of the forthcoming fiscal year of the Society. -- Dues are receivable and being collected for the year between 1 March 1967 and February 28, 1968, not "March 1, 1966 - February 28, 1967" as shown.

Editor

PAPER MILL TOUR

Field trip through the diversified operation
of Crown Zellerbach Corp. at Camas, Washington
Thursday, 19 January 1967

The season's best gale-driven deluge not-withstanding, GSOCers, forty-six in number, assembled January 19th in Camas for an evening's inspection of Crown Zellerbach's paper-making facilities.

The tour commenced at the laboratory complex, one two-storied building housing primarily chemical workshops and a second structure containing experimental paper-making apparatus. Here, making common use of the equipment, three departments function: two, product quality control and research and development, both budgeted; and chemical sales, a profit-making effort.

The glassed hallway partitions revealed countless bottles of chemicals, with their attendant smells wafting through the open doorways, and a few of those glass vessel and tube contrivances associated with the more imaginative, "mad-scientist", TV cultural dramas. Some were bubbling in sinister fashion. The chemically minded undoubtedly found an extra bonus in viewing these small labs.

In the experimental, paper-making building we were given a brief, preliminary idea of how the water is extracted from the continuous sheet of pulp as it is transformed into paper. As we departed to reassemble at the main office, our guide could be seen patiently, but painfully, entertaining our Lloyd W's suggestion that a good brewmaster would make unnecessary much of the obviously expensive quality control methods being used.

From the main office, in small goups of six-to-eight, we moved out by car to the chip-making and storage area and to the pulp and paper mill. The chip piles were immense! How large you couldn't tell, for they disappeared up beyond the pole lights into the black night. Both trucks and rail cars were being unloaded, some of the latter having originated as far away as Montana.

The chip mill, here referred to as such because lumber appeared to be the byproduct, was a slam-bang place. The structure shook and vibrated under the movement of logs and cants. We are not apt to forget the overhead crane, which plucked the steel-banded bundles of logs out of the adjacent slough and hoisted them seventy feet to a conveyor deck. No dainty, one-at-a-time business here. From the deck the logs, singly, were moved into a hydraulic, debarking enclosure. Each log, turning, was subjected from above along its length to a jet of water which removed the bark, plus alittle frayed wood, in a most authoritative manner. The group observed this from behind glass alongside the operator. Many likely considered this the most spectacular process of the tour. Someone was overheard to say that this shower nozzle was exactly what was needed about the fourth day of a president's campout. The cut-off saws, the headrig, and the band saw looked run-of-the-mill, but the chippers seemed somethin' special. They're ten-foot wheels with heavy, linear knives inserted radially. Turning in a blur at the woodchuck chuckin' celery stalks in a drought year.

We next found ourselves in the paper mill. The key machine here seemed to be the Fourdrinier, into which the pulp flows to a desired depth upon a shaking screen, where, for the first time, the product takes on sheet form. This is in appearance only, however, because considerable moisture must be extracted before it sustains itself alone through the rollers.

The chips, of course, require a little treatment before reaching this stage. They are passed through digesters, washers, beaters, and fiber sizers (Jordans), all of which help to account for the maze of impressive pipes, valves, pumps, vats, tanks, etc.

The drying is achieved by suction, absorption, and exhaustion, the latter after raising the remaining moisture content to steam over heated rollers. The result is paper, in basic form and only half the story.

In adjoining rooms further finishing and the converting were taking place. Ingenious machines were cutting, crimping, folding, and wrapping many of the common household paper products. This area is a delight to those who enjoy following cams, eccentrics, levers, ratchets, wheels, conveyors, etc.

Paper Mill Tour - cont'd

"Twas here that we crossed the paths of several other of our groups. Everyone seemed highly interested and thoroughly enjoying the tour.

Crown Zellerbach welcomes visitors. Those who could not make the trip can easily arrange their own. We recommend it.

George A. Munro

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CANADIAN SHIELD

On January 13, the first meeting in the new 1967, Dr. Gordon B. Leitch, a Physician and Surgeon of Portland, completed his talk on the Canadian Shield which was begun in October of 1965. Time ran out on that evening, and since then he has returned to the area, bringing back pictures of scenes as they appear today. He showed some of the mining operations in progress, with their quickly-built houses forming the towns. The surface of the land is largely smoothly glaciated rock surface, with scrubby, sparse tree growth in areas where enough soil has collected to support it. Occasionally a deeper formation supports a small clump of spruce. The amount of time which has passed to allow this much soil to form on the bald face of the earth staggers the imagination.

To this viewer, the pictures of the McKenzie River were a complete surprise. In reading the tales and reports of the journeys of Alexander McKenzie, I had visions of a stream more in proportions of the Clackamas or Molalla. To see the broad expanse of water in the pictures proved once again that one picture is worth a thousand words.

Irma Sullivan

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JANUARY LIBRARY NIGHT

Following a recess of two months, a large group of GSOCers attended the library night meeting, January 17, at Lewis and Clark College where the GSOC library is housed in the biology building. During the first hour for reading and browsing a good many books were returned to the librarian, Miss Clara Bartholomay, to avoid the deadline and fines, set by the Executive Committee, which will now be imposed on overdue books.

At 8:30 Dr. Gilchrist, Library Night Chairman, welcomed the members and explained that this evening would conclude the study of igenous rocks. He invited the members to go down into the laboratory where Dr. Howell and others had set up a sequence of igneous rocks to be studied under the binocular microscopes. Dr. Howell Howell had arranged the igneous rock specimens on tables by the microscopes in groups, from coarse-grained to glassy, and from acid to basic. On the blackboard he had drawn a crystalization sequence and a chart of the igneous rocks. This was a fine finish to our lessons on igneous rocks, and we are deeply indebted to Dr. Howell and Dr. Gilchrist for their labor in preparing these lessons and for their patience with us. We also wish to express our sincere thanks to Dr. Stauffer and Lewis andClark College for their courtesy in allowing us to use their laboratory and disecting binoculars.

Following the meeting delicious refreshments were served by Mrs. Gilchrist during the social hour.

Jennie Walters

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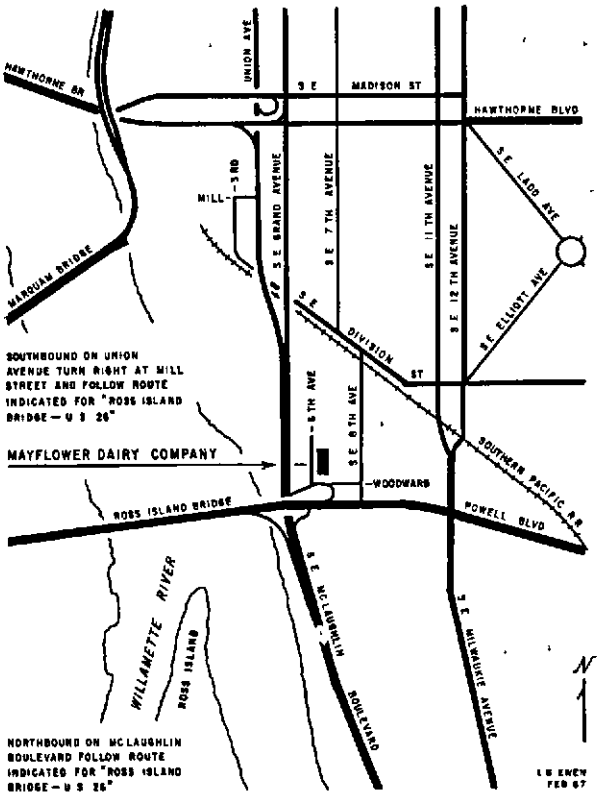

LAST CALL

This is the FINAL REMINDER -- the BANQUET is on FRIDAY, FEBRUARY 24, 1967, at the MAYFLOWER AUDITORIUM. (See the map to the left for directions on how to get there).

Time is running short! Remember--the banquet is set for an earlier date this year, due to scheduling at the Auditorium, so if you have not sent in your reservation - HURRY!

Mr. H J. Buddenhagen is the featured speaker. He was the fine gentleman who caused so many complimentary remarks following the President's Campout at Delintment Lake a couple of years ago. It is sure to be a lively evening with Dr. Paul Howell as Master of Ceremonies.

Send your $3.00 to LEO SIMON, 7006 S. E. 21st Ave., Portland 97202, and state your preference for meat or fish. All those who do not make a choice ahead of time will have to be served meat, which will be fine for some, but maybe not you.

HURRY!! HURRY!! HURRY!!

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ANNUAL BANQUET EXHIBITS

The past year's scheduled field trips have been "tops" for the collectors. In addition, free-lance trips of some have yielded "loot" from widespread areas; some from beyond the limits of our Oregon Country. Many interesting specimens have been reposing in the dark recesses of containers since the day they were dug; as if the millions of years or so they've been underground were not enough punishment. So let's bring them out in the open so others can see them! Even maps, photos, diagrams, and the like can supplement such material. Printed or typed cards descriptive of the individual exhibits add greatly to the interest in the subject.

A member of the Exhibits Committee will be on hand to receive and keep under observation any material delivered to the banquet hall after noon of the banquet date, February 24th. Arrangement of the exhibit will be by the owner, preferably before 5:00 p.m. Mayflower Dairy Co. has a large parking lot available to patrons directly across the street from entrance to their Auditorium, facing SE 6th Ave. at Woodward St. However, there is no elevator service.

The Committee Chairman would appreciate receiving data as to nature of your exhibit and approximate space required in order that the necessary arrangements can be made well in advance.

Bob Wilbur, Chmn.
Phone 235-7284

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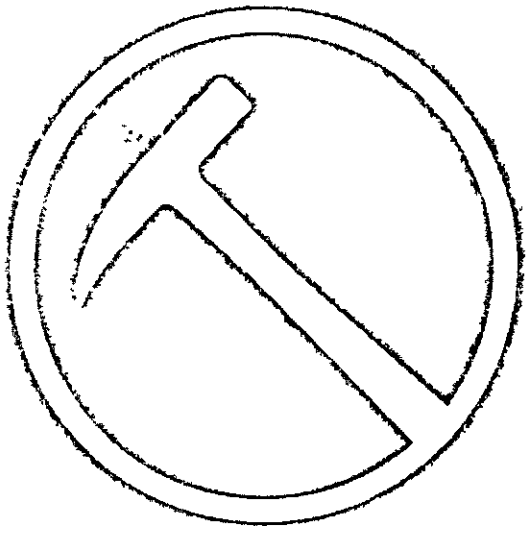

Official Publication of the Geological Society of the Oregon Country

THE GEOLOGICAL NEWS LETTER

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GEOLOGIC TIME CHART

ERA	PERIOD	EPOCH	DOMINANT LIFE: ANIMAL	DOMINANT LIFE: PLANT	TIME: DURATION IN MILLIONS OF YEARS — ERA	TIME: DURATION IN MILLIONS OF YEARS — PERIOD	TIME: DURATION IN MILLIONS OF YEARS — EPOCH	TIME: BEGINNING MILLIONS OF YEARS AGO *
CENOZOIC	QUATERNARY	RECENT	MAN		63.011	1011	0011	0.011
		PLEISTOCENE					1	1
	TERTIARY	PLIOCENE	MAMMALS, BONY FISH, BIRDS, SHELL FISH, ARTHROPODS	FLOWERING TREES AND SHRUBS		62	12	13
		MIOCENE					12	25
		OLIGOCENE					11	36
		EOCENE					22	58
		PALEOCENE**					5	63
MESOZOIC	CRETACEOUS		REPTILES	CONIFERS, CYCADS, GINKGOS, FERNS	167	72		135
	JURASSIC					46		181
	TRIASSIC					49		230
PALEOZOIC	PERMIAN		AMPHIBIANS, INSECTS	SCALE TREES, CORDAITES, TREE FERNS, CALAMITES	370	50		280
	PENNSYLVANIAN (CARBONIFEROUS)					40		320
	MISSISSIPPIAN (CARBONIFEROUS)					25		345
	DEVONIAN		SHARKS, LUNGFISH	PRIMITIVE SCALE TREES AND TREE FERNS, PSILOPHYTES		60		405
	SILURIAN**					20		425
	ORDOVICIAN**		CORALS, BRACHIOPODS, ECHINODERMS, TRILOBITES	FUNGI, ALGAE		75		500
	CAMBRIAN**					100		600
PRE-CAMBRIAN	GRENVILLE OROGENY**		BEGINNING OF PRIMITIVE PLANT AND ANIMAL LIFE		4000			1000
	OLDEST KNOWN ROCKS IN NORTH AMERICA**							3200
	OLDEST KNOWN ROCKS (MURMANSK AREA)**							3400
	PROBABLE AGE OF THE EARTH							4600

*ADAPTED FROM KULP, 1961

**ROCKS OF THIS AGE NOT KNOWN TO EXIST IN OREGON

STATE OF OREGON
DEPARTMENT OF GEOLOGY
AND MINERAL INDUSTRIES

I. A. EWEN
17 JAN 61

Volume 33, Number 3

GSOC CALENDAR FOR MARCH 1967

Every Thursday — LUNCHEON Y M C A, 831 S W 6th Avenue, Portland, Oregon

12:00 M — Once each week GSOC'ers, guests, and visitors gather in the Mountain Room to partake of the mid-day repast. Food and drink at moderate prices are available in the Main Cafeteria.

These informal sessions offer an opportunity to examine current (and sometimes very ancient) publications as well as geologic specimens. Occasionally, short "five-minute" talks are presented on geology and related topics. Additional information may be obtained from the Luncheons Chairman, Mr Leo F Simon (telephone 236-0549).

10 March Friday — LECTURE Central Library, 801 S W 10th Avenue, Portland, Oregon

7:30 P M — Dr Paul W Howell, geologist with the U S Army Corps of Engineers, will speak to the Society about the fossils and geology of the Paleocene and Eocene Epochs. Dr. Howell, a past president of GSOC, will illustrate his talk with slides, charts, and specimens.

19 March Sunday — FIELD TRIP Fossil hunting in the Keasey fm of the coast range.

10:30 A M — Assembly point will be at the Smithwick Quarry on Oregon State Highway 47 between the town of Vernonia and U S Highway 26 (the Sunset Highway). To reach the quarry from Portland, proceed west on U S 26 to its junction with OSH 47, then north. Mileage from the junction is 4.9 to top of hill, 5.9 to the railroad trestle (which is used by the VSP&SSRR), and 6.3 to the quarry entrance. Parking is available just beyond this point at mileage 6.4.

The observance of the usual safety precautions are important since this is an active mining operation. Being guests on private property also calls for additional care and caution to see that no vandalism occurs to structures or equipment. Additional information and/or directions may be obtained from the Field Trips Chairman, Mr Clair F Stahl (telephone 281-2220).

21 March Tuesday — LIBRARY NIGHT Lewis and Clark College in southwest Portland, Oregon

7:30 P M — The first hour of the evening is reserved for browsing and reading. During this time books may be checked out or returned through the Librarian, Miss Clara L Bartholomay. The GSOC Library is located on the upper floor of the biology building (Peeble's Hall).

8:30 P M — The second hour (or more if the occasion demands) will be devoted to the continuation of the workshop series conducted by Dr Francis G Gilchrist. The subject of this session will be the geology of the Coast Range with emphasis on the Keasey formation which the Society will visit on the Field Trip on Sunday, 19 March. Those attending are invited to bring representative fossil specimens.

The evening will conclude with refreshments. Additional information and/or directions may be obtained from the Librarian, Miss Bartholomay (telephone 284-6896) or the Library Night Chairman, Dr Gilchrist (telephone 636-5942).

24 March Friday — LECTURE Central Library, 801 S W 10th Avenue, Portland, Oregon

7:30 P M — Mr. Jasper L Holland, with the Soil Conservation Service of the U S Department of Agriculture, will speak about the life and geology of Tunisia. Mr Holland, who has recently returned from a visit to that country, will illustrate his talk with slides.

Additional information on Lectures may be obtained from the Programs Chairman, Mr Paul E Dunn (285-5008).

NEWS OF MEMBERS
by Rowena Hoven

Alert Gsocers who were watching KGW-TV (Channel 8) on February 22nd were delighted to hear a professional performance and to see a bit of publicity for the Society, both on the twelve o'clock News and also on the 6:30 p.m. Nightbeat. MURRAY MILLER played his choice collection of "marimba-type" rocks accompanied by the singing of PAUL HOWELL and TRUMAN MURPHY, who in turn accompanied themselves on their guitars. It was sensational, and MURRAY left the interviewer speechless when he offered to give her his "musical instrument".

The Seventh Annual Show of the Oregon Agate and Mineral Society was held at Omsi on February 11-19. Outstanding exhibits were displayed by GEORGE and JENNY WALTER, LEO and JOHANNA SIMON, AL and RUTH KEEN, and MR. and MRS. CARL FINK.

EMILY MOLTZNER is confined to her bed at the present time and would appreciate visits from Society members. She has moved to the Oregon City Nursing Home, 148 Hood Street, and her telephone number is 656-4035.

The sympathy of the Society is extended to MR. and MRS. JOHN BONEBRAKE on the loss of their daughter, Mrs. Duane (Jean) Gatherer of Bend.

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SECRETARY S ANNUAL REPORT
February 10, 1967

ELECTION RESULTS

The Secretary has received 99 marked ballots. No other candidates were nominated in the manner provided for in the By-laws. The slate of nominees submitted by the Nominating Committee is elected, as follows:

President	Mr. Ralph S. Mason
Vice President	Mr. Donald D. Barr
Secretary	Mrs. Robert Waiste
Treasurer	Mr. George R. Dahlin
Director (3-year term)	Mr. Mark Perrault
Editor of the News Letter	Mrs. Clair F. Stahl

MEMBERSHIP DATA

	MEMBERSHIPS	MEMBERS
Regular adult memberships	239	378
Honorary and Charter Members	24	34
Junior members	6	7
	269	419

Total membership February 25, 1966	267	
New and reinstated members, adult	29	
junior	3	
	299	
Members lost:		
By resignation, adult	14	
junior	3	
By marriage	1	
By death	4	
Dropped, adult	7	
junior	1	
	-30	
Balance, February 10, 1967	269	

Respectfully submitted,
Dorothy R. Waiste, Secretary

Volume 33. Number 3

HIGH WATER OVER THE LOW BRIDGE

by George A. Deefeldorfer*

Prospecting is always an uncertain art. The undertainty is not limited to the search for ore. By far the greatest portion of the uncertainty of prospecting is showered upon the peripheral activities connected with but not directly connected to prospecting. Advertisements advise that "Getting There Is Half the Fun" are only half right when it comes to travelling to some areas that you wish to look for mineral deposits in. Southwestern Oregon a generation ago provided ample proof that travel in the back country was less than half fun and more than half hard work plus some added features not mentioned in even the most honest travel brochures.

It has been said that the automobile is responsible for America's roads. Without the car and its demands for smooth, relatively flat going, our roads today would resemble the cattle trails of yesterday. Smooth, relatively flat roads do exist in civilized areas of the United States, but what passes for a road in the uncivilized areas is something else again One gets used to poor roads after a time, sooner if you were born about the time that the first practical (Ford) car appeared, and then lived for another twenty-five years on a dirt mud-or-dusty The first exposure to uncivilized area roads often gives city-bred people a nasty jolt. After the initial wave of disbelief, they settle down to either a state of continuing shock as the trip progresses, or take the coward's way out and pretend that everything is normal. Some of the latter type may even feign sleep, while in reality they have tightly closed their eyes and are offering constant prayers to assist and protect the traveller.

I will never forget one stretch of uncivilized road in Southwestern Oregon It left the paved hiway in all innocence, gently wound through the mix of jack pines, madrona and live oak for a mile or two, began a gentle ascent up a long hill, bounded across several miles of dead-flat peneplane and then tossed all pretense to the winds It was at this point that my passenger, a mathematician from a large eastern city, who had been assigned to our geophysical crew, began to have some deep forebodings. The trip west had been wonderful. The roads were good, the scenery astounding and the thrill of being in The West overpowering. Now however, a faint but unmistakable premonition of upcoming disaster began to intrude itself upon my companion. A large, but placid and gentle man, his greatest excitement in life to date had been the time he had rescued the family cat from the rose trellis. Now, however a vista of unbelievable terror confronted him. Rounding a sharp bend in the narrow, muddy rutted road we came upon a sidehill section of the route. What a sidehill! Above the road there were stretches of vertical cliffs of rock which seemed to go up forever. Below the road the hill sloped steeply downward for 1500 feet across a green-gray expanse of polished serpentine with nary a bush or tree to hide its nakedness At the foot of the slope a twisty stream braided its way through a covey of tiny boulders measuring six to eight feet across The road, as all uncivilized roads have a habit of doing, when they come to the really bad parts, shrank down to the narrowest possible width Unusually hard rocks were left in place, the road merely wiggling around them with little regard to the caster camber and turning radius of the automobile. The roadbed too, seemed afraid of certain rocks and these remained as navigational hazards to be avoided by the luckless driver Two schools of thought were practiced by travellers in the rough country. One school struck, religiously to the center of the road no matter what lay in the path. The other practised a continuous and to the passenger, nervewracking artful dodging of these same obstacles. The first driver played it safe by sticking to the center but his path was often paved with minor disasters such as ruined tires, wheels and bumpers. The second type of driver was much easier on the equipment but occasionally would zig too far and either scrape against the bank or worse yet, get too far off on the outside He was easier on the tires, though Of the two choices " driver I tended toward the latter--the broken-field runner type In retrospect I believe that my eastern companion could hardly have picked a worse indoctrination to the uncivilized roads than the one he suffered through that day. I was in

* Irregular contributor.

HIGH WATER OVER THE LOW BRIDGE - cont'd.

one of my rare ebullient moods, gay, carefree, and as the day wore on just a bit daring. The latter mood probably springing from the growing realization that my mathematician was approaching a state of hysteria.

Our car on this particular trip was a V-8 Ford pickup. Ford V-8's had to be kept revved up to get any power out of them, aside from this they were darn good rigs. Our bill of lading included the usual supplies for the cookhouse, personal gear, and some mine supplies. The latter included drill steel, a sack of blacksmith's coal, a can of carbide for the miner's lamps, a five gallon can of gasoline, and the usual case or two of 40% dynamite. As a safety precaution the highly sensitive dynamite caps were stored in the glove compartment to separate them from the dynamite. The glove compartment provided a somewhat "softer" ride for the caps but its proximity to the mathematician's quivering body completely destroyed this logic. My companion had helped load all of this into the pickup in town. Now, with the going getting a bit rough, his fears became divided between having the car, under my miss-the-boulder school of driving, careen off down the grade, and that of having our own payload take off in one grand holocaust of fire and flame and a rolling explosion which would echo across the bottomless canyon.

The major difficulty that an author faces in the recounting of an experience of this kind is the realization by the reader that things must not have been too tough, certainly not fatal, or else the author wouldn't be writing about it. And so it was. We made it, just as we had made it many times before. Each trip was an experience characterized with its own set of conditions and crises. This trip proved to be no exception, except most certainly in the mind of my easterner. To add to the interest of the trip several landmarks were pointed out as we went along. Here was where an ore truck had stalled and then rolled back down the hill--and down over the bank into the creek far below. Here at this sharp bend two cars, each believing that they were the only ones in that part of the county met head-on. And so on as we wound down into the very bottom of the canyon. In sharp contrast to the stark vistas up on the hillside, the valley floor was a veritable garden of Eden. The road became suddenly almost level and much wider, lush underbrush and tall trees cloaked the land. My travelling companion, although still far from being calm and collected, did brighten up a bit. We had faced the terrors of the trail and had survived. On a grassy bank overlooking the stream, half hidden in the grasses and bracken ferns, we passed a broken-down picket fence enclosing a small plot about 10 feet square. This was the first sign of Man that the easterner had seen for several hours and his curiosity was aroused enough to ask about it. Inside the rude fence there were two graves. Years ago a party of prospector-hunters had camped here for a time and divided their activities between looking for gold and hunting for deer. Two of their party lost their lives fording the stream nearby during a flashflood.

Our road now approached this same stream crossing. During the summer months when the rains fell less frequently, the crossing could be made more or less dry shod over a low water bridge. This type of bridge is peculiar to primitive areas where travel is light and the expense of constructing a standard bridge is hardly justified. A low water bridge is aptly named. At low water you can see it since it consists of a very low decking resting on the boulders in the stream bed. The decking has no railing to obstruct the flow of high water. We stopped the pickup a short distance from the river bank and got out. Beside the road there was a pile containing several hundred pounds of medium sized stones. While the mathematician walked down to the water's edge to take a look at yet another hazard thrown in his path I began loading the stones into the pickup. "What do we do now?" he inquired, as I dropped the last of the stones in the back of the Ford. His question was perfectly valid The low water bridge was completely hidden from view beneath nearly two feet of swirling, muddy water. Only a relatively calm band of water across the 75 foot width of the stream marked its location. The downstream edge of this band ended in a boiling roll where the waters dropped down from the decking.

HIGH WATER OVER THE LOW BRIDGE - cont'd.

"Get in and we'll give it a try." I told him. This was almost too much. After many reassurances that there was no other possible way of getting to camp, that night was fast approaching and that the water appeared to be rising steadily--and that if he didn't want to ride he could walk, did my friend get back in the pickup. He insisted on standing up in back though rather than riding in the cab. The gearbox had four speeds forward and we started out and stayed in compound low. The decking, now deeply buried beneath the opaque stream, was only 8 feet wide and inclined slightly downwards towards the upstream side. We trod a straight and narrow path, the water rising up over the running board, then seeping thru the cracks around the upstream door, it covered the floorboard and rose steadily up past my ankles. The pickup acted as a small dam for the rushing stream and against our upstream side the water rose almost to the outside door handle. We progressed slowly, the roar and gurgling of the water completely drowning out the sound of the motor, making it difficult to know whether we were still fired up or not. In midstream the water current was at a maximum and for the first time I began to have serious doubts about getting to camp in time for dinner. The waves battered the pickup and it slid ever so little toward the boiling roll which marked the edge of the planks. Perhaps more rocks should have been added for ballast, or perhaps there was just too much water.

Driving under such conditions is all absorbing. The existence of my reluctant companion, in the back of the pickup had all but escaped me. Suddenly his long legs appeared before me, dangling down over the windshield, to be followed soon after by the rest of him which slid down from the cab roof to the hood where he remained astraddle. That seemed to put the finishing touches on the mounting list of difficulties. With the view blocked my ingrained response was to take my foot off the gas pedal and hit the brakes. The motor, already struggling to stay alive, promptly konked out. This seemed to be the signal for my highly agitated friend to resume his progress and with a mighty splash he jumped forward into the water and half walked half crawled the remaining 30 feet to the far bank.

The pickup quivered and shook, water continued to seep into the cab, rising steadily up to the level of the seat. With no hope of outside help there was only one thing to do. The downstream side running board was just barely awash and it was not too hard to lift up the half of the hood on that side by stretching out along the fender. One quick look reinforced my suspicion that the motor had had it. The V-8 block was above water but wiring and distributor were soaking wet. Back to the cab, dig out the Crescent wrench, out into the runningboard, jerk the ignition wires, unscrew the sparkplugs, back into the cab, put her in compound low, jam down hard on the self starter button and pray. Hooray! She moves! With the plugs out the self-starter could easily spin the motor and inch the car along too. Several pauses to let the battery catch its breath and eventually the far bank was reached.

Twenty minutes later, after generous applications of the Pyrene fire extinguished to the electrical system, we were on our way up the last stretch of only normally impossible road to camp. The skies had cleared as the day wore on, the autumn foliage was at its peak, the air, washed by yesterday's storm was sparkling clear, in the distance a grouse drummed. "Isn't this Heaven on Earth?" I asked my dripping easterner. Through chattering teeth he could only mumble something incoherently, but the look he gave me indicated something less than total agreement.

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ANNUAL MEETING OF THE GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

February 10, 1967

The meeting was called to order at 7:37 p. m. by President Lloyd A. Wilcox in the auditorium of the Multnomah County Library. Requirements by by-laws for a quorum were met in that there were more than 20 members in attendance.

The Secretary announced that 99 marked ballots were received and that the following have been elected: President, Mr. Ralph S. Mason; Vice President, Mr. Donald D. Barr; Secretary, Mrs. Robert Waiste; Treasurer, Mr. George R. Dahlin; Director (3 years), Mr. Mark Perrault; Editor of the News Letter, Mrs. Clair F. Stahl.

There has been a net gain of two memberships in the past year--32 were gained but 30 were lost, for a total of 269.

Treasurer's report shows $2,105.01 in the savings account and $1,330.19, including GSOC School funds, of $529.20, in the checking account. Audit will be made at the end of the GSOC year (February 28).

Report on the News Letter was made by Ralph Mason for Irv Ewen. Mr. Mason commented "Irv put in far more work than anyone will ever know." He also mentioned efforts of Bob Wilbur, Irma Sullivan, Rowena Hoven.

Report on Library Night was made by Lloyd Wilcox for Dr. Gilchrist.

Report on library was prepared by Clara Bartholomay.

Margaret Steere reported that $79.50 was spent for books, maps and pamphlets this year, but little had spent for several years.

Mr. Leo F. Simon reported on Thursday luncheons at the YMCA and on banquet tickets.

Laurette Kenney, Membership Committee, reported that Pegi Stahl had mailed 1525 calendars and registered 250 guests during the past year.

Hospitality Committee--there were 17 social hours and balance in the "kitty" is $5.55. All expenses for social hour are paid from contributions. No "kitty"-- no social hour.

Publicity--read by Lloyd Wilcox for Shirley O'Dell. Notices of GSOC activities have appeared in Portland papers and President's Campout received publicity in the Bend Bulletin.

Ralph Mason reported on using facilities at OMSI for a permanent address and telephone number, sharing cost with other organizations. Plans not finalized on this. He also reported that GSOC publications are being sold by the Oregon Department of Geology and Mineral Industries.

Oregon Historical Society exhibit--nothing new. OMSI Exhibit--permanent, continuing, to be changed about every four months, will be ready by end of this month.

Mrs. John Bonebrake commented on the banquet to be held February 24.

Report of the Board of Directors has been published. Copies of this, along with report of Library Night, Library Activities, Treasurer's and Secretary's reports are available.

President Wilcox expressed thanks to the Stahls for the picnic; Bill Freer for lettering of all certificates, etc.; Hazel and Ruby Zimmer, telephone committee; Ralph Mason,

con'td next page.

ANNUAL MEETING - cont'd.

Nominating Committee; Historian, Rowena Hoven; Parliamentarian, Fred Miller; Properties Administrator, Bob Waiste; and bade farewell to Irv Ewen, retiring editor and executive committee member; Margaret Steere, Jean Griffiths, Bill Freer, retiring officers.

Meeting adjourned at 8:04 p. m.

Dorothy R. Waiste, Secretary

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HISTORIC FORT VANCOUVER

by Frances Price Cook

Field Trip to National Historic Site
and Thomas J. Bones' Mineral Collection
Saturday, 12 November 1966

The weather was favorable, Saturday, November 12, being a beautiful day between two stormy ones, when we visited the Fort Vancouver Historical Site in the morning, and called on Mr. Thomas J. Bones at his residence in Vancouver that afternoon.

At about nine-thirty we gathered in the modern building which houses historical data and artifacts concerning Fort Vancouver; we were given an introduction to the activities of the Hudsons Bay Company. We were told that a new source of beaver skins was the motive for the enterprise; that it was presumed that the west coast would some day be divided between England and the United States, and that it was expected that the Columbia River would be the international boundary. Fort Vancouver was set up as the headquarters for the Columbia Region of the Hudsons Bay Company and was the location for much trading activity.

The British were kind to the Indians; there were mutually amicable relations. At the fort store the Indians bought guns and ammunition with their beaver pelts. They learned to use the white man's weapons even to hunt for food, and relegated their skill with the bow and arrow to the background, with the inevitable result that they became dependent upon the white man for survival.

We saw the scale model of Fort Vancouver at the same time that we looked out the picture window onto the actual site. Then we drove down to the location of the fort where we walked along the north wall of the stockade, which has been rebuilt for historical remembrance With maps in hand we gathered on the different paved spaces which mark original building placements. As we crossed the very ground on which history was made, we were warned not to venture to the south because an airway easement now exists over the fort site. While we were down there many planes flew very low right over our group. Restoration of the other three walls and buildings cannot proceed under conditions of present air traffic.

Back up in the building we saw colored slides which depict the lives of the people and the things they used. We toured the exhibition of historical data made up of drawings, photographs, sound tracks and artifacts. A very rare privilege was accorded the GSOCers as we were invited down to view the vault. We saw their catalog records, the artifacts as they are brought in, the cleansing baths used, and the groupings of items for study and assemblage.

(Cont'd next page)

HISTORIC FORT VANCOUVER - contd

In addition to the regular staff, our young guides were also special, three teenagers who are junior rangers at the Fort Vancouver Historical Site. They proved themselves to be well informed and informative, possessed of an enthusiasm for discussing the history depicted. Their contribution to the program is voluntary as they come over after high school and on week ends to help on projects. Not the least of their contribution has been reclamation of historical objects in diggings at the site of the fort.

We noted that the fort site lies on a plain that had been scoured by the Missoula flood. Direct access to the Columbia River for travel and shipments was possible as the man-made dike to the south is of more recent construction. So accurate is the restoration that an orchard has been planted just like that described in records. The location of the Fort Vancouver Historical Site is off the route of the average tourist. However it is sought out by those who have an interest in that period of history.

After lunch we went by caravan to the residence of Tom Bones to see many cases of well displayed mementos from his years of collecting. It was about twenty years ago that Mr. Bones discovered Eocene tree and plant fossils in the Clarno formation near Camp Hancock. Since then he has carried home many tons of this fossil bearing rock which he has broken up and scrutinized under magnification. Some of the fossils are about the size of things we know today; others are so small they are placed in glass tubes next to phogographic enlargements which show their minute detail. There are silicified berries, seeds, nuts, leaves, plants and woods, some of which have no living counterpart. Mr. Bones told us that the position of the material he has found indicates that it had been growing in something like an orchard which had been swept down hill, possibly after a cloud burst. He has on display larger portions of plants in the positions as found.

So significant is Mr. Bones' research that he has received a grant from the Smithsonian Institution in return for a collection of fifty genera. Dr. Richard A. Scott, paleobotanist and stratigrapher for the United States Geological Survey, has come to the Bones residence to study the collection, and has taken a large selection to London for study with the noted paleobotanist, Miss Margaret Chandler.

Mr. Bones' business field is photography. It has been an absorbing hobby that has kept him going back over the years to collect fossil bearing rock. Geologists from professional to amateur are proud of his discovery, its preparation, study and presentation. Science commemorates these efforts as Dr. Scott has named a newly identified species of ginkgo wood, Ginkgo bonesii sp. nov., in honor of our friend.

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ACHTUNG!

Alles Lookenspeepers. Das controllen-machine ist nicht fur gefingerpoken und mittengraben. Ist easy schnappen der springenwork, blowenfusen und poppencorken mit spitzensparken. Ist nicht fur gewerken bie das dommkopfen, screwdrivermechanischen. Das rubber-necken sightseers keepen hans in das pockets--relaxen und vatch das blinkenlights.

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These choice comments have probably appeared in numerous places over the years and no doubt are familiar to many GSOC'ers. However, it was felt that the enjoyment and enlightenment could be disseminated even further by including it in the GSOC News Letter.

