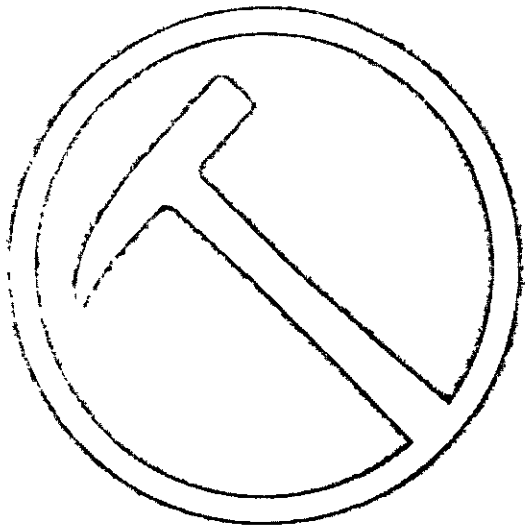

THE GEOLOGICAL NEWS LETTER

Official Publication of the Geological Society of the Oregon Country

Nov. 1966

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

State of Oregon
Dept. of Geology & Mineral Industries
1069 State Office Bldg.
Portland 1, Oregon

GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

1966 ADMINISTRATION

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GEOLOGICAL NEWS LETTER STAFF

editor	EWEN, Mr. Irving G.	4128 N. E. 76th Avenue	Portland, Oregon - 97218	281-7098
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

G.S.O.C. CALENDAR FOR NOVEMBER 1966

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

12:00 M. - In addition to partaking of the mid-day repast, GSOC'ers, guests, and visitors have an opportunity to examine and/or discuss geologic publications, specimens, et cetera or hear occasional five-minute talks. A variety of food items can be obtained at moderate prices in the Main Cafeteria. Just bring your purchases, whether a trayfull or a trifle, to the Mountain Room (which is just beyond the Foothills Room).

More information may be obtained from Mr. Leo F. Simon, Luncheons Chairman (telephone number 346-0549).

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

7:30 P.M. - A threefold program will be presented by Mr. Lee Jenkins, Mr. Leonard Wilkinson, and Mr. Robert P. Hart. Subject to be announced. Messrs. Jenkins, Wilkinson, and Hart are the same trio who guided the overnight field trip on 17 and 18 September to the Eugene-Roseburg area.

12 November Saturday — FIELD TRIP - Fort Vancouver National Historic Site, Washington

9:00 A.M. - Assembly point will be at the Visitor Center which is east of Vancouver Barracks. Mr. Eliot Davis, Superintendent, will conduct a tour of the historic Fort which is under reconstruction. Also included will be a tour of the museum building.

12:00 M. - Lunch will be at the Site. Coffee will be served, but bring your own lunches. If inclement weather prevails shelter will be available.

1:00 P.M. - The group will reassemble and spend the afternoon visiting selected geologic points of interest within a 25 mile radius of Vancouver.

Bring the usual recommended items excepting Toll Tokens (the Interstate Bridge will once again be TOLL FREE beginning 1 November 1966!) More information may be obtained from Mr. Lee T. Gavigan, Field Trips Chairman (telephone number 289-8041).

15 November Tuesday — LIBRARY NIGHT - Lewis & Clark College in southwest Portland, Oregon.

7:30 P.M. - The first hour is reserved for browsing and reading in the GSOC Library which is located on the upper floor of Peebles Hall (biology building). An opportunity is provided to check out books for more intensive study at home. Miss Clara L. Bartholomay is Librarian.

8:30 P.M. - The second hour will be a workshop similar to those conducted by Dr. Francis G. Gilchrist during the first two Library Nights of the current academic year. Igneous rocks will be discussed. Those attending are invited to bring representative samples of volcanic and plutonic rocks collected on field trips.

Refreshments following the workshop. More information and/or directions may be obtained from Dr. Gilchrist, Library Night Chairman (telephone number 636-5942) or Miss Bartholomay (telephone number 284-6986).

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

7:30 P.M. - Dr. Paul W. Howell, a past president of GSOC, will present an illustrated talk on the "Geology of Glacier National Park". The "windshield geology" tour will also include parts of Idaho and the southern Canadian National Parks.

More information on lectures may be obtained from Mr. Donald D. Barr, Lectures Chairman (telephone number 246-2785).

NEWS CF MEMBERS
by Rowena Hoven

ESTHER HAMMOND and VIOLA CBERSON are recovering from surgery. We hope we will soon see them again at the meetings.

Since their marriage last spring, RUTH HOPSON and AL KEEN have been having difficulty getting their residence officially established in the GSOC publications. For the record, MR. and MRS. ALBERT KEEN are living at 4138 S. W. 4th Avenue, Portland.

ELIZABETH BARBER (Elizabeth Gilliam for those with short memories) has been elected President of the Livewire Toastmistress Club.

LEO SIMON was very active in setting up the recent Mushroom Show at OMSI which is put on annually by the Mycological Society. The 1966 annual report from CMSI has a picture of him telling some interested observers about mushrooms. The picture is captioned: "Simon Says".

HAROLD DEYCE has been visiting in Portland and renewing GSOC contacts at the Thursday luncheons.

* * * * * * * *

MEMBERSHIP RCSTER

name	street address	city, state and zip code	telephone
NEW MEMBERS			
BEALS Mr. and Mrs. Herbert K.	475 E. Clarendon St.	Gladstone Cregon - 97027	656-2370
CHAPMAN Dr. M. P.	Box 297	Sherwood Oregon - 97140	625-6628
HEGE Mr. & Mrs. William D.	818 S. E. Lambert St.	Portland Cregon - 97202	235-7623
HELFRICH Mr. and Mrs. Merle C.	251 N. E. 133rd Ave.	Portland Oregon - 97230	253-7446
MILLER Miss Doris F.	170 Holly Street	Prineville Oregon - 97754	
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PETERS Mrs. Mae	5716 N. Greeley Avenue	Portland Cregon - 97217	285-6605
SANFORD Mr. Paul Lloyd	315 North Broadway	Burns Cregon - 97720	
TALBOT Mr. and Mrs. John J.	6404 S. E. 23rd Avenue	Portland Oregon - 97202	236-2732
TRAVIS Mr. and Mrs. H. F.	15635 Royalty Parkway King City	Tigard Cregon - 97223	

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Volume 32, Number 11

DUSTY WATER

By Ralph S. Mason*

The State Department of Geology and Mineral Industries has just completed an interesting, short term project which has attracted quite a bit of attention. Dr. Jack Green, an astrogeologist from southern California who has done considerable work on the volcanic rocks of central Oregon with respect to their lunar similarities, suggested to the Department of Geology and Mineral Industries that much valuable information would be developed if someone would attempt to extract "combined" water from some of the rocks in the Bend area. He further suggested that simple heating in a suitable vessel ought to do the trick. The object of such research would be to determine the feasibility of obtaining water from similar rocks on the surface of the moon. If such a thing were possible the saving in transporting water from the earth to support lunar-based colonies of scientists would be tremendous.

The Department of Geology has long been interested in lunar research, particularly in those phases involving the study of volcanic rocks. Dr. Green's suggestion was, however, received with some misgivings. Research of this type, involving an entirely new approach, characteristically involves large expenditures of money for equipment and laboratory facilities, to say nothing of the manpower required for extended periods. The Department had no funds available and little space for setting up the experiment. The Director, Hollis M. Dole, assigned Tom Mathews and the author to "Project Moonshine" as it was promptly nicknamed, on September 2 with instructions to construct the equipment, run a series of tests on samples to be gathered from the Bend area - and have a successful operation ready for Dr. Green's inspection by October 14. The actual rock selected for the tests was Tumalo tuff, a Plio-Pleistocene, partly sintered, ash flow tuff member of the Madras Formation. The tuff contained 15 percent of "free" water and 2.5 percent of "combined" water.

The short time allowed for the project precluded the construction of any special devices. A canvass of local suppliers revealed that heavy duty electrical heating elements which could be shaped to a variety of configurations and which were rated at 5000 watts at 220 volts were available. Computations showed that a cubic vessel 18 inches on an edge would hold about 100 pounds of rock. A local furnace manufacturer was located who used a box almost exactly this size for a hot air furnace. Insulation consisted of half-inch-thick asbestos board inserted on the inside surfaces of the box, plus a layer of aluminum foil inboard from the asbestos. Cn the outside, glass wool blankets were wrapped around everything. A half-inch copper tube about 4 feet long was attached to a pipe extending across the top of the box. The pipe had numerous slots to receive any moisture. A standard laboratory cold-water jacketed condenser was attached to the end of the copper tube.

Cddly enough one of the biggest problems encountered during the tests was the sealing of the box against vapor leaks. Cn the original run steam seemed to come out of hairline cracks even more readily than it did out of the open pipe. Thick layers of furnace cement eventually solved the problem. The first two test runs were made with a flat cover on the box. It was decided that better steam collection might be made with some sort of dome on the lid. Accordingly a 6-inch cylindrical "can" was welded on and the copper pipe tapped into the top. This greatly improved the operation. Maximum temperature achieved on any of the test runs was 800° C. Water began coming off, however, at about 550° C. Undoubtedly steam was produced at much lower temperatures but recondensed in cooler portions of the furnace during the early stages of the heating.

Space for testing the furnace and preparing the sample charges proved to be a bit of a problem. The samples were screened to eliminate fines at one of the project worker's homes and later the oversize pieces were crushed in the Department crusher. Fortunately one of the Department staff members happened to be away from his office during the test period and the furnace, condenser, and temperature recording equipment were promptly

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

Dusty Water -

installed there. The net space thus available amounted to 20 square feet. Three thermocouples were placed in the furnace and frequent temperature readings were taken throughout the various runs. The need for temperature data was twofold. First, there was no information available on the maximum temperatures permissible with the heating elements when used in this service. Normally this type of heater is installed in an air-swept chamber where rapid heat dissipation is possible. The low heat conductivity of the Tumalo tuffs plus the static air condition imposed entirely new conditions for which no data were obtainable. The second reason for needing to know what temperatures were achieved inside the furnace was the purely scientific one. Dr. Green had predicted that after the first evolution of "free" water - deposited there by migrating ground water and rainfall - there would be an additional emission from the "combined" water contained in the molecular structure of the rock. Dr. Green estimated that a temperature of 300° C. would have to be reached before any of this water would be released. Obviously on the surface of the moon there would be none of the "free" water available, and any water obtained from the rocks would have to come from the "combined" sources.

Since no data were available on the amount of heat required or the time it would take to heat-soak the furnace charge, it was decided to install four of the 5000 watt heaters and hook them up to 110 volts rather than the 220 volts for which they were designed. By reducing the voltage across the elements a more gentle heating action was made possible and a greater opportunity for heat-soaking was provided. Tne elements were bent into the shape of a capital "M" and consisted of tubular cores surrounded with spiral-wrapped fins having a diameter of 1-1/2 inches. The elements were positioned (see Fig. 1) so that

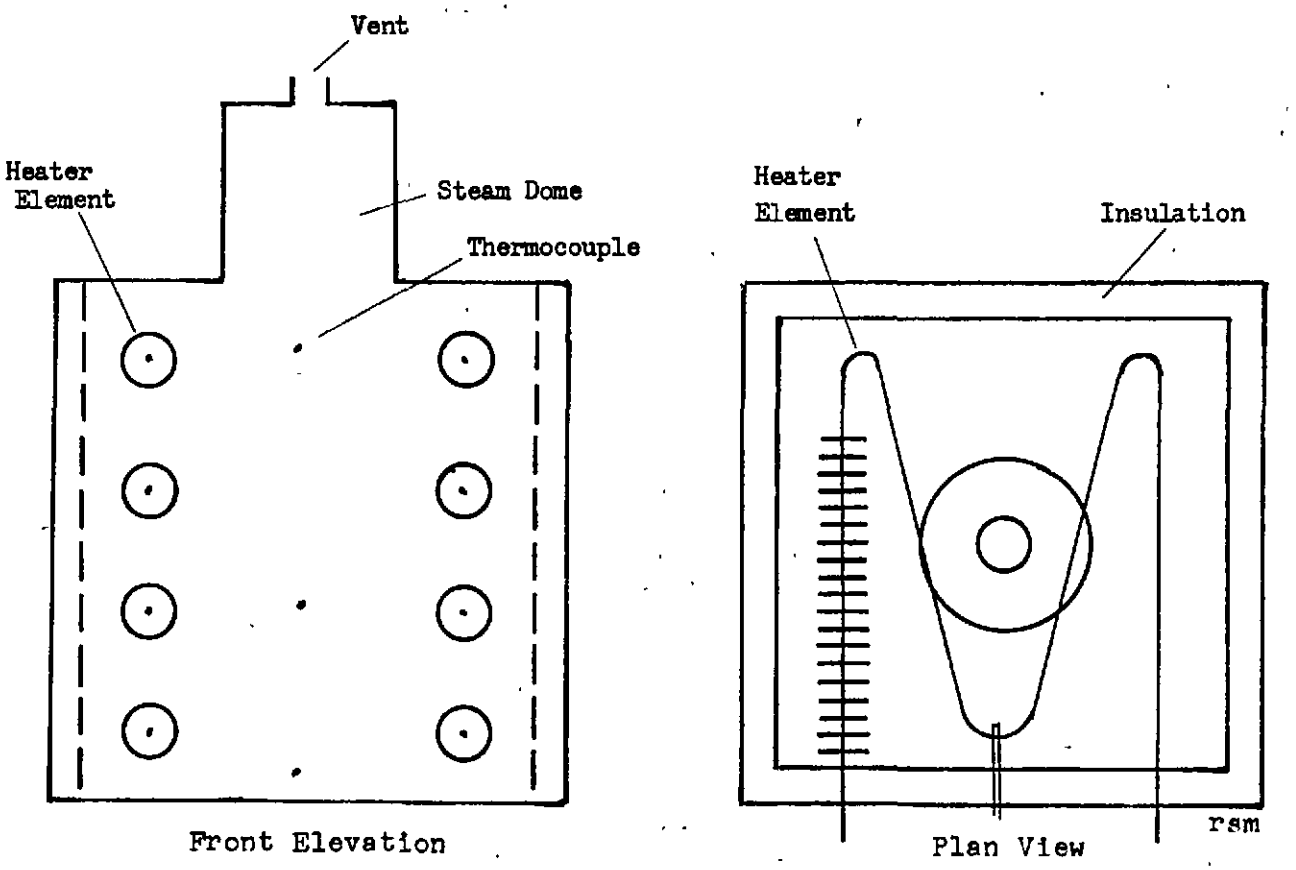

Figure 1. Diagram of furnace.

Dusty Water -

none of the rocks were more than 4 inches from an element. Several heating schedules were tried in an effort to determine the best method for extracting water without destroying the heating elements. On some runs the elements were simply plugged and left running for an hour or more. On other runs frequent periods ot on and off were tried. Once the "free" water had been driven off and the charge had received a fairly even heat-soak, only short periods of additional power were required to maintain the temperature.

The preliminary-test runs, made in the cramped confines of a business office, all produced "combined" water. One co-product, perhaps two, also showed up at the end of the condensing pipe. The first was an inflammable gas which coated the walls of a beaker with steam when it was ignited. The ignition was usually characterized by a small explosive "pop!" This gas was probably hydrogen resulting from the reaction between the hot radiant fins on the elements and the moisture. The second product was an invisible gas which produced deep-seated coughing and several splitting headaches. This gas has not been identified. The final run was staged in a pumice pit near Bend with power supplied by a portable generator which labored mightily for nearly six hours. Temperatures in the pit were far below freezing during the preparation of the charge which had been thoroughly dried out the night before. One hour after the dusty charge had been sealed into the furnace and the power turned on, the first drops of water emerged. Water continued to drip steadily for the next six hours - long after the generator had run out of gas. For the last run additional thermal insulation was provided by heaping up dry granular pumice around the furnace.

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GLACIATION IN NORTH AMERICA

Dr. Ray Broderson was the speaker at the Friday night lecture on October 14. His topic was "The Aspects of Glaciation in North America". Beautiful slides of many of the outstanding glaciers of the western mountains highlighted the talk.

Dr. Broderson described the characteristics of water which make it such a powerful force in carving out the mountain peaks. Views of such glacial features as u-shaped valleys, terminal and lateral moraines, cirques, hanging valleys, and erratics were shown and discussed.

An instructor at Monmouth, Dr. Broderson has been a favored speaker of the Society in the past, and we hope to hear more from him in the future.

Irma Sullivan

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CCTOBER LIERARY NIGHT

Following the quiet hour for browsing and reading, Dr. Gilchrist opened the program with a short review of the topography and formations encountered between Salem and Bend and the area visited during the President's Campout, illustrated with a profile map which he had drawn. He referred to the excellent log the president had prepared. Color slides were shown and the geology of each was discussed. Dr. Howell gave us a very good explanation of the cause of the different kinds of lava flows. A few specimens from the areas visited were passed around and discussed.

Not only were there numerous good pictures of the formations, but many slides of the beautiful wild flowers we encountered. Members showing their slides were: Dorothy Waiste, Mrs. Theodore Johnston, Rowena Hoven, Truman Murphy, George Walters and Dr. Gilchrist.

Following the program, Mrs. Gilchrist graciously served the traditional cider and donuts.

Jennie Walters

CAMP HANCOCK SPECIAL

One of those rare occasions when only a small handfull of GSOCers turned out to hear an exceptionally fine program, occurred on the Friday evening of September 23. Two of our own -- Dr. Paul Howell and program chairman Don Barr -- combined their talents to give an illustrated lecture on Camp Hancock, its geologic setting and the activities which go on there in the summer. With a Huntley-Brinkley touch, Don provided the identification of the people and scenes, and Dr. Paul expounded on the geologic aspects.

Tucked into an erosional void in a Clarno mudflow, the camp is an outdoor laboratory for geologic and palaeontologic studies. Most of the young people attending the two-week sessions are serious-minded junior and senior high school students. Living conditions are quite primitive, with the few buildings being simply open-front shelters, and the kids like it that way. In the past year a laboratory and library have been added, which will permit more intensive examination and closer identification of the specimens found.

Stratigraphically, the area is built up from the Clarno valley of the Eocene, overlain with John Day beds, and all held in place with a topping of Columbia River Basalt -- where the forces of time have not removed it.

The Clarno formation is composed of layers of yellow, red, and green members, topped by a layer of welded tuff. The yellow member contains the nut beds, which probably were deposited by an ancient stream. Erosion of this formation has resulted in the spectacular palisades seen in various areas of the camp.

The John Day fm., lying above the Clarno, contains both leaf and mammal fossils. These mammal beds were first worked by the late Lon Hancock, who made the first notable discoveries of Eocene mammals in the west. Many hundreds of fine specimens have since been found here, and every summer brings out more. This deposit of mammals is believed by Dr. Paul to have been the result of a sudden mudflow which caught up the animals trapped by an eruption and carried them along until they were deposited along the edge of the flow. The dismemberment and scattered position of the remains seems to indicate something of this sort of action. Other theories suggest that trapped herbivores were being attacked by the carnivores when all became suddenly engulfed in an ash fall. Whatever the story, the remains today provide a rich source of material from which to attempt to unravel the mysteries of the past.

The middle member of the John Day formation is known as the Bridge Creek horizon, and it is from this that the fine leaf fossils are recovered, giving a vivid picture of the flora of that ancient time. Metasequoia, cherry, oaks, and sycamore are some of the leaves commonly found. This member can be traced by intermittent exposures for over five miles through this area. The Knox Ranch location, which is a deserted ranch site once occupied by a family named Knox, is a part of this member and has produced excellent leaf specimens for the past 20 to 30 years, and shows no evidence of becoming depleted.

Also nearby are the snail beds -- a hillside of green matrix, composed of a medium grained lapilli tuff, surrounding great masses of snail shells. These gastropods were fresh water animals, evidence that the sea had long since retreated from this area at the time of their deposition.

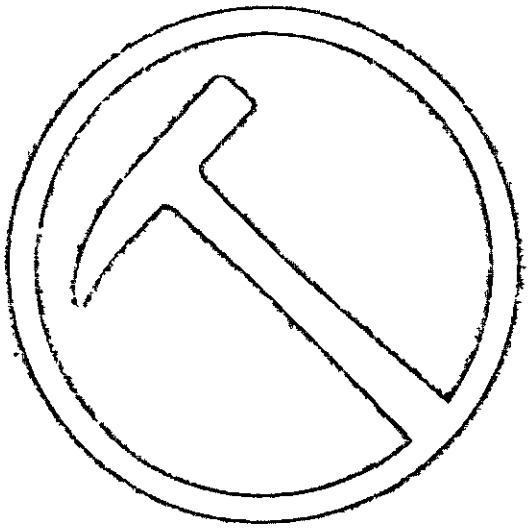
One of the more spectacular sites in the camp area is the fossilized tree trunk, believed to be a sequoia, standing upright in a mudflow in Hancock canyon.

Not the least subject of interest at the camp are the students who come to dig and study, year after year. Personalities and characters are as diversified as the human race itself. Don, who served as camp director for a time, shared the humorous incidents which the pictures recalled to mind--some of which have become humorous only with the passing of time. Dr. Paul, and other members of the Society have also helped with camp activities, and no doubt, they too could have related many tales of kids and their doings.

Time passed too quickly for such an enjoyable and spirited program. This pair will be welcome for a return engagement.

Irma Sullivan

Jan. 1966



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Mr. Leonard Wilkinson, Jr.
1247 Powell Lane
Prineville, Ore.

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 32, Number 1

G. S. O. C. CALENDAR FOR JANUARY 1966

Every Thursday

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

12:00 M. - GSOC'ers, guests, and visitors are invited to participate in this weekly gathering in the mountain room adjacent to the main cafeteria. The informal festivities may include short talks on geology and related subjects, examination of recently exhumed geologic specimens, or discussion of new geologic publications.

Various food items (ala carte to complete meals)are available cafeteria style at moderate prices. More information about this activity may be obtained by telephoning Mr. Leo F. Simon, Luncheons Chairman, at 236-0549.

14 January Friday

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

7:30 P. M. - Modern Aerial Surveys and Production of Engineering and Forestry Maps by Photogrammetry -- Will the orbiting satellites make obsolete present methods? Examples of precise maps and photo interpretation and some of the procedures in this precise work will be presented in an illustrated talk by Mr. Leonard H. Delano whose firm has been in this work for many years.

16 January Sunday

FIELD TRIP - Tour and Open House at Delano Photographics.

1:00 P. M. to 5:00 P. M. - Location of this facility which specializes in commercial photography, aerial survey and photogrammetric mapping is at 1536 S. E. 11th Avenue at Clay Street (a block south of Hawthorne Blvd.)

Here is an opportunity to see and have explained the precise plotting and new aerial cameras and processing equipment. Take your time to see the many photos of geologic interest, including a wall-sized mosaic of the Delintment Lake area, not to mention the industrial and historical photography in the commercial studio. Coffee and tea will be served.

Additional information may be obtained by telephoning Mr. Lee Gavigan, Field Trips Chairman, at 289-8041 or Mr. and Mrs. Leonard H. Delano, hosts for the occasion, at 236-2139.

18 January Tuesday

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

7:30 P. M. - The group meets in the GSOC Library which is located on the upper floor of Peebles Hall (the biology building). The evening begins with a "quiet hour" reserved for browsing and reading.

8:30 P. M. - The program will be a continuation of "Geology of the Columbia River Gorge" presented at the previous Library Night on 16 November 1965. Dr. Francis Gilchrist will continue as co-ordinator. Members interested in participating in the program are invited to bring slides (limited to one dozen) illustrating geologic and scientific points of interest in the Gorge.

Refreshments following the program. Additional information or directions, if needed, may be obtained by telephoning Mr. & Mrs. Murray R. Miller, Library Night Chairman and Librarian, at 656-6724.

28 January Friday

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

7:30 P. M. - " A Naturalist's Ramble Through the Middle West" might be an appropriate title of the talk to be given by Mr. Leo F. Simon. Once again Leo will take us on a well-illustrated armchair tour of fossil and mineral collecting as well as visiting a number of outstanding museums.

NEWS OF MEMBERS
by Rowena Hoven

HUGH OWEN continues to be our most active member it seems. The first of the year he will become a case worker with the State Welfare Commission for Multnomah County. In addition to his night class at Lewis and Clark College on city planning for the layman, he will also teach a similar three-hour course in the evening at Portland State College. In order to fortify himself for this busy schedule, he is spending the New Year's weekend at the Mazama Lodge where he will participate in a cross-country snowshoe jaunt.

BOB WILBUR has returned from a trip to Spokane where he spent the Christmas holidays with his daughter and her family.

WILLIAM FREER and KATHRYN SIMS were married the afternoon of December 31st at Grace Memorial Episcopal Church. They are honeymooning in San Francisco. Our best wishes to BILL and KATHRYN.

RAY GOLDEN is recovering from surgery at St. Vincent Hospital, and we hope he is home by this time.

ELIZABETH GILLIAM is working for the Maritime Commission. It looks like a nautical year for ELIZABETH.

LEONARD DELANO has been nominated for National Director on the Executive Board of the American Society of Photogrammetry. He has been a member of the national Council for three years and recently was given a presidential citation for meritorious service, first of its kind, by President Gomer McNeil. Since this award, it is also announced that efforts spearheaded by him have obtained the 1969 semi-annual convention of the Society for Portland. The Society consists of government and private individuals in photo interpretation, map making and aerial surveys, and other photogrammetric specialties.

* * * * * * * * * * *

MEMBERSHIP ROSTER

name	street address	city, state, and ZIP code number	telephone
NEW MEMBERS			
GERBER, Mr. & Mrs. Joseph A.	2445 N. W. Northrup St.	Portland, Oregon - 97210	227-2881
MC CLUNG Mr. Wallace R.	1300 N. E. 49th Avenue	Portland, Oregon - 97213	284-6700
ADDRESS CHANGES			
BRYAN, Mrs. Gladys L.	[illegible]	Crater Lake, Oregon - 97604	
FULLMAN, Mr. & Mrs. Harvey L.	12732 S. W. Riverside Dr.	Portland, Oregon - 97219	636-4254
REINSTATEMENTS			
HEIBERG, Mr. & Mrs. Harry M.	8105 S. W. Brentwood St.	Portland, Oregon - 97225	292-2560
SABIN, Dr. & Mrs. Neil A.	12511 S. W. Boones Ferry Rd	Lake Oswego, Oregon - 97034	244-4328

Volume 32, Number 1

CITY OF PORTLAND WATER SUPPLY SYSTEM TOURED

by Mrs. Isabelle D. Allison *

On December 11, about 30 Gesocers and their guests assembled at the Water Bureau Building at 1900 N. Interstate. We were welcomed by Ted Suderburg, N.J. Thompson and Julius Thorn. We were offered coffee and cakes, which were most welcome on the chilly morning.

In this building the meters of the Water Bureau are cleaned, taken apart, reassembled and calibrated. We were shown how this proceeds efficiently at the rate of about 50 meters a day, due to innovations developed by our Portland Water Bureau. The meters were calibrated after reassembly and must have an accuracy better than 95% on a 1/4 gallon per minute test. If they do not pass thest, they go back to the repairmen. The meters that pass the calibrater test are loaded on racks ready for the serviceman to load on his truck. Part boxes that contain materials necessary for installation of meters, varying from 2 to 12 inches, accompany each truck. These reconditioned, correctly-calibrated meters are used to replace those that the meter reader judges to be inaccurate from previous records of water use, or where the meter has been damaged. Our Water Bureau services 120,000 meters in Portland. On an average day 50 meters are brought in, however, as high as 100 meters have been processed in a day. We were impressed with the efficiency of the shop and the accuracy of the product.

The next assembly point was at the entrance to Dodge Park where we saw the three pipelines that carry water from the headworks to Portland. Mr. Thompson unlocked the entrance to the watershed. Gates are necessary as the watershed must be protected to avoid contamination of our water supply.

Our first stop was on a high bluff above the headworks where the general features of the new No. 2 dam, its intake structures, spillway, outlets, and the headwork buildings and dam were pointed out by Mr. N. J. Thompson of the Water Bureau. When full, Bull Run Dam No. 2 will hold 7 billion gallons of water. Many pictures were snapped at this viewpoint.

Our next stop was at the shelter at Bull Run Dam No. 1, for lunch. The building was warmed by a cheerful fireplace decorated with green boughs. Tables and benches were provided in a room that allowed a view of the forest, Bull Run Dam No. 1, and its lake.

The guests were introduced. Among them were four Civil Engineers from Laos, Thailand, and the Philippine Islands who are in Portland being trained in river development by the Corps of Engineers. Upon completion of training they will return to their work on the development studies of the Mekong River Basin. The Mekong rises in Southern China and flows through Burma, Laos, Thailand, Cambodia, and has tributaries in Viet Nam.

After lunch, groups visited Bull Run Dam No. 1, which is 16 miles below Bull Run Lake. This concrete gravity dam is 200 feet in height and 950 feet in length along its crest. Water was spilling through the spillway section as well as through the three valve-controlled sluiceways. Gates have been installed in the spillway section that can be operated to increase the storage behind Bull Run No. 1 by 8 feet. This makes a total storage there of 10 billion gallons of water. Above this storage is Bull Run Lake. It is located about seven miles northwest of Mt. Hood at elevation 3,175 feet. It has a controllable capacity of approximately 4 billion gallons. It is fed by springs and by rain and snow on the slopes surrounding it.

Included in this issue (see page 4) are three geologic cross-sections of Bull Run Lake, figures 1, 2, and 3, which have been provided by the courtesy of the City of Portland Water Bureau and are reprinted with permission. At Bull Run Dam No. 1 there are two layers of basalt separated by consolidated silt visible in the road cut. Several road cuts have exposures of consolidated water-rounded pebbles.

* Engineering Technician with the Water Control Branch of the U.S. Army Corps of Engineers, North Pacific Division.

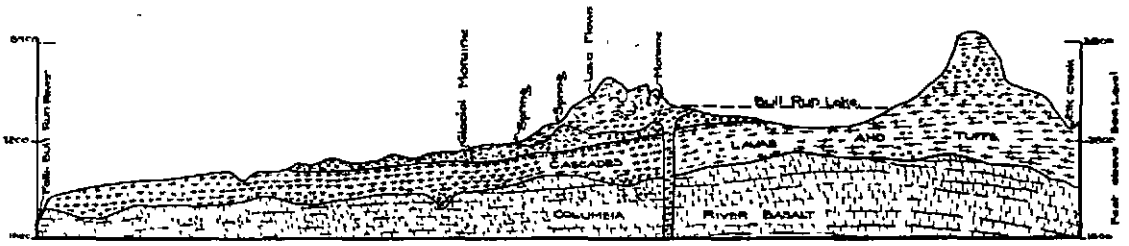


FIG 1

SECTION SHOWING RELATIONSHIP OF BULL RUN LAKE TO GEOLOGIC FORMATIONS

Scale 1 mile

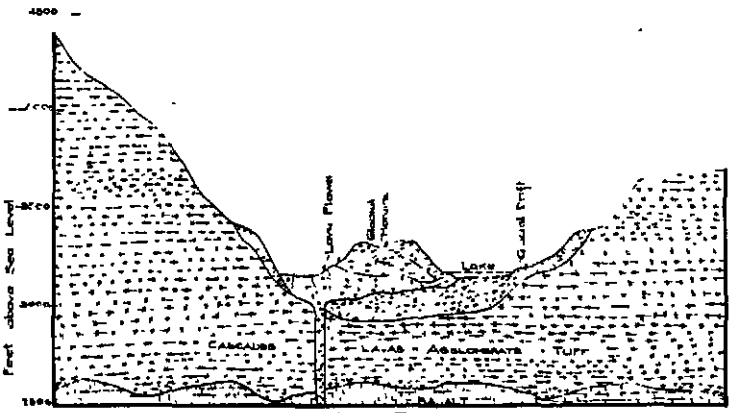


FIG. 2

SECTION AT LOWER END OF BULL RUN LAKE SHOWING RELATIONSHIP OF GEOLOGIC FORMATIONS

Scale 1000'

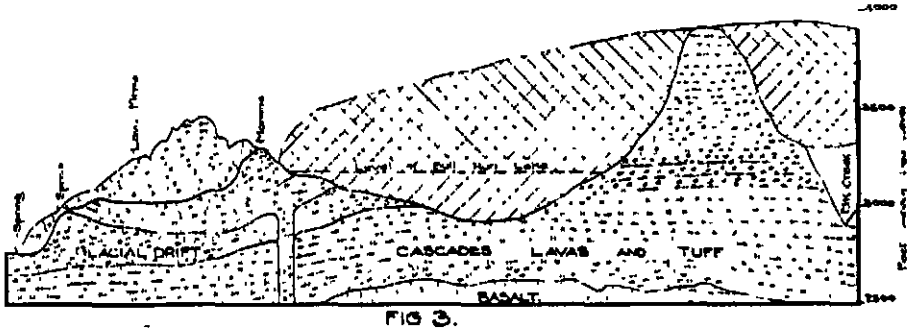


FIG 3.

SKETCH SHOWING PROBABLE POSITION OF FINAL FILLING OF GLACIER ICE IN THE BULL RUN LAKE DEPRESSION

Space occupied by Ice

Scale 1 Mile

NOTE:

THE ILLUSTRATIONS SHOWN ABOVE HAVE BEEN FURNISHED THROUGH THE COURTESY OF THE CITY OF PORTLAND, BUREAU OF WATER WORKS AND ARE REPRODUCED HERE WITH PERMISSION.

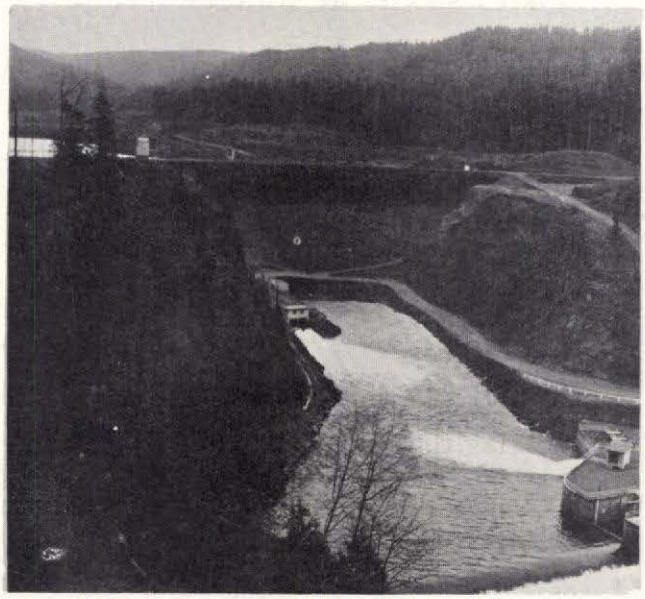
Volume 32, Number 1

No. 1 Dam of the Bull Run water System built in 1929 at Bear Creek holds 9 of its 10 billion gallon capacity in Lake Ben Morrow

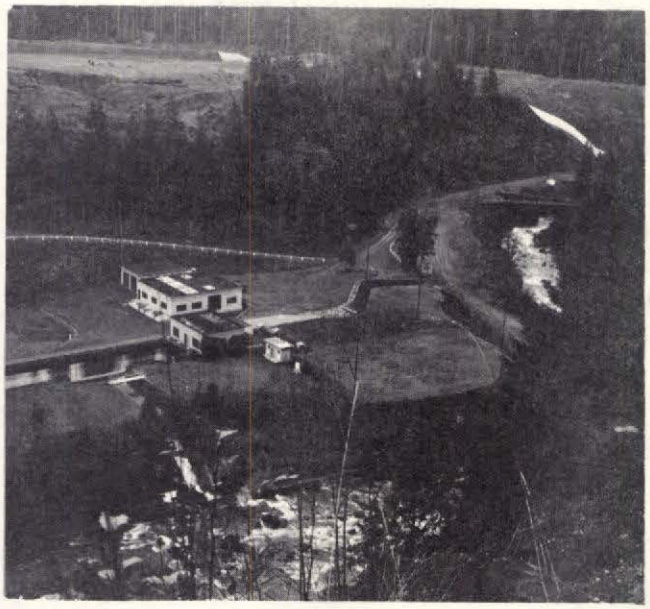
Mr. Marlowe J. Thompson, Senior Engineering Aid, points out geological problems in the development of the Bull Run System from Dam No. 2

Guests of Mrs. Isabelle Allison, third from left, were Mr. and Mrs.(Heidi) Nolasco Intong, Philippine Islands; Mr. James A. Anderson, U.S. Army Engineers; Mr. Pachern Sridurongkatum and Mr. Sompongse Chantavorapap, Thailand; and Mr. Tanovan Bolyvong, Laos. Visitors from the Far East are structural engineers engaged in the development of the Mekong River.

Enthusiastic GSOCers get to the bottom of Dam No.1 on inspection tour



Bull Run Dam No.2, completed in 1963, provides an additional capacity of 8 billion gallons of regulated flow to the intake at lower right



The "Headworks" houses facilities for chemical analysis, chlorine and ammonia insertion, instruments for flow and temperature recording and screens

City of Portland Water Supply System Toured - cont'd.

We crossed Bull Run Dam No. 2, looked at the spillway and then proceeded on to the headworks. At the headworks we saw the outlets from No. 2 emptying into the forebay of the diversion dam. The diversion dam across the Bull Run river is 40 feet high. It is ingeniously protected against Lamprey intrusion by a mesh extension just below the crest of the dam. This mesh loosens the suction of the lamprey and it falls back downstream.

At the headworks, diversions are made from the forebay into three steel conduits which carry the water past a moving screen which cleans away debris such as leaves. It is then treated with chlorine and ammonia and starts on its travel to Portland reservoirs and standpipes.

Some surplus water is diverted into a separate unchlorinated line which supplies Roslyn Lake and the hydroelectric station of Portland General Electric at Bull Run. Payment is made to the city for this water. There are places for the installation of generating equipment built into both Bull Run Dams No. 1 and No. 2. As yet, the City of Portland has not passed a bond issue for their installation.

So much time was used at the many points of interest, that it was necessary to by pass a visit to the testing laboratory. We left in convoy again, locking the gate behind us. We went away with the assurance of an abundant supply of the cleanest water, treated with only a small amount of chlorine, and fed by gravity to the city. All this in a geologically interesting area.

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

NOMINATING COMMITTEE ANNOUNCES SLATE

The Nominating Committee reported to the Secretary of the Geological Society, Mrs. Robert Waiste, that it takes pleasure in presenting the following slate of nominees for the elective offices of the Society for the coming year:

Officers of the Society

President	Mr. Lloyd A. Wilcox
Vice President	Mr. William M. Freer
Secretary	Mrs. Robert Waiste
Treasurer	Mrs. Jean Griffith
Director (3-year term)	Mr. George W. Walters

Editor of the Official Publication

Editor	Mr. Irving G. Ewen

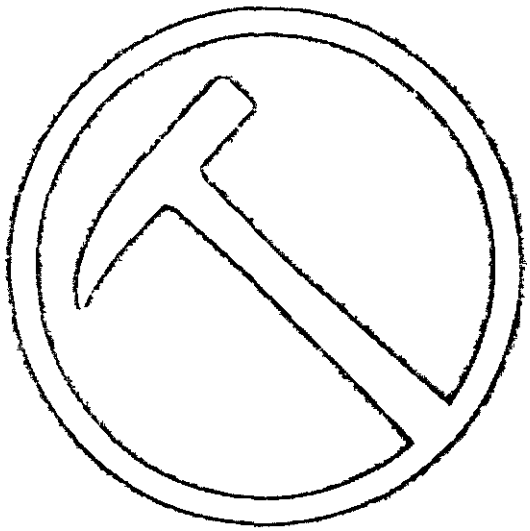
The Nominating Committee also reported that all candidates have agreed to serve the Society in the capacities listed if elected. The Committee further feels that this is a capable and well-balanced slate of nominees to submit to the membership for consideration.

Nominating Committee

Editor	Mr. Albert J. Keen
Members	Miss Clara L. Bartholomay Dr. Francis G. Gilchrist Mr. Ralph S. Mason Miss Shirley M. O'Dell

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

Dec. 1966



THE GEOLOGICAL NEWS LETTER

Official Publication of the Geological Society of the Oregon Country

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

Mr. Leonard Wilkinson, Jr.
1247 Powell Lane
Prineville, Ore.

GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

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president	MILLER, Mr. Fred E.	3122 S. E. 73rd Avenue	Portland, Oregon - 97206	771-6154
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GEOLOGICAL NEWS LETTER STAFF

editor	EWEN, Mr. Irving G.	4128 N. E. 76th Avenue	Portland, Oregon - 97218	281-7098
business mgr.	WILBUR, Mr. Robert F.	2020 S. E. Salmon Street	Portland, Oregon - 97214	235-7284

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lectures (acting)	HOWELL, Dr. Paul W.	9130 S. W. Borders St.	Portland, Oregon - 97223	244-5728
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library night	MILLER, Mr. Murray R.	1018 Promontory Avenue	Oregon City Oregon - 97045	656-6724
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	ZIMMER Miss Ruby M.	805 S. E. 60th Avenue	Portland, Oregon - 97215	236-8319

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G. S. O. C. CALENDAR FOR FEBRUARY 1966

Every Thursday

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

12:00 M. - Once each week GSOC'ers, guests, and friends meet informally to partake of the mid-day repast, examine or discuss geologic publications and specimens, or listen to occasional five-minute talks.

A variety of hot and cold food items are available at moderate prices in the main cafeteria. For more information telephone Mr. Leo F. Simon, Luncheons Chairman, at 236-0549.

11 February Friday

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

7:30 P. M. - "Two Alone North of the Arctic Circle" is the title of the talk to be presented by Mr. & Mrs. Gilbert F. Staender. The illustrated talk will cover highlights of their explorations and nature studies in the Brooks Range, Alaska.

13 February Sunday

FIELD TRIP - Tour of Mihelcic Gem and Mineral Collection

2:00 P. M. to 5:00 P. M. - Assemble at the residence of Mr. & Mrs. John Mihelcic, 13029 S. E. Ash Street. Directions: On East Burnside Street at 131st Place, go south on winding street, continue around curve to right address which will be on the only yellow house in the group.

John and Lillian, Co-Hosts, will guide us through their interesting and diversified collection of gems, minerals, and micro-mounts which are displayed in a different and unique system.

For more information or directions telephone Mr. Lee T. Gavigan, Field Trips Chairman, at 289-8041 or the Mihelcics' at 252-7572.

15 February Tuesday

GET-ACQUAINTED-WITH-YOUR-LIBRARY NIGHT - (at Lewis & Clark College)

7:30 P. M. - The one-hundred-and-sixty foot shelf of books, now augmented by the Ira Williams Memorial Collection, contains an invaluably fascinating reservoir (just waiting to be drawn upon) of geological facts and theories. Come out and become intimately acquainted with these volumes by attaching card pockets and bookplates (designed by Bob Anderson).

For information or directions telephone Mr. or Mrs. Murray R. Miller, Library Night Chairman and Librarian, at 656-6724.

25 February Friday

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

7:30 P. M. - "Survey of Raw Materials Used in Electronic Ceramics Applications" is the title of the talk to be presented by Mr. Bob DuFresne, Plant Manager of the Ceramics Department at Tektronix. Mr. DuFresne's illustrated talk will be followed by a short movie on the manufacture of ceramic components at Tektronix.

For more information on lectures telephone Dr. Paul W. Howell, Lectures Chairman, at 244-5728.

ADVANCE G. S. O. C. CALENDAR FOR MARCH 1966

11 March Friday

ANNUAL BANQUET - Portland State College Center

For information see article in February issue of GSOC NewsLetter or telephone Mr. & Mrs. Dennis M. Carmody, General Co-Chairmen at 771-4904. Tickets for reserved seats may be purchased from Mr. Leo F. Simon at $3.00 each.

NEWS OF MEMBERS
by Rowena Hoven

DR. and MRS. ARTHUR JONES have returned from a trip to Lima, Peru (with many detours), where Dr. Jones presented a paper at the meeting of the American Institute for Ultrasonics in Medicine, held at the Peruvian Naval Hospital. Their plane traveled by way of Kansas City and Florida to Puerto Rico. As they looked down on the Bahamas, Dr. Jones states it was obvious that the flat-topped islands are lined up along a ridge that is part of a submarine mountain chain. From old San Juan they went to Bogota by way of Caracas, where they could see the mountain chain known as the eastern part of the Cordilleras. Bogota with an elevation of 8,000 feet has two rainy seasons and then two seasons that are not quite so rainy. Anyway, it is always green the year around and there is a great deal of dairying here. Bogota is an interesting and beautiful city with many modern buildings and fine homes, but the older part of town is very much like the mountain towns farther south in Peru. From Bogota they took the tour to the famous salt mines which have been worked ever since the days of the Incas. Within the salt mine a beautiful cathedral has been fashioned with high vaulted ceilings. The main altar is a large block of solid salt beautifully polished. The manner in which the workmen tooled the various walls of the cathedral determined the appearance so some look like granite or sandstone and in other places the salt has been moistened and highly polished.

From the green of Bogota they flew to desert-like Lima, another beautiful city with a population of approximately 2 1/2 million. After attending the medical meeting they went on to Cuzco (in non-pressurized planes but oxygen was provided). From the plane they had a wonderful view of the gorgeous high country of the Andes. There was much evidence of glaciation and here and there they saw little cinder cones formed by explosive-type volcanos.

From Cuzco they started the two-hour trip on the narrow gauge railroad to Machu Picchu. The railroad goes up the ridge and drops down across a wide valley which was formerly a lake but is now well cultivated. They traveled down into the narrow gorges to the river and eventually arrived at Machu Picchu station. On this trip they again passed through very interesting country, first andesite-type, then rhyolite and then granite. There were many old Indian terraces, some of them still being used. The station is in the bottom of a deep gorge in the granitic country, and from here they traveled up 2,000 feet along a talus-type slope. This spectacular ruin was probably the city of refuge occupied by the priests and priestesses of the Sun, by royalty, government officials and the military. The ruins were beyond their expectations and cannot be adequately described here.

