

The Library

GEOLOGICAL NEWSLETTER

GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

Volume 27 - - - 1961

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# GEOLOGICAL NEWS LETTER

OFFICIAL PUBLICATION OF THE



Vol. 27, No. 1

PORTLAND, OREGON

January, 1961

GEOLOGICAL NEWS-LETTER  
Official Publication of the  
Geological Society of the Oregon Country  
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State of Oregon  
Dept. of Geology & Mineral Industries  
1069 State Office Bldg.  
Portland 1, Oregon

# GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

## Officers of the Executive Board - 1960-1961

President:	Robert F. Wilbur	2020 S. E. Salmon St.	14	BE 5-7284
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Secretary:	Mrs. Ruth Prentiss	1923 N. E. Schuyler St.	12	AT 1-0341
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Directors:	Dr. James Stauffer (1961)	Dr. John Hammond (1962)
	Mr. Murray R. Miller (1961)	Mr. Ralph Mason (1962)
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Editor:	Mr. J. R. Rentsch	St. Francis Hotel, 11th & Main	5	CA 3-2161
Bus. Mgr:	Mr. Robert F. Wilbur	2020 S. E. Salmon St.	14	BE 5-7284

## COMMITTEE CHAIRMEN

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Publicity	- Mrs. Emily Moltzner	Pub. Relations	- Mr. Clarence Phillips
Museum	- Mr. Lon Hancock	GSOC Lib. Night Luncheon	- Mr. Irving Ewen
			- Mr. Leo Simon

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Publication: The Geological News Letter, issued once each month, is the official publication.

CALENDAR

Buffet luncheon every Thursday noon, second floor, Portland Chamber of Commerce, 824 S. W. 5th. \$1.25

Friday  
January 13      Lecture  
"Wave Action and Shore Lines," by Dr. James Stauffer, professor of Geology and Genetics of Lewis and Clark College and past President of the GSOC.  
Dr. Stauffer has made some interesting studies on this phase of Geologic Science. This should prove an interesting contribution of our Basic Geology Series.

Tuesday  
January 17      Library night at Lewis and Clark

Friday  
January 27      Lecture  
"Archeological Findings on the Columbia River," by Mr. Emory Strong.  
Mr. Strong is author of a book, "Stone Age on the Columbia River." He is an engineer by profession and an amateur Archeologist. He has long searched the shore of the Columbia River, seeking out and identifying village sites and points of interest mentioned by early explorers and fur traders, and attempting to unlock the secrets of stone age camp sites and their occupants.

Sunday  
January 22      Field Trip  
On this outing we will explore clay pits and the clay industry at the northern end of the Willamette Valley. A bus trip is planned, so look for later information.

## INVITATION -

Friday  
January 20  
7:30 p. m.  
Central Library      The Oregon Audubon Society has invited our Society to see colored slides of Owyhee Canyon and the Wallowa Mountains to be shown by Tom Mcallister, Outdoor Editor of the Oregon Journal, who made a trip to these "Far Corners of Oregon" last summer.

## GSOC BANQUET - 1961

Keep open the date of March 10. "Irv" Ewen will be in charge as of 1960.  
Get tickets from Leo Simon. \*\*\*\*\*

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ADDITIONS TO OUR LIBRARY AT LEWIS & CLARK

1. Geology of the Jumbo Mountain Nickel Deposit, Snohomish County, Washington. Washington Division of Mines & Geology.
2. Publications - Division of Mines & Geology - Department of Conservation.
3. Bibliography and Index of the Geology and Mineral Resources of Washington, 1937-1956.
4. Geology - An Introduction to Principles of Physical and Historical Geology. Barnes & Noble - 1960.
5. Georgia Mineral Newsletter. Vol. 13 #3 - Fall 1960
6. Maps - Deschutes County  
Lake County

\*\*\*\*\*

DUES - ARE - NO W - PAYABLE.

NEWS OF OUR MEMBERS

Phil Brogan, of Bend, has an illustrated article in the December 18 issue of The Oregonian about Fort Rock, in which he presents Dr. Paul Howell's theory that it's a diatrema, similar to the kimberlite pipes in South Africa, and might also contain diamonds. Anyway, everyone should see this geologic wonder when traveling in Lake County.

Lon Hancock of Camp Hancock fame has been elected "Honorary Director for Life" of the Oregon Museum of Science and Industry. This is the first such award conferred.

Bob Wilbur, our president, sends his greetings. He is improving and has done some driving. After 35 years service as an inspector with the U. S. Plant Quarantine Division, he is retiring January 1st.

EXCERPTS OF A LETTER FROM THE GILCHRISTS - - -

"Christmas Greetings and Best New Year's Wishes

The long planned-for leave-of-absence and the trip across the continent have finally come to pass. We have crossed mountain and desert, plain and forest.

(Here are some high spots covered)

"Down the coast we went to San Francisco. Then on to Tahoe. Tahoe was marvelously blue, and we hated to leave; but on through Nevada we went. Next to Arches National Monument; next we dipped down into Arizona to see Monument Valley; then east to Mesa Verde National Park. Then to the beautiful pastoral Gunnison Valley, and at Manitou Springs we took the cog-wheel trip up Pike's Peak.

In Illinois we thrilled to Lincoln's home in Springfield and the monument at his grave, as also at the reconstructed village of New Salem.

At Brown County State Park in Indiana the fall colors were wildly beautiful, although not yet at their best. We drove on to Hanover, Indiana, on the Ohio River, where is located Hanover College. The college was founded by Francis' great-grand-father, and the stately old home where his "four bears" lived is well preserved.

Then on to Cumberland Gap and to the Great Smokies, into North Carolina.

You may think of us about Christmas time as at Williamsburg, Virginia, joining in the holiday festivities in true colonial fashion.

We send our finest wishes to our friends across the continent. May there be "Peace on Earth to men of good will" everywhere. We look forward to your newsy Christmas cards.

Your friends,

Pearl and Francis Gilchrist

Our address through April, 1961  
Box 174, Chapel Hill, North Carolina "

NEW MEMBERS

Mr. Robert B. Anderson	1019 S. W. Morrison	Portland, Ore.	CA 7-9928
Miss Rosalie Bronkema	3471 S. W. Patton Road,	Portland 1, Ore.	CA 8-7081

CHANGE OF ADDRESS

Mr. and Mrs. Carl L. George 1924 S. E. 24th Avenue, Portland 1, Ore. BE 2-6610

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DUES ARE NOW PAYABLE.

### EXPLORING THE COLUMBIA GORGE

One of the most impressive displays of the Columbia River basalt flows is along the river between Vantage and Trinidad in central Washington. Here the cliffs frequently rise vertically several hundred feet on either side, at times from the very edge of the water. One has the feeling that the rocks are leaning over, as though peering down to see who has the temerity to invade their sanctuary. This 20 mile reach of the river is accessible only by boat so it still retains its pristine beauty. Soon, however, it will be but another of the chain of stagnant pools into which man is transforming this magnificent river.

Through this gorge the water is swift and the bottom can be seen through many feet of the clear cold water. There are two rapids, Quilomene and Lodge Pole, neither of which is dangerous. A good motor, however, is required when going upstream.

The right bank at Lodge Pole Rapids rises from the water about 500 feet where the river has sliced through layer after layer of the lava flows. In the center of this cliff is a most astonishing sight, a petrified tree standing upright, its roots desperately grasping the barren rock. It appears to be two or three feet in diameter and 15 feet high. How the river could have cut away the basalt and left this tree embossed on the surface is a mystery.

Due to the isolation of this geological marvel, few people have seen it but it did not escape the keen eyes of the early explorers. Governor Sir George Simpson of the Hudson's Bay Company, traversing the river in 1825, wrote in his journal: "Thursday March 31st. Raised Camp about the usual hour (which in those days was about 2 A. M.), had a cold drizzly Rain all Day with aft Wind but not sufficiently Strong or regular to afford us much benefit. The Country still dismally barren and the banks of the River bold; on the cliff of a rock which forms the North bank of the River about 200 feet above high Water Mark the trunk of a large Tree is to be seen evidently left there by the Stream but when the Cognoscenti must determine; some of our Columbia Sages will have it that it was in the Days of Noah!"

- - Emory Strong

(A picture please, someone.

-- The Editor.)

\* \* \* \* \*

### HIDDEN VOLCANO IN CRATER LAKE

By Phil F. Brogan -

Oregon has its own Paricutin, but it will never be seen by man.

It is a 1,320 foot volcanic cone buried under the blue water of Crater Lake. Its elevation above the submerged floor of the old volcano known as Mazama is identical with that of the volcano in west-central Mexico, near Uruapan, which came into existence in February, 1943, in a crack in a cornfield.

Mexico's Paricutin remained active until August 1951, building a cone more than twice as large as Lava Butte of the Deschutes country.

In Bend recently Dr. Howel Williams of the University of California, internationally known volcanologist and author of studies dealing with the Three Sisters and the Newberry Crater regions of Oregon, made the announcement of the discovery of a buried volcano in the deep lake within the stump of Oregon's ancient Mazama.

Dr. Williams said the submerged volcano was located and mapped by the U. S. Coast and Geodetic Survey through sonic depth-finding equipment. Dr. Williams asked permission to describe the volcano, and his report will appear in the near future in the American Journal of Science.

The volcanologist, author of the most detailed geologic study ever made of Crater Lake, stressed that it has long been known that there was some sort of submerged "mont" in the lake. Even the studies made in pioneer days by the geologist Diller revealed presence of some elevation in the water.

But it was not known that the submerged feature would throw into shadow Wizard Island, also a volcano, or rival in magnitude of Paricutin in Mexico.

Hidden Volcano in Crater Lake - cont.

Dr. Williams said the U. S. C. G. S. soundings traced a cone that has a base that is one mile in diameter. Reaching northwesterly from the cone is a lava flow that is a mile and a half in length. Unlike Wizard Island, the unnamed submerged volcano in Crater Lake has no summit crater.

Dr. Williams surmises that the now-submerged cone came into existence before the caldera, created by the explosion and engulfment of the top of ancient Mt. Mazama, was filled with water.

He believes that the even slope of the cone indicates that the caldera was quickly filled with water. There are no terraces on the buried cone that would indicate wave washing.

A remarkable feature of the lava flow that reached a mile and a half out from the base of the water-covered volcanic cone is its gentle slope, Dr. Williams noted. In the mile and a half, there is a drop of only 12 feet.

Incidentally, Dr. Williams noted, the new U. S. C. G. S. studies of Crater Lake will place the greatest depth at 1932 feet. This compares with 1996, long given as the deep spot of the lake of blue in the southern Cascades.

\* \* \* \* \*

SEDIMENTS OF THE LOWER COLUMBIA RIVER, FIELD TRIP, NOV. 13, 1960

The November 13, 1960 lower Columbia River field trip was a continuation of our study of sediments and sedimentary processes, and the sediments of the lower Columbia River Valley were chosen as the focus of study. It was across this part of northwestern Oregon that an ancestral Columbia River wended its way from the Willamette Valley to the sea. (See Dr. Paul W. Howell's article, "Strangers on the Beach", in the September 1960 issue of the News-Letter.) So the G. S. O. C. ers, under the leadership of Dr. Paul W. Howell, caravanned down the Columbia to Bradley State Park. This beautiful eminence overlooks Puget Island which lies in the broad Columbia River off Wauna Point. This area is a part of a great tilted block, the highest point of which forms Nicolai Mountain. Along the highway cuts east of the park there are exposed yellowish, massive, crossbedded, iron-stained sandstones interstratified with Columbia River basalt. The weathered yellowish color of this sandstone indicates that it is of the variety that is cemented with iron oxide (limonite). Dr. Howell pointed out to us two sandstone beds alternating with flows of Columbia River basalt. Since the origin of the sandstone was important, he asked us to look for unusual minerals among the grains of the sediments as a key to their origin. Under the hand lens the grains didn't show a great deal of rounding, such as might be expected from long distance transportation. Nevertheless, the presence of white (muscovite) mica indicated that the sands of the upper stratum at least had originated in the upper reaches of the Columbia River. The mineral grains probably originated in northern Washington or Canada where there is an abundance of granitic and metamorphosed rocks. The writer, however, is not sure if any garnet or similar Columbia River type minerals were found or not. The sediments of this upper stratum were carried down the Columbia River and were deposited before the stream got to the ocean. Some of the sand may have been taken to the ocean, which was further inland in those times (mid-Miocene), and brought back again by the littoral currents to the land. The lower bed was definitely of marine deposition and is now lithified to a stratum of marine sandstone. It contains numerous casts of pelecypod shells and few if any Columbia River minerals. Both beds were deposited on the basalt during pauses in the extrusion of this lava and were buried by subsequent flows of the same lava.

These sandstone beds are also exposed in the railroad cuts to the north, between Bradley Park and Bradwood. Being contemporaneous with the Columbia River basalts, the age of both the sandstone and the basalts could be determined from fossils found in the sandstone. To the west of Nicolai Mountain a stratum of similar sandstone not inter-bedded with the basalt crops out, and in the vicinity of Astoria this stratum splits up, first, into two strata of sandstone, and finally into three strata with a siltstone sequence in the middle. From this formation, which Condon called Astoria shale, he and the other geologists have collected fossils. They appear to be more plentiful in the basal stratum of sandstone, and foraminifera are abundant

Sediments of the Lower Columbia River - Field Trip (cont.)

in the siltstone member. From paleontological research on these fossils the Astoria formation was assigned to the middle Miocene. If we can assume that the sandstone interstratified with the basalt is the same as that cropping out west of Nicolai Mountain then the age of the Bradley Park sandstone is Miocene. However, if the fossils in the lower Bradley Park bed indicate a different age, it would assume some importance. Dr. Howell asked us to diligently search for fossils, and several were found. However, as they were largely casts, there is little hope of satisfactory identification.

At the outcrop of the upper bed nearest the park there was discovered an excellent example of an intraformational conglomerate. The constituents making up the conglomerate are mostly angular fragments of siltstone in a sand matrix, and the formation was caused by channel scour as the depositing stream meandered across its flood plain. Also in this exposure Dr. Howell pointed out to us a local unconformity trending roughly parallel to the strike of the sediments. The second stop was at a quarry along State Highway No. 47 about 0.8 mile from its junction with U. S. Highway No. 30 at Clatskanie. In it was a very good exposure of what Dr. Howell called typical quartzite pebbles of the Troutdale formation. Being rather well indurated the quarry wall stands nearly vertical for several tens of feet high, and their presence there indicates that the Columbia River in early Pliocene times had a channel in this area. The high percentage of the light-colored quartzite pebbles in the conglomerates of the Troutdale formation of this locality quickly had everybody looking for agates amongst them. Those pebbles which are faceted are said to be very reliable indicator that the deposit in which they are found is that of the Troutdale formation. At the north end of the quarry an ancient landslide had brought older marine sediments down over the Troutdale formation. The abundance of moisture and the high percentage of clay in this part of Oregon make landslides of this type rather common. They are a problem to the geologist in that they distort the stratigraphic relationships and mask important exposures.

Our third stop was at the big highway cut near the top of the long grade east of Clatskanie. Here was exposed a thick section of massive yellowish sandstone. This thick group of sandstone beds appears to overlie the Columbia River basalt rather than being interbedded in it. According to Ken Dodds' stratigraphy and chronology these beds would be post-Astoria age. Dr. Howell thought they might even be Pliocene Troutdale formation equivalents.

About six miles west of Rainier a stop was made to examine highway cut exposures of Goble, Volcanics. Dr. Howell explained that this volcanic series, like those of the Tillamook Volcanics Series and the Siletz River Volcanics Series, is considered to be Eocene in age. They are much more amygdaloidal than the Miocene Columbia River basalts. The vesicles of all lava flows are usually located in the upper portions of the lava flows. In the case of the Goble lava flows the cavities are filled or lined with zeolites. Zeolites are a group of hydrous silicate minerals, and are secondary in origin. That is, they were formed after the lava had solidified. The most prevalent individual minerals of the group are: analcite; natrolite; and stilbite. All three are usually vitreous and are clear to white in color; other colors are known. The crystals of each are of different form, and this difference is the best way to identify any specific zeolite. For example: analcite has a crystal that is similar to that of the crystal of garnet; natrolite crystals are usually long and slender (needle-like) in divergent bunches, but they also occur in compact masses. Those of stilbite are in the form of a sheaf (like a bundle of grain). Quartz, and sometimes calcite, may be associated with zeolites in certain cases, but zeolites can be distinguished easily from quartz by their inferior hardness and from calcite with less ease by their crystal form.

At Scappoose a final stop was made at a very large gravel pit. This pit is in a deposit of Pleistocene Missoula flood gravels not far from the confluence of the Columbia and Willamette Rivers. This deposit is several tens of feet thick and trends for several miles down stream. The pebbles, which average about four inches across, consist principally of well-rounded exotic rocks from the upper Columbia River drainage area. The Columbia River basalt and the Boring lava are also well represented. These gravels differ from those of the Troutdale conglomerates in that they are very poorly consolidated. A search for agates among the pebbles (A few were found.) brought this interesting and enjoyable field trip to an end.



### DEATH TO BINGHAM, UTAH

1961 will see the end of this copper mining town. In early days, 50 years ago, 5000 miners claimed this narrow canyon their home. Kennecott Copper Corporation has here the largest open-pit copper mine. In the interest of progress bulldozers will bury the town this year. The site is a few miles south of Salt Lake City.

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### ALASKA'S OIL

Anchorage, Alaska - The Standard Oil tanker W. H. Berg recently maneuvered alongside the brand-new dock and pipeline terminal at Nikiski on Cook Inlet, made fast, and began taking aboard the first cargo of crude oil to come through the line from the Kenai Peninsula oil field.

The flow of oil marked the emergence of Alaska as an oil-producing state.

The Alaska oil industry has come a long way in a relatively short time. The state's modern oil boom began in July, 1957, when Richfield brought in the Swanson River Unit No. 1 discovery well near the community of Kenai. Today there are 15 producing oil wells and four natural gas wells in the two-unit field on the south central Alaska peninsula.

The pipeline, storage tanks, and dock, built at a cost of \$5,000,000, are symbolic of progress that has been made in the infant industry. Nearly two years ago, when there were few producing wells in the field, a top Standard official promised that when production reached 5,000 barrels a day, the pipeline would be constructed. That production has been exceeded.

The existing Kenai field is small—approximately six miles long and a mile wide. But drilling is going ahead in the hope of finding more production.

Union and Ohio, on their nearby Kenai unit, have brought in three gas wells and are attempting to enlarge the gas field. The Halbouty-Alaska Oil Company, also drilling in the general area, recently completed a gas well. The four wells are said to have large reserves of natural gas. Last year Union entered into a contract with the Anchorage Natural Gas Corporation to supply natural gas for a 20-year period.

Anchorage has benefited greatly from the oil boom. Seventeen major oil companies and large independent operators have established field offices in the city. There are also several oil well supply houses. And helicopters and other aircraft used by oil exploration parties operate from Anchorage's two airports.

Oil companies and independent operators have poured millions of dollars into Alaska in the search for oil and the drilling of wildcat wells. Outside of the Kenai field, there have been no major discoveries.

The cost of drilling a well on the Kenai Peninsula averages out to \$1,500,000. Oil has been discovered there in the Hemlock zone which is found from 10,000 to 12,000 feet down.

- - By Gerald Bowkett, Special to The Christian Science Monitor.

\* \* \* \* \*

Bend (Special) - A Central Oregonian has devised a sawmill for use in cutting into slabs logs from trees that grew millions of years ago.

He is Henry Bauman, who retired from the business of sawing pine logs and is now sawing silicified woods from forests of ancient Oregon, including sections of trees that grew in the interior part of the state before the rising Cascades left the region in a rain shadow.

Bauman's two-saw mill, largely made of parts of his pine mills of earlier days, is described in the current issue of the Lapidary Journal. Author of the article is Merle Jones, a member of the Deschutes Geology Club.

Actually, Bauman's new plant is an agate-cutting machine, but it is of regular sawmill dimensions. The big saw is capable of slabbing a rock 19-1/2" thick, 4 ft. wide and 8 ft. long. Two 24" saws operate one above the other, and receive their power from an electric motor.

Vise Heavy - Cutting speed of the rock saw ranges from 6 to 12" of sawed material per hour, depending on the hardness of the material. A tank provides coolant for the rapidly-rotating saws.

The rock slashing sawmill stands better than six feet high and is about 15 ft. long -- and certainly is not of the type that would fit into the basement of a rockhound.

-- By Phil F. Brogan, Staff Correspondent,  
The Oregonian

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Friday  
February 10      Lecture  
Speaker, Reuben C. Newcomb, Chief of Ground Water, U. S. Geological Survey, Portland office  
Subject: "Ground Water." Subject to be illustrated.  
This is the last of a most interesting series we have had in basic geology. Mr. Newcomb is a recognized authority on this subject.

Friday  
February 24      Lecture  
"Trailing Capt. John C. Fremont through Oregon and California," by past GSOC President H. Bruce Schminkey. Fremont, later a Union general in the Civil War, was a member of an exploring and surveying party for the U. S. Government.  
Colored slides will illustrate the talk.

Sunday  
February 12      Field Trip

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FIELD TRIP - FEBRUARY 12

We will go down the Washington bank of the Columbia River from Vancouver to Skamokawa. If enough people sign up and pay their fare by the 10th of February, we will go by bus at \$3.75 per person.

The trip is approximately 100 miles each way and promises to be very interesting. We may cross the Columbia River and come back on the Oregon side.

Paul Howell,  
Field Trip Chairman

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TWENTY-SIXTH ANNUAL BANQUET  
GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

MARCH 10, 1961

Reserve this date on your calendar now

The chairman, Irv Ewen, has indicated that this year's banquet promises to be another memorable occasion. Since the Silver Anniversary Banquet (1960) was apparently well received, this year's festivities are being planned to include many of the same features.

The only regret expressed pertains to the size of the parish hall which can only seat about 135 diners comfortably.

LOCATION - St. David's Episcopal Church, 2800 S. E. Harrison Street, Portland, Oregon

PROGRAM

A varied program is planned. The highlight of the banquet will be an illustrated talk by the guest speaker, Dr. Augustus Keathley Armstrong, Assistant Professor of Geology at Portland State College.

Suggestions or comments about the banquet will be welcomed by the committee. Phone the chairman (Irv Ewen) CApitol 6-4331 or ATLantic 1-7098 (evenings) or address inquiries to

Banquet - (cont.)

4128 N. E. 76th Avenue, Portland 18, Oregon.

**DINNER**

The dinner, to be prepared by the Women of Saint Davids, will include prime roast beef, mashed potatoes and gravy, string beans, salad, rolls and jelly, coffee (or tea), and dessert.

Arrangements have been made to provide a fish dish for those desiring a substitute for the roast beef. Preference for fish may be indicated at the time of purchasing tickets.

**TICKETS**

Mr. Leo Simon is in charge of ticket sales and seating plan. Tickets will be made available at all regular functions of the Geological Society (Friday Night meetings at the Public Library, "Library Night" at Lewis and Clark College, and the weekly luncheons at the Chamber of Commerce.)

At other times Leo may be reached by phone at Capitol 3-0300 (business) or evenings at Belmont 6-0549 (residence).

The price of the tickets will be \$2.25 for adults and \$1.50 for children under 12 years of age. All seats will be reserved with the selection being made by the purchaser at the time of sale.

Closing date for ticket sales will be Monday, the 6th of March.

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**- INVITATION -**

The evening lecture of the Oregon Academy of Science will be presented by Dr. Ewart M. Baldwin, Department of Geology, University of Oregon, who will give an illustrated talk entitled, "A Geologist in East Pakistan." The lecture will be given at Portland State College, Room 53 State Hall (Mill Street entrance) on Saturday, February 25, at 7:30 p. m.

Dr. Baldwin has just returned here after a year's work in East Pakistan.

\* \* \* \* \*

**WE VISIT THE AUDUBON SOCIETY**

Some fifty GSOCers were thrilled by Tom McAllister's color slides of the boat trip into the remote Owyhee Canyon, where only the young and brave would venture, the Wallawas, for everyone from 9 to 90 and the Dean River in Canada where the fish jump right onto your hook. Emily Moltzner thanked the Audubon Society for inviting us and welcomed them to join in our activities.

\* \*

**NEWS OF OUR MEMBERS**

We were happy to see our president Bob Wilbur on Library Night and at the Audubon-GSOC meeting, attesting he's on the road to recovery.

Our best wishes to Dr. W. Claude Adams, son of a Union veteran of the Civil War, and one of our charter members, who celebrated his 87th birthday in December. With his wife helping him, he's busy compiling data for another book. His "History of Papermaking in the Pacific Northwest" was published by the Oregon Historical Society in 1951, and his "History of Dentistry in Oregon" by the Oregon State Dental Association in 1956.

(He had a continuous practice of dentistry in Portland from 1905 to 1945 and has been honored by being made a member of the National Dental Fraternity, Omicron Delta Upsilon.)

His interest in geology is evidenced by the large collection of specimens they've gathered over the years. We regret we do not see Dr. Adams and Mrs. Adams often but are proud of the results of their endeavors.

CHANGES OF ADDRESS

Mr. & Mrs. Jesse L. Brown	8317-188th S. W. ,	Edmonds, Washington
Mrs. Elwin Lilly	Bx 8353, Grace Station	Asheville, North Carolina
Mrs. Thora Baker	104 Ione Plaza Apts. ,	
	1717 S. W. Park Ave.	Portland 1, Oregon
Mr. & Mrs. E. Cleveland Johnson	5914 N. E. Fremont,	Portland 13, Oregon

\* \* \* \* \*

ROCK CUTTING & POLISHING -

Two classes sponsored by the Oregon Agate & Mineral Society, will be held in the Lapidary Shop of the Museum.

For adults: beginning Tuesday, January 17

Time: 7:30 to 9:00 P. M.

For grades 7-12: Saturday, January 21

Time: 2:00 to 4:00 P. M.

The charge for these classes will be \$6. 00 for members and \$8. 00 for non-members. Hurry and register. Classes will be limited in number.

\* \* \* \* \*

- - UNDERWATER CONES FOUND - -

By Phil F. Brogan, Staff Writer, The Oregonian

Use of an electronic depth finder has resulted in discovery of two subterranean volcanic cones in Paulina Lake of Central Oregon's Newberry Crater.

This announcement was made by Howard Reed, operator of the Paulina Lake resort, who told of recent probing from a boat of the big body of water that mirrors volcanic rims, and the startling discovery of the two cones.

The top of one appears to be about 110 feet under the surface of the lake. The flat top of the others is only 55 feet below the water surface.

The lake, a twin in the caldera of the old Mount Newberry of ancient times, was long presumed to have a monotonously flat bottom, except near the north shore where a lava stream or flat ridge reaches out into the water. Depth of the lake has been set at about 248 feet.

Paulina Lake has been surveyed for depth on a number of occasions, but those tests failed to reveal the cones, one of which reaches up about 195 feet from the lake bottom.

One of the submerged cones is about a fourth of a mile offshore from the south side, where a semi-peninsula reaches into the water, creating an embayment near the lodge. The other cone is about a third of a mile from the shore.

Reed was accompanied on the discovery expedition by Keith Cramer, Klamath Falls radio-man. Fear was held that the depth finder might be providing false information, so soundings were made by heavy string with weights attached.

These soundings verified the presence of the previously unknown cones.

Paulina and its twin, East Lake, occupy a big caldera in a mountain top and was created, geologists say, in much the same manner as Crater Lake, in the roots of vanished Mt. Mazama.

Mt. Newberry was a bulky volcano some 12, 000 feet high.

FURTHER STUDY DUE

When the top of Newberry disappeared and the caldera was formed, the basin created was virtually as large as that of Crater Lake. However, volcanic action continued and a series of cones divided the caldera into two parts.

East Lake occupies one of the basins, Paulina Lake the other.

- Over

Underwater Cones - contd.

Radio-carbon tests reveal that volcanism continued in Newberry Crater until some 2,000 years ago. Charcoalized wood discovered in pumice served as the dating medium.

In the caldera are at least a dozen cones, several of them small. Most imposing are those that separate the two lakes.

In the coming season, more extensive studies are to be made of the newly-discovered cones in Paulina Lake, to determine, if possible, if the cones were built up in the basin before the area filled with water.

Paulina Lake has as its outlet Paulina Creek, which tumbles over spectacular falls as it flows toward the Deschutes. East Lake, location of hot springs, has no visible outlet.

\* \* \* \* \*

## ARCTIC EXPLORATION

By Robert Moon

(Special to the Christian Science Monitor)

Business, university, and government investigators now have completed a season of Arctic exploration as bold in its way as the work done of old by the legendary searchers on sailing ships.

The 1960 explorers have done their jobs by aircraft and icebreaker and have concentrated on the undersea and the subterranean by using devices never even remotely contemplated by their windjammer predecessors.

Theirs is exploration in depth, more certain of safe return from this polar end of the earth, but because of the emphasis on team efforts, less sure of lasting fame for the participants.

This exploration involves research presently more pure than commercial. In the end it could unlock resources more vast than Henry Hudson or Vilhjalmur Stefansson ever dreamed.

Just one early assessment by the Canadian Department of Northern Affairs and National Development of the oil exploration carried out on some of the more southerly of the Arctic archipelago islands draws this cryptic conclusion:

There are indications that the largest oil reservoir in North America may lie beneath this frozen surface.

Exploration Goes on

The Canadian Department of Mines and Technical Surveys has conducted a major oceanographic and topographical investigation along the northern rim of the Arctic archipelago. It has gone farther north than the Canadian Government forces have ever carried such work before.

The government vessel, Baffin, sailed to the northern side of Baffin Island in July and carried out sounding and charting operations during the usual navigation period. Later it was joined by an icebreaker escort ship of the Department of Transport to assist it in moving through the ice. The Baffin subsequently moved south ahead of the polar ice floes.

Mapping of Baffin Island

A party of four natural scientists, supported by aircraft and helicopters, carried out traversing work to map most of the southern half of Baffin Island at a scale of 1 to 250,000. To carry out this great work, large stores of gasoline had been airlifted in last winter and cached at strategic points along the route.

Unlike the other efforts, this is not sponsored by any government but by Dr. George Jacobsen, an Arctic construction expert, and McGill University of Montreal. The expedition turned loose 24 geologists, botanists, glaciologists, and other specialists.

Much work is being done in glacial study and climatic variations. Next year the party will drill a hole 2,000 feet deep into the surface of the island, the most northerly hole ever to be sunk in the Western Hemisphere. Besides tying in with the climatic investigation, the drilling will show the structure of the soil and bedrock, the temperatures at the different levels, and the depth of the permafrost, which remains one of the continuing problems of northern development.

The Axel Heiberg investigators have also been studying vast beds of gypsum, 99 per cent pure, which underlie the island and form domes three miles in diameter. The presence of gypsum again raises hopes for oil.

NEWBERRY vs MAZAMA --  
BEND (Special) - By Phil Brogan

Crews constructing the Deschutes section of the multi-million dollar gas pipeline that will run from Canada through Oregon to the Bay area of California, are becoming aware that a mighty volcano once ruled the mid-Oregon scene.

That volcano was Mt. Newberry, which started its massive growth millions of years ago and for a time shared its glacier-domed splendor with another mountain, Mt. Mazama, ancestral to Crater Lake.

The crews at present are excavating a deep trench across the northwestern lava aprons of ancient Mt. Newberry, whose bulky mass, a mere remnant of the ancient volcano, dominates the skyline some 40 miles south of Bend. The trenching crews are finding their job difficult, despite the use of modern machinery and explosives.

Crews encountered the lava south of Bend, after trenching through soft pumice tossed from Mt. Mazama thousands of years ago. Work will continue through the lavas, now mantled with rich soil, until Crooked River is crossed.

Geologists say that ancient Newberry, which cradles East and Paulina Lakes, was a restless mountain for thousands of years. From the epochs known as the Miocene or Pliocene until the beginning of the Ice Age, the mountain gradually gained height and mass. It was a bulky mountain, some 35 miles in diameter at the base. Apparently it was largely built up through summit crater action that tossed cinders and spilled lava over the region.

\* \* \* \* \*

GENESIS - BEFORE GEOLOGY  
- - The Editor

"In the beginning - - Chaos." Canon Lemaitre proposed a theory that visualizes all matter and energy of the Universe in one body, a single super-atom. Material density was very high; the stars were near together; many galaxies interpenetrated; the forming protogalaxies overlapped. Collisions and secondary explosions must have been frequent. Masses of flying gas in the cold of space quickly liquefied, solidified, cooled into planet-like bodies with a wide range of sizes. Shattering and exploding bodies produced dust, grains, and gases from which later stars were born. All this action seems logical.

From the explosion mentioned above some masses became luminous stars but oversized bodies became double or multiple stars, or clusters of varied population."

(This occurred five to ten billion years ago.)

Professor Harlow Shapley of Harvard in his book "Of Stars and Men" says that the above statement as to the origin of the sun and planets he made, long ago "in a time of desperation" and that better hypotheses are hard to come by.