We are indebted to Mr. Lawrence L. Brown, Geologist with the Albany Metallurgy Research Center of the U.S.D.I. Bureau of Mines, for providing the copy. This "Visitor's Instruction Sheet' was conspicuously posted on the Differential Thermal Analysis apparatus in his Lab. (Feb. Field Trip.) editor

Volume 33, Number 3

MEMBERSHIP ROSTER

name	street address	city, state, and Zip code number	telephone
NEW MEMBERS			
BEAUCHAMP Mr. and Mrs. Everett A.	3131 S. E. Schiller St.	Portland Oregon - 97202	236-9225
DEISEN Mrs. Donna B.	200 N. W. 86th Avenue	Portland Oregon - 97229	292-6528
EDENHOFER Miss Therese	1626 N. E. 9th Avenue	Portland Oregon - 97232	287-8780
FAGAN Mr. and Mrs. Dick	2850 S. W. Fern Street	Portland Oregon - 97201	223-6820
HACKETT Mr. Cortez P.	950 S. W. 21st Avenue	Portland Oregon - 97205	223-3024
KELLEY Mr. and Mrs. J. Larry	2590 SE Briar Cliff Circle	Beaverton Oregon - 97005	644-3692
McGRATH Mr. ard Mrs. Edward S.	9360 SW Panorama Place	Portland Oregon - 97225	292-3758
MUELLER Mrs. Iva	114 N. E. 55th Avenue	Portland Oregon - 97213	235-5282
PEDERSON Miss Helen	1000 S. W. Vista Avenue	Portland Oregon - 97205	228-5735
PEDERSON Miss Jeanette	1000 S. W. Vista Avenue	Portland Oregon - 97205	228-5735
PERLOT Mr. and Mrs. Leonard	1138 S. W. Cheltenham St.	Portland Oregon - 97201	244-5266
PRATT Mr. and Mrs. Ralph	7610 S. W. Miner Way	Portland Oregon - 97225	292-4238
SOOTS Mr. and Mrs. Parks A.	3915 S. E. 103rd Avenue	Portland Oregon - 97266	771-2085
YODER Mr. Marvin	6839 S. E. Pierce St.	Milwaukie Oregon - 97222	775-7952
MANDEVILLE Mr. John (Junior Member)	950 S. W. Oak Street	Lake Oswego Oregon - 97034	
ADDRESS CHANGES			
FITE Mr. and Mrs. George	1698 National Number 21	Chula Vista California - 92011	
KUHNS Mr. and Mrs. John C.	200 Burnham Road, #307	Lake Oswego Oregon - 97034	
MARSHALL Miss Emily	Ione Plaza, Apt. 120 1717 S W Park Place	Portland Oregon - 97201	228-9573
SMETHURST Mr. and Mrs. Rolland B.	9911 S. E. 92nd Avenue	Portland Oregon - 97266	775-5452

NEWS AND COMMENTS FROM CHARTER MEMBERS

The Executive Committee voted to pay tribute to the active Charter Members of the Society by inviting them to be honored guests at the 32nd Annual Banquet and to forgive their dues for the forthcoming year. The following comments are excerpts from letters received in response to the Executive Committee action.

editor

MRS JOHN C STEVENS: "I am very sorry that Mr. Stevens cannot be present.. But after all, he will be 91 on Jan. 9, so I guess we can still say he is a remarkable man! Thanks."

E CLEVELAND AND EDITH B JOHNSON: ". . . We thank the society for honoring us as charter members and also thank you for the paid-up membership cards, which were enclosed. That was a very nice gesture, and we do appreciate it. It has been impossible for us to attend meetings very often during the fall and winter, but we hope to get there sometimes when the days grow longer . . . "

MRS A D (FLORENCE) VANCE: "I send greetings to my old friends in G.S.O.C. and remember the good times we used to have with the Society."

H L AND RUTH JENNISON: "It was a most pleasant surprise to receive the invitation to attend the annual G.S.O.C. banquet as a guest of the society and an added pleasure to receive the 1967 membership cards. Thanks a million to you and the club and a Happy New Year."

MRS F H (LILLIAN W.) STRONG: "I am sorry but we will be out of town on that date. I would like to come and see all my old friends. I will be interested in reading a report of your get-together."

MR KENNETH N PHILLIPS: "Thank you. Because of the stairs, Mrs. Phillips will not be able to attend the dinner."

WILLIAM F AND DELIA AVERY PATERSON: "We certainly appreciate the honor and gift of a year's dues for the coming year."

GRACE M POPPLETON: "I do appreciate your letter inviting me to be the guest of the GSOC Society at the annual banquet on Feb. 24th. But I find that I have a previous engagement on that night, which I am unable to change. . . . But thank you just the same. Also thank you for the membership card for the coming year."

MRS FRANKLIN L (GERALDINE K) DAVIS: " . . . I hardly feel that I should be accorded any special honor in this regard, as it was my husband who was the real charter member. I should like, however, to attend the banquet, but inasmuch as I am planning a trip to Arizona in the near future and do not know yet just when I will return, I shall have to decline the invitation with regret."

MRS TRACY (GLADUS) WADE: "I appreciate your kindness in sending an invitation to attend the banquet February 24th. It is impossible for me to attend. I am sure it will be a pleasure to all attending. I can remember, until 1941, Tracy and I looked forward to attending as many functions as possible . . . ."

about MR FRED REIMERS from Walter H Palmberg. "Mr. Reimers has been living with me and my wife for the past three years, until the latter part of November. At that time I placed him in a home . . . He is now 88, and physically in pretty good shape ... Mr. Reimers is in the Eastern Oregon State Hospital and Training Center in Pendleton, Oregon. . . . He does not remember much of the past except during fleeting moments . . . "

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PLEASE NOTE: IF YOU DID NOT RECEIVE YOUR JANUARY OR FEBRUARY NEWSLETTER, PLEASE LET ROBERT WILBUR, BUS. MGR., KNOW. There were several oversights in the mailing list which were not noticed immediately. We have recently changed over to zipcoding, as you know.

THE GEOLOGICAL NEWS LETTER

Official Publication of the Geological Society of the Oregon Country

2020 S. E. SALMON STREET, PORTLAND, OREGON 97214

GEOLOGICAL SOCIETY OF THE OREGON COUNTRY
1967 ADMINISTRATION

EXECUTIVE COMMITTEE

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Mr. Ralph S. Mason	3932 S.W. Idaho Terrace	Portland,	97221	244-2106
VICE PRESIDENT				
Mr. Donald D. Barr	12438 SW Orchard Hill Rd.	Lake Oswego,	97034	246-2785
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Mr. C. Truman L. Murphy — Mr. George W. Walters — Mr. Mark Perrault

PAST PRESIDENTS
Mr. Fred E. Miller — Mr. Lloyd A. Wilcox

GEOLOGICAL NEWS LETTER

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PROPERTIES ADMINISTRATION				
Mr. Robert Waiste	133 S.E. 27th Ave.	Portland,	97214	235-4320

Volume 33, Number 4

G. S. O. C. CALENDAR FOR APRIL 1967

Every Thursday — LUNCHEON - Y. M. C. A., 831 S. W. 6th Avenue, Portland, Oregon

12:00 M. - Meet with G. S. O. C. members, guest and visitors in the Mountain Room, adjacent to the main cafeteria. You may bring a geologic specimen for examination, or a topic for discussion. Mr. Leo Simon presides. -- See you there.

14 April Friday — LECTURE - Central Library, 801 S. W. 10th Avenue, Portland, Oregon.

7:30 P. M. - Members of the G. S. O. C. School, a class in Geology which has been in session for three months, will provide a program for the whole Society. Geology of portions of the Portland area will be discussed and features explained with slides. The geologic history of a very famous area in this vicinity which has been studied by the class will be explained with diagrams and slides. This area will be the site of a Geological Society field trip later in the season.

16 April Sunday — FIELD TRIP - By Bus. - A visit to the Lower Columbia. (Reservations required)

7:45 A. M. - Assembly point will be on S. W. Mill, between Broadway & Park.

8:00 A. M. - Departure time. Dr. Paul Howell will guide us on a geological tour down the Washington side starting with the Missoula Flood Silts, through the many geologic formations to the Goble Volcanics and the Cowlitz Formation. At Cathlamet we will cross the Columbia by bridge and ferry for the return to Portland. The trip will take about eight hours. The fare is $3.50 per person. Since the bus will hold a limited number of passengers RESERVATIONS MUST BE MADE IN ADVANCE. Bring your lunch and the usual rock gathering equipment.

For additional information and reservations phone Mr. Clair F. Stahl, 281-2220.

18 April Tuesday — LIBRARY NIGHT - Lewis and Clark College in Southwest Portland, Oregon

7:30 P. M. - Meet on the upper floor of Peebles Hall (Biology building). The first hour is reserved for browsing and reading.

8:30 P. M. - Dr. John Hammond will conduct a workshop on Fossil Leaves of Oregon. Bring specimens and slides for study and identification.

28 April Friday — LECTURE - Central Library, 801 S. W. 10th Avenue, Portland, Oregon

7.30 P. M. - Dr. Francis G. Gilchrist will discuss "Earth's Earliest Ages", beginning with its origin as an astronomical body and leading up to the appearance of the first living things. The talk will be illustrated with slides. This is one of a series of lectures by different speakers on past geologic ages and periods.

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NEWS OF MEMBERS
By Lillian Miller

Those follow-the-sun GSOCers, GEORGE and EFFIE HALL, send greetings from Norwalk, California: "Regards to all our friends. Are doing nothing geological this winter -- just genealogical -- visiting relatives and a few friends."

From MR. and MRS. AL JANSEN (ROBERTA JENSEN), Walla Walla:)Wish we were closer so we could attend once in a while."

ORRIN STANLEY, our spry 95-year-young member is now at his home. Living with him is a companion, Mr. John Keating, who reports Mr. Stanley is doing well.

Congratulations to GEORGE and JENNIE WALTERS who received a trophy for the best fossil exhibit in the recent Sweet Home Gem and Mineral Show.

MAY and GUY DODSON send greetings from Hawaii.

MRS. HUGH MILLER has been critically ill. She is at the Good Samaritan Hospital

MR and MRS. H. BRUCE SCHMINKY have returned from the east where they attended the American Congress on Surveying and Mapping in Washington D. C. and then stayed on to tour the White House, the Library of Congress, Mt. Vernon, and many other points of interest.

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Dear Geesockers: Starting this month NEWS OF MEMBERS comes to you with a new by-line As your new reporter, Mrs. Miller finds herself in the embarrassing position of possessing no crystal ball and only one rather unreliable ouija board. So -- will you all please help to make this truly your column by passing along the news Don't assume that somebody else has told her. Better she should hear it twice than not at all. Her phone number is 771-6154.

Ed.

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MEMBERSHIP ROSTER

NEW MEMBERS

BIRDSALL Mr. and Mrs L. C.	6815 S. E. 36th Avenue	Portland Oregon 97202	775-6521
COWLES Mr John	Rt. 1, Box 96	Rainier Oregon 97048	----
INGRAM Mr. James	Rt. 1, Box 561	Roseburg Oregon 97470	672-3886
JOHNSON Mr Herbert	5232 N. E. Alameda	Portland Oregon 97213	281-3955
NICHOLS Mr and Mrs William W	17 Samson Place	Granville Ohio 43023	
VOSS Mr. and Mrs. Lawrence A.	13405 SE Oatfield Road	Milwaukie Oregon 97222	654-4324
WHITE Mrs. Fern R	3135 S. E. 25th Avenue	Portland Oregon 97202	236-4411

ADDRESS CHANGE - Mr. & Mrs. Melvin Burke - 2980 S. Glenmorrie Dr. Lake Oswego,

Volume 33, Number 4

32ND ANNUAL GSOC BANQUET

Another GSOC Banquet has come and gone -- officially the 32nd, and we trust it will be marked up as a success. Some aspects were different from previous years, but generally speaking, it followed the same pattern.

Being unable to obtain suitable facilities on the customary day of our annual meeting, the date was set up two weeks making it February 24 for 1967 instead of the usual second Friday in March. The scene was changed from Portland State College, which was not available, to the Mayflower Dairy Auditorium where two earlier banquets had been held. The Mayflower with its elegant entry and spacious and modern features served us well. The dinner served by Dale's Catering Service was excellent, beginning with the tropical fruit mixture in the cocktail (sphalerite cubes, as Margaret Steere, Menu Geologica expert, dubbed it), through the delicious baked stuffed pork chops and fried salmon, to the cherry tart alamode (rubies with glacial ice).

Much thanks goes to the various committee heads and their members. Some were acknowledged at the banquet, others were not, but all worked equally as well in their respective jobs. Not mentioned was Mrs. Paul Howell who designed the attractive program cover. The theme of the banquet depicted the "Three Sisters Area" - site of the '66 President's Campout. The attractive place cards were individually hand-drawn by our outgoing president, Lloyd Wilcox, who was also responsible for assembling the program. The Ponderosa pine cones on the tables, that so beautifully carried out the theme, were gathered in Bend. The larger cones in the center of the tables came from California. Thanks for this phase of the decorations go to Mrs. Wilcox and Mrs. Fred Miller. The attractive script on the place cards was the work of Bill Freer who played a double role, scribe as well as Entertainment Chairman. Dr. Paul Howell, our able Master of Ceremonies, was also doing double duty as he was in the GSOC Quartet which provided our vocal entertainment. Other members of the quartet were Truman Murphy, Dr. Arthur Jones and Dr. Francis Gilchrist, accompanied by Katy Tobie. Murray Miller was on the program, by popular request, "making music" on his fabulous rock xylophone, and Dr. Jones accompanied by Berrie Hancock again led our group singing.

Don Barr is to be given credit for selecting the speaker, Mr. H. J. Buddenhagen of Grants Pass, whose knowledge of the Suplee area, topic of his Geological resume, amazed us all. His subject matter will be covered in a separate article. Gift chairman, Dennis Carmody, selected engraved rock hammers for Mr. Wilcox and for Mr. Buddenhagen and beautiful agate based desk pens for Irv Ewen, retiring editor of the Newsletter and Fred Miller, staff photographer. The official large pick used for the third time, was presented to Ralph Mason who was installed as president. Both Mr. Mason's and Mr. Wilcox's appropriate remarks were fitting for the occasion.

Peigi Stahl and her hospitality ladies proved indispensable.

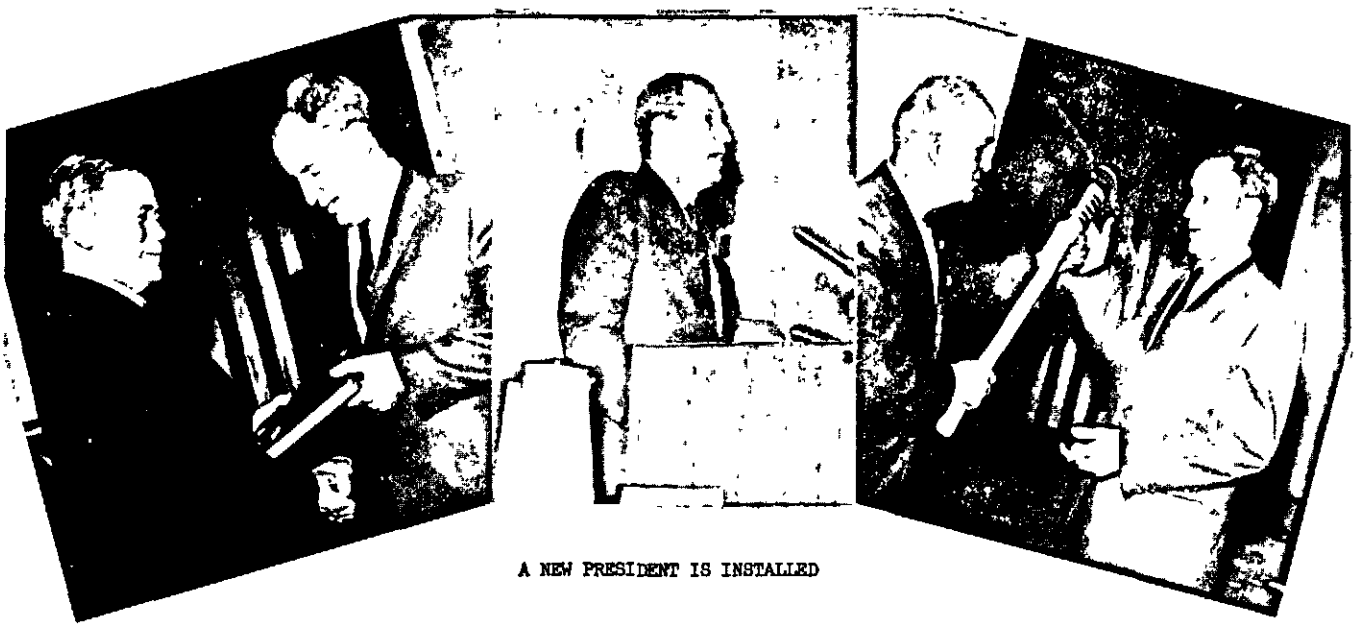
Adding to the interest of the affair were the exhibits arranged for by Bob Wilbur. Thanks go to Mr. Wilbur and to all those who exhibited for the pleasure of those attending. Our publicity chairman, Irma Sullivan, and our secretary, Dorothy Waiste, did all they could to get the news out, and Fred Miller used a lot of film covering the banquet.

We appreciate the telephone committee standing by, but managed without calling upon them. Leo Simon, ticket chairman, can "take a bow" again for going over the 200 mark in ticket sales.

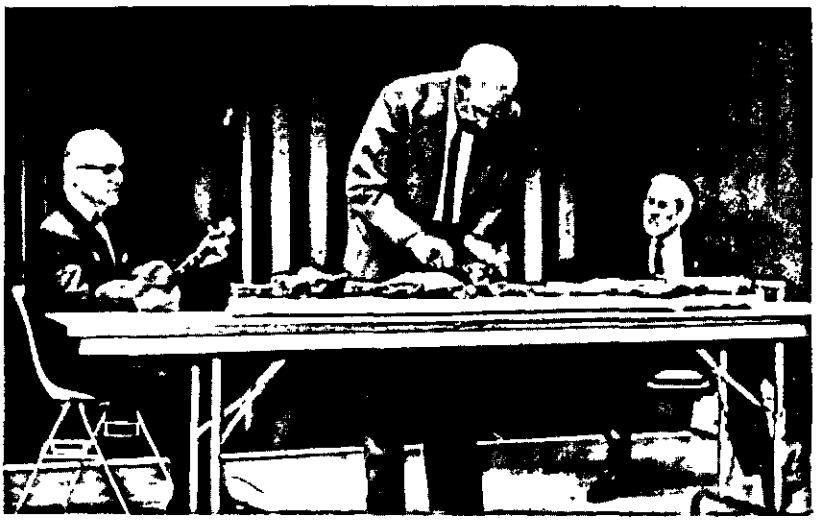
The unique feature of this banquet was the presence of 21 charter members who were guests of the society.

Your general co-chairmen enjoyed the opportunity of working with such a delightful and cooperative group as the GSOC banquet committee. Thanks for everything.

John and Phyllis Bonebrake, Banquet co-chairmen



A NEW PRESIDENT IS INSTALLED



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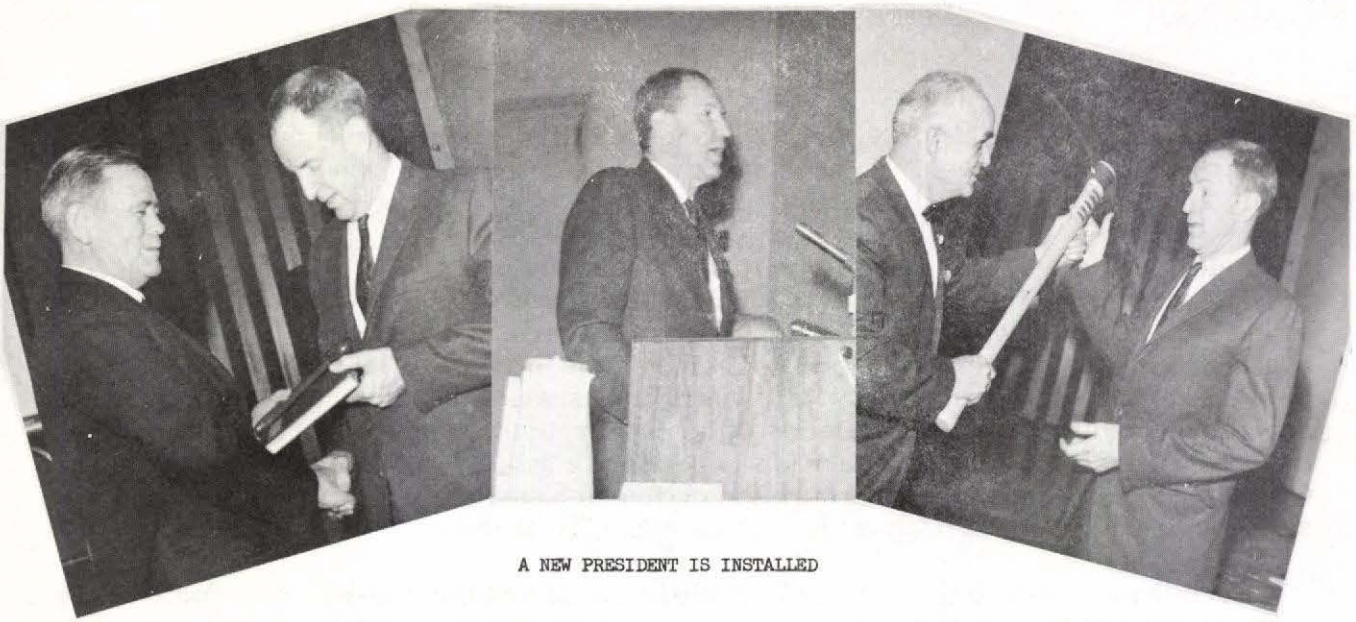

A NEW PRESIDENT IS INSTALLED

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PAST PRESIDENTS

MEN'S QUARTET

SPECIAL HONORS

BANQUET CHAIRMEN

GUEST SPEAKER

CHARTER MEMBERS

HONORARY LIFE MEMBERS

Congratulations to Agnes and Murray Miller for their election as Honorary Life Members of the G.S.O.C. The committee chose them because of their many contributions to the Society and to the community in general. For eight years Agnes served as Librarian of the Society library, housed at Lewis and Clark College, as well as being hostess for refreshments following Library Night meetings. Murray was Field Trips Chairman for two years and scouted many successful expeditions into the Oregon Country. Following this he was Displays Chairman for several years, and a member of the Executive Committee. For three years he was in charge of Library Night. He has been active in the youth work of OMSI, and the Camasia Nature Area has been his continuing interest. Again, congratulations to the Millers. It couldn't have happened to nicer people.

PBG

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CHARTER MEMBERS HONORED

Charter Members were honored guests of the Society at the banquet, and were presented with certificates in recognition of their dedication to the Society. A well known Geesocker expressed the sentiments of all of us when he said "After all, if it wasn't for the Charter Members there would be no Geological Society for us to enjoy today. It's about time we thanked them!"

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BANQUET DISPLAYS VARIED

If "Variety is the spice of life" there was spice all over the place night of the Annual Banquet in the Mayflower Auditorium. Displays were of endless varieties from widely-scattered sources. Space is too limited to permit of descriptions, origins, and a listing of contributors of the material displayed.

There was a nice assortment of fossil-prints of plant-material including even the fragile blossom-parts. There were blown-up photos of insect specimens now in the hands of taxonomists for possible identification. In some instances herbarium material was displayed together with paleo-prints of the same species.

With the exception of a single leaf-print one entire display case was devoted to fossil marine invertebrates. Molluscs were well-represented, some of exceptional size. Minerals, crystals, and ore-samples came in for a large showing.

In commemoration of services rendered the Society by some of our departed members some geological textbooks of exceptional quality are being purchased for our GSOC Library. Some of these were on display as was the latest album of photos depicting the Society's activities mostly on field-trips and encampments. Our GSOC-sponsored School of Geology illustrated the scope of its work with a compendium of the courses covered and the textbooks used

Undeniably, a still had been placed smack in the center of all of these displays. Culprits (by the names of Mason and Mathews we're told) had left on the wall directions for operation. Claimed it had been used only for extracting water from rocks and that maybe it could be used on the moon! Remember Fulton's steamboat?

To those who contributed and arranged these displays my heartfelt thanks for their cooperation

R. Wilbur, Displays Chairman

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Volume 33, Number 4

A SOLILOQUY BY LLOYD WILCOX

Soliloquy - (noun) a talking to oneself regardless of the presence or absence of others -----

The course of study on the mysteries of the science of geology by members of the Geological Society has now afforded several weeks of more or less intensive work by the participants and it seems reasonable to believe that the membership at large would be interested in the results, if any, of that work.

As may have been guessed, the course opened at the beginning but it will not close at the end. This is mainly because the end is not forecast (by geologists) for another FIVE BILLION years or so, and Mark says the tuition fee won't stretch that far.

One thing that has been learned is that the science of Geology is governed by several immutable Laws. These Laws are based on a sequence of established procedures that I would like to mention briefly at this time:

Observation of nature and the Collection and Classification of data derived from this observation. Inductive Reasoning - consideration of this data - and from this the Forumlation of a Hypothesis, or tentative explanation of the Phenomena observed. Experimentation or further Observation, if verifying Hypothesis, elevates it to status of a Theory which must be Published to make it available to other scientists in the field whose acceptance concedes to the Theory the status of a scientific Law.

Many of these immutable Laws take the place of others that preceded them and no doubt many of them will be replaced in the future as other sequences of established procedure are developed and published. To the rank amateur (and none is more rank than I) it is a revelation to learn that Publicity is so important an ingredient for the establishment of a scientific precept. I do not argue the point---I merely wonder. Like--I wonder--if Mendel had not done his work (and published it too) with the black and white peas, what color of pea would we be eating today? Personally I prefer the green pea to either so I am happy that this Law was promulgated before my time.

Speaking of the green pea leads me quietly to the object of this paper which is to publish my own findings (?) in the field as the final step in a sequence of established procedures that might perhaps enable me to contribute some vital information to the existing knowledge of this earth!

The first Observation of note occurred when I had occasion to call a Professor of Geology concerning the geology of a section of the Columbia Gorge for which I was developing a trip log. (There are still a couple copies available). This Professor, who was not feeling very well when I called, was in the process of moving, and things were in a mess at both ends, (houses that is) which probably accounted for the speed with which he directed his remarks. Having no knowledge of shorthand whatsoever, and often unable to read my own writing under the most propitious circumstances, what was finally developed for the trip log may or may not have been what was originally intended. But among the salvaged items was this statement, in part: "--and consisting of volcanic tuffs (some of which are lapilli size and larger), volcanic breccias, etc., metamorphosed to the zeolite FACIES with development of celadonite which gives it its Greenish tint." The formation in question is just across the Columbia River from an exposure of a sill which is genetically related to the Wind Mountain - Shellrock Mountain stocks, which are themselves but a short distance away.

At another time I had occasion to discuss with a Professional Geologist (for another trip log incidentally) some of the aspects of the geology of the North Santiam River in the vicinity of Detroit Reservoir. He endeavored to explain the Greenish tint of the material exposed in the road cuts as being a secondary alteration of the original material and suggested that it may have been developed by HYDRO THERMAL activity associated with the INTRUSION of the nearby Hall Diorite laccolith.

(cont'd. next page)

SOLILOQUY BY LLOYD WILCOX - cont'd.

Now come with me on a mental journey along the Mt. Hood Loop Highway. (This certainly deserves a trip log too). The cuts along the new three-lane highway up Laurel Hill expose fresh new faces of diorite with a definite Greenish tint. Cut through this rock near the scenic turn out are two bold, beautiful dikes of a much darker material suggested to be the equivalent of Columbia River Basalt. From the (mis) information gathered above may we conjecture that not far beneath the surface lies at the least, a large body of diorite awaiting only the passing of time and the forces of erosion to be exposed for all the world to see? Who knows?

In Conclusion: The presence of an Intrusive (interloper) also can be suspected from the Alteration to a new FACIES (face) by HYDRO (water) THERMAL (heat) action accompanying the intrusion.

HYPOTHESIS: -- sticking it in hot water is a good way to get your face altered!

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DR. HOWELL ADDRESSES THE SOCIETY

Dr. Paul Howell was the featured speaker on March 10th, addressing the Society on the Paleocene-Eocene epochs of the Tertiary period. He pointed out that the Tertiary was originally divided into three epochs, the Eocene, the Miocene, and the Pliocene, on the basis of fossil studies in the Paris basin of France, but in 1874 the early Eocene was given the name Paleocene. Then he traced and discussed the formation of the Paleocene and Eocene epochs from the offshore fishing banks of the New England coast, westward by geographic areas across the United States, and in some areas, into Southern Canada. Of Oregon he noted that the state has not positively identified Paleocene formations.

Speaking of the biological events he pointed out that these were especially significant times because they marked the disappearance of the dinosaurs, flying reptiles and the toothed birds, and the appearance of the mammals and the toothed birds, and the appearance of the mammals and the toothless birds. Also, the great sea reptiles became extinct, a catastrophe that still remains unsolved.

GRD

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A VISIT TO TUNISIA

Mr Jasper L. Holland spoke to the Society on March 24th. He took us, by word and picture, from the United States, with stops in both England and France, across the Alps to Tunisia. There he gave us some insight on his work, a dam which will provide some much needed flood control, also irrigation and electrical power. We were surprised to see work that is done in the U.S. by vast and complicated machinery being performed by Tunisian manual labor. This is to provide as much employment as possible.

Mr. Holland also described the geology of the area. Unfortunately, your reporter didn't absorb enough of it to report. She was too fascinated by pictures of water being drawn from community wells, of a camel hitched to a plow, of grain being cut by hand and trod on by camels to thresh it, of women carrying huge loads of twigs on their backs, of the winery where grapes are still pressed by foot. A small percentage of the people, mostly in the city of Tunis, live in modern buildings and in a modern manner. For the most part the people of Tunisia live as Tunisians lived 2000 years ago.

PS

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MEMBERSHIP DUES --

According to the by-laws, "any member whose dues are more than two months in arrears shall be notified by the secretary of his delinquency." Therefore, statements will be mailed after May 1 You can help the society by sending your dues previous to this date to the Treas. Mr Geo. R Dahlin, Rt. 1, Box 150, Vancouver, Wn. 98662, or by informing the Sec. Mrs. Robt. Waiste, 235-4320, 133 SE 27th Ave., Portland, Ore 97214. (If your dues were paid prior to March 25, you should have received your membership cards by this time.)

Volume 33, Number 4

PRESIDENT'S CAMPOUT ANNOUNCED

The 1967 President's Campout will set a new high, elevation-wise, at least. Tilly Jane forest camp at 6000 feet on the north side of Mt. Hood will be the base camp for all GSOCers patricipating in the annual event. The week-long outing will start on July 22nd and end on the 30th. The dates were selected to coincide with a week of full moon. The north side of Mt Hood offers many attractions for GSOC members. The site of what is probably the latest eruption on the mountain is located practically at the edge of the campground and the terminus of the largest glacier on Mt. Hood is a ten minute walk from the parking lot at Cloud Cap which is a mile from camp. Cloud Cap Inn, a picturesque hotelery now used by the Crag Rats as a mountain rescue base, affords a spectacular view of the mountain. Wild flower lovers will find a wide variety of alpine flowers concentrated in a narrow band just below the snowline. Trips up on the glacier, to Eden Park, Hood River Meadows, the Hood River fault, Lost Lake, the Parkdale lavas and Lolo Pass will be included in the busy schedule

Cooperation by the Parkdale District Ranger has been offered. In order to plan most effectively please sign up as soon as possible by either calling Ralph Mason at CA 6-2161 Ext 488, or writing him at 1069 State Office Building, Portland 97201.

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LIBRARY NIGHT

Library night continues to be a sell-out for those who look further into the causes and effects of the geologic processes. Under the continued able direction of Dr. Francis Gilchrist the session has become a seminar in field trip coverage, looking sometimes ahead to anticipate the locale of the expedition, sometimes in retrospect to evaluate the findings of the tour. Following the March 19th field trip into the Smithwick quarry, the March 21st session at Lewis and Clark College had a fine lesson on the rise, the structure and the final erosional features of the Coast Range with Dr. Gilchrist's excellent drawings to depict the deposition of the various formations revealed here. Special emphasis was held on the Keasey of the Smithwick site.

Many members displayed the fossils obtained on the expedition and gave short talks on the Oligocene marine fauna of their collection. Among the exhibitors were Bob Wilbur, Gwen Helm, George Walters, Leo Simon, Lloyd Wilcox and Everett Beauchamp.

Sanford Errett, mineralogist and perennial prospector had a fine show of his uranium testing specimens and his charts of the uranium country.

Librarian Clair Bartholomay busied herself with checking in and out her volumes while members browsed the stacks.

The Society welcomed as visitors on this occasion two Gresham High School teachers, Miss Irma Greisel and Mr. W. R. Chilton. Visiting the library session for the first time were also Dr. and Mrs. George Jeffcott and Mr. Beauchamp, who are new members of the organization.

The coffee hour under Mrs. Gilchrist's agency is always a popular close to the program.

C. T. L. Murphy

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LOOK OUT!

Some conclusions drawn from Mr. Claud C. Haggard's "Electrical Safety Demonstration" by George Dahlin

(Adapted to the chorus of "Jimmy Valentine")

Look out, look out, look out for Reddy Kilowatt,
. . The tales they tell about
That very shocking guy. He has lethal stingers
In his 'lectronic fingers, and his burning
touch can sear you 'til you fry.
Look out, look out, whenever there's a wire down,
For that's where he'll be lurking 'round to strike - ZZZPP!
He can even strike your heart, and never leave a telltale mark.
That's Reddy Kilowatt. Look Out!!

* * * * *

CAN YOU GET TO OMSI?

OMSI is about ready to expand into its new wing. Incorporated in the new structure is office space for organizations like the GSOC. The executive board at its last meeting voted to explore the various factors involved in the possibility of establishing a permanent "home" at OMSI. There are both advantages and some disadvantages to be considered. A permanent mailing address, a listed telephone number, secretarial help, library space, meeting facilities and adjacent parking are "plus" features. On the debit side there is the lack of public transportation.

To better assess the problems involved in moving to OMSI would you please help by writing to the secretary, Dorothy Waiste, and indicate whether or not you would have any serious difficulty in getting to Society functions held there.

Your prompt cooperation will aid the board in arriving at a decision.

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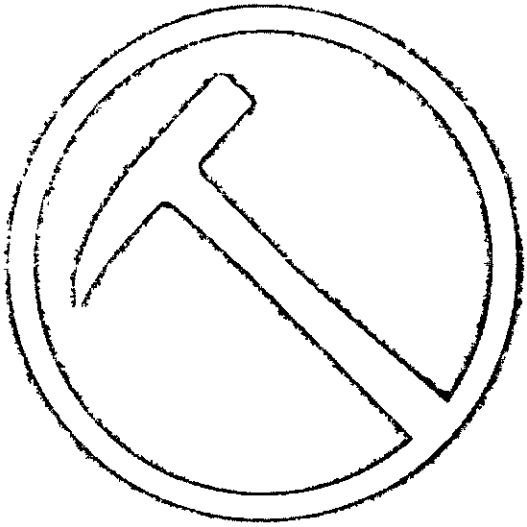
MEMBERSHIP ROSTER - cont'd.

RESIGNATIONS -

Mr and Mrs. George Haumann
Mr. Loren A. Long.

* * * * * * *



Official Publication of the Geological Society of the Oregon Country

THE GEOLOGICAL NEWS LETTER

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GEOLOGICAL SOCIETY OF THE OREGON COUNTRY
1967 ADMINISTRATION

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GEOLOGICAL NEWS LETTER

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BUSINESS MANAGER Mr. Robert F. Wilbur	2020 S.E. Salmon St.	Portland, 97214	235-7284

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PROGRAMS Mr. Paul E. Dunn	6124 N.E. Mallory Ave.	Portland, 97211	285-5008
LIBRARIAN Miss Clara L. Bartholomay	1620 N.E. 24th Ave., Apt 306	Portland, 97232	284-6986
LIBRARY NIGHT Dr. Francis G. Gilchrist	0644 S.W. Palatine Hill Rd.	Portland, 97219	636-5942
LUNCHEONS Mr. Leo F. Simon	7006 S.E. 21st Ave.	Portland, 97202	236-0549
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PROPERTIES ADMINISTRATION Mr. Robert Waiste	133 S.E. 27th Ave.	Portland, 97214	235-4320

Volume 33, Number 5

G S O C CALENDAR FOR MAY 1967

Every Thursday — LUNCHEON - Y. M. C. A., 831 S. W. 6th Avenue, Portland, Oregon

12 00 M - Thursday noon hour get-togethers are presided over by Mr. Leo Simon Select a complete lunch or merely coffee as you go through the cafeteria, then turn right to the Mountain Room. You are invited to bring a rock or fossil specimen for viewing or a topic for discussion.

May 12 Friday — LECTURE - Central Library, 801 S. W. 10th Avenue, Portland, Oregon

7.30 P. M - Mr. Leo F. Simon, our encyclopedia of knowledge, will address the Society on the Flora of the Siskiyous. His talk will be illustrated with slides and pictures.

May 16 Tuesday — LIBRARY NIGHT POTLUCK - Lewis and Clark College, S. W Palatine Hill Road

6 00 P. M - Plan to attend the last Library Night session of the season, a potluck picnic to be held in the picnic area by the swimming pool, weather permitting, or indoors if it rains. Bring a contribution to the potluck (main dish salad or dessert) and table service for your group Coffee or tea will be provided

7:30 P M - Entertainment for the evening will consist of films of geologic interest to be shown in the Biology Lab.