The return trip included stops at Panama City and Guatemala, where they visited relatives. We hope Dr. and Mrs. Jones will tell us more about their trip at a later date.

LEO SIMON was largely responsible for setting up the outstanding Audubon Society exhibit displayed at OMSI from January 8-30. On Sunday afternoon, January 23, he presented a colored slide talk (to a standing room only group) which covered the over 60 varieties of birds which can be found around Portland, as well as the spring, summer and winter arrivals. Leo states that a good bird student in a year's time could identify over 150 species in this area.

KEN SAKAI abandoned his g-pick (temporarily) for a pair of skiis. He has now exchanged the skiis for a cast. The doctor reports it will be about three months before Ken's broken leg can function without the benefit of that 40-pound matrix.

MEMBERSHIP ROSTER

name	street address	city, state, and ZIP code No.	telephone
NEW MEMBERS			
CLARK, Mr. & Mrs. Gordon K.	5904 S.E. Holgate Blvd.	Portland, Oregon - 97206	774-3670
KOENIG, Mr. & Mrs. Donald E.	Rt. 1, Box 94 AA	Clackamas, Oregon - 97015	656-7013
MILES,		Hillsboro,	

Vol. 31, No. 2

CHICKENS ALWAYS COME HOME TO ROOST

by
Fay W. Libbey*

Definitions (from Funk and Wagnall's New Standard Dictionary)

Inflate:	To swell or increase unduly; enlarge excessively, especially so that the nominal value greatly exceeds the real; as to inflate the currency.
Inflation:	Expansion or extension beyond natural or proper limits or so as to exceed normal or just value; specifically overissue of currency, or the state resulting therefrom.
Debase:	To reduce or lower in quality, purity or value; impair, as in credit or worth; depreciate, as to debase a coin.
Debasement:	The act of debasing; a debased or degraded condition; as in the debasement of gold.

The United States is in another war and, no matter what happens otherwise, all of the bad effects of a war will extend on into the future. One of these effects, inflation, has followed or accompanied all wars.

Inflation, along with its fellow, debasement of currency, is common in history. It usually has been a result of social change, revolution, or an aftermath of wars, but always the immediate cause is habitual and excessive debt. In modern history a glaring example was the decline in value of the German mark following World War I when the issue of marks by the government was in inverse ratio to their purchasing power, and was limited only by printing press capacity. Of course the inevitable result was that the mark became worthless and a complete reorganization of German government finances had to be effected by the Allied powers. In the meantime people lost all their savings. Other examples in modern history could be cited but the purpose of the statement of events which follows is to emphasize that certain economic laws have not changed over the years, and were the same in ancient times as they are today.

The Ilkhans, referred to below, inhabited a division of the Mongol Empire in central and southwestern Russia, lying mainly between the Amu Darya River (Oxus in ancient times) and Asia Minor with the geographical center in Persia. The government was completely autocratic. The region, largely Mohammedan, had been conquered with characteristic Tartar cruelty and thoroughness. The ruler was the Ilkhan; his subordinate chiefs were his viziers. The first Ilkhan was Ogatai, son of Genghis Khan, who, wholly ignorant of world history and geography west of China, decided to conquer the world. He did not live long enough completely to achieve his desire but his sons and one other famous, or infamous, successor, Tamerlane, carried on the program and did conquer and over-run most of the known world of the 13th century. Their extreme cruelty and savage military techniques gained for them the appellation of Tarter (or Tatur), first applied by St. Louis of France when he heard of their practices. Their successes carried with them the seeds of their own downfall. Because of jealousies, family feuds, and misuse of power, they finally went the usual way of despots.

The following incident, as described by Prawdin (1938), illustrates in one of its crudest forms a method that has been used innumerable times by governments to try to get out of financial difficulties; it generally fails but certainly not always with the speed and decisiveness as happened to these Ilkhans of Tabriz in 1294 A. D.

> One of the Ilkhans, Kaikhatu, aspired to outclass the fame of Ogatai as the most magnanimous and liberal of rulers, and therefore squandered all his revenues, all the tribute and gifts he received, upon his mistresses, his courtiers,

* Past President, G. S. O. C. and former Director of State of Oregon Department of Geology and Mineral Industries.

Chickens Always Come Home to Roost - cont'd.

and his officers, so that, ere long, his treasury was empty. In order to refill it, someone was struck by the bright thought of printing paper money after the Chinese fashion. It was to be issued in Tabriz, the capital, but then it was thought desirable to establish a note-bank in every province. The use of coined money was prohibited, and the Khan was assured that as soon as the paper money passed into circulation poverty would be unknown throughout the realm. In advance the poets lavished praises on him and his great deed.

September 12, 1294, was the memorable day on which the first issue of paper money took place in Tabriz. Criers were sent through the streets to announce that anyone who refused to accept it, anyone who should buy or sell except for paper money, and anyone who failed to bring such coin as he had to the bank and exchange it there for paper money, would be put to death. The notes bore the pious utterance: "There is no God but Allah, and Mohammed is His Prophet." Also the name of the Khan, a specification of the value, and the statement that anyone who should counterfeit the notes would be put to death with his wives and children and that the whole of his property would be confiscated.

For a week the commands were obeyed, lest punishment should befall. Then the shops and the markets were empty; there was nothing more to be bought in the town; and the people began to run away. The famine-stricken citizens raided and plundered the gardens of the environs. When, one day, the Khan rode through the bazaar and expressed his wonder that no one was buying or selling and the shops were closed, the vizier who had introduced the new paper money informed him that one of the elders of the city had died, and that it was an old custom among the burghers to close the bazaar on such occasions. Next Friday, loud lamentations were uttered in the mosques, and the troops had to be called out to restrain the populace from excesses. Sellers were asking for a horse worth seven-and-a-half gold pieces a hundred times as much in inflated paper currency.

After several attempts had been made upon the lives of the vizier and other high officials, a decree was issued that the more immediate necessaries of life could be paid for in hard cash; then this privilege was extended to other goods; and after two months, during which trade had been stagnant and the shops empty, because no trader offered anything for sale, the paper currency vanished for ever, leaving no trace beyond lampoons deriding the innovation and the wiseacres who had devised it.

Only one province, which was ruled by Prince Ghazan (Hulagu's* great-grandson) as viceroy, was spared the blessing of paper money. When the paper and the presses were brought to him for his use, he sent a message to the Ilkhan, his uncle, to the effect that in that part of the country the climate was very damp, and that if he should print bank-notes as directed they would soon become no thicker than a cobweb. He ordered the paper and the presses to be committed to the flames.

After a time this same Ghazan became the seventh Ilkhan, in whom the much-afflicted country at length secured an able and vigorous ruler.

* Grandson of Genghis Khan

Reference:

Prawdin, Michael, 1938, The Mongol Empire, its rise and legacy. (Originally published in German in 1938. Translated by Eden and Cedar Paul. First published in Great Britain in 1940. Second and third impressions in 1952 and 1953 respectively. Publisher: George Allen and Unwin, Ltd., London.)

Volume 32, Number 2

COLUMBIA RIVER GORGE

By Laurette W. Kenney

Field Trip by chartered bus
Sunday, 21 November 1965

It was a gray morning--but no one was going to miss this well scouted, much-heralded trip. Lone figures or group of figures in blue denims and dark wools splashed with bits of color--tan napsacks, red-capped thermoses, plaid scarves--merged from here and there. There were the usual jovial comments about the possible weather as we boarded the bus. There was the usual banter and we were to get full measure of it on this trip--Lloyd Wilcox was the leader. Overhead cranes were flying south in V-formation.

We, after the usual shuffling, settled in our seats. One commercial bus was filled to capacity with the overflow taken care of by the OMSI bus. Dr. Paul W. Howell was the narrator on the large bus and Lloyd Wilcox on the smaller bus. Trip logs beautifully illustrated by photographs by Fred Miller and compiled by Lloyd Wilcox were available for those that wished them.

Our bus driver greeted the riders, detailed the facilities of the bus and assured the group that these were indiscriminately offered to both the Democrats and the Republicans. Trust Clara Bartholomay later to dramatically make known her affiliation, and to brush it off with the comment, "What some people will do to get attention". Well, more than one of us have been trapped in similar situations.

As we moved out, Dr. Howell reminded us that we were on the Missoula Flood silts. One could close his eyes and visualize these silts lying over flood gravel of the Troutdale formation and the Columbia River Basalt underneath to approximately 200 to 400 foot depth. What distances that lava must have flowed, and what a torrent that flood must have been to have laid such quantities of residue. Dawn was showing in the east so that we could discern Rocky Butte, a Boring age volcano. We were told that between the Butte and the Freeway was a prominently scoured channel left by the Missoula flood.

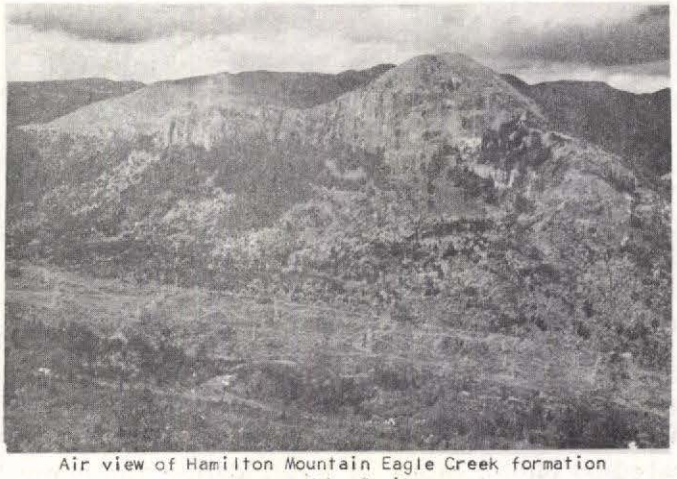
As we climbed and crested the terraces we could see equivalent terraces on the Washington side known as Mill Plain. The Silver Star Mountains could be seen in the distance and Broughton Bluff ahead. Prune Hill and Chamberlain Hill, both Boring age volcanos, pierced the terraces. Directly ahead was our Larch Mountain, a shield volcano of the Cascan age. In fact, these with the Boring age volcanos of Mt. Norway, Nichols Hill, Mt. Pleasant and Mt. Zion of the Washougal area stud both sides of this Columbia River area as pox on the chin of the face of Washington and Oregon. Using this metaphor one could liken the next feature of the trip, the Sandy River and its alluvial fan, as an upper lip pressed against the Washington side's bank with the corners of the mouth turned up into a perpetual smile. Crown Point could be likened to the proboscus. Ch no! Unthinkable! - comparing one of Oregon's most beautiful features to something as plebeian as a proboscus. I should not deviate nor should I fantasize in Geology.

It was starting to mist. We nevertheless stopped at the Corbett Quarry because of the interesting feature of an exposure of the Troutdale conglomerate on the west end and the central part, Troutdale conglomerate topped with Portland Hills silt. In the next two miles we were to see the Columbia River basalts rise in all their splendor to the acme in Crown Point. From this vantage spot we could see Rooster Rock on the left and in the distance Mt. Zion and Cape Horn, and Crown Point to the right. From the base of this magnificent structure of basalt is layered upper Troutdale conglomerates, Cascan lava, Satsop formation and topped with Portland Hills silt. Palagonitized stratified lapilli tuff or tuff breccia is exposed at the base. All the scenery that we were to see beyond this point was beautiful but anticlimax to what we had seen.

As we moved along the gorge widened. We saw to the left large and long knolls, thought by some to be sand dunes and by others to be Columbia River equivalent of the silts over the lower flood gravels of Portland. As we moved along we enjoyed the beauties of our

(cont'd P. 14)

First stop at cut through fanlike Coriba formation 44.8 miles



Air view of Hamilton Mountain Eagle Creek formation capped by Coriba

Some of 42 GSOCers re-embark after examining pillow lavas of the Underwood flows. Mileages are from Portland State College as shown in the November 1965 Trip Log

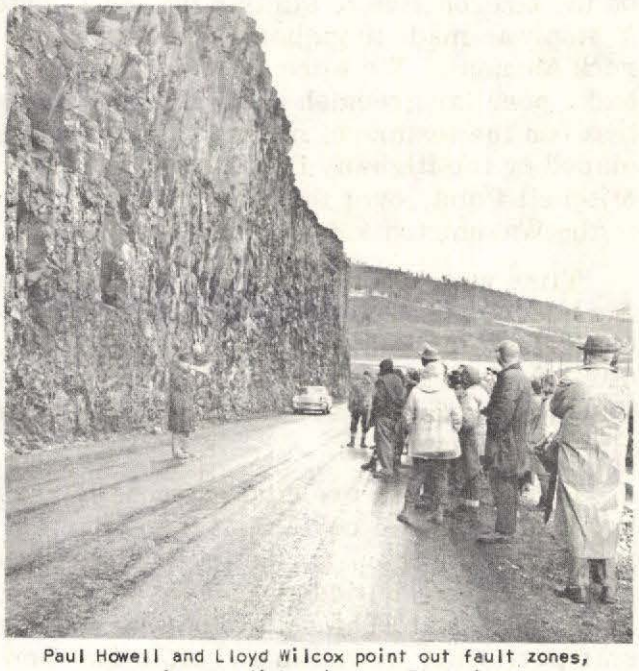
Eastward dipping palagonite tuff is part of Underwood flows, 60.2 miles

Starvation Creek road cut through dipping Columbia River Basalt, 56.3 miles

Wind Mountain with unstable road over Eagle Creek formation in foreground, 101.7

Mouth of the Little White Salmon River; Wygant State Park is across the Columbia, 95.9 miles

Underwood lavas overlay Troutdale conglomerate west of Underwood Station, 79.8 miles



Paul Howell and Lloyd Wilcox point out fault zones, breccia and slickensides, 71.6 miles

Searching for agate amygdules west of Dog Mountain 100.6 miles

Paul Howell explains the inclined Missoula Flood deposits overlaying pre-flood weathered gravels, 80.8 miles

Columbia River Gorge - cont'd.

many waterfalls-Latourelle Falls, the first of the hanging valley waterfalls, Bridal Veil, and Multnomah--Oregon's star tourist attraction. The weather was indecisive, but that, too, presented interesting phenomenon--the Pillars of Hercules were laced with bits of fog. Oneonta Gorge moved into view and our beloved landmark, Beacon Rock, a volcanic neck of Pliocene age. We rolled by McCord Creek, Moffat Creek and Tanner Creek on which is a fish hatchery and then the engineering marvel of Bonneville Dam came into view. We were reminded again of the Indian legend of the Bridge of the Gods as we viewed Table Mountain and Greenleaf Peak, the possible anchor points of the bridge of the bridge on the Washington side. Between these is Red Bluffs, a scarf left by an immense landslide. Dr. Howell told that its estimated age is 725 years, that it is four and one-half miles long and two-hundred feet thick--one cubic mile of material.

We were getting behind in schedule--we moved on. We were seeing our last views of the Coreba on the Oregon side--beautiful fans forming perpendicular to the surface of the flow. Geologists muse as to whether this is a remnant of small valley filling at the base of the Coriba sequence or a slump block. Of romantic interest is Wind Mountain on the Washington side, an intrusive stock of andesite porphyry, and Shellrock Mountain on the Oregon side of similar intrusive material, known as the guardians of the Columbia. A stop was made to gather amygdules in the basalt breccia in the saddle south of Shellrock Mountain. We were noticing that the embankments in the road cuts along the way had a peculiar greenish cast. Upon examining we discovered it was a coarse material between the texture of coarse sawdust and bits of hemp. We were told that it was gunite placed by the Highway Department to thwart erosion. We rolled past Starvation Creek, Mitchell Point, over the Hood River syncline and across the White Salmon toll bridge to the Washington side.

Time was moving fast. The Washington side has to be covered rapidly to leave time to visit the shop of Frank Wilke at Bingen. A stop was made at the intersection of the old and new highways to walk along the face of the cliff to study the various features offered--fault zones with fault breccia, slicken slides and stringers of tachylite. The iridescent patina on the surfaces of the basalt were called to attention, also the lenses of opalized mud.

Hunger pangs were hitting strong by the time we rolled into Bingen, but luncheon was hurried so that we could visit the collection of Frank Wilke--a polyglot of local Indian artifacts and rocks, and antiques of the early pioneers of the area. Greeted by our host at the door, we milled around examining one of the most profound collections put together by an individual. The collection was not to get our undivided attention, however, for a star performer moved in and stole the show. Mr. Wilke's cat, a yellow, twenty-two pound Manx, first charmed, then demanded and received the adulation he felt due him.

Brief glimpses replaced planned stops--there was too much to see and too little time. Glimpses of the Underwood lavas palagonite on one side of the White Salmon River bridge and the Troutdale deposits on the other side, and the Indian fishing village with its fish-drying racks. We were later to see various classical sediment deposits--again from the Missoula and from the volcanic mud flow, gravel and sand deposits from the Mt. Adams area. We saw some excellent examples of cross-bedding and rotten gravels. Then ol' Sol chose to smile on us for the first time, but not for long. A brief stop was made at a spot to collect a souvenir rock to take home. These were multicolored agate amygdules from rotten basalt caused by the leaching action of chemical-laden ground waters from the soil on top.

What we were to see from then on was but a synopsis of the geology of the area, time would not permit. Of interest was Broughton Lumber Company's flume, the Underwood lava flow, Dog Mountain anticline and where it makes its contact with the Eagle Creek Formation, the rough highway by the Girl Scout Camp, rough because of an old Eagle Creek landslide still on the move. Wind Mountain--the mouth of Wind River--then in the vicinity of Carson Junction, we noted rather greenish tuffs and lavas in the cuts. These were the oldest in age of all exposures in the Gorge and said to be Clarno equivalent and not yet named. Figuratively we were at the bottom of the pit. Figuratively we entered the elevator and were whisked up the shaft of the Geological time table in the matter of minutes to cross the man-made equivalent of the span that moccasin feet once traversed, to go home.

BY LAWS CHANGE SUBMITTED

The Executive Committee has, in the past few months, considered several suggestions for changes in the By Laws of the Society. The changes felt appropriate at this time pertain to qualifications for membership and dues. Paragraphs changed are reproduced below, as amended and as shown prior to amending.

It will be noted that the only change made with regard to dues pertains to Junior Members. It was felt that the increase was justifiable in view of present day costs of operation.

The Executive Committee, in accordance with the provisions of Article XII regarding amendments, has amended the By Laws and submits the following changes to the Membership of the Society for ratification.

ARTICLE II, Membership

Section 3. Qualification for membership: (Prior to amending)

(3) A Fellow must be elected by two-thirds of the Executive Committee for some definite contribution to the welfare and objectives of the Society.

(4) An Honorary Life Fellow must be elected unanimously by the Executive Committee for outstanding contribution to or attainment in the study of Geology.

Section 3. (Paragraphs 3 and 4 as amended)

(3) A Fellow must be elected by unanimous vote of the Executive Committee for outstanding contribution to the welfare and objectives of the Society and attainment in the field of Geology.

(4) Honorary Life Membership must be elected unanimously by the Executive Committee to a member with a background of 10 or more years in good standin of paid membership in the Society and who has made an outstanding contribution to the welfare and objectives of the Society. Maximum of one Honorary Life Membership may be awarded in any one Society year and total of such memberships shall be limited.

ARTICLE III, Dues (Prior to amending)

Section 1. The annual dues for a Junior shall be $2.00, the annual dues for members living in counties not adjacent to Multnomah County shall be $3.50, and all other members shall pay annual dues of $5.00; provided, however, that there shall be extended to the wife or husband of a member, as the case may be, all privileges of the Society, except the right to receive the publication of the Society. Honorary Life Fellows shall not be required to pay dues.

Section 1. (As amended)

The annual dues for a Junior shall be $2.50, the annual dues for members living in counties not adjacent to Multnomah County shall be $3.50, and all other members shall pay annual dues of $5.00; provided, however, that there shall be extended to the wife or husband of a member, as the case may be, 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.

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

ANNUAL BANQUET

Plans for the Thirty-first Annual Banquet will feature the four dimensions of Geology: length, width, depth, and time. Dennis and Mary Carmody, heading the banquet committee, have confirmation on the place, the time and the speaker. The place is the Portland State College Ballroom on March 11, 1966. The featured speaker will be Dr. Dixy Lee Ray, Director of the Pacific Science Center at Seattle, who will present the challenge of "Science in the Modern World." She speaks from an outstanding background in the biological sciences ranging from marine invertebrates to soil amoeba.

Tickets are available from Leo Simon ($3.00 each) at GSOC meetings or by mail: 7006 S.E. 21st Ave., Portland, Oregon 97202.

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

RARE BOOKS ACQUIRED

Leonard and Emily Delano are happy to have several new additions to their collection of early Oregon maps, photos and publications. Their recovery of Emily's father's copy of Thomas Condon's "The Two Islands" deserves special mention. As all GSOCers know, this work of Oregon's pioneer geologist is a collector's item, and a copy of one of these books is owned by the Geological Society and passed on from president to president annually.

Emily thought her father's copy had burned in a home fire years ago, but recently when in Oceanlake (Lincoln City) her step-sister remembered the title as "one of several hundred of the folks' books" she had given the Lincoln City library. The librarian was most cooperative when it was explained that the donor was not aware of the book's importance and also was explained the family relationship to Condon by marriage and of Leonard's geology interests.

Now Emily has her father's book back but with the Driftwood library name stamped inside and out!

Incidentally, previously acquired from another member of the McCornack family is the book "Biography of Thomas Condon", autographed by great-aunt Ellen Condon McCornack.

ANNUAL DUES DUE

Dues for all classes of membership in G. S. O. C. are now payable and are being received by the Treasurer, Mrs. Lloyd A. Wilcox. Official notices for dues will be included with the letter ballot being prepared by the Secretary, Mrs. Robert Waiste.

Members wishing to pay their dues now will find the schedule of rates listed in the article entitled "By Laws Change Submitted" on page 15 of this issue (the only increase indicated is for Junior Members - from $2.00 to $2.50 per year).

Make check payable to

GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

and mail to

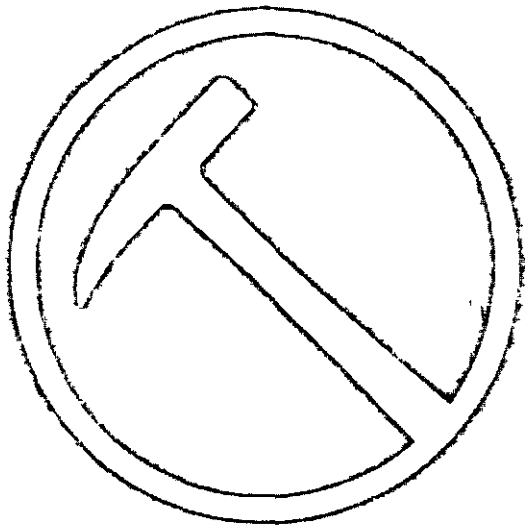
Mrs. Lloyd A. Wilcox, Treasurer
Geological Society of the Oregon Country
16650 Lake Forest Boulevard
Lake Grove, Oregon 97034

ANNUAL MEETING NOTICE

The Annual Meeting of the Geological Society of the Oregon Country will be held on 25 February 1966 beginning at 7:30 P. M. This short meeting will precede the regular lecture (noted on the G. S. O. C. Calendar - page 7 of this issue).

During this time, short annual reports will be presented and the results of the election will be announced.

March 1966



Official Publication of the Geological Society of the Oregon Country

THE GEOLOGICAL NEWS LETTER

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GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

EXECUTIVE COMMITTEE

president	MILLER, Mr. Fred E.	3122 S. E. 73rd Avenue	Portland, Oregon - 97206	771-6154
vice president	RENTSCH, Mr. Jess R.	1110 S. W. 11th Avenue	Portland, Oregon - 97205	223-2161
secretary	WAISTE, Mrs. Robert	133 S. E. 27th Avenue	Portland, Oregon - 97214	235-4320
treasurer	WILCOX, Mrs. Lloyd A.	16650 Lake Forest Blvd.	Lake Grove, Oregon - 97034	636-6594
directors				
1 year	HOPSON, Dr. Ruth E.	4138 S. W. 4th Avenue	Portland, Oregon - 97201	222-1430
2 years	STEERE, Miss Margaret L.	2064 S. E. 72nd Avenue	Portland, Oregon - 97216	774-6382
3 years	MURPHY, Mr. C. Truman L.	2027 N. E. Wasco Street	Portland, Oregon - 97232	282-2027
past presidents				
1 year	DELANO, Mr. Leonard H.	1536 S. E. 11th Avenue	Portland, Oregon - 97214	236-2139
2 years	EWEN, Mr. Irving G.	4128 N. E. 76th Avenue	Portland, Oregon - 97218	281-7098

GEOLOGICAL NEWS LETTER STAFF

editor	EWEN, Mr. Irving G.	4128 N. E. 76th Avenue	Portland, Oregon - 97218	281-7098
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 (acting)	HOWELL, Dr. Paul W.	9130 S. W. Borders St.	Portland, Oregon - 97223	244-5728
librarian	MILLER, Mrs. Murray R.	1018 Promontory Avenue	Oregon City, Oregon - 97045	656-6724
library night	MILLER, Mr. Murray R.	1018 Promontory Avenue	Oregon City Oregon - 97045	656-6724
luncheons	SIMON,. Mr. Leo F.	7006 S. E. 21st Avenue	Portland, Oregon - 97202	236-0549
membership	GILLIAM, Mrs. Elizabeth A.	1729 N. E. 17th Avenue	Portland, Oregon - 97212	284-8922
publications	MASON, Mr. Ralph S.	3932 S. W. Idaho Terr.	Portland, Oregon - 97221	244-2106
publicity	MOLTZNER, Mrs. Emily	7032 S. E. Stark Street	Portland, Oregon - 97216	254-2362
telephone	ZIMMER, Miss Hazel F.	805 S. E. 60th Avenue	Portland, Oregon - 97215	236-8319
	ZIMMER Miss Ruby M.	805 S. E. 60th Avenue	Portland, Oregon - 97215	236-8319

G. S. O. C. CALENDAR FOR MARCH 1966

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

12:00 M. - An opportunity to hear informal talks on geology and related subjects, discuss current publications, or examine specimens is what GSOC'ers, guests, and visitors look forward to once each week. This informal weekly gathering is presided over by Mr. Leo F. Simon in the Mountain Room adjacent to the Main Cafeteria.

11 March Friday — ANNUAL BANQUET - Portland State College Center on S. W. Park Avenue between Montgomery and Harrison Streets

5:00 P. M. - Displays open for viewing at south end of Ballroom located on the third floor of the College Center.

6:30 P. M - Thirty-First Annual Banquet commences. Dr. Dixie Lee Ray, Director of the Pacific Science Center at Seattle, Washington, will be the Guest Speaker. Mr. Ralph S. Mason, Mining Engineer with the State of Oregon Department of Geology and Mineral Industries, will be the Master of Ceremonies.

Tickets, at $3.00 per person, may be obtained from Mr. Leo F. Simon at all regular meetings of the Society, reserved by telephoning 236-0549, or ordered by mail (enclosing check or money order plus self-addressed and stamped return envelope) to 7006 S. E. 21st Avenue, Portland, Oregon.

For additional information telephone Mr. and Mrs. Dennis M. Carmody, General Co-Chairmen, at 771-4904.

15 March Tuesday — LIBRARY NIGHT - Lewis & Clark College in southwest Portland, Oregon

7:30 P. M. - The group meets in the GSOc Library which is housed on the upper floor of Peebles Hall (biology building). The first hour is reserved for browsing and reading.

8:30 P. M. - A workshop on the "Geology of the Portland Area" will be conducted by Dr. Francis G. Gilchrist, Library Night Chairman. Those attending are invited to bring selected slides and specimens of local geological interest for showing.

For additional information and/or directions telephone Dr. Gilchrist at 636-5942 or Miss Clara Bartholomay, Librarian, at 284-6986.

25 March Friday — LECTURE - Public Library, 801 S. W. 10th Avenue, Portland, Oregon

7:30 P. M - "Two Alone North of the Arctic Circle" is the title of the program to be presented by Mr. and Mrs. Gilbert F. Staender. The illustrated talk will include highlights of their explorations and nature studies in the Brooks Range, Alaska. This is the same lecture that was originally scheduled for 11 February 1966.

26 March Saturday — FIELD TRIP - Oregon State Highway Department and Camasia Natural Area via private car caravan

10:00 A. M. - Assembly point will be at 9200 S. E. McLoughlin Boulevard (U. S. 99-E) at the Headquarters of the Oregon State Highway Department.

Mr. Dan Gano, Division Geologist with the Oregon State Highway Department, will explain the method and purpose of core-sampling as used in highway construction.

Mr. Ray E. "Andy" Corcoran, Geologist with the State of Oregon Department of Geology and Mineral Industries, will lead the second part of the trip, enroute to Camasia.

12:00 M. - Re-assemble at Camasia Rock Quarry for Lunch. Mr. Mur-

NEWS OF MEMBERS
by Rowena Hoven

MARJORIE FESSENDEN attended the National Accounting Association conference which was held in Chicago from February 27 to March 6.

The Oregon Agate and Mineral Society held its annual show in February at the Oregon Museum of Science and Industry. Of the three awards given by OMSI to the individual exhibitors, two of them (the Honorable Mention awards) were given to LEO SIMON and AL KEEN. Congratulations!

And speaking of the Oregon Agate and Mineral Society, JENNIE WALTERS is the 1966 Secretary for that organization.

MR. AND MRS. WILLIAM FREER were honored guests at a farewell luncheon given by Kathryn's associates in the Interior Department at the time of her retirement.

DR. JOHN HAMMOND was at our last regular meeting and BRUCE SCHMINKY attended a recent Thursday luncheon. Both of them have been recovering from surgery and it was good to see them again after such a long absence.

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LEONARD DELANO SPEAKS ON PHOTOGRAMMETRY

Photogrammetry, the art and science of measuring surfaces by means of photography, was discussed at the January 14th meeting. The speaker for this first meeting of the new year was Mr. Leonard Delano of Delano Photographics. Leonard has been in this business for more than twenty years, and is a past-president of the Geological Society. He is also a past-president of the Columbia River Region of the American Society of Photogrammetry and for the past three years has served on the National Council of the ASP. Just recently he was nominated for director of the Board of Directors for the National Society. Through his efforts the 1969 semi-annual meeting of the Society will be held in Portland.

Slides showing some of the cameras and other equipment used in preparing maps from aerial photographs accompanied the discussion. Leonard explained that these cameras don't wear out, "they just become more expensive". New materials, such as Mylar on which the maps and photographs may be projected, improved equipment, and other recent techniques have brought about many advances in this field. Photographs taken from Gemini 4, 120 miles above the earth produced a resolution equal to those taken from an airplane 10,000 feet above the earth. With this possibility, it is likely that at some time in the future satellite photography may replace the methods now in use.

The Forest Service is one of the firm's frequent customers, as well as other branches of government, and many private firms. Much information can be obtained from these aerial photographs, which is transferred to contour maps by the use of intricate machines and a team of skilled experts.

Photogrammetry is one of the best tools we have for obtaining information about the earth's surface, but probably one of the least known. This lecture very appropriately preceded the tour and Open House at Delano Photographics, where more information on the subject was demonstrated.

Irma Sullivan

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ADVANCE INFORMATION FOR APRIL FIELD TRIP

Reserve Saturday, the 16th of April, for a private car caravan to the Deschutes Canyon area. Assembly point will be at The Oasis Cafe in Maupin, Oregon at 9:00 A. M. Details to be announced.

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Volume 32, Number 3

PHOTOGRAMMETRY - WHAT IS IT?

By Leonard H. Delano*

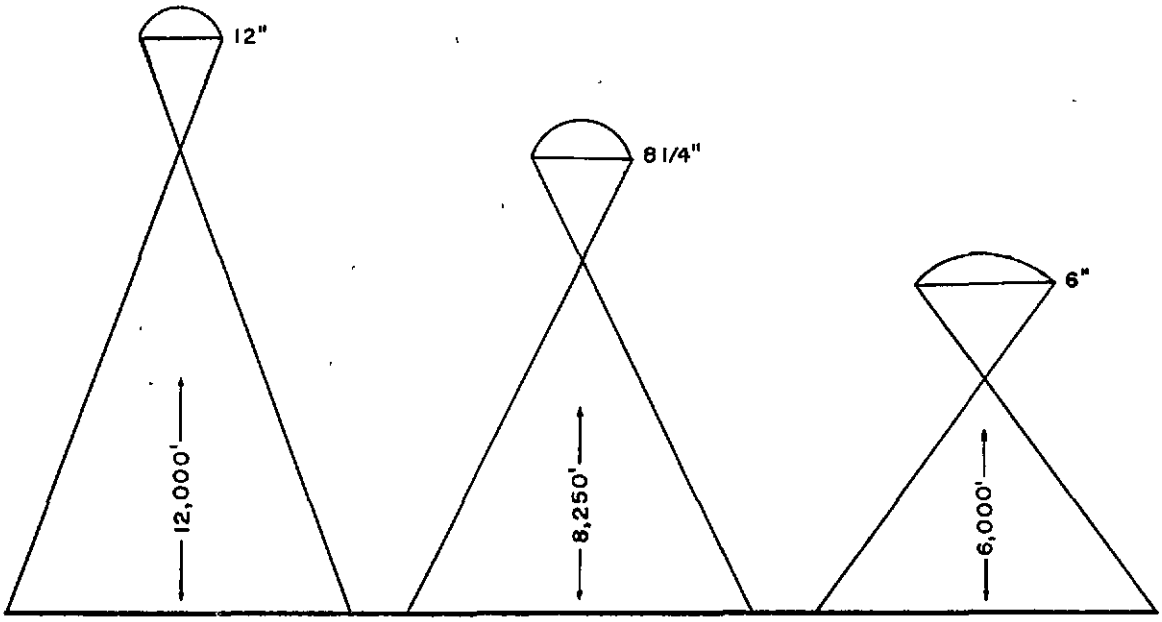
Photogrammetry is the science of obtaining measurement and other quantitative information on objects from their photographs. "Photo-grammer" in this field is the speaking of the photo through the medium of the map compiler, the geologist, the forester, the photo interpreter, the medical specialist in maps, or non-topographic data.

Use of air-borne cameras for aerial surveys was in extensive use by government agencies and some local agencies and private industry after War I. The writer worked with Brubaker Aerial Surveys, the pioneer in this area in the 30's when the 7x9 camera format was in vogue. Later the 9x9 format became standard and now aerial mapping and photogrammetric services have much more demanding specifications.

Scale of a vertical (straight down) photo is result of two factors: flying height above terrain or the subject and focal length of the camera. Thus, a 12" camera at 12,000 feet altitude above terrain or above datum will give 1/12,000 scale. A 6" focal length camera will only require 6,000 feet above datum to get the same scale. (See sketch below.) So when someone says how high do you have to fly to get a certain scale, we have to remind him of the need for figuring in the focal length of the camera. Incidentally, the scale or relative fraction of 1/12,000 produces the relationship of 1000 feet on the ground to every inch on the photo or map.

Orientation of one's position on the ground is one of the uses of an aerial photo. And to get oriented (not "orientated" as some pronounce it) from a photo, you have to properly orient the photo with a map or other existing information. These elementary rules are essential to learning the use of photos.

The specialists who make up an aerial survey and mapping team must work in sympathy and understanding of one another and should coordinate their work to minimize the over all cost and effort. When this is a private organization good supervision and teamwork may be the difference between success or failure.



ALTITUDES AT WHICH DIFFERENT FOCAL LENGTH MAPPING CAMERAS MUST BE FLOWN ABOVE DATUM TO GET PHOTO SCALE OF 1/12,000 OR 1000' = 1"

* Past President of G.S.O.C.

Photogrammetry - cont'd.

Aerial survey work is dependent upon good weather, capable piloting and aerial camera work, good field survey work, expert photo lab work, experienced compilation and drafting. Functioning of precise and expensive equipment and planning of the operation can run into many frustrating circumstances. Recently, the increasing socialization of highway departments has dried up many outlets for private work in this field, adding more frustration to a private operation with increasing overhead in a demanding field.

World wide the trend is to increased use of photogrammetry and military intelligence and civilian planning would be inert without it. In addition, the space age is putting cameras to scanning the world from satellites. Weather reporting satellites scan and store up their globe circling information to automatically release it over the U.S. and wire photo machines send periodic reports throughout each day to principle weather reporting centers. Satellite Tiros will add further ability to this scanning. Other satellites gather information on various films and relay it to give us information on the earth and its occupants. Photogrammetrists are important in NASA personnel.

A geologist or geographer is better in his field if he has some knowledge of the use of aerial photos and the interpretation of them. A forester nowadays considers aerial photos and maps essential tools of his business.

Use of the stereoscopie principle in reading overlapping photos prompts one to use the analogy of the giant eyes in the sky. Through correctly taken aerial photos the photo interpreter or map compiler can become a giant and see depth and third dimension through the stereoscope or the two-colored stero projector.

Trained stereo vision is essential to the map compiler and photo interpreter. A one-eyed person in some phases of photogrammetry might be conceivable, but not likely, and certainly not in the phases vital to reading and interpreting the photos.

Aerial surveys have for some time been used in the computing of cut and fill for highway and dam construction. They have long been used for checking on and planning crop programs, flood control, soil conservation, forest and land appraisal, geological mapping, and other purposes. And now with the remote sensing methods of radar, infra-red, thermal infra-red and other films and electronics, very little is left to guesswork.

Photogrammetry is one of the best tools for saving the tax dollar, an unusual circumstance these days. It would seem essential that the taxpayer and local public officials become aware of its potentials and applications.

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STATE ROCK EXHIBIT

A permanent collection of sawed and polished thunder eggs is on exhibit at the State of Oregon Department of Geology museum in Room 1069 State Office Building in Portland. Upon request, the eggs were graciously supplied by the various rock and mineral clubs in Oregon as examples of the new "State Rock." Included in the exhibit are a few cabachons cut from thunder eggs. Most of the stones are from the well-known Priday Ranch locality east of Madras in Jefferson County; a number are from the Cchoco region near Prineville in Crook County; several are from Opal Butte in southern Morrow County; and one is from a locality east of Burns in northern Harney County. Cne specimen, which came from an outcrop in the vicinity of Idleyld Park in Douglas County, represents the first reported thunder-egg locality west of the Cascades. The entire collection demonstrated not only that thunder eggs are objects of beauty and interest, but also that enthusiasm for collecting, cutting, and polishing these and other agate materials is shared by a great many rock and mineral clubs throughout the state.

An illustrated report telling how the thunder egg became the State Rock, where it is found in Oregon, and theories on its origin was published in the October 1965 issue of The ORE BIN.

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ANNUAL MEETING OF THE GEOLOGICAL SOCIETY OF THE OREGON COUNTRY
February 25, 1966

The meeting was called to order by President Fred E. Miller at 7:30 p.m. in the auditorium of the Multnomah County Library. All members of the Executive Committee were present and there were more than 20 members in attendance.

Mr. Jess Rentsch, Vice President, reported for the Executive Committee, the "watchdogs" for the Society, the body which budgets funds, approves expenditures and suggests amendments to the by-laws.

The report by Mrs. Lloyd Wilcox, Treasurer, shows a balance in the savings account of $2009.90, a gain of $83.20 for the past year. Balance in checking, March 1, 1965, $482.90, receipts $1,736.97, disbursements $1,949.47, balance February 25, 1966, $270.40.

Mr. Irving Ewen, editor, mentioned several outstanding articles that have appeared in the Newsletter during the year and stated that "success of the newsletter depends upon contributions of the members."

Mr. Leo Simon stated that from 8 to 30 persons usually attend the Thursday noon luncheons at the YMCA, where members bring interesting articles, specimens, pictures, or give short talks.

Mrs. Murray R. Miller, librarian, reported that three new books have been added to the library and 66 volumes of U.S. Geological Survey publications, dating from 1880 to 1905.

Mr. Murray R. Miller reported on library nights when pictures are shown and/or work is done on the library. Mrs. George Lewis had done much typing of library cards. A place is needed also to keep maps. The Library Night picnic was held in May.

Miss Margaret Steere stated that about $70 was available for purchase of library books (the interest on savings account) and that $13.00 had been spent thus far. Another book will be purchased in memory of Ray Golden.

Membership (Elizabeth Gilliam), Publicity (Emily Moltzner) and Hospitality Committee reports were given by Mrs. Fred E. Miller. About 225 guests had attended lectures during the year, 20 or more others had requested to be on the mailing list. Eighty to 100 calendars are mailed out per month. Twelve social evenings were held.

Mr. Ralph Mason, Publications and OMSI facilities, reported a balance of $10.70 and that there are on hand about $400 worth of salable articles: trip logs and maps of Madras trip, Delintment Lake, Columbia Gorge, Supplee area. There will be an article in the AAA publication about the Geological Society with a mention that trip logs are for sale. Mr. Mason reviewed the proposal to use OMSI facilities some time in the future as a location for our library and meeting place. This has met with favor at OMSI and the idea will be pursued further.

Mr. Truman Murphy outlined the request from the Oregon Historical Society for exhibits in their new building. The GSOC will prepare an exhibit honoring Dr. Thomas Condon.

The Secretary reported that 76 marked ballots had been received and that the candidates nominated as provided in the by-laws had been elected. Also, by-laws amendments were ratified by the membership. The membership total remains at 267 (416 adult members). The membership gains and losses balanced during the year with 33 each.

Mr. and Mrs. Dennis Carmody, Co-chairmen, reported on the banquet to be held March 11.

Mr. Lee Gavigan, Field Trips Chairman, thanked President Fred Miller for his help and also the many other members who assisted on field trips, most of it voluntarily. Therefore, his committee is solvent.

Annual Meeting - cont'd.

Dr. Paul Howell reviewed programs presented at lecture nights, 19 of them, topics ranging from Pakistan to Alaska.

Acknowledgment was made of assistance given by Bob Wilbur and Rowena Hoven, Newsletter; Bob Anderson, art and typography; Don and Dorothy Barr, picnic; Dr. Arthur Jones, advisory committee of past presidents; William Freer, certificates; Hazel and Ruby Zimmer, telephone; Dr. Ruth Hopson, director; Leonard Delano and Irv Ewen, past presidents; and Al Keen, nominating committee.

The meeting adjourned at 8:20 p.m. and Dr. Howell presented the speaker for the evening, Mr. Robert DuFresne of Tektronix.

Respectfully submitted,

Dorothy R. Waiste, Secretary

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SECRETARY'S ANNUAL REPORT
February 25, 1966

ELECTION RESULTS

The Secretary has received 76 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:

Officers	
President	Mr. Lloyd A. Wilcox
Vice President	Mr. William M. Freer
Secretary	Mrs. Robert Waiste
Treasurer	Mr. A. Jean Griffiths
Director, 3 years . .	Mr. George W. Walters
Editor of News Letter . .	Mr. Irving G. Ewen

BY-LAWS AMENDMENTS were ratified by the membership.

MEMBERSHIP DATA

	MEMBERSHIPS	MEMBERS
Family memberships (adults) (paid)	145	290
Single adult memberships	107	107
Honorary Life Memberships	7	10
Junior and student memberships	8	9
	267	416

Total memberships last year		267
New members: adult		32
junior		1
		300
Memberships lost:		
Adult resigned	10	
deceased	3	
dropped	17	
Junior resigned	1	
dropped	2	
	33	-33
		267

Respectfully submitted,

Dorothy R. Waiste, Secretary

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THE ALASKAN QUAKE

A surprise speaker appeared on the program Friday night of February 11. Replacing a scheduled talk by Mr. and Mrs. Gilbert Staender was Mr. Donald Herrick, a friend of President Fred Miller, who showed some of the terrible havoc wrought by the earthquake at Anchorage, Alaska on March 28, 1964.

Of all the newspaper accounts and pictures which have appeared since that unpropitious day, none pictured so graphically the utter destruction, nor explained so clearly the condition of the underlying strata as did Mr. Herrick's pictures and graphs. Before and after scenes taken on his trips to Alaska in 1960 and 1964, showed some of the changes which occurred in the Chugach Mountains where the fault line is believed to lie. Government figures indicate a 30 foot shear along this line.

The area in which the most human suffering and loss occurred was the Turnagain section of Anchorage. The homes here were situated on a high bluff overlooking Cook Inlet. This bluff was composed of glacial outwash consisting of alternate layers of pea gravel and a very finely ground clay. This was revealed in drill core samples, as well as in the faces of the escarpments created by the slippage of the earth as it rippled downward into Cook Inlet. New deposits of this clay are being laid down today as the meltwater carries in the glacial flour and deposits it in quiet waters. Normally, the Turnagain section was firm and solid, but as the quake activated the clay it attained the consistency of a heavy cup grease and performed accordingly. The frozen earth fractured into large blocks like floating islands as it slid along, and lives, limbs and buildings were lost as the blocks cracked and shifted. During the following summer, smaller cracks appeared in the growing grassy areas, caused, probably by the re-shifting of the earth as it thawed.

Many of the fine new buildings were saved from total collapse, and lives saved, by the internal construction of the walls and flooring. Many others were not so well constructed. Building engineers here have an open text book from which to view the results of their efforts. It presents a lesson which we, in the Portland area, can ill afford to ignore. Situated as we are in the earthquake zone, and so near a major fault line, we are very vulnerable to the same type of occurrence.

The earthquake belt which rings the Pacific Ocean is believed to be caused by the turning of the ocean bed in a counter-clockwise direction. Further discussion of this theory appears in the October 22, 1965 issue of the SCIENCE magazine.