\* \* \* \* \*

- HERE AND THERE -

METEORITES - ROCK SPECIMENS FROM THE SKY -

Dr. Edward Anders of the University of Chicago holds that these visitors from outer space give us answers to:

1. The origin and age of the chemical elements.
2. The age of the earth and solar system.
3. The origin of life.
4. The relation of cosmic rays to the sun.

- (over)



HERE AND THERE - cont.

He says that meteorites have their origin in the Asteroid Belt between Mars and Jupiter. They are no larger than 300 miles in diameter and the space journey to earth may take 30 to 100 million years.

- - N. Y. Times

\*\*\*\*\*

HUGE WELL ON MOUNTAIN

At the top of Kitts Peak near Tucson, Arizona, a gigantic well is being drilled - 15 feet in diameter and 380 feet deep. It will lean at an angle of 32° and will contain at the base a reflector of the world's largest solar telescope.

A motor driven mirror will track the sun and reflect its light into the well where it can be studied by spectroscope. This is a project of the National Science Foundation.

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SAND DUNES FOR WATER

Pacific Power and Light Company has discovered a great source of industrial water at Coos Bay. In 1954 tests began and it is now proven that a small dunes area north of Coos Bay can supply 30,000,000 gallons of water daily. State permits have been obtained and 64 wells are being put down in an area two miles by ten miles to obtain fresh water for new industries now being built.

\*\*\*\*\*

- - COLUMBIA RIVER BASALT - -

This area can boast of having the largest lava flow -- 250,000 square miles, at places over 1,000 feet thick, and 15,000,000 years old.

INDUS RIVER WATER - -

David E. Lilienthal is convinced the signing of the India-Pakistan Indus water treaty marks a major turning-point in Asian affairs of enormous significance for the United States and the world.

The former head of the Atomic Energy Commission and of the Tennessee Valley Authority said in an interview:

The final plan involved a 10-year plan, costing some \$1,300,000,000, that will irrigate almost 30,000,000 acres, providing water, more food, power and flood control for some 47,000,000 persons.

About half the financing will be provided by grants and loans from the United States, Canada, Australia, New Zealand, the United Kingdom and the World Bank. -- North American Newspaper Alliance

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"OREGON" - Poet of 1918

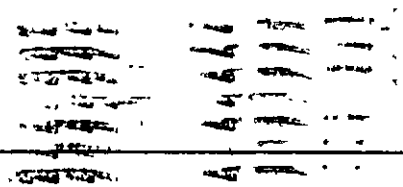
Hard by the blue Pacific  
 an empire stands alone,  
 Walled in by serrate mountains  
 While plenty sits the throne.  
 Where the climate is an Eden  
 Where the winter is a spring  
 Where summer is eternal

# GEOLOGICAL NEWS LETTER

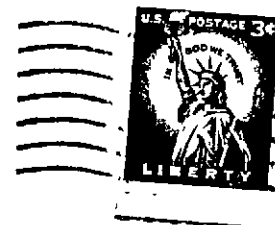
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State of Oregon  
Dept. of Geology & Mineral Industries  
1069 State Office Bldg.  
Portland 1, Oregon

CALENDAR

Buffet luncheon every Thursday noon, second floor, Portland Chamber of Commerce, 824 S. W. 5th. \$1.25.

Friday  
March 10 The twenty-sixth annual Banquet at St. David's Episcopal Church, 2800 S. E. Harrison Street, 6:30 p. m. Speaker, Dr. Augustus Armstrong of Portland State.

Friday  
March 24 Lecture. Speaker, Dr. John Eliot Allen. Subject: "Materials and Methods of Historical Geology and the Evolution of Life."  
This is the first of a series of lectures on Historical Geology. Dr. Allen, Past President of G. S. O. C., is Professor of Geology at Portland State College.

Sunday  
March 26 Field Trip. Time: 8 a. m. Trip will up Oregon side of Columbia River as far as Ortley Anticline. Travel will be by auto caravan via the old scenic Columbia River Highway. Trip leaders: Leo Simon and Dr. Paul Howell. Stops will cover both geology and wild flowers. Meeting place: 82nd near Sandy. Park facing north on 82nd.

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Field Trip to Puget Island on the Lower Columbia River

Time: 8:00 a. m., Sunday, February 12th.

Location: Portland State College, as starting point.

Participants: 31 members of GSOC armed with picks and cameras, with Dr. Paul Howell at the microphone of bus.

Goal: To investigate formations on the north side of the Columbia River down to Puget Island, and the south bank on the return trip.

Details: Viewed from the Interstate Bridge, the low hills on the north bank of the Columbia hove into view. These represent the Missoula Flood deposits and at least two planes of the Terrace formation.

The first stop found our party at an excavation adjacent to the highway near the Vancouver winery. This was a deposit of silt which we identified by testing between the teeth. A clay would have had a finer grit when a little of it was ground between the front teeth.

Portland Hills silts made their appearance shortly thereafter, and the second stop found the party at a highway cut north of Salmon Creek. The red nature of the deposit was attributed to goerzite, turgite, and limonite. Samples were passed around in the rain-bound bus. Incidentally, rain was more or less continuous the whole trip.

Turning off the highway on to old 99, the party found a third stop alongside a large exposure of weathered pumice, zeolites, sandstones and volcanic muds. A search for quartzites was made but none discovered.

Passing parts of the Goble formation and large banks of tuff, sandstone, and even a vein of low grade coal, we went through Longview to a large gravel pit showing part of the Troutdale formation, and the point at which this joins the Wilkes formation. Manganese concretions in an angular nonconformity were seen.

We then travelled back to Pacific Ave., and passed Stella quarry with its coyote hole of bygone days. The Cowlitz formation was now in evidence, with terraces capped with Troutdale formation. Stopping slightly before this we had investigated a large quarry of columnar basalt with the hope of finding a block of moderate size. None under 30 pounds was discovered. It was at this location that a blast caused the road to be removed into the Columbia River. Quartzites and rhyolites were found and passed about.

Going by the Nicolai fault block we went west to Skamokawa and to Puget Island. (at this point we met Dr. and Mrs. Arthur Jones, returning from a trip to Long Beach.)  
(over)

The ferry trip across proved invigorating, and we then went west to Bradley Park, which offers a breath-taking view of the gorge. All along the way was the inter bedding of the sandstones and basalt. The highway department has had to take extra precautions to avoid slides. Coming back the Troutdale Formation, Pittsburg-bluff, Gobel volcanics, and Columbian basalts were prominent.

Conclusion: A wonderful time was had by all, and we are looking forward to the next trip.

D. M. C.

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#### NEWS OF MEMBERS --

GEOLOGIST CLAIRE P. HOLDREDGE died Jan. 28 and is buried in the Golden Gate National Cemetery, San Bruno, California. He was a former District employee and was a flier in World War I.

DR. JAMES STAUFFER is president and MRS. DELORES GREGORY secretary of the newly organized OREGON CHAPTER OF NATURE CONSERVANCY, which will study wilderness areas urgently needed and recommended for acquisition by public agencies. This endeavor should have the support of all who believe in conservation of our natural resources.

DR. JOHN ELIOT ALLEN, executive officer for geology at Portland State College, has been appointed to the Committee on Visual Education of the AMERICAN GEOLOGICAL INSTITUTE, which plans to apply to the National Science Foundation for funds to establish a Continental Classroom in Geology, using our national television networks and other visual aids.

Members of our Society appointed to MAZAMA RESEARCH COMMITTEE are: DR. RUTH HOPSON, DR. DONALD LAWRENCE, RALPH MASON, CLARENCE PHILLIPS and KENNETH PHILLIPS.

COLLIER GLACIER - A PHOTOGRAPHIC RECORD, in MAZAMA ANNUAL of Dec. 1960, by DR. RUTH HOPSON is an excellent article on the movement of this glacier from 1934 to 1960 and represents a vast amount of work by writer. This is a follow-up to her talk to the Society last fall.

The DRS. F. WALTER and JESSIE LAIRD BRODIE have returned from a trip to Europe and the British Isles where they combined vacationing with attendance at various medical conferences and work for the American Women's Hospital Service of which Dr. Jessie Brodie is currently director. Dr. Jessie Brodie is past president of the Pan-American Medical Women's Alliance and the American Medical Women's Association.

#### NEW MEMBERS --

Mr. and Mrs. Robert S. Fisher	Rt. 1, Box 80, Sherwood, Oregon	NE 8-3373
Dr. William W. Ornduff	772 S. W. Broadway Drive (Zone 1)	CA 8-5815
Mrs. L. P. Hewitt	4125 S. E. Oak St., Portland (14)	BE 2-9821

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#### BENEFICIAL VOLCANISM

Most of us when hearing or reading about volcanic eruptions are prone to think only of their destructive effects. Seldom, though not often, (usually much later) we begin to realize that volcanic actions are not a total economic loss, but that they have also a lot of beneficial aspects. Some 60 miles east of us, here in Portland, we have a very symmetrical volcanic cone known as Mt. Hood. That mountain has something of a variety of uses and benefits to most all of us.

The degree of its slopes and the texture of its snows are a delight to the skier and winter sports crowd. Those same slopes are trodden in summer by climbing enthusiasts and also by a large number of plain vacationists, while at the same time city dwellers are getting a sure relief from heat waves. Camera fans scouting for different photographic angles have a year-around open season to practice their hobby. Beneficial as these things are to ease and relax us,

Beneficial Volcanism - cont.

there is also a benefit derived from it which is constant and affects our daily lives.

I am now referring to our every day water supply that we are using in our city. Due to the large amount of lavas ejected in that eruption, Mt. Hood attained enough of a height that its higher elevations are hosts to snow-packs and a few glaciers. It is from the slow summer melting of those same glaciers that Portland can boast of the purest water of any city in our nation.

Part of that flowing water is also utilized for the production of electric power which contributes to our well being.

Another benefit of its elevation is that the water can be brought to our city by gravity, eliminating the need of pumping.

Both north and south of Mt. Hood in the states of Washington and almost into California the mountain range, known as the Cascades, are strewn with quite a number of peaks the size of Mt. Hood or bigger which are performing the same beneficial acts for other cities and surrounding countryside. Those same peaks and mountains are also the results of volcanic action.

Their location and elevation are practically dividing our state into eastern and western parts. Their elevations in conjunction with our Coast range are proving more or less of a barrier for prevailing moist westerly winds reaching the lands lying on their eastern slopes, thus causing that part of our state to have a much drier climate. Rainfall there is very infrequent, here then being the location of the largest lava plateau-it has (in most places) the look of a semi-desert. Besides thousands of acres covered by the lavas, quite a few of them are covered by pumice. Many more are covered by lava ashes. Much of those lands must surely have looked hopeless to our pioneers.

But since man's work and ingenuity succeeded in bringing irrigating water to that land, even those lava ashes have been found to be excellent for the growing of famous potatoes, alfalfa, etc. Lately a use has been found for the pumice flow. It is used as an aggregate material for building blocks. At some far distant time even the basalt lavas will weather down into soil that man can utilize, thus contributing one more benefit from vulcanism.

So, even as we deplore the loss of life and destruction of property caused by some of those eruptions, we here in Oregon will have to remain thankful for that which happened here and which has been instrumental in shaping what could rightly be called a sculptured state.

- - -Ray S. Golden

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BIG DITCH  
By Phil Brogan

A "big ditch" is rapidly taking shape across the face of Eastern Oregon, from the California border into the Stanfield country and on north to Canada.

It is a trench that will hold one of America's longest gas lines, 36 inches in diameter. To bury the pipe, the trench will be some six feet deep.

Progress of the work across Oregon will be watched eagerly by persons interested in the ancient story of the region.

There is a possibility, geologists agree, that the trench will cut into important fossil-bearing formations, to expose bones of creatures that ranged over the area millions of years ago. In several localities, the "big ditch" will be excavated in John Day strata, known widely for their rich record of mammals that lived in this part of the world before the Columbia River lavas spilled over the Northwest.

As the pipeline crews move north from the Deschutes plateau they will trench deeply into outliers of the Smith Rock formation, known to hold leafy records of semi-tropical forests that grew in the region in the "dawn age" of mammal life. The pipeline will cross the deep gorge of Crooked River near Smith Rock.

Fossil hunters will also be keeping a sharp eye on material from the deep trench where it passes east of Madras. It is believed by some geologists that a formation there represents beds of a sea of the remote age of reptiles, the Mesozoic.

(over)

In northern Jefferson County, the line will cut into the Mascall formation, known to hold a fine record of mammals of the epoch of great lava flows, and the colorful John Day formation, which has already yielded bones of creatures that range from rhinos to oreodonts.

Earlier road work northwest of Madras brought to light bones of Oregon's last rhinos of the Pliocene epoch, when Thielsen, Broken Top, Mt. Jefferson and Three Fingered Jack were massive, unglaciated volcanoes on the growing Cascade skyline.

The multi-million dollar pipeline is to swing north up Cow Canyon, across the Shaniko flats and northeasterly to a crossing of the John Day River, where some of the heaviest work on the Oregon phase of the project will be met.

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CORRECTION!

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Ground Water Branch

February 20, 1961

Mr. J. R. Rentsch, Editor  
GSOC News Letter

Dear Mr. Rentsch:

I note in the last (Feb. 1961 issue of GSOC) Newsletter on page 12 that PP&L is credited with "discovery" of the industrial water in the Coos Bay dunelands.

The Portland office of the Ground Water Branch of the Geological Survey tried unsuccessfully for years to interest someone in development of the duneland waters. We finally obtained meager federal finances in 1953 and made a study indicating a possible 30 million gallon per day supply was available in the Coos Bay dunelands.

PP&L started from preliminary copies of our report after futile drilling of many wells in the bedrock of the area. They did a very good job in outlining the ground-water body and in preparing for industrial supply, but their publicity man never once mentioned USGS.

Our final open-file report has been in the Portland and other public libraries as well as on file with most all resource development agencies and firms. It is now being published as a water-supply paper.

Sincerely yours,

R. C. Newcomb  
Research Geologist

\*\*\*\*\*

Aluminum observed its 75th birthday on February 23rd. It was on this date 1886 that Charles Martin Hall, aged 22, Oberling, Ohio, discovered the electrolytic process of making this metal.

\*\*\*\*\*

MOHOLE - ON THE WAY

The National Science foundation has spoken. Now is the day. A contract has been signed and sealed to the tune of \$735,750 and goes to The Global Marine Exploration Company of Los Angeles.

The "Cuss I", a drill ship 260 feet in length, is being outfitted to drill the first test hole at Guadalupe Island in 12,000 feet of water. (Some drilling has been done in 1500 feet of water.) The deepest drilling on land has been 25,000, but mohole may stop at 32,000.

The oil industry should learn a lot.

- - Frank Gardner, Oil to Gas Journal

\* \* \* \* \*

GROUND WATER

Senator Kerr of Oklahoma is Chairman of the Committee on National Water Resources. He warns that we must begin at once to conserve our water resources. The Committee calls for a 10-year, \$50 million program, this after a series of more than 90 studies have been made. For example, one-half of our cities and one-half of our industrial plants dump waste into our streams untreated. Water uses are expected to triple by the year 2000.

\* \* \* \* \*

GLEN CANYON DAM

Going South? If, so, have a look at this new dam just south of the Utah line in Arizona. From Glen Canyon Bridge on Route 89 you can look down 700 feet to see this new wonder under construction. When this dam is filled, it will create Powell Lake, 186 miles long storing 28 million acre-feet of water. The lake will also extend up the San Juan Canyon 71 miles.

\* \* \* \* \*

NEW WAY OUT OF CANYON

Keen interest is shown by all in this area in the proposed Foothills Freeway. The Highway Commission has just published a map showing how in descending Canyon Road you may swerve right and enter a tunnel which would carry you under Vista Drive, then land you at Clay Street near 18th, heading due east. Here also you would connect with the proposed Stadium Freeway north and south.

\* \* \* \* \*

NICKEL MOUNTAIN

The State Geologists may well reflect that it took 90 years to get this nickel deposit into production after discovery in 1864. It may also be noted here that this is the only active nickel mine today in the United States.

The host rock is peridotite and of tertiary age. The ore body lies atop the mountain in a trough about 3,000 feet wide and 6,000 feet long. The ore grade is 1.5 on an average. The Hanna Mining Company are the operators.

- - Mining World

\* \* \* \* \*

On February 23, at our GSOC luncheon, inquiry was made for lava blocks cast in "squares". If you can supply same please notify Chairman, Leo Simon, who will pass the word along.

(One member leaving the hall after hearing the learned professor) ^ -

WHEN I HEARD THE LEARNED ASTRONOMER

When I heard the learned astronomer,  
When the proofs, the figures, were ranged in columns before me,  
When I was shown the charts and diagrams, to add, divide, and  
measure them,  
When I sitting heard the astronomer where he lectured with much applause  
in the lecture-room,  
How soon unaccountable I became tired and sick,  
Till rising and gliding out I wandered off by myself,  
In the mystical moist night-air, and from time to time,  
Looked up in perfect silence at the stars.

Walt Whitman



# GEOLOGICAL NEWS LETTER

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*April, 1961*

PORTLAND, OREGON

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	Dr. James Stauffer (2 yr.)	Mr. Ralph Mason		
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Bus. Mgr.-	Mr. Robert F. Wilbur	2020 S. E. Salmon St.	14	BE 5-7284

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Museum	- Mr. Lon Hancock	GSOC Libr. night	- Mr. Irving Ewen
	Luncheon - Mr. Leo Simon		

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## Society 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 objectives.

Persons desiring to become members should contact the Secretary.

Regular annual dues (single or family memberships) are \$5 for residents of Multnomah and adjacent counties; \$2.50 for others; and \$2 for Junior Members. Make remittances payable to the GEOLOGICAL SOCIETY OF THE OREGON COUNTRY.

---

## Society Activities

(See "Calendar of the Month")

Evening Meetings. Formal lectures or informal round-table discussions on geological subjects, on the second and fourth Fridays of each month at Public Library Hall, S. W. 10th Avenue and Yamhill.

Field Trips: Usually one field trip is scheduled for each month.

Library Night: Once a month Lewis and Clark College, Biology Bldg.

Luncheons: Informal luncheons, with geological motif, each Thursday noon in Room B, Chamber of Commerce Building, S. W. 5th Ave. and Taylor St. \$1.00 per plate.

Publication: The Geological News Letter, issued once each month, is the official publication.

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CALENDAR

Buffet luncheon every Thursday noon, second floor, Portland Chamber of Commerce, 824 S.W. 5th. \$1.25

Friday  
April 14 Dr. John V. Byrne - Lecture.  
Subject, "Oceanography-Methods and Instruments". Dr. Byrne is Associate Professor of Oceanography at Oregon State College.

Friday  
April 28 Raymond E. Corcoran of the Oregon Dept. of Geology and Mineral Industries - Lecture.  
Subject - "The Beginning of the Earth or Proterogeoic". This is the second of a series of lectures on Historical Geology.

FIELD TRIP FOR APRIL -

A trip is being planned by Field Trip Chairman, Irving Ewen, and will be announced at our next meeting.

\* \* \* \* \*

NEWS OF MEMBERS

Mrs. Leonard (Emily) DeLano is working with the Executive Women's Club in its commendable statewide endeavor to curb TB programs of violence.

The March bulletin of The Friends of Three Sisters Wilderness (Eugene) states that: Dr. Ruth Hopson is president of the American Nature Study Society and that Mrs. Doris (Arthur C.) Jones is a member of the Committee on Wilderness Trails.

Greetings Read at our Annual Banquet -- (By Western Union)

"Regret we cannot be with you tonight. Our best wishes to incoming officers committees and all the Gesockers."

Franklin, Ardna, Dick and Bob Brown

(Both Mr. and Mrs. Brown have been ill recently, but we are happy to report that they are now on the road to recovery.)

\* \* \* \* \*

CHANGE OF ADDRESS -

Mr. and Mrs. Guy Dodson - 4350 S.W. 96th Avenue, Beaverton, Oregon

\* \* \* \* \*

ORE-BIN SPECIAL -

If any G. S. O. C. member fails to get for themselves a copy of the Ore-Bin, Vol. 23, No. 2, Feb. 1961, they are missing the best "Geologic Time Chart" that has ever been published for Oregon. An article, "Dating Oregon's Geologic Past", by Richard G. Bowen, gives the latest methods of radiometric dating of rock formations, and includes a table of Oregon Rock Types whose ages have been so determined. The Ore-Bin can be purchase from the Department of Geology and Mineral Industries, 1069 State Office Building, Portland 1, Oregon. The annual subscription is fifty cents.

-- H. B. S.

GEOLOGICAL SOCIETY OF THE OREGON COUNTRY  
FINANCIAL STATEMENT  
FOR THE YEAR ENDED FEBRUARY 28, 1961

## INCOME:

Dues . . . . .		\$929.00
Banquet - 1960 . . . . .		266.75
Banquet - 1961 . . . . .		114.75
Baldwin tea (benefit for Camp Hancock) . . . . .		150.00
Bus beach trip . . . . .		92.50
Book fund . . . . .		9.35
Bumper cards . . . . .		2.10
		\$1564.45

## EXPENSES.

News Letter . . . . .		\$555.94
Banquet . . . . .		329.55
Camp Hancock, Stainless flat ware & Chemical toilet . . . . .		103.34
Bus fares for beach trip . . . . .		58.80
Library shelves . . . . .		32.09
Books purchased . . . . .		26.79
Stationery, stamps, Misc. . . . .		82.61
Picnic expense . . . . .		10.00
Plaque for Mazama Lodge . . . . .		17.00
Treas. bond . . . . .		5.00
State Corporation Tax . . . . .		5.00
Richards Memorial . . . . .		5.00
Henderson flowers . . . . .		5.00
Pointer light . . . . .		8.00
		\$1244.12
		320.33
	Balance Feb. 29, 1960 . . .	1330.55
	" " " 1961 . . .	\$1650.88
Portland Federal Savings . . . . .	\$595.16	
	24.04	
	\$619.20	

Rose Hamilton, Treas.

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REPORT OF THE SECRETARY FOR 1961

Family Memberships . . . . .	204
Student . . . . .	7
New Members . . . . .	27
Number of Fellows . . . . .	20
Honorary Members . . . . .	3
Charter Members . . . . .	26
Lost by Death . . . . .	4
Resigned . . . . .	6
Ballots rec'd for 1961 officers . . . . .	120

(The slate not contested)

Ruth Eliot Prentiss,  
Secretary

\*\*\*\*\*



1961 PRES. DR. JOHN HAMMOND



THE INCOMING PRESIDENT'S MESSAGE

Each of us, in a very individual way, dips into the recorded history of the past, as recorded in the earth's crust, and into nature's mantle as we see it today. Life is too short to pioneer our way into these fascinating but time consuming studies so we learn from and utilize the knowledge and experiments of others and perhaps occasionally add a paragraph of our own to the chapters of the enlightened.

Perhaps, during this search after the true and the real, we might get the feeling that these intelligent creative forces of nature have been and are manifested on this earth of ours to teach man something of his role he must play and his reason for being on this earth.

As we concentrate on the most interesting lessons to be learned from earth and as we penetrate the veils of knowledge we may become aware of vast sequences of time and space and as we do so our consciousness

enlarges to accommodate itself to a wider and deeper perspective. As a child our activities and thoughts were probably limited to the confines of the yard which extended only a short ways from our house. As we grew we discovered new frontiers of adventure and experiences. As evolving human beings, through the power of mind, we are rewarded in our maturity, and a certain amount of effort, to find greater and more fascinating thresholds of beholding.

If we were to examine today the new books on geology and related subjects we would no doubt find new advances in this beholding process. Dr. Allen, at one of our library night sessions, reviewed the new literature and revised approaches to geological learning. He stated then that it was a herculean task to keep up with the new theories and concepts of today in this most interesting earth science. When we add the contributions of biology, botany, zoology, oceanography, astronomy and other natural sciences we cannot help but feel extremely humble as we view the immensity and diversity of creative expression. Instead of causing a lethargy of action this humility actually prepares us to receive new thoughts and ideas. Who is the man that has seen learning added to one full of ego?

That which attracted me most to this society was the sincere humble intelligent people, dedicated to the pursuit of unraveling the mysteries of nature and who, in this pursuit, were unselfishly sharing with others the gems of learning that they had experienced and understood. As time went on I found great comfort and joy in these associations and I came to experience a oneness in this company of kindred souls.

Tonight I sense a deep feeling of harmony and a dedicated sense of purpose in this auditorium. Within this body of people of diversified pursuits and walks of life I seem to feel that there is a great love for one of nature's greatest of natural sciences and that it has created within this group a common bond of intimacy and mutual understanding.

In such company of fine and dedicated people, one cannot but feel a joy to be able to serve. As President of this Society I dedicate my services to the well being of the Geological Society of the Oregon Country and to the many who make up its most illustrious membership.

Dr. John H. Hammond,  
Annual Banquet, March 1961.

\* \* \* \* \*

GOT A HOBBY?

What a question to ask a "Gee-Socker"! We know you have at least one. But to our prospective members we invite you to explore the scientific discoveries and theories of Geology in its many aspects. Some of our Junior or Student members who have done so, have found that Geology has led them beyond the hobby stage, through scholastic stages leading to college degrees in the subject, and are now professionally engaged in geology.



As one author has put it,\* "Perhaps the greatest contribution earth science has made to man is to teach him a greater appreciation of his physical environment. When a person learns that hills and valleys, lakes and streams are not permanent features of the landscape they become more and more interesting and fascinating, especially as he begins to understand the geologic processes which have brought them into existence."

Some wag has stated that "A hobby is something you get goofy about, to keep from going nuts about things in general."

Another bit of wisdom may be seen among displays of choice geologic specimens in Dr. Arthur Jones' office:

"If your nose is close to the grindstone rough  
And you hold it down there long enough  
In time you will say there is no such thing  
As brooks that babble or birds that sing;  
These will all your world compose:  
Just you, the stone, and your darned old nose."

Last November 11th more than fifty "Gee-Sockers" accepted Dr. and Mrs. Jones' kind invitation to bring some of their choice specimens to their home for an evening of song-fest and display. After this there has been no doubt in the minds of those attending as to whether or not the Jones' had a hobby.

\*Geology, Principles and Processes. Emmons, Thiel, Stauffer and Allison.

----- R. Wilbur

\*\*\*\*\*

#### MOHOLE AGAIN

By Rennie Taylor, San Diego, Calif. -- Sea-going scientists have gone to work on some rare samples of the earth's interior which they brought up from the first hole ever drilled into ocean bottom through the deep sea.

Their material was cylinder-shaped cores of sediment, mainly gray sand and mud containing fossils probably somewhere between 11,000 and one million years old.

These specimens were brought up Saturday and Saturday night by the experimental Mohole drill ship CUSS 1, operating in a 3,000-foot-deep ocean trench 18 miles off San Diego.

The hole was drilled as far as 310 feet below ocean bottom. It was the first ever made below deep ocean waters and the first time the ocean bottom at that level ever had been penetrated more than a few feet.

Scientists called this a memorable achievement because it was done in the open sea from an unanchored ship. The slender drill pipe dangled for two days as it went down slowly from the vessel, finally touching bottom 2.3 miles down.

This was a preliminary step for Project Mohole, whose goal is to go entirely through the earth's crust and into the terrestrial mantle. To do this, the drill will have to go down 3-1/2 miles or more and the preparatory work may require two or three years.

Moho is a short term for the mohorovicic discontinuity, the division between the crust and the mantle. Mohole is the term describing the hole. This thin dividing layer bends earthquake waves as they travel through the terrestrial depths and marks the beginning of the supposedly very hard rock of the mantle, about which little is known.

CUSS 1 is a specially designed drill ship operated by the Global Marine Exploration Co. of Los Angeles for the National Science Foundation. Its work will serve as a guide for the final effort to go all the way down to the mantle. This mantle is closest to the surface where the ocean is deep. On land it is 10 to 15 miles down -- too deep for conventional drilling. Oil wells have been drilled on land to depths of 25,000 feet or so, and through shallow water to as much as 10,000 feet, but the formations there are less interesting to scientists seeking information about the earth's formation and history.

The mohole can open up exploration of the earth quite as valuable as rocket explorations of space. It's called one of the most important scientific undertakings of modern times by Dr. Detlev Bronk, president of the National Academy.

The excitement concerns the knowledge the mohole might produce.

-- more



Mohole - continued

For one thing, ocean sediments are made up partly of fossils and remnants of sea creatures which lived over past millions of years.

By pulling up a continuous sample or core of material as the hole is dug, experts hope for a history of life--a telescope backward into time -- perhaps from the time life started on earth a billion or two billion years ago. As climate changed in eons past, the types of living things changed, and left a record.

This sediment might be half a mile thick or so.

Below it, scientists might find the original surface of the earth as it--and maybe the moon, too -- existed before water and atmosphere began erosion and the laying down of sediments

They want to bring up samples of the rock below the thin crust, to examine it for additional clues to the origin of the earth. and greater understanding of earthquakes.

The mohole could answer other questions -- whether the earth is cooling, why there is a higher - than -expected heat flow under the oceanic floor, whether magnetic poles have gone wandering in the past -- and perhaps produce new puzzles to ponder.

So far scientists know for sure only a little about the earth's outer crust of dirt and rock. But they've guessed and inferred a lot from study of earthquake waves, laboratory experiments, and meteorites, some of which may have been bits of old, broken-up planets.

By this picture, the crust varies from about 20 miles thickness on the continents to 2-1/2 to 3 miles thick under the oceans.

Under the crust is the mantle, extending about 3,000 miles deep. the rock and material making up more than 80 per cent of the earth's bulk. Volcanic lavas probably come from the mantle, but the average mantle material is not thought to be lava.

Beyond the mantle is the center or core itself, generally considered to be composed of molten iron and nickel.

The way to learn what's there is to dig, down to the boundary between crust and mantle.

-- The Oregonian (March 1961)

\* \* \* \* \*

LITERACY IN SCIENCE

By Hans A. Bethe, of Cornell University

Sputnik, three years ago, made the United States aware of the lack of--and the need for--science education. Many measures have been taken to improve science education and secondary education in general. More remains to be done, and already some reaction against this improvement is setting in

Our first impulse was to compete with Russia in the military field and in propaganda. These are important, and remain so. Technology is dominant in military matters, and we need more and better scientists and engineers for this. Russia trains much larger numbers than we do, and probably about as well

However, this is a purely negative approach, and the wrong reason even for technology, let alone science. The good life created by technology means not only TV, cars, jet planes and washing machines, but also the elimination of toil and the production of all our food by 10% of the population. Materialistic? Not entirely--freedom from want means you can employ your time and mind for better, more spiritual things than getting your daily bread.

But technology is not science, it is only created by science. Science is an adventure of the mind. It is the field of mental activity which has made by far the greatest advances in the past 100 years. It is an understanding of nature, quite undreamed of by the ancients--though they were interested in understanding nature--or by men in the Middle Ages. We may well claim that science is the essence of today's culture, as painting and other fine arts were of the Renaissance or political thought was of the 18th century. It is most regrettable that the public does not participate in this adventure and is essentially illiterate in science.

We need science education to produce scientists, but we need it equally to create literacy in the public. Man has a fundamental urge to comprehend the world about him, and science today gives the only world picture we can consider valid. It has given us an understanding of the inside

Literacy in Science - cont.

of the atom and of the whole universe, of the peculiar properties of the chemical substances, and of the manner in which genes duplicate. An educated layman cannot, of course, contribute to science but he can enjoy and participate in the many scientific discoveries constantly being made. Such participation was quite common in the 19th century but has unhappily declined. Literacy in science will enrich a person's life.

Science for the educated layman is also a practical necessity. In business, politics, and daily life he will often make decisions involving scientific and technological matters. A person who understands what scientists talk about can form his own judgments and will not be over-awed by crackpots who promise the sky. People should not close their minds by saying, "This is science, so I can't understand it."

What do we need in basic science education? Very briefly: Secondary school students who do not intend to be scientists should learn science; future scientists need not. Why this paradox? To give thorough, exact foundations in science for future scientists is beyond the capacity of most present high school teachers. The training of future scientists in science must be left to the college. But it is possible in high school to show that science is exciting, what its methods are, and some of the world picture it has created--to create a new and needed scientific literacy.

\* \* \* \* \*

(Press Release)

- - - -

BIG DIAMOND

With spring training coming on, I think it is appropriate that I tell the heretofore untold baseball story. A fellow by the name of Abbnor Doubleday is generally given credit for founding the National past-time but I hereby challenge this claim and will attempt to set the record straight.

Paul Bunyon had invited his family out to see the West and while they were here they struck upon this game. Naturally they needed room so they set up Mount Hood for home plate, Mount Adams for first base, Mount Rainier second, Mount St. Helens for third, and with a fair sized fir tree for a bat, they were popping fly balls clean up to "Cannedy." (Shou'da been there.)

The fact remains that these four Mountains are still in a near perfect diamond, which I submit is no accident. - Mt. Hood and Rainier north and south and St. Helens and Adams are due east and west. What? Still not convinced? Then look at the U. S. Geological Survey's Quadrangle maps!!!