For additional information phone Dr. Francis Gilchrist at 636-5942

May 20 & 21 Saturday and Sunday — FIELD TRIP - Work and play at Camp Hancock

OMSI has some clean-up and repairs to be done at Camp Hancock including (according to rumor) a roof to be recovered. Rumor also has it that there will be a couple of work parties in there ahead of us so plan on some time for fossil hunting too. Bring hand tools (saw, hammer, etc.) if you have them, also your fossil digging equipment and camping gear.
Campsite will be at Camp Hancock. The camp will be open Friday evening. Come then for an early start on Saturday. (Or get going with the robins Saturday morning. Time's a wastin')

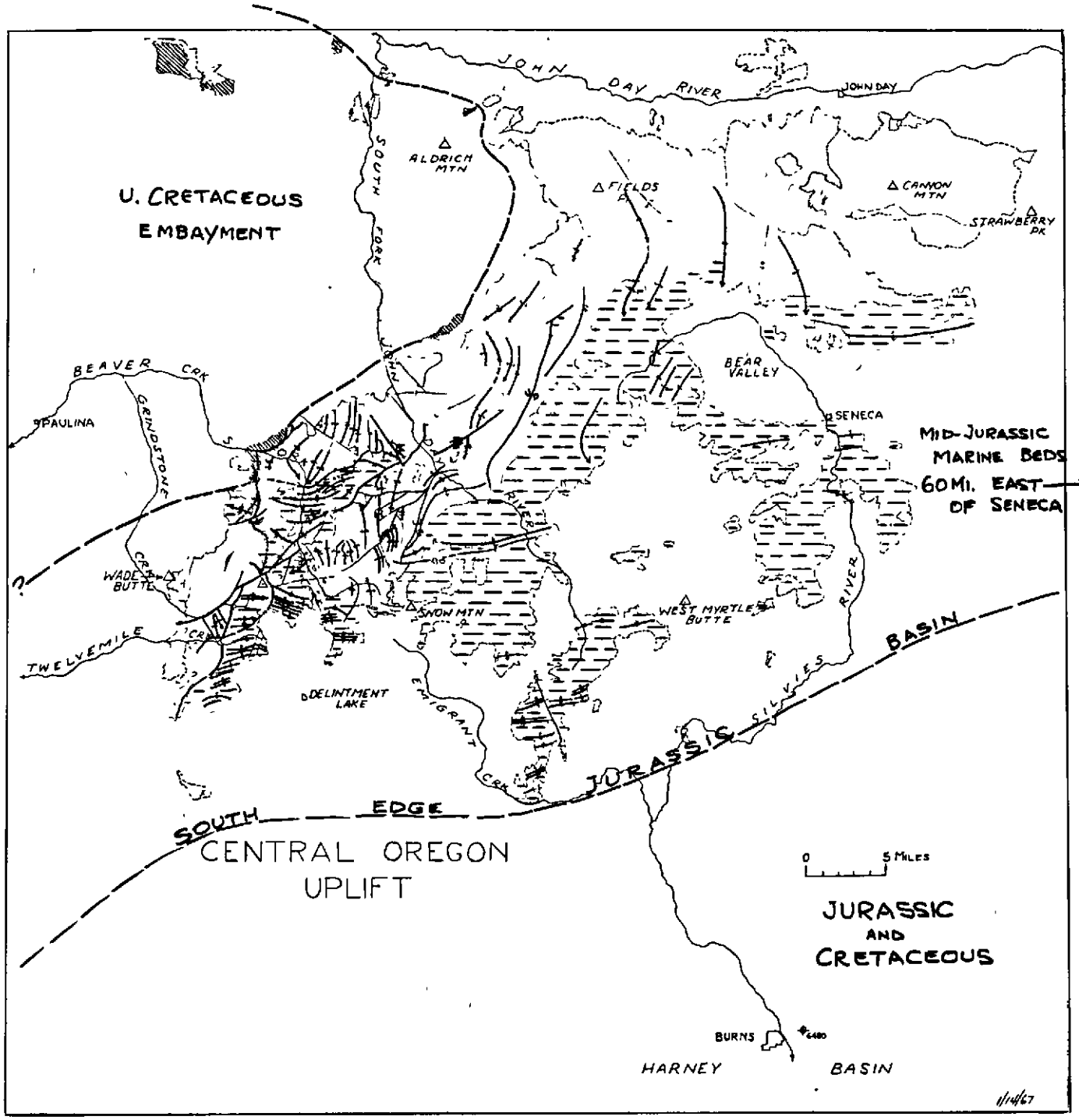
For more information phone Clair Stahl at 281-2220

DIRECTIONS TO CAMP HANCOCK about 160 miles-driving time 3 to 3-1/2 hrs.

The route is east from Portland. Take highway US 26 to the junction about 15 miles east of Government Camp. Take State 216 for 27 miles to US 197. Go through Maupin and 22 miles south to Shaniko junction. Turn left on US 97 to Shaniko. At Shaniko take State 218 through Antelope and Clarno. Cross the John Day River bridge and continue for about 1-1/2 miles toward Fossil. Watch for a road leading ghrough a field on your left. Follow this road and the POWER LINE into Camp Hancock.

May 26 Friday — LECTURE - Central Library, 801 S. W 10th Avenue, Portland, Oregon

7:30 P M - The speaker of the evening will be Mr. Vernon J. Newton who has for some years been associated with the Oregon State Department of Geology and Mineral Industries. His topic will be The Technique of Oil Drilling off the Oregon Coast.



GEOLOGIC SKETCH MAP OF THE SUPLEE REGION

Showing extent of the Jurassic and Cretaceous seas in this part of Oregon; also the distribution of Jurassic and Cretaceous rocks and the major faults and folds.

Outcrop areas of Cretaceous rocks

Outcrop areas of Jurassic rocks

Faults

Syncline

Anticline

Folds

Volume 33, Number 5

GEOLOGY OF THE SUPLEE AREA DESCRIBED AT BANQUET

By Margaret L. Steere

Guest speaker at the GSOC 32nd Annual Banquet was Mr. H. J. Buddenhagen, consulting geologist who described the geology of the Suplee area, which he is mapping for the State of Oregon Department of Geology and Mineral Industries. His work will be published in the future as a Department bulletin; a short "preview" will appear in a forthcoming issue of the ORE BIN.

Much of the GSOC audience on Friday, February 24, had a very personal interest in this lecture for the Suplee Country was the chief attraction of the President's Campout in 1965 Participants in that famous week at Delintment Lake had the opportunity of being guided into the Suplee area by Mr. Buddenhagen himself. For two days "Bud" led his enthusiastic followers into this window of ancient rocks where limestone knobs contain Devonian corals and where Permian sediments had yielded fragments of trilobite. Each day thereafter, caravans of Gesockers traveled backward in time from the late Tertiary lava plateau, on which Delintment Lake and its campground are situated, into the region of Mesozoic and Paleozoic rocks following the notes and map that Bud had prepared for them.

Although it was evident at the time of the GSOC field trip that the Suplee geology was pretty complicated, nobody realized how really complex it was until the night of the Banquet when Bud showed his series of structure maps. Gesockers who had scrambled over the sage-covered hills seeing a boulder of limestone here, a ledge of sandstone there. and a few scraps of chert in a gully wondered how Bud could have dreamed up all that geology. It came as quite a surprise to see the intricate patterns of faults and folds that he had succeeded in working out for this region where each additional period of deformation only made more complicated what had gone on before. It was concluded by most who heard his lecture that Bud must have consulted frequently, and with great success, a large crystal ball in his little trailer at Birdsong Camp

Bud illustrated his lecture with a series of maps projected on a screen showing the distribution and structural relationships of each of the major stratigraphic units beginning with the oldest On another projector he showed colored slides of the Suplee terrain. He pointed out that the Suplee area is of particular interest and importance geologically for several reasons (1 it contains the oldest known sedimentary rocks (Devonian) in Oregon; 2) its Paleozoic and Mesozoic strata. although extensively faulted and folded, are not metamorphosed as in other places in Oregon, and 3) the Paleozoic and Mesozoic rocks contain diagnostic fossils that allow for much better dating and stratigraphic interpretation than in other parts of the state

The following paragraphs give a very brief summary of the geologic history of the Suplee area and the accompanying map (by Mr. Buddenhagen) illustrates some of the geology.

PALEOZOIC EVENTS

The geologic story of the Paleozoic rocks is very obscure because of the complex structure discontinuity of beds, and scarcity of outcrops. Fossiliferous Devonian, Mississippian, and Permian sedimentary rocks are present. but the beds have been extremely compressed and faulted All of the fossils from these rocks are marine except those in the Pennsylvanian, which are land plants and thus suggest an early period of uplift and deformation. Since no rocks of Late Permian or early Triassic age have been found in the Suplee area, it is assumed that some kind of mountain-building activity was taking place at that time.

MESOZOIC EVENTS

The area continued to be deformed and eroded in early part of the Triassic period. In Late Triassic and very early Jurassic time, several thousand feet of marine sediments were deposited in the Suplee area Fossils found at the Williams Reservoir locality came from these lowermost Jurassic beds.

The next event was a major mountain-building period which involved the folding of the

Geology of the Suplee Area - cont'd

earliest Jurassic, the Triassic, and the Paleozoic rocks, compressing them into north-south trending nearly isoclinal (vertical) folds. Westerly dipping thrust faults complicated the picture by bringing blocks of Paleozoic rocks on top of Triassic rocks.

There then developed an easterly trending marine trough or geocyncline that was more than 100 miles long and as much as 30 miles wide. Thousands of feet of Jurassic sediments, composed mainly of thinly interbedded tuffaceous siltstone, black shales, and volcaniclastic sandstones accumulated in this sea. Their thickness and fossil record (from oldest to youngest) is as follows:

1) Lower Jurassic 200 to 300 feet thick; fossiliferous; contains the Plicatostylus and abundant brachiopods, pelecypods, and ammonites.

2) Middle Jurassic a few thousand feet thick; less fossiliferous; contains ammonites useful for zonation.

3) Lowermost Upper Jurassic (Callovian) several thousand feet thick; sparsely fossiliferous but contains ammonites.

Since there is no record of Upper Jurassic (above the Callovian stage) or of Lower Cretaceous rocks having been deposited in the Suplee region, it is probable that the whole region was uplifted above sea level during this time. North-south compressional forces (opposite to those that deformed the rocks in the previous mountain-building period) produced east-west trending folds in the Jurassic rocks. Of course, all the older rocks were also affected by this compression, which further complicated the structural pattern in the Suplee area.

The fossiliferous Upper Cretaceous sandstones and conglomerates (Bernard Ranch area) represent the last invasion of the sea in central and eastern Oregon. These rocks are relatively undeformed. The fact that they overlap Jurassic and Triassic rocks indicates that Cretaceous beds, and probably also Jurassic and Triassic strata, underlie much of the Tertiary lavas to the west of the Suplee region.

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PROPOSED BUDGET AND CHANGE IN BY-LAWS

The following resolution was unanimously adopted by the Executive Committee in a meeting on April 14, 1967. It involves a CHANGE IN THE BY-LAWS. Letter ballot for you to use in casting your vote on the change will be mailed to you about May 15, 1967.

WHEREAS the duty of the G. S. O. C. Executive Committee is to advance the opportunities of the members in the observation, study and enjoyment of all phases of geology, and

WHEREAS the present income of the society is inadequate to permit continued operation in a proper manner, the Committee proposes in the best interests of the society the following budget.

BE IT RESOLVED that the budget for the fiscal year 1967 be divided into two parts and for the first six months, March 1 through August 31, 1967, be as follows:

Estimated Income			
Dues (for the whole year 1967)			$1,300.00
GSOC School, Jan. to Apr. 1967			
New members dues	$90.00		
Surplus	10.00		100.00
Publication sales			40.00
		Total	$1,440.00
Estimated Expenses			
Secretary's, Treasurer's, Publicity, Membership, etc.	125.00		
Rents	30.00		
Newsletter	600.00		
Speakers	100.00		
Miscellaneous costs	200.00	Total....	1,055.00
		Surplus balance ...	$ 385.00

Proposed Budget & Change in By-Laws - cont'd

AND WHEREAS the Committee proposes that the budget for the second half of the year, September 1 1967 through February 29, 1968, be in accordance with the aims as previously stated and in the sincere effort to accomplish the following:

1. The continuance of the GSOC school as a regular sponsored activity each year.

2 The establishment of a permanent library accessible to the members at all times.

3 A meeting hall without time restriction, and availability for related activities such as school and special meetings.

4 A permanent address with telephone where record storage, information and service to members and the public, and continuity of all activities can be daily accomplished.

5 The aim of perfecting the publications, both the newsletter, trip logs, etc., into more saleable and profitable items.

6 The adherence in the course to fiscal matters, which is based upon a satisfactory dues structure one which does not burden the most regular and active members with the necessity of special and unrelated fund-raising projects.

7 The expenditure of sums necessary to provide speakers of note and field trip expense not previously required

BE IT FURTHER RESOLVED that the budget for the second six months, September 1, 1967 through February 29, 1968, be as follows:

Estimated Income		Balance forward	$385.00
School (rents only)	$400.00		
Publication sales	40.00		440.00
		Total	$825 00
Estimated expenses			
Operating expenses as of first half ($1,055.00) plus $450 00. which will allow the realization of Items #1 through #7			$1,505.00
Total estimated income for the year 1967-68			$1,880.00
Total estimated expense for the year " "			2,660.00
		Total deficit	$ 680.00

AND WHEREAS the above second-half budget is predicated upon activities and expenses which the Committee must yet negotiate; and which would if consummated obligate the Society to future fixed costs, the budget as a whole is contingent upon the satisfactory completion of the following by June 9 1967:

1 That the committee of Allen Howell, Mason and Perrault formally present the Executive Committee with an acceptable proposal for the continuance of the school for the year 1967-1968 and

2. The membership of the Geological Society of the Oregon Country accept formally a dues structure sufficient to permit the continuance of these activities.

THEREFORE, BE IT FURTHER RESOLVED that ARTICLE III, Dues, Section 1, of the By-Laws of the Society be revised to read as follows: (To become effective for the year beginning March 1, 1968)

Section 1 The annual dues for a Junior shall be $5 00 the annual dues for members living in counties not adjacent to Multnomah County shall be $7 00, and all other members shall pay annual dues of $10 00, provided, however, that there shall be extended to the wife or husband of a member all privileges of the Society, except the right to receive the publication of the Society. Honorary Life Members shall not be required to pay dues.

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NEWS OF MEMBERS
By Lillian Miller

Card from JENNY and GEORGE WALTERS dated April 23rd says "We are camped in beautiful Oak Creek Canyon in Arizona. Every way you look is a picture. We are going nuts with our camera, and trying to decipher the Geology is worse. But we are trying, and having lots of fun."

On Saturday, April 22nd, at Oswego High School RUTH KEEN spoke at the Annual Meeting of the State of Oregon Biology Teachers. She also participated in a question and answer session. AL was on hand as an able assistant. DORIS MILLER drove in from Prineville to attend the meeting.

MILDRED WASHBURN and DOROTHY WAISTE are planning an auto trip to San Francisco May 1st to 6th. Sounds like fun.

The Society extends deepest sympathy to MR. AND MRS. LEONARD DELANO on the recent passing of Leonard's mother, MRS. NANCY E. DELANO.

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COOKIES, PLEASE!

On March 1st each year, as we have changes in the executive committee, we also have many new activities chairmen. This year, in charge of hospitality is Mildred Washburn, whom many of you have seen presiding at the coffee table at recent meetings. Mildred likes to make cookies but she does need help. Will anyone who would be willing to bake an occasional cookie for the Friday night meetings phone and let her put your name on the list. Come on all you gals, here's a chance to show off your favorite cookie recipe. Telephone to Mildred Washburn at 644-7609.

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MEMBERSHIP ROSTER

NEW MEMBERS

HANSEN, Mr. and Mrs. C. T.	3514 N. Russett St.	Portland, 97217	289-5832
HERNER, Mr. and Mrs. Paul	10732 N.E. Prescott St.	Portland, 97220	220-6614
JACKSON, Mr. George E.	3578 S.E. Francis St.	Portland, 97202	775-9985
SOMMER, Mr. Tim *	214 High Street	Oregon City, 97045	656-2969

ADDRESS CHANGES

COOPER, Mr. and Mrs. Norman A.	5537 S.E. Howard St.	Portland, 97206	777-1527
SPAULDING, Miss Jacquette E.	16 Spruance St., Apt. 1	Astoria, 97604	--------
WILCOX, Mrs. Betty L.	9911 S.E. 92nd Avenue	Portland, 97266	--------

RESIGNATION

DAVIS, Mr. and Mrs. Leslie C.

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A problem facing those trying to put a man on the moon is to find a way for him to locate his position geographically in the event that he should land other than in the area intended.

GEOLOGY CLASS FIELD TRIP

In the Miocene Epoch the vast floods of lavas that comprise the Columbia River Basalts covered all but a few highlands of the Oregon Country. Across this relatively level surface the ancient Columbia River wound its way to the Pacific Before the end of the Miocene. arching and folding had produced the Western Cascades through which the Columbia cut its path a broad valley, approximately five miles across at its western end

The end of the Miocene was a period of volcanic activity during which the andesitic lavas of the Rhododendron formation were extruded. Volcanic mudflows connected with this activity extended to the area of the lower Sandy River where they probably flowed into the ancient Columbia and were transported by that river to the sea. Laterization of the surface of the Rhododendron suggests a surface of low relief and good drainage in a humid climate for a long period of time.

Uplift of the Coast Range (?) blocked the drainage of this area in the early Pliocene and in the fresh water lake thus created were deposited the fine grained sediments of the Sandy River Mudstone. Maximum exposed thickness of this formation is between 200 and 300 feet in the valley of Buck Creek, a tributary of the Sandy River. A maximum thickness of 725 feet is inferred from the log of a well located some 3 miles southeast of the community of Boring. The upper contact zone of this formation contains leaf fossils An exposure of this fossilized zone of contact with the Troutdale formation in the Buck Creek canyon is a popular collecting locality.

Development of drainage for this area, perhaps with coincidental uplift of the land to the east. gave the Columbia renewed vigor and it deposited thick beds of conglomerate Known as the Troutdale Formation, this commonly well indurated formation is characterized by the abundance of quartzite pebbles and cobbles within it which were derived from sources in the Rocky Mountains. Such large quantities of cobbly material from a source so far away indicate a torrential current in the stream transporting them which in turn implies a steepened stream gradient and general uplift of the land to the east. A thickness of 800 feet is inferred for the Troutdale in East Portland and the original thickness is estimated to be more than 1000 feet. Associated with these conglomerates are lenticular beds of vitric sandstone composed mostly of angular glassy particles, relatively uncontaminated by other material Trimble explains this as being the result of local flows of lava entering the river The sudden chilling of the liquid lava produced glassy material known as sideromelane

In the late Pliocene - early Pleistocene, the Boring lavas were erupted from many vents throughout the area. These light, gray, basaltic flows, many of them porphyrytic, are related to the Cascan lavas of Hodge. Two of the larger volcanoes of this group Mt Defiance and Larch Mountain, by their activity blocked the valley of the Columbia and forced it to seek a new route to the north. where it cut the present gorge.

Overlying the Boring lavas are deposits of poorly indurated. poorly stratified conglomerate interlaced with unsorted. unstratified masses of predominantly angular rock fragments These and alluvial gravel and mudflow deposits have been assigned the names of Walters Hill formation and the Springwater formation. respectively. by Trimble who dates them as late Pliocene, early Pleistocene (?).

Overlying it all is a yellowish-brown. clayey, sandy silt described by Trimble as loess but argumentively characterized in many places by conditions indicating Fluvial deposition This has been given the name of the Portland Hills silts.

In the lower Sandy, and across the alluvial plain of East Portland are spread the loosely consolidated sands and gravels of the Missoula Flood deposits

In the vicinity of Oxbow Park on the Sandy River, the lowest river terrace is composed of Recent sands. 20 to 30 feet in thickness. that were deposited in one torrential outburst which buried the forest growing there. The trunks of buried trees still standing may be seen in the banks of the river which quickly recut its way to its earlier level

This was the substance of a field trip taken April 2 as a graduation exercise by the

Geology Class Field Trip - cont'd.

members of the geology class sponsored by GSOC. It was a picture easily read in the profile of the Sandy River canyon by all who made the trip. Easily read, that is, after a careful, patiently repeated explanation from our co-leader, Dr. Paul W. Howell, who along with Mark Perrault, provided us with a perfect climax - in perfect weather - to a great experience the GSOC school of geology.

Lloyd A. Wilcox

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LIBRARY NIGHT

The April 18th library night offered a valuable lesson in the identification of leaves, fossil as well as natural. Dr John Hammond, past president of the Society showed slides of fossil leaves from the local collecting ground, at the same time giving instruction to the neophyte on key criteria for classification. The tables were also spread with at least a hundred mounted leaves for intimate viewing by the members. Dr. Hammond is an eminent amateur naturalist and has led many field trips into the realm of wild flowers and plants, one to Saddle Mountain being well remembered by this contributor. His library of wild flower slides in natural color is quite inclusive of the flora of the region and a testimony to his photographic talent.

The May 16th library night feature will be the annual picnic for this section of the Society's program It is held on the attractive grounds of Lewis and Clark College excepting when the weather drives the party into their regular meeting room. Communicants should bring their own table service as well as their contribution of food to the pot luck. Coffee will be served on the site.

Dr. Gilchrist sponsor of Library Night, thus closes the affair for the summer recess, inviting members and friends back for the fall opening on September 19th.

C. T. L. M.

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LECTURE GIVEN BY G. S. O. C. SCHOOL MEMBERS

Society members had the opportunity to see the results of Geology School when two outstanding members of the class along with Mark Perrault, the force behind the school and its guiding light gave the lecture at the A pril 14th meeting.

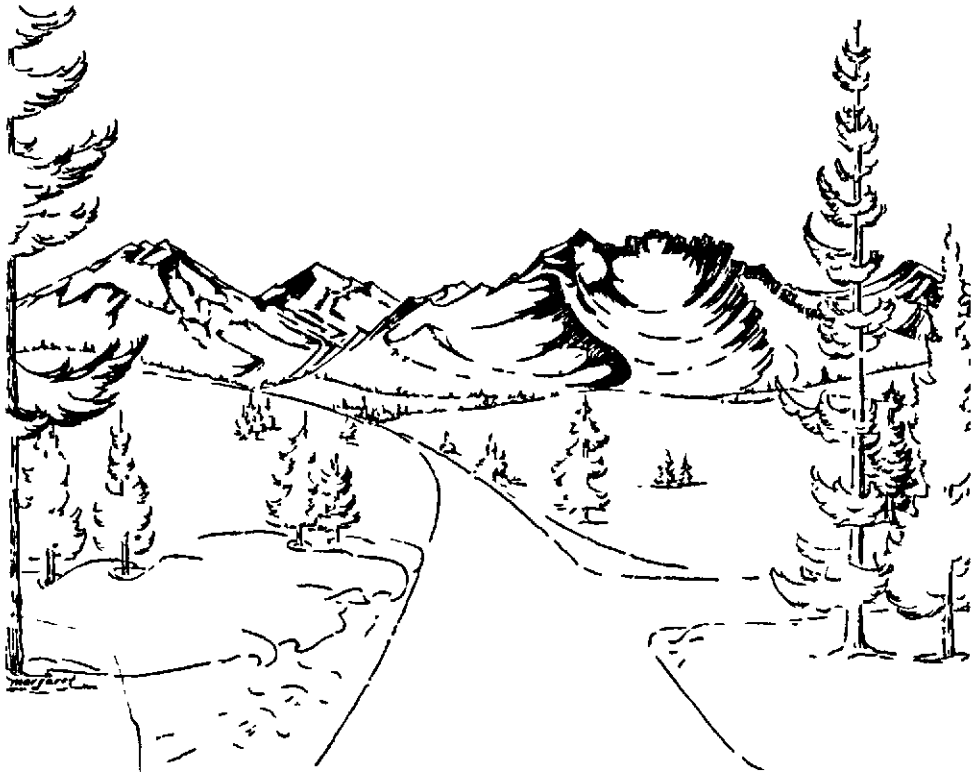
Clara Bartholomay chose as her subject Kelly Butte and what its presence tells about the geologic history of the area. To establish its genesis the geology of the Portland Basin was discussed starting with the outpouring of the Mid-Miocene Columbia River lavas through the Recent deposits of alluvium The talk was illustrated with a geologic time chart and a map of the present Portland Basin.

Lew Birdsall discussed Portland's West Hills, indicating that they are part of the Tualatin Mountains which consist of a ridge of Columbia River Basalt and overlying formations extending along the Willamette and Columbia rivers from Oswego to St. Helens. These hills are an anticline between two synclinal basins filled with alluvium. Three hypotheses for the development of the West Hills were presented. These were erosion, folding and faulting. It seems likely that all three contributed to the history of the West Hills.

Mark presented the geologic history of the John Day Valley, a story of mountain making which can be followed from Paleozoic times The John Day Valley occupies a faulted basin, and the Aldrich and Strawberry Mountains are a great anticline. Inspection of this famous area is planned as a G S. O. C. field trip later in the season.

(Following was inspired by and written during the lecture reported above. -Author-anonymous ?)

Said the man as he finished his climb
And around him the stormy wind whined
If worst comes to worst
I will graben a horst
And strike off for a quiet syncline.



GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

32nd ANNUAL BANQUET

Tune: *"The Caissons Go Rolling Along"*

Over hill, over dale, we have hit the dusty trail
On the quest of the Big Yellow Pine.

In and out, round about, Lloyd worked out a dusty route,
On the trail of the Big Yellow Pine.

Then it's hi, hi, hee
We're as dirty as can be!
Where in the devil is that Bum?
The last he was seen
He was riding nice and clean,
Leaving us in the dust yet to come!

Thirty-Second Annual Banquet

February 24, 1967

Mayflower Dairy Auditorium

Few if any charter Members of the Geological Society of the Oregon Country dreamed that 32 years later they and the Society would be still going strong. The Society owes a debt of gratitude to these founding members, both for their imagination in creating the Society and their long unselfish dedication to the cause. It is entirely fitting that these people be honored tonight. Without them there would have been no Society and the hills of Oregon would still be waiting for someone to hear their story.

The scene so graphically portrayed in Margaret Howell's drawing for our cover is the view looking north from the foot of Mt. Bachelor to the Three Sisters and Broken Top. It recaptures for us the magnificent grandeur of our High Cascades peaks. Long famous but of late gaining even greater fame as a "laboratory" for our country's Astronauts in the Lunar Space Program, this area was the scene of the Society's 1966 President's Campout.

The center spread is a view of Todd Lake with Broken Top in the background. Nestling in its glacier carved basin, Todd Lake was the scene of the base camp from which the Society inspected the Central Oregon "Moon Country" during last summer's Campout.

At first glance the picture at the back depicts little in the way of geology. But all who dared this journey off the beaten path will attest that much geology was covered by those who made the trip(or was it much geology covered those who made the trip?). Verse accompanying picture by author Unknown. But suspected.

DO NOT TYPE

PAST PRESIDENTS

1935	HODGE, Dr. Edwin T.	1951	WILSON, Mr. Ford E.
1936	PHILLIPS, Mr. Clarence D.	1952	STONE, Mr. Norris B.
1937	VANCE, Mr. Albert D.	1953	BALDWIN, Mr. Raymond L.
1938	TREASHER, Mr. Ray	1954	KEEN, Mr. Albert J.
1939	PIPER, Mr. Arthur	1955	CLARK, Mr. William F.
1940	STEVENS, Dr. J. C.	1956	GILCHRIST, Dr. Francis G.
1941	PHILLIPS, Mr. Kenneth N.	1957	PALMER, Mr. Leroy Atwood
1942	SCHMINKY, Mr. H. Bruce	1958	STAUFFER, Dr. James
1943	RUFF, Mr. Lloyd L.	1959	HOWELL, Dr. Paul W.
1944	BATES, Mr. Erasmus N.	1960	BROWN, Mr. Franklin M.
1945	HANCOCK, Mr. Alonzo W.		WILBUR, Mr. Robert F.
1946	ALLEN, Dr. John Eliot	1961	HAMMOND, Dr. John
1947	JONES, Dr. Arthur C.	1962	DELANO, Mr. Leonard H.
1948	LIBBEY, Mr. Fay Wilmot	1963	KENNEY, Mr. Albert Richard
1949	SIMON, Mr. Leo F.	1964	EWEN, Mr. Irving Gilbert
1950	HODGE, Dr. Edwin T.	1965	MILLER, Mr. Fred E.
		1966	WILCOX, Mr. Lloyd A.

ANN BANQUET COMM

~~ACTIVE CHARTER MEMBERS~~

ADAMS, Mrs. W. Claude
HAMILTON, Rose
HANCOCK, Mrs. Alonzo W.
DAVIS, Mrs. Franklin L.
HODGE, Dr. Edwin T.
JENNISON, Mr. and Mrs. Harry C.
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REICHEN, Mr. and Mrs. Sam
REIMERS, Mr. Fred
SCHMINKY, Mr. and Mrs. H. Bruce
SIMON, Mr. and Mrs. Leo F.
STEVENS, Dr. and Mrs. J.C.
STRONG, Mrs. F.H.
UNDERWOOD, Dr. Herbert L.
VANCE, Mrs. A.D.
WADE, Mrs. Tracy

— 7 —

A HUNDRED MILLION

Tune: "Clementine"

1. In a cavern, in a cavern,
   Back a hundred million years,
   Brontosaur and Stegosaurus
   Gnashed their teeth and shed their tears.

CHORUS: Hundred million, hundred million, / hundred million years ago
Largest reptiles show their spring styles. / Here's their bones, it must be so.

2. Laid their eggs on desert sand,
   Thought their race would never cease.
   Ancient yeggs sold breakfast eggs for
   Just about two-bits apiece.

3. In the lees of ancient seas
   The Trilobite was in the pink,
   Picked a fight with Ammonite,
   No more salt water does he drink.

4. Into innards of a Rhino
   Up a rocky canyon wall,
   Climbed a score of dusty rock-hounds.
   Now we have no doubt at all.

5. Dr. Beck told us to peck
   In the shale for Ginkgo leaves.
   Offered us four bits reward,
   But he was laughing up his sleeve.

LAND OF THE FOSSIL HUNTERS

Tune: "Land of the Empire Builders"

1. Land of the ancient fossils
   Land of forgotten seas
   Covered by old volcanoes
   Remnants of tropic trees.
   Home of the three-toed horses
   Camel and Oreodon.
   Hail to thee, Land of Condon
   Our Oregon!

3. Land of the fossil hunters
   Land of the John Day beds
   Laden with ancient camels
   Turtles and rhino heads.
   Eocene horses buried
   Under a setting sun.
   Hail to thee, land of fossils
   Our Oregon!

4. Land of the fossil hunters
   Land of volcanoes old
   Building a book of wonders
   Which to our eyes unfold.
   Marvels of all creation
   Process that's never done.
   Hail to thee, land of fossils
   Our Oregon!

DE RE GEOLOGICA

Tune: "The Old Gray Mare"

1. Oh, the Oregon Country ain't what she used to be,
   Ain't what she used to be, ain't what she used to be,
   The Oregon Country ain't what she used to be,
   Many long years ago.

CHORUS: Many long years ago! Many long years ago!
   Oh, the Oregon Country ain't what she used to be,
   Ain't what she used to be, ain't what she used to be,
   The Oregon Country ain't what she used to be,
   Many long years ago.

2. So we take our books and study geology,
   Study Volcanology, Geomorphology,
   To learn the country's Geochronology
   Of many long years ago.

3. And we take our picks and dig in the Eocene,
   And the Oligocene, into the Miocene.
   We look for fossils in the Pliocene
   Of many long years ago.

LAST: For the Oregon Country ain't what she used to be,
   Ain't what she used to be, ain't what she used to be,
   The Oregon Country ain't what she used to be,
   Many long years ago.

THE HILLS OF OREGON

Tune: "Home on the Range"

1. There's wonderful hills, 'long the Oregon shores
   Covered deep with a mantle of trees.
   The birds in their nests, swing happy and free
   In breezes from over the seas.

CHORUS Hi, Ho! Let's away. Let's go where the treasures abound.
   There's opals and agates and geodes galore,
   And nodules all over the ground.

2. There's maple-clad hills, all purple and gold,
   Many others are covered with snow.
   But give me the hills, the sage-colored hills
   Where beautiful pentstemon grows.
   The skies overhead are clear as a bell,
   The meadow lark's out before dawn.
   Dame Nature we find in her happiest mood
   Weaves magical pictures in stone.

   Oh, give me those hills, east Oregon hills
   Where the breeze through the juniper blows.
   There's lupine abloom and paintbrush ablaze
   And the beautiful pentstemon grows.

PROGRAM

WELCOME	*LLOYD WILCOX*

DINNER

Introduction of Toastmaster	Lloyd Wilcox
Introduction of Guests	Paul Howell
Installation of Officers	Paul Howell
Farewell Address	Lloyd Wilcox
Inaugural Address	Ralph Mason
Honors and Awards	Paul Howell
Presentation of Charter Members	Paul Howell

INTERMISSION

Introduction of Speaker	Paul Howell

PRINCIPAL ADDRESS

"Geological Resume' of the Suplee Area, Central Oregon"

H. J. Buddenhagen

Mr. Buddenhagen is consultant to the State Department of Geology and Mineral Industries.