Mr. Herrick is a graduate of the School of Electrical Engineering at Oregon State. Since 1937 he has been employed by PT&T, as a Technician and Engineer. Special interests in geophysics, photography, electronics, and radio have led to some intensified study in these fields. We are very happy that our President Fred has such personable and well informed friends as Mr. Herrick, who filled an emergency so capably.

Irma Sullivan

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A MIDWEST TOUR

A very pleasant armchair ramble through the midwest was enjoyed by those members and guests who attended the Friday night meeting of January 28th. Our own Mr. Leo F. Simon showed his slides and told of some of his experiences on various trips through the area.

As a native and long-time resident of Nebraska, I was prepared to see familiar sights and dredge up old memories of familiar haunts, but Leo covered a route much of which I had never traveled, so the program was almost as new as if I had never been in the Midwest.

Some of the highlights covered included the Cypress Swamps of Kentucky, the St. Louis Botanical Gardens, the Museum of Natural History and the Shedd Museum in Chicago, and Dinosaur Park in Rapid City, South Dakota. To this viewer the most exciting things shown were the coal balls found in Missouri, and the crinoid beds at Le Grande, Iowa. When he reached Devil's Tower in Wyoming, I could finally exclaim, "Oh, I've been there!" But in the many times I have driven through Kemmerer, Wyoming, never did I have a hint

A Midwest Tour -

that such tantalizing white cliffs rich with fossil fish lay near by. This indeed, will be a "must" stop when I next pass through on a visit to the home place.

Leo is one of our favorite members of the Geological Society. He is a charter member of the organization, and, I suspect, one of the moving forces which brought about its creation. His very broad range of interests has made him extremely well informed on almost any phase of natural science, and he is an active member of a great many organizations which deal in the subject. His talks are always interesting, and we shall look forward to the next opportunity to view more of his excellent slides.

Irma Sullivan

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FROM THE JUNIOR PAST PRESIDENT'S VIEWPOINT

Thanks to each of you for your support that has made this year one of successful accomplishment for the Society. With the theme: "The Four Dimensions of Geology", we have explored extensively the limitless quadrants of space and time. Through the medium of nineteen Friday programs, expertly arranged by Paul Howell, we have visited from the Peruvian silver mines to the northern limits of the Canadian ice shield, eastward to the Atlantic coast and westward around the world, down to the depths of the Marianas Trench and out to the inhabitable reaches of the solar system, through time from the pre-Cambrian to the nebulous future.

Within the practical limits of space and time fourteen excellent field trips under Lee Gavigan's capable guidance have extended our knowledge from the Salem Hills to the Lewis River, between the Coast Range and the Ochocos, as high as Silver Star and down to sea level, starting with the middle Devonian and ending with the most recent Recent. These activities were supplemented by the most qualified guidance of Murray Miller at the Library Night workshops.

To support these ventures requires a concert of sustaining endeavors of officers, activities chairmen and members. The above record confirms the degree to which we have received such fine support. Thank you to everyone, to Franklin Brown who first introduced us to GSOC, to all who contributed suggestions for the expansion of the activities and to the many who have given so unstintingly of their time and ability.

Fred Miller

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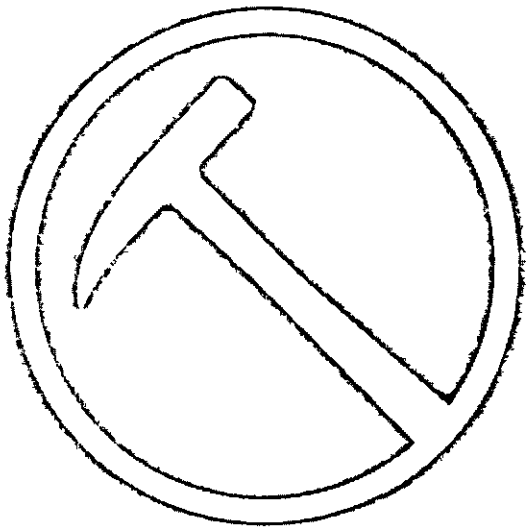
MEMBERSHIP ROSTER

name	street address	city, state and ZIP Code No.	telephone
NEW MEMBERS			
FLEAGLE, Mrs. Geraldine I.	3559 N.E. Tillamook St.	Portland, Oregon - 97212	281-5268
FROHLICH, Mrs Clara	18101 S.E. Oatfield Road	Gladstone, Oregon - 97027	
ADDRESS CHANGES			
JENKINS* Mr. & Mrs. Lee J.	2445 N.W. Quimby Street	Portland. Oregon - 97210	223-4519
SANFORD, Mr. Paul Lloyd	431 East Main Street	Sheridan, Oregon - 97378	
DECEASED			
GOLDEN, Mr. Ray S.	STRASSER, Mrs. R. J.		

April 1960



Official Publication of the Geological Society of the Oregon Country

THE GEOLOGICAL NEWS LETTER

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

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Prineville, Ore.

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.

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G. S. O. C. CALENDAR FOR APRIL 1966

Every Thursday

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

12:00 M. - Once each week GSOC'ers, guests, and visitors have an opportunity to participate in (or quietly listen to) discussions on geology and related subjects, hear short talks, or examine rock and mineral specimens. More information may be obtained by telephoning Mr. Leo F. Simon, Luncheons Chairman, at 236-0549.

8 April Friday

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

7:30 P. M. - Dr. Paul Hammond, Assistant Professor of Geology at Portland State College in the Department of Earth Sciences, will present the first lecture of the month. Dr. Hammond's talk entitled "Glimpses of Washington and Southern Cascades Geology" will be illustrated with slides.

16 April Saturday

FIELD TRIP - Deschutes River Canyon via private car caravan

9:00 A. M. - Assembly point will be the Oasis Cafe in Maupin, Oregon. Maupin is located on U. S. Highway 197 (south of The Dalles) at the junction of Oregon State Highway 216. Some may wish to journey from Portland on U. S. 26 by way of Mt. Hood and State Hwy. 216.

9:15 A. M. - Dr. Paul W. Howell, Field Trip Leader, will present a short orientation lecture after which the group will depart for Sherar's Bridge by the canyon road. Reconnaissance will be made on 2 A pril to determine if roads now under construction are suitable for passage of conventional cars.

Field trippers should be prepared with the usual facilities. More information may be obtained by telephoning Dr. Howell at 244-5728 or Mr. Lee T. Gavigan, Field Trips Chairman, at 289-8041.

19 April Tuesday

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

7:30 P. M. - The group meets on the upper floor of the biology building (Peebles Hall) where the GSOC Library is housed. A "quiet hour" is observed until 8:30 P. M. to provide an opportunity for browsing and reading.

8:30 P. M. - Mr. and Mrs. George W. Walters along with Mr. Mark Perrault, all from Montana, will present a short program on the geology of Montana. Their presentation will be enhanced by the showing of colored slides.

More information and/or directions may be obtained by telephoning George and Jennie Walters, Library Night co-chairmen pro tem, 282-4272.

22 April Friday

LECTURE - Central Library, 801 S. W. 10th Avenue, Portland, Oregon
Dr. Bates McKee, Department of Geology at the University of Washington, will present an illustrated talk entitled "Geologic Structures of Ocean Areas". Dr. McKee's talk is timely in view of the current interest in offshore drilling activity.

ADVANCE G. S. O. C. CALENDAR FOR MAY 1966

1 May Sunday

FIELD TRIP - Tour of Rice Mineral Collection at North Plains, Oregon
1:00 P. M. (Daylight Saving Time!) Assemble at home of Mr. & Mrs. Richard Rice (via private cars) located on Sunset Highway (U. S. Hwy 26) about 15 miles west of Portland. (Look for small billboard advertising "Roxy Motel" on north side of highway at entrance to driveway.)

RAY S. GOLDEN

One of our Old Guard has left us. Ray, as we all knew him, passed away on February 4, 1966 at St. Vincent's Hospital, after a determined fight for life. He was born at Sandusky, Ohio in 1889 where he grew to manhood. Then, showing great promise in school he was sent to Italy for an advanced education.

His parent's guess, however, was wrong - A man of letters was not for him. He returned to the United States at this point and bade a final farewell to his Chio family and friends. He then took the road West.

After a number of unrecorded years our story begins again when, in 1926 at Corvallis, Oregon, he met and married Mrs. Anna M. Farnsworth. At this time Ray was a foreman on railroad construction.

Many of you did not know this oldtimer as he did not intrude himself. He was one who bided his time and waited for an opening. Members of his age he knew well. Ray was a master of many trades - he was a logger, a sawyer, a freighter, a piledriver operator, and at one time a placer miner.

Although he jealously guarded his free time, he often gave many days of service gladly and without stint to the Society and other worthwhile projects. When a work party was needed to build Camp Hancock he was there to lend a hand. In 1954 he was instrumental in carrying out the project of erecting the memorial to Thomas Condon across the John Day River from Sheep Rock near Picture Gorge.

Besides being a regular on our field trips, Ray made many trips across the Cascades on his own or with a friend, Leslie Davis in particular. If lacking a companion he never hesitated going alone, visiting friends along the way in the wilderness country. The Greenhorn Mountains were his favorite playground.

Mountains in general intrigued him. What was on top or hidden beyond - he wanted to know! Who of our group trudged more miles, what mattered the obstacles? Who loved the mountains more?

He knew geology and gave of his knowledge freely. He always travelled fully equipped, and was often our trouble shooter. With a shiny new truck and camper body he was planning his biggest trip for this summer.

Nice going, Ray, beyond the last high ranges.

Jess R. Rentsch

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MEMBERSHIP ROSTER

name	street address	city, state and ZIP Code No.	telephone
NEW MEMBERS			
DARLING, Mr. and Mary Gary H.	4523 S. E. 104th Avenue	Portland, Oregon - 97266	775-4902
HANSON, Mr. and Mrs. Ernest A.	4438 N. E. Royal Court	Portland, Oregon - 97213	234-6994
PEYREE, Mr. and Mrs. Bert W.	220 Alice Avenue South	Salem, Oregon - 97302	
ADDRESS CHANGES			
FREER, Mr. and Mrs. William M.	131 S. E. 24th Avenue	Portland, Oregon - 97214	234-5997
SHRADER, Mrs. Lea	1005 - 4th Street	Tillamook, Oregon - 97141	
NEWCOMB, Mr. and Mrs. Reuben C.	01631 S. W. Radcliffe Road	Portland, Oregon - 97219	636-4062

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THE HOUSE OF GEMS

Michigan Collectors Move West, Open Unique Display in Portland, Oregon

by Marjorie A. Fessenden

Field Trip to John & Lillian Mihelcic's
Open House Sunday, 13 February 1966

The Greeks used to say - "Hold a moonstone in your mouth and it will refresh your memory." According to a timeless legend, sapphires were drops of Amrita, a drink of the gods which conferred immortality. The ancients not only invented stories to explain the origin of gems but they also endowed them with strange and magical powers.

Today, a scientist knows a great deal more about minerals and their growth. Billions of years ago, when the molten earth was beginning to solidify, the deeper layers cooled much more slowly than the outer, therefore, allowing time for crystallization. But much of the mystery of minerals still remains. It takes the sharing of time and knowledge, such as demonstrated by John and Lil Mihelcic, to provide a glimpse into the wonders of the world's hidden treasures.

The study and collection of minerals began for the Mihelcics some years before they were married. In fact, it was this common interest that brought the two together. Michigan with its rich mineral deposits, which had attracted the parents of both John and Lil, was the setting. John tells of working underground for his father during summer vacations just to gain experience in mining and learning about minerals.

Instead of getting a degree in mining engineering John majored in education, which led him into the field of teaching, then later to commercial advertising. Lil's interest has led her to the classroom, too. She has enriched her knowledge of the mineral world by taking numerous courses in mineralogy.

This hobby of theirs has opened the world to them. They have traveled and studied in every state in the union and have been in many mines. In the past few years this search has taken them around the world.

The Mihelcic's library contains some old and some interesting works. Publications such as "The Copper Bearing Rocks of Lake Superior" dated 1881, and early U. S. G. S. publications of equal age attract the visitor to the Mihelcic home. Among several articles written for various professional publications of note is one on "Jewelry Making", written for Art of Gem Cutting; and has brought him many interesting pen acquaintances and a world-wide correspondence. -- He wrote the "Thru The Microscope" section of the Mineralogist, as well as many articles for the mineral and lapidary magazines.

Lil is also a writer. She created, and for 19 years edited, The Conglomerate, the monthly bulletin of the Michigan Mineralogical Society. Among her other accomplishments she, as well as John, served as president of Mineral Society of Michigan -- the first woman to be re-elected to this office. Both John and Lil have held official positions in the Midwest Federation of Mineralogical Societies. In fact, John has held every official position in this organization, and continues on the Advisory Board.

Their collection of mineral micro-mounts is quite large and is choice. This, in itself, could have held one's interest for the entire time of the visit. The collection is world wide in content. Not only is each specimen arranged alphabetically but is also scientifically identified as to chemistry, location, and donor -- in some few cases where the mineral was a gift.

The unique mounting of each must be credited to John and a friend of his. Each mineral has been mounted on a plastic rod that has been pressed through a hole in the base of a small plastic box. This allows for flexible adjusting for display purposes as well as provides a single storage and filing arrangement. The micro-mineral collection numbers close to 1,000 specimens of near-perfect crystals.

Lil's specialty has been a collection of more than 500 minerals in half-dram vials.

House of Gems - cont'd.

She, too, has a cross file and an indexed chemical analysis as well as name of each specimen. She has cleverly housed her vial collection in an old allergy case.

The major collection of specimens are housed in unit cases at eye-level. John used the old Grecian-Golden Section proportion, or focal concept, in building his display cabinets. The shelves are one specimen deep, made of glass, with each item carefully arranged and classified.

In a gem case is a collection of cut gems of many different minerals which illustrate methods and kinds of materials that can be used for polishing and faceting. In this display are an oriental star of crystal, mother of pearl, walrus tusk, ammonite shell, carvings of malachite, leaf carved of tiger eye, opal from Australia, and others. John has made many of the tools and machines they used for their cutting and polishing.

Probably one of the many highlights of a visit to the Mihelcic's 'Mineral Den' is Lil's description of the show case of minerals from their State of Michigan.

"Michigan," she says, "is the only state where one finds Silver and Copper combining, the lovely calcite with copper inclusions that forever remain bright in color, the deep purple amethyst and the fortification agate -- laid down in layers of brilliant colors -- copper skulls that were formed when the copper was in solution and flowed around conglomerate that later deteriorated and fell away, leaving the copper skull, the crystals of copper and the fossil coral from Petoskey, Michigan."

It is difficult to convey the warmth and depth of love she holds for Michigan. When the Mihelcics' retired in 1959 and decided to come to Cregon, moving was no small problem. Their years of search, research and findings demanded extreme care in packing and moving. Approximately one-third of their collection was personally packed and moved to Cregon by 'U-Haul'.

A farewell tribute called the "MIHELCICNITE", the Michigan Mineralogical Society attested the Mihelcics' as "leaders, teachers, advisers, tireless workers, gracious hosts, and good companions -- who have long given unsparingly and unselfishly of their talents and their wealth of knowledge and understanding."

This citation from Michigan friends may well express the sentiment of their new Cregon friends.

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DISASTERPHISM -

Our geological shelf deposits are suffering denudation by periodic cycles of erosion. Wouldn't it be gneiss if we could all gangue up, overthrow the faults, and let aggradation rejuvenate the hanging walls.

In other words, 31 books and pamphlets from the GSCC library are overdue from 4 months to 6 years.

C. L. B.

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DUES STILL DUE

Dues for 1966-67 are still payable and may be sent to the Society Treasurer, Mrs. Jean Griffiths at 7706 North Emerald Avenue, Portland, Oregon - 97217.

Checks should be made payable to Geological Society of the Cregon Country.

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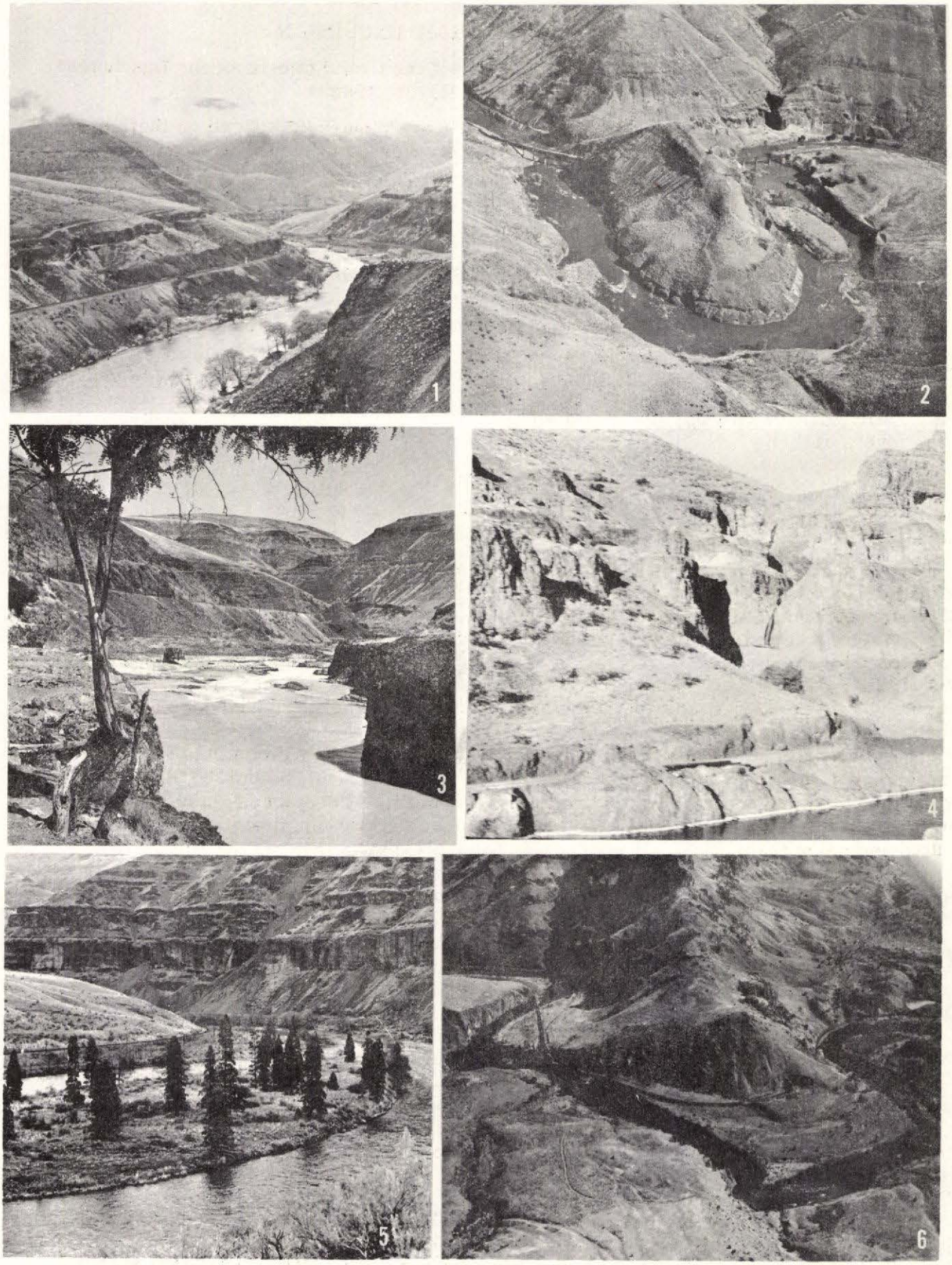

The Deschutes canyon, site of the April 16th field trip (see calendar). A May 8th railroad trip will also provide views of gorge geology (see page 30). (2) Horseshoe bend just north of Sherar's Bridge. (1) Looking north from the tunnel in (2) toward railroad milepost 44. (3) Looking down the Deschutes from Sherar's Bridge. (4) Eroded formations across the Deschutes from milepost 45. (5) Cedar Island Bird Sanctuary. (6) Davidson, the point at which the DesChutes Railroad joined forces with the Oregon Trunk. Pictures 1 and 5, Dr. Ruth E. Hopson; 4, Chester Gowan; others, Fred E. Miller.

DESCHUTES CANYCN RAIL EXCURSICN

Here's an opportunity to take a one-day tour of the Grand Canyon of the Deschutes* from the Columbia River to Madras on Sunday, May 8, 1966.

GSOCers who buy their tickets from Fred Miller or mark "Geology" on their mail order for tickets to Sunset Tours will have space reserved in the GSOC section.

The train leaves N. W. 10th and Hoyt Sts. at 8:00 AM DST and returns at 9:00 PM DST.

Fare of $9. 95 (5 through 11 yrs. $5. 95) includes a scenic 400 mile round trip, a continental breakfast on the train, and a fried chicken lunch.

Send self-addressed envelope with order and check to:

Fred Miller, 3122 S. E. 73rd Ave., Portland, Cregon 97206

or

Sunset Tours, 400 N. W. Beaverdam Rd., Beaverton, Cregon 97005

* See pictures on page 29. - Editor

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MARCH LIBRARY NIGHT

Tuesday, 15 March 1966
Lewis and Clark College

Dr. Francis Gilchrist, newly appointed Library Night Chairman, called a good-sized group of GeeSockers, and a few guests to order following the "quiet hour", and introduced the new Librarian, Miss Clara Bartholomay.

He then paid high tribute to Mr. and Mrs. Murray Miller, who, for the past four years, have been loyal guardians of the library, laboring early and late to keep our books and papers in order, as well as preparing a library program once a month. The Society owes them a deep debt of gratitude for their faithful service, and he expressed deep and sincere thanks for all of us.

Dr. Gilchrist stated that he hoped our library programs would be in the nature of workshops in which everyone would participate in the discussions and the showing of specimens, slides and movies. If feasible, he would like the subject of the programs to be about the same subjects as our field trips, so that we might more thoroughly understand and enjoy them.

The program for the evening was the Geology of the Portland Area. This was presented in a simple, lucid manner with the aid of profiles and sections and a geological column which Dr. Gilchrist had drawn and colored. He pointed out that Portland was built on an ancient delta, which was subsequently covered with different lava flows, followed by warping and uplift and covered again by sand and gravels. He illustrated his statements with choice color slides which he had taken, and some fine ones taken and explained by Mark Perrault.

Irma Sullivan displayed some extremely interesting specimens she had collected in Nevada, which were formed in warm water by algae, and showed color slides of the area.

A pleasant social hour followed the program with Murray Miller and Lee Gavigan being honored with a beautiful and very delicious birthday cake provided by Gwen Gavigan.

In order to keep our library vital and up-to-date, a sum of money has been allocated for the purchase of new books each year. The following committee has been appointed to select books for this year: Margaret Steere, Dr. John Allen, Dr. James Stauffer, Dr. Francis Gilchrist and Clara Bartholomay.

Irving Ewen started the ball rolling last year by donating two good books: a new hardback copy of the new edition of Ewart Baldwin's GEOLOGY OF OREGCN, which has been largely rewritten and has many fine new illustrations, and TIME, LIFE AND MAN by Ruben Arthur Stirton, a book written primarily as a text for a course in introductory Paleontology, but intended also for the interest of general readers. Both of which are valuable additions to our library, and we are grateful to Irv.

Jennie Walters

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ANNUAL BANQUET REFLECTIONS

by Dennis M. Carmody*

31st Annual Banquet, G. S. O. C.
Friday, 11 March 1966

The Thirty First Annual Banquet of the Geological Society of the Oregon Country was held in the Ballroom of the Portland State College Center on Friday, 11 March 1966. Guests were welcomed to a fine dinner, expertly prepared displays, a wonderful guest speaker, a master of ceremonies par excellence, and local talent prominent in the entertainment line.

Dr. Dixie Lee Ray, Director of the Pacific Science Center in Seattle, Washington, presented a stirring address on "Science and the Modern World". As part of her presentation Dr. Ray provided an explanatory narrative with the showing of a silent film depicting experimental work with certain marine life. From her vast knowledge of the subject, she drew a few notable examples of the place of science in our everyday lives. As a token of appreciation on behalf of the Society Dr. Ray was presented with an engraved Geology pick.

Mr. Ralph S. Mason, State Mining Engineer with the State of Oregon Department of Geology and Mineral Industries, was the able master of ceremonies. Ralph's sense of humor and witty repartee were enjoyed by all in attendance.

Installation of officers was one of the important events of the evening. Incoming GSOC President Lloyd Wilcox, heading the list of notables, outlined an energetic program for the coming year. As a new symbol of office, received for the first time last year by the then incoming GSOC President Fred Miller, Mr. Wilcox accepted the large "Presidential Pick" to help carry out his ambitions.

Included in the entertainment field was a quartet, ably managed by Dr. Paul W. Howell. Also well received were the Rockettes from the GSOC Music Hall. It was questioned whether all of the participants in this group were feminine!

Pre-banquet preparations had some hectic moments at times. The many jobs that had to be done in time kept the hard working committee members scurrying at times. Rehearsals, meetings, work parties were commonplace.

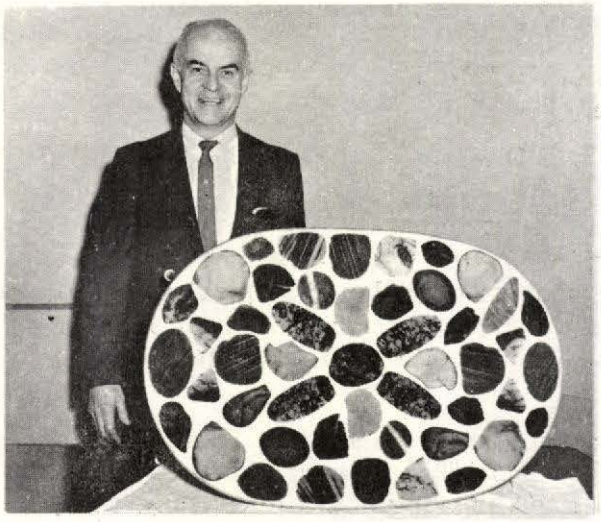
Even on the afternoon of the banquet, as arrangements were being made to set tables, only one lone GSOC'er was present. Table decorations, carefully packed and labelled in many cartons, had to be put on the tables. Our Master of Ceremonies, a man of many hats, arrived on the scene early and assisted distributing the many candles, favors, salt crystals, displays, centerpieces, and greenery (including some wallet type).

The Four Dimensions of Geology, the theme for the year was graphically portrayed in the design of the Banquet Programs prepared by Bob Anderson, a member of GSCC who is also a talented commercial artist.

As a part of the honors and awards, Irv Ewen was presented with a special tie tac as a gift by the Society in recognition of his work on the Geological News Letter over the last several years.

Community singing provided a fitting finale to the evening festivities. This was directed by Dr. A. Jones and accompanied on the piano by Mrs. Hancock.

* Annual Banquet Co-chairman with Mrs. Mary Carmody.



Dr. Paul Howell displays quartzite table, a gift in recognition of his interest in this material by members who have enjoyed his leadership of programs and field trips. Slabs were cut and assembled by George Walters.

Lloyd Wilcox asks for one more after a tough evening

Presentation of the President's Pick is discussed at a banquet planning session.

Banquet Chairmen Mary and Dennis Carmody consult with Lillian and John Mihelcic regarding the twenty pound halite specimen, exemplifying the theme, "The Four Dimensions of Geology"

Talented ROCKettes present a "serious" look at the fourth dimension of the past year.

Toastmaster Ralph Mason presents engraved geologist's pick to Fred Miller

The retiring President tells where we have been

Guest speaker Dr. Dixie Lee Ray of the Pacific Science Center is presented an engraved G-pick

Members of the 1966 Executive Committee are charged with their responsibilities by Ralph Mason, far left. They are Jean Griffith, Treasurer; William Freer, Vice President; Lloyd Wilcox, President; Dorothy Waiste, Secretary; George Walters, Truman Murphy, and Margaret Steere, Directors.

Condon's "Two Islands" and the gavel are passed to President Lloyd Wilcox. The gavel, a gift of 1944 President Erasmus Bates, is of teak from a Phillipine beeswax ship that foundered near Neahkahnie about 250 years ago

Past Presidents, from Dr. J. C. Stevens at lower left, to Fred E. Miller at upper right, attended the banquet

WE CAME ** WE SAW ** WE WERE CONQUERED

by John F. Mihelcic

31st Annual Banquet, G. S. O. C.
Friday, 11 March 1966

It was at the Annual Banquet that we were served a gourmet's menu of food for tho't and a feast for the eyes in the exhibit area. The material exhibited was almost as diverse as our interests, and the quality was such that a constant stream of viewers wound about the display tables.

The conversation was animated, and the comments were so complimentary that all the exhibitors felt amply repaid for those tedious and time consuming details that made the difference between displays that tended to tell a definite story, and the less carefully prepared ones that would have left the themes less apparent. Not the least of these preparations was the use of labels and explanatory posters.

The exhibits, themselves, were concerned with profile strips; a case of fine fossils; a display that showed rocks and minerals with a definition of a rock and a mineral, thus showing why a thunderegg, a piece of silicified wood, and a specimen of tin ore could not be a rock; a very fine, loaned relief model of a strip of coast; extensive specimens of fossil bearing rocks that were collected on campouts and other field trips; a series of photographs that were prepared for publication (many more were available if space permitted); a preview of what was available in the Deschutes River area of our April field trip; a rock study that was made up with volcanic specimens tied to their point of origin on a geologic map; a series of named rock types which were sliced, followed up with thin sections as seen by polarized light via two petrographic microscopes; a double display of aerial survey photographs arranged in a mozaic (stereoscopic viewers made them very realistic) and then that very beautiful epoxy and quartzite presentation table that instinct tells me is Paul Howell's.

Space limitations prevent further elaborations. A worthy description of any of these exhibits would take this page. The members who were responsible for this splendid story in stones are: Leonard H. Delano, Lee T. Gavigan, Paul W. Howell, Fred E. Miller, Clair F. Stahl, Jennie and George Walters, Robert F. Wilbur, Lloyd A. Wilcox, Mark Perrault, and Lil and John Mihelcic. The Society appreciates their spirit.

* * * * * * * * * * *

NEW PUBLICATIONS OF INTEREST

1. "The Alaska Earthquake, March 27, 1964". Published by the U. S. Geological Survey as a series of six professional papers that will describe the effects of the earthquake on Alaska communities.
   Prof. Paper 542-A, on Anchorage is for sale by the Superintendent of Documents, Washington, D. C., 20402. The price is $1.75.
   Prof. Paper 542-B, Whittier, and Prof Paper 542-C, Valdez have been published, but prices not announced yet by the Survey.
2. "Exploring the Olympic Peninsula," by Ruth Kirk. Includes a chapter on the geology of the Clympics, maps, and photographs. Published by the University of Washington Press, Seattle, 1964. $1.95
3. Free pamphlets may be obtained from the U. S. Geological Survey, Washington, D. C., 20402.
   "Collecting Rocks". Especially helpful for the beginner.
   "Volcanoes". Well written, enlightening, illustrated account.
   "The San Andreas Fault". Explains this structural feature, reviews major earthquakes associated with it, and discusses prediction of future quakes along it.
   "Topographic Maps". Tells how topographic maps are made and how to interpret and use them.

M. Steere

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G-SOCS EVERMORE *

I

THERE'S A GROUP HERE IN THE NORTHWEST; G-SOC IS THEIR NAME THAT'S KNOWN BEST,
AND THEIR GOAL IS SEEKING, LEARNING OF THIS PLANET'S ANCIENT LORE.
THEY MAY NOT HAVE NATIONAL RANKING, BUT THEY CARE NOT WHO'S OUTFLANKING
WHO, AS LONG AS THEY CAN MEET HERE AND DISCUSS THINGS AS BEFORE.
STUFFED SHIRTS THERE ARE NONE AMONG THEM, FOR SUCH PEOPLE THEY ABHOR.
QUOTH THE G-SOCS, "NEVERMORE".

II

NOW THIS GROUP IS FAR FROM FICKLE, AND THEIR KNOWLEDGE IS FAIR MICKLE
OF THE SCIENCE THAT THEY CHERISH. LEST IT PERISH, THEY IMPLORE,
"COME YE NOT TO IT FOR PLUNDER. DO NOT CLEAVE ITS PARTS ASUNDER,
BUT BEHOLD IT AND ENFOLD IT, AND ITS PRINCIPLES EXPLORE.
IT SURROUNDS US AND ASTOUNDS US, AND IT SETS OUR HEARTS A-SOAR;
HOLDS OUR LOVE FOREVERMORE".

III

IN THEIR MINDS ARE FEW CONFUSIONS. THEY KNOW IGNEOUS INTRUSIONS,
AND VOLCANOES THAT ONCE SPOUTED ON A DIM AND DISTANT SHORE,
FOLDS AND DOMES AND FAULTS AND SCHISMS, DENOTING EARTH'S PAST PAROXYSMS;
METAMORPHICS, GEOMORPHICS, AND OTHER STUDIES BY THE SCORE;
ERAS, PERIODS, EPOCHS, AGES, FACIES, FORMS, AND FOR ENCORE
CRYSTAL SYSTEMS THEY EXPLORE.

IV

SEA ADVANCES, EVOLUTIONS, ANCIENT MOUNTAIN REVOLUTIONS,
PENEPLANES AND GREAT PLATEAUS, AND OTHER WONDROUS THINGS GALORE.
FOR THIS EARTH'S SO FULL OF MYSTERY, FULL OF ANCIENT BURIED HISTORY
THAT IT FASCINATES THESE PEOPLE, THOUGH YOU OTHER IT MAY BORE.
YOU MAY WONDER 'BOUT THEIR SANENESS. CARE THEY ONLY FOR THIS LORE?
ONLY THIS, AND NOTHING MORE?

V

SET YOUR MIND AT REST MY FRIEND. NO CULTURAL LACK DOES THIS PORTEND.
THEIR INTERESTS ARE MOST VARIED, AND THEIR SKILLS YET EVEN MORE.
THEY ARE BUILDERS, BANKERS, BAKERS, BOLD BLACKSMITHS, AND BOILERMAKERS,
A PASTOR, SOME PRINTERS, AND PLUMBERS THREE OR FOUR;
TEACHERS, ENGINEERS, AND DOCTORS, BUT, JUST AS I SAID BEFORE,
ALL IN SEARCH OF NATURE'S LORE.

VI

SINCE YOU ASK, THERE ARE SOME, SURELY, WHO GO CAMPING, TRAMPING PURELY
FOR THE ECSTACY OF FINDING WHATE'ER NATURE HAS IN STORE.
FOR THEM THERE IS GREAT ENJOYMENT JUST TO LEAVE THEIR DRAB EMPLOYMENT
ON A QUEST FOR ROCK AND FOSSIL IN SOME DISTANT MOUNTAIN'S CORE.
CLIFF AND BOULDER, SLOPE AND SHOULDER THEY PERSISTENTLY EXPLORE.
PICKS AND HAMMERS TO THE FORE.

VII

THERE ARE OTHERS WHOSE AMBITION DOESN'T LEAN TOWARD ERUDITION
'BOUT OUR PLANET'S ANCIENT DOINGS, 'CAUSE THEY LOVE HER BEAUTIES MORE;
AND THEY LOVE THE RAIN'S SOFT PATTER, AND THE CAMPFIRE SONG AND CHATTER
OF EACH G-SOC EXPEDITION TO THE WILDERNESS AND SHORE.
THEY ARE STRONG FOR CONSERVATION; DESECRATION THEY DEPLORE.
KEEP OUR HERITAGE AS BEFORE.

(cont'd next page)

* Dedicated to Mrs. Emily Moltzner, Honorary Life Member of G. S. C. C.

G-Socs Evermore -

FEW THERE ARE AROUND THIS NATION WITH MORE CONSTANT DEDICATION
THAN THESE G-SCCS TO WHAT'S NOBLE IN A LAND THAT NEEDS IT SCRE,
FOR THEY FIND THEIR BEST EMPLOYMENT HELPING OTHERS TO ENJOYMENT
OF THIS FREE GCD-GIVEN WORLD THAT CAN MAN'S WEAKENED SOUL RESTCRE.
SC, YOU G-SCCS, HOIST YOUR BANNERS! MAY THEY WAVE FOREVERMORE!
UP AND ON! EXCELSIOR!

Paul W. Howell, 22 February 1966.

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

REPCRT CF THE 1965 PROGRAM CHAIRMAN

For the GSOC year of March 26, 1965 through February, 1966 the Society had the pleasure of listening to 19 well prepared and entertaining lectures. These lectures covered a remarkable range of subject matter, extending geographically from the Canadian Shield to the South Seas, timewise from the beginnings of the solar system down to the present day, and subjectwise from salt mines to aerial photography. In review it can be said that we stuck pretty well to geology, and such deviations as occurred were into matters closely related to geology.

Some words of encouragement and warning to the membership are appropriate here. Every so often there comes a suggestion from some member about including on our programs talks on interesting or entertaining subjects other than geology. The requests are based on a desire for more variety and on high interest in the other subject by the requester. I warn against this, and recommend that such potential lectures be diverted to societies whose interests and ideals are more appropriate to them. It is not that I wish our members to be one-track minded, but the goals and dedication of the Geological Society of the Oregon Country has always been to promote interest in geology and to develop geologic knowledge of our Oregon Country* for the members. It is a worthy goal and one that requires more application and devotion than has been shown of late.

By way of encouragement I endorse Leo Simon's plea in his last lecture to us. School yourselves in the basics of geology and not only will the lectures and field trips be more enjoyable, but you will be able to take a more active part in forwarding the goals of the society.

The Society badly needs more member activity. In the early years more lectures were given by members than by outside speakers. Surely, the present membership can produce more speakers than they have over the last few years. If they cannot, then I suggest to our new President that he assign geologic projects to as large a number of members as possible, so that they cannot fail to have subject matter worth talking about. Assignments can be made commensurate with the geologic background of the member. Selecting projects would be a good job for the Past Presidents Committee.

Paul W. Howell
1965 Program Chairman

* See "Aims and Objectives" - (inside front cover)

Editor.

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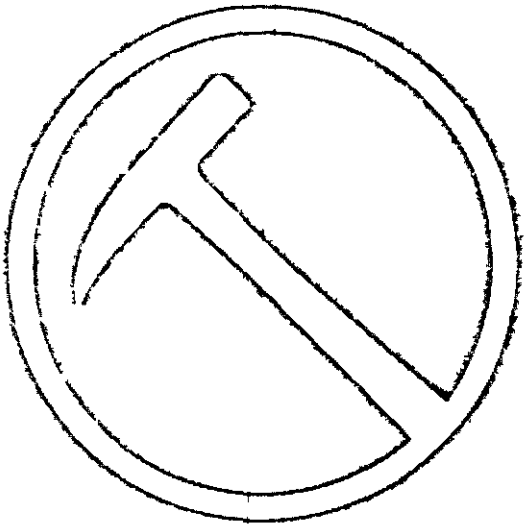
May 1966



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editor	EWEN, Mr. Irving G.	4128 N. E. 76th Avenue	Portland, Oregon - 97218	281-7098
business mgr.	WILBUR, Mr. Robert F.	2020 S. E. Salmon Street	Portland, Oregon - 97214	235-7284

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lectures	BARR, Mr. Donald D.	12438 S. W. Orchard Hill Rd.	Lake Oswego, Oregon - 97034	246-2785
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luncheons	SIMON, Mr. Leo F.	7006 S. E. 21st Avenue	Portland, Oregon - 97202	236-0549

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G. S. O. C. CALENDAR FCR MAY 1966

Please note that all meeting times indicated are Pacific Daylight Saving Time.

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

12:00 M. - GSOC'ers, guests, and visitors are invited to participate in this once-a-week activity. At this mid-day repast an opportunity may be provided to review the latest in geologic publications; scrutinize mineral, rock, or fossil specimens; discuss related (and sometimes unrelated) topics of interest; or just quietly munch lunch and observe the proceedings.

More information is obtainable by telephoning Mr. Leo F. Simon, Luncheons Chairman, at 236-0549.

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

7:30 P. M. - Speaker and topic to be announced.

17 May Tuesday — LIBRARY NIGHT PICNIC - Lewis & Clark College in S. W. Portland, Oregon

6:00 P. M. - Meet in the picnic area by the swimming pool. Meal will be potluck, with beverages provided. Bring table service for your group (silverware, plates, cups, napkins, etc.) In the event of rain, the festivities will be held indoors.

More information is obtainable by telephoning Dr. Francis G. Gilchrist, Library Night Chairman, at 636-5942 or Miss Clara Bartholomay, Librarian, at 284-6986.

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

7:30 P. M. - "Armchair Tour of Central and South America" might be an appropriate title of the program to be presented by Dr. Arthur C. Jones. Dr. Jones, a charter member and also a past president of the Society, will illustrate his talk with slides taken on a recent trip to the area.

FIELD TRIP - Memorial Weekend Camping Trip to Painted Hills State Park and Mitchell Area via private car caravan

28 May Saturday — 1:00 P. M. - The group will rendezvous at the Painted Hills State Park. To reach the park from U. S. Highway 26, take the turnoff about three miles west of the town of Mitchell, Cregon. Proceed on gravel road to the north which follows Bridge Creek. Route is marked with directional signs.

Evening - The group will spend the night at Marks Creek Campground which is about 31 miles east of Prineville on U. S. Hwy. 26. Nearest motel and hotel accommodations are located in Mitchell. Usual festivities around campfire.

29 May Sunday — Morning and Afternoon - Activities will include visits to fossil localities and other geologic points of interest in the area.

Evening - Return to Marks Creek Campground.

30 May Monday — Morning - Break camp and disband to return home. Varied routes available depending on interests, individual preferences, and time.

Additional details in this month's News Letter. See "Information for Memorial Weekend Camping Trip". More information is obtainable by telephoning Mr. Lee T. Gavigan, Field Trips Chairman, at 289-8041. Field Trip Leaders will be Miss Margaret L. Steere, Dr. James Stauffer, and Mr. Mark Perrault.

ADVANCE CALENDAR FOR JUNE 1966

10 June — LECTURE - Mr. Jim Anderson, Naturalist with O. M. S. I. will present

NEWS OF MEMBERS
by Rowena Hoven

The May issue of the "CMSI Pendulum" contains a tribute to BERRIE HANCOCK and announces her retirement as "camp cook, mother confessor, and official encourager of new geological talent" at the Camp Hancock summer sessions. She has served for 15 summers in this capacity.

The usual "geological shop talk" was completely forgotten at a recent meeting of the Society when RUTH HOPSON displayed a beautiful diamond and announced her engagement to ALBERT KEEN. Our best wishes to Ruth and Al.

GEORGE and JENNIE WALTERS exhibited their outstanding fossil display at two recent shows. They won the blue ribbons and the plaques at both the Sweet Home Rock and Mineral Society show and the show of the Eugene Mineral Club. This is the highest award in the Advanced Group. At Eugene their score was 94. Congratulations -- and now, "On to the Masters Class!"

AVA CROWE has returned from her extended cruise along the coast of South America. She should have many strange and wonderful stories to tell about her trip "around the Horn".

DR. and MRS. FRANCIS GILCHRIST have been enjoying a trailer trip to Arizona and Utah. The main objective of the expedition has been to photograph the wild flowers.

HARRY and RUTH JENNISON have just returned from a two-months trip to the Orient.

SHIRLEY O'DELL has left on a dreamy trip abroad, primarily to Greece and Israel.

It is with deep regret that we report the death of MARVIN LYTLE while on a trip to the East.

MEMBERSHIP ROSTER

name	street address	city, state, and ZIP code number	telephone
NEW MEMBERS			
HAHN, Mr. and Mrs. Henry D.	4810 N.E. Ainsworth St.	Portland, Oregon - 97218	287-8852
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RENTSCH, Mr. J.R.	Governor Hotel 611 S.E. 10th Ave.	Portland, Oregon - 97205	223-4181

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MUTTON MOUNTAIN FIELD TRIP

by Mark Perrault

Warm Springs Indian Reservation Area
Saturday, 16 April 1966

GEOLOGY

The geology of the Mutton Mountain Area is a study in volcanics, weathering and erosion. Deformation, while an underlying cause of present land form, is subdued and hard to recognize in the field. The area is underlain with Clarno rocks of Eocene age. Above the Clarno the section reveals several middle and late Tertiary formations, and finally at the top of the section deposits of Pleistocene and Recent age extend outward from the foot of the Cascades. This area contains the most westward portion yet recognized of a Clarno volcanic episode of pyroclastic nature. Clarno rocks of the Mutton Mountains area consist of red saprolites, rhyolites, dacites and gray-green andesites. Mid and late Eocene times saw a low rolling-hills landscape of semi-tropical nature engulfed in clouds of ash, debris, and lava, ejected in violent and explosive manner; and from many locations. The Cascade Range as we now know it did not yet exist. Even at the end of Eocene times and at the conclusion of this violent episode the existing hills were no obstruction to the east bound wind and rain.

John Day tuffs and distinctive platy rhyolites exhibiting flow structures and unusually large perlitic lentils with opal in the vugs overlie the Clarno rocks with prominent unconformity. Whether the red tuff layers which grade upward into the lighter cream tuffs and rhyolites represent the complete John Day section is difficult to ascertain because of the numerous landslides. With the John Day Formation of mid Oligocene times came a change, from a semi-tropical to a dryer and more temperate climate. A marked contrast is found between the fossil animal and plant assemblages of the John Day and those of the earlier Clarno. The climatic change thus indicated must mark the beginning of the rise of the Cascades.

At the conclusion of the violent Clarno and John Day times and with slight if any lapse in time came a quiet and extensive outpouring of thin, hot and fast flowing lavas. Issuing from many fissures the dark gray, dense, olivine-poor Columbia River Basalt lavas of mid-Miocene times must have produced a plain of gentle slope and monotonous topography. Today's great cliffs, presenting their typical columnar joints and other distinctive structural features, have been produced largely by vertical uplift and stream erosion. The Cascades may have continued their rise through the whole Miocene epoch. It is likely that the slopes from this rise provided some of the grades necessary for flow of the lavas. Late in the Miocene and near the end of the lava outpouring must have come greater deformation and adjustment. Certainly the great basalt surface variance in the Des Chutes River area indicates prominent faulting and folding during this time.