- - Clair E. Pense

\* \* \* \* \*

TO VENUS AND RETURN

In 6-1/2 Minutes - -

The National Aeronautics and Space Administration report clear radar contact with the planet Venus 35 million miles distant. This was done by The Goldstone Tracking Station on March 10, 14, and 15th and took 6-1/2 minutes to send to get an answer back.

MUSINGS ABOUT THE UNIVERSE

The Universe is but the thing of Things  
The things -- but ball all go round in rings,  
Some of them mighty huge, some mighty small,  
All of them radiant and mighty shiny.

But --

Whose purpose was it, His or Hers or Its?  
Let's leave that to the scientific wits  
Grant me intention, purpose, and design,  
That's near enough for me to the Divine.



## ACKNOWLEDGEMENTS

### COVER

It is readily apparent that the cover design on this year's banquet program is distinctly different from the traditional ones used in the past.

Mr. Robert B. Anderson, a commercial artist who is a member of the Geological Society, contributed time and talent to create the contemporary or perhaps abstract view of geology and man.

The design depicts the sun radiating on the surface of the earth and the life, both flora and fauna, living upon it.

Upon close examination it is possible to detect man (in formal attire), the grass, and other vegetation with roots reaching to the strata below.

### DINNER

Coordinator Mrs. Hall  
Prepared by the Women of Saint Davids

### DECORATIONS

Miss Tiffany

### WAITERS

Mr. Frederick Kraemer Anderson  
Mr. John David Burdette  
Mr. Irving Gilbert Ewen  
Mr. David Wayne Ford  
Mr. Lloyd Wendell Jones  
Mr. Darrel LaRue  
Mr. Mickey Earl Simonson  
Mr. William Stevens

### SOUND EQUIPMENT

Dr. James Stauffer

### TICKETS

Mr. Leo F. Simon

### GIFTS

Mr. H. Bruce Schminky

### PROGRAMS

Cover Design Mr. Robert B. Anderson  
Menu Interpretation Miss Margaret L. Steere

### GENERAL CHAIRMAN

Irving G. Ewen

Geological society of the oregon country



# 26th ANNUAL BANQUET

26th

st. david's episcopal church portland, oregon march 10, 1961

## GOOD NIGHT

(Tune: Pop Goes the Weasel)

Tonight we've had a jolly good time  
And learned a lot together  
Resolved geologists are fine  
Regardless of the weather  
So now we bid good night to all  
And plan some future meetings  
That's the way we profit most  
Along with pleasant greetings.

## FINAL UPLIFT

(Tune: Goodbye My Lover, Goodbye)

Our banquet now is at an end  
Goodbye, Rock Hunters, Goodbye.  
We'll work a year and meet again  
Goodbye, Rock Hunters, Goodbye.

Geodes and Fossils,  
Banquets and Wassails  
Campers with "Tossles"  
Goodbye, Rock Hunters, Goodbye.

## WE'RE HERE FOR FUN

(Tune: Auld Lang Syne)

We're here for fun, right from the start  
Pray drop your dignity.  
Just laugh and sing with all your heart,  
And show your loyalty.  
Chorus\*

It's twelve long months since last we met,  
To feast, to laugh, to sing,  
To reminisce, lest we forget  
The joys these meetings bring.  
Chorus\*

The things we've seen, we've loved, we've shared,  
From mountains to the sea,  
We've gathered rocks from hills and vales,  
To learn geology.  
Chorus\*

And so to-night with spirits high,  
The welcome mat we spread,  
Let's plan to climb to greater heights,  
In months that lie ahead.  
Chorus\*

### \*CHORUS

May other banquets be forgot,  
Let this one be the best,  
Join in the songs  
We sing to-night,  
Be happy with the rest.

'The Hancocks'

GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

OFFICERS

1960	1961
President	
Mr. Franklin Brown	Dr. John Hammond
Vice President	
Mr. Robert Wilbur	Mr. Frank Merryman
Secretary	
Mrs. Ruth Prentiss	Miss Hilda Freed
Treasurer	
Miss Rose Hamilton	Miss Clare Bartholomay
Newsletter Editor	
Mr. J. R. Rentsch	Mr. J. R. Rentsch

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1960	1961
Mr. Murray Miller	Dr. James Stauffer
Dr. James Stauffer	Mr. Ralph Mason
Dr. John Hammond	Dr. Paul Howell
Mr. Ralph Mason	Mr. Leo Simon
Dr. Paul Howell	Mr. Stephen Blore

LAND OF THE FOSSIL HUNTERS

(Tune: Land of the Empire Builders)

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

Land of the fossil hunters  
 Land of G. S. O. C.  
 Laden with pick and knapsack  
 Leaving the great debris.  
 Under each ledge and outcrop  
 Having the best of fun,  
 Hail to thee, Land of fossils  
 Our Oregon

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

Land of the flows of lava  
 Land of the ancient seas  
 Laden with whale and pectin  
 Petrified redwood trees.  
 Held in the ash of ages  
 Strews e'er our race began  
 Hail to thee, land of fossils,  
 Our Oregon

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

## FOSSIL DREAMING

(Tune: "My Bonnie Lies over the Ocean")

Last night in my chair I sat dreaming  
Of millions of years gone by  
When horses were tiny like foxes,  
And lizards were learning to fly.  
Chorus\*

The Dinosaur was a queer creature.  
It laid many eggs we all know.  
No feathers or fur warmed the babies  
And Daddy had not learned to crow.  
Chorus\*

Then there were a great many seashells  
They lived in great masses & heaps  
Whenever I look at their queer names  
It gives me the jitters and weeps.  
Chorus\*

### \*CHORUS

Dig up, dig up, O dig up a fossil  
for me, for me.  
Dig up, dig up, O dig up a fossil  
for me.

## MENU

### SALAD

Silica Jell on Meninspermum Leaves  
(molded jello salad)

### ENTREE

Rolled Roast Ruminantia  
(beef)

or

Baked Ichthyosaur  
(salmon)

with

Diatomaceous Earth and Mud Flow Covering  
(mashed potatoes and gravy)

and

Epidotes en case  
(string beans)

and

Flint Nodules  
(rolls)

### BEVERAGES

Limonitic Seep  
(coffee)

or

Liquid Amber  
(tea)

or

Homogenized Diatoms  
(milk)

### DESSERT

Dreikanter en Casserole  
(apple pie)

## PROGRAM

Welcome President  
Song "We're Here for Fun" Songleader  
Dinner  
Song "Fossil Dreaming" Songleader  
Introduction of Toastmaster President  
Introduction of Guests Toastmaster  
Installation of Officers  
Announcements Toastmaster  
Song "Land of the Fossil Hunters" Songleader  
Intermission  
Address "THREE HUNDRED MILLION YEARS OF TRILOBITES" Guest Speaker  
or  
(Up an Evolutionary Blind Alley!)  
Song "It Aint Necessarily So" Guest Artist  
Skit "Examination Day at GEESOC Rock College" Cast  
Songs "Good Night" Songleader  
"Final Uplift" (Standing)

## PROGRAM NOTES

President  
Mr. Robert F. Wilbur, Acting  
Songleader  
Dr. Arthur C. Jones  
Pianist  
Mrs. Alonzo W. Hancock  
Toastmaster  
Mr. Ralph S. Mason, Mining Engineer  
State of Oregon, Department of  
Geology and Mineral Industries  
Guest Speaker  
Dr. Augustus Keathley Armstrong  
Professor of Paleontology  
Portland State College  
Guest Artist  
Mr. Mickey Earl Simonson & Accordion  
Cast  
Dr. Paul W. Howell  
Mrs. Emily Moltzner  
Miss Clare Bartholomay  
Mr. Dennis Carmody  
Mrs. Delores Gregory  
Mr. Lon W. Hancock  
Miss Shelia Howell  
Mr. Al Keen  
Mr. Al Kinne  
Mr. Frank Merryman  
Mr. Fred Miller  
Mr. C. T. L. Murphey  
Mr. Clair Pense  
Mr. Leo F. Simon

# GEOLOGICAL NEWS LETTER

OFFICIAL PUBLICATION OF THE

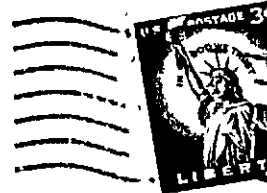


Vol. 27, No. 5

PORTLAND, OREGON

May 1961

GEOLOGICAL NEWS-LETTER  
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State of Oregon  
Dept. of Geology & Mineral Industries  
1069 State Office Bldg.  
Portland 1, Oregon

**GEOLOGICAL SOCIETY OF THE OREGON COUNTRY**  
Officers of the Executive Board 1961-1962

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	Dr. James Stauffer (2 yr.)	Mr. Ralph Mason		
	Dr. Paul Howell			

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Field Trips	- Mr. Irving Ewen	Research	- Mr. Rudolph Erickson
Social	- Miss Rosalie Bronkema	Library	- Mrs. Agnes Miller
Display	- Mr. Murray Miller	Historian	- Mrs. Elizabeth Lloyd
Publicity	- Mrs. Emily Moltzner	Pub. Relations	- Mr. Clarence Phillips
Museum	- Mr. Lon Hancock	GSOC Libr. night	- Mr. Irving Ewen . . .
	Luncheon - Mr. Leo Simon		

**Society Objectives**

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(See "Calendar of the Month")

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Library Night: Once a month Lewis and Clark College, Biology Bldg.

Luncheons: Informal luncheons, with geological motif, each Thursday noon in Room B, Chamber of Commerce Building, S. W. 5th Ave. and Taylor St. \$1.00 per plate.

Publication: The Geological News Letter, issued once each month, is the official publication.



CALENDAR

Buffet luncheon every Thursday noon, second floor, Portland Chamber of Commerce, 824 S. W. 5th. \$1.25

- Friday  
May 12      Lecture  
Third in the historical geology series is the Cambrian Period of the Paleozoic Era presented by Dr. Augustus K. Armstrong, Prof. of Paleontology of Portland State College. Slides will be used. (Dr. Armstrong spoke at our annual banquet and has a new series of materials.)
- Tuesday  
May 16      Library night. Peebles Hall (Biology Bldg.) Lewis & Clark College.  
Program to be announced
- Sat. & Sun.  
May 20-21      Central Oregon Geology & Building Stone Localities Tour  
Begins at 10:00 a. m., Cove Palisades State Park. Lunch at the Park with caravan leaving at 1:00 p. m. for those who are unable to make the 10:00 a. m. starting time. Trip leader is Ralph Mason, Mining Engineer with the State Department of Geology and Mineral Industries.
- Friday  
May 26      Lecture  
"By Jeep to Mysterious Remote Patagonia", southern tip of South America, with Mr. & Mrs. Howard J. Boyd. Color slides show this unique adventure.
- Tuesday  
June 20      Library night. Peebles Hall (Biology Bldg.) Lewis & Clark College  
Annual Library Night Picnic

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NEWS OF MEMBERS

Mr. and Mrs. E. C. Johnson returned April 20 from a five-weeks' trip to southern California. They had lunch with Mr. and Mrs. E. N. Bates in Sausalito and called on Mrs. A. D. Vance in Sherman Oaks but found her in bed with flu. After visiting their son's family in Sherman Oaks for three weeks they returned home via Grand Canyon, Zion National Park, Death Valley, Lakeview and Bend.

Mr. and Mrs. Leo Simon are off to the sunny South again. We suspect that their grandson is the chief drawing card.

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NEW PUBLICATIONS IN OUR LIBRARY

- Professional Paper 296 - Geology of Glacier National Park
- Professional Paper 329 - Reconnaissance of the geomorphology and glacial geology of the San Joaquin Basin
- Professional Paper 334-F - Ammonites of Early Cretaceous age
- Professional Paper 355 - Studies of the Mowry shale, etc.
- Bulletin 1072-N - Geology of the Pysht quadrangle
- General Highway and Transportation Map of Wheeler County
- Tertiary Stratigraphic Papers, Southwestern Washington  
(Reprint No. 3 - Division of Mines & Geology - State of Washington) - Cont'd P. 28

ANNUAL BANQUET - 1961



THE TOASTMASTER - MR. RALPH MASON  
AND STAFF FOR 1961



MR. ROBERT F. WILBUR,  
ACTING PRESIDENT  
GREETING NEW --  
DR. JOHN H. HAMMOND



MEMBERS OF THE "SKIT" ON STAGE



DR. AUGUSTUS ARMSTRONG



TWENTY-SIXTH ANNUAL BANQUET

The Delano pictures on the opposite page will recall better than words that another successful banquet for the GSOC may be recorded in the history of our Society. On March 10, 1961, at St. David's Episcopal Church, the members gathered in a spirit of friendship and good will. As usual, we had an all-star cast for this outstanding annual event. Each performed his part beautifully and harmoniously. We might mention a few:

1. Organization and planning - Mr. Irving Ewen
2. Cover design artist - Mr. Robert Anderson
3. Toastmaster - Mr. Ralph Mason
4. Guest speaker - Dr. Augustus Armstrong
5. Songleader - Dr. Arthur C. Jones
6. Drama - Dr. Paul Howell and Mrs. Emily Moltzner

There were many more principals, including our Acting President for 1960-1961, Mr. Robert Wilbur, but we know that they will not mind if we omit mentioning their names. There is joy for each who does his job well. Where could one find greater commendation.

Also, let us not forget the excellent dinner served with such perfection of spirit and organization by the ladies of St. David's, assisted by a fine group of waiters.

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JUNIOR MEMBERS

Fellow Members of G. S. O. C:

For many years the Geological Society of the Oregon Country has offered an opportunity for kindred souls, interested in geology and related basic sciences, to participate in the meetings, field trips and discussions of this society. We have been particularly fortunate in having many illustrious professional geologists and basic science professors and instructors as active members and leaders within this society. From time to time we hear of a past Junior Member who has completed his professional career and has related that his (or her) real interest in the profession had been kindled and nurtured through associations with this group.

This year the executive board of the Geological Society of the Oregon Country is placing special emphasis on Junior membership and participation. We plan to have, from time to time, field trips just for Junior members and led by one of our competent professional leaders. Furthermore, we anticipate forming an inner group of these younger members that will meet and enjoy associations with others in their own age group.

This letter is being sent to the administrators of the high schools and colleges in this area with the anticipation that those students interested in or actively studying geology or related natural sciences may be advised of the opportunities that are available in this Society.

Our meetings are held on the 2nd and 4th Fridays of each month at 7:30 p. m. at the Public Library Hall, S. W. 10th Avenue and Yamhill. All will be welcomed and during the course of each meeting, recognition will be given to these "future" natural scientists.

Yours truly,

John H. Hammond, D. M. D.  
President

NEW PUBLICATIONS IN OUR LIBRARY - cont'd.

"What are the prospects in Washington State?" - Reprint No. 5  
Division of Mines & Geology - State of Washington

"Nickel-Gold Ore of Mackinaw Mine - Snohomish County - Washington"  
(Reprint No. 4, Dept. of Conservation - Division of Mines & Geology)

Fossils in Washington - by Vaughn E. Livingston, Jr.

Mazama Bulletin - December, 1960

"Outdoor Recreation and its relation to Mining Industry"  
American Mining Congress - Ring Bldg. Washington 6, D. C.

Georgia Mineral Newsletter - Winter 1960 number

Geology of the Jumbo Mountain Nickel deposit, Snohomish County, Washington.  
Washington Division of Mines & Geology.

Publications - Division of Mines & Geology -  
Department of Conservation.

Bibliography and Index of the Geology and Mineral Resources of Washington, 1937-1956.

Geology - An Introduction to Principles of Physical and Historical Geology.

Georgia Mineral Newsletter. Vol. 13 #3 - Fall 1960

Maps - Deschutes County  
Lake County

R. Erickson - Mar. 21, 1961

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### OCEANOGRAPHY - Oregon

Keen interest was shown by our membership at the lecture by Dr. Byrne on Oceanography as applying to the Oregon Coast. Here is an area of some 5,000 square miles known as the Continental Shelf that we know very little about. Oregon State College is now prepared to attack this problem.

Here is a new science and Oregon State makes the following progress report:

#### RESEARCH IN PROGRESS

##### Hydrographic Survey of Oregon Coastal Waters -- Mr. Bruce Wyatt

From July 1958 through July 1959, with the cooperation of the U. S. Coast Guard and the use of a Coast Guard surf boat, monthly cruises were made along the parallel 44° 38'N. Water samples were collected for salinity and oxygen determinations at five stations spaced at equal intervals from 5 to 25 miles offshore, and temperatures were read from thermometers placed in the collecting bottles. Bathythermograph casts were also made. All analyses have been completed, including the drawing of sections showing the distribution of properties, under the direction of Mr. Wyatt and Mr. Richard Callaway.<sup>1</sup> A technical report on this work has been prepared and will be distributed within the next quarter.

Since July 1959, but continuing on a monthly basis only since December 1959, the line of stations along this parallel has been extended to 45 miles from the coast. Observations have been made using fishing vessels (from 45 to 80 feet in length) chartered locally. In addition to the standard

<sup>1</sup> - present affiliation: U. S. Public Health Service, Portland, Oregon

## OCEANOGRAPHY - cont'd.

line along the parallel named, two additional latitudinal lines have been run since June 1960 90 miles to the north (off Astoria) and 90 miles to the south (off Coos Bay). This work is still in progress. After enough cruises have been made to be representative of all seasons a report will be prepared on these data. Through November 1960, the observations have included 200 hydrographic casts and 230 BT observations taken during 83 days at sea. This does not include the estuarine surveys or the special cruises discussed below.

### Special Cruises

From 29 June to 13 July 1960 a detailed study was made of hydrographic and biological conditions off the coast, in cooperation with the Oregon Fish Commission. The area covered was from 42°N to the mouth of the Columbia and from the coast to 127°W. Analyses of the data have been made by Mr. Robert Ayers of the Oregon Fish Commission, and by Mr. Wyatt; these will appear in the data report.

From September 11 through 18, in cooperation with the Department of Geology, a geological sampling cruise was made in and offshore from Coos Bay. Samples of bottom sediments in the area were collected by use of a Phleger corer, snapper, and scoop-fish, and six students were given training in sampling techniques.

### Plankton Inventories -- Dr. Herbert Frolander.

Each week starting 20 November 1959, data have been collected in Yaquina Bay for a determination of the variations in the distribution and abundance of the plankton populations. Mr. Douglas Manske, research assistant and graduate student, assists with this observational program. Collections are made at two stations, one near the entrance and one representation of the central part of the bay. Quantitative samples are taken with a Clarke-Bumpus sampler, with numbers six and twelve mesh nets, and a half-meter net (number six mesh). Temperature is measured and a surface water sample taken for salinity determinations.

On each cruise, during the school term, one or two students are taken on the sampling cruise in order to train them in collecting methods and to teach them the rudiments of small craft handling. All analyses are made immediately upon return of the samples to the College, by Dr. Frolander and his assistants. Principal species are identified and counted; part of a sample from each station is frozen and preserved for future analysis of food value, and volumetric analyses will be begun shortly.

The forms usually found are types generally associated with waters found north of 40°N latitude. On occasion, however, appreciable numbers of a nonpermanent copepod usually representative of waters to the south of this latitude are taken. The water characteristics also change markedly at these times, becoming warmer and saltier, and even the optical characteristics are distinctive. The water appears green and cloudy to the unaided eye of an experienced observer. These events are apparently related to the northward flow of water along the coast as estimated from the distribution of properties in the ocean and from drift bottle tracks. Plans are being made to study these occurrences, as well as the more normal state, in considerably more detail.

### Estuarine Studies -- Mr. W. Bruce McAlister.

A program has been established in Coos Bay to investigate the relationship of runoff to observed current flow patterns. This should yield more insight into the effects of boundary conditions and physical parameters upon the patterns of estuarine mixing.

## FACILITIES

The department is housed in seven rooms, approximately 1500 square feet of offices and laboratory space, in the Food Technology Building on the Oregon State College campus. Investigation is being made of possible use of a bayside site on the shores of Yaquina Bay as a base for the ACONA. The department has a 16 foot Bell-Boy skiff used in the bay surveys, and a 26 foot diesel-powered work boat.

Oceanography - cont d.Research Vessel ACONA

Construction of this specially designed vessel was begun in late June, and work is now about 70 per cent complete. The vessel is expected to be in use by next spring. A report containing specifications and plans of the ship has been issued: Technical Report No. 10, Reference 60-2, Department of Oceanography, Oregon State College. Copies of this report are available, and will be sent to interested persons on request.

## STAFF

The following personnel have worked on this project, part time, during the past year:

Dr. Wayne V. Burt, Professor, Chairman of the Department of Oceanography.

Dr. Herbert F. Frolander, Associate Professor, (Biological Oceanography).

Mr. W. Bruce McAlister, Instructor, (Physical and Chemical Oceanography).

Mr. Bruce Wyatt, Instructor, (Instruments and Field Work).

Mrs. Joanne Shiner, Secretary.

\* \* \* \* \*

THE OLDEST FORM OF PIRACY

Marion T. Chapman

All of you know what pirates were. You have seen them in movies and on television and have read stories of river pirates, harbor pirates and sea pirates who, with their Jolly Rogers, cutlasses, and looting were the terrors of long ago. But have you ever heard of a river being a pirate? The pirates of the Spanish Main captured their victims and sometimes made them walk the plank; pirate rivers capture their victims and behead them. River piracy, stream capture, and stream piracy are terms used by geologists for the process of erosion by which one stream steals the headwaters of another. By eroding its valley headward until it cuts into the valley of another stream, the pirate stream captures the other's headwaters; the beheaded stream loses its upper section.

When pirates preyed upon shipping, the courts needed evidence to prove their piracy. Geologists and biologists are the detectives who find the evidence to prove that rivers have committed piracy. Although there are several ways to prove river piracy, we will look at only a few as they apply to some stream captures that occurred long ago in western Oregon. A clue that usually causes geologists to suspect a pirated stream is the blind pass. Since it was once occupied by a larger stream and its valley, a blind pass is wide and gently sloping instead of steep sided. There is very little gradient to the approaches to a blind pass, especially on the side that was originally downstream.

An examination of topographical maps will show that the pass in the Coast Range between Noti and Walton in western Lane County has the characteristics of a blind pass. If one visits it, one notices its width, its gently sloping sides, and the slight gradient due to the similar elevation on both sides. Tracing the course of the ancient Long Tom in 1949, E. M. Baldwin and P. W. Howell found that it "once flowed westward from Noti to Walton and joined the Siuslaw River by way of Wildcat Creek."<sup>1</sup> The southward flowing part of the present Long Tom is the beheaded portion of the old stream. Downstream, its new course is northward to the Willamette.

For the next clue to this stream piracy we go to a letter written to Dr. Baldwin by Robert R. Miller.<sup>2</sup> Mr. Miller stated that a species of minnow found in the Siuslaw was derived from a species found in the Willamette and Columbia River systems, and that the distribution in part strongly supports Dr. Baldwin's "geological findings as to the former connection between the Willamette and the Siuslaw."

The last clue we will consider is the matter of transported material--sediment. When a stream is believed to have been beheaded, geologists look in its old valley for sediments that can have come only from its former headwaters. "Sediments in Badger Mountain west of Noti are composed of weathered alluvium of probably Pliocene age, deposited in the alluviating Long Tom at the time it flowed westward."<sup>1</sup>

Another example of stream piracy can be found in the same area. Coyote Creek used to flow into Noti Creek, but it has been pirated by a stream now flowing into Fern Ridge Reservoir.

Oldest Form of Piracy - cont'd.

One river piracy in western Oregon was reported in 1916 by J. S. Diller. He postulated that the Umpqua River once flowed northward and was a part of the Willamette. The pass in the Calapooya Mountains between the Willamette and the Umpqua Rivers has the characteristics of a blind pass. Of it Diller wrote, "The terraced slopes of this pass suggest that formerly the Umpqua River flowed through it and joined the Willamette. In the course of time, however, its waters found a shorter way to the sea."<sup>3</sup> The beheading was done in this instance by a westward flowing stream that cut its headwaters eastward into the Coast Range Mountains until it reached the level of the upper portion of the northward flowing Umpqua. That upper portion of the larger stream was then diverted westward and rapidly cut the valley we now know as the lower Umpqua.

As further evidence of a blind pass, one observes the low gradient of the streams that drain the pass. Before road building drained much of the swamp, one had difficulty finding exactly where either stream originated. Of these, Pass Creek flowing southward along the old channel of the Umpqua has the greater gradient. Dr. Baldwin predicts, "If headward erosion of that creek continues, it will be but a short time geologically until the Coast Fork of the Willamette is diverted southward."<sup>1</sup>

For our next clue we go again to Mr. Miller's letter. According to him, a species of minnow found in the Umpqua is the same one found in the Siuslaw and derived from one found in the Willamette. Another species found in the Umpqua is derived from a species of the Columbia basin. And a third species of minnow is known only to the Umpqua and the Willamette. I now quote another part of his conclusion: "These distributions strongly suggest connection of some sort between the Willamette and these coastal (Umpqua and Siuslaw) streams..."<sup>3</sup>

With two lines of evidence having been shown, let us consider the third--the transported material. As no findings of this appear to be on record, here is opportunity for field research. Somewhere in the creeks, on the slopes, or in a road cut in the area of the Pass or somewhere along Pass Creek, the evidence waits to be found.

For one more example of stream piracy, that of Calapooya Creek by Oldham Creek, we now go to the maps of Sutherlin and Glide quadrangles and to the brittle, age-darkened pages of the Roseburg Folio.<sup>4</sup> As explanation for the formation of "Camas Swale--a broad valley without a stream of proportionate size," Diller presented clues of the topography and the transported materials.

Camas Swale is the work of a much larger stream than that which flows through it today, and that the Calapooya once flowed through it is indicated not only by the fact that Camas Swale is continuous with the Calapooya Valley above Fair Oaks, but also by the fact that among the pebbles at the lower end of Camas Swale there are numerous fragments of recent lavas, such as could be brought down by the Calapooya only.

Of the beheading of Calapooya Creek, Diller wrote:

In those days the water of Oldham Creek reached the Umpqua as it now does, at a point known as Umpqua Ferry, but by a much shorter and more direct route than that of the Calapooya, if the Calapooya entered the north fork (of the Umpqua) near Winchester. Furthermore, Oldham Creek flowed along the strike of soft rock; consequently, it had a steeper grade and deepened its valley more rapidly than the Calapooya, giving strength to its lateral streams, and the Calapooya was diverted into Oldham Creek. Thus the head of the ancient Calapooya has been cut off and its waters captured by a branch of Oldham Creek, leaving the lower course of the ancient Calapooya occupied by a much smaller stream--Wilbur Creek.

As invitation to further research we find a clue of a blind pass. Because of a low pass through the ridge at Fair Oaks (Sutherlin) Diller suggested that Calapooya Creek may once have flowed through there directly to the Umpqua at Umpqua Ferry. Umpqua Ferry may appear on our map as the settlement of Umpqua, and Wilbur Creek as Cooper and Sutherlin Creeks.

With its comparatively young topography, Oregon presents many other examples of stream diversion. Certainly river piracy provide a thrilling detective study for geologists, ecologists, and ichthyologists, or for just plain hobby riders--rock hounds, fishermen, armchair geologists. For one who can not get out into the field, a search of maps, books, and bulletins can certainly be a rewarding substitute.

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1. Ewart M. Baldwin, *Geology of Oregon*, (Ann Arbor, Michigan, 1959), p. 49
  2. Letter from Robert R. Miller, Associate Curator of Fishes, Museum of Zoology, University of Michigan, to E. M. Baldwin, February 17, 1950.
  3. J. S. Diller and others, *U. S. Geological Survey Bulletin 614; Guidebook of the Western United States, Part D, The Shasta Route and Coast Line*, Washington, D. C., 1916. pp. 39-40
  4. J. S. Diller, *Roseburg Folio* (United States Geological Survey; Atlas #49, Washington, D. C., 1898.
- M Topographical Maps, United States Geological Survey, Quadrangles:
1. Eugene, Oregon
  2. Elmira, Oregon
  3. Cottage Grove, Oregon, 1957.
  4. Anlauf, Oregon, 1954.
  5. Sutherlin, Oregon, 1954
  6. Glide, Oregon

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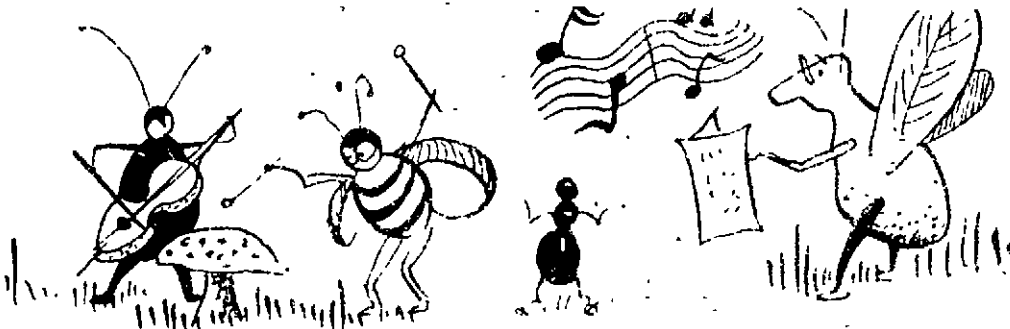
MOHOLE

The ocean floor has at long last received the sting of the drillers' scientific probe. A trial run was made off La Jolla, California in 3100 feet of water during the last days of March. Here the drillers' bit cut into the ocean floor to a depth of 560 feet and cores were brought up for study by all interested scientists. Their reports will be awaited with great anticipation.

-- See Life Magazine, April 7th & 14th.

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## CAMPING OUT SEASON IS HERE - - -



## RECEPTION COMMITTEE

(P. S. We prefer ladies.)



# GEOLOGICAL NEWS LETTER

OFFICIAL PUBLICATION OF THE



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1069 State Office Bldg.  
Portland 1, Oregon

# GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

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Museum	- Mr. Lon Hancock	GSOC Libr. night	- Mr. Irving Ewen

Luncheon - Mr. Leo Simon

## Society 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 objectives.

Persons desiring to become members should contact the Secretary.

Regular annual dues (single or family memberships) are \$5 for residents of Multnomah and adjacent counties; \$2.50 for others; and \$2 for Junior Members. Make remittances payable to the GEOLOGICAL SOCIETY OF THE OREGON COUNTRY.

## Society Activities

(See "Calendar of the Month")

Evening Meetings: Formal lectures or informal round-table discussions on geological subjects, on the second and fourth Fridays of each month at Public Library Hall, S. W. 10th Avenue and Yamhill.

Field Trips: Usually one field trip is scheduled for each month.

Library Night: Once a month. Lewis and Clark College, Biology Bldg.

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Publication: The Geological News Letter, issued once each month, is the official publication.

CALENDAR

Buffet luncheon every Thursday noon, second floor, Portland Chamber of Commerce, 824 S.W. 5th, \$1.25.

- Friday  
June 9 Meeting - 7:30 p. m. Room A, Central Library  
"To the South Seas", with Irving Rand, Portland attorney, and Mrs. Rand. Color slides will illustrate their trip to New Zealand, Australia, Fiji Islands and "down under" places.
- Sunday  
June 18 Field Trip (1 day)  
Starting time and place to be announced as soon as Irv Ewen, Field Trip Chairman, makes his choice.
- Tuesday  
June 20 Picnic - 7:00 p. m.  
Campus near Lewis & Clark Biology Bldg. Bring your picnic supper. Tea and coffee will be provided. (If it rains we will eat inside.) Irv Ewen and social committee in charge.
- Friday  
June 23 Meeting - 7:30 p. m. Room A, Central Library  
"The Paleozoic Era of the Silurian and Devonian Periods", fourth in our historical geology series. Speaker to be announced. Leonard Delano, Program Chairman.

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## NEWS OF MEMBERS

The touring Gilchrist's write:

"Dear Mrs. Prentiss:

From North Carolina we want to 'go north with the spring'. Our first stop will be Asheville. Then we will take the Blue Ridge Parkway north into Virginia. Washington, New York, Boston, etc., are in our plans; but it is the natural parks that we most want to see. We hope to spend some time at the Arcadia Park near Bar Harbor, Maine; and then we want to go on into Canada. It may be nearly July before we set our faces toward the west and home.

Give our best wishes to all our friends in the Society.

Francis and Pearl Gilchrist"

:\*\*\*\*\*

## IN MEMORIAM

Alonzo "Lon" Hancock

Lon Hancock was a true scientist in the deepest sense of the word. His kindness and willingness to help made him beloved by old and young alike. Aside from his achievements in the field of paleontology, his most lasting memorial will be in the hearts of all the young people whom he guided and befriended.

"And this our life, exempt from public haunt,  
Finds tongues in trees,  
Books in the running brooks,  
Sermons in stones,  
And good in everything."

.....Shakespeare

NEWS OF MEMBERS - cont'd

Leonard Delano has recently been elected as Secretary-Treasurer of the Columbia River Section of the American Society of Photogrammetry.

Bill and Catherine Clark recently returned from a "gypsying" tour which included Yosemite Park and various ghost towns in the Mother Lode country.