ENTERTAINMENT

Songs	Men's Quartet
	Arthur Jones
	Paul Howell
	Truman Murphy
	Francis Gilchrist
Pianist	*Kathy Tobey*
Music on the Rocks	Murray Miller
Everybody Sing	Arthur Jones
Pianist	*Berrie Hancock*

BOTTOM OF P2

SOCIETY ADMINISTRATION

EXECUTIVE COMMITTEE

	1966	1967
PRESIDENT	Lloyd A. Wilcox	Ralph S. Mason
VICE PRESIDENT	William M. Freer	Donald D. Barr
SECRETARY	Dorothy R. Waiste	Dorothy R. Waiste
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DIRECTOR, TWO YEARS	C. Truman L. Murphy	George W. Walters
DIRECTOR, THREE YEARS	George W. Walters	Mark Perrault
PAST PRESIDENT, ONE YEAR	Irving G. Ewen	Fred E. Miller
PAST PRESIDENT, TWO YEARS	Fred E. Miller	Lloyd A. Wilcox

GEOLOGICAL NEWS LETTER

EDITOR	Irving G. Ewen
BUSINESS MANAGER	Robert F. Wilbur

ANNUAL BANQUET COMMITTEES

General Co-Chairmen	*Phyllis Bonebrake* *John H. Bonebrake*
Decorations	Lillian Miller Reba Wilcox
Entertainment	William Freer
Exhibits	Robert Wilbur
Gifts	Dennis Carmody
Hospitality	Peggi Stahl
Menu Geologica	Margaret Steere
Music: Everybody Sing	Arthur Jones
Pianist	*Berrie Hancock*
Men's Quartet	Arthur Jones Francis Gilchrist Paul Howell
Pianist	*Katy Tobie*
Music on the Rocks	Murray Miller
Photography	Fred Miller
Place Cards	Lillian Miller Reba Wilcox
Program Cover Design	Margaret Howell
Publicity	Irma Sullivan
Telephone	Ruby Zimmer Hazel Zimmer
Ticket Sales	Leo Simon

M E N U

BANQUET GUESTS	MOULDED FERRIC GASTRO CAVITIES
COCKTAIL	
Assorted Fruits	Sphalerite Cubes
SALAD	
Tossed Greens	Chlorite Schist
French or	Rutile or
Roquefort Dressing	Kaolinite Dressing
ENTREE	
Stuffed Pork Chops	Stuffed Dinosaur Tail (Sliced)
or	or
Fried Salmon	Fried Oncorhynchus
with	with
Baked Potato	Quartzite Cobbles
Whipped Butter	Magnesite
Chives	Metasequoia Needles
Green Beans	Actinolite Crystals
Slivered Almonds	Chalcedony Chips
Rolls and Butter	Concretions and Fool's Gold
DESSERT	
Cherry Tart	Rubies
Vanilla Ice Cream	Glacial Ice
DRINK	
Coffee, Tea, Milk	Manganese, Limonite, or Zeolite in Solution

Geological Society of the Oregon Country

ACTIVITIES CHAIRMAN

	1966	1967
FIELD TRIPS	Lee Gavigan	Clair Stahl
PROGRAMS	Donald D. Barr	Paul Dunn
LIBRARIAN	Miss Clara Bartholomay	Miss Clara Bartholomay
LIBRARY NIGHT	Dr. Francis Gilchrist	Dr. Francis Gilchrist
LUNCHEONS	Leo Simon	Leo Simon
MEMBERSHIP	Mrs. Laurette Kenney Mrs. Peggi Stahl	Mrs. Frances Price Cook
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HISTORIAN	Miss Rowena Hoven	Miss Rowena Hoven
HOSPITALITY	Mrs. Gwen Helm	Mrs. Mildred Washburn
OMSI EXHIBIT	Truman Murphy	Truman Murphy
OMSI FACILITIES	Ralph Mason	Ralph Mason
PROPERTIES ADMINISTRATION	Robert Waiste	Robert Waiste

THE GEOLOGICAL NEWS LETTER

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GEOLOGICAL SOCIETY OF THE OREGON COUNTRY
1967 ADMINISTRATION

EXECUTIVE COMMITTEE

PRESIDENT Mr. Ralph S. Mason	3932 S.W. Idaho Terrace	Portland, 97221	244-2106
VICE PRESIDENT Mr. Donald D. Barr	12438 SW Orchard Hill Rd.	Lake Oswego, 97034	246-2785
SECRETARY Mrs. Robert Waiste	133 S.E. 27th Ave.	Portland, 97214	235-4320
TREASURER Mr. George R. Dahlin	Rt. 1, Box 150	Orchards, Wn. 98662	892-3427

DIRECTORS
Mr. C. Truman L. Murphy — Mr. George W. Walters — Mr. Mark Perrault

PAST PRESIDENTS
Mr. Fred E. Miller — Mr. Lloyd A. Wilcox

GEOLOGICAL NEWS LETTER

EDITOR Mrs. Clair F. Stahl	3235 N.E. 61st Ave.	Portland, 97213	281-2220
BUSINESS MANAGER Mr. Robert F. Wilbur	2020 S.E. Salmon St.	Portland, 97214	235-7284

ACTIVITIES CHAIRMEN

FIELD TRIPS Mr. Clair F. Stahl	3235 N.E. 61st Ave.	Portland, 97213	281-2220
PROGRAMS Mr. Paul E. Dunn	6124 N.E. Mallory Ave.	Portland, 97211	285-5008
LIBRARIAN Miss Clara L. Bartholomay	1620 N.E. 24th Ave., Apt 306	Portland, 97232	284-6986
LIBRARY NIGHT Dr. Francis G. Gilchrist	0644 S.W. Palatine Hill Rd.	Portland, 97219	636-5942
LUNCHEONS Mr. Leo F. Simon	7006 S.E. 21st Ave.	Portland, 97202	236-0549
MEMBERSHIP Mrs. Richard A. Cook Mrs. Ernest A. Hanson	2006 S.W. Sunset Blvd. 4438 N.E. Royal Court	Portland, 97201 Portland, 97213	244-5026 234-6994
PUBLICATIONS Miss Shirley M. O'Dell	4710 S.E. Stark St. Apt 7	Portland, 97215	234-2318
PUBLICITY Mrs. Laurette Kenney	4125 S.E. Gladstone St.	Portland, 97202	775-5697
TELEPHONE Miss Hazel F. Zimmer Miss Ruby M. Zimmer	805 S.E. 60th Ave. 805 S.E. 60th Ave.	Portland, 97215 Portland, 97215	236-8319 236-8319
ADVISORY COMMITTEE OF PAST PRESIDENTS Dr. Arthur C. Jones	3300 S.W. Heather Lane	Portland, 97201	222-3100
HISTORIAN Miss Rowena Hoven	1007 S.E. 21st Ave.	Portland, 97214	234-9005
HOSPITALITY Mrs. N. Brice Washburn	2905 S.W. 209th Ave.	Aloha, 97006	644-7609
OMSI EXHIBIT Mr. C. Truman L. Murphy	2027 N.E. Wasco St.	Portland, 97232	282-2027
OMSI FACILITIES Mr. Ralph S. Mason	3932 S.W. Idaho Terrace	Portland, 97221	244-2106
PROPERTIES ADMINISTRATION Mr. Robert Waiste	133 S.E. 27th Ave.	Portland, 97214	235-4320

G S O C CALENDAR FOR JUNE 1967

Every Thursday — LUNCHEON - Y M C A , 831 S W 6th Avenue, Portland, Oregon
12:00 Noon - Attend the informal get-togethers in the Mountain Room off the main cafeteria Publications and other items of interest are circulated and discussed and occasionally short talks are heard.

June 9 Friday — LECTURE - Central Library, 801 S. W. 10th Avenue, Portland, Oregon
7 30 P M - Mr Albert C Berglund, instructor of Earth Sciences at Willamette University will speak on ways of arriving at the ages and sequence of the various divisions of geological time. His lecture will be illustrated by slides and charts. Come and bring your friends to what promises to be a very interesting and informative program.

June 17 Saturday — FIELD TRIP - Leaf fossil beds in the Collawash area, via private car
10.00 A M. - Assembly point will be the Ripplebrook Ranger Station, located about 25 miles south of Estacada on State highway 224. Driving time from Portland about 1-1/2 hours Trip leader Dr. John H. Hammond will lead the caravan to the end of the road, from which there will be a half mile walk through the timber to the fossil beds. Bring your lunch and the usual fossil collecting equipment For further information phone Clair F. Stahl, 281-2220.

June 20 Tuesday — LIBRARY NIGHT - Not scheduled during the summer months.

June 23 Friday — Lecture - Central Library 801 S. W. 10th Avenue, Portland, Oregon
7:30 P M - Mr William R Matthies, Assistant professor at Portland State College who recently returned from a two year stay in Pakistan, will speak of his experiences there and on the geology of the country. He will show slides including scenes of prehistoric cities dating as far back as 5 000 B C. Don't miss hearing Mr. Matthies who is so well qualified to speak on this subject

ADVANCE CALENDAR FOR JULY

July 1 - 4 Saturday thru Tuesday — Aldrich Mountain area Structures and fossils.
For Geesockers who can manage a four day holiday week end this promises to be most interesting Trip Leader Mark Perrault will give his followers an on the spot look at the subject of his lecture on April 14th. This is the area studied by the Geology Class last winter.

July 1 — Meet at Starr U S Forest Service campground, 14 miles south of John Day. U S Hwy 395 on the summit of the Aldrich Mountains. A nature walk in the vicinity of the camp is planned for late afternoon.

July 2 & 3 — Caravan tours of geologic interest

July 4 — This is the day we break camp and start homeward, but there will be plenty of time to visit the museum at Canyon City, or look for Indian artifacts in Logan Valley.

For additional information phone Mark Perrault, at 292-4841

July 22 thru July 30 — PRESIDENT'S ANNUAL CAMPOUT - Mt Hood area.
Keep this date in mind See the announcement on page 37 of the April Geological News Letter and watch for details in the July issue. If you plan to attend and haven't yet signed up with Ralph Mason please do so as soon as possible

* * * * * * * * * * * * * * * * * *

NEWS OF MEMBERS
By Lillian Miller

Congratulations to C. P. KEYSER who received the first 1967 Rose Festival pin.

MRS. HUGH MILLER is at home and feeling much better.

Wedding bells are scheduled to ring for AL and LAURETTE KENNEY'S son BOB who will be married June 30 to Miss Janet L. Ophein. Versatile Laurette has made the wedding veil for the bride.

The Spectacular geology of the Deschutes Canyon train trips has attracted many members. RUTH KEEN and her geology students, and AL KEEN, and IRMA SULLIVAN took the May 7 trip. LAURETTE KENNEY, FRED and LILLIAN MILLER, LOUIS OBERSON, HUGH OWEN and friend, RUTH ROWLS, CLAIR and PEGGY STAHL, and BRICE and MILDRED WASHBURN have sold trip logs on these excursions. The new revised trip log by DR. PAUL HOWELL with pictures by FRED MILLER has been a most popular addition to the geological literature of the area.

"Ask Leo -- He Knows!" was the caption of an article about LEO SIMON in the May 21st Sunday Oregonian. It didn't take the Oregonian to tell us that. We knew it already.

Charter Member MR. FRED REIMERS passed away April 26th. Mr. Reimers had made his home in Pendleton for several years and was hospitalized since 1965.

Contributions to News of Members should be telephoned to Lillian Miller at 771-6154.

* * * * * * * * * * *

MEMBERSHIP ROSTER

NEW MEMBERS

BRAMBLE, Mr. Ronald E.	2495 W. Main St.	Medford, 97501	- - - -
LAPPALA, Mr. Ernest	2921 S.W. Bertha Blvd.	Portland, 97201	246-4504
NICHOLS, Mr. and Mrs. Frank	44 Fesihler St.	Wellsboro, Penn, 16901	
THOMAS, Mr. and Mrs. Dent	5004 S.W. View Point Terr	Portland, 97201	228-6961
MUCK, Miss Marilyn (junior)	Route 3, Box 905	Gresham, 97030	658-2698

ADDRESS CHANGES

SAKAI, Mr. Ken W.	25 S.W. 85th Ave.	Portland, 97225	292-3011
GREGORY, Dr. and Mrs. Victor	10211 S.W. Lancaster Rd.	Portland, 97219	246-6019
JENKENS, Mr. and Mrs. Lee*	8 East Sherman St.	Hood River, 97031	- - - -

*Student

CHANGE OF PHONE NO.

HERNER, Mr. and Mrs. Paul 254-6614

RESIGNATION
MR. AND MRS. ORIE TRACY

Volume 33, Number 6

THE BRIDGE OF THE GODS

By Emory Strong

The early explorers along the Columbia River, literate and observing men, were greatly puzzled by the many peculiar formations and obstructions in the vicinity of the Cascade Rapids, now drowned beneath the waters behind Bonneville Dam. Lewis and Clark were the first white men to see the Cascades, unless we include Kanope and his son Soto, who probably saw them in the early 1700's, but left no record. Kanope, the survivor of a wrecked Spanish ship. married an Indian and their son resided at the Cascades, at least during the fishing season

Lewis and Clark began noticing that some unknown obstruction of the river must lay ahead long before reaching the Rapids. Camped at Drano Lake on October 29, 1805, Lt. Clark records "The rocks project into the river in maney places and have the appearance of haveing fallen from the high hills. those projected rocks is common & small Bays below & nitches in the rocks". This appearance was caused by flooded shore. Proceeding downstream, he wrote "A remarkable circumstance in this part of the river is, the Stumps of pine trees in Maney places, are at Some distance in the river, and gives every appearance of the river being damed up below from some cause which I am not at this time acquainted with".

At the Cascades "Several rocks above in the river & 4 large rocks in the head of the Shute; those obstructions together with the high Stones which are continually braking loose from the mountain on the Stard. Side aded to those which brake loose from these Islands above must be the cause of the rivers daming up to such a distance above, where it shows such evident marks of the common current of the river being much lower than at the present day".

On the return trip, near Hood River, Capt. Lewis says "Throughout the whole coarse of this river we find the trunks of many large pine trees standing erect as they grew at present in 30 feet of water, they are much doated and none of them vegetate, nor can I account for this phenomenon except it be that the river has been obstructed at the rapids by the rocks which have fallen into that channel within the past 20 years; the appearance of the hills at that place justify this opinion." [1]

Certain it is that the slide had overgrown by the time of Lewis and Clark or it would have been immediately evident. It did appear much less overgrown than it does at present, however, as shown by old photographs But the trees would have been sufficiently large to have hidden the evidence from one at the riverside. The slide actually happened about 700 years ago, according to carbon 14 dating. See the GSOC News Letter Vol. 26, No. 2, February 1960 for an excellent discussion of the geology of the slide by Donald and Elizabeth Lawrence and a good picture of the "drowned forest".

Members of the Astor party, who came to the Columbia River in 1811, are almost silent concerning the geology of the Cascades, being more concerned with trying to portage their goods around them in the midst of hostile Indians. I find only a comment by Ross Cox, in 1817 "several of our canoes struck on sunken rocks and trees". [2]

David Douglas. botanist. traveled extensively in the Oregon Country from 1824 to 1833, on various trips for the Royal Horticultural Society of England. His only comment concerning the geology while passing the Cascades was about the petrified wood "Many large trees in a petrified state are to be seen lying in a horizontal position between the layers of rock, the ends touching the water in many places." While traversing the lakes on the upper Columbia, he says "A mile on each side of the lake stumps and entire dead trees stand erect out of the water; by some change in Nature the river has widened. The same thing occurs ten miles above the Grand Rapids, 148 miles from the sea." [3]

The Rev. Samuel Parker traveled to Oregon in 1835, spending the winter at Fort Vancouver. The purpose of his visit was to select sites for Protestant missions. On October 13, on his way downstream below The Dalles. he records in his journal "I observed a remarkable phenomenon--trees standing in their natural position in the river, in many places where the water is twenty feet deep. or much more, and rising to high, or freshet water mark, which is fifteen feet above the low water. Above the freshet rise, the tops are decayed and gone. I deferred forming an opinion in regard to the cause, until I should collect more data." The wind came up another phenomenon for which the Columbia River is famous, and the party was forced to camp

Bridge of the Gods - cont'd.

The next day, after proceeding a short distance, the wind again forced them to encamp "in a cavern under a large projecting rock, the upper part of which was formed of basalt, the lower of pudding stone. Although this encampment was at least six miles above the Cascades, yet the roar of the water could be distinctly heard. The same phenomenon of trees continues. I paid particular attention to the condition of the shores of the river and adjacent hills, to see if any evidence could be discovered of their having slidden down from the hills by escarpment; but as their condition was the same where there were no hills near, I was led to conjecture, that I should find the river at the Cascades dammed up with volcanic productions; and I was induced to believe it would be found to be so, from the fact, that the river, the whole distance from the La Dalles, is wide and deep, and moves with a sluggish current."

On the 15th the wind was still blowing but abated and "--arrived at the Cascades at two o'clock in the afternoon. The trees, today, were still more numerous, in many places standing in deep water, and we had to pick our way with the canoe in some parts, as through a forest. The water of the river is so clear, that I had an opportunity of examining their position down to the spreading roots, and found them in the same condition as when standing in their natural forest. As I approached the Cascades, instead of finding an embankment formed from volcanic eruptions, the shors above the falls were low, and the velocity of the water began to accelerate two-thirds of a mile above the main rapid. On a full examination, it is plainly evident that here has been an uncommon subsidence of a tract of land, more than twenty miles in length, and more than a mile in width. The trees standing in the water are found mostly towards and near the north shore, and yet, from the depth of the river and its sluggish movement, I should conclude the subsidence affected the whole bed. That the trees are not wholly decayed down to low water mark, proves that the subsidence is comparatively, of recent date; and their undisturbed, natural position proves that it took place in a tranquil manner, not by any tremendous convulsion of nature. The cause lies concealed, but the fact is plain."

Thus by reasoning, Rev. Parker arrived at the true reason for the submerged forest, but his observations faulted him. Had this remarkably astute observer had a chance to examine the area thoroughly, and seen the leaning trees, landlocked lakes, and other evidence of a landslide, he may have arrived at the proper conclusion. Perhaps the weather prevented his having that satisfaction for on the return trip "I walked five miles, sometimes along the shore of the river, and sometimes climbing over precipices; and so laborious was the task to get the canoe above all the rapids and falls, that it occupied most of the day, giving me time for examining the scenery around. Almost every variety of volcanic production was seen, but basalt and amygdaloid predominated. Large quantities of petrified wood were scattered along the shores, some of which preserved its natural appearance, but the large blocks when broken presented the appearance of mineral coal. The scenery around is grand, yet such was the misty state of the atmosphere about the tops of the mountains, which were at this time covered with snow, and the chilliness accompanying, that the enjoyment was less than would be felt under other circumstances."[4]

Lt. Charles Wilkes, USN, in charge of a scientific expedition for the United States Government, visited the Columbia River in 1841. Peacock Spit was named for one of his vessels, the Peacock, wrecked on that sandbar at the mouth of the Columbia. Of the Cascades, he says "The geological character of this range is basaltic lava, basaltic conglomerate, and sandstone. Large quantities of petrified wood are to be found in the neighborhood. - - - - A short distance above the Cascades, they passed the locality of the sunken forest, which was at that time entirely submerged. Mr. Drayton, on his return, visited the place, and the water had fallen so much as to expose the stumps to view: they were of pine, and quite rotten, so much so that they broke when they were taken hold of. He is of the opinion that the point on which the pine forest stands, has been undermined by the great currents during the freshets; and that it has sunk bodily down until the trees were entirely submerged. The whole mass appears to be so matted together by the roots as to prevent their separation. Changes, by the same undermining process, were observed to be going on continually in other parts of the river."[5]

The Reverand Gustavus Hines left New York for Oregon in October 1839, to do missionary work. He traveled extensively and kept a remarkably detailed, readable diary. In May

Bridge of the Gods - cont'd

1843 at the Cascades he writes "The river here falls in continued rapids for three miles, not less than fifty feet That portion of the rapids properly called the cascades, presents an appearance of grandeur and sublimity not inferior to that of the rapids of the Niagra river above the great cataract At this place the Columbia rushes through the cascade range of mountains. and the channel through which it pours its mighty torrent, appears not more than thirty rods wide. while each shore presents indubitable evidence that, by a vast accumulation of water above these mountain barriers were torn assunder, and thus this mighty river found its way to the Pacific ocean. The Indians here have a tradition that, a long time ago the mountain was joined together over the river, and that the river performed a subterraneous passage for some distance, with a slow current and that their people used to pass up and down with their canoes without difficulty; but all at once the foundations of this mighty arch crumbled beneath their ponderous weight and the whole mass came tumbling into the river, filling up the channel and quite damming up the stream, and thus were formed the beautiful cascades The probability is that this tradition is true only in part Doubtless the time was when there were no cascades here, and they were probably formed by the mountain's sliding into the river in tremendous avalanches, and thus filling up the channel The land on each side of the river at this place is rough and sterile, and the scenery wild beyond description The cascades are fifty miles above Vancouver, and one hundred and forty-five miles from the mouth of the Columbia.

"At three P M., the wind lulling, we proceeded up ten miles and camped for the night, which was exceedingly windy, with some rain. Found the river wide above the cascades, with little current, and, from appearances, were convinced that the Indian tradition concerning the falling in of the mountain is not without foundation. The original channel appears to have been very narrow, compared with the present width of the river. Forests which were situated on its former banks. have been overflown, and a vast number of stumps and trees which have not yet wasted away, stand in the present bed of the stream."[6]

Peter Burnett, who first saw the Cascades when he came with the pioneer wagon train of 1843. says "There was then an Indian tradition that about a hundred years before, the Cascades did not exist. but that there was a succession of rapids from the Dalles to where the Cascades are now - - - - This tradition said that the river gradually cut under the mountain until the projecting mass of huge stones and tough clay slid into the river and dammed up the stream to the height of some thirty feet, thus producing slack water to the Dalles. And I must say that every appearance, to my mind, sustains this view".[7]

Paul Kane was a Canadian artist who came to the Oregon Country in 1846 to sketch and paint the Indians and the scenery. He comments "At the place where we camped (Cascades) on the evening of the 5th. there were a great many stumps of trees standing in the river; it is supposed to be a landslip I made a sketch of it "[8]

Father Pierre Jeane DeSmet, a Jesuit missionary whose field included the Northwest, wrote in 1846 "There is an interesting and very plausable account of the formation of these far-famed Cascades on which so much has been said and written, so many conjectures regarding earth slides sinks. or swells caused by subterranean volcanic agents. 'Our grandfathers' said an Indian to me, 'remember the time when the waters passed here quietly and without obstruction under a long range of towering and projecting rocks, which, unable to bear their weight any longer, crumbled down, thus stopping up and raising the bed of the river. then it overflowed the great forests of cedar and pine, which are still to be seen above the cascades ' Indeed the traveler beholds with astonishment a great number of huge trunks of trees still standing upright in water about 20 feet deep No person, in my opinion, can form a just idea of the cause that produced these remarkable changes without admitting the Indian narrative" [9]

George Gibbs ethnologist and geologist with the Railroad Survey and an important contributer to the history of the Oregon Country, wrote in 1854 in his report on the geology of the Central Washington Territory "Smoke was distinctly seen issuing from St. Helens during our journey This and Mt Baker are the only volcanoes at present active in the chain. Its last considerable eruption was in 1842, when it covered the country as far as Vancouver and the Dalles with ashes, and presented a luminous appearance after the smoke had cleared off The Indians report that there were once three mountains that smoked always, Mount Hood and Mount Adams being the others. Respecting Mounts Hood and St. Helens, they have

Bridge of the Gods - cont'd.

a characteristic tale to the effect that they were man and wife; that they finally quarrelled and threw fire at one another, and that St. Helens was the victor; since then Mount Hood has been afraid, while St. Helens, having a stout heart, still burns. In some versions this story is connected with the slide which formed the Cascades of the Columbia, and by damming up the water inundatet the forest, the remains of which are now visible along its margin. The date of this event Lewis and Clark fixed at about thirty years before their arrival. It is very probable that it may have been due to an earthquake, as they, though not frequent, are known upon the coast. The Indians have no tradition of an eruption of lava; they have only seen smoke and ashes come out of the mountain. They added that a bad smell came from it, and that the fish in the streams died". Later in the report he concludes "The origin of the Cascades has already been referred to. There seems to be no question that a slide from the mountains on the south side has actually taken place, and that the water has thus been backed up above it. No evidence exists of any subsidence of the low alluvial shores, by which what is called the sunken forest has been submerged, but that its position is simply due to this rise of water."[10]

Lt. R. M. Williamson, under orders from the War Department, surveyed a railroad route from the Sacramento Valley to the Columbia River by the way of Klamath Lake, in 1855. Near Wind River, on his way downstream in a steamboat, he says "It is in this vicinity that the celebrated submerged forests are mostly found. They consist of numerous dead trees, stripped of their smaller branches, but still standing upright in the deep water near the river banks, and presenting every appearance of having grown there. As these trees could never have grown under water, their present position has given rise to much speculation. It has been suggested that they may have been transported from the neighboring mountains by vast avalanches. It is possible that this may be true in a few places, but not in all, as they are sometimes found where the position of the mountains precludes the idea. Another theory, which I think much more plausible, is, that formerly a great slide occurred at the Cascades, about 15 miles below the Wind Mountain, and formed a dam; which, by raising the water above it, submerged and killed the forests growing on the banks. The appearance of the Cascades tends to confirm this idea."

In Volume XII of the Railroad Reports the Cascades are again mentioned "The Indians say that at the Cascades the river used to be practically free, but the gradual encroachments on its precipitous banks at length gave rise to a land slide, which, falling into the river, made a sort of natural dam, which is evidently the case from the appearance of the shore".[12]

The slide, when it happened, was catastrophic for the Indians. Whether there were any villages buried beneath the rubble is unknown but it seems likely that there were some in its path because there were villages in all the wide places in the Gorge such as Bingen and Lyle. Some villages were drowned and their remains could be seen, before Bonneville Dam, during times of extremely low water.[13]

The greatest catastrophe, however, as far as the prehistoric inhabitants of the Columbia were concerned, would have been the blocking of the migrating salmon, upon which the natives depended for their existence. The literature frequently states that before the slide, Celilo Falls was too high for the salmon to pass over, and there were none on the upper reaches of the river. The archaeological record does not bear this out, nor does the state of the river before The Dalles Dam, which showed no evidence of being backed up by the slide, above the Long Narrows. But the slide would have caused a tremendous rapid which may have stopped the salmon altogether. On the Frazer River in 1913 nearly two and a half million cases of sockeye salmon were canned; after railroad constructors blasted a cliff into the canyon the catch dropped to 143,000 cases, because the salmon could not pass the man-made rapid to spawn. Prior to this catastrophe - estimated to have cost over one billion dollars - it was not known that rapids of a certain length and velocity would block the fish.

If the Cascade slide occurred in the spring, for instance, the migration for that year may have been completely stopped. The loose formation comprising the slide would have rapidly eroded, but still must have built a long, furious rapid. The present Hamilton, Ives and Pierce Island are remnants of the debris, and the lower end of Pierce Island is over seven miles from the head of the slide. Without the salmon starvation would have spread among the Indians above, not only for that year but for the years following when the salmon spawn would normally have returned. There are Indian legends of how the salmon no longer came, and their magical return, that may be connected with the slide. (The old river channel is one half mile north of the present one, at Bonneville Dam.)

Bridge of the Gods - cont'd.

If in your imagination you can eliminate the vegetation, you can still view part of the slide just as it looked after it happened. Observe on your right just before coming to the Cascade Locks exit on the freeway, going east, the piles of rubble heaped up on the hillside by the splash of the toe of the slide after it roared across the river with tremendous speed borne on a layer of compressed air.

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LOWER COLUMBIA FIELD TRIP

'Twas a cold and bleak morning on April 16 when 39 GSOCers boarded the bus at Portland State and began a tour of the Lower Columbia River Valley. Rain was falling, and the weatherman's forecast held little hope for improvement, but the chill and gloom rapidly dissipated before the warm smiles and cheery greetings that filled the bus. The raincoats which everyone carried were needed at almost every stop as we sloshed around examining the various outcroppings We heard reports that the weather had been beautiful when the reconnaissance trip was made which can lead to only one conclusion: Everyone should go on the reconnaissance trips!

Our route led downstream from Vancouver, always near the river, and off the freeways, except for those places where necessary to reach the points of observation. Dr. Paul Howell provided his usual excellent commentary throughout the trip, and any omissions or errors in this report are no fault of his, but due mostly to this reporter's failure to take adequate notes

Missoula Flood silts were the first formation discussed, and were observed in several localities during the day. These silts were the most recent of the ancient depositions, and along the railroad tracks they were very conveniently exposed within a few yards of a deposit of Portland Hills Silt

Stratigraphically the region is built up from the Cowlitz Formation of the Eocene time, through the Goble Volcanics, Scappoose and Astoria Formations, Columbia River Basalt, Sandy River Mudstone, Troutdale Formation, and Portland Hills Silt, all of which pre-date the Missoula Flood deposits of the late Pleistocene.

The Cowlitz Formation is composed of interbedded sandstone and siltstone, deposited in places to a maximum depth of 8000 feet. This formation was not easily accessable on this

Lower Columbia Field Trip - cont'd.

trip because of weather conditions, but it was our good fortune to attract the attention of a local resident who was interested in the fossils contained in it, and who presented us with a number of specimens from his collection.

The Goble Volcanics were observed in many localities along the route. They were deposited near the end of the Eocene, and, while the landmass was still subsiding, built up the deposit at a faster rate than that of erosion and subsidence, and pushed the seacoast farther westward. As the volcanic activity declined some sediments were deposited between flows. This deposit is seen today as lava flows, breccia, and tuff beds, as much as 5000 feet deep.

Through the Oligocene a great amount of folding and faulting occurred in the area, and by middle Miocene it had been eroded nearly to base level. At this time the Columbia River Basalts were laid down.

Uplift again occurred in late Miocene and early Pliocene while the Columbia River cut its present channel. As the land again subsided, the river deposited gravel and silt into the depression to such a depth that it appears to have completely choked the valley at one time. This deposit is now called the Troutdale formation and is made up of two members, one a coarse conglomerate, poorly bedded, of basalt and quartzite cobbles and gravel. The other member is a fine sandy or silty material. Troutdale gravel is beautiful and interesting at any time, but wet in the rain it presented a sight to thrill every pebble-picker, and we all had visions of these beautiful stones adorning our own private patios. This particular deposit was dramatically capped with a flow of columnar basalt, probably of Boring age, lying in a horizontal position. The exact identity of this basalt and the source from whence it came, is still relatively undetermined.

Waiting to meet the ferry schedule at Cathlamet gave us an opportunity to wander around the town, stretch our legs, and bask in a rare exposure of sunshine. The river-crossing by bridge and ferry was a delightful experience. Many of us had qualms about the carrying capacity of the ferry when its size was compared to that of the bus, but experienced hands guided us aboard and tucked several other vehicles securely alongside. We did ride a bit low in the water, but the sunshine held out, and the scenery was beautiful.

Returning home via the Oregon side we met other vagarities of Mother Nature, for all within a few hours we experienced heavy rain, mist, fog, and snow, in addition to the aforementioned sunshine. These are the ingredients that make life interesting!

And for making the arrangements and tying the story all together in such an interesting manner, we are all sincerely indebted to our Trip Leader, Dr. Paul Howell, and Field Trip Chairman, Clair Stahl.

Irma Sullivan

* * * * * * * * * * * *

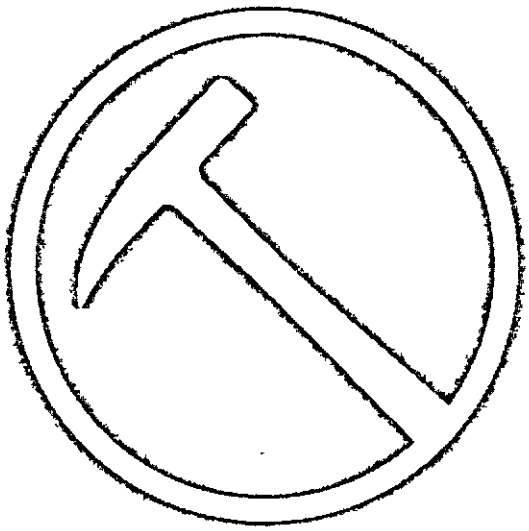
PRAGUE ANYONE ?

The 23rd International Geological Congress will be held in Prague, Czechoslovakia in August, 1968. The American Geological Institute has made arrangements with Pan American Airlines for round-trip chartered air transportation at a substantial reduction in fare, and is now taking reservations. If any G.S.O.C. member is planning to attend the 23rd IGC and wishes to use this service, further information may be obtained from the office of Mr. Ralph Mason, telephone CA 6-2161, Ext. 488.

* * * * * * * * * * *

On that field trip of March nineteen
Many fine fossils were seen,
But the best find by far -
The lost key to my car
Was hardly quite Oligocene.

R. E. P.



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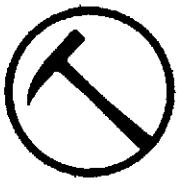

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Volume 33, Number 7

G.S.O.C. CALENDAR FOR JULY 1967

Every Thursday — LUNCHEON - Y.M.C.A., 831 S.W. 8th Avenue, Portland, Oregon.

12.00 M. - A gathering of GSOC'ers and guests in the Mountain Room, adjacent to the Main Cafeteria. Presided over by Mr. Leo Simon, these informal sessions provide an opportunity to examine and discuss publications and geologic specimens.

July 1, 2, 3, 4 Saturday thru Tuesday — FIELD TRIP - Aldrich Mountain Area.

Trip Leader - Mark Perrault. Campsite - Starr Campground, 14 miles south of John Day, U.S. Highway 395. Caravan tours of geologic interest.

July 14 Friday — LECTURE - Central Library, 801 S.W. 10th Avenue, Portland, Oregon.

7:30 P.M. - Where does the "Cherry Creek Series, Among the oldest exposed rocks of North America, fit in Oregon Geology? A discussion of the mineralogy, the occurence, and the geologic signifance of these old rocks will be given by Mark Perrault. Color slides will illustrate the occurence, the rocks, and the effects upon Northwest geology.

July 18 Tuesday — LIBRARY NIGHT - Not scheduled during the summer months.

July 28 Friday — LECTURE - Cancelled due to President's Campout.

July 22 Saturday thru July 30 Sunday — FIFTH ANNUAL PRESIDENT'S CAMPOUT - Mt. Hood.

Campsite will be Tilly Jane Forest Camp at the end of Cloud Cap Inn road which starts at Cooper's Spur Junction on State Highway 35 about 10 miles south of Parkdale. See article on President's Campout on page 59 of this issue. For further information call Ralph Mason at CA6-2161, ext 488 days, or CH4-2106 evenings.

ADVANCE CALENDAR FOR AUGUST 1967

August 11 Friday — ANNUAL PICNIC - In the throat of the Cinder Cone in Mt. Tabor Park.

6:30 P.M. - Pot-luck supper. Bring a salad, a main dish, or a dessert. Rolls, butter, and beverages will be supplied. Bring eating utensils for your group; plates, cups, table silver, etc.

7:30 P.M. - Sing-a-long with Paul Howell and Truman Murphy. Bring your best voice.

For further information telephone Peigi Stahl, Picnic Chairman, 281-2220.

August 25 Friday — LECTURE - None scheduled in August.

* *

NEWS OF MEMBERS
By Lillian Miller

TRUMAN MURPHY has just returned from a fabulous trip--geologically and historically. Great Smokies, Roanoke, Kitty Hawk, Fort Monroe, Yorktown, Williamsburg, Jamestown, Mt. Vernon and Washington were a few of the stopping places. However, our traveler did not confine his adventures to the past, but explored the present and future at Expo 67.

MR. ORRIN STANLEY is now living at the Village Nursing Home.

EMILY MOLTZNER was pleased to see HUGH OWEN and JESS RENTSCH who visited her recently.

Prominent Central Oregon landowner and favorite GSOC member, DR. PAUL HOWELL, has been vacationing in fine health and company in Hawaii.

MRS. RAY GOLDEN is feeling much better and is visiting her son in California.

A letter from MRS. J. C. STEVENS reports that charter member DR. STEVENS, now past 91 years, is confined to his home. He sends his good wishes to all the members, old and new.

MRS. MONTANA STRUCHEN is a teacher at the summer school held at the Oregon Museum of Science and Industry.

MRS. REUBEN C. NEWCOMB received a runners-up award for her entry in the recent rose show.

MEMBERSHIP ROSTER

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Volume 33, Number 7

EARTH'S EARLIEST AGES

By Francis G. Gilchrist

A talk to the Society, April 28, 1967

The geological ages are the Cenozoic, Mesozoic, Paleozoic, Proterozoic, Archeozoic, and Azoic. The last three terms are not in good standing among geologists today; but they will serve the purposes of the present topic very well. Each term signifies a stage in the development of life: recent life, intermediate life, early life, earlier life, earliest life, and no life. Each age began with a great event. The Cenozoic began with the Rocky Mountain Revolution, the Mesozoic with the Appalachian Revolution, the Paleozoic with the Pre-Cambrian Revolution, the Proterozoic (as we here define it) with a revolution in the composition of the earth's atmosphere, the Archeozoic with the origin of life, and the Azoic with the origin of the earth.

We shall begin our story with the great Pre-Cambrian Revolution, the greatest of all time. The sea retreated from most of the land, and great mountain ranges arose and were eroded away. This took place over 600 million years ago. Almost no record remains; but it must have been a very long interval indeed, because before it took place the animals were soft bodied and have left few fossils. After it ended many animals had evolved hard parts for offense and armor for defense. Fossil remains are abundant immediately after the Pre-Cambrian Revolution

The Proterozoic Age was perhaps one billion years long, a duration long enough for several series of mountain ranges to arise and become base levelled. A vast inland sea covered the region of the Rocky Mountains and western plateau, as witness the ripple marks in the Proterozoic of Glacier Park and the Grand Canyon. The sea no doubt teemed with life, most of it microscopic, even as it does today. Yet extremely few fossils remain. Why? Because they were without hard parts. The animals were filter feeders and scavengers of the sea bottom.

There are fossils in the Proterozoic, however: coral reefs built by coralline algae, spicules of sponges, casts of worm burrows, and in Australia a remarkable collection of soft-bodied jellyfish, worms, and a coelenterate like the present-day sea pen. (See Scientific American, March, 1961.)

The important thing to remember about the Proterozoic is that it was the period during which all the great animal phyla underwent their early evolution. Biochemical evolution had already taken place, and protoplasm was what it is today. The atmosphere was an oxidizing atmosphere in which animal life could flourish. A layer of ozone high in the atmosphere protected the surface of the earth from the lethal rays of the sun. Besides free oxygen, the atmosphere also contained much more carbon dioxide than it does at present--witness the vast quantities of carbon which is now tied up in graphite, coal, oil, and limestones since that time.