The Dalles Formation found in the north map area is mainly of depositional nature. Siltstone, sandstone, and in places boulder conglomerates all intercalated with minor lava flows are a marked change from the Columbia River lava flows below. This formation was deposited in late Pliocene times upon the steepened gradients resulting from the continued rise of the Cascades which must have ceased about the time of The Dalles Formation deposition. The Dalles beds and other depositions above them do not appear to be deformed.

The Madras Formation, (here including the Cascan Formation of Hodge), is of late Pliocene and perhaps early Pleistocene age and is therefore correlative with The Dalles Formation. Mainly fluviatile, it is composed of diverse volcanic materials; basalts, andesites, and reworked debris of earlier sedimentary deposits. Some lava flows, and farther south a glowing-avalanche deposit, are included in the formation. During Pleistocene time glacial streams discharged great quantities of sand, gravel, and silt out upon the Madras Formation surface. A typical deposit of this age is exposed for several miles southeastward from the foot of the Cascades in the cuts of U. S Hwy 26.

MUTTON MTN. FIELD TRIP - cont'd.

THE FIELD TRIP

STOP #1 6 miles east of Pine Grove School.

A remarkable view of the field trip area is afforded here. To the east lies the Deschutes Canyon and its capping lavas, and to the southeast the domelike Mutton Mountains (a name in use prior to 1855, and occasioned by the great numbers of wild sheep found upon its slopes). To the west is Foremans Butte topped by a microwave station (a coming stop). To the north is the White River drainage.

STCP #2 Quarry south of Pine Grove.

Here exposed at the base of quarry operations is a light gray tuffaceous clay stone with prominent bedding planes which dip gently to the north. These are probably John Day Formation. Immediately overlying the gray claystone is a 30-to-40-foot section of basalt, jointed in large blocks, yet intensely weathered, with even flow structure apparent. Though not typical this is most likely Columbia River Basalt. In hand specimen breakdown of the feldspars is seen, and nontronite and clay like weathering substances coat the joint surfaces. Since the claystone below is probably an effective water barrier this section lies in a zone of intense weathering. Immediately above (the topmost portion) is a section of brickbat-jointed basalt with color and structural qualities typical of Columbia River Basalt. A most interesting feature of this exposure is the lack of normal baked contact features generally found between basalts and underlying tuffaceous materials.

STCP #3 Foremans Point.

This Butte appears to be composed of tuffaceous materials, thin lava flows and fluviatile deposits. Remnants of several formations are probably to be found here. The capping basalt is intensely weathered and thin. No doubt this capping is responsible for the butte, by providing resistance to weathering.

From this viewpoint the ranch foreman viewed the herds on the surrounding lower flats, and hence the name Foremans Point. From the lookout we could see to the south numerous outcrops of the colorful John Day Formation. In the far south and southeast we see the Mutton Mountains. To the east is the great slash of the Deschutes Canyon and farther on the Shaniko benches. In bold relief on the horizon to the southwest stands Mt. Jefferson and to the northwest Mt. Hood, both in full spring beauty.

STOP #4 Head waters of Nena Creek.

To get here we have traversed east across the Madras Formation (Cascan of Hodge), The Dalles Formation and turning south across a finger of Columbia River Basalt. We now stand upon the John Day Formation which here consists of banded, glassy, light-colored rhyolites with thin platy structures. Outcrops of distinctive colored tuffs can be seen on slopes in all directions. These were mapped by Hodge as John Day. Many of the nearby hilltops are capped with lavas and from a distance these cappings appear to be Columbia River Basalt.

STOP #5 Road cut just north and overlooking Simnasho.

This cut exposes various tuffs and rhyolites of many types, but the great interest here was Leo Simon's great boulder of perlite (Perlite is a natural volcanic glass of higher water content than obsidian and containing numerous small fractures of spheroidal nature). The boulder is filled with nodules of opal of low grade and very small size. This is not something to be considered as just another rock.

STCP #6 Lunch at the inter section of Beaver and Coyote Creeks.

Near this point three distinct formations are found in close proximity. The canyons are likely cut in Madras, which apparently filled the previous canyons which had been cut down through the Columbia River Basalt. At the rims are young lava flows which Hodge called 'Cascan'. To the north and just beyond the rim the road is cut in the John Day. At Simnasho a glance west reveals Clarno rocks standing in distinct outline as an individual and very different lava form. We traverse from here east along the south flank of the

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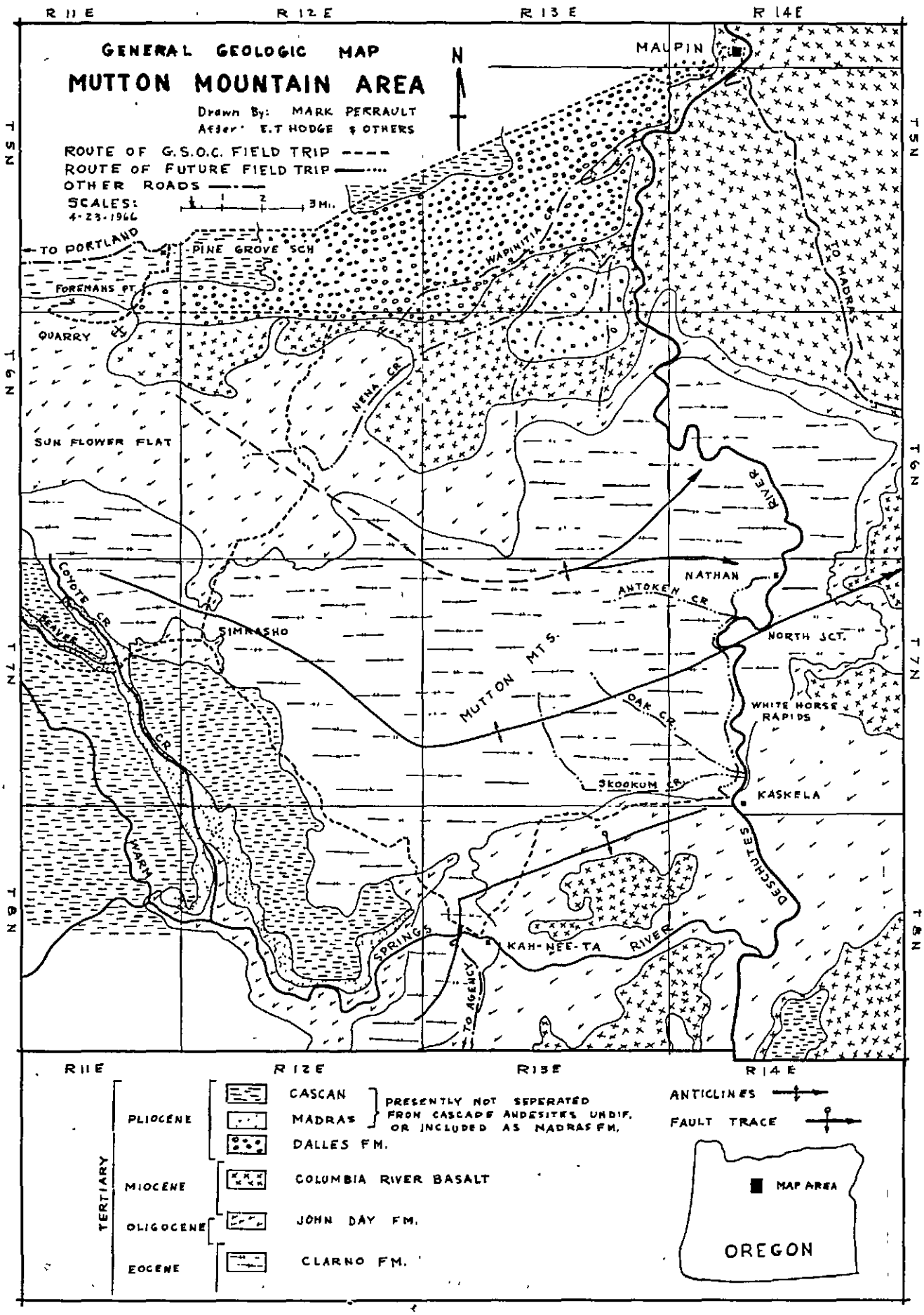

MUTTON MTN. FIELD TRIP - cont'd.

Mutton Mountains, nearly along the contact of distinctive Clarno Saprolites and andesites and the much younger Madras, to the beautiful viewpoint situated on a narrow finger of John Day directly overlooking the Warm Springs river, the Kah-nee-tah resort below, and the Mutton Mountains to the north.

STCP #7 The View Point.

Here was discussed the geology of the Mutton Mountains, of the Hot Springs and of the probable events along the great gash of the Deschutes Canyon. The structural geology evident and the land forms of this canyon section invite a near future field trip to the canyon. Some of the most spectacular views and some of the most interesting earth flexures will be found here. Watch the News Letter for details of this trip.

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CERAMICS AT TEKTRONIX

A survey of the raw materials used in the application of electronic ceramics was given by Mr. Bob DuFresne, manager of the Ceramics Plant at Tektronix, at the Friday night Lecture Meeting, February 25. Mr. DuFresne is a graduate of the University of Washington, majoring in ceramics. He was formerly employed by Gladding McBean Company before joining Tektronix.

Ceramics was defined by Mr. DuFresne as a material which in some phase of processing goes through high temperature. Some of the materials used at Tektronix include: silica from Arizona; silspar (a natural combination of silica and feldspar) from Del Monte, California; feldspar from California and eastern Arizona; Ball clay (a very plastic, white-firing sedimentary clay) from Kentucky and Tennessee; Kaolin (a white-firing, non-plastic pure clay) from Georgia; talc from near Death Valley in California and some from Texas; whiting from salt deposits in California; alumina from Bauxite, Ark., and also from Australia.

Most of the materials used in ceramics occur in the natural state but contain many impurities. Some of this foreign matter adds plasticity and is an advantage in certain cases, but at Tektronix most of it must be removed. Ball clay, for example, is usually deposited with such extraneous materials as wood, leaves, fish, and other organic matter. This can be removed by washing. Moisture, which adds to the shipping cost, is also removed at a site near depcsit. Kaolin often contains silica, biotite, and mica. These can be removed economically, and the fine silica sand is recovered and sold for glass manufacturing.

The increasing demand for better materials results in the need for improvements in refining processes of the raw materials used. Even the most advanced processes sometimes fail to produce a product perfect for all needs, and some materials are needed in larger quantities than are economically available. In such cases synthetics are used.

One of the synthetics produced is magnesium oxide, which is extracted from sea water. MgO exists in the raw state but not in a pure form. The extraction from sea water has proven excellent for electronic processes. Many other materials occur in similar conditions.

Mr. DuFresne presented a very interesting lecture. Irma Sullivan

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INFORMATION FOR MEMORIAL WEEKEND FIELD TRIP

Painted Hills State Park and Mitchell Area
May 28, 29, and 30, 1966

A three-day camping trip over the Memorial Day Weekend to this geologically interesting area will be led by three knowledgeable GSCC'ers -- Miss Margaret Steere of the State of Oregon, Department of Geology and Mineral Industries; Dr. James Stauffer of Lewis and Clark College's Biology and Geology departments; and Mr. Mark Perrault, a proven enthusiast of geologic interest.

This area is crowded with varied formations, some of which are believed to date back to the Cretaceous. We will see and examine at close hand the Clarno, John Day, Mascall, and Rattlesnake formations, which are prominent here. The Painted Hills offer perfect subjects for color photography.

Our campsite will be Marks Creek Campgrounds, 31 miles east of the town of Prineville on U.S. Highway 26. The campgrounds across from Marks Creek Lodge will accommodate approximately 6 trailers or campers in addition to tents. There is one centrally located piped spring water outlet, tables, camp fireplaces and rest-room facilities. The mileage from the camp-site to the turn-off to the Painted Hills is 15 miles (3 miles west of the town of Mitchell) The route to the park is well marked and the gravel road you follow along Bridge Creek is good and directional signs are easily followed.

After short briefings on Saturday by our Field Trip Leaders, we will spend a leisurely afternoon in the Park 'fossiling' and 'geologying', always with the hope of turning up that "new find". Nights (Saturday and Sunday) we will have our usual "GSOC CAMPFIRE" (singing & entertainment) so pack up your TALENT for the occasion.

Don't forget your essential camping gear - picks, cameras, binoculars -- and although we know it will not rain, please be prepared -- just in case. For those unfamiliar with the facilities at the Painted Hills -- be sure to bring water supply.

Those members not wishing to "rough it" will find limited accommodations at Marks Creek Lodge, and one Motel and one Hotel in Mitchell. Both Mitchell & Marks Creek Lodge have some food supplies and water. There are several Cafes in Mitchell, and the Lodge serves food.

L. T. G.

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

NOW HEAR THIS!

Rising costs of everything having to do with your society's activities have so eroded the available working funds that its bank balance is rapidly assuming the appearance of a peneplain. There is urgent and immediate need for an uplift. In this emergency your executive board has taken the following action. Please read and remember.

The date	Thursday, June 30.
The time	7:30 P.M.
The place	Auditorium of the Terwilliger Plaza
The admission	$1.00 per person.

FEATURING MRS. E. VERNON (AILEEN) DUNCAN

Subject: To be announced.

Mrs. Duncan is listed as a 'book reviewer". Nothing could be so misleading. Mrs. Duncan BECOMES the book, living every character. So outstanding are the capabilities of this talenter person that she has been rapidly building up a fan club that flocks to her every appearance. In addition to her local appearances Mrs. Duncan has been booked in Salem, Hood River and other Oregon communities.

To repeat. This is an emergency. Your executive board has taken this course to relieve a stringent financial pinch. Your are only asked to be a loyal GSOCer, to come and enjoy a memorable evening, and, in so doing, come to the aid of your society.

L. A. W.

RESEARCH IN THE ARCTIC

When the bluebirds, house finches and other birds nesting in the yard of Mr. and Mrs. Gilbert Staender in Lake Oswego began acting in a strange and alarming manner, Gil and Vivian began an investigation which led them into a six months camp-out in the wilderness beyond the Arctic Circle.

During the summer of 1963, many of the birds which they observed near their home laid sterile eggs. Later the mother birds became paralized and died. Examination by the Fish and Wildlife Service showed the presence of pesticides in the remains and were determined to be the cause of death. In seeking to determine how widespread were the dangers of contamination from the use of these pesticides, Gil and Vivian loaded enough gear to last them three months, plus scientific equipment for gathering data, into their Volkswagon, and with the blessings and grants from the Fish and Wildlife Service, the Mazamas, and two anonymous donors, headed up the Alcan Highway - destination somewhere in the Brooks Range of Alaska. Completing the last two laps of their journey by plane, they were deposited, with their equipment, on the frozen surface of an unnamed lake, June 5, 1964, and left to their own resources.

Even at 68^{o} north latitude, the surface ice melts during the summer months, so their first objective was to locate a permanent campsite. Choosing a rather high hummock along the shore of the lake they packed their supplies to the summit and set up the tents--one for cooking and storage, and, to forestall the possibility of nocturnal raids disturbing their slumber, another tent was erected a short distance away for sleeping. Here also, as time progressed, such specimens as flowering plants, dead birds, insects, and other forms of wild life which they were collecting for scientific study were hung to dry. It is likely that few campers of the usual variety experience the rarety of atmosphere which must have prevailed in these sleeping quarters!

In order to prevent the wind, which sometimes blew at gale force, from sweeping under the tents and scattering everything far out into the nowhere, the Staenders were obliged all during their stay to tie on more ropes, pile up more rocks, and continually shift ballast inside their home. Since the area was 15 miles north of timberline, the only plants which grew were small and shrubby at best. Extra poles for tents had to be carried from a small thicket, quite some distance from their lake, and only once did their travels take them to a spot where tall trees could be viewed at a distance, but not reached.

Here in the land of the midnight sun they were entertained by migrating caribou, inquisitive foxes, wolves, and porcupine; they searched for bird nests, and watched the young hatch and develop into independent adults, photographed wild flowers and collected specimens for the Fish and Wildlife Service and the Mazamas. In the process they dodged grizzly bears, and, in the two summers spent in the north, hiked a total of 1000 miles, back-packing when they planned to be away from base camp overnight. Sudden and unpredictable changes in the weather made rain gear a constant necessity.

Since the mountain peaks, lakes, and ridges of the areas were nameless, the Staenders gave names to the various geographic features in accordance with their experiences, and submitted them to the Board of Geographical Names. The lake beside which they camped that first summer was named Lonely Lake immediately after the departure of the airplane which had brought them.

Gil Staender is a graduate of Portland State College, and is presently teaching the fifth grade at St. Helen's Hall. He has been active in the Mazamas for many years and is a photographer of rare talent. Vivian is also a Mazama, who with her husband has climbed many of the peaks of this area. Formerly a business woman, she has now turned her talents to writing and lecturing -- and a fine talent was exhibited on the evening of this lecture.

Those of us who were disappointed when their previously scheduled program was postponed found the evening a delightful experience well worth waiting for. Cur thanks go to the Staenders and we wish them another summer of fruitful experiences when they again return to the Arctic to continue their studies in 1966.

-- Irma Sullivan

X * * * * * * * *X*

LIBRARY NIGHT - TUESDAY, 19 APRIL 1966 -

We regret that space does not permit our including this report in this issue. However, we will be adding this report in the June issue of the News Letter.

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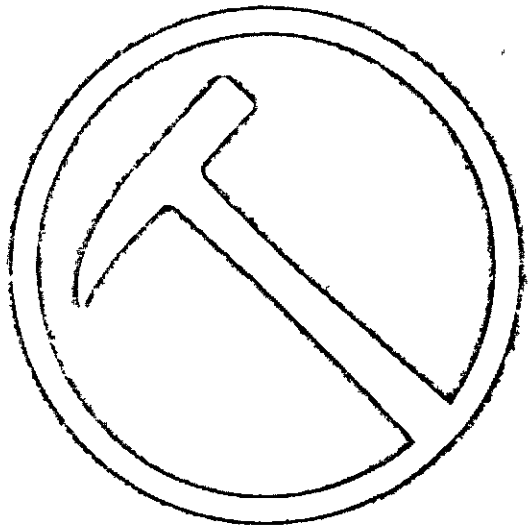
June 1964



THE GEOLOGICAL NEWS LETTER

Official Publication of the Geological Society of the Oregon Country

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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
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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
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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

editor	EWEN, Mr. Irving G.	4128 N. E. 76th Avenue	Portland, Oregon - 97218	281-7098
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

G. S. O. C. CALENDAR FOR JUNE 1966

Please note that all meeting times indicated are Pacific Daylight Saving Time

Every Thursday

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

12:00 M. - Once each week GSCC'ers, guests, and visitors meet in the Mountain Room (adjacent to the Main Cafeteria) to partake of the mid-day repast, discuss topics of interest (geologic and other), and occasionally hear short talks.

A variety of food items at moderate prices is available in the main cafeteria. For more information telephone Mr. Leo F. Simon, Luncheons Chairman, at 236-0549.

10 June Friday

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

7:30 P. M. - Mr. Jim Anderson will present an illustrated talk on the Geology of Fossil Lake in Southern Oregon. Mr. Anderson is Staff Naturalist with the Oregon Museum of Science and Industry.

21 June Tuesday

LIBRARY NIGHT - Not scheduled during the summer months.

24 June Friday

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

7:30 P. M. - Mr. Bob Lynott ("Mr. Weatherman") will acquaint us with "The Inside Story of Weather Forecasting". Mr. Lynott, as most of us know, forecasts weather possibilities daily on KOIN-TV. He is also fire weather forecaster for the U. S. Forest Service.

26 June Sunday

FIELD TRIP - Upper Clackamas River via private car caravan.

9:00 A. M. - Assembly point will be at the bridge about one quarter mile southeast of the town of Estacada, Oregon (on Oregon State Highway 211). After a brief orientation talk by Dr. Paul W. Howell, Field Trip Leader, the group will proceed southeastward up the Clackamas River.

Bring the usual recommended items (geology picks, hand lens, bumper cards, lunch, etc. including rain gear - just in case!) For more information telephone Mr. Lee T. Gavigan, Field Trips Chairman, at 289-8041 or the Trip Leader, Dr. Howell, at 244-5728.

ADVANCE CALENDAR FOR JULY 1966

8 July Friday

LECTURE - Usual time and place, speaker and topic to be announced. For more information telephone Mr. Donald Barr, Lectures Chairman, at 246-2785.

FIELD TRIP - Mr. Don Gorman, who will be teaching at Portland State College summer session, will be trip leader. The trip will be scheduled during the latter part of the month so as not to conflict with the 4th of July weekend. Details to be announced.

22 July Friday

LECTURE - Mr. Ralph S. Mason, of the State Dept. of Geology, will acquaint us with the Lunar Project and Lunar Country in preparation for the forthcoming GSOC Campout in August.

NEWS OF MEMBERS
by Rowena Hoven

MAY and PAUL DUNN are on a trip to Ecuador, making their headquarters at Quito. While this is a business trip for PAUL, we suspect that MAY is spending her time becoming acquainted with the geology of the country, reaping the benefits of her Spanish lessons, making friends and acting as a good will ambassador.

EMILY MOLTZNER is now at the Allison Nursing Home, 2430 N.W. Marshall Street. Visiting hours are from 2:30 to 4:30 p.m. and from 6:30 to 8:00 p.m. Why not drop by for a visit so that EMILY can keep in touch with her many GSOC friends.

Unless you have at least a half an hour to spare, don't ask GWEN HELM if she has found any Indian artifacts lately because she has a real "bragging piece" that she carries around with her after her recent trip to the Fort Rock area.

AVA CROWE, MARGARET STEERE and BOB WILBUR are representing the Geological Society on a two-weeks train trip to the north rim of the Grand Canyon, Brice, Zion, Denver, Pike's Peak, Salt Lake, and many other points. They should have many geological jam sessions along the way.

While the GSCC group was exploring the Painted Hills during a recent weekend trip, IRV EWEN was investigating the minerals in Reno.

* * * * * * * * *

MEMBERSHIP ROSTER

name	street address	city, state and Zip Code No.	telephone
NEW MEMBERS			
COOPER, Mr. and Mrs. Norman A.	5602 S.E. Howard Street	Portland, Oregon - 97206	777-1527
NICHOLS, Mr. and Mrs. Alfred I.	6304 S.E. Jack Road	Milwaukie, Oregon - 97222	654-8125
PETERS, Mrs. Mae E.	2134 N.E. Fremont Street	Portland, Cregon - 97212	287-6647
THOMAS, Mr. and Mrs. Wayne P.	465 E. Clarendon Street	Gladstone, Cregon - 97027	656-9932
VREELAND, Mr. and Mrs. Paul R.	16775 River Road	Milwaukie, Cregon - 97222	654-7089
ADDRESS CHANGES & TELEPHCNE NO. CHANGES			
HINKLE, Mrs. Vera S.	3459 Irwin Avenue	Bronx, New York - 10463	
KNIGHT Mrs. Helene	6037 N.E. Davis Street	Portland, Cregon - 97213	235-1320
KASTNER, Mr. and Mrs. Albert D.			774-0738

RESIGNATIONS

GOLDEN, Mrs. Ray
HANSON, Mr. and Mrs. Clarence W.
HENDERSCN, Mr. Dwight J.
STEVENS, Miss Eliza

Volume 32, Number 6

CULTURE DAY AT WOODLAWN

PORTLAND PUBLIC SCHOOLS

BUCKMAN SCHOOL
320 SOUTHEAST 16TH AVENUE
PORTLAND 15, OREGON

OFFICE OF THE PRINCIPAL

April 25, 1966

Mr. Lloyd Wilcox
16650 S. W. Lake Forest Blvd.
Lake Grove, Oregon

Dear Mr. Wilcox,

Education is today leaving the containment of the classroom and involving itself in the outside world.

There are two areas of communication needing improvement. First, society needs to know that educational institutions need their services. Secondly, educational institutions need to know that society is anxious to offer its services.

Culture Day at Woodlawn Elementary School is an activity designed to bring society and education closer together for the benefit of the children. Mr. George Dahlin was most helpful in assisting us to meet these goals.

Mr. Dahlin did not just come and present himself before the faculty and students. He was obviously prepared to communicate with the children and faculty. With polished rocks in hand and preparation in mind he brought the subject of Geology into the hearts of some ninety children in a most successful manner. He did not try to impress them with his knowledge, but with artifacts. He did not talk at the children, but with the children. For three, 25 minute sessions, he brought Geology from the text into a living, exciting, and stimulating part of these childrens' experience. None of the pupils shall forget the man who made "rocks come alive".

On behalf of the American Youth Educational Services we thank you for referring Mr. Dahlin to us and look forward to seeing him at future Culture Day experiences.

Sincerely,

Mr. John F. Wheeler

The letter reproduced above was received by GSOC President Lloyd Wilcox in appreciation of the services rendered by Mr. George Dahlin, a member of GSCC.

It is through efforts such as these that a two-fold benefit is obtained. The public image of GSOC is enhanced. More importantly an awareness of geology is being given to young people at an impressionable age. We of the Society are indebted to Mr. Dahlin for representing us so well.

On the following page Mr. Dahlin writes of his impressions of Culture Day at Woodlawn.

Editor

* * * * ** * * *

A REWARDING EXPERIENCE

Quite often an assignment accepted with misgivings can turn out to be a pleasant and rewarding experience. When President Wilcox asked me to present a talk on rocks at a program to be held on April 20 at the Woodlawn School I had such misgivings, but it turned out to be a very pleasant surprise for me.

This program was in the nature of an experiment being tried for the first time by the A. Y. E. S., and was designated as a Cultural Arts Day. A Mr. Wheeler explained to me that the Woodlawn School was selected for this first program becuase it serves a mixed racial residential area designated as substandard in both income and opportunity. I gained the impression from Mr. Wheeler that many of the children living here see very little of the world beyond the confines of their own neighborhood. The purpose of the program was to show these children that there is more to be had in this world than a mere bread and butter existence.

I cannot tell you how many people or organizations participated in this program. I had anticipated that there would be a short orientation meeting for the entire group, so that all participants would have a clearer understanding of the objectives of the program, and gain some knowledge of the number of projects represented, but there was nothing at all of this nature. I believe that any future program should include such a meeting, and that it would have a very stimulating impact on those participating.

In lieu of such a meeting each participant in the program was assigned to a classroom, and from here he talked to three different groups of children. Thirty minutes was scheduled for each session.

I chose to discuss the mineral quartz as my contribution to the program. From rockhounds of my acquaintance, I had rounded up quite an assortment of crystals, slabs, wood, and a fossil or two, and I based my little talk around these specimens. I saw to it that all this specimen material was passed around so that each youngster would have an opportunity to handle every piece.

These youngsters seemed genuinely interested in what I had to tell them, and they certainly enjoyed examining the many specimens. I do not recall a single distracting incident occuring in any of the three sessions that I held.

Unquestionably the greatest thrill for these youngsters was a surprise that I reserved for the end of each talk. Lloyd had scrounged up a good collection of tumbled agates and obsidian from some source, and you have never seen a happier group of kids than these when I told them that I wanted them each to select a polished specimen to keep for their very own. Some could scarcely believe that they had heard me correctly, and asked me if they could really keep the rock they had selected.

I can only regret that the donors did not have the opportunity to see those happy faces. They would have felt well rewarded for their generosity.

George Dahlin

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MAY LIBRARY NIGHT

The final Library Night of this academic year was a pot-luck picnic held in the picnic area of Lewis & Clark College, May 16th. After a delicious and abundant meal, several followed Leo Simon through the garden as he explained the beautiful plantings. Others headed for the Biology Building and the library to select books for study, taking advantage of the long period before the next Library Night in September.

When all had assembled, a "sing" was lead and accompanied on the guitar by our genial songleader, Truman Murphy. Then Dr. Gilchrist, Library Night Chairman, showed beautiful colored movies he had procured of the Grand Canyon and Navajo Indian lands of Arizona. These were accompanied by a very interesting narration of the geology and history of the area.

About forty GSOCers reluctantly said goodnight to end this pleasant meeting.

J. Walters

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J. Walters

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GSCC FIELD TRIP LOGS, AND WHERE THEY GO

Early in 1962 members of the Geological Society of the Oregon Country scheduled a field trip by railroad on the special Sunset Tour's train up the Deschutes River canyon to Madras. Dr. Paul Howell agreed to prepare a trip log, and rode a caboose along the route to accumulate the material. Others of the Society typed the manuscript, prepared the cover, arranged for the printing and advanced the money ($97.00) to pay the costs. This printing and subsequent issues were sold by GSOC members on each successive trip until the costs of the preparation and printing were paid.

As funds in excess of costs were acquired, new trip logs were composed and printed. For the Banks-Vernonia trip in August 1964, Ralph Mason was the author. Trip logs to Delintment Lake and up the Columbia Gorge were authored by Paul Howell. Cn each log GSOC is indebted to the many members who contributed their time and materials to make each publication possible. Sales of this year's trips of over 900 logs was aided by the efforts of Lloyd and Reba Wilcox, Don and Dorothy Barr, Gwen Helm and Laurette Kenney.

It is uneconomical to print less than 500 logs, and there is generally less cost per log if 1000 or more are printed, but to meet the cost for even ten logs of the quality consistent with the Society's objectives requires about $100.00. Sufficient volume of sales to members and the public depends on having them available at the date and place where the purchasers have the time and the inclination to buy and read them. The Deschutes trip log has been sold in sufficient quantity to pay its way and to subsidize the other logs that have been published. At no time has theGSOC treasury made any funds available for this activity, and the reserve assets contained in unsold trip logs can only be used to produce more publications after those on hand are sold.

The record of trip logs published recently is summarized below:

TRIP LOGS		QUANTITY		DOLLARS		
Location	PRICE EACH	SOLD	ON HAND	EXPENSES	RECEIPTS	DIFFERENCE
Wind River	.10	90	10	3.20	9.00	5.80
Madras - Deschutes	.25	815	213	40.80	203.75	162.95
Banks - Vernonia	.25#	428	141	134.20	97.00	(37.20)
Delintment Lake	.25	70	400	65.00	17.50	(47.50)
Columbia Gorge	.25	80	388	113.75	20.00	(93.75)
Suplee Maps	1.50	12	26	46.58	18.00	(28.58)
Suplee Points of Interest	.50	34	26	23.32	17.00	(6.32)
					Total	(44.60)
					Balance from previous sales	251.30
					Balance May 27, 1966	206.70

200 sold to Vernonia South Park and Sunset Steam Railroad at $20.00 per hundred.

It is proposed that this balance be used to edit and print a new edition of the Deschutes log before next spring.

Fred E. Miller

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CAMASSIA NATURAL AREA

Field Trip
26 March 1966

High on the hillside overlooking the Willamette River and Falls, lies the 22-1/2 acre tract recently purchased by the Oregon Chapter of the Nature Conservancy. This Camassia Natural Area was named for the wild camas flower which spreads a carpet of blue in late April and early May. It was a favorite food of the Molalla Indians who ate the bulb roasted, and who threatened war when settlers took over their camas fields.

On March 26, Mr. "Andy" Corcoran, Geologist with the Oregon State Department of Geology and Mineral Industries, and Mr. Dan Gano of the State Highway Department led the GSOC on a tour beginning with the Highway Department headquarters along McLoughlin Blvd. Here we studied some drill cores taken along the route of the new Interstate Highway, and learned the method used in obtaining these cores. These cores revealed some interesting formations taken from the southeastern edge of Camassia, and one of the contact zones was also visible in a road cut along Willamette Road, just southwest of West Linn. Pillow lavas were also observed in the bank along West A Street, approaching the entrance to Camassia.

Controversy still reigns over whether or not the lavas which make up the north side of the river are entirely Columbia River Basalt, but there is little disagreement that much violent water activity occurred over the face of the area. Many of the beds of wild flowers occur on terraces carved out by the Missoula Flood, and glacial erratics have been found in the lower levels. These are, for the most part, small granitic stones, the largest about the size of a bushel basket. Pockets gouged and lifted from the lava are now small ponds full of aquatic life, or beds of sphagnum moss and other plants, one of which is known to be over 10 feet deep.

In addition to being a very interesting geological sight, Camassia Natural Area contains many plants not usually found in the Willamette Valley. These include kinnikinnic, dwarf huckleberry, quaking aspen, and Grand fir. which usually is found at much higher altitudes. A number of trees and shrubs common to the Valley also may be found growing where they are able to find enough soil. In the next few weeks visitors will see madrona, ocean spray, syringa, and salal in bloom, bordered and interspersed with the brilliant yellow of Scotch broom. Oregon grape and the Erythroniums have passed their prime, but many others will soon follow. Over 300 plant species have been identified to date.

Acquisition of this land was largely due to the efforts of Mr. Murray Miller, who has been studying the area for the past ten year. It was his untiring work here that earned him the National Recognition of the Green Leaf Award last fall. Here, now, is an area which will be left to develop in its own natural way, and will provide a living textbook for all who wish to study it.

Anyone who has not had the privilege of seeing a field of camas in bloom must surely visit this area within the next week or so. Those who were on the trip will know how to get to it. Anyone wishing directions may call Murray, who is always willing to give directions or conduct a tour, as his time will permit. But one way or another, this is a must trip for this time of year.

Irma Sullivan

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APRIL LIBRARY NIGHT

Members who attended Library Night Meeting held at Lewis & Clark College on April 19, found a very elated Librarian greeting all comers who were burdened with armloads of overdue books. The response to Clara's plea* for cooperation in returning books was so successful that regular users of the book stacks may now enjoy a number of publications that have been "out of circulation" for indefinite periods. Good work, Clara.

After the "Quiet Hour" of browsing, we all enjoyed a very well prepared and most informative review of the Geology of Montana presented by George & Jennie Walters. Much of Montana's geologic history is contained in Metamorphic rocks dating bask as far as the Pre Cambrian. An especially interesting part of their program was a display of Montana Metamorphics - some containing fossils. Rock samples showing the phases of metamorphism were displayed by Mark Perrault. Color slides of scenic beauty and geologic interest pertaining to the area were shown and discussed by George & Jennie Walters, Mark Perrault, Truman Murphy and Dr. James Stauffer.

A social hour followed, and everyone enjoyed coffee and cookies served by Dorothy Barr.

-- R. F. Wilbur

*See "Diasterphism", P. 28 of Vol. 32, GSOC News Letter (April 1966 issue). - Ed.

DRAMATIZED BOOK REVIEW
June 30, 1966

In the May 1966 issue of the Geological News Letter* the Board announced the upcoming fund raising project for Thursday, June 30. We are pleased to announce that there will be TWO features rather than one.

Mrs. E. Vernon (Allien) Duncan will dramatize the current book, "The Waters Under the Earth" - a book swelling with interest for all nature lovers. There is no adequate way to properly describe the rare dramatic talent of Mrs. Duncan. She completely captures her audience. You live the story with her. We guarantee that you will leave the program a DUNCAN FAN!

The second part of our program is a first hand account by slides and narrative relative to the article on Central Australia published in the February 1966 issue of the "National Geographic" magazine. This portion of the program is expertly presented by Helen and Ferris White (electrical engineer with Pacific Power and Light), who have recently returned from this area. They will also include glimpses of Tahiti and New Zealand.

Be sure to attend. Bring your relatives! Bring your friends! Since the program is scheduled to begin at 7:30 p. m., doors will be open at 7:00 p. m. to allow time for collecting tickets and for seating. Mrs. Duncan will begin her review at 7:30 p. m.

Tickets are $1.00 and will be available through Mrs. Clair F. (Peggy) Stahl on regular meeting nights. Should you wish to contact her at home, the telephone number is: 281-2220.

REMEMBER: This is your own money raising project, and this is an outstanding program.

Date: 30 June 1966

Place: Terwilliger Plaza Auditorium

Address: 2545 S.W. Terwilliger Blvd., Portland, Oregon

Parking: Ample parking on Terwilliger parking lot, or nearby.

* Page 43, ("Now Hear This")

Jean Griffiths

* * * * * * * * * * *

YOUNG SCIENTISTS TO BENEFIT FROM OMSI SALE

An opportunity is available for GSOC to render a service to the community by joining with others to make available to young scientists and experimenters the surplus and discarded equipment and materials from various companies and individuals centered here. A sale of this type was held on several occasions by the American Institute of Electrical Engineers, Portland Section, before 1963.

The Women's Auxiliary of the Institute of Electrical and Electronic Engineers, Portland, wishes to support such a sale and OMSI is willing to provide space, some assistance, and some of the items to be sold. Proceeds would be divided to further the non-profit objectives of the three participating organizations. Date for the sale would be in late September or early October. GSOC members will be asked to help with the gathering, sorting and operation of the enterprise. Those of you who have items that can be used in the construction of scientific and prototype models, which you wish to contribute, should plan to add them to the display.

Fred Miller

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GROWING ADMINISTRATION

The list of Committee Chairmen shown on the following page (52) was intended for inclusion in the May issue to coincide with the appearance of the new Officer List (Executive Committee, Activities Chairmen, etc.) inside the front cover. In fact, the original intent was to show all of the 1966 administration on one page. However, as should be apparent, space would not have permitted this, even with photographic reduction. GSOC is fortunate to have such a large group of willing workers.

Editor

BY-LAWS

of the

GEOLOGICAL SOCIETY CF THE OREGON COUNTRY

A Corporation

ARTICLE I

Name, Location, and Cbject

Section 1. The Name of this Corporation shall be the GEOLCGICAL SOCIETY CF THE OREGON CCUNTRY.

Section 2. The offices of the Society shall be located in the City of Portland, Cregon.

Section 3. The objects of the Society shall be:

(1) To provide facilities for members of the Society to study Geology, particularly the geology of the Cregon Country.

(2) The establishment and maintenance of a library and museum of geological works, maps, and specimens.

(3) The encouragement of geological study among amateurs.

(4) The support and promotion of geologic investigation in the Cregon Country.

(5) The designation, preservation, and interpretation of important geologic features of the Cregon Country.

(6) The development of the mental capacities of its members in the study of geology and the promotion of better acquaintance and closer association between those engaged in the above objects.

ARTICLE II

Membership

Section 1. The Society shall be composed of members who, by knowledge, experience, and honorable standing are qualified to advance the objects of the Society, and who shall be elected to membership as hereinafter provided and shall be divided into four classes of membership, as follows: Junior, Member, Fellow, and Honorary Life Fellow.

Section 2. The Executive Committee, in its discretion, may issue membership cards in such form as they may determine.

Section 3. Qualification for membership:

(1) A Junior shall be a person over eighteen and under twenty-one years of age or a regularly enrolled student of a college or university while carryong on studies toward a degree, such status not to exceed four years.

(2) A Member shall be a person at least twenty-one years of age, who is interested in and supports the aims and objects of the Society, and who has been recommended by the membership committee.

(3) A Fellow must be elected by unanimous vote of the Executive Committee for outstanding contribution to the welfare and objectives of the Society and attainment in the field of geology.

(4) Honorary Life Membership must be elected unanimously by the Executive Committee to a member with a background of ten or more years in good standing of paid membership in the Society and who has made an outstanding contribution to the welfare and objectives of the Society. Maximum of one Honorary Life Membership may be awarded in any one Society year and total of such memberships shall be limited.

(5) All past presidents who are members in good standing shall, in view of their services, automatically become Fellows of the GSOC at the completion of their term of office.

ARTICLE III

Dues

Section 1. The annual dues for a Junior shall be $2.50, the annual dues for members living in counties not adjacent to Multnomah County shall be $3.50, and all other members shall pay annual dues of $5.00; provided, however, that there shall be extended to the wife of husband of a member, as the case may be, 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.

Section 2. Dues shall be payable annually, in advance on or before March first of each year. All applications for membership shall be accompanied by the first year's dues. The Executive Committee, by resolution, may fix part year dues for applicants for membership, which shall only be effective for the balance of the year in which such application be received.

Section 3. Any member whose dues are more than two months in arrears shall be notified by the Secretary, of his delinquency. Should said delinquent dues not be paid when they are four months in arrears, the delinquent member shall lose his right to vote; if such dues become six months in arrears, the delinquent member shall forfeit his connection with the Society. Any member delinquent in his dues shall not receive the publication of the Society.

ARTICLE IV

Officers and Directors

Section 1. The Cfficers of the Society shall be a President, a Vice-President, a Secretary, and a Treasurer, and said officers shall act as members of the Board of Director, and in addition thereto three Directors at large shall be elected as hereinafter provided.

Section 2. The Board of Directors shall be known as the Executive Committee, and shall be composed of nine members, as follows: The two latest living past Presidents continuing to be members, the President, Vice-President, Secretary, Treasurer and the three Directors at large provided for in Section 1 of this Article IV.

Section 3. The terms of office of all officers shall be one year with the exception of the Directors who shall serve for three years, provided that at the first election the nominee for director receiving the highest number of votes shall serve for three years,

the nominee receiving the next highest number of votes shall serve for two years, the nominee receiving the third highest number of votes shall serve for one year. Thereafter one Director shall be elected each year. Until such time as the Society has existing living past President, the positions provided for them on the Executive Committee shall be filled by appointment by the elected members of the Executive Committee.

Section 4. The Executive Committee shall appoint officers to all vacancies except that the Vice-President shall complete the term of the President in case of a vacancy.

Section 5. The President shall be ineligible for re-election to succeed himself.

Section 6. The Editor of the official publication of the Society shall be nominated and elected at the same time and in the same manner as are the officers of the Society for a term of one year, but shall not be a member of the Executive Committee.

ARTICLE V

Management and Duties of Cfficers

Section 1. All the powers of the Society shall be vested in the Executive Committee, who shall manage the affairs of the Society in accordance with the Articles of Incorporation, By-Laws and such statutes as may apply to this Corporation.

Section 2. All expenditures of money shall be made on the authorization of the Executive Committee. There shall be on record with the banks holding the Society's funds, the signatures of the President, Secretary and Treasurer. The monies of the Society shall be disbursed by bank voucher bearing the signatures of the President and Treasurer, and in the absence of either, the signature of the Secretary may be substituted for either one.

The Executive Committee may make a blanket authorization for the fiscal year at the start of the fiscal year for the payment of routine monthly bills of printing and mailing of the News Letter and calendars and rentals of meeting quarters.

Section 3. The President shall serve as the executive head of the Executive Committee. The President shall have general supervision of the affairs of the Society. He shall preside at the meetings of the Society and of the Executive Committee and shall be ex-officio member of all committees.

Section 4. The Vice-President shall preside at meetings when required to do so by the President or in the absence of the President, he shall exercise the duties of that office.

Section 5. The Secretary shall be under the direction of the President and the Executive Committee. He shall be expected to attend all meetings of the Society and of the Executive Committee and prepare the business therefor and record the proceedings thereof. He shall see that all monies due the Society are collected. He shall scrutinize all expenditures and use his best endeavour to secure economy in operation of the Society. He shall personally certify to the correctness of all bills and vouchers on which money is to be paid, to the best of his ability and belief. He shall perform all duties which may be assigned to him from time to time by the President of the Executive Committee.

Section 6. The Treasurer shall receive all monies and deposit the same to the name of the Society. He shall pay all bills when so authorized by the Executive Committee by means of bank voucher under the provisions of Section 2 hereof.

Section 7. At the expense of the Society, the Treasurer may be required to give bond in such amount and form and with such sureties as the Executive Committee may determine.

ARTICLE VI

Fiscal Year

Section 1. The fiscal year of this Society shall begin with the first day of March of each year and end with the first day of March of the succeeding year.

ARTICLE VII

Meetings

Section 1. Meetings of the Society shall be held at such times and places as fixed by the Executive Committee.

Section 2. The annual meeting of this Society shall be held at some time during February, at such time and place as may be fixed by the Executive Committee, at which time the officers of the Society for the ensuing year shall be elected. Twenty members shall constitute a quorum at any meeting of the Society.

Section 3. Regular meeting of the Executive Committee shall be held immediately following the annual meeting, and special meetings of the Executive Committee may be held at such times and places as the President shall designate. At all meetings of the Executive Committee five or more members shall constitute a quorum for the transaction of business.

Section 4. Notice of the annual meeting of the Society shall be sufficient if the time and place thereof be designated in the official publication of the Society. At least 24 hours notice shall be required of the Executive Committee.

ARTICLE VIII

Nomination and Election of Officers

Section 1. A Nominating Committee shall be appointed consisting of five members, none of whom shall be officers or Directors of the Society. Not later than the 15th day of December, prior to the time of the annual meeting of the Society, the nominating committee shall file with the Secretary its nominations, containing the name of one nominee for each office to be balloted on. On or before the 15th day of January of each year, the Secretary shall notify the members in writing, or by a publication of the Society, the names of nominees for each office. Other nominations may be made by members of the Society by filing with the Secretary, on or before the 25th day of January of each year, a list of such nominations, which shall be signed by at least ten members of the Society. The names of the additional nominees shall be communicated by the Secretary to each member either by writing or by publication in the official publication of the Society, which communication shall be made not less than ten days prior to the annual meeting.

Section 2. A letter ballot containing the nominees of the regular and special tickets shall be enclosed and mailed to each member. All ballots must be returned and in the hands of the Secretary prior to the annual meeting at which meeting the Secretary shall

announce the result thereof. In case a majority of all the ballots shall not have been cast for any candidate for any office, the Society shall proceed to make an election, in open meeting, for such office from the two candidates having the highest number of votes.

Section 3. All officers elected shall take office as of the first of March following the annual meeting.

ARTICLE IX

Order of Business

Section 1. The order of business at the regular annual meeting and all business meetings shall be in conformance with Roberts' Rules of Crder, or any other rules of order adopted by the Executive Committee.