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### AUTOBIOGRAPHY OF A CIVIL ENGINEER

by John Cyprian Stevens - -

Our library now has a copy of this book which is likely to be the most called for volume in the collection, for it is about (and by) a Past President of G. S. O. C. 1940-41 who is also well known for his work in the organization and breathing life (and dollars) into the Oregon Museum of Science and Industry, of which he was president for the first (and most difficult) seven years of its existence.

When he was about four years old the Stevens family of four boys with their parents moved from Kansas to Knoxville, Iowa where John began to show evidences of originality and inventiveness in dealing with difficult problems. A part of his work in the family was to keep the wood box supplied with fuel. One very tough chunk of wood refused to yield to the ax, so John bored a hole in it and filled the hole with powder. The resulting explosion rather over-did the matter by sending one half through the side of a shed and the other half through a picket fence and breaking spokes from a passing wagon.

His parents were Seventh Day Adventists so John was sent to a college of that denomination near Lincoln, Nebraska. After a time there he was called to the president's room where he was told that his parents were expecting him, and was handed a one-way ticket to Knoxville.

Soon after that he was one of a group of four boys who built a boat, had it hauled to the Mississippi which was beginning to freeze. The boys rowed hard and out-distanced the ice, getting to the swampy country farther south where they became skunk and muskrat trappers. Before long John and another boy were victims of dysentery so sold their share of pelts and equipment to the other two, then started on foot for Knoxville where they arrived after severe tribulations.

Then John got a job in a small printing office where he set type and helped print the paper on an old "Washington" press.

Then came the War with Spain, and as John was a member of the National Guard he went with his company, first to Des Moines, Iowa and from there to the Phillippines where the regiment had some of the toughest fighting and wading in swamps that the men could endure.

When the regiment was mustered out, John joined his parents in College View, Nebraska, and entered the University of Nebraska in near-by Lincoln to study civil engineering.

His professor of engineering was doing some stream measurement calculations for the Federal Government, and turned some of that work over to John who received fifteen cents an hour for doing it.

This led to the measurement of streams with a current meter, and that led by long and devious paths to permanent work with the Government and his assignment to work in Oregon.

Since then he has invented a water level recorder that makes a record on paper showing the depth of water by an inked line on a roll of specially prepared paper, and will report by telephone (from stations equipped with telephones) the depth of water at the instant of phoning.

He is now interested in the firm of Leupold and Stevens, the makers of the recorder. He also formed a partnership with R. H. Koon for the practice of civil engineering. The firm is now Stevens and Thompson.

He is a Life Member of the American Society of Civil Engineers of which he has been president; and has written numerous technical papers on engineering subjects, notably those related to lakes, rivers and irrigation.

Dr. Stevens has had charge of the building of several large dams in Spain as well as in Oregon. He and his wife have travelled widely. Here is also a good travel story.

Get the book from the library and read it for yourself. The line forms on the left. Don't crowd.

NEW MEMBERS

Mrs. Doris E. Gillis	5109 N. W. St. Helens Road, Portland 10	CA 3-0280
Mrs. Alma L. Schroeder	6606 S. E. 44th Avenue, Portland	PR 5-6550
Melvin & Rubie Harbert	6221 N. E. Fremont, Portland 13	AT 4-5714 Bus: CA 7-7681, Ext 430
Howard E. Nielsen	Imperial Arms, #409, 1429 SW 14th, Portland	CA 3-6896 Bus: CA 7-1101

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INVENTORY OF GSOC PROPERTY

Our secretary asks your cooperation in making a listing of all items belonging to our society. Please contact or drop a card to Miss Hilda Freed, Secy., 918 American Bank Bldg., City.

PUBLICITY CHAIRMAN

What's going on among our members? Please contact Emily Moltzner, AL 4-2362.

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BIG PIPELINE PROJECT WELL UNDER WAY IN OREGON

Construction on the 36-inch pipeline connecting gas from Alberta, Canada, to users in the San Francisco Bay area of California has progressed rapidly since the first of the year. At the date of this printing, pipe has been installed from the California line to a point north of the town of Chiloquin, Oregon, a distance of approximately 50 miles. About 30 miles of ditch is opened beyond the installed pipe. In the Madras-Hermiston section about 75 miles of rough trench is opened, mostly through hard rock.

The 1400-mile Alberta to California pipeline project was sponsored by the Pacific Gas and Electric Company of California and, when installed, will be the longest 36-inch pipeline ever laid. Total estimated cost of the system will amount to over \$300 million. The main line begins at the Whitecourt gas fields in Alberta and terminates at Antioch in the Sacramento River delta area east of San Francisco. Cost of gas at delivery point will be 35 cents per 1000 cubic feet. Besides supplying northern California, a portion of the gas will be allotted to the El Paso Natural Gas Company, which is the supplier for the northwestern states. El Paso Natural Gas Company will have a main-delivery-tap in the line near Spokane, Washington, and a standby-tie at Stanfield, Oregon, where gas can be taken off the Alberta-California pipeline and transferred to the Oregon-Four Corners pipeline. Taps into the new line will be made at Madras, Redmond, Bend, and Klamath Falls when demand is sufficient to warrant installation of distributing systems.

- - - The Ore-Bin, April 1961

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GOLD IS WHERE YOU FIND IT --

If you love adventure and if you can find a use for GOLD, don't miss the April issue The Ore-Bin. You will find here about all the information (seven full pages) necessary for "Skin Diving for Gold in Oregon". Ralph Mason has compiled this information, a fine job for the State of Oregon Dept. of Geology and Mineral Industries. Let s have a gold rush, '61 style!

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### GSOC TRIP TO CENTRAL OREGON

A twelve car caravan of "GSOCer's" met at Cove Palisades State Park near Madras on Saturday, May 20th, for a tour of geological points of interest in the Bend, Redmond, Madras area. First stop was in the saddle between the "Island" and the "Peninsula" in the park itself where the trip leader Ralph Mason explained some of the geologic features. Leo Simon identified many of the plants growing there. After lunch the group drove up to the overlook above the park where the Crooked, Deschutes and Metólius rivers could be seen. Here the group paused for a few minutes to honor the passing of Lon Hancock, a charter member of the organization and dean of amateur paleontologists in the Oregon Country. Next stop was at Peter Skene Ogden Wayside where two friendly but voracious goats stole the show. The visit to the Great Lakes Carbon Company Dicalite Division plant at Lower Bridge was made more interesting by the high wind which whipped up the powdery diatomite into choking clouds and the leader was careful to point out that members were inhaling skeletons---of tiny plants which lived in great profusion in the lake which once occupied the area. As the caravan stopped at the brand new Smith Rocks State Park east of Terrebonne the first of many drops of rain fell. Relying on the typical brevity of such thundershowers the group drove to the Sahara Tan Stone Quarry (still raining), to the Tetherow Butte Quarry (heavy rain) to the Red Rock Mine Quarry (gate locked and pouring rain), to the county pit (practically a cloudburst) where the group disbanded for the day.

The next morning at eight o'clock sharp 12 percent of the group was ready to leave from Tumalo State Park. By eight-thirty nearly 75 percent was ready and promptly at eight forty-five the group swung out of camp. First stop was on top of Pilot Butte where the geologic and geographic features were pointed out. At Lava Butte the group was told that this area was in many respects quite similar to the surface of the moon since the latter is believed to be largely volcanic in origin. Several members doubted that there was any juniper or sage brush on the moon, however. At Abbott Butte iridescent cinders were collected. The brightly colored material has an "enamelled" appearance which is actually an iron oxide film deposited from hot gases expelled through the cinder cone during its active stage. Although not officially open for the season Lava Cave State Park played host to many of the group who stopped there for lunch. From this point individual cars visited such places as Newberry Crater, the Lava Cast Forest, Smith Rocks and other places.

George A. Deefeldorfer

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### NEHALEM SAGA

The field excursion for April was made into a region not recently visited by the society, the Nehalem River country and environs. On April 22, trip leaders Mr. Al Kenney and Dr. Paul Howell loaded a troop of G-Sockers and sixteen geology students from the university classes of Dr. Ruth Hopson into a bus and headed out the Sunset Highway. The objective was a study of several marine sedimentary formations plus whatever volcanic and terrestrial embroidery might garnish the landscape. Fossils had been promised by the leaders. The touring tyros took 'em up and pestered the daylighters out of the experts. But the experts had the answers.

Since it is seldom possible on a field trip to proceed in the chronological sequence of the formations to be visited, our best approach here is to locate these formations in the stratigraphic column. At the bottom of the stratigraphic ladder in the Coast Range is the Tillamook (or Siletz) volcanics, a series of submarine lave flows and volcanic breccias. We observed several occurrences of Tillamook age basalts, some of them massive, some columnar and platy-jointed, but all impressive. Columns, erect or tilted, are commonplace but in one roadcut on the Sunset Highway we looked endwise at this one exposure and the effect appeared as a skilled job of tile laying on the bathroom floor. The Tillamook volcanics are largely basalt and are considered to be late Eocene and the equivalent of the Goble volcanics seen on the recent Columbia River trip.

Second in the stratigraphic column was the Cowlitz formation of marine sediments. These sandstone and siltstone strata are exposed at several places in the Nehalem Valley. The Cowlitz formation is late Eocene and interfingers with some of the Tillamook volcanics.

The Keasey formation (1800 ft) of early Oligocene time, third on the scale, was first identified at the little railroad station of Keasey near Vernonia.

1961

NEHALEM SAGA - cont' d

The fourth and uppermost stratum visited was the Pittsburg Bluff formation (500-700 ft) of middle Oligocene age. It was first recognized in the exposure on the Nehalem near the community of Pittsburg.

And now we are on our way. Rising out of the Tualatin bottoms to the foothills of the Coast Range we first noted a ten degree eastward dip of the sediments showing we were ascending the limb of an anticline. Sunset tunnel also cuts through eastward-dipping beds of this limb; the apex of the anticline is yet farther west. We made our first stop at the tunnel where Keasey formation is evident on both sides of the crest. The tuffaceous sediments here are estimated to be 1800 feet thick which is about twice the height of Council Crest above the city of Portland. It must have taken a long time and certain conditions to lay down a marine sediment of this thickness. The shale in this formation has a commercial value and is presently being excavated, ground and heat-treated for use as a light weight aggregate for cement blocks.

We were warned to stay out of the excavation so a couple of us went in. Above us were massive blocks of lightly indurated sandstone strata sandwiched between looser depositions of silt and tuffaceous sediments. Spheroidal concretions varying in size from a walnut to a cannon ball were exposed in or had fallen out of the excavation walls. Each of those cracked open held a nucleus of fossils and each of those tested fizzed in acid.

There were a few quartzites on the muddy floor of the pit and it was apparent that they had been carried in from the gravel shoulder of the highway above by the trucks that hauled away the shale. I presented a couple of them to Dr. Howell with the casual statement that "I dug these out of the wall." "You did not," he exploded. Ah me, 'Tis hard to fool an expert.

Typical Keasey fossils of the middle to upper member of the formation were being picked out of the roadside bluff by members of the expedition and both Mr. Kenney and Dr. Howell were kept busy identifying *nemocardium weaveri*, *macoma*, *yoldia*, *nuculata*, *natica*, *turricula* and *cancellaria*

Entering the coast watershed we now followed the descending waters of the young Nehalem, here just a small creek, and made our second stop at a hard rock quarry. Here we first made the acquaintance of the Tillamook volcanics. An interesting feature was a layer of conglomerate sandwiched between two basaltic flows, part of which were pillow lava. Pillow lava is extruded under water so its presence here indicates that this quarry area was once probably the margin of the sea, and that even at that time, fifty million years ago, land streams were bringing gravels to the ocean. Cowlitz formation was observed on top of a conglomerate bed which, in turn, overlies the uppermost basalt flow. The conglomerate contained quantities of salic volcanic material, indicating the presence of andesite and rhyolite in the source area.

Suddenly Dr. Hopson and Mr. Kenny began to attack the conglomerate with their picks. A section of fossiliferous sediments had been enveloped and baked by the hot basalt. With consummate skill and patience their efforts were rewarded by some fine shells. Others found oyster and mussel shells and one a cowrie. Crystals of calcite and quartz groups were also unearthed by the industrious picks. Someone picked up the little white coil of last years snail residence. "Recent Eocene," quipped Joe Wimmer. And the discovery of a shark's tooth by L. E. Goodrich naturally brought out a few passages from *The Hermit of Sharktooth Shoal*, to the amusement of a young lady who was hearing that thumping literary masterpiece for the first time.

The third stop was in the Keasey formation at its type locality a few miles out of Vernonia. Here fossil clams and snails were added to the collection, and here the experts exulted over the discovery of foraminifera. They passed the samples around for the edification of us small fry. The massive siltstone here was separated by strata of sandstone and shales.

Pittsburg Bluff was the youngest formation visited. Here massive quartzose sandstone is overlain by a tuffaceous shale. The sandstone member exposed held many fossils including acilia and at least one crinoid. One spiral cast, exposed in the face of the cliff, its shell long since completely dissolved, crumbled in the hand when it was removed from its long abiding place.

It was in the Pittsburg Bluff exposure that the neophytes made the acquaintance of gigantic concretions, some as large as two bushel baskets on the exposed part. They were full of fossils but so hard that Bob Wilbur's heavy mason's hammer had little effect on them. However, one which was fractured along a line of beach shells was cracked to reveal its inclusions.

"Did somebody or something roll these big rocks into the sand," was a question often asked the leaders. But one had only to note the white horizon of broken shells running horizontally through the enfolding sandstone and passing right through the big spherical hardrock concretion to be convinced that they were formed in place. Emmons, Allison, Stauffer and Thiel in their textbook on geology have this to say about concretions: "Generally they are formed from one of the minor constituents of the enveloping rock. For instance concretions in sandstone generally are impure

oxides of iron, pyrite or calcite. (These fizzed in acid) Concretions are clearly formed in place after the deposition of the beds enclosing them. They have grown up gradually from the center and have partially displaced and have partially incorporated the rock which occupied their places. The material forming the concretion was dissolved by ground water and precipitated around some nucleus such as a fossil."

The main crinoid locality near the town of Mist was passed up because of high water in the Nehalem which made its location inaccessible, but one feature of geological significance could be seen in the bluff, a disturbance in stratigraphy indicating some local faulting. This may have had some effect on the course of the river. It was here that Dr. Howell gave his hypothesis on the reason for the tremendous bend of the Nehalem.

Among the well-behaved rivers of the country the Nehalem is a strictly non-conformist stream. Its headwaters, born on the landward side of the Coast Range, by rights should have contributed to the Willamette valley drainage system. They start out in the right direction but never quite make it. After flowing eastward from the summit of the range they collect together in a furrow along its east side and there form the beginning of the master stream. In the process the master stream makes a great end-run to the north, from Timber to the Clatskanie highway junction. From there it could have continued north to the Columbia River, but it again chooses to be contrary and makes a great bend westward through Mist to Northrup Creek. From Northrup Creek it shunts off southwestward to join the sea at Wheeler. Even this last seems a bit of cussedness for the shortest route would have been west to the sea.

There are good geologic reasons behind this apparent contrariness. The Coast Range, or at least this part of it, is in its third cycle of erosion. The first uplift occurred in post-Columbia basalt time after which the area was reduced to a landscape of rather gentle relief. Soft sediments and hard basalt alike were beveled off. At that time the main streams must have flowed in general east and west directions, derived from the original uplift slopes. Post-beveling uplift, probably in late Pliocene time, rejuvenated the drainage and now selective erosion began to take effect. Those streams eroding headward along soft sediments, lying between the hard Columbia River basalt on one side and the resistant Tillamook volcanic series on the other, soon undercut and captured the east-west streams and joined them together into the system we now know as the Nehalem River. An examination of the relationship of the present formation outcrops to the position of the river will bear this out, even though in some areas the Columbia River basalt has been largely removed by later erosion. Sometime in the early Pleistocene the master stream development reached a mature stage with broad meanders. These were entrenched during the following mid-Pleistocene uplift, the same that produced the Columbia Gorge. The river is still actively downcutting but is also beginning to widen its valley floor.

Passing through Birkenfeld and Jewell the bounding bus bounced its passengers out before a tremendous dike of Miocene basalt thrusting up at an angle of 45 degrees and very effectively interrupting the waters of Fishhawk Creek which here must now plunge over the lip of the dike to continue its torrent a hundred feet below. It's a beautiful fall. Trip leaders called attention to the altered sediments at the contact point, baked black by the intense heat of the intruding magma.

The final stop was one of the most exciting and challenging. "You'll have to walk about a quarter of a mile," apologized the leader but the tone of his voice implied the effort was worth it. It may have been a quarter of a mile in surveyor's language but to a city cliff dweller it was a cool 5,280 feet. But the phenomenon at the end of the hike was a striking finale to the day's experiences. Back in the Miocene a spate of molten magma had intruded a horizontal fracture in the crust of the earth and had swelled to a thick sill. Subsequent erosion had uncovered the sill and here it stood, a tremendous cliff 150 feet tall of vertical platy basalt, its edges slowly giving way to relentless erosion. The plates, an inch to three inches in thickness, vertical in stance and perpendicular to the eye, reached interminably back into the bluff, the outer edges scaling off into a talus which the road crews kept to a minimum. Why a basalt flow will harden en masse, crystalize into prisms or separate into plates, I wonder if even a geologist knows? With his pick Mr. Kenney swept clear the debris underfoot to reveal the clean tuffaceous sandstone of the floor of the sill. And above on the face of the cliff Dr. Howell pointed out several interruptions or contortions of the vertical ribs which gave evidence to some awful pressures which would be necessary to twist such adamant resistance as that cold, hard rock.

As the bus rolled home through the gathering dark one had time to reflect on the side benefits that could accrue to the receptive. One needn't be a botanist to respond to the charm of vast beds of bleeding heart and yellow violet; to the dash of scarlet in the flowering currant; to the ubiquitous bracken and the hazelbrush that seems never to have any hazelnuts; to the spathe and



NEHALEM SAGA - cont'd

yellow cowl of the newborn skunk cabbage. Dr. Hammond was seen struggling up the bank of the river with a scarlet-tipped shrub in his arms. It was the pistillate blossom of the Douglas fir.

At Pittsburg Bluff Bill Freer pointed out a trio of "Witness trees", each displaying a well-healed blaze scar. A surveyor in the forest had in this manner called attention to his section marker. Bill would know; he'd been a surveyor.

The hike up to the platy bluff had been through a continuous forest of lofty alders, each vying with his neighbors to be the first to reach the sky. It was a scene one would like to preserve for later viewing but the sky was overcast, the hour late and totally unpropitious for photography. But Kenneth Schramm, undeterred, set up his tripod, worked that night over his smelly hypos and next day presented me with a masterpiece of photographic art. Corot could have drooled over such a subject but neither Corot nor Ken could have produced the originals.

Back in that first quarry stop Thora Baker had picked up a living fossil all curled up in his shelly retreat. The 'frail tenant' oozed to his door, stuck out his slimy tongue at her and shrieked, "Put me down, you two-legged fugitive from a frantic century. Things have come to a heck of a pass when a self-respecting snail can't snooze off a few well-deserved winks in the sanctuary of a lonesome quarry without some low-down - - -". But the last of his tirade was cut off as he slammed the door in her face.

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NEW BOOK - MOHOLE

Willard Bascom has written the full story of Mohole to date. He calls it "A Hole in the Bottom of the Sea."

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THE MOON

Prof. Thomas Gold of Cornell University has said the Moon's face may hide pools of buried water which have been there from the time of its creation.

- - Robert C. Cowen

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Emory Strong's "Wakemap Mound, A Stratified Site on the Columbia River" is reviewed in the latest issue of the Oregon Historical Society quarterly by Russell S. Congdon, M. D. of Wenatchee, Wash. It is the first publication of the Oregon Archeological Society and follows Mr. Strong's "Stone Age on the Columbia River." Congratulations, Emory.

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MEMBERSHIP IN OREGON CHAPTER, NATURE CONSERVANCY

For individual action by G. S. O. C. members your Board of Directors present the following letter pertaining to our membership as a society in the Oregon Chapter of Nature Conservancy:

Dr. John Hammond  
President, Geological Society of Oregon Country

Dear Dr. Hammond:

An Oregon chapter of Nature Conservancy has recently been formed and granted a charter by the national organization. The purposes of Nature Conservancy are "to bring about the protection of forests, seashores, ponds, streams, islands, deserts, meadows, wetlands, grasslands, gorges and other distinctive aspects of the American landscape before they disappear forever." To this end the organization either acquires such areas through gift or purchase or is instrumental in having them set aside as natural areas or geological areas by federal or state agencies. In order to accomplish these purposes here in Oregon it is important that we have as cooperating members all of the societies with an interest in conservation. Cooperating membership as defined by our By-Laws embraces "individuals or organizations exchanging information or otherwise cooperating with the Conservancy." In no case will the name of a cooperating member be used on any project of the Conservancy without the prior consent of the member. Although there is no stated fee for cooperating members a token fee of five dollars or more would be welcome to assist the organization in its activities. Seventy percent of the dues goes to the local chapter and thirty percent to the national organization. All of the money is used solely for the purposes stated above.

One of our immediate aims is to make an inventory of areas in Oregon that have great biological, geological or scenic importance that are not now protected in order to study them, determine which are in immediate danger and to initiate courses of action for those deemed suitable for preservation. We would like to have your organization assist in this by suggesting such areas and by cooperating in studying some of them. Sometime soon copies of an inventory questionnaire will be sent for distribution to any of your members who may have in mind areas of concern to him.

Next summer we plan to visit several areas, one of which we are recommending as a natural area and another that will be studied for its possibilities. As a cooperating member your organization will be informed of these trips and any of your members will be welcome to participate. Ordinarily we have a banquet and business meeting once a year in late winter or early spring and we expect to have an open meeting in the fall for the purpose of acquainting the public with the activities and values of conservation. At other times our executive committee is active in furthering the business of the conservancy.

We hope that you may join with us as an aid in our efforts to conserve our natural heritage.

Sincerely,

J. Stauffer  
Pres. Oregon Chapter of Nature Conservancy

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Nature Conservancy

It is the desire of the Board of Directors that our members determine by ballot whether or not our Society should apply for membership. For this purpose the following ballot-form should be filled out and mailed to our Secretary, 918 American Bank Bldg., Portland 5, in time for a counting of the ballots June 20th.

It is further agreed that endorsement or rejection by our Society of any projects presented by Nature Conservancy would be on the basis of the will of the majority as expressed on ballots submitted in this same manner.

(signed) J. H. Hammond  
President, G. S. O. C.

BALLOT: - -

For approval of G. S. O. C. membership in Oregon Chapter of Nature Conservancy: Yes <input type="checkbox"/> No <input type="checkbox"/>	
Signature	

# GEOLOGICAL NEWS LETTER

OFFICIAL PUBLICATION OF THE



PORTLAND, OREGON

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1069 State Office Bldg.  
Portland 1, Oregon

**GEOLOGICAL SOCIETY OF THE OREGON COUNTRY**  
**Officers of the Executive Board 1961-1962**

			<u>Zone</u>	<u>Phone</u>
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Bus. Mgr.:	-Mr. Robert F. Wilbur	2020 S. E. Salmon St.	14	BE 5-7284

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Field Trips	- Mr. Irving Ewen	Research	- Mr. Rudolph Erickson
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Museum	- Mr. Lon Hancock	GSOC Libr. night	- Mr. Irving Ewen
Luncheon - Mr. Leo Simon			

**Society 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 objectives.

Persons desiring to become members should contact the Secretary.

Regular annual dues (single or family memberships) are \$5 for residents of Multnomah and adjacent counties; \$2.50 for others; and \$2 for Junior Members. Make remittances payable to the GEOLOGICAL SOCIETY OF THE OREGON COUNTRY.

**Society Activities**

(See "Calendar of the Month")

**Evening Meetings:** Formal lectures or informal round-table discussions on geological subjects, on the second and fourth Fridays of each month at Public Library Hall, S. W. 10th Avenue and Yamhill.

**Field Trips:** Usually one field trip is scheduled for each month.

**Library Night:** Once a month. Lewis and Clark College, Biology Bldg.

**Luncheons:** Informal luncheons, with geological motif, each Thursday noon in Room B, Chamber of Commerce Building, S. W. 5th Ave. and Taylor St. \$1.00 per plate.

**Publication:** The Geological News Letter, issued once each month, is the official publication.

July 1961

CALENDAR

Buffet luncheon every Thursday noon second floor, Portland Chamber  
Commerce, 824 S. W. 5th. \$1.25.

Friday  
July 14. COLOR MOVIES WITH SOUND: One from U S Bureau of Mines One from  
Central Library's Film collection: "Quetico", or ANIMAL LIFE AND VEGETA-  
TION OF PROVINCIAL PARK IN CANADA. Beautiful and different.  
7:30 p m. Central Library

Sat-Sun.  
July 15-16 Field Trip.  
Mt. St. Helens and Spirit Lake for Geology and Volcanology. May be some birds  
and flowers around too. Bring camping gear and food. Camera and digging tools  
optional. Meet at U. S. Forest Service campground at 11:00 a. m. Saturday for  
this "multi-pleasure" trip arranged by Trips Chairman, Irv Ewen.

Friday  
July 28 5th of our Historical Geology talks, "The Mississippian and Pennsylvanian Per-  
iods of the Paleozoic Era." Speaker to be announced. Learn more geology.  
7:30 p. m. Central Library, Room A.

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## MEMBERS, NOTICE!

The Annual Roster of Members will be published in August. Contact our secretary for  
changes desired.

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- - WHERE TO LOOK FOR ROCKS, MINERALS AND FOSSILS - -

The Travel Information Division of the Oregon State Highway Dept. has just published an  
attractive color folder "Oregon's Minerals, Fossils, Rocks and Where to Find Them" which  
includes a numbered map, listing and describing the localities. To obtain a copy write the  
Highway Dept. at Salem. It's free.

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FOR BINDING YOUR NEWSLETTERS for the year please contact ROSE HAMILTON,  
5412 S. E. Powell Blvd.

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"EVERY MEMBER GET A MEMBER" is the slogan of DENNIS CARMODY, our Membership  
Promotion Chairman. He's one of the tall, dark handsome young men you always see at our  
meetings. What are you doing to help him?

\* \* \*

## NEWS OF MEMBERS

Sympathy is extended to MRS. ROBERTA JENSEN, whose father passed away recently. And  
to MRS. C. L. COFFYN, who lost her husband.

GEOLOGICAL SOCIETY GADABOUTS: The ERICKSONS (JANE AND "RUDIE") recently  
returned from another geologizing and picture-taking trip to Flagstaff and other Arizona points.  
MR. AND MRS. FRED MILLER and daughter DORIS took the PNERA train trip to Colorado and  
among many scenic marvels, saw Mesa Verde, Animas Canyon, Royal Gorge and the Bingham

Copper Mine . . . GWEN HELM has been in Arizona and the Southwest. combining work and specimen hunting . . . IRV EWEN'S MOTHER is seeing the world, while IRV (our Trips Chairman) is cooking up our trips and his meals too.

DR. FRANCIS JONES, the brother of DR. ARTHUR JONES, paid us a visit at our last meeting. He left our City some twenty years ago and is presently at Berkeley, California, a chemist with the U. S. Dept. of Agriculture. He is now on the trail of a new mineral of which we expect a report in the near future. He is well remembered as a trip leader in our society.

#### CHANGE OF ADDRESS -

Anderson, Mr. Robert B.	303 Wilcox Building, City (4)	Tel: Bus-CA 2-7095
		Res-CY 2-4910

Henley, Miss Ada City zone number 14

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#### FIELD TRIP TO HOOD RIVER AREA -

Raymond E. (Andy) Corcoran of the Oregon State Department of Geology and Mineral Insudtries, led the GESOC field trip on Sunday, June 18 and all of the members in the seven car caravan had a real treat. We met at Multnomah Falls Lodge and while waiting for the group we studied the rocks in the wall, flowers on the hills, and glass in the gift shop.

The first stop was McCord Creek. A new road cut has exposed the Eagle Creek Formation on the Columbia River Highway. Near the top of the cut we could see a vein of agate between strata of yellow sandstone. On a short trip to the creek we collected some nice pieces of petrified wood. some hard enough to polish. The next stop was Shell Rock Mountain, the Oregon counterpart of Washington's Wind Mountain, a young volcanic formation composed of lighter colored, more acidic lava than the Columbia River Basalt. Some of the rocks had blacklichen polka dots. Farther on we stopped at another road cut to study a very local formation of pillow lava surrounded by granulated volcanic glass. Here we had wind and could feel the granules of glass whip against our legs and arms. On our way through Hood River we lost one of our caravan (someone probably forgot to bring bread). While we were waiting we inspected a conglomerate of river gravels of all sizes containing many quartzite pebbles. Next stop was Panorama Point, overlooking the Hood River Valley which is composed of glacial outwash, now a beautiful valley of green orchards and fields surrounded by mountains including Mount Hood, Acams and Defiance in all their glory.

About one o'clock now, so Irv Ewen led the caravan to Dimmick State Park for lunch. After lunch Andy took the lead and we followed a gravel road, hot and dusty, until we parked. Then he led us through the woods down a hill to see the upper end of the Parkdale Lava Flow. Flower lovers enjoyed this hike because of the variety of blooms, Indian Paintbrush, Bear Grass, Pentstemon, Choke Cherry and even Dogwood still in bloom to mention only a few. The Parkdale Lava flow is one of the youngest in Oregon, only 245 years old (by carbon 14 determination) and very spectacular. Here we rested, had our pictures taken and sang Happy Birthday to Leo Simon (he is much younger than the volcano). On our way again, we made a quick stop for pop in Parkdale then on to Dee. From the road you could see in the distance the lower end of the Parkdale Lava flow. The final stop was at the Punch Bowl, where we saw a striking example of Columnar basalt and two big fish sinuously undulating in the rapids below the Punch Bowl.

Virginia Blore

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SOME CENTRAL OREGON TRIP HIGHLIGHTS: At a particularly scenic point G. A. KIBLER, a guest, exclaimed, "Oh! Look at the lovely, level, lava layers!" . . . DE FOREST BIXBY, former member, renewed acquaintances. Come again, "DE." MR AND MRS WALTER E. BRUCKER came from Wasco to join our caravan . . . Who is this GEORGE A. DEEFELDFER (not on our roster) who wrote up the trip? Seems to know quite a bit about geology . . .

TRIP HIGHLIGHTS: - cont'd)

MRS. DORIS GILLIS (new member) and her sister MISS WINONA GULKER were called the "G-G-Girls." They know a lot about wild flowers as well as geraniums.

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THE PROSPECTOR

On a balmy Sunday afternoon, when you just have to get out for a while but have only two or three hours, a most interesting trip is to the crossing of Washington Highway 1S and the East Fork of the Lewis River. Drive out 99 about 13 miles past Vancouver, turn right on 1S through Battleground and Heisson and across the bridge. Park and walk down to the river below the bridge. The river here has cut a deep chasm through an ancient mud flow hardened into soft rock, full of tortuous channels and potholes, a favorite place for steelhead fishermen. The trip should be made during a low water stage.

To one as inexperienced in geology as I am, it appears that an ancient river was once dammed by volcanic ash, later the saturated obstruction flowed downstream, sweeping before it all the brush and trees in its path until it ceased to flow as it spread into a valley. Later it was covered with lava flows. Remains of trees up to three feet in diameter stand in the flow at all angles. All that remains of the larger ones are casts, cleaned of their contents and polished by the river. Small branches one to four inches in diameter are still embedded in the matrix, petrified to a soft white substance. Some of the log casts remain as long tunnels. My son, Emory, Jr., once on a dare swam down through one of these tubes and came out under the river, a foolhardy stunt that still makes me shudder when I think of it.

Leaf imprints are plentiful, but are rapidly eroded when exposed on the surface of the solid rock. The best place to find them is in the small chips that have broken off and fallen from the banks. We picked up a dozen specimens in a few minutes some weeks ago. Since the formation is not stratified entire prints are rare, and the leaves are difficult to identify, but there are several varieties.

It would be most interesting if one of the experienced members of the Society would examine this area and submit a report. My purpose in writing this article is merely to call attention to the site.

Emory Strong.

NOTE: Sounds good to any rockhound. Let's make it a Field Trip. -- (The Editor.)

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DETECTING EARTHQUAKES AND MONITORING  
EARTH VIBRATIONS

A modern network of earthquake recording stations, spanning six continents, will be instrumental by the Coast and Geodetic Survey beginning in mid-1961, it was announced today by Secretary of Commerce Luther H. Hodges.

Information gathered from this improved world-wide network will provide data on the nature, location and frequency of world earthquakes that might ultimately lead to prediction of destructive shocks.

With financial support of the Advanced Research Projects Agency (ARPA), of the Department of Defense, Coast and Geodetic Survey technicians will be sent to 65 countries and islands to install modern seismic equipment at 125 existing earthquake recording stations.

The major objective of this modernization program, the Secretary said, is to provide sensitive standardized instrumentation capable of furnishing uniform quantitative data for the study of earthquakes, earthquake mechanisms, seismic wave propagation and energy determinations.

The Coast and Geodetic Survey is establishing an analysis center in the Washington, D. C., area where the seismograms from all participating stations will be available for examination and study by competent researchers of all nationalities.