The Archeozoic Age also may have been one billion years long. It was during the Archeozoic that the earth's atmosphere became transformed from a reducing atmosphere containing H_2, H_2O, NH_3, CH_4, and CO_2 to one containing free O_2. It was also during the Archeozoic that the whole of the biochemical evolution of life took place. The first self-reproducing molecules, the "protogenes", appeared; the first genes with protein jackets, the "protoviruses", were formed; the first cells developed; and, very important, the first plants capable of photosynthesis appeared. Indeed, according to present concepts, the transformation of the atmosphere from a reducing atmosphere to an oxidising one with free oxygen was the work of plants, presumably microscopic plants of the sea. It is said that today seven-eighths of the photosynthesis which takes place is the work of plants of the sea.

When the Archoezoic Age started, life could not have been more than a mere scum of microscopic organisms living inefficiently by utilizing the limited supply of organic chemicals which were dissolved in the sea. When it ended, plant cells were present which possessed the complicated photosynthetic machinery for trapping the energy of sunlight to

Earth's Earliest Ages - cont'd.

build organic chemicals for themselves.

Abundant graphite grains disseminated in the most ancient rocks have been interpreted as evidence of microscopic plants which inhabited the sea when the earth had yet a reducing atmosphere. If free oxygen had been present, the bodies of these plants would have been oxidized and destroyed. The presence of a reducing atmosphere in the Archeozoic is further indicated by the fact that iron in the most ancient rocks is in the reduced or ferrous state. After the atmosphere acquired free oxygen, the iron in the rocks became mostly ferric iron, red in color.

The Archeozoic Age began with the origin of life; but a visitor to our planet would not have been aware that anything so momentous in its consequences had taken place. The beginning of life took place at a molecular level. Possibly it took place only once--a single self-reproducing molecule in a vast ocean!

The Azoic Age was possibly two billion years long. This adds up to some 4-1/2 or 5 billion years, which is the time astronomers allow for the age of the earth. The oldest rocks which have been dated by the uranium-lead method are said to be 3-1/2 billion years old. They indicate that at this time the earth had a crust, volcanoes, and presumably an ocean. It was in this sea that organic chemicals accumulated as they were being synthesized with the aid of the energy of electric storms and ultraviolet illumination. They accumulated because there was no free oxygen to destroy them.

According to present ideas the earth is as old as the sun. It was never a ball of fire thrown off by a molten sun. On the contrary, the sun and earth and other planets condensed from centers in a turbulent dust cloud, a stellar nebula of dust and gas.

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FIELD TRIP TO CAMP HANCOCK

A small but dedicated contingent made their way to Camp Hancock for the May 20th - 21st week end. The men fell to the chore of roof building with somewhat the air of an old-fashioned barn raising, while the women busied themselves with making and breaking camp and other such housewifely chores. The soaring temperature, an unofficial one hundred and four degrees on Saturday, was more conducive to a search for shade than a search for fossils, and with the roof finished most of those attending left for home Sunday morning in an attempt to avoid another sweltering day. A notable exception to the exodus was our esteemed president, Ralph Mason, who spent the week end ferrying a truck and trailer load of lumber up from Portland for OMSI. Another Geesocker at the camp that week end with an unenviable task was Don Barr who was riding herd on a bus-load of Jackson High School students. Don and his tribe left on Sunday morning in search of ammonites farther east, but before peace and quiet had a chance to settle in Dr. John Allen arrived with five large busses filled with Portland State College students. Popular place, Camp Hancock.

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LIBRARY NIGHT PICNIC

The last meeting of the Library Night program was the annual potluck picnic on the Lewis and Clark College campus. About sixty attended and happily some of them were new to the program. After the sumptuous spread in the arbor by the swimming pool Leo Simon led members on a nature walk on the grounds. A song fest was then enjoyed and the members repaired to the Biology building to view two excellent films, 'The Science of Glaciation', and 'The Rogue River Country'. Dr. James Stauffer operated the projector. Dr. Francis Gilchrist, sponsor of Library Night provided the program and Mrs. Gilchrist supplied the coffee. There was no observable loss of appetite in evidence. The program now closes for the summer and will open again on the regular third Tuesday night of September.

C.T.L.M.

Volume 33, Number 7

THE PRESIDENT'S CAMPOUT

The north side of Mt. Hood will be the playground and study area for the 1967 GSOC President's Campout. Specifically camp will be at Tilly Jane Forest Camp which lies at the end of the Cloud Cap Inn road which leaves the Mt. Hood Loop Hiway at Cooper's Spur Junction about 10 miles south of Parkdale. The Junction, incidentally, is almost exactly half way around the the mountain from Portland so it makes little difference whether you go counterclockwise past Government Camp or go up the Gorge to Hood River and then up through the valley. The road above Cooper's Spur is a bit narrow, twisty and dusty but is less than 10 miles long. Elevation at camp will be just under 6000 feet.

Normal camping gear and food supplies will suffice. Several trips out to civilization are planned so fresh supplies can be picked up. Clothing should include stout shoes, preferably waterproof, sunglasses, gloves and something to keep warm and dry in and something to get wet in. Be sure to bring adequate sunburn preparations. If you have some half inch nylon rope or an alpenstock or ice axe, bring them too.

Activities will be geared to the weather and to the whim of the leader. Roughly half of the nine days will be spent on field trips over the trails and non-trails of the area. Non-trail and non-non-trail days will be devoted to driving to some of the geologically and scenically interesting points in the general area. Conditions permitting, at least one day will be spent on some of the glaciers inspecting the various ice features and the methods used in determining the rate of flow of the ice streams. As opportunity affords some sitten in der schnee und sliden will be attempted. The north side of Hood is noted for its variety of alpine flowers which should be coming out in all their glory during the campout. Students in vulcanism will be able to examine the site of the most recent eruption on Hood and also the many rock types that go to make up Oregon's highest volcanic manifestation. Wildlife includes everything except the fabled Abominable Snowman. Oddly enough the area teems with butterflies--all of which seem to want to fly over the summit of Hood. Sharp-eyed campers may even spot patches of sphaerella nivallis on the firn.

Historically the campout area has quite a bit to offer. Cloud Cap Inn, Mt. Hood Lodge, Homestead Inn, the Toll Road and other points of historic interest are located nearby. Maps of the area include: USGS 7-1/2 minute quadrangles of Cathedral Ridge, Timberline Lodge, Dog River, Badger Lake, Government Camp and Bull Run Lake.

The Campout area is of scientific interest also because it lies in the transition zone between the climates of western and central Oregon and between the land of perpetual frost and snow and the permanently vegetated countryside. The area is a study in contrasts. One mile southwest of camp is a region totally in the grip of the Ice Age, where the silence is broken only by the occasional roar of avalanching glacier ice or the clatter of rock on a scree slope. A mile northwest of camp there is an area of dense timber and thickly carpeted glades covered with shrubs and plants. No Ice Age here although the nights are cool and the summers are short.

R. S. M.

* * * * * * * * * * * * * * * * *

FOSSIL DIGGING ON GRANITE PEAKS

Dr. John H. Hammond led a party of forty-six into the Granite Peaks area (we didn't see any granite) on June 17th in search of fossil leaves. Downed trees made the walk in somewhat of a scramble but didn't prevent many fine specimens from being carried out.

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HISTORICAL GEOLOGY FOR THE LAYMAN

1. The Science & Philosophy of Geology
   Materials, Methods, and Tools of Historical Geology
2. The Beginning of the Earth
   Minerals and Rocks
3. Evolution of Life
   Cryptozoic Eon
4. Ordivician Period
   Silurian Period
   Devonian Period
5. Mississippian Period
   Pennsylvanian Period
6. Permian Period
   Nature and Evolution of Paleozoic Life
7. Triassic Period
   Jurassic Period
8. Cretaceous Period
   Nature and Evolution of Mesocoiz Life
9. Paleocene Epoch
   Eocene Epoch
   Oligocene Epoch
10. Miocene Epoch
    Pliocene Epoch
    Pleistocene Epoch
11. Nature and Evolution of Cenozoic Life
    Geologic Record of Man
12. Geologic History of Oregon
13. Field Trip and Report on Field Trip

This is a tentative lecture schedule. Classes will be held at OMSI every Monday evening from 7:00 to 10:00 P. M. Winter term.

GSOC School is under the direction of Dr. J.E. Allen, Dr. P.W. Howell, Mr. Ralph Mason, and Mr. Mark Perrault. The purpose of GSOC School is twofold. First, to acquaint our own members with Geology so that they may gain greater enjoyment from the activities of the Society. Second, to make it possible for others to gain an understanding of Geology which they can use in their everyday contacts with the outdoors.

Enrollment forms will be mailed to those who attended the class last winter. They hold preference rights in the new class.

Enrollment will be held open for GSOC members until August 15, 1967. The fee for members is $17.50. Non-members may then enroll until Nov. 1, 1967. Non-member fee is $27.50, which includes membership in the Geological Society of the Oregon Country ($10.00) for 1968.

If you did not attend the previous class and wish to attend this class send your check for the full amount, made payable to "Geological Society of the Oregon Country" to Mark Perrault, 9000 NW Cornell Road, Portland, Oregon 97229. You will then be sent an enrollment form.

Volume 33, Number 7

The following letter was recently received by Laurette Kenney from Dr. Ralph W. Chaney.

UNIVERSITY OF CALIFORNIA, BERKELEY

BERKELEY • DAVIS • IRVINE • LOS ANGELES • RIVERSIDE • SAN DIEGO • SAN FRANCISCO SANTA BARBARA • SANTA CRUZ

DEPARTMENT OF PALEONTOLOGY BERKELEY, CALIFORNIA 94720

June 15, 1967

Dear Mrs. Kenney,

Your letter of last November arrived when I was in Asia. It was put on a loaded desk and only today has come to light.

The specimen from the Oregon coast may be a cycad. If it is of animal origin it is suggestive of a barnacle. More than this I cannot say without seeing it. If the owner wants to send it down I am sure some one here can identify it, and we shall return it. If it should prove to be a cycad the record would be of great interest.

You are correct in recalling that I accompanied Roy Andrews on one of the expeditions into Mongolia. We found dinosaur eggs, some of which contained embryos of partly developed young dinosaurs.

Twenty-five years later (in 1950) I secured seeds of the Indian lotus which had been buried in a peat deposit in Manchuria for several thousand years. These were given me by a Japanese friend, who in turn had received them from a Japanese in Manchuria. A Carbon-14 test indicated that the seeds were at least two-thousand years old; there is some basis for assigning an age as great as ten-thousand years. But even the minimum age is remarkable for these seeds contained live embryos, and when the hard shell was cut or filed they produced living plants. Some of these are, or have been, in the Kenilworth Garden in Washington, D. C. I have forgotten the greatest previous age recorded for a viable seed, but it is little more than a century (the age of viable grain from the Pyramids is only a fable).

When I went into central China in 1948 to bring out seeds and photographs of the dawn redwood (Metasequoia), I saw a large ginkgo tree in a situation which indicated to my satisfaction that it was growing under natural conditions. There have been subsequent observations which seem to confirm mine, in adjacent parts of China.

I forgot to say that I shall return the kodachrome of the fossil specimen later if it is desired.

Your letter recalls pleasant experiences at Camp Hancock, and in the Clarnos Ferry area where I have been collecting fossils since 1921.

Sincerely yours,

Ralph W. Chaney

FRIDAY SURPRISE

Lecture night, June 9th, turned out to be a surprise to everyone including the speaker Mr. Albert C. Berglund, when he arrived in Portland to find the Society expecting to hear a lecture that he was not prepared to deliver. He did promise to work up such a lecture and return to give it at a future date. In the meantime he presented to an attentive audience an extremely interesting and informative description of the step by step procedures a geologist must take to arrive at the answer to any specific question in his field. Mr. Berglund illustrated his lecture with placards on which were mounted maps and aerial photographs and othere data.

And this being surprise night, there was still more to come. The Peyrees, members from Salem who attend meetings and field trips more faithfully than most Portlanders, brought with them an exciting but all too brief film of recent volcanic activity in Hawaii. Viewers who attended last years President's Campout in "Moon Country" must have felt that they were taking a time-machine voyage back to the days of volcanic activity in the Bend area.

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CHANGE IN BY-LAWS

There were 138 ballots returned on the recent vote on the change in By-Laws to raise the annual dues of the Society. Ninety-one voted for approval; 45 voted for disapproval; one ballot was returned unmarked and one was marked for both approval and disapproval. Therefore, a majority of votes cast were for approval and the By-Laws will be revised accordingly. The raise in dues is effective for the year beginning March 1, 1968. The Executive Committee appreciates all the comments from members; this is the only way it can become aware of your wishes so that it can attempt to carry out the desires of the majority.

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VOLCANIC HAZARDS ON MOUNT RAINIER DESCRIBED

"Volcanic Hazards at Mount Rainier, Washington," is the title of a recent pamphlet issued by the U. S. Geological Survey as Bulletin 1238. The authors are D. R. Crandell and D. R. Mullineaux. The 26-page booklet has a color photo of Mount Rainier and many illustrations. It fives the post-glacial geologic history of Mount Rainier and points out the potential danger of debris slides, which are defined as rapidly moving masses of water-saturated rock. Bulletin 1238 is for sale by the Superintendent of Documents, U. S. Government Printing Office, Washington D. C. 20402, for 45 cents.

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NEW GENUS OF JURASSIC PELECYPOD IN EAST-CENTRAL OREGON

"The Mesozoic pelecypods Otapiria Marwick and Lupherella Imlay, new genus, in the United States," by Ralph W. Imlay, has been published by the U. S. Geol. Survey as Prof. Paper 573-B. The paper describes a new genus of pelecypod, named Lupherella, which occurs in two places in eastern Oregon and at one locally in northern California. It is particularly well preserved and numerous in the Nicely Formation in the Suplee-Izee area of Grant County. The fossil is of late Early Jurassic (Pleinsbachian) age. It greatly resembles and may belong to the same family as Otapiria, a form that occurs in Upper Triassic and Jurassic beds of Indo-Pacific and Arctic regions and that has recently been discovered in northern Alaska.

Prof. Paper 537-B has 11 pages and two plates of illustrations. It is for sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402. Price is 25 cents.

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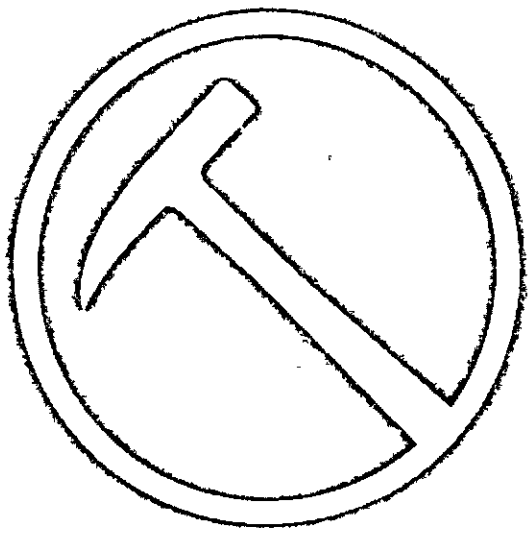

THE GEOLOGICAL NEWS LETTER

Official Publication of the Geological Society of the Oregon Country

August 1967

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G. S. O. C. CALENDAR FOR AUGUST 1967

Every Thursday — LUNCHEON - Y. M. C. A., 831 S. W. 6th Avenue, Portland, Oregon

12:00 M. - Schedule your trips to the downtown area so that you can attend the Thursday luncheons at the Y. These informal gatherings, held in the Mountain Room adjacent to the Main Cafeteria, are friendly and interesting.

Additional information may be obtained from Mr. Leo F. Simon, phone - 346-0549

August 11 Friday — ANNUAL PICNIC - In the throat of the Cinder Cone in Mt. Tabor Park.

6:30 P. M. - Pot-luck supper. Bring a salad, main dish, or a dessert. Rolls, butter, and beverages will be supplied. Bring eating utensils for your group: (plates, cups, table silver, etc.)

7:30 P. M. - Sing-along with Paul Howell and Truman Murphy. Bring your best voice.

For further information telephone Peigi Stahl, Picnic Chairman, 281-2220.

August 15 Tuesday — LIBRARY NIGHT - Not scheduled during the summer months.

August 25 Friday — LECTURE - Not scheduled in August.

August 27 Sunday — FIELD TRIP - Cape Lookout State Park.

Time: Meet at 10:00 A. M.

Place: Parking lot of the picnic area at Cape Lookout State Park.

Route: From Portland drive to Tillamook and follow signs to Cape Lookout State Park. Distance about 85 miles. Allow 2 hours.

Equipment: Bring a lunch and geologic picks. Read and bring the May 1967 issue of the Ore Bin containing illustrated article on Cape Lookout by Doris Mangum. Also GSOC caravan car cards.

This will be a geology and scenery trip. Approximate itinerary is as follows:

1) Drive on new road over Cape Lookout to see pillow lavas and marine sediments of Miocene age.
2) Hike a short distance on Cape trail for scenic views.
3) Return to Cape Lookout State Park picnic area for lunch and a short walk on the beach.
4) Take Loop Drive to Cape Mears to see lighthouse, octopus tree, and coastal geology.
5) Drive to Bayocean Peninsula to see dune erosion and site of ghost resort.
6) Stop at Miocene fossil locality near Tillamook boat landing.
7) If time permits see famous museum at Tillamook.

For further information call Clair F. Stahl, Field Trip Chairman, 281-2220.

NEWS OF MEMBERS
By Lillian Miller

GSOCers MEREDITH THOMS and ISABELLE ALLISON who work for North Pacific Division, Corps of Engineers, recently attended the International Conference of Women Engineers at Cambridge, England.

Those wedding bells have been ringing again. This time for HERBERT JOHNSON and RUTH PRENTISS. Congratulations and best wishes!

BONNIE SOOTS is recuperating from a broken leg.

LEO SIMON has been attending the 26th annual convention of the Midwest Federation of Mineralogical and Geological Societies at Davenport, Iowa. Johanna accompanied him and their itinerary included Ames, Iowa and a visit with their daughter and son-in-law, DR. and MRS. WILMER J. MILLER.

JESS RENTSCH is on his annual visit with relatives in New York and Cleveland.

On July 20 the luncheon group enjoyed a visit and an extemporary travelogue by GSOC member from Wasco, Oregon, HELEN (MRS. WALTER) BRUCKERT. The BRUCKERTS pay an annual visit of from a month to six weeks to their ranch in the Williams Lake district of British Columbia. Mrs. Bruckert spoke interestingly of the geology of this glaciated area, of the rigorous climate, of the abundant natural wildlife. Moose are common as well as deer, black and grizzly bears, wolves and foxes, beaver and mountain beaver. The mineral wealth of the country is again being prospected after the depletion of the Caribou gold mines. This time molybdenum and copper will be the most prolific metals.

But the Bruckert economic interest is in their fine herd of registered hereford cattle which fatten on this sea of abundant grass. While the men questioned her on this phase of the ranch, the women sat on the edge of their chairs to hear of household and kitchen chores in this, to them, remote retreat. While the Bruckerts make the summer visit a holiday, they have a permanent overseer to look after the realm. Horse Fly is the interesting name of their post office.

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MEMBERSHIP ROSTER

Name	Street Address	City, State zipcode	Telephone
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STANLEY, Mr. Orrin E.	1616 N. E. 48th Avenue	Portland, Ore. - 97213	---
RESIGNATION			
SAKAI, Mr. and Mrs. William Y.			

Volume 33, Number 8

OCEAN RESOURCES AND METHODS FOR RECOVERING THEM

By Vernon C. Newton, Jr.*

The oceans cover 70 percent of the earth's surface. If the earth were a smooth sphere, the ocean waters would cover the entire surface to a depth of 12,000 feet. Continental shelves comprise 11 million square miles of the sea floor, an area 100 times the size of Oregon. Shelves are hundreds of miles wide in the South China Sea, in the Atlantic off Argentina, and in the Bering Strait. The deep ocean floor, overlain by 6,000-25,000 feet of water, covers 90 percent of the subsea area.

The resource potential of this vast region is tremendous. It contains 80 percent of all animal life on earth. Last year, $8 million in diamonds were dredged from the sea floor at the mouth of the Orange River in South Africa, 7,200 tons of magnetite were taken from sands on the floor of Tokyo Bay, $150 million of placer tin recovered from the ocean bottom in the southeastern Pacific, and $15 million of sulphur recovered through drilled wells in the Gulf of Mexico. Mine tunnels have been driven under the ocean at many locations. Last year 10 million tons of coal were mined from these undersea tunnels.

Yet untouched are millions of tons of precipitated manganese and phosphate nodules on the floor of the abyssal plains. To date the value of oil produced from continental shelf lands far outweighs all of the other minerals taken from below the sea.

Since 1950, 800 million barrels of oil have been recovered from shelf lands adjacent to the shores of the United States. Value of the oil is estimated to be $7-1/4 billion. It is believed that 20 percent of the sheld lands of the world have fair potential for oil production. At the present rate of exploration it will take until the year 2100 to fully explore the shelves for oil. World reserves of ocean bottom oil are estimated to be at least 60 billion barrels or approximately a 20-year supply for the U.S. at present use level.

It can be realized from the mentioned forecasts that even with the added shelf oil the future reserves will not last indefinitely. Also, it will take many years to develop these ocean bottom reserves.

Equipment and techniques

Gulf Coast development utilized bottom supported drilling equipment because shallow water covered shelf lands in that region. Deep water techniques were needed for West Coast exploration because shelf lands along the Pacific shore were overlain by much deeper water. Several large oil firms began studies of methods for producing from deep water areas in 1950. The CUSS Group (Continental, Union, Shell and Superior) was successful in designing a drilling vessel after several years of trials. This ship was used to drill core holes in 11,000 feet of water for the Mohole project in 1959.

Today there are three main types of deep water drilling equipment: drill-ship, jack-leg platform, and floating platform. The drilling tools are the conventional type used for onshore work, but many innovations in equipment have been necessary for connections between the drilling platform and the ocean floor.

Floating equipment must utilize a tensioning system for the heavy conductor pipe which connects ocean floor valves to the deck housing the drilling machinery. The system maintains a steady support for the pipe to compensate for wave-caused vertical movement.

Human divers, diving bells, remote control devices, and robot divers have been employed in making underwater connections to ocean floor well-heads. Remote control devices are operated from the surface and are observed through closed circuit T.V. Sonar equipment is used to locate the sea floor installations if contact is lost between the drilling vessel and the well-head.

* Petroleum Engineer, State of Oregon Department of Geology and Mineral Industries.

Ocean Resources - cont'd.

Oregon and Washington were the proving ground for deep-water techniques. In 1964 and 1965, a floating platform and a drill-ship were used to drill several holes along the Northwest coast. Results of these operations were used in planning drilling in the North Sea and other rough water areas of the world. Daily contract costs for the platform averaged $18,000 per day while costs for the drill-ship were approximately $15,000 per day. The first holes cost $300 per foot to drill. Later, after experience was gained, costs were brought down to approximately $60 per foot. The drill-ship was not able to operate in rough seas and was returned to California during the winter months. The floating platform drilled during the winter months, but such operation was not economic because so much time was lost in high winds and rough seas.

If oil is found offshore in the Northwest, two methods of development are possible. Production equipment can be installed on the ocean floor and serviced by divers or large bottom supported platforms can be installed from which many wells can be drilled. Ocean floor installations do not endanger navigation, they allow holes to be drilled vertically but are difficult to service. Platform wells can be easily serviced but they are navigation hazards, and holes must be directionally drilled which adds considerably to expense of drilling.

The future for undersea exploration will bring ocean bottom living quarters and a variety of small submarines capable of working at depths of the abyssal plains. U.S. Navy research teams and French scientists have lived at depths of 200 to 600 feet for extended periods Animals have used a new filter device for removing oxygen from sea water and have been able to breathe underwater (Walter Cronkite, 21st Century, April 1967). A bathysystem, envisioned by a contemporary scientist, will allow many people to live under the ocean at the 500-foot level and use it as a base for undersea ventures. Human divers now are able to work at depths of 400 feet by breathing an atmosphere of oxygen and helium to prevent bends. Their working level may be extended to 600 feet as experience is gained.

Lands under the sea offer a tremendous reward for those with the courage and resources to explore them. A comfortable living for the coming generations of Americans may depend on research projects now under way.

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ABOUT DINOSAURS

The sauropod was a harmless vegetarian measuring between 65 and 85 feet in length and with an average weight of over 40 tons. He had to live in a swamp to help support his tremendous bulk. This huge creature had a very small, small brain and in addition had a swelling of the spinal cord at the base of the vertebral column which was responsible for working the muscles of the hind legs and tail. Upon learning about the sauropod a journalist, Bert L. Taylor, wrote the following verse:

Behold the mighty dinosaur,
Famous in prehistoric lore,
Not only for his power and strength
But for his intellectual length.
You will observe by these remains
The creature had two sets of brains -
One in his head (the usual place),
The other at his spinal base.
Thus he could reason 'a priori'
As well as 'a posteriori'.
No problem bothered him a bit
He made both head and tail of it.
If something slipped his foreward mind
'Twas rescued by the one behind.
And if in error he was caught
He had a saving afterthought.
Thus he could think without congestion
Upon both sides of every question.
Oh, gaze upon this model beast,
Defunct ten million years at least.

GEOLOGICAL SOCIETY OF THE OREGON COUNTRY
ANNUAL MEMBERSHIP ROSTER
Compiled by the Secretary
August 1967

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#Adams, Mrs. W. Claude	2614 N. E. Bryce St.	Portland, 97212	281-8747
"Allen, Dr. and Mrs. John Eliot	Ione Plaza, Apt. 610 1717 S. W. Park Avenue	Portland, 97201	223-4260
Allen, Mrs. Ruth M.	636 S. E. Andover Place	Portland, 97202	234-8080
Allison, Mrs. Isabelle D.	Route 3, Box 905	Gresham, 97030	658-2698
Anderson, Mr. Robert Boyd	303 Wilcox Building	Portland, 97204	222-7095
Appelgren, Mr. and Mrs. Wilson	R. F. D. #3, Box 166	Hood River, 97031	386-3224
Ayres, Dr. and Mrs. Fred D.	7122 S. E. 36th Avenue	Portland, 97202	771-9384
Baker, Mrs. Lois Inman	541 West 16th St.	Eugene, 97401	345-5870
Baker, Mrs. Thora Martin	Box 207	Estacada, 97023	279-3781
Baldwin, Dr. and Mrs. Ewart M.	2058 Harris Street	Eugene, 97405	345-9755
Barber, Mr. and Mrs. Lawrence	6422 N. Kerby Avenue	Portland, 97217	285-4220
Barr, Mr. and Mrs. Donald D.	12438 S.W. Orchard Hill Rd.	Lake Oswego, 97034	246-2785
Barry, Mr. and Mrs. Lewis A.	1722 S. W. Vista Ave.	Portland, 97201	223-9837
Bartholomay, Miss Clara L.	1620 N. E. 24th Ave., Apt 306	Portland, 97232	284-6986
Beals, Mr. & Mrs. Herbert K.	475 E. Clarendon St.	Gladstone, 97027	656-2370
Beauchamp, Mr. & Mrs. Everett A.	3131 S. E. Schiller St.	Portland, 97202	236-9225
Becker, Mr. and Mrs. Henry G.	7612 S. E. 32nd Ave.	Portland, 97202	771-2988
Becker, Mr. and Mrs. Ralph A.	1306 - 42nd Street	Milwaukie, 9722	654-6439
Berg, Mr. and Mrs. Oscar K.	8721 S. W. 42nd Ave.	Portland, 97219	244-3782
Biggerstaff, Mr. John S.	2512 N. E. 21st Ave.	Portland, 97212	287-3321
Birdsall, Mr. and Mrs. Lewis C.	6815 S. E. 36th Ave.	Portland, 97202	775-6521
Bishop, Mrs. Shirley	4810 S. E. 35th Ave.	Portland, 97202	775-2163
Bixby, Mr. and Mrs. DeForest	6424 S. E. Monroe St.	Milwaukie, 97222	654-1586
Blakeslee, Mr. Ernest L.	4810 S. E. 35th Ave.	Portland, 97202	775-2163
Blore, Mr. & Mrs. Stephen W.	5520 S. W. Downs View Ct.	Portland, 97221	292-4577
Bonebrake, Mr. & Mrs. John H.	4109 N. Winchell St.	Portland, 97203	289-8597
Boxx, Miss Eleanor M.	3054 N. E. Flanders St.	Portland, 97232	236-7628
Boyd, Mr. and Mrs. C. A.	434 Riverside Blvd.	Bend, 97701	382-4469
Bramble, Mr. Ronald E.	2495 W. Main St.	Medford, 97501	---
Brogan, Mr. & Mrs. Phil F.	1426 Harmon Blvd.	Bend, 97701	382-0560
Bruckert, Mr. & Mrs. Walter E.	Box 292	Wasco, 97065	442-5219
Bryan, Mrs. Gladys L.	6309 S. W. 32nd Ave.	Portland, 97201	246-6607
Buckner, Mr. & Mrs. James S.	Route 2, Box 68C	Sherwood, 97140	638-7933
Burke, Mr. & Mrs. Melvin H.	2980 S. Glenmorrie Dr.	Lake Oswego, 97034	636-8519
Campbell, Mr. Donald R.	2505 N. Emerson St.	Portland, 97217	289-5728
Carmody, Mr. & Mrs. Dennis M.	6234 S. E. Carlton St.	Portland, 97206	771-4904
Chapman, Dr. M. P.	P. O. Box 297	Sherwood, 97140	625-6628
Clark, Mr. & Mrs. Edward R.	P. O. Box 284	Monument, 97864	---
Clark, Mr. & Mrs. Gordon K.	5904 S. E. Holgate Blvd.	Portland, 97206	774-3670
"Clark, Mrs. William F.	3375 S. E. 8th Ave.	Portland, 97202	234-7096
Cook, Mr. & Mrs. Richard A.	2006 S. W. Sunset Blvd.	Portland, 97201	244-5026
Cooper, Mr. & Mrs. Norman A.	5537 S. E. Howard St.	Portland, 97206	777-1527
Cowles, Mr. John	Route 1, Box 96	Rainier, 97048	---
Cox, Miss Beryl C.	12630 S. E. Main St.	Portland, 97233	253-4847
Crowe, Mrs. Ava B.	528 - 2nd St., Box 513	Lake Oswego, 97034	636-1788
Dahlin, Mr. George R.	Route 1, Box 150	Vancouver, Wn. 98662	892-3427
Darling, Mr. & Mrs. Gary H.	17725 N.E. Multnomah Dr.	Portland, 97230	---
Davis, Mrs. Franklin L.	7114 S. W. Corbett Ave.	Portland, 97219	244-8975
Deisen, Mrs. Donna B.	200 N. W. 86th Ave.	Portland, 97229	292-6528
"Delano, Mr. & Mrs. Leonard H.	1536 S. E. 11th Ave.	Portland, 97214	236-2139

Name	Address	City, State, zipcode (Oregon, unless stated)	Telephone
Deyoe, Mr. Harold L.	City Center Trailer Court	Port Angeles, Wn. 98362	---
Dodson, Mr. & Mrs. Guy R.	1400 NW Electric Ave, Sp. 13E	Beaverton, 97005	644-1609
Dunn, Mr. & Mrs. Paul E.	6124 N.E. Mallory Ave.	Portland, 97211	285-5008
Edenhofer, Miss Therese	1626 N.E. 9th Ave.	Portland, 97232	287-8780
Eid, Mr. & Mrs. Clarence H.	5615 N. Willamette Blvd.	Portland, 97203	289-6662
Elliott, Mrs. Lyla L.	1530 N. 99 W	McMinnville, 97128	472-7256
Erickson, Mrs. Rudolph	249 S.W. Glenmorrie Dr.	Lake Oswego, 97034	636-1873
Errett, Mr. & Mrs. Sanford	2707 N. Halleck St.	Portland, 97217	289-6044
Eudaly, Mr. & Mrs. Donald	5204 N. E. 28th Ave.	Portland, 97211	288-3654
Ewen, Mr. Irving Gilbert	4128 N.E. 76th Ave.	Portland, 97218	281-7098
Fagan, Mr. & Mrs. Richard W.	2850 S.W. Fern St.	Portland, 97201	223-6820
Fessenden, Miss Marjorie A.	404 S.W. Edgecliff Rd.	Portland, 97219	636-8369
Fields, Mrs. Claude	3135 Washington St.	Milwaukie, 97222	654-5582
Fink, Mr. & Mrs. V. Carl	7025 N. Oatman Avenue	Portland, 97217	289-0188
Fite, Mr. & Mrs. George	1689 National Ave., Sp. 21	Chula Vista, Cal. 97011	---
Fleagle, Mrs. Geraldine I.	3559 N.E. Tillamook St.	Portland, 97212	281-5268
Fowler, Myrtice E.	6116 N.E. Cleveland Ave.	Portland, 97211	285-5143
Freed, Miss Hilda W.	1127 American Bank Bldg.	Portland, 97205	222-1658
Freer, Mr. William M.	131 S.E. 24th Ave.	Portland, 97214	234-5997
Fuerst, Mr. & Mrs. Edward	1015 S.E. 26th Ave.	Portland, 97214	232-4281
Fullman, Mr. & Mrs. Harvey C.	12732 S.W. Riverside Dr.	Portland, 97219	636-4254
Gavigan, Mr. & Mrs. Lee T.	943 N. Bryant St.	Portland, 97217	289-8041
George, Mr. & Mrs. Carl L.	1924 S.E. 24th Ave.	Portland, 97214	232-6610
Gerber, Mr. & Mrs. Joseph A.	2445 N.W. Northrup St.	Portland, 97210	227-2881
Gilchrist, Dr. & Mrs. Francis G.	0644 S.W. Palatine Hill Rd.	Portland, 97219	636-5942
Gillis, Mrs. Doris E.	5109 N.W. St. Helens Rd.	Portland, 97210	223-0280
Goldsworthy, Mr. & Mrs. Robert E.	1930 Clise Place West	Seattle, Wn. 98199	284-7935
Gooch, Mrs. Ruth Grey	8637 S.E. Alder St.	Portland, 97216	253-6897
Gregory, Dr. & Mrs. Victor	10211 S.W. Lancaster Rd.	Portland, 97219	246-6019
Greisel, Mrs. Irma	780 N.W. Norman Ave.	Gresham, 97030	665-2351
Griffith, Mr. & Mrs. Norman N.	1733 S.W. Westwood Dr.	Portland, 97201	246-3991
Griffiths, Mrs. A. Jean	7706 N. Emerald Ave.	Portland, 97217	289-8509
Griswold, Mr. & Mrs. Dan H.	6656 S.W. Miles Court	Tigard, 97223	246-5004
Hackett, Mr. & Mrs. Cortez P.	950 S.W. 21st Ave.	Portland, 97205	223-3024
Hahn, Mr. & Mrs. Henry D.	4810 N.E. Ainsworth St.	Portland, 97218	287-8852
Hall, Mr. & Mrs. George T.	10300 S.W. Barbur Blvd.	Portland, 97219	246-2446
Mail to:	7429 S.W. Capitol Hwy.	Portland, 97219	---
Hallgarth, Mr. & Mrs. Donald R.	129 Cedar Lane	Troutdale, 97060	665-4473
Hamilton, Miss Rose	5412 S.E. Powell Blvd.	Portland, 97206	775-9762
Hammill, Mr. & Mrs. Kenneth C.	1905 N.E. 77th Ave.	Portland, 97213	253-7749
Hammond, Dr. & Mrs. John H.	14815 S.E. Oatfield Rd.	Milwaukie, 97222	654-5570
Hammond, Mr. & Mrs. Paul E.	1305 S.W. Upland Drive	Portland, 97221	228-0416
Hancock, Mrs. A.W.	2720 S.E. 84th Ave.	Portland, 97266	771-5285
Hansen, Mr. & Mrs. C.T.	3514 N. Russet St.	Portland, 97217	289-5832
Hanson, Mr. & Mrs. Ernest A.	4438 N.E. Royal Court	Portland, 97213	234-6994
Harbert, Mr. & Mrs. Melvin	6221 N.E. Fremont St.	Portland, 97213	284-5714
Harvey, Mrs. Eleanor	3724 S.E. 64th Ave.	Portland, 97206	771-1740
Hege, Mr. & Mrs. William D.	818 S.E. Lambert St.	Portland, 97202	235-7623
Heiberg, Mr. & Mrs. Harry M.	8105 S.W. Brentwood St.	Portland, 97225	292-2560
Heinkel, Mr. & Mrs. Charles E.	265 S.W. Birdshill Rd.	Portland, 97219	636-4634
Helfrich, Mr. & Mrs. Merle C.	251 N.E. 133rd Ave.	Portland, 97230	253-7446
Heller, Mr. & Mrs. J. Roe	14231 S.E. Ellis St.	Portland, 97236	761-1384
Helm, Mrs. Gwen	3242 S.E. Alder Court	Portland, 97214	236-6887
Henley, Miss M. Ada	413 Terwilliger Plaza 2545 S.W. Terwilliger Blvd.	Portland, 97201	228-2871
Herner, Mr. & Mrs. Paul	10732 N.E. Prescott St.	Portland, 97220	254-6614
Higdon, Mr. & Mrs. Frank A.	406 S.E. 89 Ave., Apt. 613	Portland, 97216	254-8255