ARTICLE X

Seal

Section 1. This Society, as a corporation, shall have a seal, the impression of which shall be as follows:

(Not reproduced)

ARTICLE XI

Committees

Section 1. The Executive Committee may create such committees as it may deem advisable, and appoint the members thereof.

Section 2. All committees shall be appointed by the Executive Committee not later than thirty (30) days after the regular annual business meeting. All committee members shall perform the duties of the respective committees until their successors are duly appointed. The number of members on the various committees shall be left to the discretion of the Executive Committee.

ARTICLE XII

Amendments

Section 1. Proposed amendments to these By-Laws must be reduced to writing and signed by not less than ten members in good standing, except such amendments as made by the Executive Committee, and amendments shall be submitted and acted upon as follows:

Section 2. Proposed amendments shall be filed with the Secretary who shall submit same to the Executive Committee at its first regular or called meeting thereafter for its approval or disapproval. At least fifteen days prior to the date of the regular annual meeting the proposed amendment, accompanied by the action of the Executive Committee,

shall be mailed to each member of the Society. If the proposed amendment is filed with the Secretary more than ninety days prior to the regular annual meeting a letter ballot may be enclosed with said proposed amendment, which ballot shall be returned to the Secretary within fifteen days from the date of mailing by the Secretary. No proposed amendment shall be considered at the regular annual meeting unless filed with the Secretary at least thirty days prior thereto.

Section 3. If the proposed amendment has been approved by the Executive Committee, then an affirmative vote of a majority of all ballots cast shall be necessary to the adoption of the amendment.

If the proposed amendment has not been approved by the Executive Committee, then an affirmative vote of two-thirds of all ballots cast shall be necessary to the adoption of the amendment.

Any amendment defeated by letter ballot shall not be re-submitted for adoption except at a regular annual meeting or until one year has elapsed.

Amendments shall become effective immediately, provided that the officers of the Society, at the time any amendment may be adopted shall continue in office until the expiration of the time for which they were elected.

Section 4. Notwithstanding the foregoing provisions in this Article XII, the Executive Committee may by a two-thirds vote of those present at a meeting duly called, amend the By-Laws provided that the Secretary shall have given written notice of such amendment to each member of the committee at least seven days before the meeting at which action thereon is to be taken. Such amendments shall become effective immediately but shall be submitted for ratification at the next succeeding annual meeting.

ARTICLE XIII

Chapters

Section 1. Formation and Designation:
Ten (10) or more persons, who are interested in carrying out the objects and purposes of this Society, may petition the Society as herein provided, for a Charter from the Society, and if granted such persons may hereafter form a Chapter of the Society, subject, however, to the Articles of Incorporation and By-Laws of the Society. Chapter shall be designated by consecutive numbers, followed by the name of the city or town where the chapter is located.

Section 2. Petition:
Petitions for the formation of Chapters, and the granting of a charter shall be addressed to the Society, and shall be signed by not less than ten (10) persons, as herein provided, and shall set forth, among other things, the location of the proposed Chapter, and the names and addresses of the charter members of the proposed Chapter.

Section 3. Charter:
If such petition be granted, the Society, shall issue a Charter certificate to such Chapter, in such form as may be authorized by the Executive Committee. Petitions for such charters for the formation of Chapters, shall be considered at the Annual Meeting of the Society. After granting of charter, all members of such chapter shall then be members of the Geological Society.

Section 4. Dues and membership:
Any Chapter of the Society shall have the right to fix the dues of such Chapter, provided, however, that the minimum dues fixed by any Chapter, shall not be less than the dues fixed by the By-Laws of the Society. Each Chapter shall remit to the Treasurer

of the Society not less than Two Dollars ($2.00) for each member on the rolls of such Chapter, such remittance to be made on or before the 1st day of April, of each year, the names and addresses of the members in good standing in such Chapter as of March 1st of each year.

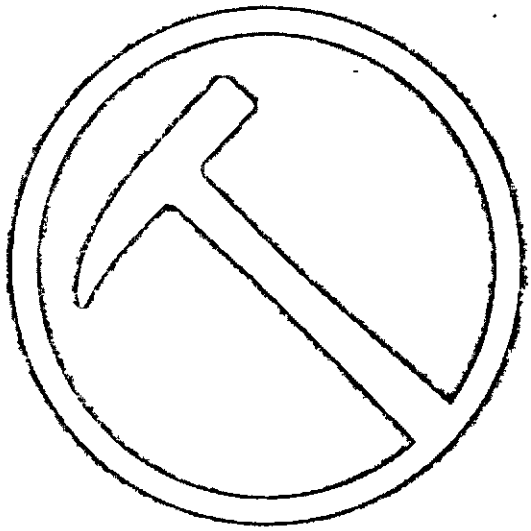
Section 5. By-Laws:

Each Chapter and the members thereof, shall be governed by the By-Laws of the Society, but each Chapter shall have the right to adopt any additional by-laws or regulations solely for the government of such individual Chapter, provided, however, that such additional by-laws or regulations shall not conflict with the Articles of Incorporation of this Society or the By-Laws of this Society, or the laws of the United States or of the State of Oregon or any other state in which the Chapter might be situated.

Section 6. Revocation of Charter:

In the event that any Chapter shall fail or refuse to abide by the Articles of Incorporation or By-Laws of this Society, or regulations promulgated by the Executive Committee, or violate any of the provisions of such Articles, By-laws or regulations, the Executive Committee may revoke the Charter of such Chapter, at any regular or special meeting of the Executive Committee provided, however, that at least ten (10) days notice in writing shall be given by the Secretary of the Society to the Secretary of such Chapter, by registered mail, notifying such Chapter of the time and place of such meeting of the Executive Committee. At such meeting any member or members of such Chapter may appear before the Executive Committee and show cause why such Charter should not be revoked.

July 196



THE GEOLOGICAL NEWS LETTER

Official Publication of the Geological Society of the Oregon Country

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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

editor	EWEN, Mr. Irving G.	4128 N. E. 76th Avenue	Portland, Oregon - 97218	281-7098
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

G. S. C. C. CALENDAR FOR JULY 1966

Please note that all meeting times indicated are Pacific Daylight Saving Time

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

12:00 M. - Bring a friend - if you have one - to the Thursday luncheon at the Y. Lay in what luncheon supplies you require at the cafeteria base camp, then wend your way along the trail through the Foothills Room to the Mountain Room and relax and enjoy your lunch with other GSCC'ers here foregathered in the friendly atmosphere of geological and other gossip.

For further information telephone Mr. Leo F. Simon, Luncheons Chairman, at 236-0549.

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

7:30 P. M. - Mr. Jasper Holland will give an illustrated talk on the geology and life in Tunisia. Mr. Holland is on the staff of the Soil Conservation Service.

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

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

7:30 P. M.- Mr. Ralph Mason of the State Department of Geology and Mineral Industries will acquaint us with the Lunar Project and the lunar country in preparation for the forthcoming President's Campout in August.

23-24 July Sat.-Sun. — FIELD TRIP - Two day trip to the Powell Buttes and Bear Creek areas via private car caravan.

Saturday — 9:00 A. M. - Assembly point will be at the Crook County Courthouse, Prineville, approximately 155 miles from Portland on U. S. Highway 26. Dr. Don Gorman, Department of Geology, Portland State College, will be our leader, and Saturday will be spent among the Powell Buttes.

Sunday — 9:30 A. M. - Assembly point will be the same as on Saturday. This day will be spent in the Bear Creek area exploring and theorizing on geologic formations which we are hoping will be new to all of us, as it is our understanding that this will be the initial trip into the Powell Buttes and Bear Creek for the GSCC'ers.

Camping facilities for those who wish to camp out will be available at the Ochoco Reservoir approximately five miles east of Prineville on Highway 26, or Wildcat Campground approximately fifteen miles Northeast of Prineville.

Bring the usual recommended accessories - geology pick, hand lens, camera, lunch, bumper cards, etc. For further information call Mr. Lee T. Gavigan, Field Trips Chairman, at 289-8041.

ADVANCE CALENDAR FOR AUGUST 1966

12 August Friday — ANNUAL PICNIC - Traditionally held in the cinder cone of the Mt. Tabor Volcano. You mustn't miss this!

13 August Saturday — PRESIDENT'S CAMPOUT - A week or more of supurb geology, scenery, investigation and general enjoyment at beautiful Todd Lake on the fringe of Oregon's "moon country", the target area of the Campout. For further information see letter from Phil Brogan on page 62 of this issue of the NEWSLETTER; article in the June 19th Sunday Oregonian by Phil Brogan, or call Mr. Lee T. Gavigan, Field Trips Chairman, at 289-8041.

NEWS OF MEMBERS
by Rowena Hoven

MRS. JOHN C. KUHNS was one of two grandmothers in a recent article in the Oregonian (including pictures) who have earned college degrees this year. Mrs. Kuhns received a bachelor of science degree from Portland State College at the age of seventy-three. Her academic interest was first inspired many years ago when she lived in an Eastern Oregon town where card playing was the only activity. At that time she determined - if she ever had the opportunity - to go to college and learn something besides how to play cards. Mrs. Kuhns became interested in a course in geology she took at Portland State, and this prompted the Kuhns to become members of the Geological Society. Mrs. Kuhns has just proved that there is no excuse for being a drop-out at any age, and our warmest congratulations to her!

HAROLD L. DEYOE, we are sorry to report, is moving to Port Angeles. We nope that he will continue his membership and keep us in touch with him and the Port Angeles area through the NEWSLETTER.

SHIRLEY O'DELL has returned from a marvelous one month trip to such interesting places as Egypt, the Aswan Dam, Jordan, Turkey and Greece. In Athens she visited some former Portland friends. She found Greece to be a very beautiful country, and of course most fascinating from an historical standpoint. Jordan was another country in which she would have liked to linger longer.

From the NEWSLETTER'S star reporter, IRMA SULLIVAN, we get the report that she will not be with us this summer. She is going to summer school at Oregon State University at Corvallis, and will be carrying fourteen hours of credits, most of which will include a great deal of writing. While we are sorry to lose her we are hopeful that she will be back with us again in the fall. Until then, the three articles in this issue under her by-line are the last we are likely to have from her. Good luck, Irma, and please come back in September!

While IRV EWEN, editor of the NEWSLETTER, is making a geological survey of New York City a few of his old buddies have been trying to get this issue of the NEWSLETTER on the press. While they quite understandably refuse to divulge their identities, they do hope that Irv will be back in time to put next month's NEWSLETTER to bed

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MEMBERSHIP ROSTER

NEW MEMBERS	street address	city, state and zip code no.	telephone
YANTIS Mr. and Mrs. Luther	3325 S. E. Pinehurst Ave	Milwaukie Oregon - 97222	654-6906
MUCK * Miss Laurie	Route 3, Box 905	Gresham, Oregon - 97030	658-2698
KJOS Mr. and Mrs. Martin	7944 N. Hereford Avenue	Portland, Oregon - 97203	289-2337
ADDRESS CHANGES			
ALLISON Mrs. Isabelle	Route 3, Box 905	Gresham Oregon - 97030	658-2698
DEYOE Mr. Harold L.	City Center Trailer Court	Port Angeles Washington - 98362	
FITE Mr. and Mrs. George	1301 National Avenue Space 39	Chula Vista California - 92011	

* Junior Member

WELCOME FROM BEND

In anticipation of the 1966 Annual Campout we publish this letter of welcome from our old esteemed friend and fellow-member, Phil Brogan.

Mr. Lloyd A. Wilcox, President
Geological Society, Oregon Country

Word has just reached us that Geesockers are to hold their 1966 summer campout on the fringe of Central Oregon's "moon country". The base camp is to be at Todd Lake, one of the most beautiful of all Cregon lakes, in a bowl scooped out long ago by a Cascade glacier.

It has been my pleasure to visit that spot many times in recent years, and to join, one fine summer evening, with Girl Scouts in an international "campout". Sunset rays lingered on Fujiyama-like Bachelor Butte that evening, but when darkness came, there was a special show: A fine play of northern lights over the rim where a huge Pliocene mountain, Broken Top, later sculptured by Ice Age glaciers, once ruled.

We of Central Oregon are sure the Geesockers will enjoy the camp area, and the volcanic and glacial geology that crowds to the lake edge.

Over a high rim back of Todd Lake are the Three Sisters, a cluster of volcanoes which spewed lavas into the lowlands until a few hundred years ago. Trails will take the Geesockers into that lavaland, and its spectacular features. Nearby, on the northeast base of the South Sister, is the great, wrinkled Newberry flow, named for the doctor-geologist-botanist, John S. Newberry, who scouted this region in 1855. Alpine Geesockers will find the South Sister easy to climb--and easy to study.

On the southern skirts of the South Sister, in the Mesa area, are many spectacular features noted by Dr. Howel Williams in his study of the region. One of these is LeConte crater, named for a pioneer geologist, Joseph LeConte. That recent crater is covered with Ice Age debris. How come? Apparently a volcanic explosion from a nearby crater tossed the older debris on the slopes of LeConte, a crater formed possibly less than 500 years ago.

Enroute to the Mesa and LeConte, the Geesockers will trail past a recent cone, Cayuse Butte, which scattered bombs over the countryside. They range in size from peanuts to block busters.

Todd Lake, easily accessible, can serve as the base for drives into the volcanic moon country, where astronauts are again to train this summer. Directly to the south are the Paulinas, with two beautiful lakes in Newberry Crater, also named for the pioneer explorer. Easily reached is the new U. S. Forest Service Visitor's Viewpoint on Lava Butte. There will be found, in color, an artist's conception of the initial and final phases of the Lava Butte eruption.

Geesockers attending the campout need not spend all their time studying cones, craters, lava flows, obsidian tongues, vents and dacite mesas: Within a stone's throw of camp are found some of the finest "glacial trails" found in the Northwest. Many of the trails, cut into old lava rocks, radiate from the missing dome of ancient Broken Top.

It is my belief that the 1966 campout at Todd Lake will be one of the most interesting in GSOC history. I will be seeing you there.

Phil F. Brogan.

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THE SPOOR OF THE QUARTZITE

by Lloyd A. Wilcox

Most of you are aware of the passionate interest shown by Dr. Paul Howell whenever the subject of Quartzites is approached. This interest has led him to devote his leisure time to tracing them across the face of Oregon, through the epochs of geologic time, to their source in the Proterozoic sediments of the northern Rocky Mountains.

He vows that when his search is finished he will have his findings published and thus will be filled another page of Oregon's geologic past. Now this sounds all right on the surface, but Paul is a scientist, and like all scientists, he is prone to demanding unqualified documentation of each and every fact. This sort of thing can stretch a publishing schedule to interminable lengths.

Being of a rather unscientific mind myself, and with no such inhibitions, I would like to acquaint you with a bit of the events in the life of a man as he follows the spoor of his quarry.

Paul was in the field a week before I joined him at a prearranged spot he had pencilled on a map. Accompanying me was my son-in-law, Mr. Norman Cooper, hereinafter referred to as Cub. Only 10 minutes late on the scheduled day, we pulled up to a sage bush behind which was parked a little black Peugeot filled to the brim with Paul, Sooty, camping equipment, and sporting a bunch of burned valves.

After the briefest of greetings we headed for the country behind Hampton Butte where rumor had it that Quartzites were to be found. Along the way we stopped at a huge slab of welded tuff tilted towards the sky, and beat upon it lustily with our hammers. This rock is a favorite of Ralph Mason. It produces noise of tonal quality when struck (that's why we beat upon it lustily with our hammers). Ralph wants it for a yard rock. Anyone with the facilities for transporting a 10 x 15 foot slab of rock 2 feet thick to Ralph's front yard will gain his never ending gratitude.

But to get back to the Quartzites. Rumor was right. We stopped in the area and a diligent search rewarded us with four or five Quartzites about the size of a hazel nut. We had found our ancient river! It would have done your heart good to see how Paul perked up! We spent the next three hours on our hands and knees in the sage brush and succeeded in acquiring about fifteen or twenty of the little buggers. They were secured in a sack which was properly labeled as to contents, location, date, temperature, direction of wind, and other pertinent data, and we then continued our journey down the road. A mile or so further we ran into Quartzite boulders up to 13 inches across and so thick it was impossible not to walk on them. They were lying on top of Ciarno tuffs but our attempt at fixing their position stratigraphically in relation to the Columbia River Basalt ended in failure since the only Coriba mapped in the area turned out to be a very thick formation of agglomerate of uncertain age.

Traveling east and then south around the northern side of Hampton Butte we found one more deposit of our favorite cobbles, this time beneath a rimrock of Rattlesnake tuff.

Our search was complicated by the fact that our USGS map showed the road cutting across several canyons in succession in a southerly direction while we found ourselves traversing a single canyon in an easterly direction. It was a little used road as evidences by its being completely washed out by cuts up to 10 and 15 feet deep that were eroded by the heavy melt of snow in December of 64.

It was somewhere along here that Cub proved to be of great value in map reading and became the official navigator of our expedition since his guesses were more often correct than certain other people's were.

After sixteen hours in the saddle we dismounted in Burns where a thick steak and a hot shower eased our pains and brightened considerably our future plans. I heartily endorse this camping out in a motel. No problems at all like the night before when Cub and I camped out on the top of Glass Butte. The temperature dropped to 20 that night on the floor of the desert. We were about 2000 feet higher. We had no thermometer along but I can tell you this---Our breath froze in a layer of ice on our sleeping bags. And later on while sitting on the camp stove and gulping coffee we were startled by a series of noises which we could only interpret as Cub's snores of the night before as they thawed in the warming air!

But back to the Quartzites. We left Paul's Peugeot in the care of District Ranger C. E. Weissenfluh (our host at Delintment Lake last summer) and headed north from Burns on highway 395. Some 25 miles or so from town we darted off the road between two trees and started

The Spoor of the Quartzite -

climbing up the side of a mountain heading east. Toward the sun. Literally. Paul's theory is that if Quartzites are to be found they will be found on TOP of the mountains. Or if they are found in the valleys they don't count because they could have been washed down there from their original place of deposition. At any rate, we looked for them on top of the mountains, and if the road didn't reach the top we walked. I remember one "hill" in particular. Telephone Butte. They named it thus because there wasn't a telephone within two days travel of the place. We had no altimeter along so I don't know how high it was. We had no thermometer along so I don't know how cold it was. But near the top Sooty spooked a deer and she was wearing a sheepskin coat and packing a tank of oxygen! For three days we didn't come down below 6000 feet. We didn't find any Quartzites either. Paul was very disappointed over this but I consoled him with the thought that if he mapped every place he DIDN'T find a Quartzite, then what was left would surely be the course of the river he was seeking. Isn't that logical?

Three days of low gear driving from dawn to dusk convinced us that the geology of the area between Burns and the Strawberry Mountains east of highway 395 was fascinating but unproductive so far as we were concerned so we turned our attention to the area west of the highway. Here we met with much better success, finding several locations teeming with our elusive cobbles up to a foot in diameter. These compare in size with any Quartzites to be found along the banks of our Columbia River of today and thus betoken a mighty river rolling towards the sea. They trend from northeast to southwest, then bend west through the Bernard ranch in the Suplee area and on to the north of Hampton Butte. And there the trail ends. Today. But rumor has it that a Quartzite was uncovered down by Cottage Grove. That's good enough for Paul. Tomorrow you will find him across the Cascades and back on the Spoor of the Quartzite.

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ACCOLADE

In perusing a May number of the Marine Digest we were delighted to come upon this most interesting item concerning the featured speaker at our last March's well-remembered annual banquet --

DR. DIXIE LEE RAY WINS TCP AWARD

Seattle - The Maritime Man of the Year for 1966 is not a man, but a lady, and a prominent one at that. Dr. Dixie Lee Ray, Director of the Pacific Science Center, has won the coveted Fred W. Geibel award, and is the first woman to be so honored. The award, presented by the Maritime Press Association, was made at the Maritime Day Luncheon at the Chamber of Commerce.

Spearheads Study

Dr. Ray has spearheaded the Puget Sound Oceanography Study Committee and has been instrumental in bringing a whole new field of endeavor to the Puget Sound country. She is considered one of the most brilliant members of her profession as well as a civic leader.

The Society extends its warmest congratulations to Dr. Ray.

Editor.

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FURTHER ADVENTURES OF THE DUNNS

On a series of postal cards to the Gavigans from May and Paul Dunn who are presently investigating some of the more interesting aspects of Ecuador, Sud America, we have gleaned the following colorful items--

Arising at 5:00 A. M. one morning, they took a bus from their headquarters in Quito for 55 miles to an Indian market. What made this trip memorable for May was that passengers and produce - chickens, pigs, sheep, etc., all rode together on the same bus. No comment about this from Paul. On this same trip they saw El Cotopaxi, elevation 19,344 feet, the highest active volcano in the world.

Later they luxuriated in the baths at Banos, a favorite spa, and the gateway to the vast trans-

CHRONICLE OF THE PAINTED HILLS FIELD TRIP

By Irma Sullivan

Being an account of the events experienced by one member of the expedition who thoroughly enjoyed the trip and entire company.

SATURDAY, MAY 28 -

Arrived at Marks Creek Campgrounds about 10:00 A.M. Found several GSOCers already there, having arrived the evening before. Included the Stauffers, Simons, others. Looked the grounds over and carefully chose a spot next to a very convenient picnic table. Happened to be the driest, dustiest, sandiest spot in the entire grounds, downwind from the entrance road. No matter. Water from a spring. Seems to drain from lodge area so decide to use only for washing. Other GSOCers gather soon. At "approximately 1:00 p. m." we rendezvoused at Painted Hills State Park. A beautiful exposure of John Day formation in almost unbelievable layering and blending of colors Very spectacular. Just beyond found a new bed of leaf fossils. Some nice specimens, also brilliant sunburn. Murray Miller turned up missing - but not lost. Jack Pollards arrived in radiant red Citroen.

Late campfire in evening. Usual singing, review of day, plans for tomorrow. Margaret Steere produced some charts of area to clarify relationships of fms. Screech owls carried on late. Someone forgot to turn off one frog. Lovely somniferous sounds.

SUNDAY, MAY 29 -

Woke to sound of rain. Birds also awakened. Chattering turned to singing as rain ceased. Muted voices of early rising campers. Soft wind in tree tops. Someone awfully busy with axe. Heading toward Mitchell, stopped along highway to study roadcuts. Very interesting. Chart proving very helpful. Recipient of some fine specimens. Will be useful in teaching. Huge, beautiful Ponderosa pine cones. Difficult to reach, but too rare to pass up.

Jackson Brothers' Ranch yielded interesting specimens of pelecypod and ammonites from lower Cretaceous "Mitchell Shales:. More ambitious types hiked some distance to a Permian limestone outcrop or dug for fossils on nearer hillside Yours truly sacked out.

Another late campfire. Tales of previous trips related. Some hints that certain tales best not told. Coyote chorus notably lacking.

MONDAY, MAY 30 -

More rain this morning Seems to mean business this time. Planned to leave early, now decide to go even earlier. No raincoat. (- in central Oregon?) Rather damp breaking camp. Motor balky. Delayed Rain badly needed, so no complaints. Many have gone. Everyone on own, scattering singly or in groups. Stopped in Rock Shop, Prineville. Looking for Thunderegg for souvenir gift. Rather disappointed in selection available. Persuaded to stop at Petersons's Rock Garden. Very pleasant surprise. Beautiful, tasteful, amazing collection. Also large selection of Thundereggs. Passed reflection, horrified at personal appearance! Wonderful week-end, nevertheless.

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GREETINGS TO DR. GORMAN

Dr. Donald R Gorman, Professor of Geology and Geography at Bradley University, Peoria, Illinois, and Professor of Geology at Portland State College, Summer Session, arrived in Portland with Mrs. Gorman and their family just as the NEWSLETTER was going to press.

We all remember Dr. Gorman as our enthusiastic and capable leader of last summer's field trip to Bald Peter and the Warm Springs Indian Reservation, and we are again fortunate to have him as our leader for the two-day field trip on July 23-24 to the Powell Buttes and Bear Creek areas in Central Oregon. So . . . circle your calendars and join us on this trip into an area we haven't had occasion to explore before.

- L. T. G.

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CHARTER MEMBER CHARTS THE ANDES

Every once in a while some of us relatively new members are treated to a very pleasant surprise when one of the charter members appears on the Friday night program. Such was the occasion on May 27th when Dr Arthur Jones spoke on the Andes Mountains of South America.

Dr. Jones is, among many other things, the Head of the Department of Medicine at the MedicalSchool, Past-president of GSOC, a mellifluous member of the GSCC Quartet, and a speaker of highest calibre with a warm wit and a rare fine humor. By his interpretation, the program could have been entitled "An Armchair Trip and Geological Tour from the Northern Cascades to South America and Return by Way of Panama and the Coast Range". (At least, that is what I think he suggested for the title. I may have become lost somewhere along the return trip) At any rate, that is the approximate route covered.

The trip was made for the purpose of delivering a paper before a medical gathering at Lima, Peru. Like all good travelers, Dr. Jones did not neglect his photography. Many of the pictures were taken from the air and were truly magnificent views. Other scenes included the various cities of South America which they visited, with their unique and historic backgrounds. Nor were the famous ruins of the Inca city of Machu Picchu neglected While Dr. Jones touched only lightly upon the geological aspects of the country, he did point out the high limestone shelf from the Cretaceous period which makes up the Bahama Islands, the Eocene coastal mountains and the thin-bedded shale with inter-bedding of limestone from the Cretaceous and Jurasic periods found in Venezuela, and, of course, the Andesite which derives its name from the mountains themselves and is found throughout.

The audience was throughly delighted with the program, and we shall anticipate a return engagement soon.

Irma Sullivan

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NOW HEAR THIS!

At the annual banquet last March everyone was so pleased with the delightful performance adjunct of the Society is being seriously considered Besides being lots of fun, it would be excellent public relations for the Society to have a good quartet It would enhance our organization with more tangible benefits than might be apparent at first consideration.

Unfortunately, much as we would like to, we can't realistically expect that particular quartet to go on forever . . . What we need is new singing talent for fill-ins and replacements . . . So the Society hereby issues a call to all those of good voice who are interested in this worthy endeavor to contact Truman Murphy, 282-2027.

Editor

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GLIMPSES OF THE WASHINGTON CASCADES

A very learned discussion of the relationships of the various formations which make up the Washington and Oregon Cascades was given by Dr. Paul Hammond on April 8th. Dr. Hammond is a graduate of the University of Washington, having received his Ph D. from there in 1963.

One of the most interesting points covered (if any one could be so designated) is the cauldera which occurs in the vicinity of Cle Elum In the Swak formation of Tertiary sediments Dr. Hammond proposes the theory that the cauldera is a collapsed area created when magma flowed out from beneath it at Cone Mountain. He has done some study of the area and plans to return for further study this summer.

An interesting side-light on changing methods of geologic study was brought to light when, during the coffee hour, one of the members who has done many years of field study, remarked that the talk encompassed about thirty years of field work. Dr. Hammond replied that students now not only have the advantage of the work done by earlier students, but much easier access to remote areas by airplanes and foresters' roads. Such are the milestones of progress.

Irma Sullivan

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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.
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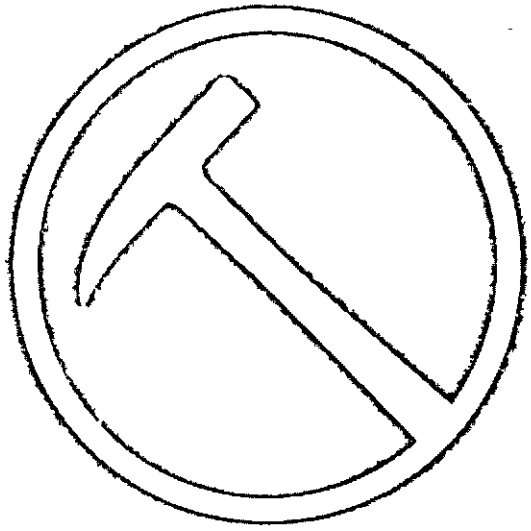

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G. S. O. C. CALENDAR FOR AUGUST 1966

Please note that all meeting times indicated are Pacific Daylight Saving Time

Every Thursday	LUNCHEON - Y. M. C. A., 831 S. W. 6th Avenue, Portland, Oregon 12:00 M. - The Mountain Room, adjacent to the main cafeteria, is the weekly gathering place for GSCC'ers, guests, and visitors (also known as the "geology-while-you-lunch bunch"). Select food from a variety of items at moderate prices in the main cafeteria. Then follow the trail past the Foothills Room to where the group meets to listen to short informal talks, examine rock and fossil specimens, or join in geological discussions. For further information telephone Mr. Leo F. Simon, Luncheons Chairman, at 236-0549.
12 August Friday	ANNUAL PICNIC - In the throat of the cinder cone at Mt. Tabor Park 6:30 P. M. - Pot-luck supper. Bring one of the following: a salad, a hot main dish, or a dessert. Rolls, butter, and beverages will be supplied. Also bring eating utensils for your group; plates, cups, silver, etc. 7:30 P. M. - An interesting program is being arranged for the remainder of the evening. For further information telephone Peigi Stahl, Annual Picnic Chairman, at 281-2220.
	FOURTH ANNUAL GSOC PRESIDENTS CAMPOUT-Central Oregon "Moon Country"
13 August Saturday	Meet at Todd Lake which is about 26 miles west of Bend, Oregon on the Century Drive. Arrival time is optional since there are no scheduled group activities.
14 August Sunday	Bachelor Butte Area. Chair lift ride up the slop for orientation of the country.
15 August Monday	Broken Top Mountain. Short three mile drive to the timberline. Nature walk above the trees.
16 August Tuesday	Lava Butte, Lava River Cave State Park, and Lava Cast Forest. Round trip from base camp at Todd Lake is approx. 88 miles.
17 August Wednesday	Leconte Crater on south slope of South Sister. Three or four mile hike one way.
18 August Thursday	Newberry Crater, Paulina and East Lakes. Round trip from base camp is approximately 162 miles.
19 August Friday	McKenzie Pass Area. Round trip from base camp is approximately 126 miles. Being the last scheduled day of the Campout, some GSOC'ers may wish to break camp Friday morning and continue homeward afterwards. More detailed information can be obtained from article in this issue entitled "Advance Report on the President's Campout".
16 August Tuesday	LIBRARY NIGHT - Not scheduled during the summer months.
26 August Friday	LECTURE - None scheduled during August.

NEWS OF MEMBERS
by Rowena Hoven

KATHRYN SIMS FREER

It is with the deepest regret that we record on July 5th the sudden death of Kathryn Sims Freer . . Kathryn, a member of the Society since 1962, was born in Keokuk, Iowa, but was early removed from there to spend her girlhood years on the prairies of South Dakota.

Graduated from Wayne College, Nebraska, she taught in the South Dakota Public School System until World War II, when she was employed by the Crdnance Department in Cleveland. At the conclusion of the war she worked for the Reconstruction Finance Corporation in Cleveland, Seattle, and Portland, and at the liquidation of that organization--having fallen in love with the Northwest--she decided to make Portland her home, and worked for the Portland Area Office of the Bureau of Indian Affairs, from which she retired only last December, at which time she was married to Bill Freer. *

Modest, retiring, and quietly efficient, Kathryn was for over eight years the supurb Treasurer and mainspring of Local No. 7 of the National Federation of Federal Employees--of which Bill is the President--and to that organization the impact of her death is a staggering blow. The dignity of her death was typical of the dignity of her life. She felt suddenly tired, lay down on her bed, pulled a coverlet over herself, and quietly went to sleep.

In her wide acquaintance she developed a host of friends that crowded St. Stephen's Episcopal Cathedral to pay a last grieving tribute to her at her funeral there at 11:00 A. M. on July 9th. Her interment was at Riverview Cemetery. Surviving her are her husband, Bill, her mother, three sisters, a brother, thirteen nieces and one nephew. Pax vobiscum, Kathryn!

* Bill is Vice President of the GSCC.

NOTE

The Society extends its heart-felt condolences to Bill in his loss and our loss.

Editor

ACKNOWLEDGEMENT

I want to express my deepest appreciation to the Society for the splendid support it gave me in my grief over the loss of Kathryn with a deluge of condolences; for the beautiful floral tributes at her funeral; for the many contributions to the Oregon Heart Association in her memory; and for the large attendance of the membership at her last rites. I want particularly to thank the Society for the lovely spray sent in its name. All this helped to give me solace when I needed solace most. Truly, I didn't realize we could have so many friends, and to them all, all I can say is a humble and heart-felt thank-you!

Most sincerely,
William M. Freer

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ELIZABETH GILLIAM was married to Lawrence F. Barber on July 24th at the Westminster Presbyterian Cnurch. After a short trip to British Columbia, they will be at home at 6422 N. Kerby Street. Mr. Barber is Marine Editor of the Portland Oregonian. Our best wishes to the Barbers.

DR. and MRS. WILMER MILLER of Ames, Iowa, were recent vacation visitors at the home of her parents LEO and JCHANNA SIMON LCTUS MILLER is a long time GSOC member. DR. MILLER is with the Iowa State University.

JACK McCOURTNEY and IRV EWEN have returned from a month's trip to the east coast. They stopped at the Lewis & Clark caverns in Montana and also spent some time in the Black Hills of So. Dakota visiting the Homestake Mine, the largest operating gold mine in the western hemisphere. Other points of interest were Washington, D. C., New York City, Philadelphia, New England and Ottawa. They were fortunate (?) enough to get in on the record heat wave that lasted about a week in the East

LEO SIMON has been a member of the Men's Garden Club in Portland for over 25 years. Recently the club made him a Life Member. Leo is known as the club's "information bureau" and evidently the members wished to always be assured that his vast fund of information would be available to them.

LEO SIMON also has been elected the leader of Deutcher Mittags, a German-speaking luncheon club, that meets on the first & third Wednesdays of the month at YMCA. It is primarily a language club and only German is spoken at the luncheon meetings. Congratulations on your many honors, LEO.

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THE UPPER CLACKAMAS RIVER

by Bob Hart

Field Trip by car caravan
Sunday, 26 June 1966

Bright and early Sunday morning, June 26th, Geesockers sped from their home to make a 9:00 A. M. rendezvous at the bridge a quarter mile southeast of the town of Estacada to begin a field trip to the upper Clackamas River under the familiar guidance of Dr. Paul Howell. No matter from which direction a Geesocker had come he was showered by the radiant warmth of the 80% chance of sunshine promised by "Mr. Weatherman" Bob Lynot at the previous Friday evening GSOC meeting.

When he counted 27 cars overflowing the designated area of assembly Dr. Howell lost his composure just a bit (something he rarely does, except when confronted with quartzite pebbles where he wouldn't expect them to be). Quickly he and us move up river to a more suitable parking place where he pleaded for a little more "togetherness", and by increasing the number of occupants per car, cut the caravan to a more easily managed 17 cars.

Before beginning the trip up the Clackamas, Dr. Howell gave us a run down on the geologic formations of the area, and a preview of the stops of interest to be made during the day.

SEQUENCE OF GEOLOGIC EVENTS OF THE UPPER CLACKAMAS RIVER COUNTRY

The oldest formation known in the Western Cascades is the Bull Creek Formation which is exposed only near the mouth of Bull Creek along the Clackamas River. The age of the Bull Creek is not known for certain because of the absence of fossils or other means of correlation. It may be contemporaneous with the Clarno Formation. Probably in Eocene times, or even earlier, the Bull Creek, high in sandstones and shales, was deposited in a fresh water estuary or lake environment. Bull Creek sandstones and shales contain a conglomerate fairly high in silica which in turn is made up of lava, rhyolite and dacite stones, and weathers to a characteristic rusty color. At some time after its deposition, and prior to Upper Oligocene times, the Bull Creek deposits were strongly folded due to compression. During and after this folding a period of extensive erosion leveled and smoothed the country side into mature rolling hills with the total relief being no more than a few hundred feet.

Later, between Upper Oligocene and Middle Miocene times, heavy rains caused loose ash, rock fragments, and large boulders of volcanic rock to rush down the sides of volcanos to be locally deposited in lakes and swamps to become today's Eagle Creek Formation. The Eagle Creek volcanic agglomerate, which is correlative with the John Day Formation, contains many fossilized logs and is grey-green in color due to the mineral chlorite. The slumping of the Eagle Creek over the strongly folded Bull Creek Formation is responsible in part for concealment of the Bull Creek outcrops except in the one place.

After a period of erosion, and during the Middle Miocene, the well known Columbia River Basalt or "Coriba" was extruded in 17 or more separate flows. These flows hardened to a dense dark-gray fine-grained rock in which columnar joint is common near the bottoms of the flows. The sheer cliff forming "Coriba" was gently warped and folded in anticlines and synclines before or during the early Pliocene epoch. This folding does not show well in the Clackamas River country, but the Bingen anticline and the Mosier syncline are good examples in the Columbia River gorge.

After the land again was subject to the ever present agents of erosion and during the beginning of the first volcanic activity which later was to develop the silhouette of the Cascade Range as we know it, the volcanic agglomerate of the Rhododendron Formation was deposited. This Early-Middle Pliocene deposit is composed of hornblend andesite porphyry, tuff, and mud flows. It is equivalent to the Dalles Formation. On top of the Rhododdendron Formation and along the crest of the Cascade Range the Cascade andesites or "Cascan" lavas were extruded during the Upper and Middle Pliocene. On the field trip

THE UPPER CLACKAMAS RIVER - cont'd

we did not get high enough up on the valley walls to see the Cascan, but flows of this formation do outcrop on Larch Mountain, on Chamberlin Hill east of Troutdale, and at Rocky Butte in Portland.

FIELD TRIP STOPS ON THE UPPER CLACKAMAS

After Dr. Howell's briefing on the geology of the day he passed around for comparison two dark colored pieces of rock. One was Columbia River Basalt. The other, dark and speckled with phenochysts, was from a near by columnar formation that looked like donuts stacked one on top of the other. Local loggers know the land mark by the name of "Donut Rocks". Someone challenged Dr. Howell's "professional" terminology with the fact that these did not have the identifying holes and therefore should be called biscuits. Without further debate on this purely "geologic" problem we headed for stop #1. We were warned to have our cameras ready as this stop would yield some very photogenic cliffs of "Coriba". Some GSOC'ers felt that had they been taken to the same spot blind folded they might have been fooled into thinking they were in the Columbia River Gorge.

Stop #2 brought our caravan to a halt at the Narrows of the Clackamas River. Sharp eyed Dr. Howell pointed our attention to an actual feeder dike for the Columbia River Basalt. Next to the dike was a fault offsetting a contact between the Coriba and underlying Eagle Creek Formation. Between the two formations was a black four inch layer of carbonaceous swamp deposit.

Stop #5 was exciting with the observation of some pillow lavas, and the discovery of some nice fossilized wood, not to mention a big black and very unfossilized scorpion on vacation from Eastern Oregon.

"Let's eat!" was the cry that pulled us off on a gravel road where we lunched among tall green trees and the cool breezes of Whale Creek wnile hashing over the geology at hand or of past field trips. Lunch over, we were on the move again, heading for Alder Flats Forest Camp.

After bringing the caravan once more to a halt, GSOC'ers fell into single file for a half mile hike down a trail bordered by lush vegetation and canopied with tall evergreen trees, some of which were tilting due to landslide action of the Eagle Creek Formation beneath our feet. The steep zigzaging trail was cut along landslide benches or blocks all the way to the river's bank. Once more assembled at the cobble clad river, Dr. Howell pointed out the rusty colored folds of the Bull Creek Formation across the river. The river shore abounded with petrified wood and cobbles of every description.

The last stop for the day was near Austin Hot Springs, where we chipped away along the road side at some Eagle Creek Formation containing small iron pyrite crystals. Finally we gave our G-picks one last swing as a toast to a very successful and eventful field trip and with noticeable reluctance turned homeward.

* * * * * * *

MORE NEWS OF MEMBERS --

K. N. PHILLIPS, charter member and past president of the Society, attended the July 21st luncheon at the YMCA and called attention to an article in the October, 1965, issue of Natural History magazine by Paul E. DeSautels entitled "Interaction of Light and Minerals". In this connection he exhibited a stainless steel kettle with copper on the outside which showed the formation of bornite (copper iron sulfide), and which almost anyone can find by taking a short field trip into the kitchen as Mr. Phillips did. He is giving this issue of Natural History to the GSOC library.

KENNETH DAVIS, our third oldest member (87 years), recently was confined in the Portland Veterans Hospital. He is due for cataract surgery in the near future.

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OFFICIAL COLORS CONTEMPLATED

After 31 years of colorless existence, your executive board feels that it would be appropriate if the Society were to have an official color. What do you think? What is your favorite color? Or colors? Why? Drop a line to our secretary, Mrs. Dorothy Waiste. Tell us what your color preference is. Help us make the future years of our Society bright and gay with official colors of our own.

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Volume 32, Number 8

ADVANCE REPORT ON THE PRESIDENT'S CAMPOUT

By Lloyd Wilcox

Weather reports that trickle through to us from east of the Cascades continue to accent the uncanny ability displayed by your resourceful President in scheduling the Society's Campout well into the month of August. Enjoy the Annual Picnic Friday night. Don't rush home to get your rest before an early rising. A leisurely 5 hour drive will get you to the base camp at Todd Lake with plenty of time to check the road log for errors.

No activities are scheduled for Saturday. This is expected to be a hectic time of arrival and tent raising.

On Sunday, Aug. 14, we have scheduled a ride on the Bachelor Butte chair lift which will carry us to an elevation of 7700 feet on the north slope of Bachelor Butte for a geographical orientation of the country we will be visiting. The cost of the ride is $1.00 per person, round trip.

A trip to a near by cinder cone will afford the sample collectors an opportunity to acquire brilliantly colored specimens of irridescent cinders of many hues. This is also an excellent bomb site-volcanic type.

At our campfire Sunday evening we will be greeted by Mr. Ashley Poust, Supervisor of the Deschutes National Forest, who will speak to us on subjects pertinent to his work.

Our tentative schedule for the rest of the week, subject to change without notice, is as follows:

Monday, Aug. 15 - Short drive (about 3 miles to timberline on flanks of Broken Top Mts. Nature walk above the trees.

Tuesday, Aug. 16 - Field trip to Lava Butte, Lava Cave State Park, and Lava Cast Forest. Round trip approximately 88 miles.

Wednesday, Aug 17 - 3 or 4 mile hike to LeConte Crater on southern slope of South Sister. (3 or 4 miles back again too).

Thursday, Aug. 18 - Field trip to Newberry Mountain with its caldera containing Paulina and East Lakes plus a bookful complement of volcanic phenomena. Round trip approximately 162 miles.

Friday, Aug. 19 - Field trip to McKenzie Pass area. Round trip approximately 126 miles. This is last day of schedule so you may wish to break camp this morning and continue home from McKenzie Pass area following trip log covering Clear Lake Hwy to Santiam Hwy and home via Albany or Salem.

Among our able leaders will be Dr. Francis Gilchrist, Dr. James Stauffer, and Mr. Leo Simon. We have received word that Dr. John Allen will visit us should he return from Hawaii in time. Mr. Edward A Groh, private geologist and consultant to the staff of the State Dept. of Geology and Mineral Industries, and co-editor of their Bulletin 57, will accompany us on our trips to Newberry Caldera and McKenzie Pass areas. He will present a brief outline of the events that occurred here (geologically) in the past and will then invite an open discussion. Have your questions ready.

A trip log has been compiled to add to your interest and enjoyment. Actually, it is four trips assembled under one cover for this occasion. The logs cover the route between Salem and Bend via the North Santiam Hwy; the Century Drive from Bend to Todd Lake; The Dalles-California Hwy from Bend past Lava Butte, Lava Cave State Park, Lava Cast Forest to Newberry Mtn., and thence via Forest roads and the new Cascade Hwy to Todd Lake on the Century Drive; and from Bend to the McKenzie Pass area, thence west to Clear Lake Hwy and north on it to its Junction with the Santiam Highways. Prior to Campout time this log may be purchase for 50¢. After that time the separate logs will sell for 25¢ each. Get yours now and take advantage of the bargain rates! Those who do not attend meetings may obtain their copies by contacting our Field Trips Chairman, Mr. Lee Gavigan, or any officer of the Society.

Todd Lake is 25 miles from downtown Bend shopping area and only 10 mi. from Elk Lake where groceries and gas may be purchased. (Also meals if your camp fire cookery palls).

Remember that we cannot reserve space in a Natl. Forest Campground so we will be competing with the general public for the available space. We should not have too much trouble with this problem. We had none at Delintment Lake last summer. Remember that no camp ground can offer separate facilities to individuals of a group as large as ours might be. Share and share alike will be the order of the day. Don't forget your camera with several rolls of film, and a fish pole if you have it. This is the country where Oregon's fishing begins.

While not a necessity, the State of Ore. Dept of Geology & Mineral Industries' Bulletin 57 will be found a most informative and helpful tool for developing your knowledge of this Central Oregon

A WORD ON THE WEATHER

June turned out to be a fine month for programs. The most excellent report of Mr. Jim Anderson on June 10 was followed on June 24 by an equally absorbing discussion by Mr. Bob Lynott ("Mr. Weatherman") of station KOIN-TV who acquainted us with "The Inside Story of Weather Forecasting". Mr. Lynott is also weather forecaster for the United States Forest Service.

Each area of the country is beset by its own problems in diagnosing atmospheric data and arriving at an intelligent estimate of weather probabilities. Forecasting in the Pacific Northwest does not involve complicated weather patterns but it is made difficult by the fact that we live in the western-most land area of a region whose weather is controlled by prevailing westerly winds. In other words, our weather comes to us from out of hundreds of thousands of square miles of ocean where only an occasional ship can offer the meteorologist the meager information on which he bases his predictions. These predictions are his interpretation of the many probabilities inherent in this meager store of information.