-- Cont'd

DETECTING EARTHQUAKES - cont'd.

The Vela-Uniform Program will develop improved knowledge of the world's crust and mantle, particularly with regard to the number, thickness, and nature of the major layers. It will improve world knowledge of wave propagation characteristics through the earth, including a thorough study of regional travel time anomalies, and it will provide improved data for comparison of all types of seismic waves from earthquakes.

U. S. Coast and Geodetic Survey seismologists will begin installing the instruments at Universities and scientific institutions around the world about August 15, 1961. In many instances the Survey will provide the respective institutions with modern earthquake recording equipment which it could not otherwise obtain. Installation is scheduled for completion late in 1962.

Secretary of Commerce,  
Luther B. Hodges

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## GEOLOGICAL CORNERSTONE

Oregon has a new geological cornerstone, some 350 million years old, as the result of recent discoveries not far from the geographical center of the state in Crook and Harney counties.

The discovery pushes the age of the state's oldest formations back millions of years, to the Paleozoic era's age of fishes, the Devonian.

Fossiliferous limestones and associated rocks in the Suplee area have been determined to be of Devonian age. This is the first Devonian formation ever discovered in Oregon, and is the state's oldest known land.

Two small outcrops of the Devonian rocks, with their fossil record, have been found. The main outcrop is in Crook County, north of the Harney line and some four miles west of the Grant County line. This is a region that has already provided geologists with a fine record of the life of Paleozoic seas and of the Mesozoic ocean that followed them.

On top of ocean beds of those ancient eras are the Tertiary lands with their fine records of mammals and plants.

South of the Devonian outcrop in Crook County, astride Trout Creek, is another small exposure of Devonian rocks, about five miles southwest of the Sherman ranch.

Two Humble Oil and Refining Co. geologists made the discovery that has provided for Oregon Devonian cornerstones vastly older than the "two islands" long considered the state's foundation. W. P. Kleweno, Jr., and R. M. Jeffords reported on the Devonian discovery in Oregon when they presented a paper at a meeting of the Cordilleran Section of the Geological Society of America in San Diego, California.

The Humble geologists said the light to medium brown limestone of the Devonian rocks found in Oregon consists largely of skeletons of organisms in their original growth positions and surrounded by a very fine granular matrix.

Fauna typical of Devonian seas were found in the rocks that were once in ocean bottoms, but are now in Oregon's interior highlands. The marine creatures whose shells are imbedded in the rocks indicate a middle Devonian age. They suggest a correlation with beds in the Roberts Mountains of Nevada and in northern California.

Geologists say that the Devonian was one of the seven periods of the Paleozoic era. The upper beds of this era were found in earlier years in this same part of Oregon.

During the earlier part of the Devonian, no highlands relieved the generally flat surface of North America. Throughout the Devonian, vast seas swept over much of America of the present. In the middle Devonian there apparently was a great sea just to the east of the Oregon country.

Reef-building corals were abundant in some of the Paleozoic seas that swept over interior Oregon. Fossils and plants indicate warm seas and an equable climate. Tall scale trees, primitive ferns and jungles covering swampy plains were common.

-- Phil Brogan  
The Oregonian



### PROJECT MOHOLE ENDS 1st PHASE

Houston, Texas -- The director of Project Mohole said Tuesday the next drilling phase of the project may be under way within a year.

Willard Bascom, Washington, D. C. , said sight surveys already are under way and preliminary work already is being done on the design of a barge or ship from which further deep-sea drilling operations will be conducted.

Project Mohole is being sponsored by the National Academy of Science. Its objective is to drill through the earth's crust and determine characteristics of the earth's mantle.

The Oregonian (AP)

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### MASON CONTRACTOR DISCOVERS NEW ROCK (La Grande, Ore.)

Ike Whiteley, a local stone mason contractor, has discovered a new-type rock which can be split to any thickness for use as facing for homes and fireplaces. The new rock was found along the Grande Ronde River near La Grande.

Whiteley said the land is U. S. Forest acreage and that he has filed a mineral claim on a 100-acre plot with the county recorder.

He said there is an "inexhaustible supply" of rock, made up of every color known. Whiteley found the unusual stone while hunting elk last fall and since that time has been making plans to remove and process it for commercial sale.

#### Enterprise Formed

He said he and a La Grande heavy equipment contractor, Gene Becker, have formed a joint enterprise for removing and processing the rock in preparation for shipment to markets on the West Coast.

The big advantage of this new stone is that it can be split to any thickness right on the job, Whiteley says. Because it can be split thin, the new stone can be laid in stucco without having to be mortared in as the thicker, heavier stones are.

The Oregonian

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### LAKE COUNTY'S BIG HOLE SAID OF VOLCANIC ORIGIN -By Phil Brogan

Mysterious Hole-in-the-Ground of Oregon's Fort Rock country of northern Lake County was not created by the impact of an earth-shaking meteor ages ago.

This is the belief of Norman Peterson, field geologist working out of the Grants Pass office of the State Department of Geology and Mineral Industries, following a recent study of the big hole. The crater has been the object of considerable controversy in recent years.

The deep depression, a miniature of the far-famed Meteor Crater in Arizona, is obviously the result of a terrific volcanic blast, Peterson said. This agrees with the belief of Dr. Howel Williams of the University of California, recognized authority on spectacular volcanic features of Central Oregon.

Peterson said he found explosion tuffs and breccias in place in the rim of the Fort Rock crater, which overlooks the broad basin that also holds the giant natural amphitheater known as Fort Rock. Near by are the Cow Caves, which have yielded evidence that man, represented by hunters, lived in the region more than 9,000 years ago.

Because of the unusual features of the area, it has been suggested as a state park with Fort Rock as its central feature.

Peterson also found welded tuffs overlain by a basalt flow exposed in the crater wall, lending credence to the explosion theory.

A factor which led earlier investigations to believe that the hole had been created by the terrific impact of a giant meteor bearing in from the west at a high angle was the presence of huge boulders on the eastern rim of the Hole-in-the-Ground. Peterson believes the coarse-grained

Cont'd

LAKE COUNTY S BIG HOLE - cont'd

basalt porphyry represented by large blocks on the crater rim is not exposed in place. It was apparently blown from a lower section of rock.

No Meteor Evidence Found

Peterson said the Big Hole, another familiar feature of the Fort Rock area, is similar to the volcanic landform called a tuff ring. This formation is just west of the Fremont highway. Explosion tuffs and breccias are the only rocks exposed in the crater walls and the rim.

Moffit Butte, between La Pine and Fort Rock on the Fremont highway, is somewhat larger and more eroded but appears to be a tuff ring also, Peterson said.

No evidence of meteoritic material was found in the area.

Hole-in-the-Ground is on the summit of a slight elevation immediately west of the Fort Rock basin, once covered by a lake that spread to the south and east, leaving the Connolly Hills as an island. Ancient Fort Rock Lake included Silver Lake of the present.

In warm summer days, "dust devils" now whirl across the basin once flooded by the big Pleistocene lake, in those distant days when flamingoes winged their way over the basin and camels grazed on the lake shores.

Peterson will make his formal report on the Hole-in-the-Ground in the Ore.-Bin, publication of the State Department of Geology and Mineral Industries.

He was detailed to make this study because of the great interest in the Hole-in-the-Ground and nearby geological features.

The Oregonian

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THE BIG BANG BLUES

(A controversy is now raging in England between two learned scientists over the creation of the universe.)

Said Ryle to Hoyle  
"Please do not boil.  
The world began with a bang."  
Said Hoyle to Ryle,  
"Well boil my bile,  
Your theory doesn't bang."

Said Ryle to Hoyle  
"Do not recoil  
I tell you it is so."  
Said Hoyle to Ryle,  
With a cynical smile,  
"Best check your radio."

Said Ryle to Hoyle  
"After all my toil  
I've proof of what I know."  
Said Hoyle to Ryle  
"I've seen your file  
And the stars say it's not so."

Said Ryle to Hoyle  
"Don't try to spoil  
My fondest galaxies."  
Said Hoyle to Ryle  
"That's not my style  
To kill your theories."

"But, Ryle," Said Hoyle  
"You're full of oil  
To spread your 'big bang' tale."  
"Really," said Ryle,  
"We'll see in awhile  
Whose figures will prevail."

Now if Ryle is riled  
And Hoyle is roiled  
Then X will equal Z.  
And if Hoyle is foiled  
And Ryle s not wild  
Then God did make that tree.

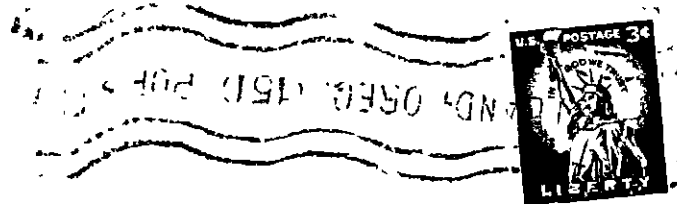
# GEOLOGICAL NEWS LETTER

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1069 State Office Bldg.  
Portland 1, Oregon

# GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

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Luncheon - Mr. Leo Simon				

### Society 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 objectives.

Persons desiring to become members should contact the Secretary.

Regular annual dues (single or family memberships) are \$5 for residents of Multnomah and adjacent counties; \$2.50 for others; and \$2 for Junior Members. Make remittances payable to the GEOLOGICAL SOCIETY OF THE OREGON COUNTRY.

### Society Activities (See "Calendar of the Month")

Evening Meetings: Formal lectures or informal round-table discussions on geological subjects, on the second and fourth Fridays of each month at Public Library Hall, S. W. 10th Avenue and Yamhill.

Field Trips: Usually one field trip is scheduled for each month.

Library Night: Once a month Lewis and Clark College, Biology Bldg.

Luncheons: Informal luncheons, with geological motif, each Thursday noon in Room B, Chamber of Commerce Building, S. W. 5th Ave. and Taylor St. \$1.00 per plate.

Publication: The Geological News Letter, issued once each month, is the official publication.

CALENDAR

Buffet luncheon every Thursday noon, second floor. Portland Chamber of Commerce, 824 S. W. 5th. \$1. 25.

PLEASE NOTE: There will be no lectures or luncheons during August.

Friday Annual Picnic

August 11 The place as usual "The Crater" at Mt. Tabor - time 6.30. Members and friends are welcome. As usual, it's "Pot Luck" and we hope you are lucky. Bring table service -- rolls butter cream coffee tea and sugar will be provided. If you have a question, please call Mrs. Davis (telephone chairman) AL 3-6723 or Mrs. Simon, BE 6-0549, or Mrs. Hammond (general chairman) OL 4-5570; or Rose Hamilton, PR 5-9762.  
P. S. Please walk lightly about the Crater, and don t shout when you talk.

Sunday Field Trip.

August 20 10 a. m. Silver Creek Falls State Park.  
Meet at the Park headquarters. This will be a car caravan trip, and the park itself is only one feature of a wider area to be covered. Dr. Paul Howell is trip leader.

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LON HANCCCK

A special issue of News Letter is planned to honor our late friend, Lon.  
Can you help? Write us.

RETRACTION -

In the March 1961 issue of News Letter an article by Ray Golden asserted that Portland gets water from the slopes of Mt. Hood. Those best acquainted with this area affirm that this is not true Bull Run, however, rises near Mt. Hood.

- - The Editor

\* \* \* \* \*

NEWS OF MEMBERS

" HELP WANTED "

'244 Trinity Avenue  
Berkeley 8, California  
July 24 1961

Mr. J. R. Rentsch  
St. Francis Hotel  
Portland 5. Oregon

Dear Mr. Rentsch:

Please ask by your News Letter if anyone of your readers can supply me with a copy of University of California Dept. Geol. Sci. Bull. vol. 5, pp. 331-380 (1909) "Benitoite, its paragenesis and mode of occurrence". I will pay any reasonable price.

Cordially yours

Francis T. Jones."

\* \* \* \* \*

NEWS OF MEMBERS - cont'd

ROBERT ANDERSON vacationed in Aspen Colo., with a convention of commercial artists... FRANKLIN M. ('Brownie') BROWN, wife ARDNA and sons DICK and BOB, now of Edmonds, Wash. were here over the 4th visiting MRS. CLARENCE HANSON, Ardna's mother, and her husband... Cur president DR. JOHN H. HAMMOND and wife ESTHER, listened to the waves at Santa Monica, Calif., for a change... ALBERT (AL) KENNEY has been transferred to the Oregon City office of the State Employment Dept. and will be much missed at our luncheons... MRS. EDWARD M. RCWLAND, of Lafayette, Calif. remembered as Mrs. Quick who operated our luncheon buffet, greeted us July 13.

STEVE LINDER, age 11, Bob Wilbur's grandson, coming by jet from San Diego to join us.

## DR. W. CLAUDE ADAMS

Dr. W. Claude Adams, 87, a dentist for 40 years in Portland, died Monday at his home, 2614 N. E. Bryce Street.

He was born in Brookline, Mo. and graduated from the University of Colorado Dental School, received additional degrees at Northwestern University and the University of Oregon.

He became an oral surgeon here in 1905 and continued in practice in the Selling Building until his retirement in 1945.

Dr. Adams was a member of Delta Sigma Delta Dental Fraternity and Omicron Kappa Honor al National Dental Society.

He was also a past elder of Westminster Presbyterian Church; Washington Lodge No. 46 A. F. & A. M., Commandery, Al Kader Shrine; Oregon Historical Society; Lang Syne Society; Mazamas; Men's Garden Club; Audubon Society and a charter member of the Geological Society of Oregon.

He is survived by his widow, Myra L. Adams.

- - - The Oregonian

The Geological Society was his favorite organization and its interests and achievements were a source of pride with him.

Leonard Delano - Studios Purchased

(D. J. of C. - July 17 1961)

Delano Photographics 1536 S. E. 11th Ave. has announced the purchase of Acme Commercial Studio and the negatives and files of Columbia Commercial Studio. Roy H. Wolford, formerly of Acme has been added to the staff of Delano.

Ralph Mason

Read his excellent article in July Ore-Bin telling of the 153% increase in Oregon's mineral production in ten years 1950 to 1960.

New Address and Changes of Address:

Cox, Miss Beryl C. 1048 S. E. 112th Avenue

Haglund, Wayne M. 2346 N. W. Glisan St.

Stone, Mr. & Mrs. Noris B. Box 473 Lake Oswego, Oregon. Telephone Nos: NE 6-4377

NE 6-1154

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## ST. HELENS FIELD TRIP

About 12 cars of the GSCC made the trip on July 15 and 16 to Mt. St. Helens. The weather was almost cut to order and all seemed in a real holiday mood, cares left far behind. Our trip leaders Dr. Howell and Leo Simon.

On Saturday after camp was set up among the towering trees on the shore of Spirit Lake a hasty lunch was prepared and devoured. We were then shot across the crystal waters to the north-east corner, the old copper mine our main objective. When all had arrived safely at this point "The Y. M. Camp", our trip leaders led us step by step up Coe Canyon stopping often to identify tree, shrub, flower or bird. To the delight of all, a water (Cusil) came forth to do his act among the rapids. About an hour's sweat and strain brought us to Coe's Copper Mine a tunnel cut into

### St. Helens Field Trip -

a sheer wall of hard rock. From abandoned machines and the amount of tailings remaining after fifty years we knew much capital was spent here to hit pay dirt--alas! failure. For "Cavers" here is adventure but too forbidding to our gang of G. S. O. C. An hour was spent collecting pyrite and chalcopyrite. Andesite and granodiorite was also seen here and there.

A quick return to camp was agreed on and then a quick dash to Timberline on St. Helens. Only five of the group were able to make this trip.

A base camp had been set up by Mr. Wilbur Mr. Murphy et al so here was held the campfire sing Saturday night. The group was in fine form led by Paul Howell, guitar, Rhoda Landels, mandolin, Ruth Prentiss and Evangeline Moore strumming ukeleles. Next solos by Steve Linder and Pat Landels. Last but not least Truman Murphy, our professional reader of poetry, and can you forget his tale of "The Hermit of Shark Tooth Shoal."

On Sunday the group took the trail for the north side of Spirit Lake, their objective St. Helens Lake and The Dome. It was a 12-mile trip and a great deal of climbing. The trail was fine, being well worn by pack horses. The hikers divided into "slow" and "fast". Most reached St. Helens Lake and a few The Dome when fog and mist made an end of questing. Leo leading "slow" group while identifying birds and flora, and Paul Howell taking "fast" ones higher up to The Dome for broader vistas . . . most often heard remarks, "I can't find it", "I forgot to bring" and "May I borrow" . . . perfect weather to enjoy excellently maintained camping facilities of U. S. FOREST SERVICE.

J. Rentsch

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MT. ST. HELENS

The "Fujiyama of America" with your perfect symmetry, your unblemished mantle of snow, your naked grandeur, your perfection of the mound builder's art and landmark of landmarks looking down from your 10,000 feet. We see that you are heavily surfaced with pumice (places having 120 feet of lapilli); we know you do not sleep always (eruptions 1550, 1805 and 1854); we know you take your toll of those who climb your smuuit, yet we gaze and stand in awe and admiration.

It was you who 400 years ago gushed forth a huge slide to plug a canyon, thus creating Spirit Lake (depth 180 feet). It was you who laid the groundwork (of ash and pumice) which produced the towering forests of fir, hemlock and cedar (average rainfall 110 inches) which clothe the shores of Spirit Lake. Here another episode of your life.

### THE MT. ST. HELENS "FLOATING ISLAND"

Donald B. Laurence

Of the many and varied volcanic deposits that apron the slopes of Mt. St. Helens, the blocky andesite flow on the northwest slope, (first described by Verhoogen\* in 1937) is undoubtedly the most interesting. As far as I have been able to discover from geologists, nothing really similar to it has ever been described. The special feature that makes it unique among lava flows is the fact that it bears on its surface several large patches of glacial sand, gravel and soil which it has transported down the mountain on its back. Unlike most lava flows, this one apparently emerged from the earth's surface at a place directly beneath a glacier, this particular one being the Toutle Glacier. As the lava flowed out slowly, a glowing, steep-walled mass of angular blocks, it accumulated upon its upper surface masses of till and probably till-packed ice, which, being lighter in weight than blocky lava, literally "floated" along on top of the slowly moving semifluid stream.

After the lava stream had moved down the glacial valley until its tip was about 3 miles from its source, and had spread to a maximum width of about 2000 feet, pushing over large Douglas fir trees as it went, and completely blocking the former channel of the outwash stream from the glacier, it came to rest and gradually cooled.

Today at certain places (just beyond that 40 foot strip) still stand occasional old living trees that were nearly killed. Fortunately from a historic standpoint, however, these old trees revived and

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Floating Island - cont'd

they stand today, living recorders of the date when they were first injured by persistent sickening heat that continued to be emitted toward them over a period of probably several months from the nearby flow. A study, though not extensive enough to be conclusive, of growth layers in cores collected from these trees seems to indicate that the flow occurred within two or three years after 1802.

The gigantic loosely spaced angular blocks that determine the surface nature of the lava flow itself are even today unsuited to the growth of trees and shrubs chiefly because of their inability to supply adequate water in the summer drought period. Thus, the main portion of the flow is destined to remain unforested at least for several centuries to come.

\* \* \* \* \*

## DEVONIAN ROCKS IN THE SUPLEE AREA OF CENTRAL OREGON

Abstract By W. P. Kleweno, Jr., & R. M. Jeffords Humble Oil & Ref. Co., Houston, Texas

Fossiliferous limestones and associated clastic rocks in the Suplee area of the pre-Tertiary inlier central Oregon, have been determined to be of Devonian age. The two small outcrops are the only known occurrences of Devonian rocks in Oregon. Mississippian Pennsylvanian, Permian, and Triassic strata crop out near-by.

The main outcrop, in Crook County, consists of 100 feet of highly folded, massive, cherty, stromatoporoidal limestone. This bed is underlain by about 200 feet of massive green chert grit and sandstone and apparently is overlain by chert and argillite. A second small outcrop, a few miles away in Harney County, consists of poorly exposed fossiliferous limestone.

The light- to medium-brown limestone consists largely of skeletons of organisms in their original growth positions and surrounded by a very fine granular matrix. These forms indicate a Middle Devonian age; they also suggest a correlation with beds in the Roberts Mountains of Nevada and with beds in the Shasta Lake and Yreka areas of northern California.

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## OFFSHORE EXPLORATION PERMITS GRANTED

The State Land Board issued offshore exploration permits to the Shell Oil Company and the Gulf Oil Corporation on June 13, 1961. Shell Oil Company was granted a 120-day permit to conduct seismic shooting in Oregon waters. The seismic boat operated by Shell will carry a representative for the Fish Commission and the Game Commission, who will observe effects of explosives on marine life during the shooting. Gulf Oil Corporation was issued a 90 day permit to conduct nonexplosive seismic surveys. Permits for exploration are non-exclusive and give no preference for leasing.

-- The Ore-Bin

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## OREGONITE, A NEW MINERAL

A new mineral called "Oregonite" has been named and described by Paul Ramdohr and Margaret Schmitt in Neues Jahrbuch für Mineralogie Monatsh. 1959 no. 11-12. Oregonite is a metallic nickel-iron arsenide occurring as water-rolled pebbles in Josephine Creek, Oregon. The pebbles have a smooth brown crust. Composition of the mineral is given as  $Ni_{10}Fe_6As_9$  or  $Ni_2FeAs_2$ . A little cobalt and traces of copper are present. Under the microscope the mineral is metallic white with high reflectivity. Hardness is about 5. Associated minerals include small amounts of native copper, bornite, chalcopyrite, molybdenite, chromite, and perhaps niccolite. The gangue (40% by volume) consists of penninite and serpentine. (Extracted from The American Mineralogist, Sept.-Oct. 1960.)

Note: This mineral is not to be confused with josephinite, which has similar properties but contains no arsenic. Its composition is given as  $FeNi_3$ .

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## GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

JUNE 1961

## MEMBERSHIP LIST

Compiled by the Secretary

<u>Name</u>	<u>Address</u>	<u>Telephone</u>
Abramovic Mr & Mrs. Emil	3212 S E. Risley Ave., 22	OL 4-0938
# Adams Mrs W. Claude	2614 N E. Bryce 12	AT 1-8747
" Alien Dr. & Mrs. John Eliot	1162 S. E. 58th Ave. , 15	BE 6-1558
Anderson Mr Robert B.	1019 S W Morrison	CA 7-9928
Appelgren, Mr. & Mrs. Wilson	R. F. D. 3, Box 166, Hood River	HR 5924
Avedovech, Mr. & Mrs Myer	2214 N E Brazee St 12.	AT 2-0645
Baker, Mrs Lois Inman	541 W. 16th St Eugene	5-5870
Baker, Mrs. Thora Martin	1717 S.W. Park Ave. , Apt 104, 1	CA 8-7861
Baldwin Dr. & Mrs. Ewart M.	2058 Harris St , Eugene	
# Barr, Mrs. Amza	4830 S. E 62nd Ave. , 6	PR 4-2459
Bartholomay, Miss Clara L.	1620 N E 24th Ave 12	AT 4-6986
" Bates Mr. & Mrs. E. N.	94 Cloud View Rd., Sausalito, Cal	
Becker, Mr. & Mrs. Henry G.	7612 S. E 32nd Ave. 2	PR 1-2988
Berg Mr. & Mrs. Oscar K.	8712 S W. 42nd Ave. 1	CH 4-3782
Blore Mr. & Mrs. Stephen W.	5520 S. W Downs View Ct. 1	CY 2-4577
		CA 2-9865
Boyd Mr. & Mrs. C. A.	434 Riverside Blvd. Bend	1013 W
Brodie, Drs. F. Walter & Jessie L.	Rt. 1 Box 237 Clackamas	Sunnyside 47
		CA 3-8169
Brogan Mr. & Mrs. Phil F.	1426 Harmon Blvd. Bend	266-J
Bronkema, The Reverend Rosalie	2362 S W. Cactus Dr. 5	CA 8-3942
" Brown Mr. & Mrs. Franklin M.	411 2d Ave., N., Edmonds Wash.	
Brown, Mr. & Mrs. Jesse L.	8317 - 188th S.W., Edmonds Wash.	
Bruckert Mr. & Mrs. Walter E.	Box 421 Wasco	The Dalles 477
Bryan Mrs. R L.	6309 S. W 32nd Ave. 19	CH 4-1058
Buckner Mr. & Mrs James S	1230 N W 21st Ave., 19	CA 2-5676
Buffham Mr & Mrs. Merton E	6221 N E 23rd Ave. , 11	AT 2-5248
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Campbell Mr. Donald R.	2505 N. Emerson 11	BU 9-5728
Carmody Mr. Dennis M.	3203 N. E. Klickitat St. 12	AT 7-7466
" Clark Mr. & Mrs. William F.	3613 S. E. 9th Ave. 2	BE 4-7096
Cleghorn, Mr. & Mrs. John C.	Willamette View Manor-2705 SE River Rd., 22	OL 4-6581
Coffyn Mrs. C. L.	1706 N. E. 53rd Ave. 13	AT 2-9514
Cox Miss Beryl C.	1048 S E 112th Ave.	AL 3-4847
Dale Mrs. May R.	117 N. W. Trinity Pl. , 9	CA 8-0366
Davenport, Miss Mary	309 West 15th Vancouver Wash.	OX 4-5983
# Davis, Mr. & Mrs. Franklin L.	7114 S W. Corbett Ave. . 1	CH 4-8975
Davis, Mr. & Mrs. Leslie C.	7704 S. E. Taylor St. , 16	AL 3-6723
Delano, Mr. & Mrs. Leonard H.	1536 S. E. 11th Ave. , 14	BE 6-2139
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Dodson Mr. & Mrs. Guy R.	4350 S. W. 96th Ave. , Beaverton	MI 4-1609
Dole, Mr. & Mrs. Hollis M.	2612 N. E. 23rd Ave. , 12	AT 4-5994
Duckwall, Mr. & Mrs. John C.	811 Oak St. , Hood River	3562
Elder, Mr. George V.	6922 S. E. Brooklyn St. , 6	PR 1-5846
Erickson, Mr. & Mrs. Rudolph	249 S. W. Glenmorrie Dr. , 5	NE 6-1873
Errett Mr. & Mrs. Sanford	2707 N. Halleck St. , 17	BU 9-6044
Eudaly, Mr. & Mrs. Donald	5204 N. E. 28th Ave , 11	AT 8-3654
Ewen, Mr. Irving Gilbert	4128 N. E. 76th Ave. , 13	AT 1-7098
Fessenden, Miss Marjorie A.	743 S. W. Maplecrest Ct. , 19	CH 6-2987
Fink, Mr. & Mrs. V. Carl	7025 N. Catman Ave. , 17	BU 9-0188
Fisher, Mr. & Mrs. Robert S.	Rt. 1, Box 80, Sherwood, Cre.	NE 8-3373
Fite, Mr. & Mrs. George	3610 N. E. 115th Ave. , 20	AL 3-3469
Fowler, Myrtice E.	6116 N. E. Cleveland Ave. 11	BU 5-5143
Freed, Miss Hilda W.	1969 S. W. Park - Apt. 306	CA 2-3714

GEOLOGICAL SOCIETY OF THE CREGON CCUNTRY - MEMBERSHIP LIST

	<u>Name</u>	<u>Address</u>	<u>Telephone</u>
	Galt Mr. James	1131 S.W. Montgomery St. , 1	CA 3-4601
	George, Mr. & Mrs. Carl L.	1924 S. E. 24th Ave. , 14	BE 2-6610
"	Gilchrist, Dr. & Mrs. Francis G.	0644 S. W. Palatine Hill Rd. , Lewis & Clark 1 College	CH 4-7531
	Gillis, Mrs. Doris E.	5109 N. W. St. Helens Rd. 10	CA 3-0280
	Golden Mr. & Mrs. Ray S	3223 S. E. 19th Ave. 2	BE 4-3921
	Gooch Ruth Grey	8637 S. E Alder 16	AL 3-6897
	Gordon, Mrs. Ted Sr.	4710 Sunnyside Road Salem	
	Gregory, Dr. & Mrs. Victor	3621 S E. Ankeny St. 15	BE 4-3137
	Griswold Mr. & Mrs. D. H.	6656 S W. Miles Court	CH 6-5004
	Grubaugh, Philip L.	2942 S. E. Brooklyn St. 2	BE 6-5402
	Haggerty, Mr. & Mrs. E. W.	12950 S W. Fielding Rd. . Lake Oswego	NE 6-4020
#	Hamilton Rose	5412 S. E. Powell Ave	PR 5-9762
	Hammill Mr. & Mrs. Kenneth C.	9124 N. E. Broadway 20	AL 3-7749
	Hammond, Dr. & Mrs. John H.	14815 S E. Oatfield Rd. . 22	CL 4-5570
C	Hancock Mrs. A W.	2720 S. E. 84th Ave. 16	PR 1-5285
	Hanson Mr. & Mrs. Clarence W	2304 E. Burnside 14	BE 2-5911
	Hanson Mr. & Mrs. Hilbert	15724 S. E. Hanwood Lane 22	CL 4-2657
	Harbert. Mr. & Mrs. Melvin	6221 N E Fremont 13	AT 4-5714
	Haumann. Mr. & Mrs. George	36 N. E. Meikle Place, 15	
	Helm Mrs. Gwen	6225 S. E. Belmont 15	BE 6-8324
	Henderson, Mr. Dwight J.	838 S. E Peacock Lane, 15	BE 2-0814
	Henley Miss Ada	2015 S. E. Pine St. , 14	BE 2-1475
	Hewitt Mrs. L. P.	4125 S. E. Cak St. , 14	BE 2-9821
0#	Hodge, Dr. Edwin T.	2915 N. W. Luray Terrace 10	CA 3-8345
	Hopson, Dr. Ruth E.	4138 S. W. 4th Ave. , 1	CA 2-1430
	Hoven, Miss Rowena	2829 S. E. Belmont St. , 14	BE 4-9005
"	Howell, Dr. & Mrs. Paul W.	9130 S. W. Borders, 23	CH 4-5728
	Hughes, Margaret E.	1070 S. W. Gaines, 1	CA 8-2928
	Hyman, Dr. Selma H.	3262 N. E. Everett St. , 12	BE 6-9032
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	Jensen, Mrs. Roberta	8709 S. W. 56th Ave. , 19	CH 4-2415
	John, Mr. & Mrs. Roy M.	603 S. E. 54th Ave. , 15	BE 4-4662
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	Johnson, Mrs. Wallace	Beerman Creek Farm, Hamlet Rt. , Box 22 Seaside	
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	Kenney Mr. & Mrs. Albert R.	Box 156 Star Route West, Tillamook, Cre.	CA 6-2161
	Kern, Mr. & Mrs. Emery R.	152 S. E. Kelly St. Gresham	MC 5-4628
	Kerr, Miss Marguerite	5518 N. Williams Ave. , 17	AT 4-8626
	Klatt, Joe F.	7315 S. E. 52nd Ave. 6	
	Kooken Miss Katherine	7114 S. W. Brier Pl.	CH 4-7125
	Landels Mrs. Rhoda P.	3105 N. E. 56th Ave. 13	AT 8-1416
	Lange, Mrs. Nellie V.	1534 S. E. 56th Ave. 15	BE 6-7202
	Latourette Dr. Kenneth Scott	409 Prospect St. New Haven 11 Conn.	
	Laurence Mr. & Mrs T. Herbert	1808 S. E. 35th Place, 15	BE 2-5294
	Lawrence Dr. & Mrs Donald B.	2420 - 34th Ave. So. , Minneapolis Minn. 6	
	Leonard Mr. & Mrs. Robert W.	Rt 1, Bx 382, West Linn Cre. (Ore. City)	OL 6-2189
"	Libbey Mr. Fay W.	2269 N. W. Everett 10	CA 7-2145
	Lilley Mrs. Elwin R.	Box 8353 Grace Station Asheville, N. Carolina	
	Lindquist, Mr. & Mrs. Arvin P.	Rt. 8 Box 203, Olympia Wn.	FI 2-5377
	Lloyd Mr. & Mrs L. G.	01139 S. W. Palatine Hill Rd. , 1	NE 6-4493
	Long, Mr. & Mrs. John K.	229 So. 8th - Hillsboro	
	Lovett, Mr. & Mrs. S. E.	14975 S. W. 74th Ave. , Tigard	ME 9-2065