Name	Address	City, State, zipcode	telephone
Hitchcock, Mr. & Mrs. David G.	255 S. W. California St.	Portland, 97219	244-5626
Hodge, Dr. Edwin T.	2915 N. W. Luray Terrace	Portland, 97210	228-2248
Holland, Mr. & Mrs. Jasper L.	1820 S. W. Wynwood Ave.	Portland, 97225	644-7270
Holliday, Mr. & Mrs. Kenneth T.	2506 N. E. Halsey St.	Portland, 97232	281-0570
Hollinger, Mr. Ray I.	2326 N. W. 24th Ave.	Portland, 97210	---
Hoven, Miss Rowena	1007 S. E. 21st Ave.	Portland, 97214	234-9005
"Howell, Dr. & Mrs. Paul W.	9130 S. W. Borders St.	Portland, 97223	244-5728
Hull, Mr. & Mrs. Wade	748 N. E. 76th Avenue	Portland, 97213	254-7226
Hyman, Dr. Selma & Dr. Milton	3262 N. E. Everett St.	Portland, 97232	236-9032
Ingram, Mr. James	Route 1, Box 561	Roseburg, 97470	672-3886
Jackson, Mr. George E.	3578 S. E. Francis St.	Portland, 97202	775-9985
Jansen, Mr. & Mrs. Albert	829 S. 2nd, Apt. 10	Walla Walla, Wn. 99362	---
Jeffcott, Dr. & Mrs. George	6328 S. W. Brugger St.	Portland, 97219	244-2839
#Jennison, Mr. & Mrs. H. L.	1561 S. E. Linn St.	Portland, 97202	234-2701
#Johnson, Mr. & Mrs. E. Cleveland	5914 N. E. Fremont St.	Portland, 97213	281-6767
Johnson, Mr. & Mrs. Herbert	2004 N. E. 17th Ave.	Portland, 97212	281-0341
Johnston, Mr. & Mrs. Emory E.	2030 N. E. 57th Ave.	Portland, 97213	281-3041
Johnston, Mr. & Mrs. Theodore	Route 1, Box 1	Moro, 97039	562-3586
#"Jones, Dr. & Mrs. Arthur C.	3300 S. W. Heather Lane	Portland, 97201	222-3100
Kastner, Mr. & Mrs. Albert D.	6309 S. E. Overland St.	Portland, 97222	774-0738
"Keen, Mr. & Mrs. Albert J.	4138 S. W. 4th Ave.	Portland, 97201	222-1430
Kelley, Mr. & Mrs. J. Larry	2590 S. E. Briar Cliff Circle	Beaverton, 97005	644-3692
Kellmer, Mr. & Mrs. Earl B.	6105 N. E. Rodney Ave.	Portland, 97211	284-1093
"Kenney, Mr. Albert R.	Box 491	Oregon City, 97045	656-2696
Kenney, Mrs Laurette	4125 S. E. Gladstone St.	Portland, 97202	775-5697
Kern, Mr. & Mrs. Emery R.	152 S. E. Kelley St.	Gresham, 97030	665-4628
Keyser, Mr. Charles P.	c/o University Club 1225 S. W. Sixth Ave.	Portland, 97204	223-6237
Kibler, Mr. & Mrs. G. A.	3911 S. E. 182nd Ave.	Gresham, 97030	665-6082
Koenig, Mr. & Mrs. Donald E.	Route 1, Box 94 AA	Clackamas, 97015	656-7013
Kuhns, Mr. & Mrs. John C.	200 Burnham Rd., Apt. 307	Lake Oswego, 97034	636-1067
Lappala, Mr. Ernest	2921 S. W. Bertha Blvd.	Portland, 97201	246-4504
Larson, Mr. & Mrs. Dennis A.	Lost Creek Rd., Star Rte.	Dexter, 97431	---
Latourette, Dr. Kenneth Scott	409 Prospect St.	New Haven, Ct. 06511	---
Laurence, Mr. & Mrs. T. Herbert	1808 S. E. 35th Place	Portland, 97214	232-5294
Leonard, Mr. & Mrs. Robert W.	2312 Ostman Drive	West Linn, 97068	656-2189
Lewis, Jr., Mr. & Mrs. George	3723 S. E. Rothe Road	Portland, 97222	654-4707
"Libbey, Mr. Fay W.	Biltmore Apts., #208 2014 N. W. Glisan St.	Portland, 97209	227-2145
Lilly, Mrs. Elwin R.	Box 8353, Grace Station	Asheville, N. C. 28804	---
Lindley, Mrs. Addie	3740 S. E. 122nd Ave.	Portland, 97236	774-9641
Lloyd, Mr. & Mrs. L. G.	01139 S. W. Palatine Hill Rd.	Portland, 97219	636-4493
Long, Mr. & Mrs. Edward J.	600 E. Fairfield St.	Gladstone, 97027	656-1035
Long, Mr. & Mrs. John K.	1005 E. Jackson St.	Hillsboro, 97123	648-1053
Lucus, Mr. & Mrs. Fred A.	1950 S. E. Larch Ave.	Portland, 97214	236-0359
McClung, Mr. Wallace R.	1300 N. E. 49th Ave.	Portland, 97213	284-6700
McCourtney, Mr. Jack	2632 S. E. Ash Street	Portland, 97214	232-2441
McGrath, Mr. & Mrs. Edward S.	9360 S. W. Panorama Place	Portland, 97225	292-3758
Mason, Mr. & Mrs. Ralph S.	3932 S. W. Idaho Terrace	Portland, 97221	244-2106
Matthews, Mr. & Mrs. Thomas C.	4014 N. E. Flanders St.	Portland, 97232	236-6759
Merryman, Mr. Frank J.	9318 S. W. 2nd Avenue	Portland, 97219	246-4494
Mihelcic, Mr. & Mrs. John	13029 S. E. Ash Street	Portland, 97233	252-7572
Miles, Mr. & Mrs. N. Bruce	1252 S. E. Alder St.	Hillsboro, 97123	648-7396
Miller, Mr. & Mrs. Arthur H.	11061 S. E. Wood Ave.	Portland, 97222	654-5550
Miller, Miss Doris F.	170 Holly St., Apt. 10	Prineville, 97754	447-7076

Name	Address	City, State, zipcode	telephone
Miller, Mrs. Emma	1638 S.E. 12th Ave.	Portland, 97214	236-1964
"Miller, Mr. & Mrs. Fred E.	3122 S.E. 73rd Ave.	Portland, 97206	771-6154
Miller, Mr. & Mrs. Hugh	2165 S.W. Summit Drive	Lake Oswego, 97034	636-224[illegible]
0Miller, Mr. & Mrs. Murray R.	P.O. Box 465 1018 Promontory Ave.	Oregon City, 97045	656-6724
Miller, Dr. & Mrs. Wilmer J.	209 Howard Avenue	Ames, Iowa 50010	---
Moffit, Mr. & Mrs. Donald C.	Alsea Route, Box 60	Waldport, 97394	563-4900
0Moltzner, Mrs. Emily		Oregon City, 97045	
Morrison, Mr. & Mrs. W.W.	13102 N.E. Morris Ct.	Portland, 97320	255-4175
Mueller, Mrs. Iva	114 N.E. 55th Ave.	Portland, 97213	235-5282
Munro, Mr. & Mrs. George A.	2944 N.E. 26th Ave.	Portland, 97212	281-7389
Murphy, Mr. & Mrs. C.T.L.	2027 N.E. Wasco St.	Portland, 97232	282-2027
Newcomb, Mr. & Mrs. Reuben C.	01631 S.W. Radcliffe Rd.	Portland, 97219	636-4062
Nichols, Mr. & Mrs. Alfred I.	6304 S.E. Jack Road	Milwaukie, 97222	654-8125
Nichols, Mr. & Mrs. Frank	44 Fesihler St.	Wellsboro, Pa. 16901	---
Nichols, Mr. & Mrs. William W.	17 Samson Place	Granville, Ohio 43023	---
Nielsen, Mr. Howard E.	4437 S.W. Melville Ave.	Portland, 97201	246-7315
Nosler, Mr. & Mrs. Douglas C.	Route 1, Box 06	Brush Prairie, Wn. 98606	892-4776
#Oberson, Mr. & Mrs. Louis E.	3569 N.E. Stanton St.	Portland, 97212	282-3685
O'Blisk, Mrs. Adelaide M.	112 N.W. Maywood Drive	Portland, 97210	223-8705
O'Brien, Mr. William C.	18101 S.E. Oatfield Rd.	Gladstone, 97027	656-8027
O'Dell, Miss Shirley M.	4710 S.E. Stark St., Apt. 7	Portland, 97215	234-2318
Oekerman, Mr. & Mrs. William	3927 N.E. Hoyt St.	Portland, 97232	236-7473
Ohmart, Mr. Reynolds W.	1748 "B" St., N.E.	Salem, 97301	581-2700
Orem, Mr. & Mrs. Hollis M.	434 N.E. Mirimar Place	Portland, 97232	234-2650
Owen, Mr. Hugh	120 N.W. Trinity Pl., Apt. 105	Portland, 97209	227-5847
#Paterson, Mr. & Mrs. William F.	2928 N.E. Broadway	Portland, 97232	281-2928
Pedersen, Miss Helen	1000 S.W. Vista Avenue	Portland, 97205	228-5735
Pedersen, Miss Jeanette	1000 S.W. Vista Avenue	Portland, 97205	228-5735
Peirce, Mr. & Mrs. Hayward	7236 S.E. Salmon St.	Portland, 97215	253-8046
Pense, Mr. & Mrs. Clair E.	17021 S.E. Division St.	Portland, 97236	254-7101
Perlot, Mr. & Mrs. Leonard	1138 S.W. Cheltenham St.	Portland, 97201	244-5266
Perrault, Mr. & Mrs. Mark	9000 N.W. Cornell Rd.	Portland, 97229	292-4841
Peters, Mrs. Mae E.	5716 N. Greeley Ave.	Portland, 97217	285-6605
Peyree, Mr. & Mrs. Bert W.	220 Alice Ave. South	Salem, 97302	---
"Phillips, Mr. & Mrs. Clarence D.	1485 S.W. Cardinell Dr.	Portland, 97201	223-3312
"Phillips, Mr. & Mrs. Kenneth N.	4124 S.E. Woodward St.	Portland, 97202	235-1052
Pollard, Mr. & Mrs. Jack D.	0211 S.W. Ridge Drive	Portland, 97219	244-4767
#Poppleton, Miss Grace M.	12640 S.W. Riverside Dr.	Portland, 97219	636-4891
Pratt, Mr. & Mrs. Ralph E.	7610 S.W. Miner Way	Portland, 97225	292-4238
Prentiss, Mrs. Ruth Eliot	See Johnson, Mr. & Mrs. Herbert		
Prideaux, Elizabeth J.	12640 S.W. Riverside Dr.	Portland, 97219	636-4891
Rawls, Mrs. Ruth P.	Route 3, Box 296	Sherwood, 97140	625-7192
Rentsch, Mr. Jess R.	Governor Hotel, 611 S.W. 10th Ave	Portland, 97205	223-4181
Rich, Miss Dorothy C.	2572 N.W. Pettygrove St.	Portland, 97210	223-7675
Ritland, Mr. & Mrs. Richard M.	Box 161, College Sta.	Berrien Springs, Michigan 49104	473-6942
Roberts, Mr. & Mrs. Walter E.	1055 - 16th St., N.E.	Salem, 97301	363-4249
Robosky, Mr. Milvoy	Route 1, Box 452	Tillamook, 97141	842-4088
Rock, Mr. & Mrs. Lee L.	1322 S.W. Maplecrest Dr.	Portland, 97219	---
Rosa, Miss L. Kate	807 S.W. 14th Avenue	Portland, 97205	223-029[illegible]
Rose, Mr. & Mrs. Howard E.	2206 N. Willamette Blvd.	Portland, 97217	289-6738
Rosen, Mr. Ernst August	239 N.W. Skyline Blvd.	Portland, 97210	223-0547
Rosenberry, Mr. & Mrs. Cecil L.	1606 N.E. Thompson St.	Portland, 97212	287-3290
Running, Mr. & Mrs. James	1951 N.E. 142nd Avenue	Portland, 97230	252-5202

Name	Address	City, State, zipcode	telephone
Scharpf, Mrs. Dorothy E.	7655 S. E. 17th Avenue	Portland, 97202	---
Schmidt, Mr. & Mrs. Arthur W.	9945 N. E. Shaver St.	Portland, 97220	254-2797
#Schminky, Mr. & Mrs. H. Bruce	1030 S. E. 54th Avenue	Portland, 97215	236-3903
Schramm, Mr. & Mrs. Kenneth R.	3407 S. E. Vineyard Rd.	Milwaukie, 97222	654-4278
Schreiber, Mr. J. E.	Route 2, Box 275	Oregon City, 97045	831-2738
Shrader, Mrs. Lea	BB Route, Box 475	Cottage Grove, 97424	---
0#Simon, Mr. & Mrs. Leo F.	7006 S. E. 21st Ave.	Portland, 97202	236-0549
Sipple, Mr. & Mrs. Norman W.	Route 3, Box 114	Sherwood, 97140	538-5317
Smethurst, Mr. & Mrs. Rolland B.	9911 S. E. 92nd Ave.	Portland, 97266	---
Smith, Miss Almeda	1285 Newberg Highway	Woodburn, 97071	---
Soderberg, Mrs. Margaret	2015 S. E. Harney St.	Portland, 97202	235-3821
Soots, Mr. & Mrs. Parks A.	3915 S. E. 103rd Ave.	Portland, 97266	771-2085
Stahl, Mr. & Mrs. Clair F.	3235 N. E. 61st Ave.	Portland, 97213	281-2220
0Stanley, Mr. Orrin E.	2601 S. E. 49th Ave.	Portland, 97206	235-1250
Stauffer, Dr. and Mrs. James	717 - 8th Street	Lake Oswego, 97034	636-3825
Steere, Miss Margaret L.	6929 S. W. 34th Avenue	Portland, 97219	246-1670
#Stevens, Dr. & Mrs. John C.	13505 S. E. River Road	Milwaukie, 97222	654-3171
Stewart, Miss Emma Jo	431 S. E. 33rd Avenue	Portland, 97214	236-6903
Strong, Mr. Archie K.	6923 S. W. 2nd Avenue	Portland, 97219	244-9490
Strong, Mr. & Mrs. Emory	2753 N. E. Wiberg Lane	Portland, 97213	288-4605
#Strong, Mrs. F. H.	2755 N. E. 51st Avenue	Portland, 97213	281-8278
Struchen, Mrs. Montana	2050 S. W. 78th Avenue	Portland, 97225	292-4863
Sullivan, Mrs. Irma	Route 1, Box 329	Oregon City, 97045	656-7165
Taggart, Mr. & Mrs. O. Winston	5255 S. W. Dosch Road	Portland, 97201	244-5540
Talbott, Mr. & Mrs. John J.	6404 S. E. 23rd Ave.	Portland, 97202	236-2732
Thomas, Mr. & Mrs. Dent	5004 S. W. View Pt. Terr	Portland, 97201	228-6961
Thoms, Miss Meredith E.	2030 N.W. Flanders St., Apt. 304	Portland, 97209	227-6973
Townes, Mr. & Mrs. Theodore M.	2150 S. W. Roxbury Ave.	Portland, 97225	644-6931
Townsend, Mr. Paul Graham	2035 N. Saratoga St.	Portland, 97217	289-5490
Triol, Miss Ella	5481 East "A" St., N. W.	West Linn, 97068	656-4410
Turner, Mr. & Mrs. Jay E.	5611 S. E. Madison St.	Portland, 97215	234-8730
#Underwood, Dr. Herbert L.	5226 S. W. Menefee Drive	Portland, 97201	246-3786
0#Vance, Mrs. A. D.	5128 Cedros Avenue	Sherman Oaks, Cal.	91403 ---
Voss, Mr. & Mrs. Lawrence A.	13405 S. E. Oatfield Rd.	Milwaukie, 97222	654-4324
Vreeland, Mr. & Mrs. Paul R.	16775 S. E. River Road	Milwaukie, 97222	654-7089
#Wade, Mrs. Tracy	3326 N. E. 25th Avenue	Portland, 97213	287-6060
Wagner, Miss Marie K.	1088 S. W. Gaines St.	Portland, 97201	222-3493
Waiste, Mr. & Mrs. Robert	133 S. E. 27th Avenue	Portland, 97214	235-4320
Walters, Mr. & Mrs. George W.	1345 N. E. 59th Avenue	Portland, 97213	282-4272
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Zimmer, Miss Ruby M.	805 S. E. 60th Avenue	Portland, 97215	236-8319

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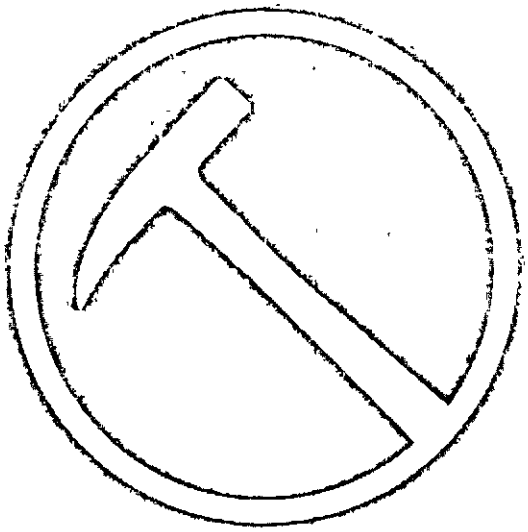

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THE GEOLOGICAL NEWS LETTER

Sept. 1967 Vol. 33 No. 9

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Volume 33, No. 9

G.S.O.C. CALENDAR FOR SEPTEMBER 1967

Every Thursday

LUNCHEON - Y.M.C.A., 831 S.W. 6th Avenue, Portland, Oregon

12:00 M. - Enjoy these informal gatherings held in the Mountain Room (adjacent to the Main Cafeteria). Luncheon Chairman is Mr. Leo F. Simon.

September 8 Friday

LECTURE - Central Library, 801 S.W. 10th Avenue, Portland, Oregon

7:30 P.M. - Dr. John H. Hammond, Assistant Professor at Portland State College, will speak on the "Fabulous Cascades". With emphasis on geology, and accompanied by slides, his talk will cover the Cascades from Mt. Baker to the Siskiyous.

September 19 Tuesday

LIBRARY NIGHT - Lewis and Clark College, 0615 S.W. Palatine Hill Road

7:30 P.M. - Library is in session. Books may be returned or checked out.

8:30 P.M. - The topic for the evening is "The Sierra-Nevada Mountains", and the program will include Don and Dorothy Barr who will show their slides of the area. Anyone with slides or specimens pertaining to these mountains is invited to bring them.

September 22 Friday

LECTURE - Central Library, 801 S.W. 10th Avenue, Portland, Oregon

7:30 P.M. - Mr. C. Truman L. Murphy, a popular and indispensable member of the Geological Society, will discuss the Pleistocene epoch. This was a period marked by repeated glacial advances. Mr. Murphy on his recent trip to the East added to his slides and information on this subject and is prepared to show and tell.

September 30 October 1 Saturday & Sunday

FIELD TRIP - Fossil Lake, Trip Leader Mr. Jim Anderson

Meet: At Fort Rock State Park at 1:00 P.M. on Saturday

Route: From Portland drive to LaPine, then take State Hwy 31 for 29 mi. Turn left toward Ft. Rock and follow the signs to the state park. (There is no overnight camping at Ft. Rock State Park).

Equipment: Bring WATER. Saturday night will be a dry camp at Crack in the Ground or Christmas Valley.
Camp gear. Possible freezing temperature at night.
Geology pick and other fossil collecting paraphernalia

Suggested reading: Fossil Lake, Oregon by Allison
Crack in the Ground by Peterson & Groh
Maars of South-Central Oregon by Peterson & Groh
Hole in the Ground by Peterson & Groh

For further information phone field trip Chairman Clair F. Stahl at 281-2220

ADVANCE CALENDAR FOR OCTOBER

October 13 Friday

LECTURE - Central Library, 801 S.W. 10th Avenue, Portland, Oregon

7:30 P.M. - G.S.O.C. President Mr. Ralph Mason will do his best via color slides to bring the 1967 President's Campout to those who were not able to attend the Mt. Hood safari, and to provide a re-run for those who did. Mt. Hood was never more photographed, and many beautiful slides will be available to make this a memorable program.

* * * * * * * * * * *

NEWS OF MEMBERS
By Lillian Miller

MRS. N. M. (BERTHA C.) ROBERTSON and MR. LIONEL ROYCE ONEY were married at New Westminster, British Columbia on June 9th. After a trip which included Reno, Los Angeles, Marineland, and San Diego, they are at home at 3405 N.E. Cadet Avenue.

RUBY TURNER is nursing a sore foot. She encountered a chair and came out the loser with a broken bone in her right foot. Watch out for that furniture, Ruby.

DR. JAMES STAUFFER is leading a trip for approximately twenty Lewis and Clark College students starting September 17th and ending December 1st. Their itinerary includes the Wallowas, John Day area, the Cascades, and the Coast. Classes in biology and geology will be conducted in the open. MRS. STAUFFER will accompany the group.

AVA CROWE recently returned from a trip to Europe. One of the highlights of her visit was a trip down the Rhine River. At the annual GSOC picnic AVA had as her guest MARY M. SOMOGYI, a member of the Palm Springs Museum (Natural Science Center) in California.

SHIRLEY O'DELL is home recuperating nicely from recent surgery.

Pleasantly noticeable at the President's Campout were the large number of guests attending. LLOYD and REBA WILCOX had the greatest number of guests: their son MELVIN WILCOX, their daughter CARMEN and her husband NORMAN COOPER and son SCOTT, and Reba's sister VESPER and her husband BOB GALLIARD from San Diego, California. NICK and GRACE NICHOLS had a full house too. Nick's brother FRANK and his wife JULIA NICHOLS weren't really guests but brand new members from Willsboro, Pennsylvania and with them was their guest CHARLIE ELDRIDGE from New Jersey. BARBARA HULL had her cousin PEGGY SUE ROBINSON from Wichita, Kansas. CLAIR and PEIGI STAHL had their niece MARRAYNE SCHATTER from Los Angeles, California. RALPH MASON had the incomparable DR. TED LATHROP from Oregon City, and VIRGINIO MONTEZZO III from Sao Paulo, Brazil. An article about Virginio and his family appeared in the Oregonian early in August.
JOHN ALLEN walked guest DON GORMAN through camp a couple of times.

Members of the Society will be saddened by the death of MRS. EDWARD FUERST who was stricken with a massive brain hemorrhage and passed away while on a visit to Victoria, British Columbia. Long time members will remember her as H. MILDRED STOCKWELL before she became Mrs. Fuerst. Our condolences go to Mr. Fuerst and the other members of her family.

Brief news came just at press time of the death of charter member ROSE HAMILTON.

* * * * * * * * * * * * * *

MEMBERSHIP ROSTER

REINSTATEMENTS

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MARSHALL, Miss Emily L.	Calaroga Terrace 1400 N.E. Second Ave.	Portland, 97232	

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Volume 33, Number 9

ONWARD AND UPWARD

George A. Deefeldorfer*

Fifty two of the bravest, most wonderful people in the whole wide world participated in the 1967 President's Campout which was held on the north side of Mt. Hood July 22 through the 30th. Not all of the members and their friends spent all of the nine days at the Campout, some came for the two weekends, others had to get back to their lawns and gardens, and some just had to get away from the relentless succession of trail trips which always seemed to go up the steepest slopes at breakneck speeds.

The site selected for the Campout lay at the junction of the Western and Eastern Oregon rain belt--and also at timberline near the 6000 foot elevation mark which is pretty much the dividing line between perpetual vegetation and perpetual snow. The date was selected to coincide with a week of full moonlight and also the peak of the alpine flower development--which comes hard upon the heels of the retreating snowbanks. Tilly Jane forest camp was the official headquarters for the Campout. The camp is relatively unknown and the GSOCers practically had the camp to themselves during their stay. In addition to the usual facilities the area was blest with convenient snowbanks which provided free coolth for the campers' ice lockers. Some gnats and miscellaneous swatems were also provided at mealtimes. After dinner the group took advantage of the natural amphitheatre on the far side of Tilly Jane Creek for their campfire get togethers.

One of the most interesting geologic points in the area was undoubtedly Photographer's Rock which forms a cliff in front of Cloud Cap Inn. The rock is the site of the last known eruption in the Mt. Hood area. Trees still living in the immediate vicinity have been cored with an increment borer which reveals a series of closely spaced tree rings about 150 years ago. Some cores have reportedly even yielded slightly charred surfaces at this same point. These trees also exhibit a curious root development characterized by a lower, original set growing in the volcanic soil. Immediately above this horizon there is a charred duff layer over which lies a layer of pumice and ash with a second set of tree roots growing in it. The thickness of this upper layer is about 3 feet in the vicinity of the vent but decreases with greater distance from it. The throat of the eruption is easily recognized by the brick-red scoria which now chokes the orifice. The Mt. Hood andesite surrounding the throat has been extensively heat shattered. A second vent lies down the slope to the southwest a few hundred yards and can best be viewed from the 'round the mountain trail on the west side of Eliot Creek. The scoria from the vent is very probably the youngest rock in Oregon.

The north side of Mt. Hood is dominated by Eliot Glacier, the largest ice stream on the mountain. The glacier, like most of the mountain glaciers in the northwest, has been retreating up its valley since before the turn of the century. The size of the ice mass can be visualized by looking at the large lateral moraines which now stand over 350 higher than the adjacent glacier surface. When the moraines were formed the surface of Eliot Glacier was at least level with them if not somewhat higher. In recent years the glacier surface has been lowering about 3.5 feet per year. Although the ice in the lower portion of Eliot is almost completely obscured by glacial till it is possible to find outcrops of the old ice at the snout and in some of the gullies cut by surface glacial streams. One of the Campout field trips visited the snout and inspected samples of the very dense, clear ice. Several small shrubs and clumps of grasses were observed growing on the slowly advancing surface. In the not-too-distant past Eliot Glacier extended much farther downstream, or down-glacier, as the case may be. Although there is no clearly marked terminal moraine as is shown in standard geology texts, the sharp line of demarcation between trees of widely different ages growing on the canyon walls below the present terminus gives an excellent clue to the configuration of the ice tongue. During the Pleistocene glacial maximums the major glaciers on Mt. Hood extended far down into the valleys below, with ice streams from Eliot, Coe and Ladd coalescing and pouring into the greatly enlarged Columbia River at the site of the present city of Hood River. Campout trippers on the final excursion were able to see the deposits of glacial boulders and rock flour at Dee on the trip to the Devil's Punchbowl.

* Fearful leader of the 1967 President's Campout.

ONWARD & UPWARD - cont'd.

Glaciers on Mt. Hood have produced the convexly curved profile which stands in sharp contrast to the even slopes of Mt. St. Helens, a much younger and relatively un-glaciated peak. Glaciers are poor guests. They devour their host, strew the countryside with litter, and ultimately reduce the area of the catchment basins so much that insufficient snow accumulates to nourish the glacier. Mt. Thielsen and Mt. Washington represent the end products of glacial gluttony.

The hardest and longest Campout field trip was up the east moraine of Eliot, across the scree slope of Cooper's Spur, up past the lower seracs and over into the crevassed area between Eliot's upper and lower seracs. From this area the huge blocks of ice which make up the upper seracs were clearly visible. Although seemingly precariously poised they refused to budge even when all of the party yelled in unison, albeit somewhat off key. The area between the seracs is laced with crevasses and several of these were examined at close range by the climbing party. Somewhere, deep within the blue ice of the glacier there is a mule who, all folklore to the contrary, wasn't as sure footed as he should have been. The mule was hauling rope for a climbing party in the 1920's when the accident occurred. They salvaged the rope, but the mule won't be out for some time yet. On the return trip down the snowslope a certain amount of uneasiness was felt by some of those in the string. The trip up had been relatively simple since the slope was comparatively closer to one's line of vision. On the way down the panorama of imminent destruction--the slip, the slide at ever increasing speed, and the final inevitable smash into the boulders at the foot of the long steep slope--was plainly and vividly visible. Thanks to Dr. Ted Lathrop, who sensed the feelings of some of the party, everybody was promptly reassured that death was not about to do them into parts. Dr. Lathrop demonstrated various kinds of self-arrest on the slope below the group, proving not only that self-destruction was improbable but that free sliding was all but impossible. After that everybody slogged on down the slope, scrunched across the scree and ambled down the moraine back to camp.

At this point it might be well to point out that mountain climbers, all mountain climbers, fall into either of two groups. Group I is the Togetherness Group. Group I may travel solo or with others but he can be spotted instantly at mealtime because he cooks a one pot meal. Everything he has for that meal goes into the pot, one pot. This produces truly unusual taste experiences and of course simplifies dish washing and packing. Group II is the Apartness Group. Here again the identification is made at mealtime. Group II cooking consists of opening myriad small tins of exotic goodies and consuming them immediately, one after the other. The variety of comestibles available to the glacial gourmet is limited only by one's funds. High climbing demands high living is the motto for the Group. The Campout participants were exposed to members of both groups during their stay on the mountain. Those who sampled Ted Lathrop's (Group II) iced tomato juice, stirred with the point of an alpenstock will long remember it as one of the highlights of the Eliot Glacier trip.

The Coe Glacier trip proved to be a delight for those interested in alpine flowers. The 'round the mountain trail passed through literally miles of slopes carpeted with freshly sprung blooms. Spring comes late and winter comes early in this marginal area so the flowers thrust up, bloom and die all within a few weeks. A snow avalanche on Compass Creek had earlier smashed trees and created quite a bit of destruction. Depth of the snow at the time of the slide was determinable because many of the trees were undamaged near the ground but had their tops sheared off. The view of the Coe and Ladd glacier ice falls from the east Coe moraine is one of the spectacular sights on Mt. Hood. The view is only excelled by the one from nearby Barrett Spur which towers above the glaciers and acts as a cleaver for the two rivers of ice. Unfortunately time prevented visiting this spot. While resting on the moraine a four-point mule tail buck was spotted on a promontory about a 1000 feet away. The buck knew where the group was and he also knew that he was completely safe--so he just stood there and posed for ten minutes, and then walked slowly away.

Wallalute Falls is probably one of the least visited of the easily visible falls in Oregon. From Inspiration Point on the Cloud Cap Inn road there is a good, though somewhat distant view of the raging waters of Eliot Creek as they plunge over a double cascade. To get to the falls is quite another matter. One party consisting of Clair Stahl, Dr. Chapman, Barbara Hull and Peggy Sue Robertson, reconnoitered a route to the floor of the canyon and up it to

ONWARD & UPWARD - cont'd.

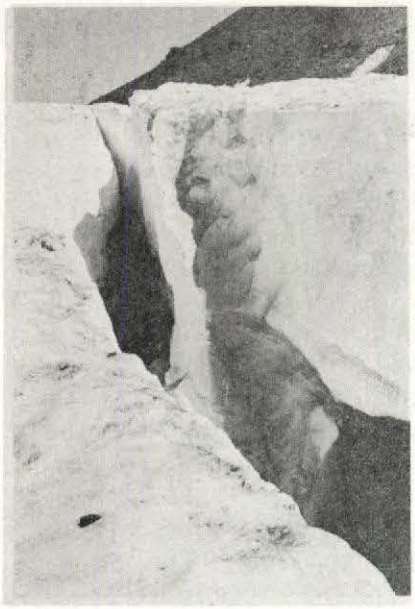
the base of the cataract--and they have the photos to prove it. The trip proved to be exciting--particularly the section over the steeply dipping and loosely connected platy andesite. A second party slithered down the steep tree-covered slopes to a point directly above the head of the falls and got a breath-taking view straight down to the roaring torrent several hundred feet below. Old blazes on the trees indicated that the GSOCers weren't the first to get there but they are among the few.

The first expedition from camp on foot was supposed to be a gentle initiation into the area generally and to some of the problems of walking on the local trails and non-trails. The route led up the east Eliot moraine, interrupted at frequent intervals for pictures, discussions on the geology and geography, but more importantly for AIR. At 6000 feet the lungs of lowlanders were starved for oxygen with any exertion. That is, most of the party were puffing as they plodded. The slow pace proved irksome for a few of the obviously younger set and with the permission of the fearful leader they sped on ahead, eventually reaching the top of Cooper's Spur a full half mile vertically higher than camp. The more mature segment explored the lower reaches of the spur in depth. Considerable interest was aroused by the weird shapes assumed by some of the alpine evergreens which have been shaped by wind and creeping snow masses. Numerous patches of the snow algae sphaerella nivalis were observed on the snowfields. The algae has a faint pinkish tinge until stepped on whereupon it deepens in color. This trait is not quite as unusual as it seems. A horse once stepped on me and I turned several shades darker too.

On the alternate days when the Campouters were not hiking the trails and non-trails of the Tilly Jane area the group piled into cars and drove off to see some of the more distant points. One trip took in the Parkdale lava beds, a recent flow which issued from a vent near the Ditch Cabin, flowed down into the bed of the middle fork of Hood River and forced it over against a high cliff to the west. The Parkdale flow is about three miles long, terminating just west of the town of the same name. Another trip visited Lookout Mountain near the southern end of the Hood River fault, a tectonic feature which forms the eastern wall of Hood River Valley from the Columbia River southwards to a point about opposite Mt. Hood. The view from Lookout Mountain was superb, with the east face of Mt. Hood just a whoop and a holler away and Newton Clark glacier clinging to precipitous slopes in its midst. Badger Lake nestled in an old cirque to the south and the majestic peaks of St. Helens, Adams and Rainier studding the northern skyline. To the east the gentle slope of the Hood River fault block descended towards Dufur, Mosier and The Dalles. Some sharp-eyed members spotted the Columbia River pool backed up behind The Dalles Dam and Clair Stahl even saw a truck passing over the bridge just below the dam. A stop in Gumjuwac Saddle provided members with a new term for their scientific vocabulary: "Helispot". This refers to a landing site for U. S. Forest Service helicopters. A short distance before reaching Bennett Pass the caravan stopped to photograph a striking looking dike. The interesting feature of this structure was the mimicry of the joint pattern which was expressed as a ridge several inches inboard from each joint surface. Several theories were immediately presented but perhaps the correct explanation still remains to be found.

The trip to Kah-Nee-Ta Hot Springs served to split the Campouters into two distinct groups--the Washed and the Unwashed. Aside from the purely ablutionary aspects of the trip the profound effect of the Cascades on the climate were clearly demonstrated. The rapid change in vegetation from the summit of the Cascades eastward to the treeless country clearly demonstrates how the moisture in the air mass is first precipitated by being elevated and cooled as it climbs the western flank of the range, then lowered and warmed as it descends the eastern side. An enforced construction stop at White River gave the group ample opportunity to marvel at the glacial debris transported by White River glacier. Over the years this meltwater stream has plagued the State Highway Dept. by repeatedly overwhelming the bridge. The new structure now under construction will be a little bit higher but whether or not this will be sufficient to withstand the vagaries of this occasionally rampant stream only time will determine.

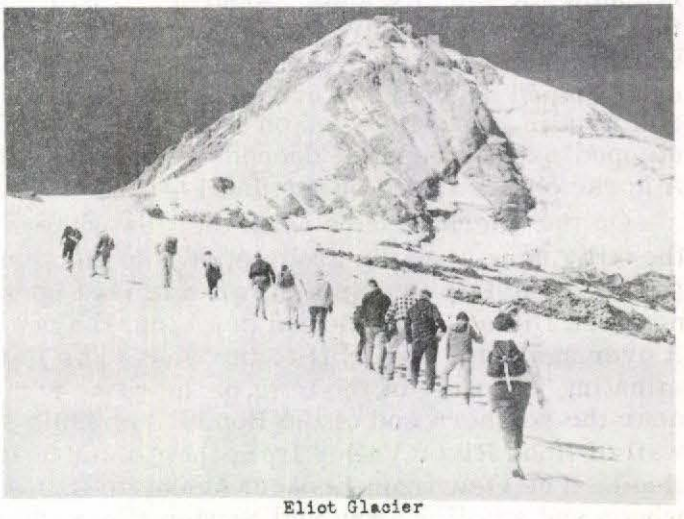
At the regular Friday night program at the Public Library on Oct. 13th there will be a reunion and recap of the 1967 Campout. If you took any slides bring them and they will be projected for the edification and enjoyment of both those who went and those who should have gone and didn't. Please let your fearful leader know if you plan on presenting any slides.