Our government maintains a weather bureau which collects climatic data on a world wide basis by the hour. This data is disseminated to regional offices thence through a chain of command to areal and local offices. Each office interprets and forecasts the weather for its particular region, area, or district. This sometimes develops a humerous aspect when local conditions call for a prognostication in direct opposition to that of the link above.

Weather forecasting demands a great deal of responsibility in as much as many jobs depend entirely on the weather and an accurate forecast is essential for a profitable operation. Loggers, farmers, airlines, as well as the weekend picnicker, are among those who rely on the weather man.

Much discussion was given over to the Columbus Day Storm of 1962. Mr. Lynott reported that the essential ingredients of such a storm are with us many times each year but never in the correct proportions except that ONCE.

All in all it was a most interesting and successful evening and our thanks go to Mr. Lynott for making it so.

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DB

MEXICAN HOLIDAY

Because of the airlines strike, our scheduled speaker for July 8th, Mr. Jasper Holland, was stranded in Denver. So Don Barr, Program Chairman, did some quick maneuvering and came up with a most interesting program presented by Mr. William Oberteuffer, Mazama, Biologist and Ecologist and fellow teacher at the new Andrew Jackson High School. Mr. Oberteuffer, assisted at the projector by his wife, Margaret, showed magnificent color slides he had taken in Mexico during the last Christmas holiday when they flew to Mexico City, accompanied by a party of nine other Northwest mountain climbers.

Their objective was to climb the third, fifth and seventh highest peaks in North America in a period of eight days. The peaks climbed were Ixtacchihauatl, the "sleeping Lady", 17,343 ft., Popocatepetl 17,761 ft., and Pico de Orizaba 18,851 ft., where the base camp was as high as the summit of Mt. Rainier. These beautiful isolated volcanic peaks are all in the vicinity of Mexico City, and were reached in two rented Volkswagons.

The pictures taken of the countryside and small native villages enroute were narrated by Mr. Oberteuffer in a warmly humorous and sympathetic manner, and those taken of the various climbs were thrilling.

It was a most entertaining program, and we learned much about the customs of the people which are not evident to travelers on the usual tourist routes. We are indeed grateful to the Oberteuffers for sharing their wonderful experience with us, and for bringing it to us on such short notice. We hope they will come again soon.

Jennie Walters

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Volume 32, Number 8

THE GEOLOGY OF FOSSIL LAKE

Have you ever been dive-bombed by an eagle? This was one of the experiences enjoyed (?) by Jim Anderson while he spent two days in a tree endeavoring to capture on film some of the gentler aspects of a mother eagle as she tended the needs of her fledglings. Told in his own inimitable fashion, he makes you relive with him the tortured pull of cramped muscles strained by hours of still and quiet waiting in the top of an old pine tree while he waits for the family of eagles in a tree nearby to become accustomed to his presence. You feel with him the tenseness and excitement as Mother Eagle attempts to drive away this alien intruder into her realm.

This was but one of the many highlights of an illustrated lecture entitled "The Geology of Fossil Lake" which was presented to the Society on June 10 by Mr. Jim Anderson, naturalist, photographer, and trip leader for the Oregon Museum of Science and Industry.

Along with his discussion of the geology and paleontology of the area, Jim pressed home the idea of conservation. His remarks on the killing of predators by large hunting parties was particularly interesting. Pointing out that the coyote was one of the most hunted of animals, he revealed that all research indicates that these animals are needed to keep other depredators in check--to maintain the balance of nature. In all the animals that Jim examined, he found not one containing sheep.

Each summer Jim leads a Campout into the Fossil Lake area for groups of boys of High School age. These teams of boys have been responsible for bringing to light many new fossil finds.

This would be a fine place for a weekend camp for GSOC.

DB

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LUNAR CONFERENCE GUIDE BOOK REPRINTED

The "Lunar Geological Field Conference Guide Book," originally prepared by the State of Oregon Department of Geology and Mineral Industries for use by international delegates to the Lunar Geological Field Conference held at Bend, Oregon, in August 1965, has been reprinted. The first printing was rapidly sold out and the bulletin has just been reissued with some minor revisions to the text.

The 60-page book presents detailed information on the volcanic features of central Oregon which range in age from a few hundred years to the Cligocene epoch. Calderas, maars, spatter cones, flows, ash and pumice falls, lava gutters and tubes, cinder cones, volcanoes, fissures, vents, domes, rifts, tuff rings, shields, kipukas, hornitos, and tumuli are fully illustrated and discussed.

Regional topographic and geologic maps, plus large-scale detailed three-color geologic maps and matching high altitude aerial photos of five study areas are supplemented by numerous low angle and surface photos to provide as complete a coverage of the various volcanic features as possible.

Originally published for use by professional earth scientists, the Guide Book is much in demand by laymen interested in learning more about the most lunar-like surface in the United States.

Copies of the Lunar Conference book are available from the Oregon Department of Geology and Mineral Industries, 1069 State Ctfice Building, Portland, Oregon 97201, for $3.50 postpaid anywhere in the U.S.

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ADVANCE INFORMATION FOR SEPTEMBER FIELD TRIP

A fossil collecting trip into selective areas. Tentatively scheduled for mid-September. Field Trip Leaders will be Lee Jenkins, Leonard Wilkinson, and Bob Hart. Full details to be announced (and published in the September News Letter).

L. T. G.

DRAMATIZED BOOK REVIEW
30 June 1966
Terwilliger Plaza Auditorium

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A Alice Springs
L Lake Eyre
I Ipswich
A Aboriginal Reserve

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S supported
I idea;
N net $166.00 for
G GSOC.

CLB

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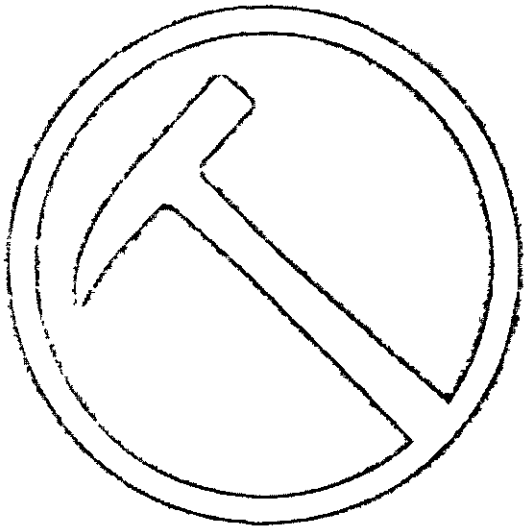
MEMBERSHIP ROSTER

name	street address	city, state and zip code No.	telephone
NEW MEMBERS			
LEONARD, Mr. and Mrs. Robert W.	2312 Ostman Drive	West Linn, Oregon - 97068	656-2189
MUNRO, Mr. and Mrs. George A.	2944 N.E. 26th Avenue	Portland, Oregon - 97212	281-7389
ROCK, Mr. and Mrs. Lee L.	1322 S.W Maplecrest Dr.	Portland, Oregon - 97219	- - -
TRACY, Mr. and Mrs. Orie	4876 N. Vanderbilt Street	Portland, Oregon - 97203	289-2913
WERTH, Mr. and Mrs. John H.	18005 S.W. Lower Boones Ferry Road	Tigard, Oregon - 97223	639-1063
WILCOX, Mrs. Betty L.	7827 S.W. 30th Ave., #25	Portland, Oregon - 97219	244-2505
ADDRESS CHANGES			
BRYAN, Mrs. Gladys L.	6309 S.W. 32nd Avenue	Portland, Oregon - 97201	- - -
KEEN, Mr. and Mrs. Albert J.	4138 S W. 4th Avenue	Portland, Oregon - 97201	222-1430
SANFORD, Mr. Paul	2435 S.E. 76th Avenue	Portland, Oregon - 97206	774-4511
STEVENS,		Milwaukie,	654-3171

Sept. 196



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GEOLOGICAL NEWS LETTER STAFF

editor	EWEN, Mr. Irving G.	4128 N. E. 76th Avenue	Portland, Oregon - 97218	281-7098
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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

R

G. S. O. C. CALENDAR FOR SEPTEMBER 1966

Please observe that all scheduled meeting times are Pacific Daylight Saving Time

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

12:00 M. - At this once-a-week gathering for the mid-day repast you will see regular attenders as well as GSOC'ers who just occasionally drop in. Wherever you might fall in this range you will be welcome to join in the discussion, examine geological specimens, or listen to occasional five minute talks.

This all-season activity is presided over by Mr. Leo F. Simon, Luncheons Chairman. For more information telephone Mr. Simon at 236-0549.

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

7:30 P. M. - Mr. Herman Meierjurgen, Chairman of the Oregon State Fish Commission, will be the first speaker after the August recess. Although the title has not been announced, his subject will include the relationship of fish to geology.

17 & 18 Sept. — FIELD TRIP - Overnight trip via private car caravan to Eugene-Roseburg Area

A two-day flora, fauna, and mineral collecting expedition to the Eugene, Cottage Grove, and Roseburg areas with Leonard Wilkinson, Robert Hart, and Lee Jenkins as leaders. Formations to be visited include Fisher, Colestin, and Umpqua.

17 September Saturday — 11:00 A. M. - Assembly point will be at the Wilbur Exit from Interstate 5 (about 185 miles south of Portland). The day will be spent in the fauna collecting area of Glide.

18 September Sunday — 9:00 A. M. - Assembly point will be PASS CREEK CAMP (Douglas County Park) at Curtin which is south of Cottage Grove on Interstate 5. The day will be spent in the flora and mineral areas north of Curtin.

For more information telephone field trip leaders Bob Hart at 654-7865, and Lee Jenkins at 223-4519, or field trips chairman Lee T. Gavigan at 289-8041. Additional details will be provided in this month's News Letter (See "Information for September Field Trip").

20 September Tuesday — LIBRARY NIGHT - Lewis and Clark College in southwest Portland, Cregon

The first meeting for this activity after the summer vacation will be in the usual place, Peebles Hall (Biology Building).

7:30 P. M. - The first hour of tne evening is reserved for browsing and reading. During this time some of the books may be checked out of the GSCC Library from Miss Clara L. Bartholomay, Librarian.

8:30 P. M. - Dr. Francis G. Gilchrist, Library Night Chairman, will conduct a "workshop" on the geology of the Mitchell area of central Cregon. GSOC'ers who attended the Memorial Weekend trip to this area are urged to bring slides and specimens of geologic interest.

Refreshments will be served following the program. For more information and/or directions telephone Dr. Gilchrist at 636-5942 or Miss Bartholomay at 284-6986.

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

7:30 P. M. - Speaker and topic to be announced.

NEWS CF MEMBERS

by Rowena Hoven

A $1,000 Jackson scholarship has been awarded to Carolyn Fagan, daughter of MR. and MRS. DICK FAGAN. This is the second Journal award for Carolyn. She will be a sophomore at the University of Portland in the fall. The scholarships are awarded by the Jackson Foundation, which was set up by the will of the late Marie C. Jackson, widow of the founder of the Oregon Journal. Congratulations to Carolyn on this fine honor.

Paula Biggs and John Hammond, Jr., son of Gsocers DR. and MRS. JOHN HAMMOND, SR., were married August 20th at the First Pre'yterian Church. John is a second year law student at the University of Oregon and Paula will teach in Springfield. Cur best wishes to the Hammonds.

LEO SIMON is going around on crutches due to a leg infection. While this slows him down a bit, it did not prevent him from participating in the President's campout in central Oregon.

Many GSCC members are on vacation. the PAUL HOWELL family decided to explore Glacier National Park. The LEE GAVIGANS and MARK PERRAULTS are lost somewhere in eastern Cregon, and JEAN GRIFFITHS and her family went to the Clympic Peninsula.

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MEMBERSHIP ROSTER

name	street address	city, state and zip code No.	telephone
NEW MEMBERS			
GREISEL, Mrs. Irma	780 N.W. Norman	Gresham, Cregon - 97030	665-2351
SCHNEIDER* Mr. Philip	1749 S.W. Terrace Drive	Portland, Cregon - 97201	228-1735

* Junior Member

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JONES, Mr. and Mrs. Irving
KNIGHT, Mrs. Helene V.
SCHULL, Mr. and Mrs. Bert R.
WILLIAMSON, Mr. and Mrs. Douglas A.
FITE, Mr. and Mrs. George

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Volume 32, Number 9

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NEWS CF MEMBERS
by Rowena Hoven

A $1,000 Jackson scholarship has been awarded to Carolyn Fagan, daughter of MR. and MRS. DICK FAGAN. This is the second Journal award for Carolyn. She will be a sophomore at the University of Portland in the fall. The scholarships are awarded by the Jackson Foundation, which was set up by the will of the late Marie C. Jackson, widow of the founder of the Oregon Journal. Congratulations to Carolyn on this fine honor.

Paula Biggs and John Hammond, Jr., son of Gsocers DR. and MRS. JOHN HAMMOND, SR., were married August 20th at the First Pre: hyterian Church. John is a second year law student at the University of Oregon and Paula will teach in Springfield. Cur best wishes to the Hammonds.

LEO SIMON is going around on crutches due to a leg infection. While this slows him down a bit, it did not prevent him from participating in the President's campout in central Oregon.

Many GSCC members are on vacation. the PAUL HOWELL family decided to explore Glacier National Park. The LEE GAVIGANS and MARK PERRAULTS are lost somewhere in eastern Cregon, and JEAN GRIFFITHS and her family went to the Clympic Peninsula.

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MEMBERSHIP ROSTER

name	street address	city, state and zip code No.	telephone
NEW MEMBERS			
GREISEL, Mrs. Irma	780 N.W. Norman	Gresham, Cregon - 97030	665-2351
SCHNEIDER* Mr. Philip	1749 S.W. Terrace Drive	Portland, Cregon - 97201	228-1735
* Junior Member			
ADDRESS CHANGES			
BAKER, Mrs. Thora Martin	Box 207	Estacada, Cregon - 97023	
BARBER Mrs. Lawrence (Mrs. Elizabeth Gilliam)	6422 N. Kerby Ave.	Portland, Cregon - 97217	285-4220
RESIGNATIONS			
FISHER, Mr. and Mrs. Robert S.			
JONES, Mr. and Mrs. Irving			
KNIGHT, Mrs. Helene V.			
SCHULL, Mr. and Mrs. Bert R.			
WILLIAMSON, Mr. and Mrs. Douglas A.			
FITE, Mr. and Mrs. George			

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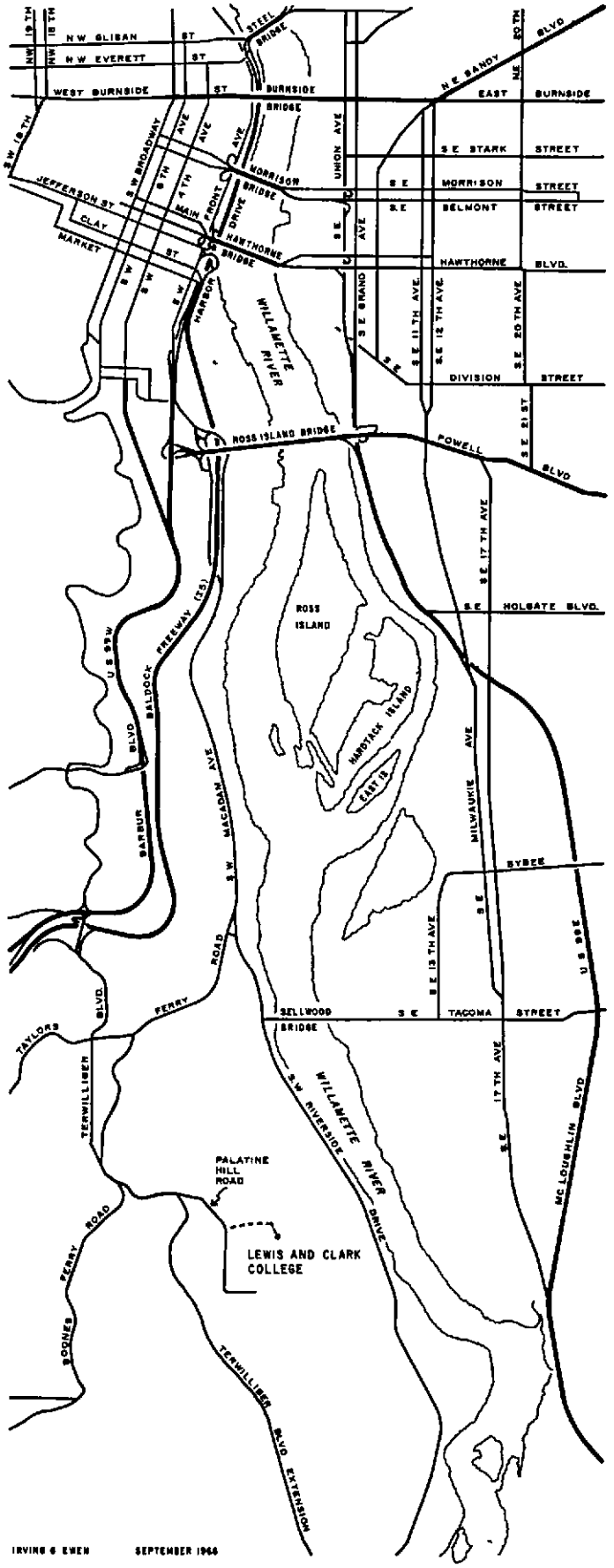
LIBRARY NIGHT TO RESUME



This activity, which runs parallel to the academic year, will resume on Tuesday, 20 September 1966 after a three month recess. The group meets once each month, on the third Tuesday, in Peebles Hall (the biology building) on the campus of Lewis and Clark College in Southwest Portland. The vicinity map shown at the left may be helpful to those venturing out there for the first time.

The College address is 0615 S.W. Palatine Hill Road. Directional signs are posted at several points enroute from downtown Portland. However, it is advisable for those attending Library Night for the first time to obtain adequate directions to the campus as well as Peebles Hall. Following or riding with a GSOC'er who has attended previously is probably the easiest way.

The Library Night usually commences at 7:30 P.M. with the observance of a "quiet hour" which is reserved for reading and browsing in the GSOC Library. This assemblage of books, maps, etc. is housed on the upper floor of Peebles Hall. One of the outstanding collections is the Ira Williams Memorial Collection, a part of the personal working library of this famous geologist, which was presented to the Society by the heirs. (See article "The Ira Williams Library" on page 23 of the March 1965 GSOC News Letter, Volume 31, Number 3.) Some books from this and other collections may be checked out by members (for more prolonged study at home) from the GSOC librarian, Miss Clara L. Bartholomay.

Dr. Francis G. Gilchrist, Library Night Chairman, has charge of the evening program which follows the quiet hour. This year Dr. Gilchrist is planning a series of "workshops" which are intended to complement the Society Field Trips, either as preparatory orientation sessions or as resumes to help "crystalize" understanding and answer questions.

The workshops will be conducted in such a manner as to encourage the participation of those attending. GSOC'ers are asked to bring slides and specimens of geologic interest pertaining to the area or topic under discussion. During the discussion

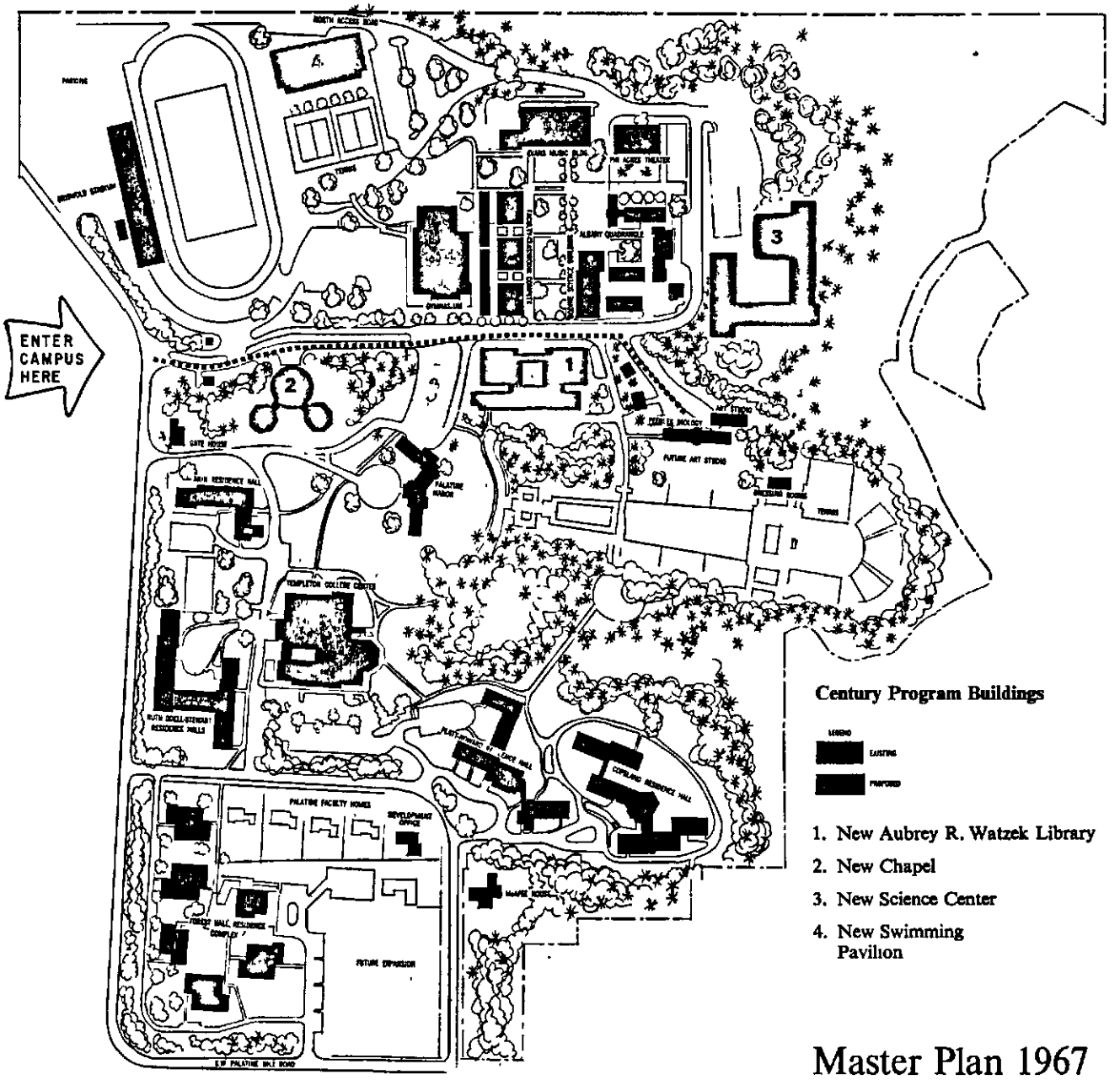
Library Night -

period many questions are anticipated which it is hoped can be answered by other participants drawing from their own experiences and backgrounds.

A social hour usually rounds out the evening.

The map of the campus shown below entitled "Master Plan 1967" was provided by the Development Office of Lewis and Clark College and is reproduced with permission.

Irv Ewen



CAMPOUT FROM THE PRESIDENT'S VIEWPOINT

Fourth Annual GSOC President's Campout
Moon Country of Central Oregon
13 August through 19 August 1966

The Campout has come and the Campout has gone. Now all that remains is the telling of it. The official story will appear in later issues of the Newsletter. This article will serve the double function of fattening the format of this month's Newsletter and of covering a subject that probably will not be covered in the other articles.

Many kind remarks have been directed my way regarding this years trek. I love them all, believe me. My ego is a big sponge and it soaks up that kind of stuff. But let's take a look at what really happened and redirect the kind remarks to those who truly merit them.

First, the area we visited. This was a natural, what with all the publicity this part of Oregon has received of late. Astronauts and scientists have come to study its recent vulcanism so reminiscent of the surface of the moon. It also happens to be the place that I grew up and is the only place in Oregon with which I am familiar. I didn't know any place else to go!

Next, the time. I used up the preceding two months apologizing for the date of the Campout and the reasons thereof so I will not go into that again. But if you remember the Central Oregon weather this summer you will marvel with me that we squeezed a week of perfect weather between the storms and the closure of the forests due to fire hazard. That really must have been the reward for clean living!

A trip log was prepared. Admittedly it was a lot of work. But look at the last page. There are plainly listed the people who did the work and the material source from which most of it was copied. When yours truly struck out on his own, he struck out ---- on his own. For those of you who have not yet purchased your copy (I still have one or two in the pickup) let me introduce the people whose combined effort resulted in the trip log:

Reba Wilcox, who drove the car, who checked the route, who checked the mileage, who transcribed the notes and corrected the copy, who cranked the mimeograph, who assembled and stapled the final product.

Dr. Paul W. Howell, who discussed with me the geology of the Cascades, who edited the log of the North Santiam, and who identified truck loads of rock samples.

Fred Miller, who drew the map of the route.

Bill Freer, who did the lettering.

Bob Waiste, who helped with the printing, who cleaned and stored the mountain of stencils so that we are prepared for a second edition in case we sell out the first edition of seven or eight.

Dorothy Waiste, who spent hours typing the stencils, more hours running the mimeograph, and who did a wonderful job.

The details of scheduling were worked out in committee by this group of men: Truman Murphy, Lee Gavigan, Mark Perrault, Dr. Francis Gilchrist, George Walters, and Fred Miller.

After this it only remained to secure a leader for each days activities. This was quickly done, primarily because of the top leadership available within our own group. The State Department of Geology and Mineral Industries provided the services of Mr. Edward A. Groh for our Thursday tour of Newberry Mtn. and its caldera and for our Friday trip to the lava fields of the McKenzie Pass area. Mr. Groh is a professional geologist and consultant to the State Department of Geology. He is co-editor of their Bulletin 57 which was the guidebook for the Lunar Field Conference which was held in this same area last year. He knows his subject well and presented it clearly and forcibly. We were indeed fortunate to have him available.

But don't forget, our own people provided us with superlative leadership, and each

Campout -

days outing was a success because of this. On Monday Dr. Francis Gilchrist led us to the crater of Broken Top explaining the geology and the flora of a land where springtime comes in August. On Tuesday, Leo Simon assumed the responsibility of acquainting us with the geology of the Lava Butte area. And he did this with his leg in a cast, unable to walk and enduring much pain, because he had promised earlier that he would do it. What do you say to such a man? How do you say it? Wednesday, Dr. James Stauffer led us up a mountain path to his favorite spot in the Cascades, Le Conte Crater, and from its summit unfolded the history of its creation. Indeed, we were blessed with our leaders.

And who accepted the responsibility of providing us with stimulating, fun filled campfires each and every night? Truman, of course! It takes a lot of doing to come up with eight consecutive campfire programs without a letdown in the bunch and Truman dood it. You might say he had some help on Thursday evening in the person of Phil Brogan who brought along Mr. Ashley Poust and Mr. Ed Parker, supervisor and recreational director, respectively, of the Deschutes National Forest. Together they provided a program which properly belongs in another account which will appear in the Newsletter at a later date. It is only mentioned here to acquaint you with the names of those who did the work that made the Campout.

Names like George Walters. Woods doctor, George Walters, who patiently waited the whole long week for a burn to grease or a blister to tape. Most fortunately we had no use for his services but it was comforting to know that he was there with his bottle of merthiolate and a bundle of bandaids. The responsibility was his and he stood ever ready to assume it.

Names like Clair and Peggi Stahl who quietly and graciously performed many of the myriad tasks that appeared from time to time. Like providing the wood for the campfires and seeing that there was a campfire burning brightly every night. Like searching out lost rock hammers. Like shepherding a group of ladies over a lonesome mountain trail.

Names like Rowena Hoven, who along with Clair, has agreed to bring you the breathtaking story of the 1966 Campout in future editions of the Newsletter.

Names like those of all of you who came to the Campout and guaranteed its success by your presence. There really wasn't very much for me to do but enjoy the trip and that I did, indeed.

Lloyd Wilcox

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HERBERT HOOVER HCNORED WITH PLAQUE

On August 11th Governor Mark Hatfield dedicated a bronze plaque honoring Herbert Clark Hoover, at the Minthorn House in Newberg where Hoover spent several of his boyhood years. The plaque was presented to Dr. Burt Brown Barker, President of the Herbert Hoover Foundation of Oregon by James McClain, Chairman of the Oregon Section of the American Institute of Mining, Metallurgical and Petroleum Engineers. Ralph Mason designed the plaque and coordinated the ceremonies which were attended by more than 100 people.

The Minthorn House, located at the northern edge of Newberg, has been almost completely restored by Dr. Barker's committee, and contains numerous mementoes of Hoover's activities. In presenting the plaque McClain observed that Hoover brought the finest talents and skills of the mining engineering profession to bear upon widespread suffering in many parts of the world. Hoover, after an outstanding career as a mining engineer active in many parts of the world, devoted his life to public service. He was the President of AIME in 1920 and did much to advance the engineering profession through his service on numerous committees.

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MOON COUNTRY

On Friday, July 22, 1966, the members of the Geological Society visited the moon -- in spirit if not in body--with Ralph Mason as our most capable and well-informed tour director.

He turned our attention to the idea that the surface of the moon is largely volcanic and that we here on earth can approximate this surface only in a youthful vulcanism area -- such as the Bend country.

In 1965 the first Lunar Conference was held in the Bend area and eighty-five scientists from over the world attended. After six full days of field trips and papers, no one said, "I have seen better."

The group's reaction to their first sight of Crater Lake was a complete silence for a few minutes. Later these enthusiastic people did not want to return to their buss--they were engrossed in exploring the area and taking samples. This trip did a great deal to consolidate their thinking.

Mr. Mason stated that there are no surprises in geology, and that something which seems new to you may have happened before somewhere else around the world. He added that the odds are that we will have some renewed activity in our lifetime--could be quiet or more convulsive--and people still get killed by volcanoes. A six-inch ash fall on Portland would foul up the area. Contrary to what the Chamber of Commerce says about it being a volcano, Mt. Tabor is a cinder cone which probably lasted a few hours and then quit.

In 1964 astronauts practiced taking samples and using a Jacob's staff in the MacKenzie Pass area.

The second wave of astronauts explored Lava Butte in 1965.

A third group is scheduled for 1966.

Tons and tons of moon-like material have been shipped out of the Bend area--pumice and blocks; the latter being used to test drills for the moon.

Among the geological features the Lunar scientists observed were:

Fort Rock -- a striking feature in moon country
Hole in the ground -- one mile across and one-half mile deep
Crack in the ground -- hopeful that on the moon such cracks may be found to offer protection
Lava tubes -- might be duplicated on the moon
Newberry Crater -- looks like surface of moon; complex volcanic features in this area
Rough pinnacles -- may be similar ones on the moon
Devil's Garden -- lava flows
Smith Rocks -- similar ones may be on moon
Diamond Crater -- similar lunar feature
Crater Lake -- same kind of crater as on the moon

Mr. Mason said that no one knew yet if there is erosion on the moon, but there would be expansion and contraction. Whether this would produce dust was not known; however, the surface of the moon probably creaks and groans.

His final observations included the fact that most meteorites are olivine in nickel iron. Whatever the source, these nickel-iron meteorites are of about the same density as the earth's core. Drillings in the vicinity of impact of an Arizona meteorite failed to locate any large body of ore. It may be deduced that the remnants were fractured and scattered over a large area.

Oregon's lunar landscape may prepare the astronauts to make new contributions to the geological history of our universe.

Fred and Lillian Miller

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INFORMATION FOR SEPTEMBER FIELD TRIP

Eugene-Roseburg via private car caravan
Saturday & Sunday, 17 & 18 September 1966

The areas designated on the GSOC Calendar for the month have proved to be most rewarding, and specimens from our reconnaissance will be on display at the Lecture Meeting 9 September.

Our trip leaders, Leonard Wilkinson, Bob Hart, and Lee Jenkins have provided us with excellent collecting localities and specimens; which has been the result of a great deal of time and effort on their part. Therefore, we feel sure that all GSOC'ers going on this Field Trip will return home with outstanding specimens.

Cur Saturday night Campsite and Campfire will be at Pass Creek Camp (Douglas County Park) located at Curtin, just south of Cottage Grove. This camp affords the very best in all facilities -- tent and trailer spaces, motel, and restaurant accommodations. However, they do not have a grocery and supply source, so it is recommended that these items be obtained prior to leaving Portland, or purchased enroute.

Those desiring to leave Friday to camp out will find Whistler's Bend (Douglas County Park) with facilities for tents and trailers. It is located approximately 5 miles west of Glide, and 13 miles east of the Wilbur Exit of the Freeway, Interstate 5 South.

Bring the usual recommended camping equipment, geology pick, chisels, hand lens, camera, lunch, bumper cards, et cetera. More information can be obtained by telephoning the field trip leaders or field trip chairman as noted on the Calendar (page 75).

Lee T. Gavigan

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NEW PUBLICATIONS OF INTEREST

1. "Fossil Lake, Oregon -- its Geology and Fossil Faunas," by Dr. Ira S. Allison. This 48-page booklet is illustrated with sketch maps, diagrams, and numerous photographs. It can be obtained from Oregon State University Press, Corvallis, Oregon. The price is $2.00.

   Dr. Allison is an authority on the Pleistocene geology of this region and he has been very successful in working out a calendar of events dating back to nearly 100,000 years ago. This little booklet is well worth having in your library.

2. "Geologic Map of the Monument Quadrangle, Grant County, Oregon," by Ray E. Wilcox and R. V. Fisher, has been published by the U.S. Geological Survey as Map GQ-541. The geologic units are shown in color and described in the legend. There are two cross sections. To obtain a copy, send $1.00 to the Geological Survey, Federal Center, Denver, Colorado.

   The Monument quadrangle lies in northwestern Grant County. The road connecting Kimberly and Long Creek crosses its southwestern corner. Most of the quadrangle is underlain by Columbia River Basalt (now called Columbia River Group), but in the southwest corner of the area the North Fork of John Day River and its tributary Cottonwood Creek have carved down through the basalt and have exposed John Day and Clarno Formations. Basaltic dikes, sills, and masses related to the Columbia River Basalt penetrate the John Day and Clarno rocks.

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GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

ANNUAL MEMBERSHIP ROSTER

Compiled by the Secretary

August 1966

Name	Address	City, State, zipcode (Oregon, unless stated)	Telephone
Abramovic, Mr. and Mrs. Emil	3212 S.E. Risley Ave.	Milwaukie, 97222	654-0938
#Adams, Mrs. W. Claude	2614 N.E. Bryce St.	Portland, 97212	281-8747
"Allen, Dr. & 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, Mrs. Marie Z.	3106 Oak Street	Milwaukie, 97222	654-5666
Anderson, Mr. Robert Boyd	303 Wilcox Building	Portland, 97204	222-7095
Appelgren, Mr. & Mrs. Wilson	R.F.D. #3, Box 166	Hood River, 97031	386-3224
Awbrey, Mr. Curtis D.	1828 Berkeley Way	Berkeley, Calif. 94703	638-8525
Ayres, Dr. & Mrs. Fred D.	7122 S.E. 36th Ave.	Portland, 97202	771-9384
Baker, Mrs. Lois Inman	541 West 16th St.	Eugene, 97401	345-5870
Baker, Mrs. Thora Martin	Ione Plaza, Apt. 104 1717 S.W. Park Avenue	Portland, 97201	228-7861
Baldwin, Dr. & Mrs. Ewart M.	2058 Harris Street	Eugene, 97405	345-9755
#0 Barr, Mrs. Amza	823 N.E. 82nd Avenue	Portland, 97213	----
Barr, Mr. & Mrs. Donald D.	12438 S.W. Orchard Hill Rd.	Lake Oswego, 97034	246-2785
Barry, Mr. & Mrs. Lewis A.	1722 S.W. Vista Avenue	Portland, 97201	223-9837
Bartholomay, Miss Clara L.	1620 N.E. 24th Ave., Apt 306	Portland, 97232	284-6986
Becker, Mr. & Mrs. Henry G.	7612 S.E. 32nd Ave.	Portland, 97202	771-2988
Becker, Mr. & Mrs. Ralph A.	1306 - 42nd Street	Milwaukie, 97222	654-6439
Berg, Mr. & 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
Bishop, Mrs. Shirley	4810 S.E. 35th Ave.	Portland, 97202	775-2163
Bixby, Mr. & 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. & Mrs. C.A.	434 Riverside Blvd.	Bend, 97701	382-4469
Brogan, Mr. & Mrs. Phil F.	1426 Harmon Blvd.	Bend, 97701	382-0560
"Brown, Mr. & Mrs. Franklin M.	411 - 2nd Avenue North	Edmonds, Wn. 98020	778-3610
Bruckert, Mr. & Mrs. Walter E.	Box 292	Wasco, 97065	442-5219
Bryan, Mrs. Gladys L.	6309 S.W. 32nd Ave.	Portland, 97201	----
Buckner, Mr. & Mrs. James S.	Route 2, Box 68C	Sherwood, 97140	638-7933
Burke, Mr. & Mrs. Melvin H.	1930 S.W. Spring St.	Portland, 97201	223-0419
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
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.	5602 S.E. Howard St.	Portland, 97206	777-1527
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	Orchards, Wn. 98662	892-3427
Darling, Mr. & Mrs. Gary H.	17725 N.E. Multnomah Dr.	Portland, 97230	775-4902
"Davis, Mrs. Franklin L.	7114 S.W. Corbett Ave.	Portland, 97219	244-8975
Davis, Mr. & Mrs. Leslie C.	7704 S.E. Taylor St.	Portland, 97215	253-6723

Name	Address	City, State, Zipcode	Telephone
"Delano, Mr. & Mrs. Leonard H.	1536 S. E. 11th Ave.	Portland, 97214	236-2139
Deyoe, Mr. Harold L.	City Center Trailer Court	Port Angeles, Wn. 98362	----
Dodson, Mr. & Mrs. Guy R.	1400 N. W. Electric Ave. Space 13E	Beaverton, 97005	644-1609
Dunn, Mr. & Mrs. Paul E.	6124 N. E. MalloryAve.	Portland, 97211	285-5008
Eid, Mr. & Mrs. Clarence H.	5615 N. Willamette Blvd.	Portland, 97203	289-6662
Elder, George V. & A. Verner	P. O. Box 14	Dillon, Mont. 59725	----
Elliott, Mrs. Lyla L.	1530 N. 99W.	McMinnville, 97128	472-7256
)Erickson, Mr. & 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
Fessenden, Miss Marjorie A.	404 S. W. Edgecliff Rd.	Portland, 97219	636-8369
Fields, Mrs. Claude	3135 Washington Street	Milwaukie, 97222	654-5582
Fink, Mr. & Mrs. Carl	7025 N. Oatman Avenue	Portland, 97217	289-0188
Fite, Mr. & Mrs. George	1301 National Avenue Space 39	Chula Vista, Cal. 92011	----
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
Gilliam, Mrs. Elizabeth A.	1729 N. E. 17 Ave., Apt. 36	Portland, 97212	284-8922
Gillis, Mrs. Doris E.	5109 N. W. St. Helens Rd.	Portland, 97210	223-0280
Goldsworthy, Mr. & Mrs. Robert E.	1930 Clise Pl. West	Seattle, Wn. 98199	284-7935
Gooch, Mrs. Ruth Grey	8637 S. E. Alder St.	Portland, 97216	253-6897
Goosman, Mrs. Elizabeth Jean	434 S. E. 45th Ave.	Portland, 97215	236-9525
Gregory, Dr. & Mrs. Victor	7-D Crescent Road	Greenbelt, Md. 20770	----
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
Grubaugh, Mr. Philip L.	11920 S. W. Park Way	Portland, 97225	644-2371
Hahn, Mr. & Mrs. Henry D.	4810 N. E. Ainsworth St.	Portland, 97218	287-8852
Hall, Mr. & Mrs. George T.	10300 S. W. Barbur Blvd. Space #15	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
ǂHamilton, 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
ǂHancock, Mrs. A. W.	2720 S. E. 84th Ave.	Portland, 97266	771-5285
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
Haumann, Mr. & Mrs. George	P. O. Box 37	Arch Cape, 97102	----
Heiberg, Mr. & Mrs. Harry M.	8105 S. W. Brentwood St.	Portland, 97225	292-2560
Heinkel, Mr. & Mrs. Charles E.	265 S. W. Birdshill Road	Portland, 97219	636-4634

Name	Address	City, State, Zipcode (Oregon, unless stated)	Telephone
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
Higdon, Mr. & Mrs. Frank A.	406 S.E. 89 Ave., Apt. 613	Portland, 97216	254-8255
Hitchcock, Mr. & Mrs. David	255 S.W. California St.	Portland, 97219	244-5626
0#Hodge, Dr. Edwin T.	2915 N.W. Luray Terrace	Portland, 97219	228-2248
Hodge, Dr. & Mrs. Wallace C.	3994 N.E. 39th Ave.	Portland, 97212	282-3837
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	----
Hopson, Dr. Ruth E.	4138 S.W. 4th Ave.	Portland, 97201	222-1430
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
Hyman, Dr. Selma & Dr. Milton	3262 N.E. Everett St.	Portland, 97232	236-9032
Jaenke, Mr. & Mrs. Henry	2320 S.E. Taylor St.	Portland, 97214	232-5570
#Jennison, Mr. & Mrs. H.L.	1561 S.E. Linn St.	Portland, 97202	234-2701
Jensen, Mrs. Roberta	8709 S.W. 56th Ave.	Portland, 97219	244-2415
#Johnson, Mr. & Mrs. E. Cleveland	5914 N.E. Fremont St.	Portland, 97213	281-6767
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
Kellmer, Mr. & Mrs. Earl B.	6105 N.E. Rodney Ave.	Portland, 97211	284-1093
"Kenney, Mr. Albert J.	Box 491	Oregon City, 97045	656-2691
Kenney, Mrs. Laurette	4125 S.E. Gladstone St.	Portland, 97202	775-5697
Kern, Mr. & Mrs. Emery R.	152 S.E. Kelly Street	Gresham, 97030	665-4628
Keyser, Mr. Charles P.	c/o University Club 1225 S.W. 6th Avenue	Portland, 97204	223-6237
Kibler, Mr. & Mrs. G.A.	3911 S.E. 182nd Ave.	Gresham, 97030	665-6082
Kjos, Mr. & Mrs. Martin T.	7944 N. Hereford Ave.	Portland, 97203	289-2337
Koenig, Mr. & Mrs. Donald E.	Route 1, Box 94 AA	Clackamas, 97015	656-7013
Kuhns, Mr. & Mrs. John C.	2980 S. Glenmorrie Drive	Lake Oswego, 97034	636-1067
Larson, Mr. & Mrs. Dennis A.	Lost Creek Rd., Star Rte.	Dexter, 97431	----
Latourette, Dr. Kenneth Scott	409 Prospect Street	New Haven, Conn. 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
Long, Mr. Loren A.	Route 2, Box 122	Sherwood, 97140	639-2596
Lucus, Mr. & Mrs. Fred A.	1950 S.E. Larch Ave.	Portland, 97214	236-0359

Name	Address	City, State, Zipcode	Telephone
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
McLaughlin, Mr. & Mrs. Gene K.	5234 N. Oberlin St.	Portland, 97203	285-6274
Marshall, Miss Emily L.	3471 S. W. Patton Rd.	Portland, 97201	223-6720
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, Mrs. Emma A.	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	636-2245
Miller, 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	2430 N. W. Marshall St.	Portland, 97210	----
Morrison, Mr. & Mrs. W. W.	13102 N. E. Morris Crt.	Portland, 97230	255-4175
Mueller, Mr. Godfrey	Green Acres Nursing Home 2060 N. E. 238th Dr.	Troutdale, 97060	665-4412
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
Nielsen, Mr. Howard E.	1230 S. W. Columbia, Apt. 2	Portland, 97201	223-6896
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
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
Perrault, Mr. & Mrs. Mark	9000 N. W. Cornell Road	Portland, 97229	292-4841
Peters, Mrs. Mae E.	2134 N. E. Fremont St.	Portland, 97212	287-6647
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
Prentiss, Mrs. Ruth Eliot	2004 N. E. 17th Ave.	Portland, 97212	281-0341
Prideaux, Elizabeth J.	12640 S. W. Riverside Dr.	Portland, 97219	----

Name	Address	City, State, zipcode (Oregon, unless stated)	Telephone
#Reimers, Mr. Fred	P. O. Box 885	Pendleton, 97801	----
Rentsch, Mr. Jess R.	Governor Hotel 611 S. W. 10th Avenue	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 Station	Berrien Springs, Mich., 49104	473-6942
Roberts, Mr. & Mrs. Walter E.	1055 - 16th St., N. E.	Salem, 97301	363-4249
Robertson, Mrs. N. M.	3405 N. E. Cadet Avenue	Portland, 97220	254-7106
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	223-0297
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
Sakai, Mr. & Mrs. William Y.	915 N. W. Joy Ave., Apt. 6	Portland, 97229	644-7188
Sanford, Mr. Paul L.	2435 S. E. 76th Ave.	Portland, 97206	774-4511
Scharpf, Mrs. Dorothy E.	7655 S. E. 17th Ave.	Portland, 97202	----
Schmidt, Mr. & Mrs. Arthur W.	9945 N. E. Shaver St.	Portland, 97220	254-2797
"0#Schminky, Mr. & Mrs. H. Bruce	1030 S. E. 54th Ave.	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
Seaman, Mr. & Mrs. Cecil E.	3925 S. E. Grant Court	Portland, 97214	----
Shrader, Mrs. Lea	1005 - 4th Street	Tillamook, 97141	----
"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	7606 S. E. Strawberry Lane	Milwaukie, 97222	656-1248
Smith, Miss Almeda	1285 Newberg Highway	Woodburn, 97071	----
Soderberg, Mrs. Margaret	2015 S. E. Harney St.	Portland, 97202	235-3821
Spaulding, Miss Jacquette E.	1411 S. W. Davenport Ave.	Portland, 97201	223-7495
Stahl, Mr. & Mrs. Clair F.	3235 N. E. 61st Avenue	Portland, 97213	281-2220
"0 Stanley, Mr. Orrin E.	2601 S. E. 49th Ave.	Portland, 97206	235-1250
" Stauffer, Dr. & Mrs. James C.	717 - 8th Street	Lake Oswego, 97034	636-3825
Steere, Miss Margaret L.	6929 S. W. 34th Avenue	Portland, 97219	246-1670
"# Stevens, Dr. & Mrs. James C.	13505 S. E. River Road	Milwaukie, 97215	654-3171 Ext 416
Stewart, Miss Emma Jo	431 S. E. 33rd Avenue	Portland, 97214	236-6903
Strong, Mr. Archie K.	4307 S. W. Idaho Drive	Portland, 97201	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, Miss 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.	4833 E. Burnside St.	Portland, 97215	236-2732
Thomas, Mr. & Mrs. Wayne P.	465 E. Clarendon St.	Gladstone, 97027	656-9932
Thoms, Mrs. Meredith E.	2030 N. W. Flanders St.	Portland, 97209	227-6973
Townsend, Mr. Paul Graham	2035 N. Saratoga St.	Portland, 97217	289-5490
Tracy, Mr. & Mrs. Orie	4876 N. Vanderbilt St.	Portland, 97203	289-2913
Travis, Mr. & Mrs. H. F.	1825 Sallal Road	Woodburn, 97071	----
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

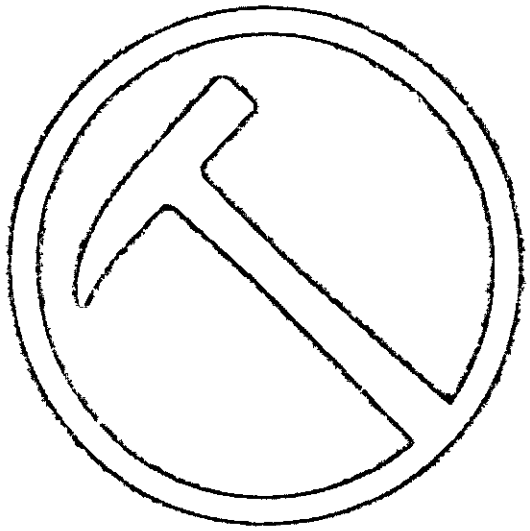
Name	Address	City, State, Zipcode	Telephone
0#Vance, Mrs. A.D.	5128 Cedros Avenue	Sherman Caks, Calif. 91403	----
Vreeland, Mr. and Mrs. Paul R.	16775 River Road	Milwaukie, 97222	654-7089
# Wade, Mrs. Tracy	3326 N.E. 25th Avenue	Portland, 97213	287-6060
Wagner, Miss Marie K.	1088 S.W. Gaines Street	Portland, 97201	222-3493
Waiste, Mr. & Mrs. Robert	133 S.E. 27th Avenue	Portland, 97214	235-4320
Walker, Mr. & Mrs. L. Lisle	2241 N.E. 162nd Ave.	Portland, 97230	252-4482
Walters, Mr. & Mrs. George W.	1345 N.E. 59th Avenue	Portland, 97213	282-4272
Wanka, Miss Hildegarde	2149 N.W. Everett St.	Portland, 97210	228-4232
Washburn, Mr. & Mrs. N. Brice	2905 S.W. 209th Avenue	Aloha, 97006	644-7609
Weber, Dr. & Mrs. David E.	8005 S.E. Morrison St.	Portland, 97215	253-7340
Werth, Mr. & Mrs. John H.	18005 S.W. Lower Boones Ferry Road	Tigard, 97223	639-1063
White, Mrs. Lillian R.	1830 N.E. 25th Avenue	Portland, 97212	287-7838
White, Miss Mella C.	7114 S.W. Brier Place	Portland, 97219	244-7125
Whitmer, Dr. John H.	9001 - 121st Street	Tacoma, Wash. 98498	----
" Wilbur, Mr. Robert F.	2020 S.E. Salmon St.	Portland, 97214	235-7284
Wilcox, Mrs. Betty L.	7827 S.W. 30th Ave. Apt 25	Portland, 97219	244-2505
Wilcox, Mr. & Mrs. Lloyd A.	16650 S.W. Lake Forest Blvd	Lake Grove, 97034	636-6594
Wilkinson, Mr. Leonard J.	1247 Powell Lane	Prineville, 97754	447-4077
Williams, Mr. & Mrs. Philip M.	4858 S.E. Grant St.	Portland, 97215	235-0612
Yantis, Mr. & Mrs. Luther	3325 S.E. Pinehurst Ave.	Milwaukie, 97222	654-6906
Zimmer, Miss Hazel F.	805 S.E. 60th Avenue	Portland, 97215	236-8319
Zimmer, Miss Ruby M.	805 S.E. 60th Avenue	Portland, 97215	236-8319

JUNIOR AND STUDENT MEMBERS

Bruinier, Mr. Terry	2570 S.W. Glen Eagles Pl.	Lake Oswego, 97034	636-2539
Hart, Mr. Robert	17023 S.E. River Road	Portland, 97222	654-7865
Jenkins, Mr. & Mrs. Lee	2445 N.W. Quimby St.	Portland, 97210	223-4519
Muck, Miss Laurie	Route 3, Box 905	Gresham, 97030	658-2698
Sakai, Mr. Ken W.	915 N.W. Joy St., Apt. 6	Portland, 97229	644-7188

0 Honorary Life Member # Charter Member " Fellow

Oct. 196



THE GEOLOGICAL NEWS LETTER

Official Publication of the Geological Society of the Oregon Country

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

Mr. Leonard Wilkinson, Jr.
1247 Powell Lane
Prineville, Ore.