GEOLOGICAL SOCIETY OF THE OREGON COUNTRY - MEMBERSHIP LIST - JUNE 1961

	<u>Name</u>	<u>Address</u>	<u>Telephone</u>
	McLean, Miss Jill	3106 S.W. 10th Ave., Apt. 23, 1	CA 8-3739
	Magennis, Mr. Casper H.	Rose Plaza Apt. 602, 2199 N.W. Everett St. Box 3635 MO	CA 7-0947
	Marshall, Miss Emily L.	3471 S.W. Patton Rd., 11	CA 3-6720
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	Matthews, Mr. & Mrs. Thomas C.	4014 N.E. Flanders, 12	BE 6-6759
	Merryman, Frank J.	9318 S.W. 2nd Ave., 19	CH 6-4494
	Miller, Mr. & Mrs. Fred E.	3122 S.E. 73rd Ave., 6	PR 1-6154
	Miller, Mr. & Mrs. Hugh	2165 Summit Drive, Lake Grove	NE 6-2245
	Miller, Mr. & Mrs. Murray R.	1018 Promontory Ave. -PC Bx 464 Oregon City, Ore.	OL 6-6724
	Miller, Mr. & Mrs. Wilmer J.	1307 Sequoia Place, Davis, California	
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	Moltzner, Mrs. Emily	7032 S.E. Stark, 16	AL 4-2362
	Movius, Mr. William G.	4110 N. E. Knott, 12	AT 4-4384
	Mueller, Mr. Godfrey	7117 S.E. Harold St., 16	PR 4-4724
	Murphy, Mr. & Mrs. C.T.L.	1019 S.W. Morrison 5	CA 7-3253
	Newton, Mr. & Mrs. Vernon C., Jr.	7313 S.W. 52nd Ave.	CH 4-9192
	Nelson, Mr. & Mrs. Jack O.	4605 S.W. Idaho Drive 1	CH 4-4611
	Nielson, Mr. Howard E.	1429 S.W. 14th Apt. 409	CA 3-6896
	Oakes, Mr. Alva	218 N.W. Flanders St., 9	CA 7-5123
#	Oberson Mr. & Mrs. Louis E.	3569 N.E. Stanton, 13	AT 2-3685
	Ohmart, Mr. Reynolds W.	783 N. Capital, Salem Ore.	
	Orem Mr. & Mrs. Hollis M.	434 N.E. Mirimar Place	BE 4-2650
	Ornduff, Dr. Wm. W.	772 S.W. Broadway Dr. 1	CA 8-5815
	Pagni Mr. & Mrs. Earl E.	6008 S.E. 50th Ave. 6	PR 4-1570
#	Paterson Mr. & Mrs. Wm. F.	2928 N.E. Broadway, 12	AT 1-2928
	Pierce Mr. & Mrs. Hayward	7236 S.E. Salmon St., 16	AL 3-8046
	Pense, Mr. & Mrs. Clair E.	17021 S.E. Division St., 36	AL 4-7101
	Perley, Miss Anne	1068 S.W. Gaines St., 1	CA 3-6833
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" #	Phillips Mr. & Mrs. Kenneth N.	4124 S.E. Woodward 2	BE 5-1052
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#	Poppleton, Mrs. R.R.	12640 S.W. Riverside Dr. 19	NE 6-4891
	Prentiss, Mrs. Ruth Eliot	1923 N.E. Schuyler St., 12	AT 1-0341
	Ramsey Mr. C.W.	Goldendale Wash.	PH 6221
#	Reichen, Mr. & Mrs. Sam	8131 S.E. Crystal Springs Blvd., 6	PR 1-8775
#	Reimers, Mr. Fred	6535 S.E. Clinton St., 6	PR 1-9188
	Rentsch, Mr. J.R.	St. Francis Hotel, 1110 S.W. 11th Ave., 5	CA 3-2161
	Robosky, Mr. Milvoy	Rt. 1, Box 452, Tillamook	VI 24088
	Rosa, Miss L. Kate	807 S.W. 14th Ave., 5	CA 3-0297
	Rose, Mr. & Mrs. Howard E.	2206 N. Willamette Blvd., 17	BU 9-6738
	Rosenberry, Mr. & Mrs. Cecil L.	1606 N.E. Thompson St., 12	AT 7-4170
"	Ruff, Mr. & Mrs. Lloyd L.	810 N.E. 52nd Ave., 13	AT 2-3664
	Running, Mr. & Mrs. James	1915 N.E. 142nd Ave., 30	AL 2-5202
	Schirmer, Dr. Elizabeth H.	1737 S.W. Skyline Blvd., 25	CA 3-2029
"#	Schminky, Mr. & Mrs. H. Bruce	1030 S.E. 54th Ave., 15	BE 6-3903
	Schramm, Mr. & Mrs. Kenneth R.	3407 S.E. Vineyard Rd., 22	CI 4-4278
	Schreiber, Mr. J.E.	Rt. 2, Box 275-Oregon City	Redland 2898
	Schroeder, Mrs. Alma L.	6606 S.E. 44th Ave.	PR 5-6550
	Schull, Mr. & Mrs. Bert R.	418 N. Holland St., 11	BU 5-2755
	Sherwood, Mr. Howard P.	Star Route Box 91 Tillamook	V 12-24606
"#0	Simon, Mr. & Mrs. Leo F.	7006 S.E. 21st, 2	BE 6-0549
	Sipple, Mr. & Mrs. Norman W.	Rt. 3 Box 114 Sherwood	JE 8-5317
	Smith, Miss Almeda	8807 S.W. Capital Highway, 19	CH 6-1532
#	Smith, Mrs. Ben F.	1350 S.E. Flavel St., 2	BE 2-1565
"0	Stanley, Mr. Orrin E.	2601 S.E. 49th Ave., 6	BE 5-1250
"	Stauffer, Dr. & Mrs. James	717 - 8th St. Lake Oswego	NE 6-3825
	Stearns, Margaret J.	2064 S.E. 72nd Ave., 16	PR 4-6222

GEOLOGICAL SOCIETY OF THE OREGON COUNTRY - MEMBERSHIP LIST

<u>Name</u>	<u>Address</u>	<u>Telephone</u>
Stevens, Miss Eliza	3934 S. E. Boise St. 2	PR 4-0439
# Stevens, Dr. & Mrs. J. C.	6639 S. E. Yamhill Court 16	AL 3-7349
" Stone, Mr. & Mrs. Norris B.	16450 Glenmorrie-Lake Cswego Box 473	NE 6-1154
Strong Mr. Emory	2155 N. E. Multnomah 12	AT 1-9542
# Strong Mrs. F. H.	2755 N. E. 51st Ave. 13	AT 1-8278
Travis Mr. & Mrs. H. F.	2427 N. E. Skidmore 11	AT 1-2274
Triol, Miss Ella	5481 East A St., N. W. - West Linn	OL 6-4410
# Underwood, Dr. Herbert L.	5226 S. W. Menefee Dr. 1	CA 7-4692
# Vance, Mrs. A. D.	5128 Cedros Ave., Sherman Oaks, Calif.	
# Wade, Mrs. Tracy	3326 N. E. 25th Ave., 12	AT 7-6060
Wagner, Miss Marie K.	1088 S. W. Gaines St., 1	CA 2-3493
Weber, Dr. & Mrs. David E.	138 S. E. 80th Ave., 16	AT 3-8175
Wheeler, Mr. & Mrs. Chester A.	14119 S. E. Madison, 16	AL 2-1959
White, Miss Mella C.	7114 S. W. Brier Place, 1	CH 4-7125
Whitmer, Dr. John H.	c/o University of Wyoming, Laramie, Wyoming	
Wilbur, Mr. Robert F.	2020 S. E. Salmon St., 14	BE 5-7284
Williams, Mr. & Mrs. Philip M.	4858 S. E. Grant St., 15	BE 5-0612
Williamson, Mr. & Mrs. Douglas	967 West 12th Ave., Eugene	DI 3-7186
" Wilson, Mr. & Mrs. Ford E.	1045 Elm St., Anchorage, Alaska	
# Wimmer, Mr. Joseph	P. O. Box 5003, City 13	AT 2-9119
Wirth, Mr. & Mrs. Wilkes B.	8520 N. John Ave., 3	AV 6-1741
Zimmer, Hazel F.	805 S. E. 60th Ave., 15	BE 6-8319
Zimmer, Ruby M.	805 S. E. 60th Ave., 15	BE 6-8319

Junior and Students

Duckwall, Mr. Fred D.	811 Oak St., Hood River, Ore.	3562
Ford, Mr. David W.	6457 S. E. 77th Ave., 6	PR 1-4095
Haglund, Wayne M.	28250 S. W. Cornell Rd., Hillsboro	MI 8-3851
Sanford, Mr. Paul L.	2435 S. E. 76th Ave., 6	PR 4-4511
Townsend, Mr. Paul Graham	3025 N. Saratoga St., 17	BU 9-5490

" Fellow

0 Honorary Life Member

# Charter Member

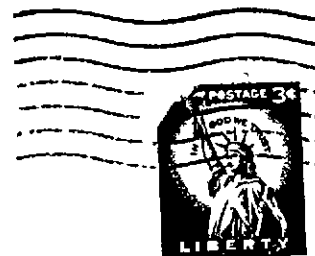
# GEOLOGICAL NEWS LETTER

OFFICIAL PUBLICATION OF THE



PORTLAND, OREGON

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1069 State Office Bldg.  
Portland 1, Oregon

**GEOLOGICAL SOCIETY OF THE OREGON COUNTRY**  
Officers of the Executive Board 1961-1962

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Publicity	- Mrs. Emily Moltzner	Pub. Relations	- Mr. Clarence Phillips
Museum	- Mr. Lon Hancock	GSOC Libr. night	- Mr. Irving Ewen
	Luncheon - Mr. Leo Simon		

**Society 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 objectives.

Persons desiring to become members should contact the Secretary.

Regular annual dues (single or family memberships) are \$5 for residents of Multnomah and adjacent counties; \$2.50 for others; and \$2 for Junior Members. Make remittances payable to the GEOLOGICAL SOCIETY OF THE OREGON COUNTRY.

**Society Activities**  
(See "Calendar of the Month")

Evening Meetings: Formal lectures or informal round-table discussions on geological subjects, on the second and fourth Fridays of each month at Public Library Hall, S. W. 10th Avenue and Yamhill.

Field Trips: Usually one field trip is scheduled for each month.

Library Night: Once a month. Lewis and Clark College, Biology Bldg.

Luncheons: Informal luncheons, with geological motif, each Thursday noon in Room B, Chamber of Commerce Building, S. W. 5th Ave. and Taylor St. \$1.00 per plate.

Publication: The Geological News Letter, issued once each month, is the official publication.

CALENDAR

Buffet luncheon every Thursday noon, second floor, Portland Chamber of Commerce, 824 S.W. 5th. \$1.25

Friday  
September 8 Historical geology lecture on "Mississippian and Pennsylvanian Periods," by Portland State College Science Dept. (Either Dr. John Allen or Dr. A.K. Armstrong)  
7:30 p.m., Central Library

Tuesday  
Sept. 19 Library night - Lewis & Clark College, Biology Bldg.

Friday  
Sept. 22 (To be announced)  
Meeting

FIELD TRIP TO BE ANNOUNCED AT MEETINGS.

NEWS OF MEMBERS

Ray Golden and Leslie Davis took off by camp truck on August 22 for parts unknown in southeastern Oregon and northern Nevada. Good luck, boys!

Bob Wilbur and grandson, Steve Linder, are doing the Olympics, Glacier Park, thence to Steve's home at San Diego by way of Lincoln, Nebraska.

Orrin Stanley is off for three months to Cincinnati, Ohio, then by river steamer to St. Paul, and then to New Orleans. Good sailing, old timer.

Mr. and Mrs. Hayward Peirce have just returned from two months in Europe.

Albert and Stella Keen of Portland, members of the Oregon Agate and Mineral Society, have placed a supremely fine mineral display in the department's loan-exhibit case. The Keen minerals, which have come from many parts of the world, show a perfection in color and crystalline form rarely seen in such collections.

Clare Bartholomay vacationed in Vancouver, B. C. and other places in Canada.

Bill Freer and his mother enjoyed the cool sea breezes at Newport several days.

Irv Ewen has been Camp Roberts, Calif., in response to a call from the U.S. Army.

Hollis Dole, Director of our State Dept. of Geology and Mineralogy, rode with the Skyline Trail Riders 'round Broken Top Mtn., where a rare form of basalt called tachylite is found.

Our Secretary Hilda Freed "freed" herself from her accounting business by hiking for a couple of weeks in the Three Sisters area with Mr. and Mrs. H. P. Meierjurgan.

We are happy to note that Dwight Henderson's broken hip has improved sufficiently to allow him to attend our picnic.

Sympathy is extended to Mrs. Leonard Delano, whose father, Eugene R. McCornack passed away recently.

CORRECTIONS FOR ROSTER -

Anderson, Mr. Robert B. 303 Wilcox Bldg. CA 2-7095; CY2-4910  
Gilchrist, Dr. & Mrs. Francis G. - Change telephone number to - NE 6-5942

NEW MEMBER-

Mrs. Evangeline Moore 2440 N. E. 11th, Portland, Oregon AT 2-0603

100TH Anniversary - THE GREENHORN GOLD MINE

Gold was discovered at Elk Creek near Baker in 1861. This find soon led to the finding of pay dirt atop mile-high Greenhorn Mountain, 30 miles west of Baker. Patricia Stewart says in Baker County Sketch Book that "the town of Greenhorn once had a population of 500, a postoffice, a number of stores and 26 saloons" - those good old days at a gold camp!

Gold claims are still being worked here and are well known by Ray Golden.

THE GREAT LAKES

Have you spent time on or near The Great Lakes? If so, here is news for you -- For half a century we have known them as glacial lakes and this presented a mystery. How? how? The University of Michigan and Minnesota, with the aid of the National Science Foundation, is now at work on this problem. Drilling in 1,000 feet of water, a core 684 feet long has been taken from the depths of Lake Superior. The entire core has been found to be glacial till. Rocks near by were found to be 500 million years old. Thus it is presumed at this date that these lake basins are part of an ancient river course.

Science News Letter - August 12, 1961

\* \* \* \* \*

Eugene, Ore.  
13 August 1961

SKINDIVING GEOLOGY

The difficulties of traversing some of our Oregon stream canyons is well known to most of us. Overburden and vegetation have long hampered the Western Oregon geologist. A new method has been found that not only increases the ease of access and travel but also allows a better examination of the rocks and structure.

D. A. Larson, J. D. Rathbone and D. A. Williamson, Engineering Geologists for the Corps of Engineers, have been doing reservoir and stream geology of the South and Middle Santiam drainage in their spare time by swimming the streams equipped with skin diving equipment. No complex scuba gear was used since depth seldom exceeds 30 feet and there is no reason to examine this depth often. The equipment consisted of fins, a face mask, and breathing snorkle. The equipment cost is less than \$15.00.

No attempt has been made to record the information while in route (using "underwater writing" ball point pens) since the work is of a reconnaissance nature. The main features are recorded after the section is traversed.

The usual distance involved is approximately 2 miles per traverse but shorter reaches have been examined, such as dam site foundations and contact areas. The longest traverse to date was 3-1/2 miles of the South Santiam.

Rapids and shallow water present the main difficulties requiring walking around or over the gravel bars. This is no mean trick with "frog feet". You have the choice of keeping the fins on and making like a frog or to take them off and try your bare feet on gravel.

Several structural relationships which were obscured by the overburden were plainly visible below the water surface.

The dynamics of stream erosion were viewed first hand. It was found that horizontal or low attitude planes of weakness produce the most rapid downcutting of the stream channels.

The weather and water temperature are the main controlling factors in this type of investigation. Safety is a major consideration. No difficulties were encountered beyond a few scrapes and bruises in shallow swift water. It was found that a swimmer can avoid boulders and ledges even in swift water by holding his breath to increase buoyancy and keeping hands outstretched to fend off obstacles. The face mask allows perfect underwater vision except in aerated water below falls and rapids, and allows direct textural examination on clean "wet" rock.

It was especially pleasant to swim along between vertical canyon walls which ordinarily would require a high climbing detour to pass. Whenever a plane of weakness, fault or contact was noted, it was traced out down the sides and across the bottom.



### THE ANNUAL PICNIC

The Society's annual picnic was held August 11th at Mt. Tabor crater where a big attendance of members and guests did full justice to the efforts of the committee in charge. Fried chicken, watermelon and apple pie disappeared from the serving tables in approved and long-established custom. On such pleasant and informal occasions the nodding acquaintance of regular meeting night soon arrives at front-name calling status. Rose Hamilton accepted for herself and her fine committee, Mrs. Hammond, Mrs. Davis and Mrs. Simon, the well deserved ovation from appreciative friends.

Welcomed back to the fold were Dr. and Mrs. Frances Gilchrist whose year long peregrinations along the eastern seaboard have been in part reported in these pages. Guest of Mrs. Emily Moltzner was Mr. Charles P. Keyser, long time superintendent of Portland parks, under whose tutelage the very crater in which we were meeting was discovered way back in 1909.

The formal part of the evening was given over to the excellent program provided by chairman Leonard Delano. Dr. Arthur Jones led the community singing accompanied by Mrs. Hancock and Mrs. Hitchcock. The speaker was Mr. Robert J. Deacon, consulting geologist and publisher of the Northwest Oil Report. His theme was an account of progress on the off-shore oil exploration along the Oregon coast, a subject that is presently much in the public consciousness and of special interest to this society. He gave it as his opinion that inland prospecting for oil had produced only disappointing results but that in three coastal localities, the Astoria, Newport and Coos Bay areas, the shore exposures gave some encouragement to further prospecting of the under water reaches of the continental shelf. To date, three oil companies have taken out state permits to pursue these studies.

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### EXPLORING THE SAN JUAN

Early in June Howard and Steve Hughes, of Hillsboro, and I left in Howard's 4 x 4 Caryl for Mexican Hat, Utah, for a six day trip down the colorful San Juan River. From the very start we were deep, thousands of feet deep, in formations starting with the Ordovician, rising in layer after layer; above was visible but a narrow strip of blue sky. In our first camp we found a ledge of Paleozoic fossils, horn coral, crinoids, and other fossils unknown to me had weathered cleanly from the ledge, which was studded with splendid specimens. In boulders fallen from above were bright red shells with long, pointed, tapering wings, which I thought were *Mucrospirifer mucronatus*. Due to the ignorance of our guide, who said not a word about them, we did not discover the ledge until just before time to go, so we could but hurriedly fill our specimen sacks when we could well have spent the day there. Shortly after leaving, Steve discovered a remarkable set of amphibian tracks on a slab that had fallen from the cliffs above, we were not informed on this either, and swift water prevented landing to inspect them.

Armed with a map from an archaeological report, we were able to find some beautiful examples of primitive art, inscribed and painted on the rocks. These were the best I have ever seen. While Steve was photographing them I wandered over the colorful Chinle (upper Triassic) formation and marvelled at the quantities of petrified wood, whole trees were weathering from the banks, and in places the slabs covered the clay. None, however, was of gem quality.

We picked up the 4 x 4 at Mexican Hat and spent a week exploring, hunting cliff dwellings and rocks. On the headwaters of Hansen Creek, tributary of the Colorado, we found beautiful gem quality petrified wood weathering from the Shinarump layer. Here, too, we found several gastroliths. In the Waterpocket Fold country of Utah we found ledges built of huge oyster shells. Dinosaur bone is plentiful there too, although we did not find any except in the rock shops. In the Moencopi wash we saw a coal seam ten feet thick, overlain with a ledge of some type of shell hardened into limestone.

After visiting Mesa Verde, Canyon de Chelly, Monument Valley and other scenic areas, we drove to Delta, Utah, on the trail of trilobites. The residents of this beautiful town were most helpful and we soon found the area near Antelope Springs. There a Mr. Johnson showed us where to dig and in a couple of hours we had over fifty specimens each of trilobites, and innumerable agnostia. Some of the trilobites were in soft clay and came out whole, looking as though they were ready to crawl away again after a rest of 500 million years. Others were embedded in hard shale, making beautiful museum specimens after cleaning. This is one of the most famous trilobite quarries in America. It has been worked for over 80 years without noticeable depletion. I will give

(San Juan - cont'd)

directions for finding it to anyone interested, they are too long to detail here.

The trip was made in boats, two passengers and a boatman in each. With us floated Wayne Wilson in his plastic ball (see Life for August 4th.) Wayne, now retired, built the sphere and amuses himself floating down rivers, and exploring lakes, and even the ocean. The illustration on page 61 of Life shows our boatman, Don Neff. For one who wants to see geology in the raw and wonder at its many manifestations, he can do no better than take a trip down the San Juan or through the Glen Canyon of the Colorado; both easy, neither dangerous, both exciting. I returned by air, covering in 85 minutes our six day journey. The view from the air is unbelievable.

Emory Strong

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SKINDIVING GEOLOGY - cont'd from p. 51

It is desirable to use two vehicles when making longer traverses, parking one at pre-selected "getting out" point and proceeding on upstream with the other. Don't forget to leave the keys in a convenient hiding place or you will find it is hard to "hitch hike" in a skin diving outfit.

We are looking forward to making up geologic underwater survey parties to cover the foundation areas of dam sites, and special interest areas, having a land party working in conjunction with the "wetbacks" will allow more accurate recording.

D. A. Williamson

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## NEW MAP

7/18/61

A new geologic map of Washington has been published by the State Department of Conservation, Director Earl Coe announced today.

This colored map is a revision of the earlier preliminary geologic map of the State that went out of print in 1956 as a result of the heavy demand during the uranium prospecting rush.

The scale of the map is 1:500,000, or about 1 inch equals 8 miles. The more than 100 different rock types shown on the map are explained in a legend. The map shows that all of the major rock types and most of the uncommon ones known to geologists may be found in the State. These rocks range in age from Precambrian to Recent sediments.

A list of source material shows that about 150 sources were used in compiling the map, and a colored index map shows the areas covered by each source. A list indicates that more than 300 geologic formations shown on the source maps were combined into the 104 units shown on the new map.

Director Coe announced that the map may be purchase for \$3.00, prepaid, from the Department of Conservation, 335 General Administration Bldg., Olympia, Washington. The map, on a sheet 51 by 76 inches, may be obtained either folded in an envelope or rolled in a tube.

(This map is in our G. S. O. C. Library)

-- Washington Dept of Conservation  
Division of Mines and Geology

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PERLITE OCCURRENCES IN SOUTHEASTERN KLAMATH AND SOUTH-  
WESTERN LAKE COUNTIES, OREGON

A preliminary study of perlite occurrences in southeastern Klamath and southwestern Lake Counties was made by the writer during 1960 while extending the reconnaissance mapping of the Lakeview uranium area. Large bodies of glassy rhyolite-dacite rocks with associated perlite were found to be widely distributed in Klamath and Lake Counties. This distribution and the possibility of new and larger markets in the lightweight aggregate industry and increasing use of perlite as a filtering medium, made it desirable to delineate and sample the perlite occurrences and to indicate areas of possible commercial importance.

The mapping of the rhyolite-dacite rocks was limited generally to the Lakeview uranium area in Lake County and to accessible areas adjacent to Oregon Highway 66 and the railroad to the west near Bly and Beatty in Klamath County. Detailed work will surely show more outcrops of the glassy rhyolite-dacite rocks and associated perlite occurrences.

by Norman V. Peterson

The Ore-Bin

DIGGERS FIND EARLY RELICS

By Phil Brogan

Hunters using stone-tipped arrows and spears long ago camped on a lava ridge overlooking a deer runway of the upper Deschutes country and left plenty of evidence of their stay.

Washington State University archaeologists, working under a warm August sun, have unearthed nearly 500 artifacts from the site. Drills shaped from obsidian, scrapers, stone knives, arrow-heads, mortars, pestles, choppers and other artifacts have been found and carefully stored away as part of the story of the occupancy of the area by tribesmen, some of whom may have witnessed the earth-shaking explosion of Mazama, ancestor of Crater Lake, on the southwestern skyline.

Pumice is intermingled with dirt that blankets the artifacts. The pumice may be from the mountain-tearing blast that created Crater Lake. However, the archaeologists have not yet attempted to date the age of the occupancy of the site.

Co-sponsors of the excavation that is to last into September are the Pacific Gas Transmission Co., which earlier this season constructed a 36-inch pipe line through Central Oregon; Bechtel Corporation and Washington State University.

- The Oregonian

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CHAOTIC GALAXIES REVEAL NEW UNIVERSE MYSTERIES

Berkeley, Calif.

by Alton Blakeslee

Some monumental new mysteries about the universe are puzzling astronomers gathered here from around the world.

For one thing, they find puzzling evidence that the universe is 20 to 30 billion years old, not the young 10 to 11 billions it seemed to be just a couple of years ago.

And they are finding many lopsided and chaotic galaxies or milky ways of stars, each composed of hundreds of billions of stars or suns. Our own sun belongs to the milky way, which is only one of billions of galaxies.

\*\*\* (Associated Press Science Writer)

GEM HUNTER FINDS GIANTS

Bryson City, N. C. -

Kermit Martin, 43-year-old gem hunter, has found what some believe to be the world's largest pink sapphire, and the nation's largest ruby.

He found both stones last week in the Cowee Valley gem fields of Macon County, in western North Carolina's mountains. One expert on gems said the stones might be priceless, depending on their quality.

The sapphire weighs 14 ounces, measures three by five inches, and is three-quarters of an inch thick. When cut, it's estimated the stone will run to more than 2,000 carats.

The Oregonian

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RAISING A PHARAOH -

For 3,000 years the colossal figure of Ramses II has gazed out over the Nile. Now the Aswan high dam will flood this area. To save this priceless monument it is now proposed the entire figure be cut free and raised some 200 feet to a new place above the water. The estimated weight of block to be raised is 250,000 tons. UNESCO is seeking funds for this project.

GOLD -

Gold discovered in California and the 49'ers, but then the 59'ers. In 1861 more than 100,000 had joined the gold rush to Australia.

PERLITE-

Perlite from the Klamath area of Oregon may be expanded by heating as much as 700%. It has many commercial uses.

See Ore-Bin

## HOW HIGH THE SKY

The Scientific American for July shows photos of our earth from heights up to 450 miles. How close, Mr. K., can we orbit our weather satellites? Our object at present is only to study ways of weather control. Big science must do big things.

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## CLARNO FORESTS

The Clarno formation has not been definitely dated. Most favor upper Eocene or lower Oligocene. Be that as it may, we know it to be many millions of years old.

Suppose you took a walk in Clarno forests and you knew your trees of today, what species might you identify. Dr. Herbert L. Hergert of the Olympic Research Division, Rayonier, Inc., Shelton, Washington, in Ore-Bin for June has given us some clues. Here are some common ones translated from the Latin lists he gives.

- The Editor

Laurel  
Sycamore  
Magnolia  
Fig  
Walnut  
Hickory  
Catalpa  
Oak  
Palm  
Cypress  
Buckthorn

Plum  
Sumac  
Cinnamon  
Avocado  
Willow  
Olive  
Persimmon  
Holly  
Sassafras  
Pine  
Bald Cypress  
Redwood

As for vines, grape and bittersweet might be familiar. As for low growth, mallow and horsetail. You may now supply the animals inhabiting this lush growth.

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## OLDEST MAN

The age of prehistoric man has been pushed more than a million years deeper into the past.

The startling results of radioactivity tests reveal that a man or manlike being, who chipped crude stone weapons and hunted small game on the shores of an ancient lake in East Africa, lived 1,750,000 years ago.

The skull of the world's earliest known man was discovered two years ago by Dr. L. S. B. Leakey, who is excavating Tanganyika's Olduvai Gorge in a project supported by the National Geographic Society. Prior to exhaustive dating tests at the University of California, however, the skull was assigned a conditional age of "more than 600,000 years."

"Dr. Leakey's spectacular finds, coupled with the university's careful dating work, doubtless will have a profound effect on the basic concept of prehistoric man and of recent geological eras," said National Geographic President Melville Bell Grosvenor in disclosing the astounding antiquity of the fossil.

The new development represents detective teamwork of the highest order by Dr. Leakey, a British anthropologist, and by two young American geologists of the University of California in Berkeley.

-- The Oregonian

# GEOLOGICAL NEWS LETTER

OFFICIAL PUBLICATION OF THE



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*October 1961*

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Portland 1, Oregon

**GEOLOGICAL SOCIETY OF THE OREGON COUNTRY**  
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**Society 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 objectives.

Persons desiring to become members should contact the Secretary.

Regular annual dues (single or family memberships) are \$5 for residents of Multnomah and adjacent counties; \$2.50 for others; and \$2 for Junior Members. Make remittances payable to the GEOLOGICAL SOCIETY OF THE OREGON COUNTRY.

**Society Activities**

(See "Calendar of the Month")

**Evening Meetings:** Formal lectures or informal round-table discussions on geological subjects, on the second and fourth Fridays of each month at Public Library Hall, S. W. 10th Avenue and Yamhill.

**Field Trips:** Usually one field trip is scheduled for each month.

**Library Night:** Once a month. Lewis and Clark College, Biology Bldg.

**Luncheons:** Informal luncheons, with geological motif, each Thursday noon in Room B, Chamber of Commerce Building, S. W. 5th Ave. and Taylor St. \$1.00 per plate.

**Publication:** The Geological News Letter, issued once each month, is the official publication.

F I E L D   T R I P

with the

GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

for

EOCENE and OLIGOCENE FOSSILS

\*\*\*\*\* SUNDAY - OCTOBER 15, 1961 \*\*\*\*\*

MEET AT COURT HOUSE - DALLAS, OREGON - 10 A.M.

BRING: Friends, GSOC Bumper Cards, Lunch, Cameras,  
Digging Tools, Rain Clothes if needed

LEADER: MISS MARGARET STEERE, Geologist with Oregon  
State Dept. of Geology and Mineral Industries

TRIPS CHAIRMAN: IRVING (Irv.) EWEN - CA 6-4331 or AT 1-7098

Complete details will be announced at our meeting FRIDAY, OCTOBER 13 at 7:30 p.m.,  
at Central Library, 801 SW 10th Ave., when DR. EWART BALDWIN, Prof. of Geology at  
University of Oregon, will give an illustrated talk on the PERMIAN PERIOD

October 1961

CALENDAR

Buffet luncheon every Thursday noon, second floor, Portland Chamber of Commerce, 824 S. W. 5th. \$1.25

- Friday Meeting, 7:30 p. m. , Room A. , Central Library, 801 SW 10th Ave.  
October 13 Dr. Ewart Baldwin, Prof. of Geology at University of Oregon, will give an illustrated talk on the PERMIAN PERIOD. Leonard Delano, Chairman.
- Sunday Field Trip  
October 15 Our Trips Chairman, Irv Ewen, is planning a "super-duper!" but details not "jelled" in time for this calendar. Save the date and watch for announcement of hour and meeting place.
- Tuesday Meeting, 7:30 p. m. , GSOC Library, Biology Bldg. , Peebles Hall, Lewis & Clark  
October 17 College. Reading, followed by travelog - Experiences of one of our members on a 1-year journey. Refreshments. Murray Miller, Chairman.
- Friday Meeting, 7:30 p. m. , Room A, Central Library, 801 SW 10th Avenue.  
October 27 John P. McKee, Project Geologist with Fremont Mining Co. , will relate his EXPERIENCES OF AN EXPLORATION GEOLOGIST in S. E. Alaska and show colored slides. Leonard Delano, Chairman.

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NOTICE!! FRIENDS OF LON HANCOCK

"Willamalane Rock & Gem Club  
765 No. "A" Street  
Springfield, Oregon

To all Rock & Gem Clubs of the area:

Our Oregon Museum of Science & Industry in Portland needs assistance. We rockhounds can help.

From the estate of the late A. W. Hancock, the Museum has received the famous collection of Clarno, Ore. fossils and minerals. But their budget does not provide the funds for needed display and storage cases.

The Willamalane Rock and Gem Club will host a benefit public rock auction in Springfield, Sunday, Nov. 5th. All material being the donations of interested clubs and individuals, proceeds going to the Museum for the furnishing of the Lon Hancock Memorial Room.

Anything connected with the earth sciences is welcome, mineral specimens, crystals, cutting materials, artifacts, fossils, tools, books, etc. Send contributions to Mr. Darold Miller, 185 No. 35th St. ; Springfield, Ore. , before Nov. 1st.

Yours very truly,

Harold M. Dunn,  
Mohawk Rural Station  
Springfield, Oregon

Darold Miller  
185 N. 35th  
Springfield, Oregon"



NEWS OF MEMBERS

The September 11 issue of "Screenings", publication of The Oregon Archeological Society, reports the finding of Don Downer of Boardman of a fragment of mammoth or mastodon tusk about half way between Wasco and Biggs, just off Hwy. 97, which concludes with the comment "It is hoped that the locality can be visited by a competent geologist before waters of the stream obliterate all traces of the fossil." . . . Harry Bushnell keeps an excellent display of fossils and minerals in the window of his Artistic Barber Shop at 323 S. W. Oak St. . . . Rose Hamilton has been heard from at Norman, Okla., on her way to Birmingham, Ala., and other points in the Deep South . . . Mrs. A. W. (Barry) Hancock is the newly elected Secretary of the Northwest Federation of Mineralogical Societies . . . Harrie and Ruth Jennison are on a 30-day bus tour to see Autumn foliage and historic sites in New England . . . Mr. and Mrs. C. L. Rosenberry, publishers of our News Letter, and their son Roger, vacationed in Virginia City, Nev., San Diego and Mexico . . . Ralph Mason explained the geological features along Leif Erikson Drive while Bob Peirce, Chrmn. of Mazamas Education Comm. presented its recreational advantages to a large group of 6th grade teachers on their tour Oct. 21st . . . Bruce Schminky will attend the Western Regional convention of the American Congress on Surveying & Mapping at Phoenix, Ariz. in October.