Glacial Crevass

The Crevass-hoppers

Eliot Creek Bridge

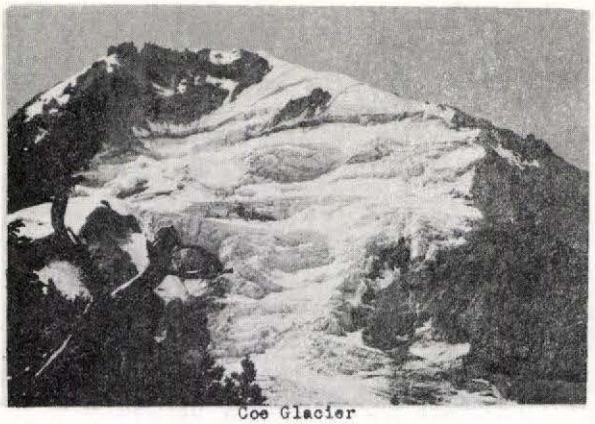


Eliot Glacier

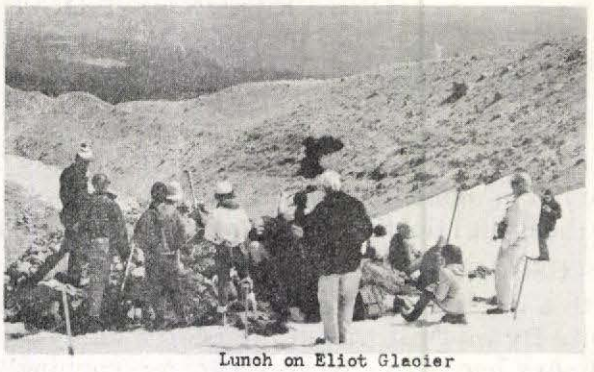
Dr. Lathrop stirs his iced tomato juice

1. Polallie Creek
2. Toe of Eliot Glacier
3. Cooper Spur (moraine)
4. Eliot Glacier Crevasses
5. Tilly Jane Creek
6. Mt. Jefferson
7. Mt. Hood Summit

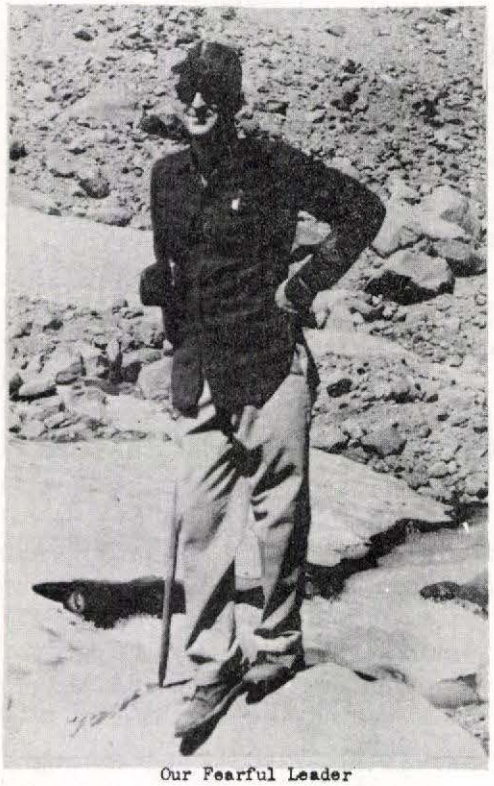
Points of interest on the Campout



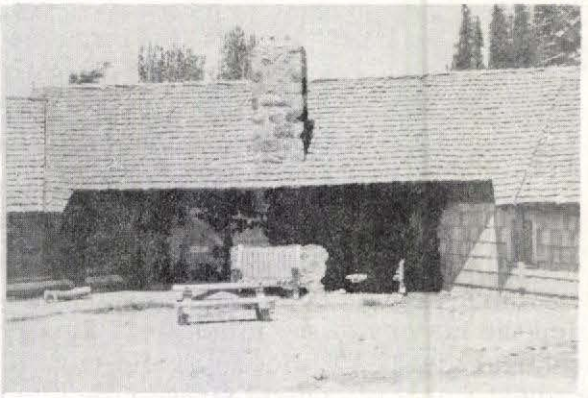
Coe Glacier



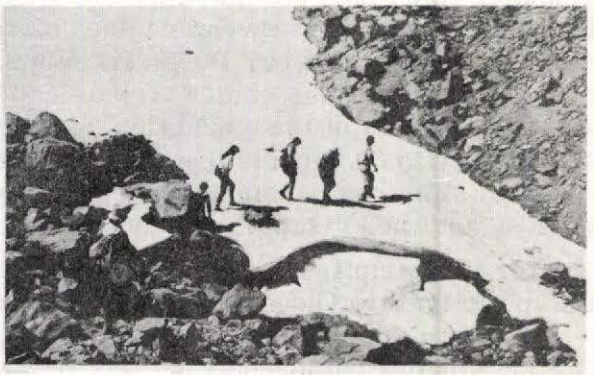
Lunch on Eliot Glacier



Our Fearful Leader



Cloud Cap Inn



Crossing Compass Creek

Rear Guard

Onward and Upward

ONE VERSION OF THE PRESIDENT'S CAMPOUT
(Or: It Wasn't All Geology)

By Rowena Hoven

The "hills of home" were selected by President Ralph Mason as the location for the fourth annual President's campout on July 22 through 30. Tilley Jane Forest Camp on the north slopes of Mt. Hood was our base camp, but wherever we traveled we could see the beautiful Hood River valley and the area around Parkdale where Ralph was raised.

GSOCERs started arriving on Saturday morning. The Wilcox camp was conspicuous with a huge bouquet of gladiolas and candles on the table and chickens roasting on a revolving spit. By mid-afternoon the choice camp sites and all of the tables had been occupied so late comers had to resort to (1) "camp robbing", or (2) manufacturing their own tables and benches from the various logs available. In her haste to set up camp, Clara Bartholomay provided the first excitement of the day by parking her car so close to a huge tree that it was impossible for her to free herself. Later at the campfire, Lloyd Wilcox commemorated the incident in song:

While Clara was trying to park yesterday,
Up grew a big fir tree that blocked her way.

She couldn't go ahead and she couldn't back up.
It was such a sight that we all cracked up.

She would be there yet we can all agree,
But a woodpecker came and pecked down the tree.

On Saturday afternoon, Ralph took a group on the half-mile trail up to Cloud Cap Inn, from which vantage point he identified the areas of scenic and geological interest and recalled the history of the famous old Inn. For a week it was our privilege to live with that w onderful view: Mt. Hood, St. Helens, Rainier, Mt. Adams, the Hood River valley, and the wheat fields of central Oregon. At the first campfire that night we sang songs under Truman Murphy's direction and then had a short orientation course by Ralph.

Sunday, July 23. We hiked up Cooper Spur, with varying degrees of success. Some leaders who embark on a venture such as a President's Campout soon discover they have a tiger by the tail, but our President found he was stuck with a caterpillar as the individuals in the group (in various stages of physical fitness) puffed and pulled themselves up the trail, and then segments of the expedition began to lag behind, or to drop out, or to take the wrong trail. Reba Wilcox became the first casualty when she twisted her knee while sliding down a snow field. Various people appeared briefly on the trail, such as the Bonebrakes and the Peyrees, and then disappeared, not to be seen again until the annual picnic in mid August.

After the campfire "sing" that night, those still able to breathe started out for a night walk up the trail to Cloud Cap. Since Truman had complained because he was kept awake the previous night by noisy neighbors, "The Troubs", one of the better known groups of traveling singers, stopped at his tent to sing "Good night, Truman".

Monday, July 24. A motor caravan was organized to the Parkdale lava flow. First we stopped at Cloud Cap (our world seemed to revolve around that spot) for a short preview of the itinerary. The next stop was at the General Store in Parkdale where Ralph renewed his boyhood acquaintance with the storkeeper and the rest of us bought supplies. It was a fabulous store with imported Italian hats. We also discovered the delicious ice cream bars. The next stop was at the lava flow and this called for a short hike down the road and up over the cliffs. En route, Bonnie Soots had the misfortune to fall, and later x-rays showed that she had broken the small bone in her leg, which ended the Campout for her. (Score: 2 days, 2 casualties). A short drive took us through one of the famous Hood River orchards to another portion of the lava flow. We enjoyed a picnic lunch under the trees and later, in spite of the heat, about half of the group scaled the lava slope. Then we scattered and took various routes back to camp.

That night, Truman and his guitar conducted group singing around the campfire and Carmen Cooper delighted us with several solos. Lloyd and Truman were inspired to tell some of their famous stories, and afterwards we were invited to a watermelon feed given by Dr. Chapman.

ONE VERSION - cont'd.

Tuesday, July 25. The morning hike was to the snout of Eliot Glacier. Ralph made use of his climbing rope and we all welcomed this assistance as we descended the scree to the glacier's edge. There he uncovered a small ice cave and then served fossil ice to his thirsty followers. There was also a short walk on the ice. On all of our trips our great faith in Ralph was in evidence as no matter what the hiking conditions, we all followed him without question.

Early that morning, Ralph had sent a reconnaissance party (Clair Stahl, Peggy Sue Robinson, Barbara Hull and Dr. Chapman) to try to find a trail down to Wallalute Falls, located farther downstream on Eliot Creek. If they were successful, that was to be our afternoon hike. Since they had not returned by 2:00 o'clock, we started out to find them. After locating their car, we followed Clair's blaze marks straight down the hillside through a dense forest. We were suddenly stopped by a drop of several hundred feet which went down into the canyon. Although we had a wonderful view of the Falls and also discovered a smaller one upstream, as we gazed down into the awful chasm we soberly looked for evidence of the scouting party. As we tried to find our way back up through the woods, we were glad to hear Clair's voice far above us. He had discovered our cars and started down to rescue the rescuers. His party had indeed managed to reach the Falls, but they did not recommend the trip.

After all of this excitement, we returned to camp to be ready for the evening campfire as Truman had asked us to write original compositions for the evening "sing". The day's activities were the top of the following song presented by a trio of talented females. It was dedicated to Ralph, of course:

(Tune: I Ain't A-gonna Grieve My Lord No More)

We all went down on the glacier today.
We hoped and prayed Ralph knew the way.
We ain't a-gonna grieve our Ralph no more.

Oh, he stretched his rope across the scree
And sternly called, "Now follow me!"
We ain't a-gonna grieve our Ralph no more.

He chopped a hole and fell in twice,
Then disappeared beneath the ice.
We ain't a-gonna grieve our Ralph no more.

From the glacier's snout his head popped out.
"Find a new Prez", we heard him shout.
We ain't a-gonna grieve our Ralph no more.
"Don't stop me now, my homeland calls.
I'm headed down over Wallalute Falls."
Our Ralph ain't a-gonna grieve us no more.

During the night, a pack rat chewed his way into Bob Wilbur's tent, nibbled on the air mattress (with fatal results) (to the air mattress), and generally littered up the tent by tearing up bits of equipment.

Wednesday, July 26. Preparations started early for the caravan trip to Lookout Mountain and Badger Lake. The most surprised person in camp that day was Ralph Mason for when he went by the Nichols' camp he found John busy washing Samantha's teeth (with Grace's toothbrush). It seems the family decided if Samantha was going to ride in the car "with other people" she should have her teeth washed so she would smell nice and sweet.

This proved to be another beautiful ride high along the wooded ridge to Lookout Mountain. The cars were stopped as snow blocked the road but it was a short climb to the top. Back at the cars, we spread our lunches on a hillside covered with heather. We did not drive into Badger Lake but could see it down below. We stopped to admire a dike that at one time bisected the roadbed and the photographers were very busy. Even Ralph was seen posing by the dike--just like a tourist.

That evening, in lieu of a campfire, we walked up to Cloud Cap to watch the sunset. The photographers took all of their equipment and were amply rewarded--twice. After the sun

ONE VERSION - cont'd.

slipped behind the few clouds on the horizon and everyone exclaimed over the beauty of the scene, the clouds suddenly shifted and the sun popped up again, so the photographers had a second chance. We saw signs of activity in the old Inn so we knocked on the door and found a real live crag rat and his friend. The Hood River Crag Rats use the Inn as a base for their rescue operations and every weekend someone is on duty there.

Thursday, July 27. This was the big trip onto Eliot Glacier. After a warning lecture by Ralph the night before on the hazards of the trip, there were a few drop-outs, but at 5:30 a.m., Ralph was throwing cones on each tent regardless of whether the occupants planned to take the trip or not. By 7:00 a.m., a hardy band of 18 or 20 followed Ralph up Cooper Spur. Two special guests that day were Dr. Lathrop and Tino, a former Portland State College exchange student from Brazil. It was an exciting day and that night the climbers were walking around with that air of assurance and pride that can only be produced by the achievement of a difficult task. The main activity of the day was jumping the crevasses. However, the group reported other signs of life on the glacier in addition to the "crevasse-hoppers", such as bees, butterflies, humming birds and "ice moles". While the snow men were on the glacier, a smaller group walked up Cooper Spur to watch their progress and to enjoy the view.

There was singing around the campfire again that night, while the younger and more energetic ones did the "glacial rock".

Friday, July 28. This was "goof off" day. Some of the group went to Kah-nee-ta to enjoy the swimming, some stayed in camp, and another group discovered the bridge over Eliot Creek had been repaired so they walked west on the Timberline Trail and were treated to magnificent views of the mountains, the valley and the wild flowers. High up at the edge of the snow we discovered masses of Avalanche Lillies.

Saturday, July 29. The entire group hiked the Timberline Trail, even though it was a repeat for some from the previous day. We stopped near the base of Coe Glacier for lunch and soon Ralph was pointing out a large buck, with a huge rack of horns, watching us from the rim rock.

Sunday, July 30. This was the last day of the campout and everyone was faced with the same problem: How do you tear yourself away from such a wonderful experience? A small contingent followed the leader down to Dee, on to Lost Lake and over the Lolo Pass and home. Others went home by more direct routes, while still others scattered to continue their vacations for another week. We were all grateful to Ralph Mason for helping us to discover a new part of Mt. Hood, and we saluted his bravery in introducing such an inexperienced group to the thrills of climbing mountains and chasing glaciers. To Clair Stahl (Field Trips Chairman) we gave a special "thank you" for all of his hard work and helpfulness, and also to Truman Murphy for his part in the campfire sessions each evening. The vote for the best all-around camper must go to Scotty Cooper, the two-year old son of Carmen and Norman, and the "best behaved camper" title was reserved for Samantha who delighted us all.

Many incidents during the campout will remain as vivid memories for the individuals who participated, but how can one adequately convey this spirit and fellowship to others? How do you pass along the view from Cloud Cap Inn or Cooper Spur? How do you describe terraced gardens, or a brilliant meadow of wild flowers, or the wonder of a shady glen filled with Avalanche Lillies? How do you share the enrichment of your life after becoming acquainted with new friends? How do you transfer the joy of a visit from a small boy who wanders into your camp each morning to chat briefly and to help with the dishes? How do you paint a word picture of Nick's facilities for a hot shower, on which he alone has the patent? How do you convey the spontaneity of Samantha's barking at the campfire as we all applauded Carmen's singing? How do you communicate the magic of the sunset from Cloud Cap Inn, or the beauty of the stars afterwards? How do you relate Clara's whimsical observations which enhanced the experiences of a particular moment? Who can you transfer the scared and triumphant feeling of jumping a crevasse? How do you reveal the fellowship of a campfire "sing" and the pleasure of eating burned marshmallows? How do you describe Barbara's laughter echoing through the trees? How do you impart Ralph's special brand of humor, or the impressiveness of learning geology by means of a campout?

Well, you cannot describe these things because they are precious moments that can only be experienced--under the best of conditions, in the Oregon Country, and in association with priceless friends.

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THE GEOLOGICAL NEWS LETTER

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Volume 33, Number 10

G. S. O. C CALENDAR FOR OCTOBER 1966

Every Thursday — LUNCHEON - Y. M. C. A., 831 S. W. 6th Avenue, Portland, Oregon.

12:00M. - All GSOC'ers and visitors are welcome to these informal weekly gatherings. Items of geologic interest such as specimens and publications are circulated for inspection and discussion. Occasional short talks are given on geology or related subjects.

A selection of food items are available at the main cafeteria, and when you have gone through the cafeteria line turn right to the Mountain Room where the luncheons are held. For further information telephone Mr. Leo F. Simon, Luncheons Chairman, at 236-0459.

September 30 October 1 — FIELD TRIP - Fossil Lake area. Trip Leader Mr. Jim Anderson. Details in the September Calendar.

October 13 Friday — LECTURE - Central Library, 801 S. W. 10th Avenue, Portland, Oregon.

7:30 P. M. - G. S. O. C. President Mr. Ralph Mason will do his best via color slides to bring the 1967 President's Campout to those who were not able to attend the Mt. Hood safari, and to provide a re-run for the ones who did attend. Mt. Hood was never more photographed, and many beautiful slides will be available to make this a memorable program.

October 17 Tuesday — LIBRARY NIGHT - Lewis and Clark College, 0615 S. W. Palatine Hill Road.

7:30 P. M. - Meet at Peebles Hall. A 'quiet hour' is observed for browsing and checking out books.

8:30 P. M. - A workshop will be held on invertebrate fossils, specializing in the fossils of the Paleozoic and the Mesozoic eras, under the leadership of George and Jennie Walters. You are invited to bring fossil specimens of these eras.

October 27 Friday — LECTURE - Central Library, 801 S. W. 10th Avenue, Portland, Oregon

7:30 P. M. - "OUR RINGING EARTH", a discussion of the vibrations of the earth that originate from earthquakes, the method of measuring them and the analysis of the results that tells us more about the inner makeup of our globe. The measuring methods will be illustrated with slides and a demonstration. The speaker, Mr. Fred Miller, is Supervising Engineer for Pacific Northwest Bell in the Facilities Division that has responsibility for the design of mobile telephone and video systems.

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NEWS OF MEMBERS
By Lillian Miller

September first was the day that PHIL F. BROGAN retired after 44 years on the staff of the Bend Bulletin.

GSOCers will remember his many contributions to the geology of Central Oregon. His "East of the Cascades" was very successful; and he has another book in mind. He will continue his Sunday articles for The Oregonian and will write occasionally for The Bulletin. Those who attended the President's Campout in 1966 will recall that the group had the privilege of hearing Phil speak about his beloved country.

Best of luck, Phil, for a wonderful retirement.

REBA WILCOX is recuperating at home after a stay of several days in the hospital for the treatment of a badly injured back.

More wedding bells. This time for DORIS MILLER, daughter of MR. AND MRS. FRED E. MILLER, who was married August 26 to Mr. David D. Cruickshank. The newlyweds are living in Prineville.

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MEMBERSHIP ROSTER

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MYRICK, Mr. and Mrs. Curtis	4602 N. E. Skidmore St.	Portland, 97218	282-8765
ADDRESS CHANGE			
CRUICKSHANK, Mr. and Mrs. David (Doris Miller)	1298 McRae Court	Prineville, 97754	- - - -
TELEPHONE CHANGE			
STRONG, Mr. & Mrs. Archie K.	(Incorrect No. listed in Roster)	Should be	244-1488
DECEASED			
HAMILTON, Miss Rose			

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Volume 33, Number 10

ROSE HAMILTON

Rose Hamilton was taken from us in August. She was, as Mrs. Rose Jennings, a Charter Member of the Geological Society of the Oregon Country. She served as an efficient secretary to the Society, and on many committees, always a willing and able worker.

Coming to Oregon from Oklahoma, where she had been secretary to a well known oil tycoon, she drove her car back there many times to visit relatives.

An avid collector of antiques, her home was filled with dishes, glassware, furniture and other art objects. She had just bought a new home when her heart failed her.

Two nieces and a nephew came to Portland to attend her funeral and close her affairs. She will be missed by all who knew her.

L. F. S.

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LIBRARY NIGHT

Summer has passed and on September 19 we embarked on a new series of Library Night meetings. Library Night Chairman Dr. Francis Gilchrist is once again giving generously of his time and efforts to provide the evenings we have enjoyed in the past.

To explain to our many new members, the Geological Society library is housed at Lewis and Clark College in the biology building (Peebles Hall). "Library Night" meetings are held there in the evening on the third Tuesday of every month during the school year. These gatherings are considerably more informal, though often more educational, than regular lecture nights.

From 7:30 to 8:30 standard library rules are in order. Quiet is supposed to prevail while books are returned, checked out, or read on the spot. Hard working Librarian Clara Bartholomay continually receives new publications which are available to members.

The program, beginning at 8:30,, consists of a strictly geological discussion accompanied by slides, charts, specimens, or a combination thereof.

A coffee hour, with Mrs. Gilchrist presiding, follows the program.

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ANOTHER WHO-DONE-IT FOR DINOSAURS

Neil C. Koch of the U. S. Geological Survey, Huron, South Dakota, has come up with an interesting theory on a possible cause for the extinction of dinosaurs. In an article published in the July 1967 issue of "Journal of Paleontology", he proposed the theory:

"Selenium may have been the main cause for the extinction of dinosaurs and other animal species at the end of the Mesozoic Era. Selenium was deposited throughout the world from volcanic lava and gases in Mesozoic time. The decay of selenium-bearing rocks probably produced seleniferous vegetation. These toxic plants were eaten by the herbivorous dinosaurs, whereas the meat-eating animals were slowly poisoned by the selenium ingested and retained in the fatty tissue and bones of the foraging animals."

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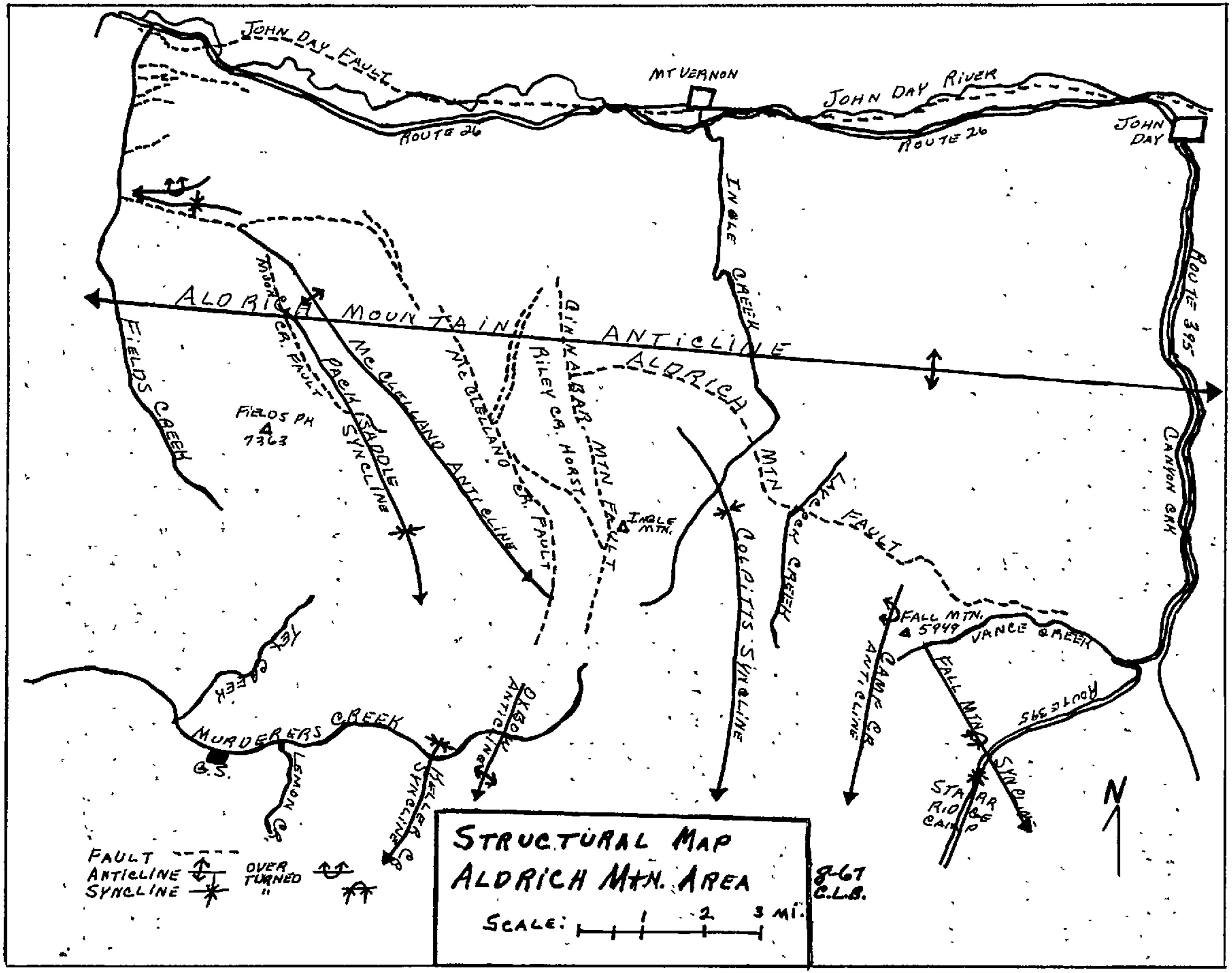
STRUCTURAL MAP
ALDRICH MTN. AREA
SCALE: 1 2 3 MI.
8-67
C.L.B.
ALDRICH MOUNTAIN ANTICLINE
ALDRICH MTN
JOHN DAY FAULT
JOHN DAY RIVER
ROUTE 26
ROUTE 395
MT VERNON
JOHN DAY
INGLE CREEK
CANYON CRK
FIELDS CREEK
FIELDS PK
7363
McCLELLAND ANTICLINE
McCLELLAND CR. FAULT
PACK SADDLE SYNCLINE
RILEY CR. HORST
CINNABAR MTN FAULT
INGLE MTN.
COLPITTS SYNCLINE
FAULT
CAMP CR ANTICLINE
FALL MTN. 5949
VANCE CREEK
FALL MTN SYNCLINE
STAR RIDGE CAMP
TEX CREEK
MURDERERS CREEK
G.S.
LEMON CR
KELLER CR SYNCLINE
OXBOW ANTICLINE
N
FAULT
ANTICLINE
SYNCLINE
OVER TURNED

Volume 33, Number 10

ALDRICH MOUNTAINS AREA FIELD TRIP
July 1 - 4, 1967
By Clara L. Bartholomay

Twenty-five GESOCers enjoyed a field trip on the weekend of July 1-4 in the Aldrich Mountains area in the vicinity of the town of John Day. This trip emphasized the structural geology of the region and the accompanying map shows the area that was covered.

This area is tremendously interesting due to the vast span of geological ages of the exposed formations. The Paleozoic era through the Recent epoch is shown. It is an area of complex structural geology due to: (1) much faulting and folding and tectonics with the resultant anticlines and synclines, some of which are overturned; (2) the intrusion of ultrabasic rocks; (3) metamorphism; (4) uplifting, and (5) deep erosion, all of which allow us to read some of the prodigious pages of the geological book of time.

During the Late Paleozoic era the area was covered with shallow seas, with the resultant depositions coming from erosion and the products of a major amount of volcanism and orogeny. Some of these rocks have been intruded by the ultrabasic rocks, such as serpentine, gabbro, dunite, peridotite, and quartz diorite.

During Mesozoic times the volcanism, sedimentation, and tectonism continued with periods of intrusions associated with mineralization. The Fields Creek fmn, Laycock Graywacke, Murderers Creek Graywacke, and Keller Creek shale were laid down at this time with a total thickness of approximately 35,000 feet. These formations are known as the Aldrich Mountains Group and form the eastern two-thirds of the Aldrich Mountains. They are made up mostly of graywacke (a type of sandstone) and shale, water-laid volcanic tuff, siliceous mudstone and chert, and basaltic pillow lava.

At this same time a major structural feature of the North American continent was rising to the east, the Mesocordilleran Geanticline, which was west of the present day Rocky Mountain region. Also forming was a major depositional basin from California to Alaska, the Pacific Coast Geosyncline (or California Geosyncline). The formation of these structural features influenced the regional metamorphism and structural realignment that was taking place in Eastern Oregon.

At the time of the Laramide Revolution (Late Jurassic (?) to Early Cretaceous), from which arose the Rocky Mountain System, the Idaho batholith was intruded. The intrusive dioritic rocks of the area which we visited are related to the Idaho batholith.

During Late Triassic and Early Jurassic times the Moon Creek, McClelland Creek, Cinnabar Mountain, and Aldrich Mountain faults evolved along with the development of the Packsaddle syncline and McClelland anticline. At a later phase of this same period there was recurrent movement of the Aldrich Mountain fault, which had a total movement of 12,000 - 15,000 feet, and the Cinnabar Mountain fault. The Keller Creek syncline, Oxbow anticline, Colpitts syncline, Camp Creek anticline and Fall Mountain syncline also developed.

The Tertiary Period is represented in this area by volcanics of the Clarno formation; the Picture Gorge basalt and tuffs of the Mascall formation (a part of the Columbia River Group); the tuffs and gravels of the Rattlesnake formation, and the Quaternary gravels, basalt and alluvium.

The Aldrich Mountain anticline, which probably formed during Early Oligocene, was rejuvenated in early Pliocene along with the formation of the John Day syncline and was followed by the development of the John Day fault along the axis of the John Day syncline. With the deposition of the Rattlesnake tuffs in mid-Pliocene, the drainage of the ancestral John Day River and its tributaries was changed completely. By mid-Pleistocene times the John Day River had cut into its present valley and the present river flows along or near the axis of the syncline.

We followed the roads along:

1. Vance Creek where we became acquainted with the Laycock Graywacke, and stopped at the top of 5949 feet high Fall Mountain which gave us an excellent view of the area we were studying;

Aldrich Mtns. Area Field Trip - cont'd.

2. Laycock and Ingle Creeks where Murderers Creek Graywacke, Laycock Graywacke, Paleozoic sediments and volcanics, and Rattlesnake tuffs are exposed;
3. Murderers and Fields Creeks where we found Murderers Creek Graywacke, Keller Creek Shale, Quaternary basalt with olivine and xenoliths, some Columbia River Group dikes, Fields Creek fmn, Paleozoic metamorphics, Clarno fmn, Picture Gorge basalt and alluvium; and
4. Canyon Creek with exposures of Triassic perioditote and serpentine, and Laycock Graywacke, with much angular and folded bedding, all of which make a spectacular drive along Route 395.

Just a short distance from where Lemon Creek crosses Murderers Creek, we found a small area of reworked Permian limestone and three members were fortunate with each one finding a Jurassic fossil: an ammonite, a brachipod, and possibly a coral.

Of special interest, too, was a fresh roadcut that showed a mixture of conglomerate, beds of sediments which were dipping in all directions, and volcanic material, all of which were twisted, jumbled and folded. This was a cross section of a fault zone and it was the first time that many of us had seen such an exposure.

Our energetic leader, Mark Perrault, lead us up and down anticlines and synclines, through fault zones, astounded us with overturned synclines - as a matter of fact, our camp on Starr Ridge was on one (ever try sleeping on overturned beds?) - past intrusives and through metamorphics. What a joy to be with kindred souls while we ran the gamut of time through approximately 250,000,000 years! We who had attended the GSOC School were ever so grateful for the excellent lectures and the workbook problems on structural geology that we had struggled with, and we enjoyed a real sense of accomplishment as we understood the significance of the scenes that unfolded before us.

Life in camp on Starr Ridge moved at a leisurely pace and with the temperatures in the 90s, we appreciated our camp setting in the pines at 5152 feet elevation. We had time to enjoy the camaraderie that is so typical of a GSOC encampment. We missed some of our more robust singing leaders around the camp fire but were delightfully entertained by some of our younger members and guests with several impromptu short and novel skits. There's some real talent coming up!

Again, our appreciation to Mark Perrault who chose the area and guided us on a most rewarding and enjoyable trip through one of the most complex and fascinating areas in Oregon.

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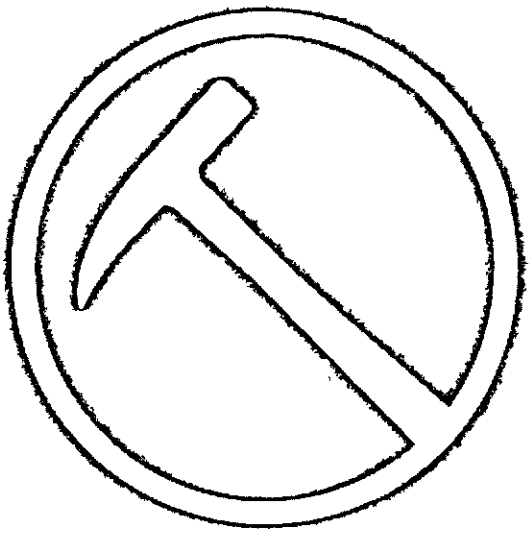
Thayer, T.P., and Brown, C.E., 1966, Geologic Map of The Aldrich Mountain Quadrangle, Grant County, Oregon: U.S. Geol. Survey Map GQ-438

Cenozoic		Quaternary	Recent		Alluvium
			Pleistocene		
		Quat. & Tert.	Pleistocene Mid-Pliocene		Rattlesnake Fm.
		Tertiary	Lwr. Pliocene Mid-Miocene	Col.Rv. Gp.	Mascall Fm. Picture Gorge Basalt
			Lwr. Miocene Up. Oligocene		John Day Fm.
			Eocene		Clarno
Mesozoic	Cretaceous				
	Lwr. Jurassic	Aldrich Mts.Gp.	Keller Cr. Shale Murderers Cr. Graywacke		
	Upper Triassic		Laycock Graywacke Fields Cr. Fm.		



THE GEOLOGICAL NEWS LETTER

Official Publication of the Geological Society of the Oregon Country

2020 S. E. SALMON STREET, PORTLAND, OREGON 97214

Dept. of Geology & Mineral Industri
1069 State Office Bldg.
City 97201

GEOLOGICAL SOCIETY OF THE OREGON COUNTRY
1967 ADMINISTRATION

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GEOLOGICAL NEWS LETTER

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BUSINESS MANAGER Mr. Robert F. Wilbur	2020 S.E. Salmon St.	Portland, 97214	235-7284

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FIELD TRIPS Mr. Clair F. Stahl	3235 N.E. 61st Ave.	Portland, 97213	281-2220
PROGRAMS Mr. Paul E. Dunn	6124 N.E. Mallory Ave.	Portland, 97211	285-5008
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PROPERTIES ADMINISTRATION Mr. Robert Waiste	133 S.E. 27th Ave.	Portland, 97214	235-4320

Every Thursday — LUNCHEON - Y. M. C. A., 831 S. W. 6th Avenue, Portland, Oregon.

12:00 M. - Meet in the Mountain Room off the main cafeteria for lunch and a bit of geology or a related subject. These get-togethers are informal and enjoyable. For further information telephone Luncheons Chairman Mr. Leo F. Simon, 236-0459.

November 10 Friday — LECTURE - Central Library, 801 S.W. 10th Avenue, Portland, Oregon.

7:30 P.M. - "Lava Country". A talk by Ruth and Al Keen that will be illustrated by slides, and will include both Geology and Natural History.

November 19 Sunday — FIELD TRIP - Oswego Area. Trip Leader Dr. James C. Stauffer.

10:00 A.M. - Meet in front of Biology Building (Peebles Hall) at Lewis and Clark College. Dr. Stauffer will take the group to see and study various effects of the Missoula Flood south and west of Lake Oswego. This trip will also include a visit to the Oswego Iron Mines and Smelter. Bring your lunch, geology pick, and suitable clothing for the weather of the day.

For further information call Field Trip Chairman Clair Stahl, 281-2220.

November 21 Tuesday — LIBRARY NIGHT - Lewis and Clark College, 0615 S.W. Palatine Hill Rd. Biology Building.

7:30 P.M. -"Library Hour". Check books in or out. Read.

8:30 P.M. - A continuation of the October workshop on invertebrate fossils, under the leadership of George and Jennie Walters.