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, Fr. 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				
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2 years	MILLER, Mr. Fred E.	3122 S. E. 73rd Avenue	Portland, Oregon - 97206	771-6154

GEOLOGICAL NEWS LETTER STAFF

editor	EWEN, Mr. Irving G.	4128 N. E. 76th Avenue	Portland, Oregon - 97218	281-7098
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. W. 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

G. S. O. C. CALENDAR FCR OCTCBER 1966

Please note that the scheduled meeting times shown are Pacific Daylight Saving Time (through Sunday, 31 October 1966).

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

12:00 M. - Once each week, GSOC'ers, guests, friends, etc. congregate in the Mountain Room (adjacent to the Main Cafeteria). These informal gatherings provide an opportunity to hear the latest of geologic news items, examine publications and specimens, or listen to occasional five minute talks.

Food items to suit a variety of tastes and budgets are available cafeteria style. For additional information telephone Mr. Leo F. Simon, Luncheons Chairman, at 236-0549.

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

7:30 P. M. - Dr. Ray A. Broderson, our third speaker of the Fall Series, will present an illustrated lecture on glaciers and evidences of past glaciation. Many GSCC'ers will remember this fine lecturer who spoke to the Society on 12 June 1964 on "Schlieren". Dr. Broderson is with the Department of Science and Math at Oregon College of Education, Monmouth, Oregon.

18 Cctober Tuesday — LIBRARY NIGHT - Lewis and Clark College in southwest Portland, Oregon

7:30 P. M. - The group meets in Peebles Hall (biology building) on the upper floor where the GSOC Library is housed. The evening commences with a "quiet hour" for browsing and reading. Books may be checked out through Miss Clara Bartholomay, GSOC Librarian.

8:30 P. M. - A workshop on the geology of the Eastern Slopes of the Cascades in Central Oregon will be conducted by Dr. Francis G. Gilchrist, Library Night Chairman. GSOC'ers who attended the Fourth Annual GSOC President's Campout are invited to bring slides and specimens of geologic interest from this area.

Refreshments served following the program. For additional information and/or directions see last month's News Letter (page 77), telephone Dr. Francis Gilchrist at 636-5942, or Miss Clara Bartholomay at 284-6986.

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

7:30 P. M. - Take an armchair tour along the Lewis and Clark Trail, from the Oregon Coast eastward, with Mr. Allen Epp. Mr. Epp, formerly with the Portland School System, is now an instructor at Portland Community College.

FIELD TRIP - Leader and itinerary to be announced. The overnight trip to Fort Rock tentatively scheduled with Jim Anderson as Leader has been cancelled due to a conflict in dates.

ADVANCE G. S. O. C. CALENDAR FOR NCVEMBER 1966

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

11 November Friday — LECTURE - Messrs. Robert Hart, Leonard Wilkinson, and Lee Jenkins will be speakers for the evening. These are the same three young men who led the successful overnight trip to the Eugene-Roseburg area on 17 and 18 September.

L. LISLE WALKER

It is with the deepest regret that we record the tragic death of L. Lisle Walker while leading a climb of Mount Adams on Saturday, September 17, 1966.

Lisle was born in Portland on January 3, 1915. He attended Lincoln High School and Oregon State University where he studied Forestry. He continued graduate studies at the University of California at Berkeley. At the time of his death, he was employed in the Multnomah County Assessor's office.

He was married in Corvallis in 1941 and he is survived by his wife Muriel, one son Mark, and three daughters, Gay, Joy, and Mirth.

Lisle was very active in the Boy Scout movement and, during the past 35 years, he earned 88 merit badges. He received the Silver Beaver, the highest award for an adult leader for his voluntary work in many capacities.

In 1959, he joined the Mazamas and became very active in that organization. He was chief of the Mazama Basic Climbing School, Head of the Climbing Committee, and Chairman for the Mazama Annual Publication. In 1964, he received the 16 Major Northwest Peak Award.

Through his many activities, Lisle developed a wide circle of friends and acquaintances and, at the funeral service at Rockwood Methodist Church at 1:00 P. M., Thursday, September 22, the building could not hold all those who came to pay a last tribute.

The Society is the poorer for the loss of this member, a man who was unassuming, patient, helpful and understanding, and we extend our sympathy to Mrs. Walker and her family.

Hugh Owen

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

NEWS OF MEMBERS
by Rowena Hoven

At the big agate and mineral show of the Northwest Federation of Mineralogical Societies, hosted by the Oregon Agate and Mineral Society and held in the Coliseum on September 3, 4 and 5, GEORGE and JENNIE WALTERS were awarded the First Blue Ribbon for the best case of invertebrate fossils in the Advanced Division, and the Plaque for the best fossil case in the Advanced Division. MR. and MRS. CARL FINK received a First Award in Lapidary Novelties in the Novice Division, and the Rosette for the best display in the Lapidary Novice Division. SHIRLEY BISHCP and ERNEST BLAKESLEE had a beautiful display of jewelry. Congratulations to all of you wonderful Gsocers.

At the annual meeting of the Oregon Museum of Science and Industry on September 23rd, LEO SIMON was given outstanding recognition when he was awarded a handsome trophy inscribed as follows: "To Leo Simon, OMSI's greatest authority on everything scientific". This is a magnificent tribute to our LEO.

MARJORIE FESSENDEN is back getting the school year started at Lewis and Clark College after an exciting vacation trip which included two weeks in Alaska and then to Idaho for a visit with her family.

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Volume 32, Number 10

DESCHUTES CCUNTY VOLCANICS

by Clair F. Stahl

Fourth Annual GSCC President's Campout
Moon Country of Central Cregon
13 August through 19 August 1966

The surface areas studied during the GSOC President's Campout at Todd Lake are of Pliocene, Pleistocene, or Recent age, with the same progression of events applying to all areas. First, in the Pliocene, great shields of dacite or andesite were deposited and some of the present mountains built. Then came the Pliocene-Pleistocene glaciation, and last, Pleistocene-Recent volcanic cone building with comparatively small lava flows of basalt and andesite.

The first study area, at the head of the Deschutes Valley, is easily observed from Bachelor Butte. The butte itself is a basaltic cone which has continued its activity into recent times. From the top of the chair lift it is a short walk to a small parasitic cone from which the entire area can be seen. The dominant feature is the composite cone South Sister, the youngest of the Three Sisters. The present cone, with a crater in its top, is relatively untouched by glacial action. That it apparently started as a parasitic cone on the side of an older cone is indicated by an unconformable section of the old mountain at an altitude of about ninety-eight hundred feet on the east shoulder. About four miles east of South Sister is Broken Top. Crook Glacier occupies what appears to have been the core of the mountain before the southeast side was eroded by glacial action, revealing the internal structure of this Pliocene strato volcano. Cayuse Cone, on the south side ot Broken Top, is a typical parasitic cone, much younger in age, probably recent. This cinder cone over the vent threw out many lava bombs, some of which can be seen along the Ditch Cabin-Green Lakes trail. Three miles southwest of Broken Top, along the east side of Devils Hill, are an unusual line of dacite-obsidian eruptions or extrusions running north from Century Drive to the base of South Sister. These tholoid (plugged dome) eruptions are of recent origin, about the same age as Rock Mesa, and show little or no flow lines. At the south base of South Sister are two unusual features. First is the dacite-obsidian flow (Rock Mesa) which has typical spires and blocks on the rough broken surface of a viscous obsidian flow. It appears to be about one hundred feet thick at its edges and comes from a central domed vent. The second is Le Conte Crater, a four hundred foot high cinder cone at the south edge of the Rock Mesa. This cinder cone is covered with a mantle several feet thick of pumice ranging from powder to nut sized fragments, as is the area around the base of Broken Top and the whole of Wickiup Plain to the southwest. On Le Conte Crater pieces of obsidian, basalt, rhyolite, dacite, and even glaciated boulders are mixed in with the pumice. This whole Le Conte Crater mantle is thought to have been blown from vents in the area now covered by Rock Mesa.

The next study area is along what has been called the Northwest Rift Zone, running from Lava Butte southeasterly to Newberry Crater. A fine paved road has been built to a viewpoint visitor center and parking area at the top ot Lava Butte. Here, for the visitor who wishes to walk the trail around the rim of this five hundred foot high cone, the story of a volcanic cone and lava flow is told by placards and explanations installed by the Forest Service. The twelve square mile flow of basalt that lies north and west of here came from a vent in the south base of the butte and is believed to be the most recent flow in this area. It has covered the old Deschutes Valley here and created Benham, Dillon, and Lava Falls by forcing the Deschutes River against the valley's western wall. About one and one half miles south of Lava Butte is Lava River Cave State Park. Here is a fine example of a lava tube in the older Newberry Crater Volcano flows. Another eight miles southeast is the Lava Cast Forest where Pahoehoe lava formed many tree casts. On some casts, hardening around trees that withstood the lava, the force of the current left a lip as much as three feet above the flow. This lava is older than the Lava Butte flow. Charcoal found by Peterson and Groh places its age at sixty-one hundred and fifty years. Newberry Crater, the dominant feature of this study area, probably has more varied volcanic activity than any other area of like size. This can readily be seen by taking the good but steep road to the vantage point at the top of Paulina Peak on the caldera rim. It is thought that during the Pleistocene

Dr. Jim Stauffer stops for a geological observation on the way to Le Conte Crater, right, where GSOC'ers stand, two on the bottom and one on the far rim.

President Lloyd tells Reba: "There's only one Trip Log left."

Dr. Stauffer points to view from rim of LeConte Crater.

GSOC'ers gather on the way to Broken Top

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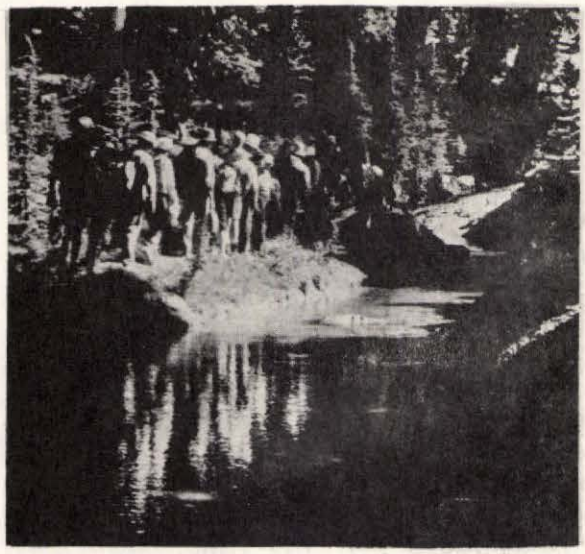

Dr. Francis Gilchrist leads the nature walk along Crater Creek Ditch. Photo by Truman Murphy

Caravan Leader Wilcox calls: "Round 'em up! Head 'em out!"

Edward A. Groh discusses the contact between flows from Little Belknap and Yapoah Craters, at picture center.

President Wilcox directs attention to the panorama of geology spread out from the north cone of Bachelor Butte.

The activities of the day just ending, the universe about us and the world of song were features each evening under the direction of Truman Murphy.

Deschutes County Volcanoes - cont'd.

epoch the caldera was a ten thousand foot high mountain built on a broad shield. The base, twenty miles or so in diameter, is of basalt and rhyolite unlike the dacite bases of the major Cascade volcanos. The outflow of magma, probably in the late Pleistocene, from fissures low on the flanks drained the central reservoir of the mountain causing it to collapse along concentric lines. Later erosion and caving enlarged the crater to its present size. Volcanic activity continued until recently as shown by a row of vents inside the caldera. These vents first poured out basalt, then rhyolite, and finally blew out pumice to form cones. Also inside the caldera are four recent obsidian flows. The largest, Big Obsidian Flow, is on the south side. This one hundred foot thick flow, which is composed of seventy-four percent silicon dioxide, poured from the tholoid vent at about eight hundred degrees F. The Interlake Flow erupted from the north caldera wall and came against a large pumice cone where it divided to flow into both Paulina and East Lakes. East of the Interlake Flow is a fissure on the Rift Zone which, Williams said, had both basalt and rhyolite eruptions occuring at nearly the same time.

The last study area is the McKenzie Pass Volcanics. From the Dee Wright Observatory the Belknap Flows illustrate the building of a broad shield and how kipukas or islands may have been left uncovered. Belknap Crater is a twin cinder cone while Little Belknap is a satelite tholoid vent about one mile east. From the north shoulder of North Sister, oldest of the Three Sisters, Yapoah Crater poured a thick, coarse flow of aa north to come against the south edge of the Belknap Flows. At this point it turns to flow east for four miles. The Dee Wright Observatory is built on this flow about one quarter mile southeast of a contact between the two flows at a kipuka. To the north, over the Benknap Flows, is Mt. Washington which, like the North Sister, is the central plug remnant of a mountain that has been much eroded by glacial action.

The volcanic processes of this area having been little influenced by other geologic factors can be a valuable aid to understanding both the eroded and the hidden volcanics. This together with the spectacular forms and beauty make this area a mecca for the vulcanologist and the tourist alike.

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Recent Volcanic Land Forms in Central Oregon. Peterson and Groh 1963

Note:

All photographs shown (pages 86, 87, 89, 90, & 96), unless otherwise noted, were taken by Fred E. Miller.

Ed.

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

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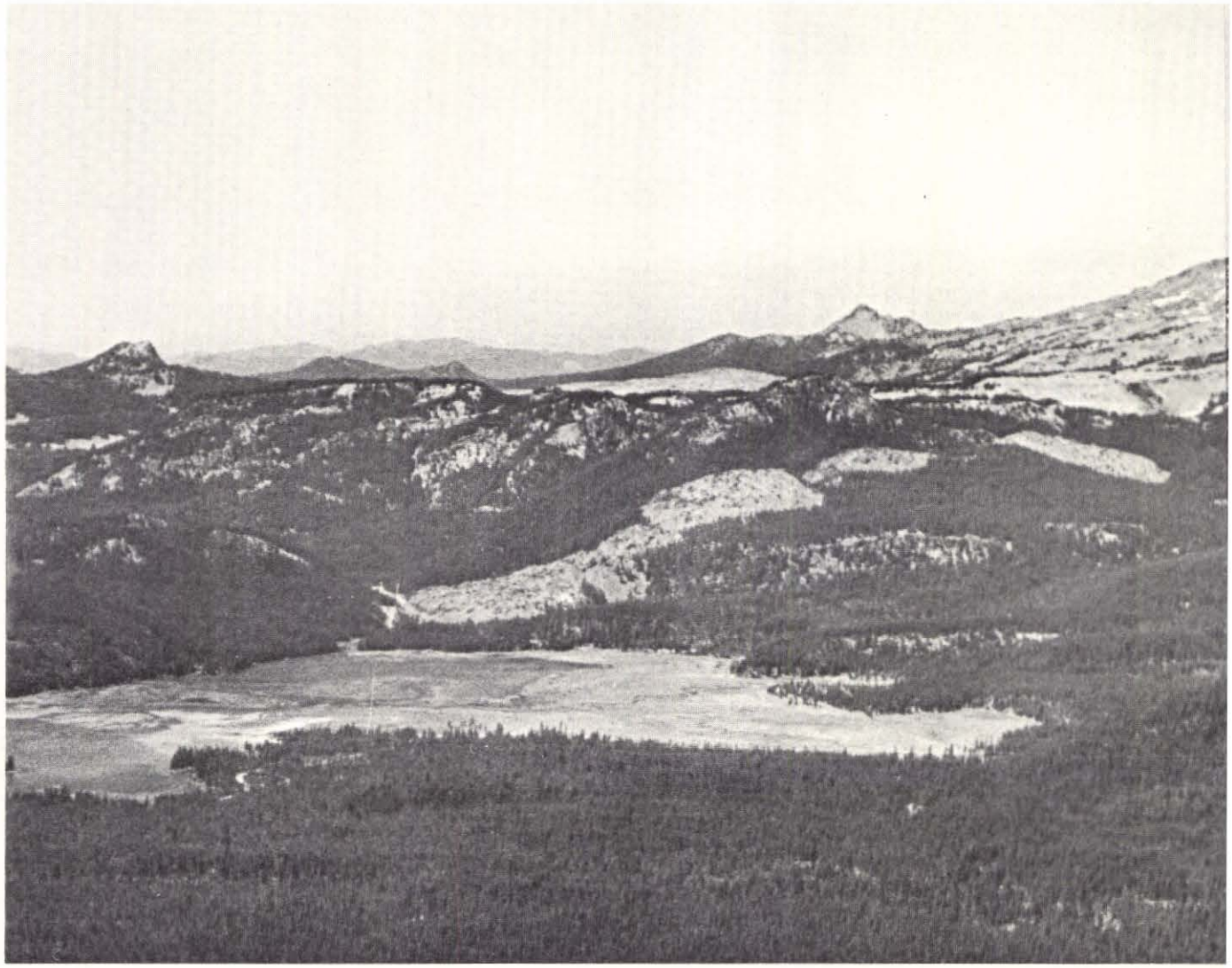
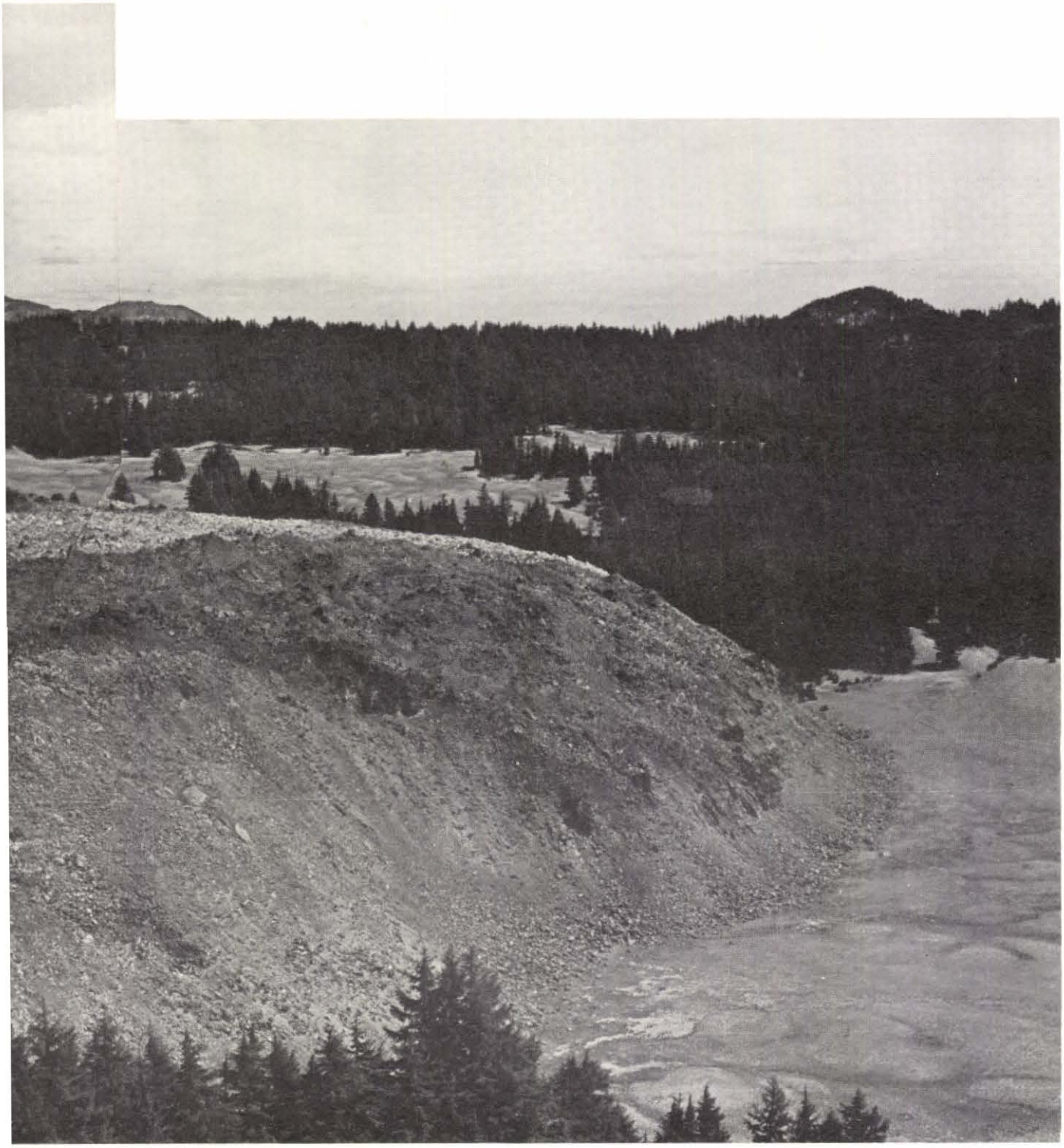
Panorama of topographic features available to the north and northwest from the north basaltic cone (7800' elevation) on Bachelor Butte. Starting from the right are Ball Butte and Broken Top on the horizon and nearer the viewer Todd Lake and the edge of a glaciated andesite and dacite flow at the road junction to Todd Lake.

Westward along the horizon are the North, Middle and South Sisters. At the right tip of the dacite flow on the near slope of South Sister is a glimpse of Green Lakes and in the near foreground the quarry of the iridescent cinders.

As South Sister drops to the southwest The Husband, Devils Hill, Rock Mesa, Kaleetan Butte behind which are Le Conte Crater and The Wife, and finally The House Rock are seen in that order. Closer is Sparks Lake backed by Talapus Butte on the left and the chain of dacite domes and flows along a north-trending fracture.

Rock Mesa, viewed from the rim of Le Conte Crater, a dacite obsidian flow from a vent on the flank of South Sister on the left. The profile of Broken Top shows in the center background.





CAMPCUT SOCIAL NOTES

by Rowena Hoven

Fourth Annual GSOC President's Campout
Moon Country of Central Oregon
13 August through 19 August 1966

The members of the President's fourth annual campout in Bend's "moon country" not only discovered the moon but they also discovered that they have legs. Thereafter there was no stopping them. Clutching pills and canteens, the campers hiked many miles through high mountain meadows, over lava fields and up craters. There was very little of this business of driving up to a road cut, getting out, pounding a few rocks and taking a picture -- instead we hiked, hiked, HIKED, and found that there is a whole new world out there.

The campout was held officially from August 13 through August 19, and our base camp was at Todd Lake, on the Century Drive. The first arrivals camped down by the lakeside and the others pitched their tents and arranged the campfire circle up on the "heights". A total of 49 participated and an additional 14 visitors and members attended the campfire sessions. The weather was marvelous, the campers the best in the world, and the program and territory covered were superb.

The main contingent arrived on Saturday, the 13th. That night at our first campfire session Truman Murphy, Chairman in Charge of the Campfire Programs, tuned his trusty guitar and conducted group singing. Then, inspired by the invigorating night air, Lloyd Wilcox and Truman told some strange and marvelous stories. After the campfire coals had been scattered, Pegi Stahl brought out her binoculars and we all looked at the famous Andromeda Nebula, the brightest nebula in the sky and a truly fascinating spectacle. To the naked eye it appeared as a fuzzy star, but with the binoculars it was an oval patch of haze. This object is a galaxy, a Milky Way system like our own, perhaps composed of a hundred billion stars, revolving in a sort of stellar pinwheel. We also saw satellites whizzing by in the sky several evenings during the campout.

Sunday morning we set out for Bachelor Butte by way of the ski lift, a first experience for many of us. The operators of the lift took one look at us and decided to slow it down to half speed. In order to instill us with confidence, Lloyd Wilcox and Clair Stahl bravely volunteered to be the first to blast off. They had no sooner landed safely at the top when the power went off and the rest of us were left dangling in midair. It developed that one of our riders was trying to strap her lunch in as well as herself and the strap just wasn't long enough. We scrambled over the lava to a vantage point for geologizing, picture taking and lunch (It's the little things in life that count, like lunch). Somehow we did not envy the skiers on the nearby snow field. The return trip proved to be more terrifying as suddenly we seemed to be plunging right into outer space. We had just gotten into orbit when my traveling companion announced that high places always gave him an urge to jump. I too have the same feeling and I thought how sensational it would have been if we had loosened our seat belts and plunged off into space, hand in hand. Half way down we met Gwen Helm and her two grandchildren (Denise and Curtis) on their way up. They had been delayed as it took longer to pack the camping gear than they had anticipated. Later in the afternoon I was attracted by the sight of Gwen's handsome tent. I marveled at its shipshape appearance and Gwen admitted it took a little doing to get it up as she did not have any instructions for the operation. Whereupon Denise solemnly assured me "it was a miracle" that the tent was upright. It seems several campers rendered advice and assistance before Denise finally figured out the key to the puzzle.

After the singing session, the Sunday night campfire was enlivened by original poems built around the first line of "Mary had a little lamb". The results were astonishing. Dr. Francis Gilchrist was the speaker on both Sunday and Monday nights and he conducted an open discussion on the outer space explorations, their significance and purposes. (Of course we managed to get in a few discussion on other subjects also.)

The Stahl's tent fell down today.

On Monday we had a beautiful nature walk up to the base of Broken Top with Dr. Gilchrist

Campout Social Notes - cont'd.

as leader. After lunch, some walked to the glacier, others went up to the high flower gardens, while one daring group consisting of three teenagers, six women, and Clair Stahl (who offered to go along in order to protect the women and children from wild beasts, and to be the final authority in the event a disagreement arose as to which trail to take), started the 8-mile hike to Green Lakes, down Fall River and thence to the highway where cars were to meet us at 5:00 p. m. It was an exciting hike and we marveled at the view, the flowers, and the many springs of beautiful water. Thanks to Clair's leadership, we enjoyed a truly magnificent experience.

That evening while we were busy preparing dinner, who should come hot-rodding through the forest but Leo and Johanna Simon. The fact that Leo was forced to get around with the aid of crutches did not prevent him from carrying on his usual active role on the campout. We had a lively campfire session that night. One of the Green Lakes hikers managed to make it with the aid of her camp stool (one step, collapse on the stool, another step, another rest, etc.) The Stahl's tent went down again today but there was a nasty rumor that Pegi had something to do with its downfall because she had been abandoned by Clair while he accompanied all "those women" to Green Lakes. After our singing session, each camper recited an original limerick, using the campout as the theme.

Leo Simon was the leader on Tuesday's tour to Lava Butte. The visit was enlivened by Lloyd's trip down into the crater to pick up lava bombs that his eagle eye had spotted. Fortunately a rope was handy and an old cowhand in the group tossed it down to assist Lloyd on the way up with his pay load. The lunch stop was at the Lava River Caves Park and then on to the Lava Cast Forest. Back at the camp late in the afternoon we found that the Stahl's tent had gone down. Dr. James Stauffer spoke at the campfire, telling us something about the next day's trip to Le Conte crater.

Wednesday was the big hike (straight up) to Le Conte crater on the south edge of the South Sister under the leadership of Dr. Stauffer. It was a day of surprises as we watched our active group scramble to the top. Half way down the trail on the return trip we met Margaret Steere who had arrived about noon, put up her tent, and without even packing a lunch, started out to find us. After we met on the trail, she decided to go on a little farther towards the crater, and eventually she went all the way to the top, accomplishing in 3-1/2 hours what had taken us all day to do.

Lillian Miller, that meticulous housekeeper, had to wash and rinse her dishes in the same pan that night because an enormous spider had built a web in her rinsing pan. Oh yes, tStwd. Leo was our speaker at the campfire that night, giving us additional information on our campout country.

Thursday was our biggest day. We met our leader, Mr. Edward Groh, at Paulina Lake and immediately set forth to conquer the heights of Paulina Peak, led by our sherpa guide, Lloyd Wilcox. While there we met Mike Higgins, a geology student at the University of California in Santa Barbara, who is writing his thesis on the geology of Newberry Mountain. Our itinerary included the big obsidian flow enroute to East Lake, East Lake itself, and then to Paulina Falls for lunch. On the way home, Lloyd embarked on a side trip to the biggest Ponderosa pine in Oregon, and we all dutifully followed--back and forth, in and out, over a maze of dirt logging roads we went, convinced he was leading us around in circles. Two pounds (per person) of dust later, we arrived at an almost impassable stretch of dusty road, which we somehow managed to negotiate, and finally distinguished the forms of Reba and Lloyd. We walked down to the tree, admired it and the beautiful Deschutes nearby, and then started back over the same route. Lloyd didn't lose a car en route, but several in the group dined at Elk Lake Lodge that night because of the lateness of the hour. Clara Bartholomay arrived during the day and set some kind of a record by pitching her tent unaided. That night during the campfire singing, the Ponderosa Pine Group (choked with emotion and dust) sang an original composition which they dedicated to Lloyd.

(next page)

Campout Social Notes - cont'd.

A Gritty Tribute to Lloyd A. Wilcox
(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!

(Kerchoo)

After the campfire "sing", Ashley Poust, Supervisor of the Deschutes National Forest (Bend), brought us greetings and told us something about the work being done by the Forest Service and the various groups and individuals who are utilizing the recreational facilities of the area. Phil Brogan was there with Mrs. Brogan, our GSCC representatives on the Bend Bulletin, and he spoke to us about the early history of the Bend country, the explorers, the people who developed the town, and the growth of the area. He also confided that a distinguished visiting scientist had the impression that a mountain had been named for him ("Brogan Top", of course). Ed. Parker, the Recreational Director for the Deschutes National Forest, and his wife also attended and he showed slides of the birds and flowers found in the Forest. We were impressed not only by the beauty and variety of the pictures but also by the fact that he brought his own generating plant in order to show the slides.

At a late hour, we realized that the Stahl's tent.....

Friday we had a delightful drive to McKenzie Pass and another session with Mr. Groh as leader. Later in the afternoon people went off in all directions: Some started the trip home to civilization, some went to Benham and Dillon Falls, another group visited an intra-canyon lava flow. That night at the campfire we had some visitors from Germany who were camped nearby, Mr. and Mrs. Wolfgang Gruhle and their two children. He is on leave of absence from the University of Cologne and is spending a year at Stanford. We had quite a session as he answered our questions about his native land. During the week other visitors who shared our campfire were Mr. and Mrs. Burlingame and son Ronald from Pomona, California, and Mr. and Mrs. Larry Dale. He is working on his doctorate in education at Washington State.

Saturday was a day of departures. The Stahl's tent collapsed for the last time. Everyone eroded off the campsite on the "heights" and only the hard core in the lower lakeside camp remained. That night Truman Murphy prepared an enormous kettle of potato soup and invited the last five campers for a potluck dinner. There was singing later around the campfire, courtesy of George and Jenny Walters.

Sunday there was a leisurely walk around Todd Lake. After postponing their departure as long as possible, about mid-afternoon Clara, Margaret, and Rowena reluctantly started the job of packing. Our gallant George Walters came over to assist Margaret and to give technical advice on how to take down her new tent. They made rapid progress and were getting ready to fold it before Margaret discovered she had neglected to remove her belongings from inside the tent -- so it was up with the tent again, gather up the sleeping bag, air mattress, etc., etc., and then down with the tent -- and finally "goodby" to Todd Lake, the Walters and Truman who stayed over until the next day.

Outstanding and memorable events draw a group together and enrich their lives in a special way. Those who made up the Green Lakes Group will always cherish their hike together and no one else will ever exactly duplicate the experience they shared that day.

Campout Social Notes - cont'd.

A rather exclusive "Torn Pants Club" was organized during the week, but so far it just has a president and vice president as members. But "we few, we happy few, we band of brothers" who comprised the Todd Lake Group during the President's 1966 campout will forever be joined by an invisible bond because we participated in an unforgettable and unique experience. Cur President expressed this spirit in his poem which he read at the final campfire that officially ended the campout.

P.S. The President has one trip log left if anyone would like to buy it!

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NOMINATING CCMMITTEE SELECTED

President Lloyd Wilcox has appointed the following members to serve on the Nominating Committee for the coming year: Laurette Kenney, Ruth Keen, Leonard Delano, Paul Dunn and Ralph Mason. The members were appointed in the order named and all but one agreed that the last to be appointed should serve as chairman. The chairman is busy promulgating a series of tests to screen prospective candidates for the various offices. Although not complete, some of the questions to be asked are: Can you tell the difference between a mineral and a rock? Is Neolite a metamorphic or sedimentary rock? How many organizations does Leo Simon belong to? The chairman welcomes any further suggestions which will ensure that the high calibre of this year's officers will be continued.

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GSCC LIST OF PUBLICATIONS

	Price
Geological Guide Book for Central Oregon Prineville - Paulina - Suplee - Delintment Lake	$ 0.25
The Columbia River Gorge Geological notes from Cascade Locks to Bingen	0.25
Geological Trip Log Through the eastern foothills of the Oregon Coast Range between Vernonia and Banks on the Vernonia, South Park & Sunset Steam Railroad	0.25
Geological Trip Log Vernonia, South Park and Sunset Steam R.R. "Sunset Tours" Railway Excursion through the Columbia River Gorge and "Grand Canyon" of the Deschutes River via SP&S from 10th and Hoyt, Portland, to Wishram, Wash., thence by Oregon Trunk Line to Madras, including Dr. Paul Howell's outline of geological features.	0.25
Our Central Oregon "Moon Country" Trip logs: Salem to Bend via North Santiam Highway Bend to Todd Lake via North Century Drive Bend to Newberry Mountain and to Todd Lake via Highway 97 and South Century Drive Area Bend to McKenzie Pass area and on to Clear Lake Hignway	0.50

The above publications may be purchased from:

State of Oregon, Department of Geology and Mineral Industries
1069 State Office Building
Portland, Oregon 97201
(For mail orders, add 10 cents per order)

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G. S. O. C. SCHOOL OF GEOLOGY

Dr. Paul W. Howell, Dr. John Eliot Allen, Mr. Ralph S. Mason, and Mr. Mark Perrault have been authorized by the Executive Committee of the Society to organize and conduct a G. S. O. C. -sponsored course of study in geology. The members of the Executive Committee felt that this was in keeping with the Aims and Objectives of the Society.

Classes will be conducted in a college type manner, lecture and laboratory sessions of two hours each. Classes will be held at some convenient location in the Portland area on Monday evenings from 7:00 P. M. to 9:00 P. M., commencing 9 January 1967.

The classes will be directed by professional geologists of the Portland area. The course work will cover basic geology, particularly as seen in the Pacific Northwest, and primarily in a manner as will be beneficial to those who attend field trips and other geologic functions.

The series will begin with the explaining of various geologic products, outling and discussion geologic processes, and geologic history. The final class will be a special field trip designed to acquaint the students with actual geologic field investigation.

Enrollment fees are $15.00 for each GSOC Member attending. For Non-Members the fee is $20.00, of which $5.00 covers membership dues for one year in the Society. The enrollment will be limited to the first 40 paid applicants. GSOC Members have preference until 1 November 1966. After this date applicants will be enrolled as registrations and fees are received.

Information and registration forms may be obtained from Mr. Mark Perrault, 9000 N. W. Cornell Road, Portland, Oregon - 97229. (Phone number is 292-4841.)

Outline of GSCC-Sponsored Course

I. GECLOGIC PRODUCTS
- A. Geologic names
  1. Rocks
  2. Minerals
  3. Landforms
  4. Structures
- B. Why so named
- C. Identifying characteristics
- D. Differentiating characteristics

II. GEOLOGIC PROCESSES
- A. Geologic names
  1. Erosion
  2. Transportation
  3. Deposition
  4. Diastrophism
  5. Metamorphism

III. GEOLOGIC HISTORY
- A. Physical History
- B. Paleontology
- C. Interpretation and summation

IV. FIELD METHODS
- A. Tools of the trade
- B. Collecting the data, system and order
- C. Field trips
- D. Reports
  1. Minerals
  2. Rocks
  3. Gross geologic products
  4. Structures
  5. Landforms

Standing by my morning campfire
While the air is calm and still,
I watch the golden rays of sunshine
As they tumble down the hill.

Watch them creep across the meadow,
And in one great final burst,
Give a rousing mountain welcome
To the folks who get up first.

This is one of life's good moments.
This is one that I like best.
This is living at its greatest,
In our country's Golden West.

Followed by a day of hiking
On beautiful High Cascade trails,
Where the mountain lion rambles
And the lone coyote wails.

Where in lush green mountain meadows
You can spend so many hours
In the Autumn month of August
Viewing wonderous springtime flowers.

Or perhaps a gentler pass time
Would be for us to take a ride
On the smooth and scenic chairlift
Up Mt. Bachelor's rocky side.

On this panoramic viewpoint
What a happy time we spent!
Eating lunch upon the summit
Of an old volcanic vent!

Gather with good friends about you
As the evening sun goes down.
Knowing well the peace you've garnered
Couldn't reach you back in town.

As you sit there in the darkness,
Under Heaven's lofty vault,
Stars are twinkling down upon you,
And the world is without fault.

You will swear by all that's holy,
There will never be a doubt!
It has been a great experience-----
The Geesock President's Campout!!!!!

(Lloyd A. Wilcox)

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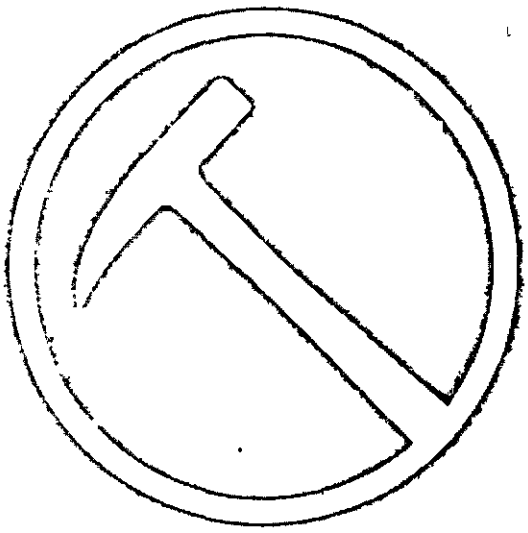

THE GEOLOGICAL NEWS LETTER

Official Publication of the Geological Society of the Oregon Country

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

Mr. Leonard Wilkinson, Jr.
1247 Powell Lane
Prineville, Ore.

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G.S.O.C. CALENDAR FOR NOVEMBER 1966

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

12:00 M. - In addition to partaking of the mid-day repast, GSOC'ers, guests, and visitors have an opportunity to examine and/or discuss geologic publications, specimens, et cetera or hear occasional five-minute talks. A variety of food items can be obtained at moderate prices in the Main Cafeteria. Just bring your purchases, whether a trayfull or a trifle, to the Mountain Room (which is just beyond the Foothills Room).

More information may be obtained from Mr. Leo F. Simon, Luncheons Chairman (telephone number 346-0549).

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

7:30 P.M. - A threefold program will be presented by Mr. Lee Jenkins, Mr. Leonard Wilkinson, and Mr. Robert P. Hart. Subject to be announced. Messrs. Jenkins, Wilkinson, and Hart are the same trio who guided the overnight field trip on 17 and 18 September to the Eugene-Roseburg area.

12 November Saturday — FIELD TRIP - Fort Vancouver National Historic Site, Washington

9:00 A.M. - Assembly point will be at the Visitor Center which is east of Vancouver Barracks. Mr. Eliot Davis, Superintendent, will conduct a tour of the historic Fort which is under reconstruction. Also included will be a tour of the museum building.

12:00 M. - Lunch will be at the Site. Coffee will be served, but bring your own lunches. If inclement weather prevails shelter will be available.

1:00 P.M. - The group will reassemble and spend the afternoon visiting selected geologic points of interest within a 25 mile radius of Vancouver.

Bring the usual recommended items excepting Toll Tokens (the Interstate Bridge will once again be TOLL FREE beginning 1 November 1966!) More information may be obtained from Mr. Lee T. Gavigan, Field Trips Chairman (telephone number 289-8041).

15 November Tuesday — LIBRARY NIGHT - Lewis & Clark College in southwest Portland, Oregon.

7:30 P.M. - The first hour is reserved for browsing and reading in the GSOC Library which is located on the upper floor of Peebles Hall (biology building). An opportunity is provided to check out books for more intensive study at home. Miss Clara L. Bartholomay is Librarian.

8:30 P.M. - The second hour will be a workshop similar to those conducted by Dr. Francis G. Gilchrist during the first two Library Nights of the current academic year. Igneous rocks will be discussed. Those attending are invited to bring representative samples of volcanic and plutonic rocks collected on field trips.