Mrs Robert L. Bryan has moved to Crater Lake. She had lived at 6309 S. W. 32nd Ave. . . Orrin Stanley enroute to Ohio had a breakdown with his Chrysler. ("Lost two days and a new motor cost more than two dollars.") . . . Bob Wilbur sends greetings from Little Rock, Ark. He also supplied the photograph of a fossil hog the size of a large cow that lived in Nebraska in the Miocene . . . Murray Miller is our new Library Night Chairman. If you haven't been attending these meetings, you are missing a wonderful opportunity. Our fine library for reading, usually a program and refreshments. Mark your calendar NOW for Tuesday, Oct. 17, 7:30 p. m. Emily Moltzner reported to Dr. John Allen the several-layered exposure on the N. slope of Mt. Tabor at the junction of S. E. Ash St. and Gilham Ave., where bulldozing has cut down the 75 to 100 ft. bank. On viewing it he remarked, "Every member of the Geological Society should see this before it's covered by vegetation." Location: about 1 blk. south of Thorburn-E. Burnside traffic light; if uncertain look at Portland map. . . Prof. John Allen of Portland State in speaking of the thirty veins of coal found in West Virginia says there are still some things about the Carboniferous Age not quite understood. You are so right, John.

OREGON MUSEUM: -

J. C. Stevens Wing - We are happy to announce that work was begun about the middle of August on the long planned-for J. C. Stevens Hall of Hydromechanics. Completion date will be end of September.

Hancock Memorial Room - Gifts and contributions from friends and admirers of Lon Hancock, paleontologist, total nearly \$1200 to date. Display cases come high, and the goal is not yet reached. Lon's invaluable collection of animal, leaf, and nut fossils and his beautiful mineral and rock exhibits need the finest home we can get them. The Museum is most grateful to all donors, past and future.

NEW ADDRESSES & CHANGE OF ADDRESS

Robert Anderson            303 Wilcox Bldg.                            Tel: CA 2-7095; CY 2-4910  
Miss Almeda Smith            1285 Newberg Highway, Woodburn, Oregon  
Dr. Gilchrist            - Tel: NE 6-5942  
Mr. & Mrs. Albert Kenney    Box 203, Oak Grove, Oregon  
Wayne Haglund            2346 N. W. Glisan, City 10  
Mr. & Mrs. Leslie Davis    Change Zone from 16 to 15  
Mr. & Mrs. Murray Miller    "    to Box 465

New Member: Mrs. Evangeline T. Moore, 2440 N. E. 11th Ave., City 12- AT 2-0603

SILVER CREEK FALLS TRIP -

Thirty-six happy Gesockers, under the leadership of Dr. Paul Howell, left Portland by Grey Lines bus promptly at 8:00 a. m. on Saturday, August 19, 1961, bound for Silver Creek Falls State Park. Leaving Portland State College, the bus proceeded across Ross Island Bridge and headed south on McLoughlin Boulevard toward Oregon City. As we passed the mouth of Johnson Creek, Dr. Howell pointed out the basalt outcrops which he said were Columbia River basalt equivalents or older. At Oregon City we took the road up over the hill and on the way passed the old McLaughlin house which our driver pointed out to us.

Our first stop was at the Clackamas County School Office, above Oregon City. Here we got out to stretch our legs for a few minutes while Dr. Howell pointed out some of the important geologic features of the countryside. Off to the southeast we were looking up across the gently sloping Estacada upland. In the distance we could see the sharp topographic break where the upland surface intersected the steeper slopes of the Western Cascades foothills. In the middle distance rose the small volcanic knob of Highland Butte from which lavas poured down over and buried the pre-existing topography all the way to Oregon City. The upland surface is essentially a fill surface, though some erosional planation may have occurred prior to the present deep dissection. The major streams of the area are deeply incised into the upland and the largest have broadened out their valleys. The incision was caused by broadscale uplift related to upwarping of the Cascade Range in early Pleistocene time.

From the County School Office we proceeded southwest to Hwy. 99E at New Era where we saw some of the old pre-Columbia River basalt at the upper end of the Willamette River gorge. From there we bore south along the highway to the Pudding River and thence up the Pudding River valley to Silverton. Along Pudding River valley we crossed deep deposits of Missoula Flood sands and silts which are the basis for the rich light soil supporting the many flower and shrubnursery series of the valley. These sand and silt deposits were left behind when the Missoula Flood rushed southward from Willamette River gorge toward Salem. This was the principal channelway for the waters. We stopped in Silverton for a fifteen minute coffee break which stretched to a half hour as the one waitress became bewildered by the great influx of customers.

From Silverton we bore off along the highway to Stayton, crossing the lower edge of the dissected northwest limb of the Mehama anticline. All streams here are consequent streams, controlled almost entirely in direction by the slope of the anticline limb. All streams here are incised, the larger ones deeply.

On our way to Stayton we circled up on the new Salem-Santiam Pass Highway for a look at the road cuts. Here we saw our first Fern Ridge Tuff and the two types of Stayton Lava. At Stayton we stopped at the quarry in the edge of town, where beautiful flagstones of platy andesite (one of the two Stayton Lavas) generously sprinkled with feldspar crystals, are found. This is a remarkable formation of flat stones ranging in thickness from cardboard-thin to two or three inches thick fitted together layer on layer. Nearly everyone returned to the bus carrying one or several pieces.

We next went via gravel roads to the Tuff Stone Co. quarry where building blocks are cut from the Fern Ridge Tuffs with circular saws. Mr. Franklin, who started this business, gave us a very interesting talk on the cutting of this building stone.

As it was now noon we made a quick dash for the park and our lunches which we carried with us. After lunch the party was divided, twenty-seven of us, led by Dr. Howell, taking the four mile walk through the park and the remainder staying behind for short walks near the parking areas.

This park is reputed to have the greatest concentration of waterfalls of any spot in the United States. The trail from the picnic ground leads under South Falls, (with a sheer drop of 184 feet) across a shelf where the sediments have been washed away from between layers of basalt; down the canyon through rain-forest type of vegetation, past numerous waterfalls ranging in height from a few feet to Double Falls, at 189 feet. The canyons are narrow and V shaped; the underlying basalt is exposed in many places. Some of the Bigleaf Maple and Alder trees along this trail are so large as to be almost unbelievable. Ferns and mosses are everywhere, clinging to them.

Possibly the most interesting feature of the trip was the roof of the cave under North Falls.

Silver Creek Falls Field Trip - cont'd

Here the casts of long-dead trees form circular holes in the lava. In his report on the geology of the park Donald E. McKay gives this account of the forming of this cave:

"At the North Falls the 25 foot tuffaceous bed is exposed below the upper flow (of basalt). The water drops from a protruding lip of basalt overlying the tuff, 146 feet into the pool below. In the tuffaceous bed there is a cave of striking proportions. The reason for the development of this cave is easy to explain. The water curves inward as it falls and sucks air behind it which pulls sprays of water on the tuff cliff behind the falls, softening this rock so that particles break off. This process, of course, occurs when the underlying rock is less resistant to erosion than the rock at the top of the falls, but when hard rock is underlain by soft, as in this case, a relatively large cave develops. The excavation of this cavern is hastened during winter months by freezing which causes the water in the tuff to expand, producing fractures, and thawing causes pieces of tuff to drop away from the surface, thus enlarging the cave."

Two interesting features of this cave and its sediments were pointed out by Dr. Howell. One was the culmnar-clay bed, midway in the sedimentary sequence. The minerals of the sandstones point to a relationship with the pre-Stayton Lava Illahe formation, but the columnar clay points to a relationship with the Upper Molalla of post-Stayton Lava time. The second feature was the presence of numerous tree casts ranging in size from 2 inches to a foot in diameter. The roof is dotted with them. The casts are unusual in that they extend down into the sediments as well as up into the lava. The reason given for this was that the sediments were in places still plastic and this plastic material was pushed ahead by the lava, partially engulfing the trees before they were buried by the lava. This is born out of the stain lines in the sediments surrounding the tree casts.

On reaching the parking space above North Falls we were met by the bus, and as we were then about an hour behind schedule (slow walkers) we wasted no time in returning to Portland.

Dr. Howell gave us an excellent series of explanations of geology of the land through which we were passing throughout the entire trip, and he is to be commended on a very enjoyable and well-planned day.

Rhoda Landels

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OUR SOCIETY DECLARED QUASI-OFFICIAL

According to one of the minions of the Interior Dept the G. S. O. C. is now declared "quasi official", and thereby hangs a tale.

Golden and Davis on their recent trip to the Hart Mt. Antelope Refuge stopped at the Headquarters and got permission to camp in a certain closed area from the Assistant Supt. Since Mr. John Novac had known us from previous visits he waved us on gladly. We had just made camp in a closed area when we had a visit from a new very officious patrol man who informed us of a refuge law concerning camping. He proudly displayed his Dept. of Interior badge which he carried in his pocket book, and when told we had permission he happened to notice the bumper card of our society prominently displayed. In that case he said you are from a "quasi official society" so it's OK for you to camp here. Those bumper cards are a help.

--- The roving rockhounds, Golden & Davis

(We might observe, however, it is well known how well these members relish steaks from the high country of Eastern Oregon.

The Editor)

## HOW MT TABOR'S CINDER CONE WAS SAVED FOR POSTERITY

by

CHARLES PAULKEYSER

Member American Society of Civil Engineers, Past President American Institute of Park Executives and sometime Superintendent of Parks and Public Recreation in Portland, Oregon

---

For an account of how and when the cinder cone in Mt. Tabor Park was discovered, or perhaps I should say uncovered, I will endeavor to give you the story as I recall the incidents, as suggested by you when I was a guest at your annual picnic August 11th.

On March 17, 1909 I entered the service of the Municipal Board of Park Commissioners, was appointed to the position of Executive Head of the Bureau in August, 1917, and continued in that capacity until retirement December 31, 1949. My initial appointment was classified as Civil Engineer in the Department of Parks. When in 1913 a sweeping City Charter revision abolished the Park Commission and set up the Commission form of government organized in five administrative Departments, our unit still self contained, was allocated to the Department of Public Affairs, and officially ever since has been designated the Bureau. In either case the Superintendent was the administrative head, conforming to policy set by the tax-levying City Council in the annual budgets, in the main.

My position when I entered the service in 1909 had been newly created. Theretofore E. T. Mische, who had been appointed Superintendent a year previously, had been getting along without a much needed principal assistant, and I was expected to be the right kind of help in working out his expansion and development schemes. Besides ordering engineering and architectural works and their operation in the park system, pretty much delegated to the Engineer, while the Superintendent managed and supervised the various phases of planting including gardening and propagation, we prosecuted an extensive schedule of land acquisition. Our main source of appropriation was a one million dollar bond issue that Mische had to start with in 1908. We did right well for five years, and then went back to the people for money but did not get it. In the Spring of 1913, in the same election in which the Park Commission was abolished, Mische's two million dollar bond measure failed to pass, which for him was a handwriting on the wall. He failed to click with the new regime, struggled along bravely for a couple of years longer, and in 1915 stepped down and was succeeded by J. O. Convill who had been appointed by City Commissioner Wm. L. Brewster as Assistant Superintendent in charge of maintenance and operation.

Convill had been a notable college athlete. His extensive background in sports and savvy of publicity made him especially useful to Brewster who was rather inclined to promoting recreational activities with such appropriations as he could wangle, until the time would be right to plug for more bond or other capital expenditure. I continued on as second fiddle to the Superintendent until World War I broke. Convill enlisted. I volunteered, was rejected and did my bit to keep the home fires burning for the duration. Mische had already left and was doing cantonment work for the Navy. When Convill was mustered out he engaged in other pursuits and I was in the saddle permanently. And so it would appear that I should be responsible principally for what has taken place in Mt. Tabor Park since the City came into possession, with due credit to Mische for designing the development.

Mt. Tabor is a natural for a public park. It is said to have been named by Clinton Kelly, a notable pioneer preacher, after the Mt. Tabor in Palestine. The historic mountain near the Sea of Galilee, twelve hundred feet higher is more of a mountain, but Kelly's Mt. Tabor standing at altitude 643, commanded a view of waters, woods and lofty mountains not to be despised, besides containing a volcano that Kelly knew not of in his lifetime. In 1909 most of the high ground was still in more or less neglected ownerships following a real estate bust of the nineties. Money would buy it at moderate prices. Fifteen years earlier the Bull Run water supply had been brought to Reservoir No. 1 which is niched into the south face of the mountain with an overflow level of 412. Now the Board of Water Commissioners was getting ready to construct two additional main reservoirs, and between Waterworks and Park

(over)

Mt. Tabor's Cinder Cone - cont' d

acquisitions the city engaged on a program to round out 200 acres all told.

Mische wrought well to corral the 200 acres for park purposes at the opportune moment, and although it took a major fraction of his first million no one will question that it was money very well spent. In my opinion, making Mt. Tabor a most outstanding feature of our park system was his greatest single achievement, even if he was disappointed in failing to acquire the property fronting on S. E. 60th Avenue between Reservoirs #6 and #2, and a more ample margin on the eastern slope.

On the west slope are a pair of mounds standing like shoulders with a breastbone ridge between. They are about equal in altitude, standing a hundred feet or so lower than the crest of the mountain. Reservoir No. 5 was nestled into the hollow between the south mound and the ridge, and has the same overflow level as No. 1. Between the north mound and the ridge is a deeper hollow or little valley running down to S. E. Salmon St. For convenience in our discussion we might designate the left shoulder Mound Satsop, and the right shoulder Mound Cinder-Ella, noting that they differ radically in composition. We are here concerned mainly with Mound Cinder-Ella which is our extinct volcano in question.

(To be concluded in our next issue.)

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#### WHAT HAPPENED TO OUR ROVING SCOTCHMAN IN THE SCUTH SEAS - -

There was excitement in the air that day when the good ship "Mariposa" approached the equator. Was it hot? Exposed areas of the human epidermis turned the skin brown in no time at all and peeled off like an onion. It was impossible to touch the deck barefooted; burned.

All ready for introduction to King Neptune, the god of the seas. The neophytes were boxed off by themselves and covered with the net used to keep passengers from the swimming pool when not in use. This was in case of change of mind and prevented escapes. 'Twas thrilling, no end.

Comes the ordeal. King Neptune, suitably and magnificently dressed in royal regalia, crown, scepter and flowing robes, very impressive, gave a lecture, after which he turned the job over to the judge who was also impressively rigged out. Lots of fun, maybe. A candidate was grabbed from under the net and hauled before the judge for examination. No kind tactics were used. Gestapo. He was questioned as to his past, such as "did he still beat his wife." Whether he answered "yes" or "no" he was guilty, was turned over to deputies to serve the sentence imposed. The first man was set down on a chair, fresh eggs, cracked and broken were liberally rubbed and smeared into his hair and upper exposed part of his body, (such a waste of good food) then warned to behave himself in future and dropped into the pool. The next one, after due examination and sentence, was taken to operating platform, which was covered with egg shells, for amputation, horrible looking instruments all around - oversized saws, pinchers, and other nerve-racking surgical appliances prominently displayed; one could see the patient shiver, not with cold in the tropics. Those waiting for their punishment began not to like it. The doctor and several very willing nurses were all business - too much so, it seemed - and he was hauled hither and yon on the table while blood (watered tomato juice) spurted and flowed freely. Wondered what the onlookers, standing on the deck above the pool and taking the whole show in, were thinking about it. Some possibly had eggs for breakfast, not so long ago, sunny side up, and what with the motion of the boat and vibration from engines, perhaps some of them got butterflies in the stomach.

My turn next. Started to tremble. Had a string with sausages at one end and a fish (did not smell too fresh) at the other end and tied around my neck, and then my swimming trunks were stretched fore and aft and a shovelful of cracked ice shuffled in both ways and then set me down. I didn't sit long; Yes, the ice DID have sharp corners.

When all were examined and sentenced and sentence carried out each went his own way to different parts of the boat for relaxation and the ship went merrily on breezing for Tahiti. Later we were all presented with a diploma certifying we were duly initiated into the realm of Good King Neptune and were now and forever more his loyal subjects.

-- -- James Galt

# GEOLOGICAL NEWS LETTER

OFFICIAL PUBLICATION OF THE



*November 1961*

PORTLAND, OREGON

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

**GEOLOGICAL SOCIETY OF THE OREGON COUNTRY**  
**Officers of the Executive Board 1961-1962**

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Vice-Pres:	Mr. Frank J. Merryman	9318 S. W. 2nd Ave.	19	CH 6-4494
Secretary:	Miss Hilda Freed	1969 S. W. Park	1	CA 3-9715
Treasurer:	Miss Clara L. Bartholomay	1620 N. E. 24th Ave.	12	AT 4-6986
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**Society 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 objectives.

Persons desiring to become members should contact the Secretary.

Regular annual dues (single or family memberships) are \$5 for residents of Multnomah and adjacent counties; \$2.50 for others; and \$2 for Junior Members. Make remittances payable to the GEOLOGICAL SOCIETY OF THE OREGON COUNTRY.

**Society Activities**  
(See "Calendar of the Month")

**Evening Meetings:** Formal lectures or informal round-table discussions on geological subjects, on the second and fourth Fridays of each month at Public Library Hall, S. W. 10th Avenue and Yamhill.

**Field Trips:** Usually one field trip is scheduled for each month.

**Library Night:** Once a month. Lewis and Clark College, Biology Bldg.

**Luncheons:** Informal luncheons, with geological motif, each Thursday noon in Room B, Chamber of Commerce Building, S. W. 5th Ave. and Taylor St. \$1.00 per plate.

**Publication:** The Geological News Letter, issued once each month, is the official publication.

CALENDAR

Buffet luncheon every Thursday noon, second floor, Portland Chamber of Commerce, 824 S. W. 5th. \$1.25.

Friday 7:30 p. m. Room A, Central Library 801 SW 10th Avenue - Lecture  
Nov. 10 Ralph Mason, Mining Engineer, State Dept. Geology & Mineral Industries -  
Subject - TRIASSIC and JURASSIC PERIODS OF THE MESOZOIC ERA.  
Leonard Delano, Chairman

Sunday Field Trip, 2:00 - 4:00 p. m. - at Delano's Photographic Plant, 1536 SE 11th,  
Nov. 19 near Clay.  
AERIAL SURVEYING, PHOTOGRAPHING & MAPPING.  
Leaders-Leonard and Emily Delano. Refreshments. Social hour.  
Irving (Irv) Ewen, Chairman.

Tuesday 7:30 p. m. Library, Peebles Hall, Lewis & Clark College.  
Nov. 21 Short talks: "Geology of Missouri" - Truman Murphy; "Beginner's Luck at  
Fossil Hunting" - Emily Moltzner.  
Murray Miller, Chairman. Refreshments

Friday 7:30 p. m. Room A, Central Library, 801 SW 10th Avenue - Lecture  
Nov. 24 Richard Bowen, Geologist with State Dept. Geology & Mineral Industries,  
explains GEO-CHEMICAL PROSPECTING.  
Leonard Delano, Chairman.

New Departure for G. S. O. C. - -

After each lecture at the Central Library a "Jam Session" will be held at the Polka Dot Cafe, 200 feet east on Taylor Street. Thirty nine were present on October 27th. Bring your favorite color of "Jam" and spread to taste. Better come early and talk it over.

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NEWS OF MEMBERS AND FRIENDS - -

Burton J. Westman, Project Engineer for the Hilton Hotel, was a guest at our Oct. 5 luncheon . . . Another guest was J. Martin Weber, Supervisor of Science Studies, Sacramento County, Calif. Schools, who is well remembered by many for his GSOC activities in 1937-1946. . . Ralph S. Mason spoke to the Mazamas Oct. 11 on the "Economic Importance of Oregon's Minerals" and on Oct. 25 Leonard Delano showed them how "The Aerial Camera Looks at the Northwest" . . . Evangeline Moore recently greeted her son and daughter-in-law's new baby daughter in Fairbanks, Alaska . . . Have your best face forward--you'll never know when Kenneth Schramm may turn his candid camera on you! . . . Irving (Irv) Ewen has been promoted to Specialist 6th Class with Transportation Detachment 104-D of the U. S. Army Reserves . . . Bob Anderson's parents, Mr. and Mrs. Walter D. Anderson of Minneapolis, on their first visit to Oregon, were guests on our field trip Sept. 24th . . . Al Kenney and Loretta, his wife, had a rewarding vacation collecting geological specimens in Sucker Creek canyon . . . Mella White and Beryl Cox visited the John Silvertooths at Antelope, collected thundereggs at the Priday Ranch, also spent some time at Bend and Eagle Rock. . . . David W. Ford, student member at Portland State, is Laboratory Assistant in the Geology Dept. . . . Wayne M. Haglund, Engineering Technician with the Washington Co. Road Dept. , has a wife who was Myrna Cousin, both preparing to receive degrees as Earth Scientists from Portland State College, class of '62. . . . Paul I. Sanford is preparing to graduate in June with a B. A. in Geography . . . Paul Graham Townsend is a sophomore majoring in Geology.

\*\*\*\*\*



New Members Welcomed:BRING YOUR ROSTER UP TO DATE

<u>Name</u>	<u>Address</u>	<u>Telephone No.</u>
Mr. Roger A. Newell-Student	5916 S. E. 50th Portland, Oregon University of Oregon Barnes-Hamilton, Box 34 Eugene, Oregon	Home No: PR 1-9273  School No: Univ. Ext. #1361
Mr. & Mrs. Edward Fuerst (Mildred)	1015 S. E. 26th Ave. Portland, Oregon	BE 2-4281
Mrs. Loyd Brice (Elaine H.)	8525 S. E. 32nd Ave., 22 Portland, Oregon	OL 4-6412
<u>Changes:</u>		
Mr. & Mrs. George Haumann	36 N. E. Meikle Place Portland, Oregon	<u>Tel. No. Only Added</u> BE 5-2364
Mr. Howard P. Sherwood	Star Route, Box 91 Tillamook, Oregon	<u>Tel. No. Change</u> VI 2-4606
Mr. & Mrs. Guy R. Dodson	1400 N. W. Electric Avenue Beaverton, Oregon	MI 4-1609
Wayne M. Haglund	<u>New Add:</u> 2353 N. W. Kearney Portland, Oregon	<u>New Phone No.</u> CA 3-0232
Dr. and Mrs. Walter J. Brodie	320 W. 56th, Apt. 7-J New York 1, N. Y.	
Mr. & Mrs. Albert R. Kenney	Box 491 Oregon City, Oregon	OL 4-5022
Mr. & Mrs. S. E. Lovett	Rt. 2, Box 23 Lilburn, Georgia	
Mr. Emory Strong	2753 N. E. Wiberg Lane Portland 13, Oregon	AT 8-4605

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### HOW MT. TABOR'S CINDER CONE WAS SAVED FROM POSTERITY --

(Concluded from Oct. News Letter)

by

Charles Paul Keyser

Member American Society of Civil Engineers,  
Past Pres. American Institute of Park Executives  
and sometime Superintendent of Parks and Public  
Recreation in Portland, Oregon

It was not known that the City had bought an extinct volcano. The first sign of volcanics came to light in the confines of the newly acquired public property when a streak of volcanic cinders in situ was exposed in grading a sidehill cut in Mische's Interlink Drive. This discovery, about September 10, 1913, was at a point directly across the little valley from Mound Cinder-Ella, in the north slope of the ridge.

Mt. Tabor's Cinder Cone - cont'd

Perhaps this is as good a place as any to mention a hoax that was perpetrated in connection with the find. A park employee salted a sample of the cinders with some rich ore from Telluride, Colorado which he beat up and had assayed. When the assay showed nearly \$1,100 to the ton it caused considerable excitement -- almost a gold rush!

Further digging exposed cinders and scoria in the toe of the slope of the east base of Mound Cinderella. This led to prospecting the whole mound which revealed that the extra-ordinary formation was completely concealed under a blanket of fine grained soil in places no more than three feet in thickness.

We continued our excavations over the following several years until we had truncated the east half of the cinder cone leaving it standing with a vertical resection cut through the heart of the vent, and in the space from which the cinders and clinkers had been borrowed for use in constructing footpaths and rock walls in the various parks, an open air theatre with a sub-joined picnic space was constructed.

Before we stopped the mining operation Ira A. Williams of the Oregon Bureau of Mines and Geology ----- was called in to give a geologist's report and recommendation. Our excavations and test borings had disclosed Cinder-Ella's secrets, except we had not probed deeply enough to tell exactly her connection with a parent volcano that Williams believed had been overlaid by the mass of Satsop that forms the main mass of the upper hundred feet or more of the mountain. It is conceivable that means might have been found to verify his theoretical conclusion by probing with shaft and tunnels that he had in mind, if death had not brought an untimely end to his career. I should have been a hound like early-day California's Sutro who persisted and prevailed in his famous tunnel project to tap the Comstock. Hope still flickers that some scientific or civic influence will get this done.

At this time the unkind Superintendent of Parks was dogged and harried by landscape gardeners, homemakers and others who coveted the treasures of Cinder-Ella. When Portland became a great ship building city in the time of World War I, it was proposed to utilize the cinders as a light-weight aggregate for concrete hulls. Then there were those who muttered, not understanding how the taxpayers could be denied while minions of government were using the precious material prodigally in fixing up the Public's parks. There were conscientious objectors who deplored the desecration along with the scientific minded who feared we were going too far with our excavations. In the end this Horatio managed to escape with his hide and reputation for resistance.

However, it must be remembered that the Geological Society of the Oregon Country came forward when the time was right to protest consistently against any further removal, giving the support that was required to preserve our Cinder-Ella as a unique feature of the Park system of the City of Roses. It matters not at all who happened to be present at the accidental discovery of the "gold mine." Whosoever will unveil the inner secrets of Mt. Tabor's volcanic origin should be entitled to an accolade.

1. For a better conception of Mt. Tabor, (as well as Rocky Butte, Kelly Butte, and other neighboring buttes), reading of his "The Columbia River Gorge; its Geologic History Interpreted from the Columbia River Highway", published by the Oregon Bureau of Mines and Geology in 1916 and revised in 1923 is recommended. (Available in our Public Library.)

2. For story of dedication of cinder cone and placing of bronze tablet, see GSOC News Letter of September, 1952. Inscription reads as follows: "Through the fiery throat of this volcano exploded glowing cinders which, cooling, formed the ground on which you now stand. Younger than the hundreds of volcanos which poured out their lavas in the foothills of Mt. Hood, this cinder cone has withstood the ravages of time to become a part of Mt. Tabor. It now stands peacefully in the City of Roses, the only major city in the United States that has a volcano within its borders. This tablet was installed by the Geological Society of the Oregon Country August 8, 1952."

See also: Short Paper No. 7 - "Geologic History of the Portland area, 1942," by Ray C. Treasher, published by Oreg. Dept. of Geology and Mineral Industries."

Mt Tabor's Cinder Cone - cont'd

See also: The Oregonian, Oct 1 & 3 1913, Aug 19 & 25, 1929, Feb. 18, 1934; Aug. 19, 1938; Sept 1 1938. Letter by J D M Crockwell, Pres., S. Mt Tabor Improvement Ass'n. The Oregon Journal; Mar 19 & 20 1957; July 19, 1960

\* \* \* \* \*  
GSOCS VISIT THE EOCENE - -

On October 15 one of those fall days that makes everyone regret summer's passing and anticipate winter's arrival, a group of about 50 Gesocs and their friends descended on Dallas, Oregon for their monthly field trip outing. In spite of threatening weather earlier in the week the day was perfect for the occasion, warm and hazy but not really hot.

The group assembled at the Court House in Dallas at 10.00 in the morning after driving in from Portland and way points through some early morning fog. The autumn leaves were in their best colors with the dogwoods perhaps making the best show and stealing the show.

A brief "coffee session" was had and the group assembled on the Court House lawn for a briefing by the trip leaders Miss Margaret Steere, Geologist with the State Department of Geology and Mineral Industries, and Erv. Ewen, our GSOC field trip chairman. Miss Steere displayed an enlarged geologic map of the area and announced the trip objectives. The plan was to first visit the Oswego Portland Cement Company's limestone quarry southwest of Dallas. The group would then travel in a caravan by back roads to Helmick State Park on the Luckiamute River for lunch. After lunch the group would proceed to the Salem Hills area by way of Monmouth and Independence. Later, if time permitted, a visit would be made to the Eola Hills northwest of Salem. Leo (Traffic Director) Simon then presented a brief discussion of motorcade procedures and courtesies to be followed while traveling in caravan.

After a short period of questions, answers and general discussion we proceeded to the quarry site. The limestone is a marine deposit, of Eocene age, laid down about 50-55 million years ago. The group was met by the quarry foreman who passed out a few remarks on the history and scope of the operation and outlined the safety rules to be followed. We then went into the quarry proper where production is currently under way. The limestone is a massive dark grey material with lenses and layers of silty, sandy and carbonaceous inclusions. The rock is a natural cement rock and is ideally constituted for the purposes for which it is being mined. The lime portion is underlaid by a basal conglomerate consisting of well rounded pebbles of basalts and volcanics of the Siletz volcanic series (Our geologist said these extend to great depths.) The limestone beds lay in an almost horizontal attitude with a dip of about 5° to the east. The material appears to be in large part made up of altered shell material from ancient oyster reefs with many seams and pockets of calcitic material. Marine fossils are readily found, combined with fragments of wood and vegetable material. The group collected fossils of brachiopods, (lamp shells) gastropods (snails) pelecypods (clams), and crabs. A very outstanding find was made in the upper quarry by GSOC member Clarence Hanson. This fossil was a well preserved cone possibly pine or true fir about 6-8 inches long. The fossil is very complete and the dark carbon of the cone made a nice contrast to the grey limestone matrix.

After fossil hunting, picture taking and tire changing, the caravan moved to Helmick State Park for lunch. The route passed through a considerable area of sandstones and shales of contemporary age but time and appetites did not allow any stops to be made.

The group had a leisurely lunch at the park and Miss Steere commented on the area to be next visited. We then got under way and after some slight confusion found ourselves in the Salem Hills area north of Independence where the Eugene (Illahée) formation of Oligocene age is well exposed in railroad cuts along the western edge of the Salem Hills. The Eugene formation is slightly younger than the limestones, about 35 million years in age, and made up of tuffaceous sandstones and shales of marine origin and apparently represents a beach situation. The fossils are very abundant and the life forms represented are not too greatly different from those found on our ocean beaches today. The clams and snails were represented by many well preserved specimens, some still showing the original shell material, others being internal or external casts and molds. An interesting feature in many instances was the replacement of the original material by limonite and other iron oxides. Another noteworthy feature was the

Gesocs Visit Eocene - cont'd

presence of a series of calcareous lenses of very dense, hard, limy material derived from the shells. In these lenses the original shells were exceptionally well preserved and made specimens well worth the extra trouble of excavation in the harder material.

At about this point the group discovered that more time had passed than they realized, so the Eola Hills sites were out of the question, and the party agreed to break up and make their way home individually after a very successful and interesting field trip under ideal conditions.

- - A. R. Kenney

\* \* \* \* \*

THE JOHN DAY DAM - -

This dam is going in just east of The Dalles and will cost 418 million dollars. It will require eight years to build and will be equal to six dams the size of Bonneville, since at full capacity it will turn out three million kilowatts of power.

- - N. Y. Times

GLEN CANYON DAM

This new dam will span the Colorado River gorge where it is 1200 feet wide and 650 feet high. It will require about 5 million cubic yards of concrete of which 2 million yards have been placed. Completion will be in 1964.

-- Civil Engineering, August 1961

Earth's Lowest Crust

Woods Hole Oceanographic Institute has secured rock samples from the Puerto Rican Trench from three to four miles deep. These samples are thought to be the deepest rock layers ever obtained for study. Studies of them are being made.

The Buffalo Gold Mine - Granite, Oregon

This old mine has recently taken on a new lease of life. By driving to the 600 foot level, the constitution vein was picked up where its three foot width has been followed for 265 feet. It yields gold, silver, copper and zinc.

- - Mining World, October 1961

Regret - -

"Bird Creek Meadows on Mount Adams is no longer a sanctuary. It's merely another spot on a busy highway where the quiet is broken by the roar of motors and the sound of spinning tires. I have seen in my lifetime a wilderness of trails remade into a maze of roads. We Americans are becoming soft and flabby."

-- Justice William O. Douglas, in My Wilderness

Ancient Lava Flow Through Forest - -

Bend (Special) - - Liquid rock spilled from a vent high on the slope of Sugar Pine Butte, some 25 miles south of Bend, thousands of years ago and left a record of its movement through a pine forest.

That record is an extensive area of lava casts that formed around the standing trees.

The new lava cast "forest", known to pioneers of the upper Deschutes country as "blow holes", was rediscovered recently when Claude Vandevent, Deschutes rancher, led a small group on an exploration of the rugged area immediately west of Sugar Pine Butte in the southern Deschutes National Forest.

Many of the casts found in the Sugar Pine Butte area are spectacular, with rocky lips reaching up from the lava beds and with holes penetrating into the old river of rock that froze into jagged beds.