November 24 Friday — LECTURE - Cancelled due to Thanksgiving Holiday.

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NEWS OF MEMBERS
By Lillian Miller

TWILA FIELDS visited EMILY MOLTZNER recently and found her feeling quite well and in good spirits. Emily is living at the Oregon City Nursing Home, 148 Hood, Oregon City, Oregon. The visiting hours are from two to four in the afternoon.

IRVING EWEN is an editor again. He is using his talents on "The Long Ranger", a publication for the American Institute of Planners, Pacific Northwest Chapter.

Several of our Society's members won awards at The Northwest Federation of Mineralogical Societies Show held over Labor Day in Eugene. A first blue ribbon was won by ERNEST BLAKESLEE, SHIRLEY BISHOP, and MR. and MRS. CARL FINK. In addition to a first blue ribbon, GEORGE and JENNIE WALTERS were awarded a trophy.

Congratulations to you all!!

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MEMBERSHIP ROSTER

Name	Street Address	City, State Zipcode	Telephone
NEW MEMBERS			
BROWN, Mr. & Mrs. Lawrence L. (Larry)	1030 S. Gale St.	Albany, 97321	926-3448
NAFZIGER, Mr. Ralph H.	908 S. Ferry St., Apt. 7	Albany, 97321	926-4556
SMITH, Mr. and Mrs. Charles R.	2535 N.E. 39th Avenue	Portland, 97212	281-4428
WINCHESTER, Mr. and Mrs. Myron D.	4522 N.E. Skidmore St.	Portland, 97218	284-1953

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Volume 33, Number 11

THE PLEISTOCENE

by

C. T. L. Murphy

The Pleistocene is the youngest epoch of the geological time chart. It is also the shortest in duration as against the hundred million years of the Cambrian and the almost limitless expanse of the pre-Cambrian. Geologists allow from a million to a million-and-a-half years for the Pleistocene. In the ages that preceded it enclosing brackets were devised in accordance with periods of spectacular mountain building, the origin or demise of new animal life upon the earth, the growth and distribution of certain forms of plant life. The boundaries of the Pleistocene were fixed by climate for the Pleistocene was inordinately cold

It is natural for North Americans to think of the Pleistocene as their own affair. But the events that affected the north country had their influence throughout the world though not, perhaps, in so vivid a demonstration as the plastering of the upper part of the map with four successive sheets of ice. And this part of the map includes also Europe and western Siberia.

Among the many facets of exposure that may be assigned to the Pleistocene three divisions may be emphasized, the evolution of man, the disappearance of many mammals that inhabited the country until very late times and the invasion of at least four gigantic ice sheets across the northern limits of the earth's land area. The ice age is much more readily documented than the other two for rocks are considerably more resistant to disintegration than flesh and bone, and understandably, primtive man was much more interested in his dinner menu than in leaving a record of his activities.

Man had his complete development during the Pleistocene. Working backward, the meager records show few stages. The latest is Cro-Magnon man who lived in caves of southern France and northern Spain. His drawings or paintings on the cave walls revealed some of the animals with which he was acquainted. He was not too different from modern man, maybe a bit taller. He could speak, use ceramics and minerals, even write. Carbon 14 has dated him at about 15,000 years ago and an earlier strain at 27,000 during the middle of the Wisconsin ice age. His world was cold. The varying climatic changes provided rigorous selection necessary for his emergence.

An earlier stage of man is well documented in the Neander Valley of Germany. This one was probably a little rougher in animal appearance than Cro-Magnon but still he had a pretty decent physiognomy. He made tools. He buried his dead, sometimes with a relic for sentiment. Quite a few of him have showed up. He lived during the third ice age.

Pekin man goes back much farther in time. His brain capacity was of the briefest. His forehead was slanting from eyebrows bold and horny, chin mostly absent. He used fire but it is not known whether he could initiate it or merely keep alive embers started by lightning Many skulls were found with him causing speculation of a possible convention in the cave until some morbid soul guessed that Pekin man was a head hunter. Which he probably was.

His cousin of the same period, the second ice age, lived in Java. The principal difference between the two is that Java man had no fire. In Java who would need fire?

In the Olduvai Gorge of the Great Rift Valley of eastern Africa, the eminent anthropologist, Dr. Louis Leakey and his wife and co-worker, Mary, have been working at fossil location and identification in an ancient lake bottom In 1959 Dr. Leakey made the important discovery of the skull of a homonid or near man which he has named Zinjanthropus Scientists dating the rock at his level have set Zin's time at 1-1/2 million years ago Dr. Leakey has since discovered other homonids, Homo Erectus and Homo Hablis or handy man. The latter could have developed into modern man but most of the Australopithecines or southern apes lapsed in a dead-end strain. One of the most impressive displays of early man is an exposure pictured in National Geographic Magazine of Nov. 1966. Here, just as Dr. Leakey found it, is the remains of a dinner as primtive man rose from the table. It is a group of fractured bones and the stone tool used to break them for the succulent marrow inside. The

The Pleistocene - cont'd.

visitor who sees this revelation cannot but consider, "From such as this came Lister, Linaeus, Pasteur, Michaelangelo, Rembrandt, J.S. Bach and Toscanini, Christopher Wrenn, Blackstone, Aristotle, Steinmetz and Einstein, the Wright Brothers, Werner von Braun."

The missing link? There was no missing link. But somewhere along the line of ancestry a shifting of genes resulted in a mutation. Many mutations fail to develop but the one which did survive had renewed vitality and a superiority in the race. In time he developed the power to reason which differentiated man from the animal which lives only by instincts.

The story of Pleistocene animals is a complex one. By this time animals had achieved their growth and development. It was now a matter of distribution and eventually, for some, extinction. Mammoth and mastodon bones have been found with Homo Sapiens which proves they existed together until the last glacial episode. Asian animals reached America, noted particularly in Nebraska, during the Kansas or second glacial interval, among them the mammoth. Horses and camels of the Oregon Oligocene were by now on their way out of existence in this part of the land and became extinct about 8,000 or 7,000 years ago. The elephant family has only recently passed away from this region for the bones are being continually exposed even in the shadow of Portland.

Among the mammals which persisted to the last were the horses, camels, the ground sloth, two genera of musk oxen, giant peccaries, a stag moose, several cats some of which were lion sized, the mammoth and the mastodon, the broad-faced ox a forerunner of the bison, the giant beaver and certain antelopes. Climate change must have been an influence in the demise of some of them. One commentary said that 45 million animals died in one fell swoop from a common calamity. He failed to account for the survival of the others. Britain had mammoths, lions and hyenas, none of which survive there today. The wooly mammoth developed an insulation to cope with the cold of the ice crusted land. Several of his carcasses have been found frozen into the ice sheets of the North. These victims probably inadvertently slipped into holes from which they could not extricate themselves. Moose remains have been found in New Jersey, musk oxen in Texas, walrus south to the Georgia shore.

The County Museum of Los Angeles gives a separate room to the display of Pleistocene animals whose skeletons have been exhumed from the La Brea tar pits. Among those mentioned above the sabre-toothed cat achieves prominence. It has been lately discovered that these animals are dated from the Sangamon, or third glacial interval. What caused the passing of these animals from the American scene? The coming of man must have been at least influential for he was a hunter. Adverse climate may have been a factor.

The story of the ice age should be told in a book or a set of books, not in the brief pages of this theme. Agreement by many specialists on the depth and extent of the invasions is pretty general with the exception of the time element. Here there is wide disparity. Actually the layman is little concerned with a variance of a few hundred thousand years in dating the several advances but he cares more for the results exposed. Some recent postulations set the time of the first invasion back to about 1-1/2 million years. The most conservative allow about 1/2 million. With the modern development of Carbon 14 it can hardly be questioned that the last of the Wisconsin ice disappeared only about 6,000 years ago during which time slaves were erecting the pyramids of Egypt.

May we state briefly that the first ice invasion spread south to Nebraska and North Missouri. This was followed by a long thousands-of-years of the Afton interglacial period during which time, it is presumed, the world returned to normal. The second ice sheet advanced as far south as Kansas City followed by the equally long Yarmouth interglacial. The third interruption came down through Illinois to the present course of the Ohio River and the Sangamon interglacial followed. The last, or Wisconsin ice sheet, reached the southern boundary of that state and the south shores of the Great Lakes. New England

The Pleistocene - cont'd.

south to Long Island was covered by all the ice invasions. By virtue of its being the last the Wisconsin sheet left an indellible record The student who desires fuller coverage of the ice age may consult the latest publishing in a 1965 issue, the Quaternary by Wright and Frey in the Portland Public Library.

Pleistocene ice is not particularly unique in the earth's history. There have been at least four similar periods identified. There was a pre-Cambrian of about 2 billion years antiquity which left glacial tillite exposed in Norway, Sweden and Quebec. An early Cambrian, remote about 600,000 years, is recorded in South Africa. An early Permian invasion shows up in India and in Australia. Later tillites are found in South America and in Antarctica.

The initial accumulation of snow and packed ice centered in the Hudson Bay region of North America and the Finno-Scandia area of Northern Europe. The ice spread in all directions, north to cover the arctic islands, south into the continents, west to the mountains where it was met by alpine ice sheets and east into the ocean. No authority allows less than three miles for the depth of the ice at the center and some as much as five miles. The nucleus was snow, vast amounts of snow precipitated from ocean moist air brought in by prevailing winds. The climate cooled until the snow failed to melt in the summer. The snow piled up until it compacted into hard green ice. Given great enough pressure ice becomes plastic and begins to move, as seen in all the valley glaciers. In advance of the ice tongue a storm area of hundreds of miles created great pluvial conditions, creating lakes and roaring streams and furnishing increased snow nourishment to the ice sheet.

Maps of the extent of the various fronts show the ice sheet bending southward far east of the Cordilleras in the general area and direction of the Missouri River. This absence of ice between the mountains and the river was a result of the rain shadow of the Rocky Mountains, the same shadow that brings arid conditions to that part of the country today. The same maps may show that all the mountains of the world were glaciated at the same time, giving rise to valley and piedmont glaciers and their resultant U-shaped valleys. The most noted and spectacular of these in Oregon are in the Wallowa mountains and the Kiger canyon of the Steens.

While all of Canada was covered by the ice it has been noted that Alaska excaped complete envelopment. This is explained by the direction of the prevailing winds which failed to provide nourishment. The Brooks Range and the high mountains in the south suffered the usual involvement. In Europe the ice swept the Scandinavian peninsula, northern Germany and Poland, the Ukraine south to Kiev and Krakow and east to the Urals. Northern Siberia was covered but again adverse winds failed to carry the snow farther south. The British Isles were completely inundated with the exception of the southern shore of England below the Thames and Bristol Bay.

The amount of glacial till gouged out and spread by this vast body of solid matter has changed the relief and indeed the economy of the part of the world involved. Northern regions lost their topsoil exposing the Canadian shield and the rocks of Norway and Sweden. The rich corn belt of the Middle West and of the Ukraine benefitted by the mineral-rich rock flour and topsoil supplied to them. It has been estimated that if all the glacial till of Germany and the Ukraine were delivered back to the northland it would fill the Baltic and the Gulf of Bothnia and cover the peninsula to a depth of eighty feet. The state of Denmark owes its existence entirely to glacial moraine till.

The sea supplied the moisture for this vast accumulation of snow. Since it was not returned to the ocean as melt water the volume of the oceans of the world was reduced thereby with a resultant fluctuation of the sea level. By these euatatic adjustments the shoreline was lowered by as much as 330 feet. Geologist Russell says 450 feet. This exposed the continental shelf all over the world. From Cape Cod to Cape Canaveral the shore receded out 40 or 50 miles and today artifacts of man and animals are being continually dredged up from these former land areas. The North Sea was swamp land and the Thames and the Rhine flowed out to sea about the northern latitude of Scotland. The Channel was dry land

Pleistocene - cont'd.

out to Lands End and the Seine flowed out there. Many insular bodies became attached to their mainlands, Tasmania to Australia, Ceylon to India, the Indonesian Islands to the Malay peninsula.

And what of Bering Sea and Straits? A shallow body of water even today, 150 feet, during this time of lowered sea level six hundred miles of land prevailed between the Asian and North American continents. Men and animals passed freely through this region. The mouths of all the world's rivers were transferred out to the brink of the shelves and lowered bays gave awakening velocity to the streams. The present benign Columbia was a roaring torrent through the gorge abrading its banks and channel with glacial debris.

Of greatest import was the creation of the Great Lakes which did not exist before the advent of Wisconsin ice. Previous isostatic involvement of the land level of the north country, as a result of three former accumulations of heavy ice, had made the lake country vulnerable to the latest invasion. The present lakes had been basins probably drained by their former streams. They were now scooped to below sea level and the till deposited in ground cover or in moraines as in the great Valparaiso moraine that curves around the end of present Lake Michigan.

Drainage of all the melt water followed channels available at the time. The displaced Missouri, the Mississippi, the Ohio which was a descendant of the pre-ice Teays; the Allegheny and Monongahela reversed direction to flow southward; the Susquehanna, the Mohawk and the Hudson carried the drainage until the St. Lawrence was free of ice. Niagara Falls was born of the Pleistocene, actually of the Wisconsin drift. The river is thoroughly documented by Carbon 14. It began 14,000 years ago. Great Lake Agassiz, larger than the combined Great lakes, straddled the Canadian-United States border. As a result of the depressed land surface it held 200,000 square miles of melt water. With the rebound of the land following the disappearance of the ice this great lake is now reduced to the present Lake Winnipeg. The Hudson Bay region had been depressed 2,000 feet. Montreal stood 600 feet below the level of the sea. It is believed the Hudson Bay has 800 to 900 feet of rebound yet to accomplish isostatic adjustment.

What caused the ice age? There is no agreement though geologists are free to publish their theories with complete conviction. Extra-ordinary vulcanism, changes of sea currents, sun spots, reduced solar radiation, pole wandering, shifting of the earth's crust, mountain building, loss of the earth's carbon dioxide, cosmic cloud, all are advanced by their respective advocates with gusto and quasi-plausable conviction.

Flint, who has had years of service in glaciology and who probably represents the conservative element of geologists, believes that the basic causes of the temperature change lie outside the earth's environment. He assumes there was an interruption of solar energy. He thinks the most conspicuous response to this was the formation of glaciers at high altitudes and that a secondary effect resulted in expansion of these to a continental ice sheet. As far as Flint can read the evidence the earth's heat simply diminished and then increased in four major cycles.

C. T. L. Murphy

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G. S. O. C. SCHOOL FOR 1968

Registrations are now open to non-members as well as members, but all registrations close on December 1st, so if you plan to take the course but haven't yet sent in your application phone Mark Perrault at 292-4841.

"Historical Geology for the Layman"
At OMSI, Monday 7:00 to 10:00 P. M.
13 sessions starting January 8, 1968.
G. S. O. C. Member - $17.50
Non-Member - $27.50 ($17.50 course, $10.00 G. S. O. C. Dues 1968)

IMPORTANT !!!!

Will 1967 G. S. O. C. School students who took mineral kits home to study between courses please return them to Mark Perrault or bring them to the regular meetings. These kits are needed for 1968 Class.

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NOMINATING COMMITTEE APPOINTED

The Executive Committee has appointed the following members to the Nominating Committee, which shall give its report to the Secretary not later than December 15, 1967.

Mr. Albert J. Keen, Chairman
Miss Rowena Hoven
Mr. Leo Simon
Miss Margaret Steere
Dr. Francis Gilchrist

The Committee shall name one nominee each for President, Vice president, Secretary, Treasurer, Director (3 years), and Editor.

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LIBRARY NIGHT

Library night under the tutelage of Dr Frances Gilchrist continues to be a popular feature of the GSOC program Dr Gilchrist makes this a workshop in the field of geology or paleontology in which intensive study overrides the mere entertainment value of some meetings.

The September seminar was led brilliantly by Don and Dorothy Barr who had made special studies of the high Sierras over a span of years. Yosemite Park with its spectacular glaciation had a thorough going-over in slides and in instruction. The Barrs have been invited to repeat this lecture for the Salem geological society.

The October session delved into the field of invertebrate fossils of the period from earliest paleontological time to the Mesozoic. George and Jennie Walters had prepared a meritorious program of instruction in language that laymen could understand, complete with charts. diagrams and a tableful of specimens. The Walters' are eminently capable in this field for their entries in competition in rock and fossil shows invariably carry off the blue ribbon. Only half way through his dissertation George had to cut off his lecture because of the time element. At the insistence of his hearers he will undertake to complete the discourse at the November Library Night.

Mrs. Gilchrist's refreshment diversion is ever the most popular event of the evening.

C.T.L. Murphy

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AUDUBON WILDLIFE FILM PROGRAM

Five outstanding wildlife lecturers and photographers will present the annual Audubon Wildlife Film Program this year, jointly sponsored by OMSI and Audubon. Dates and places are as follows:

November 10 at	Lincoln High School
November 29	Benson High School
February 8	Lincoln High School
March 26	Lincoln High School
April 23	Benson High School

Season passes for all five shows are. Family $14.00 (please state number in family) Adult $5 00, and Student $3.00.

Mail checks to Audubon Shows, OMSI, 4051 S.W. Canyon Road, Portland, Oregon 97221.

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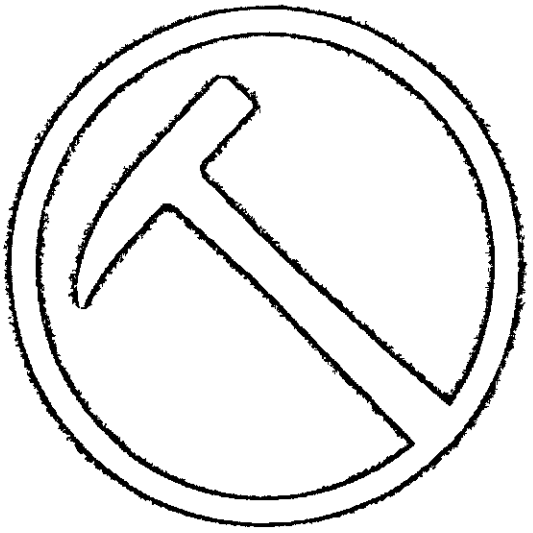

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GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

AIMS AND OBJECTIVES

To provide facilities for members of the Society to study geology, particularly the geology of the Oregon Country*; the establishment and maintenance of a library and museum of geological works, maps, and specimens; the encouragement of geological study among amateurs; the support and promotion of geologic investigation in the Oregon Country; the designation, preservation, and interpretation of important geological features of the Oregon Country; the development of the mental capacities of its members in the study of geology; and the promotion of better acquaintance and closer association among those engaged in the above activities.

*The "Oregon Country" is a loose term generally considered, as in the early days, to embrace the states of Oregon, Washington, Idaho, western Montana, and southwestern Wyoming.

MEMBERSHIP QUALIFICATIONS

A member shall be a person at least twenty-one years of age who is interested in and supports the aims and objectives of the Society and who has been recommended by the membership committee.

A regular membership comprises: (a) a single person, or (b) a husband and wife with children under eighteen years of age.

A junior member shall be a person at least eighteen, but not over twenty-one years of age with like qualifications and recommendation. The age limitation may be waived when the person is a regularly enrolled full-time student of a college or university who is carrying on studies towards a degree. Waiver of age classification shall not exceed four years.

Each paid membership receives one subscription to the Geological News Letter, official publication of the Society.

Persons desiring to become members should contact the membership chairman or any officer of the Society.

DUES SCHEDULE

Annual dues for regular memberships are $5.00 for residents of Multnomah and adjacent counties (Clackamas, Columbia, Hood River, and Washington Counties of Oregon; Clark and Skamania Counties of Washington). For residents outside of the above counties, dues are $3.50.

Annual dues for junior members are $2.50

Payments should be made out to the Geological Society of the Oregon Country.

ACTIVITIES

See calendar of the month for details.

LUNCHEONS	Every Thursday noon.
FIELD TRIPS	Usually one field trip per month via private car caravan or chartered bus. Occasional two-day trips with overnight camping.
LECTURES	Illustrated talks on geology or related subjects. Two lecture meetings each month, the second and fourth Fridays.
LIBRARY NIGHT	The third Tuesday evening of each month.
PUBLICATION	The Geological News Letter, published once each month, is the official publication of the Society.

Volume 33, Number 12

G. S. O. C. CALENDAR FOR DECEMBER 1967

Every Thursday	LUNCHEON - Y. M. C. A, 831 S. W. 6th Avenue, Portland, Oregon 12:00M. - While almost all other GSOC activities have yielded to the Holiday Season, it will be "business as usual" at the Thursday luncheons. Try to attend.
December 8 Friday	LECTURE - Central Library, 801 S. W. 10th Avenue, Portland, Oregon 7:30 P. M. - Mr. Guy Rooth, of the Oregon College of Education, at Monmouth, will give an illustrated talk on the Coos Bay Area.
December 19	LIBRARY NIGHT - Not scheduled due to Holiday Season.
December 22	LECTURE - Not scheduled due to Holiday Season FIELD TRIP - No field trip in December.

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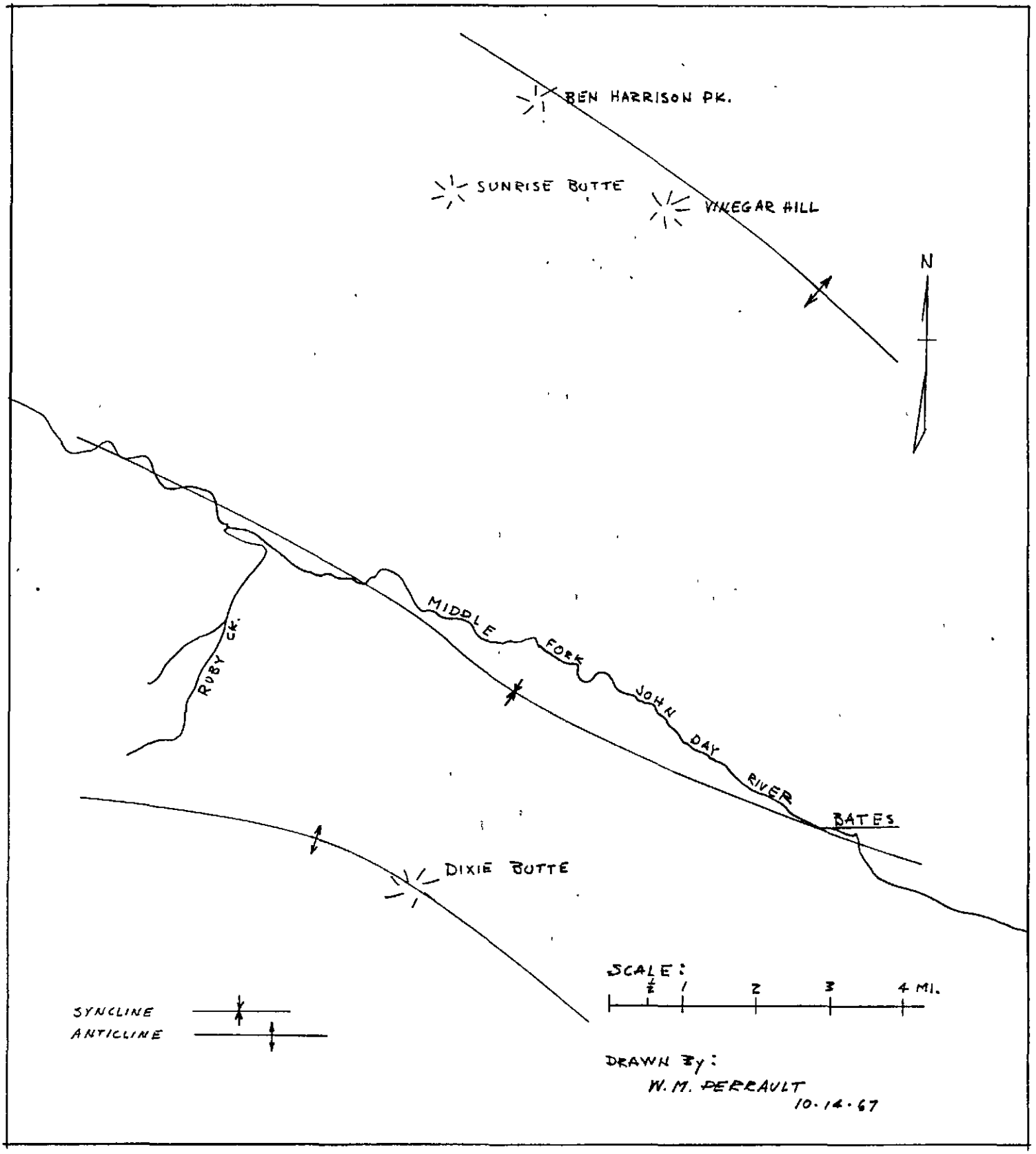
A
very
Merry
Christmas
and all best
wishes for a
Happy New Year


BEN HARRISON PK.
SUNRISE BUTTE
VINEGAR HILL
N
RUBY CK.
MIDDLE FORK JOHN DAY RIVER
BATES
DIXIE BUTTE
SYNCLINE
ANTICLINE
SCALE:
½ 1 2 3 4 MI.
DRAWN BY:
W. M. PERRAULT
10.14.67

Volume 33, Number 12

COARSE-GRAINED INTRUSIVES OF THE DIXIE BUTTE AND VINEGAR HILL AREAS - MIDDLE FORK, JOHN DAY RIVER

By Mark Perrault

In the summer of 1965 with Mr. Frank Owen, a prospector, as guide, my family and I and Mr. and Mrs. Lee Gavigan spent a week in the Dixie Butte area near the headwaters of the John Day River. This area is long overdue for a GSOC visit.

For me the purpose of this trip was a field reconnaisance of the Clarno Formation or correlative rocks in the area, while Mr. Owen was more interested in the coarse-grained intrusives and adjacent host gold veins. During the trip we visited many outcrops and collected samples of these coarse-grained intrusive rocks, which I studied both in the outcroppings in the field and in the thin sections which I made at home. These rocks are so interesting that I have used the News Letter as a means of passing on my findings to our members and of corresponding with Mr. Owen. I hope you find them as interesting as I do.

I. GRANITIC ROCKS OF WEST SLOPE DIXIE BUTTE, AT PASS BY OLD MINE

These rocks are light grey, are of a coarse granitic texture and fall in the diorite class. They are composed of large hornblende crystals which are in ophitic intergrowth with other minerals. The hornblende appears to be largely the result of replacement of pyroxenes. Many small quartz crystals and large and small muscovite flakes are present. The feldspar is mainly a low calcic oligoclase, but some sodic orthoclase is present. All of these minerals except the quartz and mica are strongly altered, some being completely replaced by iron oxides. In outcrop this diorite has the relationships of an intrusive body with sharp contacts at the edges. The samples taken were near the ridge top and approximately along the crest of the Dixie Butte anticline. Float of this type of rock is found in many places on the south and west side of the butte, suggesting that large outcrops of this rock must be present elsewhere in the area.

II. GRANITIC ROCKS AT THE HEAD OF AND ON THE WEST SLOPE OF RUBY CREEK

Generally ranging in color from light to medium-dark bluish grey, these rocks have a medium granitic texture generally, although some areas may be found with large crystals up to several millimeters in size. The granitics here appear to have been displaced a short distance from their original position. All outcrops are badly shattered. Many of the fragments are rounded and most of those exposed show a distinctive brownish weathered surface. Many are in large angular blocks up to four feet across. The formation of the anticline upon which they now are exposed may be responsible for the intense shattering. These rocks appear to be genetically related to the lighter colored granitic type rocks on the south side of Dixie Butte. The mineral assemblage, however, is quite different. The Ruby Creek rocks are gabbros, generally containing crystals of highly calcic feldspars which appear in ophitic intergrowth with hornblende and feldspar. They are strongly altered, showing much magnetite as a replacement mineral and as inclusions in the other minerals, and no quartz or quartz veins are found as secondary fillings of joints or cracks. They contain small muscovite grains. Since they do have a rather rare and different mineral assemblage it is possible that these rocks were emplaced as a small stock at a different time than the other coarse-grained rocks in the area. If they were emplaced at the same time they perhaps had a different cooling history. Though originally intruded at depth, these rocks were raised with the formation of the anticline and now lay exposed at the surface through the work of erosion.

III. GRANITIC ROCKS ON VINEGAR HILL AND THE PASS TO THE WEST

The Vinegar Hill rocks are quite different from the Dixie Butte and Ruby Creek rocks in both minerology and history. They are light colored, ranging from light tan to pink to almost

COARSE-GRAINED INTRUSIVES OF THE DIXIE BUTTE AND VINEGAR HILL AREAS - cont'd.

white, with a fine-grained granitic texture. They are badly fractured and these fractures, to widths of two inches, are filled and healed with pure quartz. Large angular boulders are abundant in the area. Many have inclusions suggesting similar rocks of widely different colors. These rocks are in the quartz diorite class. They are composed of 20 to 30 percent quartz in large and small anhedral grains. The feldspars are generally albite in blocky crystals, with a few scattered large bytownite crystals. Muscovite is present in rounded and ragged crystals in the spaces between other minerals. Iron stains are the general cause of the brown to pink tints. Under the microscope the mineral crystals appear to have been subjected to great pressures after assuming their original crystal forms. Crystal-crushing and other evidences often found in metamorphic rocks are evident. Possible alteration and emplacement known as granitization (a process wherein rocks are altered in place to entirely different mineral assemblages, and, in fact, to entirely different rocks) cannot be dismissed as a possible origin for these rocks. There is no question but that these rocks have a different geologic history, though not necessarily a different time of emplacement, than the rocks found on Dixie Butte.

SUMMATION

There appear to be several possible alternate hypotheses as to the emplacement of the rocks on Dixie Butte and Vinegar Hill.

Hypothesis 1. The rocks were all emplaced at the same time and the difference in composition and out crop character can be explained as the difference in the chemical makeup of the magma itself coupled with the intensity of folding and deformation that the rocks have undergone.

Hypothesis 2. The rocks were emplaced as different bodies though at not greatly differing times and therefore the compositional differences are to be expected. The intensity of folding again explains the outcrop patterns and other rock features.

Hypothesis 3. The rocks of both Dixie Butte and Vinegar Hill represent granitization of rocks already in place. The Compositions are due to the diversity of the original rock composition.

Hypothesis 4. The rocks of Dixie Butte and Vinegar Hill represent, in part, those emplaced as magma and those granitized. With this hypothesis the rocks of Vinegar Hill with their very perfect replacement features and suggestive alteration patterns can be explained.

The presence of the quartz-filled veins may be due to the silica excess front. (It is generally presumed that the process of granitization is accompanied by a surplus of silica). The rocks of Dixie Butte represent an intrusion of magma, of which that on the south side was different from that at Ruby Creek on the north. They might, in fact, represent two different episodes.

None of these rocks have the basic and necessary mineral composition of true granite:- quartz, mica, sodic feldspar, and either orthoclase or microcline. This lack is generally true of all coarse-grained intrusive rocks emplaced during the geologic period, possibly the Cretaceous, in which these local rocks were emplaced.

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A PLEA FROM MARK PERRAULT

Will everyone who took home rock specimen kits from Geology School please return them. The kits are needed for the next Geology Class which starts in January, and should be checked over and put into condition before that time.

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Volume 33, Number 12

NEWS OF MEMBERS
By Lillian Miller

BOB WILBUR has just returned from a three-week trip to visit his 93-year-old mother in Little Rock, Arkansas. He made additional stops in Lincoln and Omaha.

From MR. RONALD E. BRAMBLE who has moved to Eugene from Medford: "I am looking forward to be able to attend more meetings since my recent move has brought me a lot closer to Portland."

We are sorry to learn of the passing of MR. R. J. STRASSER, a former member of the Society.

Four Oregon colleges were honored Wednesday, November 8, for their work in the USO College Entertainment Program Overseas. They are University of Oregon, University of Portland, Lewis and Clark College and Portland State College. Accepting the award for Lewis and Clark College was FREEDA HERTZFELD JONES (MRS. ARTHUR C. JONES).

MURRAY MILLER, Honorary Life Member of the Geological Society, has spent an interesting and rewarding six weeks of the past fall season in an activity for which he is particularly qualified MURRAY is on the faculty of the Regional Outdoor Educational School and he has been teaching conservation to sixth grade youngsters.
This is a new program participated in by four adjacent counties, Multnomah, Columbia, Washington and Clackamas. A period of six weeks in the fall and the same in the spring is used in which a whole sixth grade class, including the teacher, is lifted up by school bus on a Sunday afternoon and deposited in one of two youth camps, there to learn of nature first hand under the tutelage of able and dedicated conservationists for a whole week. On the following Friday afternoon the group is lifted back to its home school. Attendance is about 130 per week and 1500 for the term.
During this outing the class has a program of 90% education and 10% recreation. Their subjects are soil, water, plants and wild life. MURRAY MILLER is the instructor in the water phase of the curriculum and his classroom is the bank of a roaring creek.
It will be remembered that MR. MILLER was a prime mover in setting aside for future generations the important Camassia Natural Area at West Linn.

MR. AND MRS. DENNIS M. CARMODY recently returned from an exciting trip to the British Isles. They proceeded by train to Montreal, Canada, and arrived in that city on Labor Day. The next seven days were spent on board a boat; they enjoyed a smooth crossing. MRS. CARMODY'S parents were born in Ireland so our members were particularly interested in that region. They visited relatives and really saw the area as they traveled about by bicycle. England and Scotland, too, were on their itinerary. The return boat crossing was somewhat rough; but a little more than two months after their departure from Portland they were back home filled with memories of a wonderful journey.

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MEMBERSHIP ROSTER

NEW MEMBERS	Street Address	City, state and zipcode	Telephone
ANNUNEN, Mrs. Anna	8741 N. Bayard Avenue	Portland, 97217	289-3567
CAMERON, Florence	1709 S. W. Morrison St.	Portland, 97205	- - - -
LARSON, Miss Carol	631 S. E. Taylor St.	Portland, 97214	234-9139
LATHROP, Dr. and Mrs. Ted G.	810 Jefferson St.	Oregon City, 97045	656-3289
McXERAGHAN, Mr. Dale S.	120 S. W. Taylor St.	Portland, 97204	227-9993
ADDRESS CHANGES			
BRAMBLE, Mr. Ronald E.	3900 Coburg Rd , Sp #66	Eugene, 97401	- - - -
MERRYMAN, Mr. Frank J.	5108 S. E. Tenino Ct.	Portland, 97206	- - - -
SHRADER, Mrs. Lea	2625 S. W. Troy Ave.	Portland, 97219	- - - -

LIBRARY NIGHT

Library night, November 21st, brought the second and concluding part of the Walters' dissertation on invertebrate fossils. George and Jennie had prepared excellent coverage of the early life forms with diagrams and hand specimens. These showed the evolution of one-celled blobs of flesh from earliest marine habitat into the later forms of the Paleozoic which left shells or outside skeletons to record their presence in limestone or shale. The last phyla dealt with starfish, sand dollars, sea urchins, squid and animals of that ilk. Some of these live in the seas today.

Librarian, Clara Bartholomay, put into circulation new books on geologic subjects and the same were checked out to waiting readers. The library has continued growth of reading material.

Cider and doughnuts showed up on the Thanksgiving menu prepared by Mrs. Gilchrist but she also served the old standby of coffee or Sanka.

Dr. Gilchrist, sponsor of Library Night, has cancelled the December meeting as being in conflict with the holiday season and the next observance will be on January 16th of the New Year with a program by Clair Stahl. The particulars will appear in the January edition of the News Letter.

C. T. L. M.

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FOSSIL SEEDS GROW AND BLOOM

Fossil seeds, at least 10,000 years old, of an arctic lupine (Lupinus arcticus) have germinated in a laboratory and have grown into healthy flowering plants, according to an article by three Canadian researchers in the October 6, 1967 issue of SCIENCE. The seeds came from a placer-mining operation on Miller Creek in the Yukon Territory which opened up a thick bed of permanently frozen silt containing lemming burrows 9 to 18 feet below the surface. In the burrows were the lupine seeds along with the well-preserved skeletons of the rodents. The silt which buried the fossil material is believed to have been deposited in late Pleistocene time before the post-glacial warming began.

Seeds have been known to remain viable for many centuries under optimal conditions of moisture and oxygen deficiency, the article states, but the oldest prior to this discovery was 2000 years for the sacred lotus in a far-eastern peat bag. The scientists who conducted the experiment on the lupine feel that seed stored dry and at temperatures well below freezing could remain viable indefinitely.

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