Refreshments following the workshop. More information and/or directions may be obtained from Dr. Gilchrist, Library Night Chairman (telephone number 636-5942) or Miss Bartholomay (telephone number 284-6986).

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

7:30 P.M. - Dr. Paul W. Howell, a past president of GSOC, will present an illustrated talk on the "Geology of Glacier National Park". The "windshield geology" tour will also include parts of Idaho and the southern Canadian National Parks.

More information on lectures may be obtained from Mr. Donald D. Barr, Lectures Chairman (telephone number 246-2785).

NEWS OF MEMBERS
by Rowena Hoven

ESTHER HAMMOND and VIOLA CBERSON are recovering from surgery. We hope we will soon see them again at the meetings.

Since their marriage last spring, RUTH HOPSON and AL KEEN have been having difficulty getting their residence officially established in the GSOC publications. For the record, MR. and MRS. ALBERT KEEN are living at 4138 S.W. 4th Avenue, Portland.

ELIZABETH BARBER (Elizabeth Gilliam for those with short memories) has been elected President of the Livewire Toastmistress Club.

LEO SIMON was very active in setting up the recent Mushroom Show at OMSI which is put on annually by the Mycological Society. The 1966 annual report from CMSI has a picture of him telling some interested observers about mushrooms. The picture is captioned: "Simon Says".

HAROLD DEYOE has been visiting in Portland and renewing GSOC contacts at the Thursday luncheons.

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MEMBERSHIP RCSTER

name	street address	city, state and zip code	telephone
NEW MEMBERS			
BEALS Mr. and Mrs. Herbert K.	475 E. Clarendon St.	Gladstone Oregon - 97027	656-2370
CHAPMAN Dr. M. P.	Box 297	Sherwood Oregon - 97140	625-6628
HEGE Mr. & Mrs. William D.	818 S.E. Lambert St.	Portland Oregon - 97202	235-7623
HELFRICH Mr. and Mrs. Merle C.	251 N.E. 133rd Ave.	Portland Oregon - 97230	253-7446
MILLER Miss Doris F.	170 Holly Street	Prineville Oregon - 97754	
ADDRESS CHANGES			
JENSEN Mrs. Roberta	General Delivery	Colfax Washington - 99111	
PETERS Mrs. Mae	5716 N. Greeley Avenue	Portland Oregon - 97217	285-6605
SANFORD Mr. Paul Lloyd	315 North Broadway	Burns Oregon - 97720	
TALBOT Mr. and Mrs. John J.	6404 S.E. 23rd Avenue	Portland Oregon - 97202	236-2732
TRAVIS Mr. and Mrs. H. F.	15635 Royalty Parkway King City	Tigard Oregon - 97223	

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Volume 32, Number 11

DUSTY WATER

By Ralph S. Mason*

The State Department of Geology and Mineral Industries has just completed an interesting, short term project which has attracted quite a bit of attention. Dr. Jack Green, an astrogeologist from southern California who has done considerable work on the volcanic rocks of central Oregon with respect to their lunar similarities, suggested to the Department of Geology and Mineral Industries that much valuable information would be developed if someone would attempt to extract "combined" water from some of the rocks in the Bend area. He further suggested that simple heating in a suitable vessel ought to do the trick. The object of such research would be to determine the feasibility of obtaining water from similar rocks on the surface of the moon. If such a thing were possible the saving in transporting water from the earth to support lunar-based colonies of scientists would be tremendous.

The Department of Geology has long been interested in lunar research, particularly in those phases involving the study of volcanic rocks. Dr. Green's suggestion was, however, received with some misgivings. Research of this type, involving an entirely new approach, characteristically involves large expenditures of money for equipment and laboratory facilities, to say nothing of the manpower required for extended periods. The Department had no funds available and little space for setting up the experiment. The Director, Hollis M. Dole, assigned Tom Mathews and the author to "Project Moonshine" as it was promptly nicknamed, on September 2 with instructions to construct the equipment, run a series of tests on samples to be gathered from the Bend area - and have a successful operation ready for Dr. Green's inspection by October 14. The actual rock selected for the tests was Tumalo tuff, a Plio-Pleistocene, partly sintered, ash flow tuff member of the Madras Formation. The tuff contained 15 percent of "free" water and 2.5 percent of "combined" water.

The short time allowed for the project precluded the construction of any special devices. A canvass of local suppliers revealed that heavy duty electrical heating elements which could be shaped to a variety of configurations and which were rated at 5000 watts at 220 volts were available. Computations showed that a cubic vessel 18 inches on an edge would hold about 100 pounds of rock. A local furnace manufacturer was located who used a box almost exactly this size for a hot air furnace. Insulation consisted of half-inch-thick asbestos board inserted on the inside surfaces of the box, plus a layer of aluminum foil inboard from the asbestos. Cn the outside, glass wool blankets were wrapped around everything. A half-inch copper tube about 4 feet long was attached to a pipe extending across the top of the box. The pipe had numerous slots to receive any moisture. A standard laboratory cold-water jacketed condenser was attached to the end of the copper tube.

Cddly enough one of the biggest problems encountered during the tests was the sealing of the box against vapor leaks. Cn the original run steam seemed to come out of hairline cracks even more readily than it did out of the open pipe. Thick layers of furnace cement eventually solved the problem. The first two test runs were made with a flat cover on the box. It was decided that better steam collection might be made with some sort of dome on the lid. Accordingly a 6-inch cylindrical "can" was welded on and the copper pipe tapped into the top. This greatly improved the operation. Maximum temperature achieved on any of the test runs was 800° C. Water began coming off, however, at about 550° C. Undoubtedly steam was produced at much lower temperatures but recondensed in cooler portions of the furnace during the early stages of the heating.

Space for testing the furnace and preparing the sample charges proved to be a bit of a problem. The samples were screened to eliminate fines at one of the project worker's homes and later the oversize pieces were crushed in the Department crusher. Fortunately one of the Department staff members happened to be away from his office during the test period and the furnace, condenser, and temperature recording equipment were promptly

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

Dusty Water -

installed there. The net space thus available amounted to 20 square feet. Three thermocouples were placed in the furnace and frequent temperature readings were taken throughout the various runs. The need for temperature data was twofold. First, there was no information available on the maximum temperatures permissible with the heating elements when used in this service. Normally this type of heater is installed in an air-swept chamber where rapid heat dissipation is possible. The low heat conductivity of the Tumalo tuffs plus the static air condition imposed entirely new conditions for which no data were obtainable. The second reason for needing to know what temperatures were achieved inside the furnace was the purely scientific one. Dr. Green had predicted that after the first evolution of "free" water - deposited there by migrating ground water and rainfall - there would be an additional emission from the "combined" water contained in the molecular structure of the rock. Dr. Green estimated that a temperature of 300° C. would have to be reached before any of this water would be released. Obviously on the surface of the moon there would be none of the "free" water available, and any water obtained from the rocks would have to come from the "combined" sources.

Since no data were available on the amount of heat required or the time it would take to heat-soak the furnace charge, it was decided to install four of the 5000 watt heaters and hook them up to 110 volts rather than the 220 volts for which they were designed. By reducing the voltage across the elements a more gentle heating action was made possible and a greater opportunity for heat-soaking was provided. Tne elements were bent into the shape of a capital "M" and consisted of tubular cores surrounded with spiral-wrapped fins having a diameter of 1-1/2 inches. The elements were positioned (see Fig. 1) so that

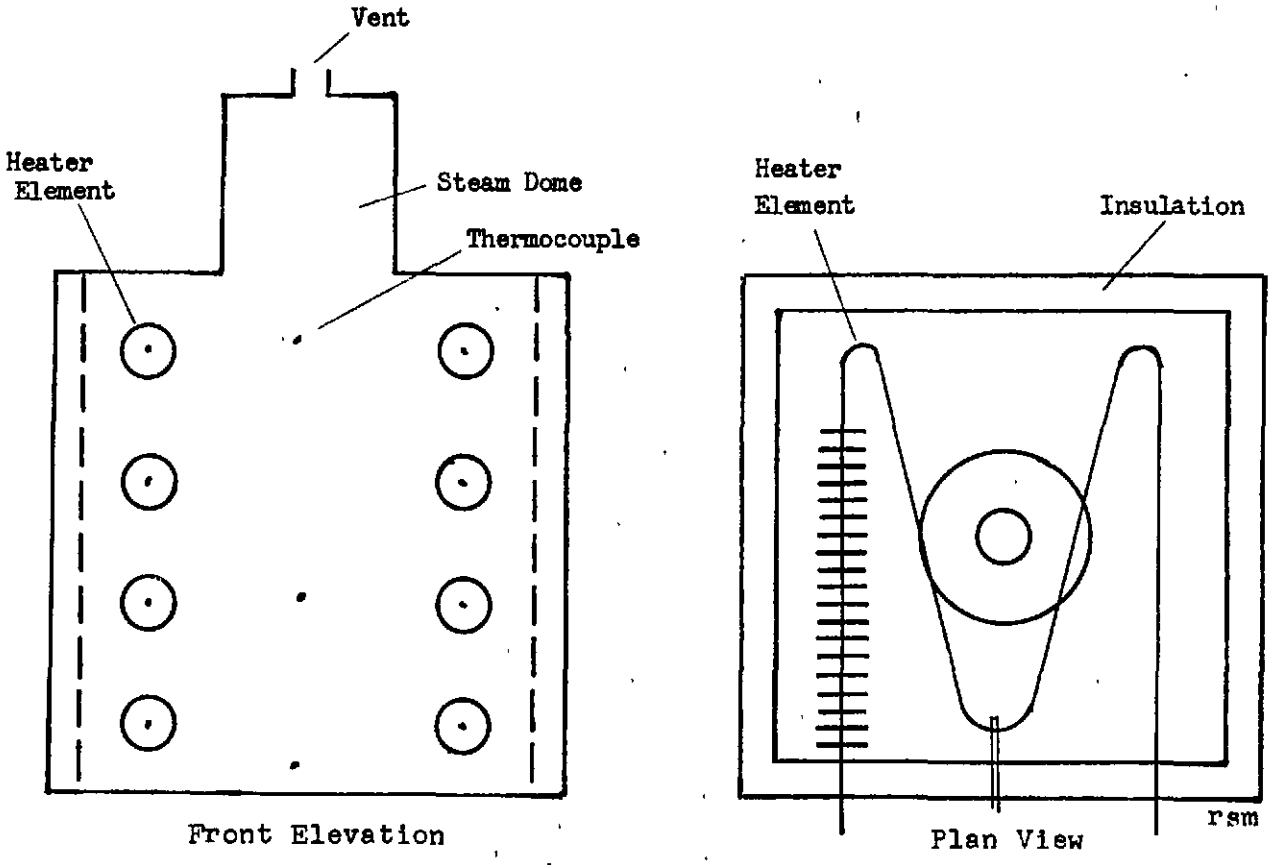

Figure 1. Diagram of furnace.

Dusty Water -

none of the rocks were more than 4 inches from an element. Several heating schedules were tried in an effort to determine the best method for extracting water without destroying the heating elements. On some runs the elements were simply plugged and left running for an hour or more. On other runs frequent periods of on and off were tried. Once the "free" water had been driven off and the charge had received a fairly even heat-soak, only short periods of additional power were required to maintain the temperature.

The preliminary test runs, made in the cramped confines of a business office, all produced "combined" water. One co-product, perhaps two, also showed up at the end of the condensing pipe. The first was an inflammable gas which coated the walls of a beaker with steam when it was ignited. The ignition was usually characterized by a small explosive "pop!" This gas was probably hydrogen resulting from the reaction between the hot radiant fins on the elements and the moisture. The second product was an invisible gas which produced deep-seated coughing and several splitting headaches. This gas has not been identified. The final run was staged in a pumice pit near Bend with power supplied by a portable generator which labored mightily for nearly six hours. Temperatures in the pit were far below freezing during the preparation of the charge which had been thoroughly dried out the night before. One hour after the dusty charge had been sealed into the furnace and the power turned on, the first drops of water emerged. Water continued to drip steadily for the next six hours - long after the generator had run out of gas. For the last run additional thermal insulation was provided by heaping up dry granular pumice around the furnace.

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GLACIATION IN NORTH AMERICA

Dr. Ray Broderson was the speaker at the Friday night lecture on October 14. His topic was "The Aspects of Glaciation in North America". Beautiful slides of many of the outstanding glaciers of the western mountains highlighted the talk.

Dr. Broderson described the characteristics of water which make it such a powerful force in carving out the mountain peaks. Views of such glacial features as u-shaped valleys, terminal and lateral moraines, cirques, hanging valleys, and erratics were shown and discussed.

An instructor at Monmouth, Dr. Broderson has been a favored speaker of the Society in the past, and we hope to hear more from him in the future.

Irma Sullivan

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OCTOBER LIBRARY NIGHT

Following the quiet hour for browsing and reading, Dr. Gilchrist opened the program with a short review of the topography and formations encountered between Salem and Bend and the area visited during the President's Campout, illustrated with a profile map which he had drawn. He referred to the excellent log the president had prepared. Color slides were shown and the geology of each was discussed. Dr. Howell gave us a very good explanation of the cause of the different kinds of lava flows. A few specimens from the areas visited were passed around and discussed.

Not only were there numerous good pictures of the formations, but many slides of the beautiful wild flowers we encountered. Members showing their slides were: Dorothy Waiste, Mrs. Theodore Johnston, Rowena Hoven, Truman Murphy, George Walters and Dr. Gilchrist.

Following the program, Mrs. Gilchrist graciously served the traditional cider and donuts.

Jennie Walters

CAMP HANCOCK SPECIAL

One of those rare occasions when only a small handfull of GSOCers turned out to hear an exceptionally fine program, occurred on the Friday evening of September 23. Two of our own -- Dr. Paul Howell and program chairman Don Barr -- combined their talents to give an illustrated lecture on Camp Hancock, its geologic setting and the activities which go on there in the summer. With a Huntley-Brinkley touch, Don provided the identification of the people and scenes, and Dr. Paul expounded on the geologic aspects.

Tucked into an erosional void in a Clarno mudflow, the camp is an outdoor laboratory for geologic and palaeontologic studies. Most of the young people attending the two-week sessions are serious-minded junior and senior high school students. Living conditions are quite primitive, with the few buildings being simply open-front shelters, and the kids like it that way. In the past year a laboratory and library have been added, which will permit more intensive examination and closer identification of the specimens found.

Stratigraphically, the area is built up from the Clarno valley of the Eocene, overlain with John Day beds, and all held in place with a topping of Columbia River Basalt -- where the forces of time have not removed it.

The Clarno formation is composed of layers of yellow, red, and green members, topped by a layer of welded tuff. The yellow member contains the nut beds, which probably were deposited by an ancient stream. Erosion of this formation has resulted in the spectacular palisades seen in various areas of the camp.

The John Day fm., lying above the Clarno contains both leaf and mammal fossils. These mammal beds were first worked by the late Lon Hancock, who made the first notable discoveries of Eocene mammals in the west. Many hundreds of fine specimens have since been found here, and every summer brings out more. This deposit of mammals is believed by Dr. Paul to have been the result of a sudden mudflow which caught up the animals trapped by an eruption and carried them along until they were deposited along the edge of the flow. The dismemberment and scattered position of the remains seems to indicate something of this sort of action. Other theories suggest that trapped herbivores were being attacked by the carnivores when all became suddenly engulfed in an ash fall. Whatever the story, the remains today provide a rich source of material from which to attempt to unravel the mysteries of the past.

The middle member of the John Day formation is known as the Bridge Creek horizon, and it is from this that the fine leaf fossils are recovered, giving a vivid picture of the flora of that ancient time. Metasequoia, cherry, oaks, and sycamore are some of the leaves commonly found. This member can be traced by intermittent exposures for over five miles through this area. The Knox Ranch location, which is a deserted ranch site once occupied by a family named Knox, is a part of this member and has produced excellent leaf specimens for the past 20 to 30 years, and shows no evidence of becoming depleted.

Also nearby are the snail beds -- a hillside of green matrix, composed of a medium grained lapilli tuff, surrounding great masses of snail shells. These gastropods were fresh water animals, evidence that the sea had long since retreated from this area at the time of their deposition.

One of the more spectacular sites in the camp area is the fossilized tree trunk, believed to be a sequoia, standing upright in a mudflow in Hancock canyon.

Not the least subject of interest at the camp are the students who come to dig and study, year after year. Personalities and characters are as diversified as the human race itself. Don, who served as camp director for a time, shared the humorous incidents which the pictures recalled to mind--some of which have become humorous only with the passing of time. Dr. Paul, and other members of the Society have also helped with camp activities, and no doubt, they too could have related many tales of kids and their doings.

Time passed too quickly for such an enjoyable and spirited program. This pair will be welcome for a return engagement.

Irma Sullivan

Volume 32, Number 11

SALMON AND GEOLOGY

This improbable combination was the topic of a very interesting talk by Mr. Herman Meierjurgen, chairman of the Oregon State Fish Commission, on Friday evening, September 9, the first meeting following vacation.

While the combination sounds a little unusual, Mr. Meierjurgen pointed out that the life and habits of the salmon are as closely related to geology as the life of man and all other inhabitants of the earth.

Chinook (or King), Silver (or Coho), Steelhead, and Sockeye are the best known of the salmon species in the Northwest. (Steelhead are usually classified as rainbow trout which have adopted the sea-going habit). They are members of that group classified as anadromous fish -- that is, they begin life in the headwaters of freshwater streams, then migrate to the ocean to spend their adult life before returning to the mountain streams to deposit their eggs and begin a new life cycle. This return to the waters of their birth marks the end of the life cycle for most of the species. An exception is the steelhead which may return for several years, and the landlocked Sockeye, or Kokanee, which never leaves his home lake waters.

The eggs are deposited in the gravels of the mountain streams, where the waters always run clear and cold. The nest, or redd, is scooped out of the stream bed by the body and tail of the female, and immediately after the eggs are deposited they are fertilized by the male who has been lurking nearby. Through the flowing movement of the water, the eggs may be buried as deep as twelve inches before they develop into minute, squiggly, tadpole-like pisceforms, and with eggsac still attached, squirm into the open stream. Those fortunate enough to escape their many natural enemies in the next year then follow the current downstream into the sea. It is estimated that 85% of the annual hatch is lost in this downstream migration. Generator turbines account for the majority of this loss. Of the number that do miraculously escape, only one percent survive life in the ocean and return to spawn four to five years later.

During these years, a number of mature males may elect to return to freshwater earlier than the rest of the brood. These are commonly called "jacks". The late W. F. Thompson was credited by Mr. Meierjurgen with the theory that this irregular migration pattern is nature's method of ensuring the continuation of the species, and probably has served well in times of great disaster. Surely, the volcanic eruptions of the Cascades, the Missoula Flood, earthquakes, and all the natural catastrophies which have occurred in the past must have taken their toll of the fish life of that time. So, whether by design or coincidence, the system seems to have worked well.

At least, it worked well until man came along with his progressive ideas. The tremendous runs of the Columbia have been greatly reduced since the building of the Grand Coulee dam, and as further planned construction continues the runs will be completely eliminated from the river. To offset the loss of salmon in the Columbia and its tributary streams, the state and federal governments have established fish hatcheries for artificial propogation and stocking streams where natural migration has been impossible in the past. Removing log jams and other obstructions and renewing the spawning beds where possible have introduced salmon into streams previously unused.

Many precautions must be taken in the process of artificial propogation. In addition to providing the natural conditions suitable for the development of the eggs, it is important that both eggs and milt be taken from fish from the same stream. A natural sensitivity is passed along from the parent fish to the offspring, and if the two parents are taken from different streams, a condition, dubbed "Piscatorial schizophrenia" by Mr. Meierjurgen, will result in which the offspring will tend to shun his home waters and may turn up miles from where he was "planted". This sensitivity to the waters of a particular stream is not fully understood, but it is known that stream temperature is a contributing factor. The warming of one degree in water temperature has been known to completely halt migration.

Mr. Meierjurgen spoke a warning which we well may heed: Man is not the complete

Salmon & Geology -

master of the earth. It behooves him to stop and think carefully before acting as though he were. It is very possible that some future species may have occasion to discover our remains in the manner in which we are discovering those of other extinct species.

Geology is not a strange subject to Mr. Meierjurgen. A graduate of the University of Oregon, a friend and schoolmate of Dr. John Allen, he also serves as the chairman of the CMSI Science Camp Committee and has done counselling at Camp Hancock. Our thanks to Mr. Meierjurgen for a fine talk.

Irma Sullivan

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EUGENE-ROSEBURG FIELD TRIP

This is one of those occasions when things get heaped up to here, and yours truly is lost at the bottom of the pile. I agreed to write up the personal side of the trip and leave the science to those very able leaders we had. But time has gone by, and I lost my notes, and I'm not sure just when we did just what. One thing I remember for sure: both Leo and I discovered that if you turn your back on this bunch of GSCCers -- to get gas or anything--they're going to disappear just like magic before you can get back to where you started! If the caretaker at the Pass Creek Campgrounds hadn't known our itinerary better than I did, Laurette and I might have gone off on a safari of our own--and right after we had spent the night there so we wouldn't get lost in the rush next morning!

As I remember, the day started off in a kind of fog, and didn't improve much as it went along. We found some delightful concretions--while the rain poured down--but nobody seemed to get very wet, really. Some lucky people found lovely crabs in theirs, but mine all turned out to be duds--in spite of the fact that I took them home and did some little incantations over them before opening.

Up on the side of an old deserted quarry we found some lovely, delicate, hairy-like deposits in the cracks and crevasses. One big boulder which had rolled off the cliff bore small clusters of native copper. Finding these was as exciting as if it had been native gold, they were so bright and shiny.

The scenery in that area was lovely, and since we were doing what is sometimes called shunpiking, we could enjoy the beautiful oak trees along the twisting, winding roads. Common in this area are the tan oaks. At least, Leo said they were common, I didn't see any, but he brought me a sample at the next Library Night. I did find an Incense cedar, just loaded with cones, so now my cone collection is complete, thanks to the Alaska cedar that Dr. Gilchrist got for me some time ago. (My Jeffery pine cone looks a little ragged from being kicked by the kids, if anyone should have a spare.)

The scenery around the junction of the Umpqua and Little Rivers was very striking, and it was here that the most spectacular fossils were found. It seemed almost unbelievable that they could be so numerous, and such pounding and pecking, and o-o-ing and a-a-h-ing you never heard! Up at the University, Dr. Ewart Baldwin showed us some specimens from this area of Glide, and I think many of those we found were of equal quality. Dr. Baldwin very graciously opened his classroom to us on that Sunday afternoon, and we had a fine informal talk with him.

Spurred by a beautifully preserved insect found by Bob Hart, everyone pecked and searched diligently at the Willamette Junction. Some nice specimens of leaves were found, but no insects. We also attracted a number of curious passers-by, who thought we must have at least uncovered gold. Some expressions of people who don't understand us are quite amusing!

All together my recollections of the weekend are very pleasant. Bot Hart, Lee Jenkins, and Leonard Wilkinson are to be congratulated for leading us to these fine locations. We were very sorry that Leonard could not be with us to enjoy the trip. But we're all ready to go again!

Irma Sullivan

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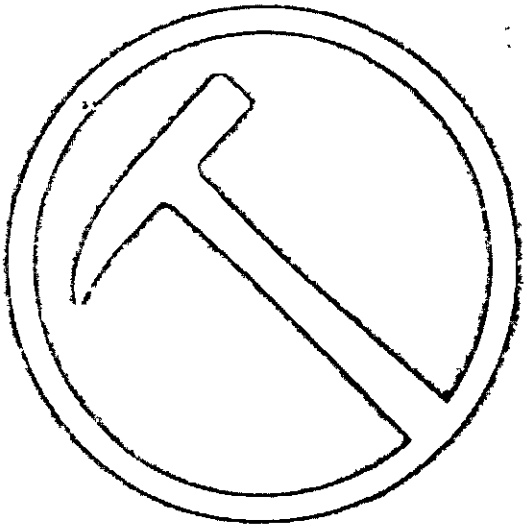
FOR SALE

One tent. - For further information

Dec. 1966



Official Publication of the Geological Society of the Oregon Country

THE GEOLOGICAL NEWS LETTER

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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 32, Number 12

G. S. O. C. CALENDAR FOR DECEMBER 1966

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

12:00 M. - Once each week, during the mid-day hour, GSOC'ers, guests, and visitors have the opportunity to munch lunch, see specimens, peruse publications, or hear "five-minute" (sometimes longer) talks on topics of geologic interest. These lively luncheons are presided over by Mr. Leo F. Simon, Chairman, in the Mountain Room (up the trail from the Foothills Room) adjacent to the Main Cafeteria.

For additional information contact Mr. Simon (telephone 346-0549).

9 December Friday — LECTURE - Public Library, 801 S. W. 10th Avenue, Portland, Oregon

7:30 P. M. - Mr. Eliot Davis, Superintendent of the Fort Vancouver National Historic Site, will present a first person report on the Yellowstone Earthquake in 1959. At the time of the quake Mr. Davis was a Ranger in the West District of Yellowstone National Park.

For additional information on Lectures contact Mr. Donald D. Barr, Lectures Chairman (telephone 246-2785).

10 December Saturday — FIELD TRIP - Tour of Space Age Metals Manufacturing Plants and U. S. Bureau of Mines at Albany, Oregon

9:45 A. M. - Assemble at the T & R Restaurant. Take the second Albany Exit from the Freeway, Interstate 5, southbound (about 70 miles) from Portland. Restaurant is visible from Freeway at exit.

10.00 A. M. - Group will caravan from here to the Wah Chang Corporation Plant north of Albany. Mr. James H. McLane, General Manager, has arranged for conducted tours.

12:00 M. - Lunch! Field trippers will have the option of bringing their own lunches and eating with the group which will assemble at Waverly Lake (one of the local parks) OR dispersing to any of the several good restaurants in the Albany area.

1.00 P. M. - Depart from Waverly Lake to the regrouping area at the Safeway Store located south of the main part of Albany on U. S. 99 E.

1:15 P. M. - Depart from Safeway for Oregon Metallurgical Corporation. For those who may be late, "Oremet" can be reached by driving south on US 99 E, turning left at the YMCA, then east on W. 34th Avenue.

1:30 P. M. - Conducted tours of the Oregon Metallurgical Corporation Plant have been co-ordinated by Mr. Rodger D. Butler, Personnel Manager.

3:30 P. M. - Reassemble at the U. S. Dept. of Interior, Bureau of Mines. Mr. Gordon H. Poole, Head of the Metallurgical Division at Albany Electro-Metallurgical Station, will co-ordinate tour arrangements.

For additional information contact Mr. Lee T. Gavigan, Field Trips Chairman (telephone 289-8041).

20 December Tuesday — LIBRARY NIGHT - Not scheduled during Holiday Season.

23 December Friday — LECTURE - Not scheduled during Holiday Season. Merry Christmas!

ADVANCE CALENDAR FOR JANUARY 1967

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

13 January Friday — LECTURE - 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.

NEWS OF MEMBERS
by Rowena Hoven

EMILY MOLTZNER is now living at 50 S.W. Briarwood Road, Lake Oswego, and her telephone number is 636-7704. Christmas is always a good time to get in touch with old acquaintances, either by a visit, telephone call, or a card, and Emily is always pleased to hear from her friends. When traveling from Portland via Macadam, just before entering the town of Oswego, there is a stop light, which is Briarwood Road. Turn left toward the river, and it is just a short distance from Macadam.

It has been reported that HENRY JAENKE has been ill for several weeks, but since he has an unlisted telephone number it has not been possible to contact him. We hope he has recovered by this time.

BOB WILBUR has just returned from a trip to Nebraska where he visited his mother and his two brothers. As usual, he took the long route home and visited some interesting museums along the way.

The other night as Sahrs the Gsocers who stopped for an after-meeting sundae were surprised to see ROBERTA JENSEN, who is now married and living in Walla Walla.

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GEOLOGY AND FOSSILS

Two of our younger members shared the spotlight on Friday night, November 11, when Mr. Bob Hart and Mr. Lee Jenkins were the featured speakers. Both of these young men have many years of study and interest in the field of geology behind them, and both possess enviable collections of fossils. A very fine display was on exhibit.

Bob started the program off with an explanation of geologic time and methods of dating formations. Following this Lee described some of the leaf fossils he has found, and gave locations of the deposits.

Besides being very knowledgable in their subject matter, both are very friendly, personable young men, a credit to the Society. We shall expect to hear more from them in the future.

Irma Sullivan

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NEW PUBLICATIONS ADDED TO GSOC LIBRARY

"Mineral Deposits" by Waldemar Lindgren. Purchased in memory of Ray Golden.

"The Birth and Development of the Geological Sciences" by Frank D. Adams. A gift from Mr. and Mrs. Lloyd Wilcox.

"Geologic History of Pend Oreille Lake Region in North Idaho" by C. N. Savage, Idaho Bureau of Mines & Geology, Pamphlet 134. Purchased through our book fund.

C. L. B.

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FORT ROCK - FOSSIL LAKE RECONNAISSANCE

by Irma Sullivan

Field Trip to South Central Oregon
Saturday and Sunday, 21 and 22 October 1966

East of the Cascades and just a little south of the geographic center of the state of Oregon lies an ancient fault-block valley, once filled with the melt waters of the great Pleistocene glaciers. This old lake bed, extending approximately 50 miles east to west, and 20 miles wide, is now an expanse of sagebrush and sparse grasses, with a few scattered ranches and blowing sand dunes. Such remnants as Silver Lake, Paulina Marsh, and such sometimes-lakes as Thorne, Christmas, and Fossil Lakes linger on as reminders of the past.

Onto this desert of the High Lava Plains rode a small band of GSOCers on the weekend of October 21-22. Though we were disappointed in not having Jim Anderson as leader, we nevertheless had a very enjoyable trip. We crossed the Cascades in the face of very unfavorable weather reports, and found conditions much more pleasant than anticipated. The flaming autumn colors along the lower Santiam finally gave way to snow in the higher altitudes. The snow plows had been at work and the lightly falling flakes filled the headlight beams, lending an aura of unreality to the passing scenes. The gentle firs towered above us with their branches drooping gracefully under their lacy mantles of white.

This wonderland disappeared as we dropped into the dry-lands of the eastern slopes and the firs quickly gave way to the red-trunked Ponderosas and aromatic juniper. We rendezvoused briefly at Lapine, then took the Fremont Highway southeastward to Silver Lake. If Silver Lake holds any water, it was not visible on this day, but appeared to be a vast expanse of farmland. Turning northward, we crossed the Connoly Hills through Arrow Gap. What appeared to be Hayes Butte Basalt was highly eroded into picturesque formations, and of a very open, vesicular composition, though time did not allow other than passing observation in the moving car.

Over the years, many have tried to settle in the Fort Rock Valley, but only a few succeeded in obtaining enough water to support their stock and crops. Now, however, a new idea is developing At Christmas Lake an attempt is being made to establish a recreation and resort town. To date, a grocery store, bar, and filling station line the "highway", while along the shore of a man-made lake sit an elegant motel and lodge. Ducks and grebes (and I suspect other waterfowl in season) feed and cavort upon the waters. The beautifully kept lawns and flowerbeds surrounding the lodge fail to completely dispel the bleakness of the scenery, but long rows of pines have been planted, and should soon break the monotony, as well as deflect some of the wind which whips around the corners of the buildings.

Modern well-digging machines have been able to find water where others had failed, and the use to date has not lowered the water table, but it remains yet to be seen how much can be used safely. We can only hope that good judgement will guide the enthusiasm of development.

The motel and lodge are especially attractive, and we received very courteous and friendly service from both staffs. Excellent meals are served in the lodge, which is constructed in a tastefully rustic design. A huge stone fireplace dominates the dining room and produces generous heat. After a few moments in the room, however, one begins to speculate on the peculiar, rakish angle at which the caribou head, mounted over the doorway, carries his antlers. A conversation piece, indeed!

Finding Fossil Lake turned out to be an activity of rather dubious achievement. The signs said it was that-a-way, so we went, but there were no signs to say when, or if, we had arrived. There was no doubt that we were looking upon the vast ancient lake bed, and we did find a wet depression which we dubbed Fossil Lake to our satisfaction, but who was to say that there weren't three or four more just like it, scattered around among the sand dunes? The dunes are composed partially, at least, from the fine particles whipped out

of the surface of the dry lake. In places portions had resisted erosion, and stood in weird shapes, exposing the varying layers of deposits. Just a little searching produced several handsfull of fossilized fish bones, and the area seems worth several days' exploration.

Beckoning from the northeast horizon were the dark shadows of Lost Forest. A short jaunt into the very periphery only whetted our appetites for a more thorough examination. Two very old buildings stood near the edge of the Forest, and appeared to be the remains of an old homestead. Built of hand-hewn logs, they have long since stopped pretending to stand erect, though their condition seemed more due to the removal of support, than decay. One had very obviously been the long-time abode of horses.

While not really lost in the sense that the name implies, Lost Forest is believed to be a remnant of a once vast forest that covered the entire Central Oregon scene. The trees have adapted to the changing climate and are able to survive on less rainfall than is usually considered necessary for Ponderosa pine and juniper. About 30 inches below the surface of the soil is a layer of compacted volcanic ash which acts as a reservoir, holding the moisture needed by the trees, while the loose sand covering the surface acts as a dust mulch, preventing excessive evaporation. Some of the trees are 600 years old, and many have reached the height of 80 feet. Very few of the dead trees have fallen, but stand sturdy and bleak, sandblasted to a soft, satiny gray.

This is considered to be a dying forest, but from the appearance of the young trees, it may be a long time yet before it expires. A forestry student from Corvallis once determined that the seeds from these trees will remain dormant for longer periods than from other areas, and germinate more quickly when moisture reaches them.

Just recently this has been declared a Natural Area by the BLM, which means that it will be allowed to stand for all time as nature intends, free from "development" or exploitation. We can hope that visitors will become aware of the delicate balance which exists here and protect it from unthinking carelessness. There is some evidence that the public in general does not recognize the responsibility which is inherent with ownership.

As has been noted, this is a land of fault block topography. One of the more spectacular of these is known simply as the Crack-in-the-Ground. Our map had been marked, showing the location of this crack to be adjacent to the direct route back to Christmas Lake. We watched the landmarks closely, debated often on whether to turn here -- or was it the next corner? Finally we decided that this was the place, so we climbed the steep, rough face of a lava flow, and spreading out fan-like, combed the territory for the Crack-in-the-Ground. No luck. Some other interesting things were found, such as an obsidian chip, lost, no doubt, from a traveling Indian's supply of ammunition some years previous. Discouraged and somewhat dubious as to our map-reading techniques, we returned to the lodge and a warm evening of camaraderie and good food, to discover that one of our fellow travelers had gone along, armed with an accurate map, and had found the Crack, exactly as described. To our chagrin, we realized that we had been carrying the same map but had not consulted it.

Six o'clock in the morning is a dreadful hour to begin searching for an elusive, elongated split in the earth's surface, but the sunrise helped assuage that early morning grumpiness, and the discovery of the Crack completed the morning to perfection. Then a rush back to the lodge, a hastily gulped breakfast, and we were off to a visit with the Sage of Fort Rock.

About half a mile north and a mile west of the town of Fort Rock is the Open AL ranch of Reub Long. A warmly personable gentleman, and a raconteur without peer, Reub made us welcome while he charmed and entertained us with tales of the past and present, and displayed his collection of artifacts gleaned from the desert floor. The time spent with him is always too brief, but did include a personally guided tour to Cow Cave (erroneously dubbed Fort Rock Cave by the State Park Department) and the horse pasture where we saw a portion of his herd of 75 horses, as well as a herd of Pronghorn (also erroneously called Antelope by many). Reub's brand is the oldest in the Central Oregon Region, having been introduced some four years earlier than that of Peter French.

Fort Rock - Fossil Lake

Buried beneath the dust in the floor of Cow Cave, Dr. L. S. Cressman, in 1938, found a cache of sandals woven from sagebrush. Carbon tested to be over 9000 years old, these sandals were not of the type worn by the Indians in this region when first seen by white man, but more nearly resembled those worn by the ancient Greeks. Mud from the shores of the now-extinct Fort Rock Lake was still imbedded in the fibers of the soles when found.

From what direction these Indians came to the valley, and why they left their shoes behind when they went away, still remains a mystery. They may have been small bands drifting southward, members of the Asian tribes who wandered into these valleys for a few years or a few generations, then drifted onward with the changing climate. Or they may have come from the midwest through the Snake River gateway. Were they the forerunners of the Folsom and Sandia men of the Southwest, or did they break away from those tribes to follow the bison north in the spring? From whatever direction they came, they seem to have moved into the caves of the basin as soon as the waters receded enough to allow access, and while they did leave a record of their passing, their true identity still remains as elusive as the shifting sands which alternately reveal and conceal the remnants of their story.

The caves which these early men inhabited were carved by the waters of prehistoric Fort Rock Lake into the walls of the maars which rose from beneath the lake bed in a series of volcanic eruptions that must have been an awesome sight to any eye which beheld it. Fort Rock, Flat Top, and Table Rock are but a few of these features which remain virtually intact today, as well as Hole-in-the-Ground. From the east rim of this crater the entire Fort Rock Valley spreads out in a wide-sweeping panorama.

And it was at the rim of this crater that the tour officially came to an end. Since the group was small we remained together until after a final gathering for dinner in Bend, then regretfully scattered homeward. As a reconnaissance, the trip was high successful; as a week-end outing it was delightful. Such perfect fare can only be improved by the addition of more GSOCers, and Jim Anderson as guide. All these ingredients will be included in the spring trip, so be prepared, and for even further enjoyment, read one of the many publications on the area during these long rainy evenings.

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LEWIS AND CLARK TRAIL

On October 28, Mr. Allen Epp, Instructor in American History at the Portland Community College, illustrated a tour of the Lewis and Clark route from Missouri to the Pacific Coast. Mr. Epp had traveled this route himself and took most of the pictures, though a few were of the type that must be obtained from various historical sources. Those of us who travel along our modern highways or hike over the well marked trails today can have little vision of the magnitude of the ordeal endured while traveling such a long distance under the circumstances encountered by these brave men. Even had the event held no historical significance, the sheer accomplishment of such a feat deserves our highest praise.

While Mr. Epp seemed to have a personal distaste for Sacajawea, many in the audience tended to agree that though she did fail to smooth out all the difficulties encountered, it was no small deed in itself to accompany such a band of men, caring for a small child and attending to all the duties required, including those of being a wife. The fact that she was raised in a primitive society, only makes the story credible, but none the less heroic.

We are sincerely indebted to Mr. Epp for his pictoral account of this epic.

Irma Sullivan

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NOVEMBER LIBRARY NIGHT

Following the customary hour for reading and browsing, Dr. Gilchrist, Library Night Chairman, welcomed a good-sized crowd of GSOCers to participate in a program study of Igneous Rocks. He had prepared a chart of igneous rocks from acid to basic and from course-grained to glassy. Dr. Howell then explained the distinction between them and the relationship of igneous rocks according to their chemical composition, which he charted on the board, and with hand samples he displayed He introduced Mr. Douglas Williamson, Field man for the U.S. Engineers, who explained how the basis for classifications is sometimes difficult to use in field practice, adding that when the need was critical, a microscopic examination was necessary.

Following the interesting discussion, Mrs. Gilchrist "remembered and honored the pilgrims" by serving delicious pumpkin pie.

Jennie Walters

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SELF EXPLANATORY*

WHEREAS. The G S O C Library was established for the use and benefit of all the members of the Society, and

WHEREAS: The librarian has requested the members to return all overdue books, and,

WHEREAS: Some members have persisted in keeping books out for long periods of time, thus depriving the membership of the use of such books,

Now Therefore

BE IT RESOLVED. That the membership shall be notified by notices in the December 1966 and January 1967 Newsletters that all books must be returned to the library on or before January 20, 1967, and that for every book not returned, which has been out for more than ninety days, a fine of one dollar shall be assessed; and,

BE IT FURTHER RESOLVED: That the normal period for keeping a borrowed book shall be from one library meeting until the next, and that a fine of 25¢ shall be levied for each period a book is kept beyond the due date. All fine money shall be used for the purchase of new books for the library.

* Adopted by the Executive Committee at their regular meeting held on Friday, 11 November 1966.

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Volume 32, Number 12

MEMBERSHIP ROSTER

cumulative list of changes to
Annual Roster of August 1966

name	street address	city, state, and ZIP code number	telephone
NEW MEMBERS			
BEALS, Mr. & Mrs. Herbert K.	475 E. Clarendon St.	Gladstone, Oregon -97027	656-2370
CHAPMAN, Dr. Merwyn P.	P.O. Box 297	Sherwood, Oregon - 97140	625-6628
GREISEL, Mrs. Irma	780 N.W. Norman	Gresham, Oregon - 97030	665-2351
HEGE, Dr. & Mrs. William D.	818 S.E. Lambert St.	Portland, Oregon - 97202	235-7623
HELFRICH, Mr. & Mrs. Merle C.	251 N.E. 133rd Ave.	Portland, Oregon - 97230	253-7446
MILLER, Miss Doris F.	170 Holly Street	Prineville, Oregon - 97754	447-7076
SCHNEIDER (Student) Mr. Philip	1749 S.W. Terrace Dr.	Portland, Oregon	228-1735
ADDRESS AND TELEPHONE CHANGES			
BAKER, Mrs. Thora Martin	P.O. Box 207	Estacada, Oregon - 97023	279-3781
BARBER, Mrs. Lawrence	6422 North Kirby Ave.	Portland, Oregon - 97217	285-4220
GILLIAM Mrs. Elizabeth	see BARBER, Mrs. Lawrence		
GREGORY, Dr. & Mrs. Victor	2203 S.E. 77th Avenue	Portland, Oregon - 97215	775-5191
HOPSON, Dr. Ruth E.	see KEEN, Mr. & Mrs.		
JENSEN, Mrs. Roberta	General Delivery	Colfax, Washington - 99111	
KEEN, Mr. & Mrs. Albert J.	4138 S.W. 4th Avenue	Portland, Oregon - 97201	222-1430
MUELLER, Mr. Godfrey	c/o R. D. Burke 3215 N.E. U.S. Grant Pl.	Portland, Oregon - 97212	284-4420
NIELSEN, Mr. Howard Eugene	4437 S.W. Melville Ave.	Portland, Oregon - 97201	246-7315
PETERS, Mrs. Mae	5716 North Greeley Ave.	Portland, Oregon - 97217	285-6605
SANFORD, Mr. Paul Lloyd	315 North Broadway	Burns, Oregon - 97202	573-2949
TALBOTT, Mr. & Mrs. John J.	6404 S.E. 23rd Avenue	Portland, Oregon - 97202	236-2732
TRAVIS, Mr. & Mrs. H.F.	15635 Royalty Parkway King City	Tigard, Oregon - 97223	639-6232

GEOLOGIC MAP OF MOUNT VERNON QUADRANGLE PUBLISHED

A multicolored geologic map of the Mount Vernon quadrangle in Grant County, Oregon, is now available. It is designated as Map GQ-548 and it can be purchased from the U.S. Geological Survey, Federal Center, Denver, Colorado. The price is $1.00.

Authors of the map and the four-page text accompanying it are C.E. Brown and T. P. Thayer, who have been studying and reporting on the complex geology of central Grant County for a number of years.

The Mount Vernon quadrangle is underlain by two major ages of rocks: 1) Very old pre-Tertiary rocks ranging from Permian to lower Cretaceous occupy most of the south half of the quadrangle; 2) Much younger, Tertiary and Quaternary rocks cover most of the north half of the area.

Among the old pre-Tertiary rocks, the most ancient are shale, argillite, chert, and volcanic and metamorphic rocks of Paleozoic age (Permian), intruded by peridotite and serpentine. Unconformably overlying these is the Aldrich Mountain Group composed of graywacke, and shale interlayered with volcanic rocks, laid down in Triassic and Jurassic seas and totalling 27,500 feet in thickness. Small bodies of Early Cretaceous diorite intrude these Triassic and Jurassic rocks.

The younger, Tertiary and Quaternary rocks in the north half of the quadrangle include Clarno lavas, Picture Gorge Basalt and Mascall Formation (now part of the Columbia River Group), Rattlesnake Formation, terrace gravels, and alluvium.

Ancient folds and faults disrupt the pre-Tertiary rocks and numerous vertical faults displace the Tertiary lavas, but the most interesting structure in the quadrangle is the John Day fault, which is largely responsible for present-day scenery along U.S Hwy 26 in this area. This fault trends nearly due east and west. It is buried under alluvium of the John Day River valley, but cross sections accompanying the geologic map show clearly the effect of this major structure.

According to the authors, in early Pliocene time, before the Rattlesnake gravels were deposited, rocks in the area were folded steeply under north-south compression to form the Aldrich Mountain anticline and companion syncline to the north. During the late stages of folding a steep, reverse fault (the John Day fault) formed along the axis of this syncline, elevating the Aldrich Mountains to even greater height. The authors believe that additional movement along this fault occurred later in Pliocene time and again in middle Pleistocene time, as revealed by displacement of formations on opposite sides of the valley.

M. L. Steere

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LUNAR CONFERENCE TRANSACTIONS PUBLISHED

The Oregon Department of Geology and Mineral Industries has published "Transactions of the Lunar Geological Field Conference," a companion publication to the Lunar Geological Field Conference Guide Book which was printed a year ago. The Transactions volume contains 11 papers and 7 abstracts prepared by lunar geologists and geophysicists who attended the conference. The 100 pages of articles are illustrated with 46 photographs, tables, and line drawings. The publication was sponsored by the University of Oregon Department of Geology and by the New York Academy of Sciences. Copies of the Transactions are available from the Department of Geology and Mineral Industries for $2.00 postpaid

M. L. S.

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