Ancient Lava Flow - cont'd

As the lava tumbled down the steep western slope of Sugar Pine Butte, it eddied around pines and froze into casts. As trees burned in the cooling lava, they left deep holes in the rock. Most of these holes widen out at the base conforming with the stump of the original trees.

\* \* \* \* \*

## OREGON'S 'THUNDEREGGS' INVITE GEOLOGIC STUDY

Bend (Special)

In the rugged, lonely range lands around Jefferson County's Pony Butte and the eroded cliffs facing the deep gorge of Trout Creek is a strange, earthy 'nest'.

It is a nest that holds thousands of thundereggs, those nodules which hold semi-precious minerals widely sought by collectors of gem material. It is a nest that has produced a considerable wealth of rare agate, fine opal and other minerals in the past three decades -- but it is a nest whose geologic story remains untold.

Earlier this week, as September shadows darkened old canyons of Central Oregon, we again viewed this rugged land of thundereggs in the high hills that lead up toward Ashwood. Dominating the old land of tilted rims, landslide topography, outcroppings of the John Day formation and juniper-fringed ridges is Pony Butte, massive and flat-capped.

Here in an area of about 20 square miles is land with a 40-million year story -- but it is a story that remains untold.

This area first attracted the attention of range riders many years ago. They noted peculiar rounded stones scattered over the hills. Riders broke some of the stones. They found within beautiful minerals of many colors.

Some 30 years ago, the area was "discovered" by gemstone collectors. They came from all parts of America. The main agate beds were on the Priday ranch, and throughout the country the gem material became known as the Priday agates. They are now found in virtually every collection and museum in the United States.

Fame of the Priday agate beds spread afar, but little attention to the intriguing geology of this area that has "mothered" some of America's finest agate-filled nodules, thundereggs, has been paid by earth scientists.

Area Worth Study

The Pony Butte country in the range country northeast of Madras is a region with a complicated, but interesting geologic story. Folded into the up-ended land is a saga dating millions of years back to Oregon's dawn age, the Eocene of Tertiary times.

There are many who believe that this land of the thundereggs in the ancient hills of Jefferson County should at least be worth a study for a master's thesis in geology.

On top of Clarno outcroppings are the colorful John Day beds, and atop of both are massive Columbia River lavas. There is evidence that in some areas, the Columbia lavas skidded over the soap-like John Day beds to create a spectacular landslide topography.

-- by Phil F. Brogan, Staff Correspondent,  
The Oregonian

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**COMMITTEE CHAIRMEN**

Program	- Mr. Leonard DeLano	Telephone	- Mrs. Leslie C. Davis
Field Trips	- Mr. Irving Ewen	Research	- Mr. Rudolph Erickson
Social	- Miss Rosalie Bronkema	Library	- Mrs. Agnes Miller
Display	- Mr. Murray Miller	Historian	- Mrs. Elizabeth Lloyd
Publicity	- Mrs. Emily Moltzner	Pub. Relations	- Mr. Clarence Phillips
Museum	- Mr. Lon Hancock	GSOC Libr. night	- Mr. Irving Ewen
	Luncheon - Mr. Leo Simon		

**Society 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 objectives.

Persons desiring to become members should contact the Secretary.

Regular annual dues (single or family memberships) are \$5 for residents of Multnomah and adjacent counties; \$2.50 for others; and \$2 for Junior Members. Make remittances payable to the GEOLOGICAL SOCIETY OF THE OREGON COUNTRY.

**Society Activities**  
(See "Calendar of the Month")

**Evening Meetings:** Formal lectures or informal round-table discussions on geological subjects, on the second and fourth Fridays of each month at Public Library Hall, S. W. 10th Avenue and Yamhill.

**Field Trips:** Usually one field trip is scheduled for each month.

**Library Night:** Once a month. Lewis and Clark College, Biology Bldg.

**Luncheons:** Informal luncheons, with geological motif, each Thursday noon in Room B, Chamber of Commerce Building, S. W. 5th Ave. and Taylor St. \$1.00 per plate.

**Publication:** The Geological News Letter, issued once each month, is the official publication.

CALENDAR

Buffet luncheon every Thursday noon, second floor, Chamber of Commerce, 824 S. W. 5th Ave. All you can eat -- \$1.25.

Friday  
December 8 MEETING. Informal talk by Dr. Francis G. Gilchrist, Professor of Biology at Lewis and Clark College, will describe "A Cross Section of the United States, Geological and Otherwise" as seen by Mrs. Gilchrist and himself in extensive traveling. Profusely illustrated with their own colored slides. Don't miss this!  
7:30 p. m. at Central Library, 801 S. W. 10th Ave.

Because of Christmas Holiday, there will be no library Night at Lewis and Clark College Tuesday, Dec. 19, no meeting Friday Dec. 22, nor a field trip in December. (Look for announcement on Dec. 8.)

Merry Christmas, and start planning for an exciting and educational New Year of geological endeavor and social contact with fellow members.

BRING YOUR ROSTER UP TO DATE!

New Members Welcomed:

Mrs. Dale (Vera S.) Hinkle	9911 S. E. 82nd (66)	777-1839
Mr. & Mrs. Bob Hungerford & children-Marian, Christie, Robby, Eric, John, Nancy & Paul	16333 S. E. Dagmar Rd. (22)	BE 2-1137 OL 4-5810 (Home)
Mr. & Mrs. Burt Michel	620 S. W. Grant St.	CA 8-2533

Changes:

Mr. & Mrs. Albert R. Kenney	Tel. Nos. -	OL 6-2696 OL 4-5022(Home)
Mr. & Mrs. John K. Long	"	Midway 8-1053
Miss Marguerite Kerr	903 N. Alberta (17)	AT 8-4463

NEWS OF MEMBERS

"The Brownies" - - On Friday, November 24, we had the pleasure of a visit from Mr. and Mrs. Franklin Brown and family of Seattle. Shall we confess how much we miss them?

Mr. and Mrs. Ford Wilson of Anchorage, Alaska were welcome visitors at our luncheon on November 16. Mr. Wilson is a former president of G. S. O. C. and hopes to return to this city in the near future.

Dr. Arthur C. Jones (Charter Member)

"Kicked Out and Up" - - -

Thus the Oregonian of Sunday, October 29, began their salute to our genial Dr. Jones. For thirteen years the Rehabilitation Institute of Oregon has had Dr. Jones as its part-time director. He has given literally years of his time to the work in addition to his private practice. R. I. O. with Dr. V. E. Mikkelson now as full-time director puts the work on a firm footing in which Dr. Jones played a leading role. Both Dr. and Mrs. Jones are delighted.

\* \* \* \* \*



PORTLAND EXTENSION CENTER SCHEDULES NEW CLASS

Portland Extension Center has scheduled Course ChE405, Reading and Conference: Assaying (OSU), for the winter term at Portland State College. It is an evening class and is planned to cover the fundamentals of assaying and geochemical prospecting which should be of interest to chemistry students, geologists, prospectors, mining engineers and others. The enrollment is limited to 25. Registration only by application made to the instructor after December 11. The instructor may be reached at BE 5-0043 daily after 5:30 P. M.

\* \* \* \* \*

BIRD'S EYE VIEW

The GSOC owes the November field trip in its entirety -- certainly close to the shortest on record -- to the warm-hearted hospitality of Leonard and Emily Delano. For it was at their compact and efficient photographic plant on S. E. Eleventh Avenue that the trippers congregated on the afternoon of Sunday the 19th for a two-hour seminar on aerial cartography.

The project for the afternoon was an explanation and demonstration of the methods of making an accurate and detailed map of any desired scale; showing culture, drainage, topography, and any other physical features such as forested areas, snowfields and glaciers, special geological features, etc., as desired; together with adequate horizontal control (triangulation and traverse stations and coordinated landmarks) and vertical control (elevations); for the practical use of engineers, foresters, agriculturalists and sundry others.

It is significant to mention here that in the intricate evolution of the modern aerial camera, one of the many ingenious features that have been incorporated therein is a place to sit, and sitting on one of the Company's K-17s -- we think it was a K-17 -- Leonard briefed the semi-circle of GSOCers in front of him on some of the many problems confronting the aerial cartographer.

Taking a hypothetical contract to map an imaginary area for a fanciful irrigation project, we quickly -- for time was the essence -- identified on the ground the area to be mapped and marked with paint or lime enough horizontal control points clearly enough to show in the photographs. At the same time we obtained the elevations of an adequate number of sufficiently distributed, photo-identifiable points to control our map vertically.

While doing this, we have been studying the whole situation generally to decide, among other things, just which camera, with which focal length, should be used at what flight elevation, to meet the contract specifications (scale, contour interval, etc.) with the best economy for us (film, flying time, subsequent labor in compilation, etc.), for we are not in this business for just our health, you know.

This done, we made a flight map for the guidance of the photo-flight crew on a suitable existing map of smaller scale by drawing parallel flight lines across the area to be photographed at intervals carefully computed to give adequate side-lap between flight strips. We must have plenty of overlap for stereoscopic requirements later on.

We now took off in the Company's trim Cessna 180 photographic aircraft, and arriving at the flight area we made a dry run over the first flight line to check wind conditions and familiarize ourselves with the terrain. Because of a cross-wind from the west we had to correct for drift by heading slightly into it, which introduced a certain amount of crab; that is, to follow the flight-line, we had to fly slaunchwise. Roll over Mr. Webster; you'll feel better. Another problem confronting our pilot -- who turned out to be Ruth Prentiss -- was that of changing altitude so as to keep the camera at an average of 12,000 feet above the basin-shaped terrain rather than a constant altitude above sea level. Thus, a three dimensional model of our flight pattern would have shown it to be dished. Clever little ideas like this make things much simpler later on in stereophotogrammetry.

Beginning our first flight-line, being careful to keep the camera level to avoid unnecessary tilt, and watching the view-finder intently, Emily -- Emily Moltzner was our photographer -- began to expose our film every time a groundmark at the top of the view-finder moved to the bottom. Simultaneously, she had to find a new one at the top. The view-finder was set to give us about 55% overlap on our exposures. Everything went like a dream, and negotiating the last flight strip successfully -- Ruth demonstrated a remarkable aptitude for photo-flying -- we came in for a landing just in time for coffee and cakes that Leonard's Emily had thoughtfully compiled while we were aloft.

Bird's Eye View - cont'd

After our coffee break Leonard took us upstairs and left us in the capable hands of Mr. Roy Davidson, a photogrammetrist of note. Here, we found to our surprise, that our film had been developed, numbered at the top, printed, and the diapositives had been made. We put the prints together in their numerical order, fastening each in its proper position in its own flight-line, then joining all the flight strips together to make a rough mosaic. This was our photo index, which we rephotographed at a reduced scale.

Roy then showed us a large plastic sheet on which the map was to be drawn. On this sheet, plotted to map scale, were all of the horizontal control points and elevations that we had premarked in the field at the beginning of the job. Remember? These plotted points gave us a rigid framework on which to construct our map.

Then Roy took us and the plastic sheet into the room that had the Kelch Plotter -- a stereophotogrammetric device of considerable versatility -- and unfolded the last mystery; how you get the definite and accurate information you want from the photograph onto the plastic sheet. He put the sheet on the table under the Plotter and took a pair of diapositives (transparent prints on glass) and put them in the machine's projectors, turned on the lights -- green for one, red for the other, and then, putting on the red and green glasses, we saw the model on the platen of the tracing table in relief, or in the third dimension. The projectors were then adjusted so that the marked control points on the photographic model coincided with the same plotted points on the plastic sheet. Now that our model is in scale, we move the tracing table so that the floating mark-- a little white dot in the middle of the platen -- follows the ground surface. A pencil on the under side of the tracing table draws the contour as we move the table. If we get too low, the floating mark digs into the ground; if we get too high, it floats in space. So we just keep it touching the surface and move it along, drawing our contour. When we get it drawn, we turn a vernier that moves it up or down to the next contour, and we draw that one, and so on.

The model is the image of the overlapping area of the two diapositives in coincidence. We can only use areas of overlap. That is why we need so much of it.

It was getting late, and we had to leave Roy to finish the job. When he gets it all traced and inked and finished, he'll get prints and send them to the people, who supposedly will reciprocate with a large check.

As we left, a beautiful 8 x 10 aerial oblique showing fossil bearing areas in the Clarno region was given to each GSOC cartographer.

Your correspondent is hopeful that he will be forgiven for taking liberties with both the field trip and the methods herein described; it just can't be done in the space available. But factual reporting seemed less important than trying to clarify in our minds what we saw and heard on that Sunday afternoon with the Delanos. All of the world's serious mapping is now done by photogrammetric methods.

Just as important, perhaps, is our new relationship to the Delanos. Leonard, who is our current program chairman, heads two companies; Western Mapping Company, that does just what we've been talking about, and Delano Photographics, that does everything else. Photographically, that is. Everything from filing systems to bathing beauties. We have just begun to get a glimmering of the scope of their work, and the skills they must have to do it, and with it a new interest and respect.

- - - William M. Freer

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THIS SPACE AGE!

Orrin Stanley whose itching foot annually overcomes his fondness for his fireside, combined a bit of travel by water with a cross-country trip by automobile this season. Having viewed some attractive color slides taken by Mr. and Mrs. Harry Jennison, recording a stern-wheel steamer trip from Cincinnati to New Orleans and return, he decided to view the scenes with his own eyes, so he wrote to the Green Line Steamers for details of their trips, resulting in the sending of a check for reservation on the Steamer Delta Queen for the trip from Cincinnati to St. Paul and return and making preparations for the voyage.

This Space Age - cont'd

Since he scorns such methods of transportation as railroads or airplanes he filled the tank of his 1950 Chrysler with gasoline, and the rest of the car with un-needed junk which he claims gives him a perfect excuse for not picking up hitch-hikers; totally ignoring the extra wear and tear on the vehicle.

He got to Cincinnati September 5th, registered at the Gateway Motel in Covington, Kentucky, just across the Ohio River from Cincinnati and explored the neighborhood for three days before getting his luggage into the narrow cell, dignified in the advertising literature as a state-room, and watching the roust-about's loosen the lines that held the Delta Queen to the dock, and the voyage to St. Paul was begun.

The voyage down the Ohio River and up the Mississippi to St. Paul was interrupted by passing through many locks which the Army Engineers have built to facilitate navigation. They seemed to interfere with it, but perhaps that is all in the point of view.

The meals were excellent. In fact, the management announced that a gain of five pounds on the round trip was guaranteed to each passenger.

The first morning out of home port, the passengers were surprised to find that, due to a dense fog, the steamer was tied to a tree on the Indiana shore.

Most of the shoreline is protected by various kinds of pavement or more properly speaking, revetment, some concrete, some asphalt and at other places, loose rock. High concrete walls on top of earth levees were a surprise, since it seemed improbable that the water would ever rise to their bases.

Stops were made at several of the towns, and tours by bus or private cars were available.

Stanley was particularly interested in passing Muscatine, Iowa, near the farm on which he was born several years previous to this trip. He was also interested in the many types of bridges; several of which he had previously driven over on previous cross-country trips.

The confluence of the Mississippi water with the clearer water of the Ohio River was an interesting sight from the prow of the steamer. It was announced that if a person made a wish and threw a penny into the water at just the edge of the muddy flow, he would be sure to have the wish come true.

On the return to Cincinnati Mr. Stanley drove around the north edge of Kentucky near Covington and explored some interesting fossil beds in the limestone cliffs.

The trip down the Ohio River and then down the Mississippi to New Orleans was interesting, even though parts had been seen previously. Below Cairo, Illinois there were no locks, and the levees in many places were far back from the present edge of the water. Here the banks were of earth instead of limestone as were the shores of the Ohio.

The cities that Mr. Stanley appears to remember more clearly were Hannibal, Missouri, Mark Twain's birthplace; Nauvoo, Illinois, the stopping place of the Mormons on their trek to the west and New Orleans, from which port a bus trip was taken across the Lake Ponchartrain bridge and farther east to the home of Jefferson Davis. Here the group was allowed to inspect several of the mansions of old-time plantation owners which are preserved in their old-time condition.

Stanley recommends the trip to anyone who feels fed-up with the static atmosphere of Portland, and feels that his wad of currency is making too big a bulge in his freshly pressed suit.

Mr. Stanley returned home through Tulsa, Oklahoma and El Paso, Texas where he called on college-mates of the early nineties. He also stopped in Phoenix, Arizona to renew his acquaintance with his two great-grandchildren.

Miles driven-6750, but this was nothing at all, for next morning after his return he was in his usual chair at our Thursday luncheon as chipper as ever.

We extend a salute to our oldest member, Orrin Stanley.

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Rare Minerals-

Columbium is now being produced near Montreal, Canada whereas our supply has been from Nigeria, Africa. Reserves of 62 million tons are reported by the St. Lawrence & Anaconda of Canada, owners of the property.

Here and There - - -

## HOW THE SKY DROVE THE LAND FROM THE BOTTOM OF THE SEA

A New Theory of the Earth's Evolution

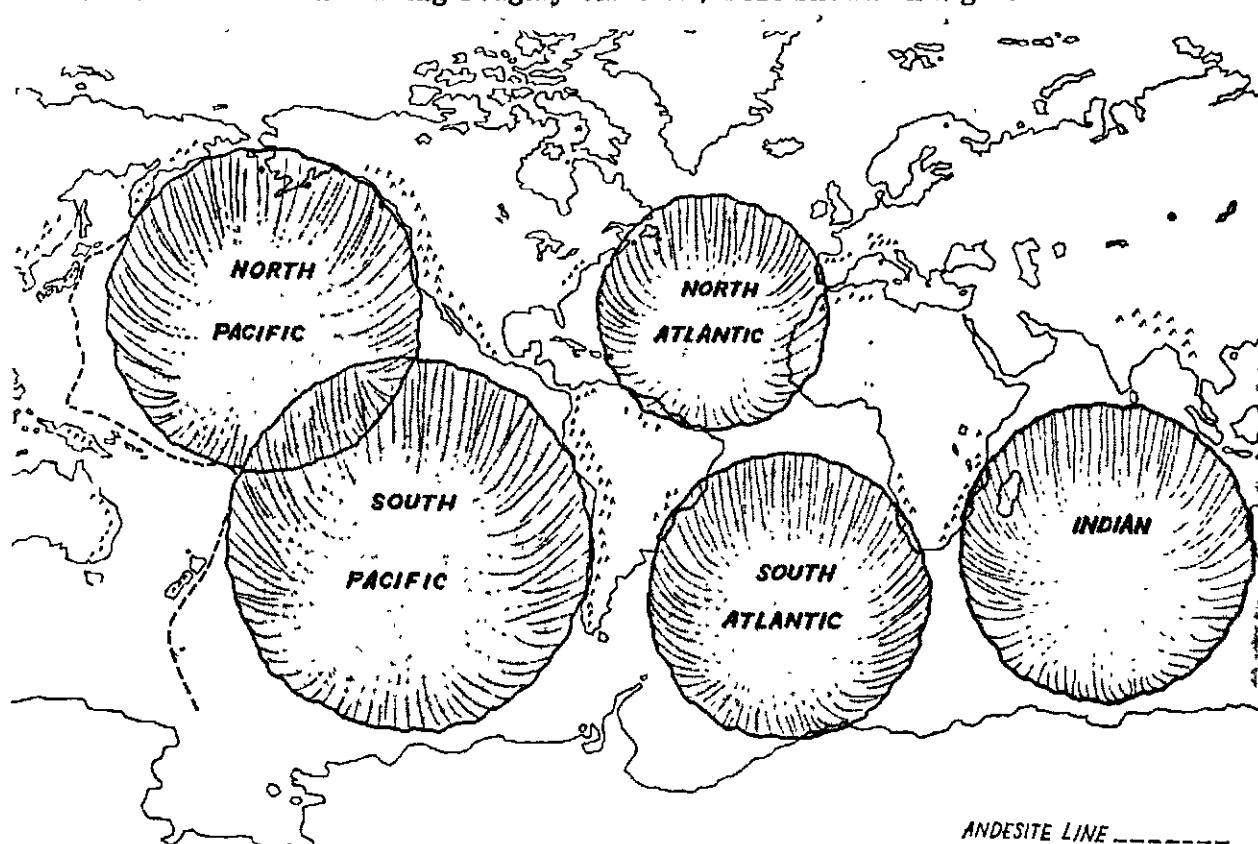
By John J. Gilvarry (1)

The origin of the ocean basins and the continents is one of the oldest mysteries in the mind of man. No one has yet found a convincing explanation. Dr. Gilvarry's dissertation is most intriguing and may contain elements of the final answer.

Three theories have heretofore been advanced: (1) The sun's gravitational pull caused a bulge in the earth. As the earth turned a great chunk was pulled loose, drifted into space and became our moon, while the hole left became the Pacific Ocean. (2) The land was originally in one piece. The continents finally broke up somewhat as ice floes do. (3) Originally, the earth was like a mass of hot jelly churning beneath a thin cover of water by hot connection currents. In time a scum formed which floated to the top and solidified into the land.

The most characteristic feature of an ocean basin was found some 10 years ago by a Yugoslavian scientist Andrija Mohorovicic. While analyzing earthquakes, he discovered that the rock strata, some twenty miles beneath the continents, changed sharply from light to heavy. As accurate seismological observations were extended to the oceans, it was found that this change in rock strata, which has been named the Mohorovicic Discontinuity, is only about three miles beneath the ocean floors. This means that the rocks of this discontinuity turn sharply upward, passing seaward under the edges of the continents.

There is also a rock discontinuity peculiar to the Pacific Ocean. Running down the Asian Eastern margin south westward to north of Australia is one called the Andesite line. On the landward side of this line the rocks are continental in type. If an east-west line, roughly coinciding with the Andesite line, is prolonged to the coast of South America, the Pacific can be divided into two oceans. We may also divide the Atlantic into two by joining their nearest points. We thus have five major oceans, North and South Pacific, North and South Atlantic and Indian. Each being roughly circular, best shown on a globe.



(1) Dr. Gilvarry was born at Manchester, England, July 18, 1917. He came to the United States when he was seven years old. He is an astrophysicist at present connected with General Dynamics Corporation, Convair Division, San Diego. This article appears in the Saturday Review, Nov. 4, 1961. It was briefed by J. C. Stevens.

How the Sky Drove the Land from the Bottom of the Sea - cont'd.

Two other features are common to all five oceans. (1) The floors of the oceans are well below the mean level of the continents and (2) the continental shelves end oceanwise in precipitous escarpments.

Most astronomers agree that the galaxies, and among them our earth, were and still are being formed by accretions of cosmic debris. Their whirling and gradually solidifying bodies would sometimes pull in masses larger than the planet could readily digest. Such large masses, striking the young earth with explosive force, would disintegrate and leave gaping craters. In this manner, each of the five ocean basins came into existence in the Pre-Cambrian period. Originally the Mohorovicic Discontinuity and the surface of the land mass above it were level and water covered the earth to a uniform depth of about two miles. When the giant meteorite hit and the crater was formed, the Mohorovicic stratum was greatly depressed and a rim was formed about twice as high as Mt. Everest (11 miles) above the formerly level land surface.

Thereafter the geological pattern could no longer remain in balance. The roots of the rim sank depressing the discontinuity while the crater floor relieved of the rim weight rose until equilibrium was restored, leaving the crater at roughly the level of the present ocean bed and the rim at the present land level.

Thus the disparity of level of the Mohorovicic Discontinuity under oceans and continents becomes an integral part of this theory.

This isostatic readjustment is precisely that which must be invoked to explain the Vredefort ring in the Orange Free State of South Africa. This is the largest meteoritic crater in the present earth's surface -- seventy-five miles in diameter. There is also the large Meteor Crater in Arizona, a gaping hole three-quarters of a mile across. Invariably the bottom of the pit lies below that of the surrounding land. This alone rules out all such as volcanic craters. The sure identification of meteoritic craters lies in finding meteoritic material (iron, nickel, etc.) in its vicinity.

It must be appreciated that a meteoritic crater is not formed by simple impact. Bodies forming such craters are so large that they suffer practically no loss of speed and mass traversing our atmosphere. The velocities involved are so high (over seven miles per second) and the energy of motion so high that the meteorite and the formation below which it hits is transformed into a hot dense gas at extreme temperature and pressure far above what any solid material can withstand. The subsequent explosive expansion of this gas produces the crater. Thus, meteoritic craters are circular irrespective of the angle of impact.

Up to this point, I have shown that the following characteristics of ocean basins can be explained by hypothesizing that the craters were formed by giant meteorites crashing into the earth during its early history.

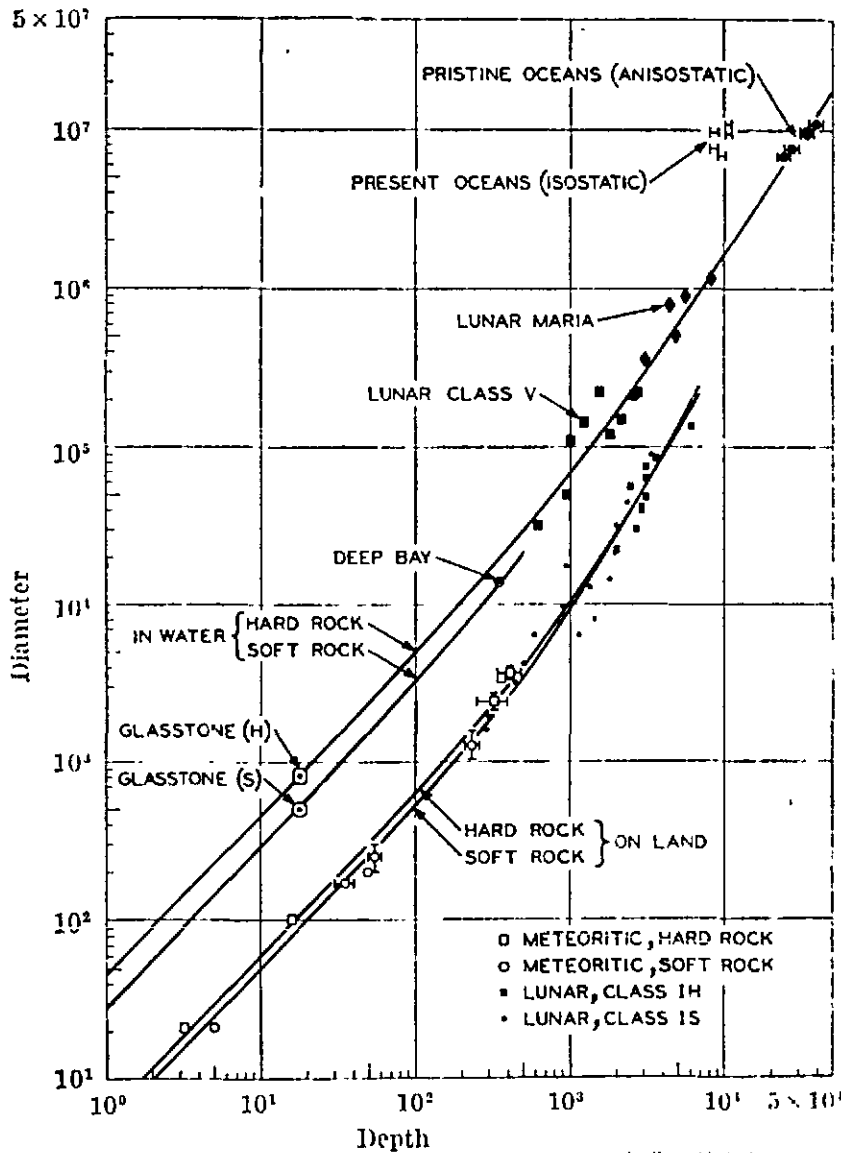
- (1) The floors of the oceans are lower than the mean height of the land.
- (2) The ocean floors contain very little of the light crustal rock that makes up most of the continents.
- (3) The Mohorovicic Discontinuity is closer to the floor of the oceans than the bottom of the earth's crust under the continents.
- (4) The ocean basins are circular.
- (5) The walls of the ocean basins are precipitous escarpments.

We now turn to the crater of the moon of which some 30,000 have been detected. That all of them were formed by meteorites and not by volcanic action is now generally conceded. In general, the depth of lunar craters is about one-fifth of their diameter; the same is not only true of meteoritic craters on the earth, but also of craters caused by giant explosions of artillery shells and bombs and by accidental chemical explosions. However, craters formed under water have a lesser ratio of depth to diameter.

Accompanying is a diagram giving these ratios for meteoritic craters on the earth and on the moon. For some lunar craters this ratio is quite low, an indication that they were formed by meteorites passing through water. It is quite certain that in our moon's youth it had both water and an atmosphere, and doubtless, life. (See P. 74.)

Gas molecules move at higher speeds the higher the temperature. In the upper layers of our atmosphere the temperatures are far above those at ground level. Thus some gas molecules in these heights attain velocities exceeding the escape velocity determined by the

How the Sky Drove the Land from the Bottom of the Sea - cont'd



Graph by author originally published in Science.

Above is mathematical evidence of kinship of explosively formed craters on earth and on the moon. Dimensions are given in meters. In writing out numbers for calculation, add to the numeral one whatever number of zeros is indicated by the power given.

gravitational attraction of the earth -- the velocity a rocket must attain to escape. Thus every planet tends to lost its atmosphere in time. Computations made by Sir James Jeans showed that none of the lighter gases -- water vapor, nitrogen or oxygen -- could have been retained for long by the moon because of its relatively small mass. Both water and atmosphere are of secondary origin, formed by exudation from the planet's surface layers, the total amounts being proportional to the masses of the parent bodies.

The lunar oceans may well have had an average depth of about a mile at one time. The time for escape of its ocean waters and atmosphere has been calculated at about three billion years--two-thirds of the earth's life time.

With the presence of water on the youthful moon, the low ratios of depths to diameters of its meteoritic craters are readily explained, while the correspondence between earthly and lunar craters formed by the impact of meteorites is quite remarkably shown by the depth-diameter ratio chart.

If the Mohole project (National Geographic Nov. 1960) to bring up samples for the entire thickness of the earth's crust is success-

fully concluded, our knowledge of planetary evolution will be greatly enhanced.

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HERE AND THERE - -

Under Mont Blanc by Super Highway -

In 1964 you may drive under 15,000 foot Mont Blanc and save 125 miles going from Paris to Rome. French and Italian crews from north and south are driving toward each other to make the world's longest and deepest vehicular tunnel, seven and one-half miles, through the mountain. The cost is estimated at 40 million.

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LAVA TUNNELS PROVIDE NATURAL ATOMIC HAVEN -By Phil F. Brogan

BEND (Special) -- Volcanic forces that made Oregon a restless region a few thousand years back provided in the upper Deschutes area shelters which may prove of vast value if atomic bombs drop from the sky.

These shelters are lava river tunnels, several of them more than a mile in length and large enough to accommodate a diesel engine drawing scores of box cars.

But, spelunkers agree, the Deschutes caves have their disadvantages. They are chilly. Aside from the ice caverns, they are waterless. And, spelunkers note, the air conditioning system nature provided for the lava river tunnels is unique.

In virtually all the lava tubes, air blows out in the warm months of the year. During this period the lava conduits would be impervious to fallout. In a few of the caverns, such as Wind Cave, the air on a hot day comes out with such velocity that a hat tossed into the opening is carried aloft in swirling currents.

Lava Tunnels Inhale

But in the winter months, the lava tunnels "inhale." Cold air sinks into the caves and possibly would carry into the dark chambers dangerous fallout.

If there are any Oregonians who plan to seek shelter in a Deschutes cavern should an atomic bomb fall on a metropolitan center, they should go into the natural shelters warmly clothed, even in mid-summer. The mid-summer temperature in Lava River Tunnel, site of a state park on U. S. Highway 97 south of Bend, is around 42 degrees.

Oregonians accustomed to the comforts of the present era might not fare so well in the tunnels through which rivers of lava flowed long ago. But prehistoric tribesmen of interior Oregon apparently found the cavern abodes comfortable.

Indian Relics Found

In a "skylight" cavern near Bend, there is evidence that Indians made their homes for many years. Probably use of the cave was seasonal, when deer and antelope were in the area and water could be obtained by melting snow.

-- The Oregonian

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INDIA OPENS WATER LINES  
40,000 Miles of Canals

Jaipur, India -

India's vast desert bowl of Rajasthan, began receiving irrigation water Wednesday to make its dreary wastes bloom into fertile fields.

The waters gushed forth into the sandy expanse parched since the beginning of history as acting President Sarvapalli Radhakrishnan pressed a button at a colorful ceremony.

When completed at a cost of \$426.3 million, the world's largest network of canals and field channels -- 40,000 miles -- will open up 10,000 sparsely inhabited square miles to agriculture.

Nearly 20,000 laborers will toil for the next 15 years to remove 11 billion cubic feet of sand to make way for the canals.

Two million people will be settled in the vast area, where 3.6 million acres of desert will be irrigated. The government expects the land to yield 2.5 million tons of grain, worth \$195 million at present rates.

-- The Oregonian

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Conservation -

A good piece of lumber will be a museum piece in another generation at the rate of present consumption. Moreover, we will be cutting timber then as we now cut hay, owing to its size.

-- Ralph Mason

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Note: This Index was compiled through the courtesy of Mr. Dwight Henderson.

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